SHIRE OF GINGIN

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MINUTES

Ordinary Council Meeting

20 October 2026

CONFIRMATION OF MINUTES

These Minutes have been CONFIRMED by Council as the official record for the Shire of Gingin's Ordinary Council Meeting held on 20 October 2026.

_____
Councillor L Balcombe
PRESIDING MEMBER

Date of Confirmation: _____

DISCLAIMER

Members of the public are advised that Council agendas, recommendations, minutes and resolutions are subject to confirmation by Council and therefore, prior to relying on them, one should refer to the subsequent meeting of Council with respect to their accuracy.

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Applicants and other interested parties should refrain from taking any action until such time as written advice is received confirming Council's decision with respect to any particular issue.

ACKNOWLEDGEMENT OF COUNTRY

The Shire of Gingin acknowledges the Yued people, the traditional owners of Yued Boodja. The Shire pays respect to Yued Elders past and present, and acknowledges emerging Yued leaders. We extend this respect to all Aboriginal people. The Shire recognises the living, dynamic culture of the Yued people and the unique contribution they make to the Gingin region on Yued Boodja.

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ORDER OF BUSINESS

1 DECLARATION OF OPENING

The Presiding Member declared the meeting open at 3:00 pm and welcomed all in attendance.

2 RECORD OF ATTENDANCE, APOLOGIES AND LEAVE OF ABSENCE

2.1 ATTENDANCE

Councillors – L Balcombe (President/Presiding Member), F Peczka (Deputy President), C Hyne, R Kestel, A Vis, D Wilkie and N Woods.

Staff – J Bayliss (Temporary Chief Executive Officer), L Parola (Acting Executive Manager Corporate and Community Services), M Close (Temporary Executive Manager Regulatory and Development Services), E Mackey (Manager Governance), Y Moorby (Governance Support Officer/Minute Officer) and B Dorloff (Executive Assistant to Executive Manager Operations and Assets).

Observer - Dr S Silcox (Monitor).

Gallery – There were 13 members of the public present in the Gallery.

2.2 APOLOGIES

Councillors – L Stewart and J Weeks

2.3 LEAVE OF ABSENCE

Nil

3 DISCLOSURES OF INTEREST

3.1 Cr Craig Hyne

Item: 13.1 Scheme Amendment No. 31 - lot 83 Cheriton Road, Gingin - Initiation for Advertising
Interest: Financial
Reason: My real estate business has a contract with the developer of Country Heights Estate for the sale of developed lots. There may be a future financial benefit to me from the approval of this application.

Item: 13.2 Lancelin South Structure Plan (Amendment 2026)
Interest: Financial
Reason: My real estate business has a contract with the developer of Lancelin South for the sale of developed lots. There may be a future financial benefit to me from the approval of this application.

4 PUBLIC QUESTION TIME

The Presiding Member declared Public Question Time open at 3:05 pm.

4.1 RESPONSES TO PUBLIC QUESTIONS PREVIOUSLY TAKEN ON NOTICE

4.2.1 Martin Aldridge – Lennards Brook

Consideration of Livestreaming Council Meetings

Q3b Could clarification be provided in due course, as my question was not about the minutes, but the livestreaming, the recording and the publishing of the recording of the Council meeting.

Response from the Presiding Member

The Administration is currently exploring options for livestreaming Council meetings, recording proceedings and publishing recordings. These matters are being considered as part of a broader project, with options to be presented to Council in due course for consideration and direction.

4.2.3 Geoffrey Owen – Ledge Point

Memorial Chair – Memorial Policy

Q1c. Why does it have to be a tree of life? There are many elderly aged people that can't carry their chairs to the beach. The Shire has built the huts, why doesn't the Shire put something there that supports people sitting and enjoying the serenity of Ledge Point?

Response from the Presiding Member

The Shire is currently developing a Memorial Policy, with the Tree of Life concept being explored as part of this process. Whether this concept is ultimately supported will be a matter for Council's consideration. The provision of seating and accessible amenities at Ledge Point may be considered separately through the Shire's planning and budgeting processes

4.2.7 Alf Ricci – Karakin

Ledge Point Sporting Facilities

Q1. Back in 2020, there was a coastal sporting facility. Meetings went on until 2023. Is this going to re-occur and carry on or is it different?

Response from the Presiding Member

The Shire's Corporate Business Plan is currently under review. The Upper Coastal Sporting Complex will be considered as part of this process, including through workshops and discussions with Council. The project's future status and any further progression will be subject to the outcome of this review and Council's consideration.

4.2 PUBLIC QUESTIONS

4.2.1 Martin Aldridge – Lennards Brooke

Mr Aldridge provided questions for the meeting but was not present to ask them. The responses will be provided administratively.

4.2.2 Megan Kolbe – Gabbadah

Terms of Reference Place-Based Advisory Groups

Q1. With regard to Item 11.4 on the agenda, the Terms of Reference Place-Based Advisory Groups, will members be required to sign a confidentiality agreement?

Response by the Temporary CEO

Potentially.

Q2. Will meeting agendas and minutes be produced and will these be available to the public?

Response by the Temporary CEO

Taken on notice.

Q3. What are the consequences of disclosing confidential information from these meetings?

Response by the Temporary CEO

Taken on notice.

The Presiding Member declared Public Question time closed at 3:09 pm

5 PETITIONS

Nil

6 APPLICATIONS FOR LEAVE OF ABSENCE

Nil

7 CONFIRMATION OF MINUTES

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Kestel SECONDED: Councillor Woods

That Council confirm the Minutes of the Ordinary Council Meeting held on 15 September 2026 and Special Council Meeting held on 21 September 2026 as a true and accurate record.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*
AGAINST: *Nil*

8 ANNOUNCEMENTS BY THE PRESIDING MEMBER

Deputations

Prior to the commencement of the meeting, two deputations were received as follows:

Speaker: Simon Burnell (CLE); Shemee Belcher (VIMG); and Aaron Smith (VIMG)
Topic: Item 13.2 Lancelin South Structure Plan (Amendment 2026)

Speaker: Neil Teo (Dynamic Planning)
Topic: Item 13.1 Scheme Amendment No. 31 – Lot 83 Cheriton Road, Gingin – Initiation for Advertising

Official Activities

16-18 September Attended WALGA convention including the Mayors and Presidents meeting,
Heads of Table Lunch,
Networking sundowner and the WALGA AGM.

21 September	Attended Special Council Meeting to appoint new CEO to start in the New Year.
22 September	Attended the WA Local Government Grants Commission public hearing with Cr Hyne, Cr Kestel and Mr Bayliss.
22 September	Officiated at Citizenship Ceremony.
24 September	Attended the Annual Governor's Chaplaincy Awards at Government House.
27 September	Attended the Neergabby Fireworks an excellent event run by the Neergabby Community Association.
6 October	Met with Governance Manager and Temporary CEO.
16 October	Met with Temporary CEO, Governance Manager and Dr Shayne Silcox re running of Council meetings.
20 October	Met with Temporary CEO and Governance Manager.

9 UNRESOLVED BUSINESS FROM PREVIOUS MEETINGS

Nil

10 QUESTIONS BY MEMBERS OF WHICH DUE NOTICE HAS BEEN GIVEN

Nil

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Balcombe SECONDED: Councillor Vis

That Council agree to amend the order of business for the meeting by considering Section 13 as the first order of business.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

In accordance with Council's resolution, Items 13.1, 13.2 and 13.3 were brought forward and considered as the first, second and third items of business. See pages 132 to 800, 801 to 1238 and 1239 to 1362.

Item 11.1 was considered after Item 13.3.

11 REPORTS - OFFICE OF THE CEO

11.1 LOCAL EMERGENCY MANAGEMENT COMMITTEE TERMS OF REFERENCE

File	EMS/22
Author	Caitlin Skewes – Administration Support Officer
Reporting Officer	James Bayliss - Temporary Chief Executive Officer
Refer	Nil
Appendices	1. Amended Terms of Reference [**11.1.1** - 7 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

For Council to consider the adoption of the amended Terms of Reference (TOR) for the Shire of Gingin Local Emergency Management Committee (LEMC) so that it aligns with the LEMC Handbook, *Emergency Management Act 2005* and relevant membership base.

BACKGROUND

Pursuant to s.38(1) of the *Emergency Management Act 2005*, a local government is to establish a LEMC for the district. The State Emergency Management Committee's LEMC Handbook, which came into effect in October 2023, provides a template for local governments to create TOR for their LEMC.

At the LEMC meeting on 13 May 2025, Item 5.3 included a discussion regarding updating of the LEMC membership base. LEMC members discussed the membership list and provided feedback on membership additions and removals.

COMMENT

The proposed amended TOR have been updated in accordance with the LEMC Handbook (2023), feedback from the LEMC, and advice from the District Emergency Management Advisor (DEMA). They were endorsed by Local Emergency Management Committee at its 12 August 2026 meeting, with the LEMC recommending as follows:

That the Committee recommends that Council agree to amend the Terms of Reference of the Shire of Gingin Local Emergency Management Committee to the attached, subject to:

1. *New members providing the Executive Officer with written confirmation that they wish to participate in the LEMC.*

2. *The removal of any members who confirm to the Executive Officer that they do not wish to participate in the LEMC.*

The changes provide improved alignment with best practices within the current emergency management framework. The TOR have been restructured to provide clearer guidance regarding roles, procedures, objectives and confidentiality.

New members have been contacted and have confirmed their interest in becoming a LEMC member. No requests to be removed as a member have been received by the Executive Officer.

The proposed TOR are provided as an **Appendix**.

RISK IMPLICATIONS

Nil

STATUTORY/LOCAL LAW IMPLICATIONS

Emergency Management Act 2005
Part 3 – Local arrangements
Division 1 – Local emergency authorities
Section 38 – Local emergency management committees

POLICY IMPLICATIONS

State Emergency Management Policy 2.5 – Emergency Management for Local Government.

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Nil

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Peczka SECONDED: Councillor Vis

That Council adopt the amended Terms of Reference for the Local Emergency Management Committee.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

TERMS OF REFERENCE

LOCAL EMERGENCY MANAGEMENT COMMITTEE

October 2026

NAME:	Local Emergency Management Committee
AUTHORITY:	1. Legislative Authority The LEMC is established under section 38 of the Emergency Management Act 2005 and is not a committee established under the Local Government Act 1995. Meetings will be conducted in accordance with these Terms of Reference. Relevant Shire meeting procedures may be used as administrative guidance where they are consistent with the Emergency Management Act 2005 and the State Emergency Management Framework. 2. Delegated Authority The LEMC is an advisory and coordinating committee. It may make recommendations, endorse documents for submission or approval, establish agreed actions and coordinate activities within the existing authority of its members. The LEMC cannot bind the Shire or a member organisation, commit expenditure, or allocate resources beyond an existing delegation or authority. The LEMC is required to gain Council approval if the Committee wishes to alter these Terms of Reference.
AIM:	The aim of the LEMC is to collaborate with local support organisations, hazard management agencies, and industry representatives, to collectively build a resilient community that is prepared to respond and recover from an emergency.
OBJECTIVES:	1. Maintain contemporary, practical and relevant Local Emergency Management Arrangements (LEMA) that address identified emergency risks and credible emergency scenarios, for Council endorsement; 2. Exercise the LEMA to test their effectiveness in practical applications and actively strive for continuous improvement; 3. Strengthen interagency and inter-local government cooperation; 4. Promote mitigation, preparedness, response coordination and recovery readiness; 5. Undertake risk- and capability-based exercises 6. Strategise ways to mitigate potential emergencies, build emergency preparedness and to improve recovery arrangements;

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	7. Identify and monitor capability gaps and improvement actions; 8. Build community resilience and awareness; 9. Communicate relevant outcomes to Council, member organisations and the community, subject to confidentiality requirements; and 10. To carry out other emergency management activities as directed by the State Emergency Management Committee or prescribed by regulations.
STATUTORY FUNCTIONS:	1. The functions of the LEMC are to: (a) advise and assist the Shire in ensuring that local emergency management arrangements are established for the district; (b) liaise with public authorities and other persons in the development, review and testing of the local emergency management arrangements; and (c) carry out other emergency management activities as directed by the State Emergency Management Committee or prescribed by the regulations.
MEMBERSHIP AND VOTING RIGHTS:	1. The Committee shall consist of the following representation: (a) Voting Members: *Voting members are formally appointed standing members who participate in LEMC recommendations and endorsements.* Shire of Gingin President (Chairperson) WA Police OIC Gingin (Local Emergency Coordinator) OIC Lancelin (Local Emergency Coordinator) Department of Fire and Emergency Services Department of Communities Red Cross St John Ambulance Chittering/Gingin Sub-Centre St John Ambulance Lancelin Sub-Centre St John Ambulance Woodridge Sub-Centre Department of Primary Industries and Regional Development (b) Non-Voting Members: *Non-voting participants provide advice, information or specialist expertise* Shire of Gingin Chief Executive Officer CESM/CBFCO (Executive Officer) Principal Environmental Health Officer Local Recovery Administrator Local Recovery Coordinator Ranger Services Coordinator WA Police Inspector Wheatbelt District Department of Biodiversity, Conservation and Attractions Western Power Main Roads WA Royal Australian Air Force Base Pearce

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Lancelin Volunteer Marine Rescue Group Inc
Lancelin Volunteer Fire and Rescue
Gingin Volunteer Fire and Rescue
Department of Education
Gingin District High School
Lancelin Primary School
Silver Chain
District Emergency Management Advisor – Wheatbelt District (non-voting advisory member)
Department of Water and Environmental Regulation
Department of Health – WA Country Health Service
Gingin Community Resource Centre
Lancelin Community Resource Centre
Two Rocks SES
Yued Corporation

(c) Standing Invitees and Subject-Matter Experts

As requested.

2. Membership will be reviewed regularly to ensure it reflects the district's emergency risk profile, critical infrastructure, industry, community demographics and social considerations. The LEMC may invite Aboriginal organisations, aged care, disability, mental health, youth, culturally and linguistically diverse, community and other representatives where relevant to the matters under consideration.

3. Chair hierarchy will be as follows:

(a) The Shire President is the Chair

(b) Council will appoint an elected-member proxy for the Chair.

(c) In the absence of both the Chair and the appointed proxy, the Local Emergency Coordinator (LEC), as Deputy Chair, will Chair the meeting.

Where more than one LEC is appointed for the district, the Chair, in consultation with the Local Emergency Coordinators, will determine how the Deputy Chair role will be shared.

If none of these persons is present, the voting members present may elect an Acting Chair for that meeting.

4. Membership tenure and appointment

The Chair and elected-member proxy hold office in accordance with the relevant Council appointment. Agency and organisational members are appointed by position or nomination and continue until replaced or withdrawn by their organisation. The Executive Officer will maintain the current membership and contact register. Changes to the approved membership structure require Council approval; changes to the named representative occupying an approved position may be recorded administratively and reported to the LEMC.

5. Proxies

A voting member may nominate a suitably authorised proxy. While attending in place of the member, the proxy has the same participation

	and voting rights as the member and counts toward quorum. The nomination must be provided to the Executive Officer before the meeting where practicable. Committee membership shall be appointed or removed by the Council.
ADDITIONAL DUTIES & RESPONSIBILITIES:	1. Member Duties (a) Chairperson – Leadership, chairing, compliance with TOR, informing council and promoting contemporary LEMA. (b) Deputy Chair / LEC – Acting in the Chair's absence, advising the Chair and supporting interagency coordination. (c) Executive Officer – Agendas, minutes, actions, correspondence, membership, contact registers, LEMA, business plan, annual reporting, exercise coordination and DEMC (District Emergency Management Committee) liaison. (d) Local Recovery Coordinator – Maintain and exercise the Local Recovery Plan, report recovery preparedness and lessons. (e) Members – Attend or arrange a proxy, review papers, complete actions, represent organisational capability and communicate outcomes internally. 2. Emergency Preparedness and Recovery Responsibilities: (a) Review contacts and resources, at least quarterly; (b) Review membership and working groups; (c) Consider activations and incidents; (d) Review post-incident and post-exercise reports; (e) Maintain an action/improvement register; (f) Undertake emergency risk management; (g) Consider funding and training opportunities; (h) Coordinate annual exercising; (i) Maintain a business plan; (j) Prepare the annual report; and (k) Provide minutes, exercise reports and key documents to the DEMC Executive Officer 3. Meetings: (a) Frequency - The LEMC will hold at least four ordinary meetings each calendar year, normally in February, May, August and November, and may meet more frequently according to the district's risk environment, seasonal requirements or emerging issues.

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	(b) Meeting types and participation - The LEMC may conduct ordinary meetings, extraordinary meetings, out-of-session consideration and working groups or subcommittees. Meetings may be held face-to-face, electronically or in hybrid form. The Chair and Executive Officer may convene an extraordinary meeting where an urgent or specific matter requires consideration. 4. Agenda and Minutes: (a) Agenda Circulation - The final agenda and supporting papers should ordinarily be distributed to members and nominated proxies at least five working days before an ordinary meeting. A shorter period may apply to an extraordinary or urgent meeting. (b) Minutes and Action Register - The Executive Officer will prepare and distribute draft minutes and an updated action register to members and nominated proxies within ten working days of the meeting, or as soon as reasonably practicable. Minutes will record decisions, recommendations, actions, responsible officers, due dates, conflicts of interest and any material dissent. 5. Quorum: (a) Requirements - A quorum is at least 50% of the appointed voting membership, rounded up to the next whole number, including authorised proxies. (b) No-Quorum Procedure - If a quorum is not present, the Chair may proceed with discussion, but no recommendation or endorsement may be made. Items may be referred for out-of-session consideration, rescheduled or deferred to the next meeting. 6. Decision-Making and Endorsement: (a) The LEMC will seek to reach decisions by consensus. Where consensus cannot be reached, a recommendation or endorsement may be determined by a simple majority of voting members present, including authorised proxies. The Chair has a deliberative vote but no casting vote unless Council expressly determines otherwise. A dissenting position may be recorded in the minutes at the member's request. (b) Out-of-Session Decisions - The Chair and Executive Officer may circulate an urgent matter for out-of-session consideration. The circulation will state the proposed recommendation, response deadline and supporting information. The normal quorum and voting requirements apply. The outcome and individual responses will be recorded and noted in the minutes of the next ordinary meeting. 7. Conflicts of Interest: (a) Members must disclose any actual, potential or perceived conflict of interest in relation to a matter under consideration. The Chair will determine, in consultation with the member and Executive Officer, the appropriate management action. The disclosure and management action will be recorded in the minutes.

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	8. Confidentiality and Public Availability: (a) LEMC minutes will be made publicly available, upon request, and subject to the removal or separate confidential recording of personal information, protected operational information, security-sensitive information and other material that should not be publicly disclosed. Members and attendees must maintain the confidentiality of information identified as confidential or sensitive. 9. Reporting: (a) DEMC - The Executive Officer will provide approved minutes, post-exercise reports and other key documents to the DEMC Executive Officer. (b) Escalation - Matters beyond the LEMC's authority, capacity or local resolution, or matters of district significance, may be escalated to the DEMC with a clearly stated issue, impact, action undertaken and requested outcome." (c) Council - Any recommendation requiring Council expenditure, policy approval, resource commitment or other formal Council decision will be presented to Council by separate officer report as soon as reasonably practicable, having regard to the urgency of the matter and Council reporting timeframes. 10. Working Groups and Sub-Committees: The LEMC may establish time-limited working groups or subcommittees for a defined purpose, with agreed membership, deliverables, reporting arrangements and completion date. 11. Review of these Terms of Reference These Terms of Reference will be reviewed at least every five years, following each ordinary Council election if considered appropriate, or earlier following significant legislative or policy change, a significant incident or exercise, or a material change to membership or governance arrangements.
COMMITTEE CODE OF CONDUCT	1. Code of Conduct for Council Members, Committee Members and Candidates. Committee members are to adhere to the Shire of Gingin Code of Conduct for Council Members, Committee Members and Candidates, which can be found on the Shire of Gingin website - https://www.gingin.wa.gov.au/code-of-conduct.

Endorsed by LEMC:	**Date:**
Adopted by Council:	**Date:**

Next scheduled review: August 2027

Policy Custodian: Executive Officer

Amendment History:

Version	Decision Reference	Synopsis
1.	22/10/2013 - Item 10.7	Terms of Reference adopted.
2.	16/12/2014 – Item 11.1.10	Amendments to membership and who shall chair meeting in absence of Shire President.
3.	18/08/2015 – Item 11.1.6	Terms of Reference reviewed. Reference to Standing Orders Local Law deleted from Operating Procedure 2b and replaced with Meeting Procedures Local Law 2014. Reference to provision of Committee Minutes via Information Bulletin deleted from Operating Procedure 4a.
4.	21/03/2017 – Item 11.1.1	Amendments to membership and who shall chair meeting in absence of Shire President.
5.	18/7/2017 – Item 11.1.3	Amendment to months for meetings to be held – now February, May, August and November
6.	15/10/2019 – Item 11.1.1	Membership cl. 1 amended. Operating Procedures cl. 2b) amended.
7.	16/6/2020 – Item 11.1.1	Addition of Principal Environmental Health Officer as a non-voting member, removal of Empire Oil Company (WA) Limited and replacing with Image Resources
8.	17/08/2021 – Item 11.1	Membership cl. 1 and 6 amended. Operating Procedures cl. 2d) and 4a) amended.
9.	18/01/2022 – Item 11.2	Membership c. 1 Local Recovery Coordinator re-added as Voting Member and representative from Golden Egg Farms added as a Non-Voting Member
10.	21/03/2023 – Item 11.2	Membership cl. 1 Local Recovery Coordinator and Community Bush Fire Control Officer removed as voting members and appointed as non-voting members
11.		

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11.2 ANIMAL WELFARE PLAN IN EMERGENCIES

File	EMS/22
Author	Caitlin Skewes – Administration Support Officer
Reporting Officer	James Bayliss - Temporary Chief Executive Officer
Refer	Nil
Appendices	1. DRAFT - Animal Welfare Plan 2026 [**11.2.1** - 25 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To adopt the amended Shire of Gingin Animal Welfare Plan in Emergencies (AWPE).

BACKGROUND

Local governments are required to manage recovery under s.36(b) of the *Emergency Management Act 2005*. To assist the recovery process, the Department of Primary Industries and Regional Development (DPIRD) and the Western Australian Local Government Association (WALGA) stongly recommend that local governments develop an AWPE to assist their community in responding to, and therefore recovering from, emergencies they may face as part of building community resilience.

The purpose of the AWPE is to provide clear guidance to Shire employees, Hazard Management Agencies (HMAs) and supporting agencies to assist the community with the care and management of domestic animals and livestock during an emergency event within the Shire of Gingin district.

It is important to note that ultimately, responsibility for the care of domestic animals and livestock rests at all times with the owners/carers of the animals, including welfare before, during and after emergencies. The Shire acknowledges that the ability of an owner or carer to address animal welfare issues may be hampered or prevented due to the nature of the emergency. In light of this, the AWPE provides guidance and recommendations for community members before, during and after emergencies in relation to the welfare of their animals.

COMMENT

The AWPE serves as part of the Shire of Gingin's Local Emergency Management Arrangements (LEMA).

The information contained in the amended AWPE is consistent with the previous version but has been updated to better align with the amended Local Emergency Management Plan and Local Recovery Plan that were recently adopted by Council.

It has also been updated with current contact information and reformatted to align with the Shire of Gingin style guide.

The **appendiced** document was endorsed by the Local Emergency Management Committee at its 12 August 2026 meeting, with the Committee recommending that it be adopted by Council.

RISK IMPLICATIONS

In the event that Council does not adopt the amended AWPE, there is a significant risk of uncertainty for emergency personnel and community members during emergencies, based on outdated information.

STATUTORY/LOCAL LAW IMPLICATIONS

Emergency Management Act 2005
Part 3 Local arrangements
Division 1 Local emergency authorities
Section 36(b) Functions of local government

Division 2 emergency management arrangements for local governments
Section 41 Emergency management arrangements in local government district

POLICY IMPLICATIONS

Western Australian State Emergency Management Policy, Plans and Procedures

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2026-2036

Nil

VOTING REQUIREMENTS - SIMPLE MAJORITY

MOTION/OFFICER RECOMMENDATION

MOVED: Councillor Vis SECONDED: Councillor Woods

That Council adopt the amended Shire of Gingin Animal Welfare Plan in Emergencies.

During debate, Cr Hyne moved an amendment motion as follows:

AMENDMENT MOTION

MOVED: Councillor Hyne SECONDED: Councillor Kestel

That Council amend the motion by adding the following after the words "in Emergencies":

", subject to the Plan being amended by replacing the first paragraph of section 4.8 Exotic Animal Diseases and Biosecurity with the following:

The Shire of Gingin has significant agricultural industry within its boundaries, including cattle, sheep and poultry production. A significant outbreak of disease could have a major impact on the local agricultural industry and the community."

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*
AGAINST: *Nil*

Reason for Amendment

The current wording incorrectly states that the Shire of Gingin has a limited agricultural industry within its boundaries. This amendment recognises the importance of biosecurity and control of exotic animal diseases in the Shire of Gingin.

The amendment was incorporated into the substantive motion which was then put.

COUNCIL RESOLUTION

MOVED: Councillor Vis SECONDED: Councillor Woods

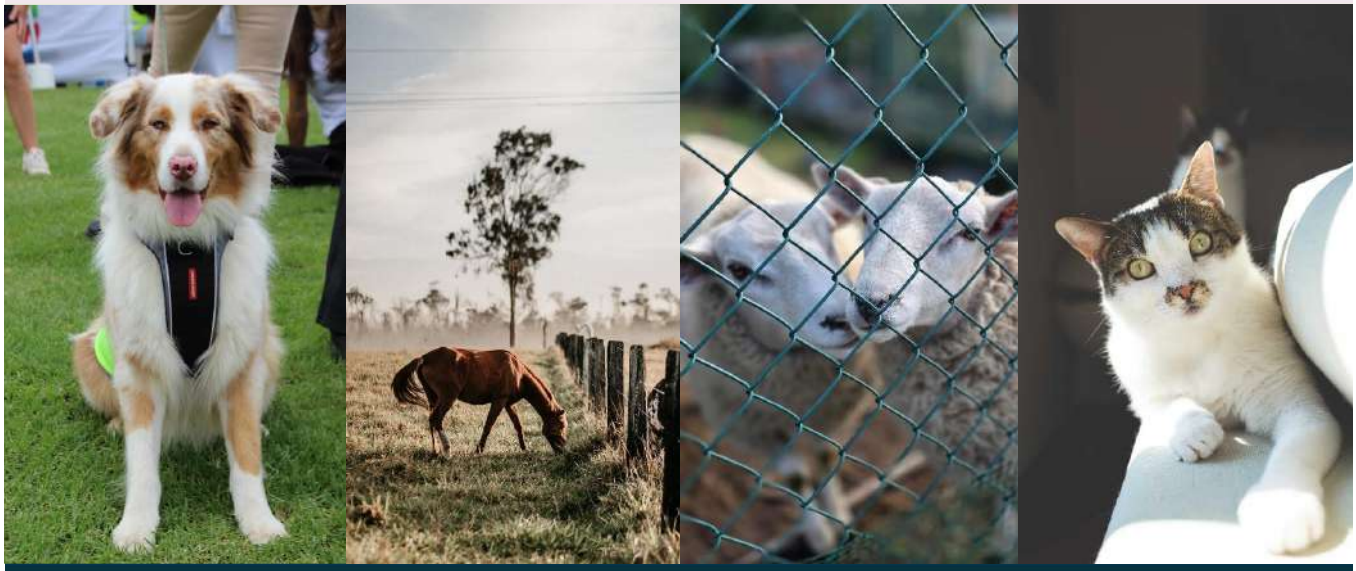
That Council adopt the amended Shire of Gingin Animal Welfare Plan in Emergencies, subject to the Plan being amended by replacing the first paragraph of section 4.8 Exotic Animal Diseases and Biosecurity with the following:

The Shire of Gingin has significant agricultural industry within its boundaries, including cattle, sheep and poultry production. A significant outbreak of disease could have a major impact on the local agricultural industry and the community.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*
AGAINST: *Nil*

SHIRE OF GINGIN
HISTORY | BEAUTY | PROSPERITY



ANIMAL WELFARE PLAN IN EMERGENCIES

2026



ACKNOWLEDGEMENT OF COUNTRY

Kaya Wanjoo Yued Boodja

The Shire of Gingin acknowledges the Yued people, the traditional owners of Yued Boodja. The Shire pays respect to Yued Elders past and present and acknowledges emerging Yued leaders. We extend this respect to all Aboriginal and Torres Strait Islander people. The Shire recognises the living, dynamic culture of the Yued people and the unique contribution they make to the Gingin region on Yued Boodja.

AUTHORISATIONS

This Local Animal Welfare Plan in Emergencies (AWPE) has been produced and issued under the authority of section 36(b) of the *Emergency Management Act 2005* (WA), endorsed by the Local Emergency Management Committee and the Council of the Shire of Gingin.

The Shire of Gingin Local Emergency Management Committee is established under section 38 of the *Emergency Management Act 2005* (WA).

Endorsed by LEMC: _____ Date: ___/_ _/___

Adopted by Council: _____ Date: ___/___/____

DISTRIBUTION

This plan is tabled for noting with the relevant District Emergency Management Committee and the State Emergency Management Committee and is publicly available on the Shire of Gingin website.

REVIEW AND AMENDMENTS

This plan is reviewed every two years by the Local Emergency Management Committee and following significant incidents, exercises, or changes in risk, legislation, or partner arrangements. A record of amendments is maintained by the Policy Custodian.

Next scheduled review: August 2028

Policy Custodian: Community Emergency Services Manager

Contact details

Shire of Gingin – Emergency Services

Email: mail@gingin.wa.gov.au

Phone: 9575 5100

Address: Shire of Gingin Administration, 7 Brockman Street, Gingin WA 6503

Amendment		Details	Amended By
No.	Date		
1	May 2022	Draft – First Edition	Cher Groves
2	December 2022	Wording amendments	Sharon Smith/Rachael Williams
3	October 2023	Inclusion of updated and new contact details for suppliers, kennels, pony	Cher Groves
4	May 2026	Inclusion of updated and new contact details for suppliers, kennels, pony	Rachael Williams
5	August 2026	Updated wording and information to align with LEMP and LRP. Updated appendix items and removed contact list to be included in Emergency Contact List.	Caitlin Skewes
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ACRONYMS AND DEFINITIONS

Acronym	Term
Animal	Pets, livestock and wildlife (see individual definitions below)
AWC	Animal Welfare Coordinator
AWOC	Animal Welfare Operations Centre
AWPE	Animal Welfare Plan in Emergencies (this document)
AWT	Animal Welfare Team
CaLD	Culturally and Linguistically Diverse
CEO	Chief Executive Officer
CESM	Community Emergency Services Manager
DBCA	Department of Biodiversity, Conservation and Attractions
DoC	Department of Communities
DEMC	District Emergency Management Committee
DFES	Department of Fire and Emergency Services
Domestic Animals	Both pets and livestock (see individual definitions below)
DPIRD	Department of Primary Industries and Regional Development
FRS	Fire and Rescue Service
EM	Emergency Management
EM Act	Emergency Management Act 2005
HMA	Hazard Management Agency
LEMA	Local Emergency Management Arrangements
LEMC	Local Emergency Management Committee
LEMP	Local Emergency Management Plan
LG	Local Government
Livestock	Animals not normally contained or permitted inside a family residence, usually confined to an area outside the residence. Often used for human consumption or farming i.e. cattle, sheep, goats, pigs, camels, deer, alpacas, poultry and horses
LRA	Local Recovery Administrator
LRC	Local Recovery Coordinator
LRP	Local Recovery Plan

LRCG	Local Recovery Coordination Group
Pets	Companion animals primarily kept for companionship, hobbies, sport or work (other than horses) and would usually accompany the family if vacating the property i.e. dogs, cats, rabbits, rodents, fish, birds, reptiles.
PaWS	Parks and Wildlife Service (Department of Biodiversity, Conservation and Attractions)
PPRR	Four pillars of emergency management: Prevention, Preparedness, Response, Recovery
SCP	Strategic Community Plan (2026 – 2036)
SoG	The Shire of Gingin
WA Health	Department of Health
WALGA	West Australian Local Government Association
WAPOL	WA Police Force
Wildlife	All native and introduced animals that live without regular human intervention or support, i.e. kangaroos, native birds, echidnas, foxes, snakes. Does not include stray domestic animals.

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1. INTRODUCTION

1.1 Purpose

The purpose of the AWPE is to provide clear guidance to Shire Staff, Hazard Management Agencies (HMAs) and supporting agencies to assist the community with the care and management of domestic animals and livestock during an emergency event within the SoG district.

Ultimately, **responsibility for the care of domestic animals and livestock rests with the animal owners/carers at all times, including welfare before, during and after emergencies**. The Shire acknowledges that the ability of an owner or carer to address animal welfare issues, may be hampered or prevented due to the nature of the emergency.

1.2 Objectives

To ensure animals are better considered and protected from suffering during and immediately following emergencies. The Shire's main objectives are:

- Coordinate the function and outline the management structure of animal welfare arrangements;
- Assist with reuniting owners and animals both during and after emergency events;
- Ensure the safety of both animals, the community, road users and emergency services personnel, by impounding stray and wandering animals; and
- Assist to increase community confidence in, and awareness of, animal welfare arrangements and considerations during an emergency.

1.4 Scope

The scope of the AWPE is limited to the care of domestic animals residing within the SoG geographical boundaries, during an emergency or disaster. It does not include the routine management of animal welfare during non-emergencies. It does not include emergency arrangements for wildlife; Parks and Wildlife Service (PaWS) is responsible for these types of animals.

1.5 Related Documents

The AWPE forms a part of the SoG Local Emergency Management Arrangements (LEMA) and should be read in conjunction with these plans and its related documents. They also interface with other hazard specific, emergency management and animal plans at District and State levels.

Consideration should also be given to the Traffic Management During Emergencies Guidelines regarding the management and closure of roads during an emergency and/or evacuation.

1.5.1 Local Emergency Management Arrangements

The LEMA comprises of this AWPE and supporting documents that outline strategies, responsibilities and plans for emergency management within the district, as required by section 41(2) of the *EM Act*.

The following documents and sub-plans provide operational detail and guidance (maintained by owners):



Publicly available LEMA documents can be found on the SoG website:
gingin.wa.gov.au/fire-information

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2. OVERVIEW OF ANIMAL WELFARE

The SoG acknowledges that disasters are complex events, often limiting the ability of people to fulfil these obligations. Furthermore, their inability to care for their domestic animals can lead to significant distress in already trying situations.

In the first instance owners and carers are responsible for the welfare of their pets and livestock at all times, including disaster situations. Whereby, if safe to do so, should seek to evacuate their animals to the alternative suitable properties outside of the impacted area. LEMA's may identify if domestic animals can be accommodated in the vicinity of welfare centres and if not, what alternate options may be available.

The following list is indicative of what a domestic animal owner should have for their pets or livestock in the event of an emergency:

- Animal's identification clearly labelled with animal's name, the owners contact details, LG registration (e.g. collar or tag);
- Animal's food and drink requirements for at least 7 days;
- Animal's medication requirements for at least 14 days;
- Animal cage for transport, including horse or cattle float if necessary for livestock;
- Containment (e.g. leads, cage, pen) for relocation area;
- Shelter (e.g. large umbrella, portable gazebo/marquee, crate);
- Animal's bedding; and
- Cleaning items (kitty litter, dog poo bags, etc).

It is important to note that whilst every effort should be made to protect and care for animals, human life and safety should always take precedence over animal welfare.

According to the *National Planning Principles for Animals in Disaster*, published by the Australian Animal Advisory Committee animals should be integrated into emergency planning because:

- They have intrinsic value.
- They contribute to human health and wellbeing.
- They have economic value; and
- Failure to account for animals puts human life at risk

Findings from the 2009 Bushfire Royal Commission noted that some residents refused to evacuate without their animals, their evacuation plans were delayed because of their animals, or they attempted to re-enter the fire ground to rescue their animals. The death of several civilians has been accounted to these situations.

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3. KEY ROLES, RESPONSIBILITIES AND TASKS

3.1 Shire of Gingin

3.1.1 Animal Welfare Coordinator (AWL)

The appointed Animal Welfare Coordinator (AWC) is the Coordinator of Ranger Services.

Depending on the size and nature of the emergency event, the Coordinator of Ranger Services may choose to delegate this position to another suitably qualified officer.

3.1.2 Animal Welfare Team (AWT)

Depending on the nature and size of the event, the AWC may require further assistance. This shall be granted by the appointment of an AWT.

The membership of this team is to be decided by the AWC, but may include officers and/or representatives from:

- Local Recovery Coordinator, or delegate
- Rangers
- RSPCA and other animal welfare agencies
- Department of Primary Industries and Regional Development (DPIRD)
- Department of Biodiversity, Conservation and Attractions (DBCA)
- WALGA
- Veterinarians
- Local animal groups

3.2 Animal Owner/Carer

Animal owners/carers are ultimately responsible for the welfare of their animals and should consider preparedness for, response to and recovery from an emergency. Any person in charge of an animal has a primary duty of care to ensure it is protected from unreasonable pain and suffering.

Personal safety plans and emergency household/property plans should include contingencies for animals regardless of whether they will remain at the property or be relocated during an emergency.

3.3 Other Government Organisations

3.3.1 WALGA

WALGA is the representative for member Local Governments on the Committee for Animal Welfare in Emergencies (CAWE) and may be the initial Local Government representative on the Animal Welfare Team (AWT) if formed.

3.3.2 DPIRD

DPIRD has authority for the State Support Plan for Animal Welfare in Emergencies and may activate the plan at the request of the Controlling Agency.

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3.4 Plan Activation

The activation of the AWPE will be determined by the IC of the relevant HMA. This will be in consultation with the:

- Incident Support Group (ISG)
- Welfare Agencies
- Shire of Gingin (primarily Ranger Services)

3.5 Withdrawal

The AWT structure shall be gradually stood down as assistance is no longer required and the capability of local resources improves. The decision to conclude the SoGAWP and withdraw additional resources shall be determined by the Animal Welfare Controller (AWC) in consultation with the Local Recovery Coordinator/Committee.

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4. FACILITIES AND RESOURCES

4.1 Animal Welfare Operations Centre

The SoG Animal Management Facility is appointed as the Animal Welfare Operations Centre (AWOC). Where this facility is not suitable, the AWC is to nominate an alternate location.

The AWOC is to be a central location for the management of all animal welfare efforts and its functions include:

- Record, register and prioritise all requests for assistance
- Task the AWT
- Record and register all lost, found, rescued and impounded animals
- Assist with the logistics of caring for all impounded animals (when possible)
- Maintain all financial and administrative records

For health and safety reasons animals, including pets, are not permitted inside Welfare Centres with the exception only of Assistance dogs or Assistance animals. There are three (3) main types of assistance dogs:

- ***Service dogs*** are trained to assist people who have various disabilities to manage personal and other tasks. The popular term for these dogs in Australia is assistance dogs.
- ***Guide dogs*** or **Seeing eye dogs** are trained to help blind or visually impaired people get around safely and independently.
- ***Hearing dogs*** are trained to assist people who are deaf or have hearing problems by alerting them to sounds.

Assistance animals are specially trained to alleviate the effects of a person's disability, are recognised under the *Disability Discrimination Act 1992* and must be given full access to public facilities.

Therapy Animals or Emotional Support Animals (ESA) are not recognised under Australian law. Unlike Assistance Animals there is no minimal training or standard certification for an ESA. These animals may also be called companion animals. There are many benefits of having an animal for psychological health and many experience increased mental wellness from owning a pet. ESA's are valuable, but they are different to Assistance Animals.

4.2 Animal Sheltering Facilities

Animal sheltering facilities are to provide temporary housing and welfare for rescued, roaming and impounded animals. Whilst animals may be kept outside evacuation centres, the nature of the disaster may not allow this. Residents are to be urged to seek shelter for their animals with friends or relatives that have not been affected by the emergency event prior to utilising the services of an animal sheltering facility.

4.2.1 Pets

The SoG Animal Management Facility has been appointed as the primary housing facility for pets. Pets accommodated within the SoG must be registered and microchipped. The Shire's database may be used in the identification.

Where this facility is not suitable, the AWC is to nominate an alternate or additional location. Other locations may include (but are not limited to):

- Local Boarding Kennels and Catteries
- Veterinary facilities

See **Appendix 5** for contact details for boarding kennels, catteries, and vets within the SoG area and bordering Local Governments.

4.2.2 Livestock

As per the National Livestock Identification System (NLIS), livestock includes cattle, sheep,

goats, pigs, camels, deer, alpacas, llamas, poultry and horses. For the purpose of emergency animal welfare planning, horses have been addressed separately see **4.2.3** below.

Livestock are to be contained within the closest safe paddock. All attempts should be made to restrict their access to roadways, ensure they have access to feed and water, and have room to exercise. When resources become available all attempts should be made to identify and contact the owners. Where livestock are not claimed, arrangements may have to be made to relocate the animals to a more permanent holding facility. For those that cannot be rehomed, please refer to section 4.9 Euthanasia.

The Shire's Coordinator of Ranger Services will assist by approaching land holders of suitable properties and arranging for appropriate management of the animals that are housed within the facility.

4.2.3 Horses

In addition to 4.2.2, there are a range of avenues available for the short-term relocation and welfare of horses. Recommended in the following priority order:

1. Encourage community members to seek private arrangements with relatives
2. Encourage community members to seek private arrangements with other community members (the databases and social media pages listed below may be of assistance)
3. The Shire requests the use of a public equestrian facility (approval required)
4. The Shire requests the use of public open space (approval required)

Online Databases and Social Media

Name & Type	Web Link	Other details
WA Horse Emergency	https://www.wahorsecouncil.com.au	Website page - registration required
	Email horsecouncilwa@gmail.com	
Emergency Animal Support Evacuation (EASE) WA	https://www.facebook.com/EASEWA	Facebook Public Page
	Email easewa1@gmail.com	
Shire of Gingin Horse Community	WA Cutting Horse https://www.facebook.com/profile.php?id=100057177141167	Facebook Public Pages/Groups

	Email wacuttinghorse@gmail.com	
	Gingin Campdraft https://www.facebook.com/GinginCampdraftClubInc	
	Email gingincampdraftwa@outlook.com	
	Denim & Lace Barrel Racing https://www.facebook.com/dandlbarrelracinginc	
	Email dnlbarrelracing@gmail.com	
	Woodridge Equestrian Centre https://www.facebook.com/WoodridgeEquestrian	
	Email woodridge.equestrian@yahoo.com	
Surrounding Horse Community	South Midlands Polocrosse Club https://www.facebook.com/southmidlandspolox	Facebook Public Pages/Groups
	Email: southmidlandspolox@gmail.com	
	South Midlands Pony Club https://www.facebook.com/southmidlandspc	
	Email: smpcsecretary@outlook.com	

Public Equestrian Facilities

There are two public equestrian facilities (Gingin Equestrian Grounds and Woodridge Equestrian Centre) with loose yards located in the SoG.

The following should be considered prior to making this option available:

- Approval and management processes of the respective LG and the facility
- Distance and travel arrangements
- Staffing or volunteer arrangements for the management of the facility
- Limitations of human welfare services able to be provided at the facility
- Clear route of access to DC Evacuation Centre (to provide the above)
- Potential threat or risk to the facility from the incident or another hazard

Please note: Woodridge Equestrian Centre (leased from the SoG) has offered to accommodate housing horses before and during an emergency evacuation as they have access to yards and water.

Other:

South Midlands Pony Club, Sandown Park, Brand Highway, Muchea and the State Equestrian Centre,

303 Cathedral Avenue, Brigadoon would be closer than Coolup and Baldivis.

There are also several racing/equestrian facilities and veterinary complexes in the Wheatbelt and Peel regions (not listed) that may be used in some capacity, keeping in mind:

- Racing facilities are only suitable to shelter displaced animals for short periods of time (-8hrs) or as transfer points, due to the restrictive yarding type (cross ties)

- Veterinary complexes have limited space and should be reserved for injured, rather than displaced animals

Public Open Space:

If none of the above are available or suitable, the Shire may consider using public open space (i.e. ovals and parks). The following should be considered prior to making this option available:

- Secure gated perimeter fencing
- Access to water and amenities
- Damage is likely to be caused to the ground surface by animals and vehicles
- Waste management
- Lack of established yarding at these types of facilities (Note: not all horse owners have float yards, and some have more animals than they can transport in one trip)

4.3 Wildlife and Wildlife Parks

Fires and other wildlife species in emergencies can have a significant impact on native animals, particularly on vulnerable or threatened populations.

The SoG is home to many different wildlife species including the Western grey kangaroo, emus, echidna, brushtail possums, bush wallabies, quenda, honey possums, ash-grey mouse and snakes.

Department of Biodiversity Conservation and Attractions (DBCA) is responsible for coordinating the provision of emergency animal welfare services and advising the owner or carer of wildlife during emergencies

Prior to being taken into care or under control or supervision, there is no owner or carer for wildlife living in their natural habitat. Where an emergency is likely to impact wildlife in a wildlife park, DBCA are responsible for providing assistance and should be contacted for advice about suitable temporary containment and other welfare needs of wildlife.

National/Conservation Parks and Reserves	Areas
Nilgen Nature Reserve	22km North of Lancelin
Timaru Nature Reserve	Bambun
Moore River National Park	Guilderton
Breera Road Nature Reserve	Breera
Wilbinga Nature Reserve	Wilbinga
Yeal Nature Reserve	Yeal

4.3.1 Wildcare Helpline

For advice on sick, injured, orphaned or displaced native animals, DBCA runs the Wildcare Helpline Phone: (08) 9474 9055. This is a 24hr/day, seven days a week telephone referral service operated by volunteers.

4.4 Transportation and Evacuation Route Options

Transporting animals between their home and an evacuation centre is primarily the responsibility of the owner/carer. In the first instance, the owner/carer will be required to use private or professional means for transport.

Where the owner/carer has insufficient arrangements to transport their animal(s), the Shire may be able to assist. The Shire has limited access to Ranger vehicles that may be used to transport animals where needed.

4.5 Equipment

Where possible animal owners/carers are to be encouraged to supply equipment when impounding their animal.

The SoG Ranger Services has a limited established supply of animal equipment: cages, crates, blankets, water & food bowls.

Any purchase of additional equipment or food supplies, it is essential that throughout the response effort, all costs associated with emergency animal welfare are recorded and collected for possible reimbursement from the Disaster Relief Funding Arrangements in Western Australia (DRFAWA). See *Equipment & Resources Register* Appendix 4.

4.6 Food

The Shire's preferred supplier for animal food is Gingin Stockfeeds, however, depending on the nature and extent of the disaster, other suppliers may be required. Contact details of suppliers for animal food, equipment and other supplies within the SoG and bordering areas can be found on *Supplier and Animal Service Providers Contact List* Appendix 5.

4.7 Fees & Charges

An owner/carer of an animal has the primary duty of care and is therefore responsible for any costs incurred for the provision of transport, board and care.

Where possible the Shire will endeavour to assist the community in caring for their animals, by the waiving (authorised by SoG CEO on request) of selected fees and charges. Only the Shire CEO has the delegated authority to waive, amend or impose Shire fees and charges as deemed appropriate.

To ensure there is a consistent approach to the waiver of fees, the following points for consideration are to be clarified by the AWC and AWT as early as practicable:

- Length of impoundment fee waiving period for animals cared for during an emergency, provided the animal(s) is/are collected within 7 days after the danger has passed.
- Fees for the use of alternate animal sheltering facilities (i.e. boarding kennels)
- Fees for the extended impoundment of existing impounded animals due to emergency controls (i.e. roadblocks)
- Veterinary costs related to impoundment period
- Fees for surrendering animals for destruction or rehoming

During an emergency, the Shire may incur substantial costs associated with animal welfare. These may include engaging contractors, shelter fees, veterinary expenses, food and other welfare needs.

It is essential that throughout the response effort, all costs associated with emergency animal welfare are recorded and collected for possible reimbursement from the Disaster Relief Funding Arrangements in Western Australia (DRFAWA.

4.8 Exotic Animal Diseases & Biosecurity

The SoG has a limited agricultural industry within its boundaries; however, any significant outbreak of disease is still likely to have an impact on the community.

DPIRD is the HMA for Animal and Plant Pests and Diseases.

The SoG may be requested to provide community level resources and assistance to comply with their incident management and is responsible for recovery efforts. Refer to WESTPLAN Animal & Plant Biosecurity for further information.

Use the Emergency Animal Disease hotline (1800 675 888) to report infected animals and follow DPIRD advice.

4.9 Euthanasia

It is the responsibility of the person in charge of the animal to arrange for the humane destruction of affected animals where the animals will continue to suffer if they remain alive, or where the animals have little or no chance of survival.

For animals in the care of the SoG or where alternative accommodation has been arranged, wherever possible, destruction activities will take place in consultation with the owner. However, where reasonable attempts have been made to locate the owner and the owner cannot be found, authorisation for destruction in the owner's absence is provided if it is humane to do so.

Whilst it is prohibited to destroy native wildlife under the Wildlife Act, registered veterinary practitioners and appropriately accredited officers, Rangers and volunteers who destroy wildlife in accordance with the *Animal Welfare Act 2002* are exempt.

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5. ADMINISTRATION & PUBLIC INFORMATION

5.1 Request for Assistance

All incoming requests for assistance from the public regarding animal welfare (i.e. rescues, roaming, lost and found) shall be recorded using the *Request for Assistance form* (***Appendix 1***).

Volunteers will be managed in accordance with the *Local Recovery Plan, Spontaneous Responders*.

5.2 Donations

Donations will be managed in accordance with the *Local Recovery Plan, Part 6: Finance*. This section of the document recommends donating or providing community support through the Lord Mayor's Distress Relief Fund and GIVIT. Donations of physical goods are discouraged, unless directly requested by the LRCG, or in their absence and if it purely relates to animal welfare, the AWT.

5.3 Impounded Animals

All impounded animals are to be registered with the SoG Ranger; these animals are to be registered in the Impound Book, managed by the Rangers.

Where there is more than one animal sheltering facility, it is to be clearly noted on the *Impound Form* where the animal is located.

5.4 Lost & Found Animals

All found animals are to be listed in the *Found Animal Register,* Appendix 2, and listed on the SoG website for public viewing.

All records of lost and found animals are documented on the *Lost & Found Register*, Appendix 3.

Where this online service is not available, a physical list of animals is to be displayed at an appropriate venue (i.e. evacuation center or recovery coordination centre) using the *Found Animal Register* public display, Appendix 2.

5.5 Reunite

Any stray or unclaimed animals residing in the SoG animal centre will follow business as usual Local Government policy.

All impounded animals registered with the SoG Rangers should update/sign for the animal's release by speaking to the SoG Ranger.

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5.6 Pet and Animal Plans

In preparation for emergencies, animal owners/carer should prepare their own Animal Emergency Plan and Animal Emergency kit. Items to consider and include are listed below:

When developing your Animal Emergency Plan, it is important to consider the following:
Animals will require a constant source of water and food, shade and a safe place to shelter.
If you need to move your animals to a safer place, think about when and how you will relocate them. This may be a boarding facility, or a family member or friend located in a safe area. Keep in mind that the premise may have specific requirements – for example, boarding facilities require pets to be up to date with vaccinations and possibly be desexed.
Animals are not allowed inside Welfare Centres, **except** assistance animals.
Is your animal trained to be settled in a cage / carrier / crate / horse float.
Prepare an Animal Emergency Kit for each animal in advance.
Remember to act safely and not to risk human life.
Preparation Checklist - Prepare an Animal Emergency Kit
Pack animal supplies i.e.: food, bowls, leash, bedding, transportation etc.
Ensure your Animal's Registration is current with the Shire of Gingin (have the Tag on the collar)
Update your Animals microchip details (have a record of this)
Ensure your Animals have ID Tags – Animal Name & Contact Number
Ensure vaccinations are all up to date (a record may be required)
Have a current photo of your animal(s) to assist in easy identification.
Include any medication for the animal(s)
Include the following phone numbers/information in your emergency plan: ○ Your veterinarian ○ Clear instructions for treatment of your animals i.e Allergies/Medical issues ○ Emergency numbers –Family members or Friends / Ranger/ Animal Rescue Services

Additional information for emergency animal plans can be found online at:

- dfes.wa.gov.au
- kb.rspca.org.au
- nema.gov.au/stories/emergency-planning-pets-livestock
- www.redcross.org/get-help/how-to-prepare-for-emergencies/pet-disaster-preparedness.html
- animalsaustralia.org/our-work/compassionate-living/emergency-planning-animals/
- ready.gov/pets
- animalemergencyservice.com.au/blog/pet-emergency-plan/

The abovementioned websites listed is not exhaustive.

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APPENDIX

Appendix 1: Customer Service Request– Request for Assistance with Animal Welfare (manual – use during power outage)

Ranger Services

CSR – REQUEST FOR ASSISTANCE WITH ANIMAL WELFARE (manual)

CSR - Request for Assistance with Animal Welfare

Officer Name:		Date:		Time:	

Customer Name:		Mobile/Phone:	
Address:			
Email Address:			

DETAILS REGARDING REQUEST

Location of Issue:			
Property Owner:	☐ Council Property ☐ Private Property ☐ Other:		
Animal(s) Involved: *Select all that apply*	☐ Dog ☐ Cat ☐ Bird ☐ Horse	☐ Aquatic ☐ Reptile ☐ Pigs ☐ Sheep	☐ Cattle ☐ Chickens ☐ Other:_____
Description:			

OFFICE USE ONLY

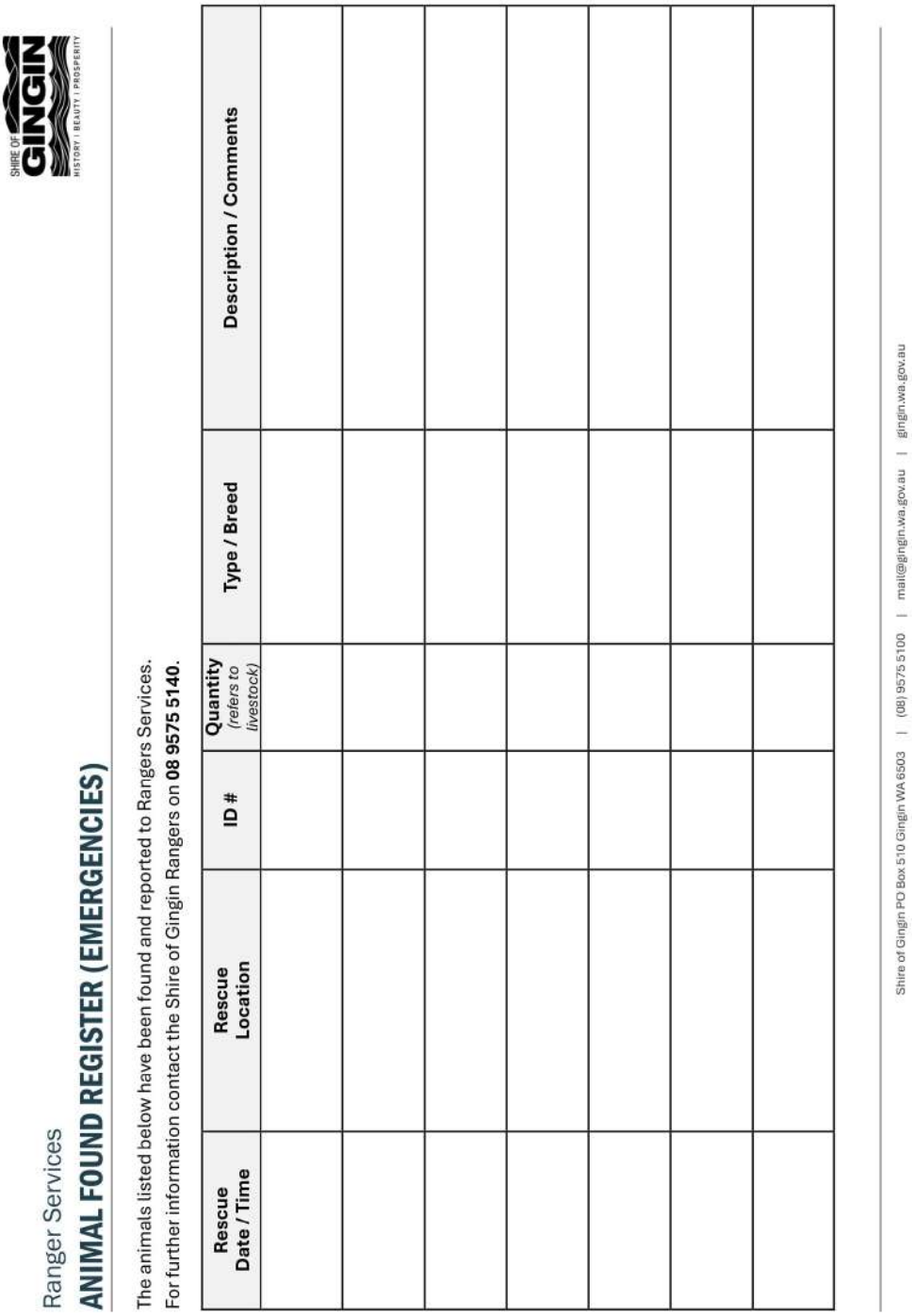
Priority Rating:			Other Agencies Involved/Required:		
☐ Low (weeks/months) ☐ Medium (days) ☐ High (hours)			☐ Police ☐ DFES ☐ SES ☐ Other:		
Action Taken:	☐ Emailed ☐ Phoned ☐ SMS ☐ Handed to:_____				
Officer Name:		Date:		Time:	
Officer Notes: (below)	Signed:		Job Duration:		
CSR Issued:		CSR Closed:		Record #:	

The Shire of Gingin collects your personal information to process this application or request and perform its functions under relevant legislation. Information may be disclosed where authorised or required by law. If required information is not provided, we may be unable to process your application. See the Shire's Privacy Policy for more information.

Shire of Gingin PO Box 510 Gingin WA 6503 | (08) 9575 5100 | mail@gingin.wa.gov.au | gingin.wa.gov.au Page 1 of 1

Appendix 2: Animal Found Register

For officer input only, to be publicly displayed.



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Ranger Services

ANIMAL FOUND REGISTER (EMERGENCIES)

The animals listed below have been found and reported to Rangers Services.
For further information contact the Shire of Gingin Rangers on **08 9575 5140**.

Rescue Date / Time	Rescue Location	ID #	Quantity *(refers to livestock)*	Type / Breed	Description / Comments

Shire of Gingin PO Box 510 Gingin WA 6503 | (08) 9575 5100 | mail@gingin.wa.gov.au | gingin.wa.gov.au

Appendix 3: Lost and Found Animal Form

Ranger Services

LOST AND FOUND ANIMAL FORM IN EMERGENCIES

SHIRE OF GINGIN
HISTORY | BEAUTY | PROSPERITY

FOUND ☐ LOST ☐

Today's Date:		Time:		Date Lost/Found:	
Type of Animal Lost/Found: *(dog, cat, bird, horse, cow etc.)*					
Contact Person:	Owner ☐ Citizen ☐			Name	
Address:					
Best Contact #:		Email:			
Location Lost/Found:					

ANIMAL DETAILS

Breed/Mix:				Colour:	
Age: *Estimate if unknown*		Sex:	M / F / U	Fur:	Short / Medium / Long
Animal's Name:				Collar:	Type / Colour
Markings or Distinguishing Details:					
Other Info/Details: *Injuries, medication, allergies, behaviour*					
				Animal Size:	
Microchipped:	Y / N / U	Microchip #:		Sterilised:	Y / N / U

OFFICE USE ONLY

Actions Taken:		Date:	
		By:	
Actions Taken:		Date:	
		By:	
Actions Taken:		Date:	
		By:	

Outcome of animal reported:

Lost:	Found / Deceased / Still Missing	Date:	
	Other:	Officer:	
Found:	Reunited / Euthanised / Still Impounded	Date:	
	Other:	Officer:	

The Shire of Gingin collects your personal information to process this application or request and perform its functions under relevant legislation. Information may be disclosed where authorised or required by law. If required information is not provided, we may be unable to process your application. See the Shire's Privacy Policy for more information.

Shire of Gingin PO Box 510 Gingin WA 6503 | (08) 9575 5100 | mail@gingin.wa.gov.au | gingin.wa.gov.au Page 1 of 1

Appendix 4: Equipment and Supplies Register

For officer input only.

Input donations or ad hoc purchases.

Ranger Services

EQUIPMENT AND SUPPLIES REGISTER FOR ANIMALS (IN EMERGENCIES)

Company Name	Product	Qty	Authorised By	Cost *If relevant*

Shire of Gingin PO Box 510 Gingin WA 6503 | (08) 9575 5100 | mail@gingin.wa.gov.au | gingin.wa.gov.au

Appendix 5: Supplier and Animal Services Contact List

Publicly available, some contact details have been redacted for privacy reasons.

SUPPLIER AND ANIMAL SERVICES CONTACT LIST

SUPPLIER DETAILS

Gingin Stockfeed
Address: Units 3&4, 27 Gingin Brook Road, Gingin WA 6503
Phone: (08) 9575 1640

Greenwells Gingin
Address: 5 Brockman Street, Gingin WA 6503
Phone: (08) 9575 2220

Lancelin Trade & Rural Supplies
Address: 29 Walker Avenue, Lancelin WA 6044
Phone: (08) 9655 1537

Elders Muchea
Address: 11 Mercury Rise, Muchea WA 6501
Phone: (08) 9570 7999

GOVERNMENT CONTACTS

Shire of Gingin Ranger Services
Website: www.gingin.wa.gov.au
Phone: 9575 5140

Department of Biodiversity, Conservation and Attractions
Phone: Wildcare Helpline - (08) 9474 9055 (for sick or injured native animals)
Website: dbca.wa.gov.au/wildlife-and-ecosystems/animals/wildcare-helpline

RESCUE SERVICES

Dog Refuge Home
Address: 30 Lemnos Street, SHENTON PARK WA 6008
Phone: (08) 9381 8166
Website: dogshome.org.au/

Cat Haven
Address: 23 Lemnos St, SHENTON PARK WA 6008
Contact: (08) 9442 3600
Website: www.cathaven.com.au/

VETERINARY SERVICES

Yanchep Veterinary Hospital
Address: 156 Yanchep Beach Road, YANCHEP WA 6035
Phone: (08) 9561 2438
Website: yanchepvet.com.au/

Emergency Vet Hospital (EVH)
Phone: (08) 9200 4460
Address: 1 Chokolich Street, WANGARA WA 6065
Website: emergencyvethospital.com.au/

BOARDING (PETS AND HORSES)

Moore River Boarding Kennels
Phone: 9655 3005
Address: 1219 Bennies Rd, COWALLA WA 6503

State Equestrian Western Australia
Phone: 9296 1200
Address: BRIGADOON WA 6069
Website: wa.equestrian.org.au/

Woodridge Equestrian Centre
Address: WOODRIDGE
Email: woodridge.equestrian@yahoo.com
Website: facebook.com/WoodridgeEquestrian

WA Cutting Horse
Address: GINGIN
Email: wacuttinghorse@gmail.com
Website: facebook.com/profile.php?id=100057177141167

Gingin Campdraft
Address: GINGIN
Email: gingincampdraftwa@outlook.com
Website: facebook.com/GinginCampdraftClubInc

DRAFT

11.3 CERTIFICATION OF COMPLIANCE WITH ADOPTED STANDARDS FOR CEO RECRUITMENT

File	PER/8-61
Author	James Bayliss – Temporary Chief Executive Officer
Reporting Officer	Cr Linda Balcombe - President
Refer	Nil
Appendices	Nil

DISCLOSURES OF INTEREST

Nil

PURPOSE

To certify that the employment of Mr Zac Donovan as CEO of the Shire of Gingin has been undertaken in accordance with the Shire's adopted Standards for CEO Recruitment, Performance and Termination.

BACKGROUND

Regulation 18FB of the *Local Government (Administration) Regulations 1996* requires that a local government must, by absolute majority resolution, certify that the employment of a person in the position of CEO has been undertaken in accordance with the local government's adopted standards in relation to the recruitment of CEOs. A copy of the local government's resolution must be provided to the Local Government Inspector within 14 days of the resolution being made.

At the Special Council Meeting (SCM) on 21 September 2026, Council resolved to appoint Mr Zac Donovan to the position of CEO of the Shire of Gingin.

COMMENT

The recruitment process which resulted in the employment of Mr Donovan was undertaken in accordance with the Shire's adopted Standards for CEO Recruitment, Performance and Termination, as follows.

1. Cl. 5 Determination of Selection Criteria and Approval of Job Description Form

    (1) The local government must determine the selection criteria for the position of CEO, based on the local government's consideration of the knowledge, experience, qualifications and skills necessary to effectively perform the duties and responsibilities of the position of CEO of the local government.

(2) The local government must, by resolution of an absolute majority of the council, approve a job description form for the position of CEO which sets out –

(a) The duties and responsibilities of the position; and

(b) The selection criteria for the position determined in accordance with subclause (1).

Officer Comment:

Council approved, by absolute majority, the selection criteria and job description for the CEO position at its OCM on 21 July 2026.

2. Cl. 6 Advertising Requirements

(1) If the position of CEO is vacant, the local government must ensure it complies with section 5.36(4) of the Act and the Local Government (Administration) Regulations 1996 regulation 18A.

(2) If clause 13 applies, the local government must advertise the position of CEO in the manner referred to in the Local Government (Administration) Regulations 1996 regulation 18A as if the position was vacant.

Officer Comment:

The advertisement was prepared, and advertising undertaken, on the Shire's behalf by the appointed recruitment consultant. Section 5.36(4) of the Act and Regulation 18A of the *Local Government (Administration) Regulations 1996* require that the position must be subjected to statewide public notice and contain the information specified in Reg. 18A.

The advertisement for the position was compliant with these requirements as far as can be ascertained.

3. Cl.7 Job Description Form to be Made Available by Local Government

If the person requests the local government to provide to the person a copy of the job description form, the local government must –

(a) Inform the person of the website address referred to in the Local Government (Administration) Regulations 1996 regulation (18A(2)(da); or

(b) If the person advises the local government that the person is unable to access that website address -

(i) Email a copy of the job description form to an email address provided by the person; or

(ii) Mail a copy of the job description form to a postal address provided by the person.

Officer Comment:

Provision of job description details was undertaken on the Shire's behalf by the appointed recruitment consultant.

4. Cl. 8 Establishment of Selection Panel for Employment of CEO

(1) In this clause –

***Independent person** means a person other than any of the following –*

(a) A council member;

(b) An employee of the local government;

(c) A human resources consultant engaged by the local government.

(2) The local government must establish a selection panel to conduct the recruitment and selection process for the employment of a person in the position of CEO.

(3) The selection panel must comprise -

(a) Council members (the number of which must be determined by the local government); and

(b) At least 1 independent person.

Officer comment:

At the OCM on 16 June 2026, Council resolved to establish a CEO Selection Panel consisting of 4 Councillors and 1 independent member.

The independent panel member was appointed by Council at the OCM on 21 July 2026.

5. Cl. 9 Recommendation by Selection Panel

(1) Each applicant's knowledge, experience, qualifications and skills must be assessed against the selection criteria by or on behalf of the selection panel.

(2) Following the assessment referred to in subclause (1), the selection panel must provide to the local government –

(a) A summary of the selection panel's assessment of each applicant; and

(b) Unless subclause (3) applies, the selection panel's recommendation as to which applicant or applicants are suitable to be employed in the position of CEO.

(3) If the selection panel considers that none of the applicants are suitable to be employed in the position of CEO, the selection panel must recommend to the local government –

(a) That a new recruitment and selection process for the position be carried out in accordance with these standards; and

(b) The changes (if any) that the selection panel considers should be made to the duties and responsibilities of the position or the selection criteria.

(4) The selection panel must act under subclauses (1), (2) and (3) –

(a) In an impartial and transparent manner; and

(c) In accordance with the principles set out in section 5.40 of the Act.

(5) The selection panel must not recommend an applicant to the local government under subclause (2)(b) unless the selection panel has –

(a) Assessed the applicant has having demonstrated that the applicant's knowledge, experience, qualifications and skills meet the selection criteria; and

(b) Verified any academic, or other tertiary level, qualifications the applicant claims to hold; and

(c) Whether by contacting referees provided by the applicant or making any other inquiries the selection panel considers appropriate, verified the applicant's character, work history, skills, performance and any other claims made by the applicant.

(6) The local government must have regard to, but is not bound to accept, a recommendation made by the selection panel under this clause.

Officer Comment:

At the SCM on 21 September 2026 Council received a copy of the recruitment report provided by the consultant setting out a summary of the process followed, together with a recommendation from the Selection Panel as to the preferred applicant.

6. Cl. 10 Application of Cl. 5 Where New Process Carried Out

(1) This clause applies if the local government accepts a recommendation by the selection panel under clause 9(3)(a) that a new recruitment and selection process for the position of CEO be carried out in accordance with these standards.

(2) Unless the local government considers that changes should be made to the duties and responsibilities of the position or the selection criteria -

(a) Clause 5 does not apply to the new recruitment and selection process; and

(b) The job description form previously approved by the local government under clause 5(2) is the job description form for the purposes of the new recruitment and selection process.

Officer Comment:

Not applicable.

7. Cl. 11 Offer of Employment in Position of CEO

Before making an applicant an offer of employment in the position of CEO, the local government must, by resolution of an absolute majority of the council, approve –

(a) the making of the offer of employment to the applicant; and

(b) The proposed terms of the contract of employment to be entered into by the local government and the applicant.

Officer Comment:

At the SCM on 21 September 2026, Council resolved by absolute majority to make an offer of employment to the preferred applicant, to approve the proposed terms of the CEO contract of employment and to authorise the President and Deputy President to negotiate final contract terms, within the parameters of the approved contract.

The contract of employment approved by Council was signed by all parties without any changes being made to the details approved by Council.

RISK IMPLICATIONS

There are no significant risk implications associated with certification of the CEO recruitment process by Council.

Failure to provide a certification without due reason would result in an instance of non-compliance with legislative requirements.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Government Act 1995
Part 5 Administration
Division 5 Local government employees
Section 5.39B Adoption of model standards

Local Government (Administration) Regulations 1996
Part 4 Local government employees
Regulation 18FB Certification of compliance with adopted standards for CEO recruitment (Act s. 5.39B(7))

POLICY IMPLICATIONS

Shire of Gingin Standards for CEO Recruitment, Performance and Termination

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Nil

VOTING REQUIREMENTS - ABSOLUTE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Peczka SECONDED: Councillor Woods

That Council:

1. **Certify that the employment of Mr Zac Donovan in the position of CEO of the Shire of Gingin was undertaken in accordance with the Shire's adopted Standards for CEO Recruitment, Performance and Termination; and**

2. Acknowledge that a copy of this resolution will be provided to the Local Government Inspector within 14 days of the resolution being made.

CARRIED BY ABSOLUTE MAJORITY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

11.4 TERMS OF REFERENCE FOR PLACE-BASED ADVISORY GROUPS

File	GOV/33
Author	Lee-Anne Burt - Coordinator Governance
Reporting Officer	James Bayliss – Temporary Chief Executive Officer
Refer	17 February 2026 - OCM - 12.1 Review of Council Advisory/Working Groups
Appendices	1. Terms of Reference - Inland Areas Advisory Group [**11.4.1** - 4 pages] 2. Terms of Reference - Lower Coastal Advisory Group [**11.4.2** - 3 pages] 3. Terms of Reference - Upper Coastal Advisory Group [**11.4.3** - 3 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

For Council to adopt the Terms of Reference for the Inland Areas Advisory Group, Upper Coastal Advisory Group and Lower Coastal Advisory Group, and appoint Deputy Presiding Members for each Group.

BACKGROUND

At its Ordinary Council Meeting on 17 February 2026, Council considered a review of its Advisory and Working Groups, including their membership and value proposition, to ensure the Working Groups remained effective and fit for purpose. Following consideration of the review, Council resolved to establish a new advisory group structure by establishing three new advisory groups to foster inclusive, place-based community engagement as follows:

It was recommended that Council consider establishing three new Advisory Groups to foster inclusive, place-based community engagement. The new groups suggested would be:

1. Gingin and Inland Areas Advisory Group – all communities not adjacent to Indian Ocean Drive.

2. Upper Coastal Advisory Group – communities adjacent to Indian Ocean Drive north of the Greenwood Coast Road/McCormick Road/Indian Ocean Drive intersection.

3. Lower Coastal Advisory Group - communities adjacent to Indian Ocean Drive south of the Greenwood Coast Road/McCormick Road/Indian Ocean Drive intersection.

These groups represent a relatively even split of the Shire's population and align communities with similar interests and amenity needs to enhance place-based planning and decision making.

As part of that resolution, Councillors were appointed to each Working Group as follows:

"4. Establish:

a. The Inland Areas Advisory Group, Upper Coastal Advisory Group and Lower Coastal Advisory Group, and direct the CEO to develop draft terms of reference for each new advisory group for adoption by Council at the April 2026 Ordinary Council meeting;

b. Appoint: Cr Wilkie, Cr Woods and Cr Kestel to the Inland Areas Advisory Group, with Cr Kestel appointed as Chair;

c. Appoint Cr Peczka, Cr Stewart and Cr Hyne to the Upper Coastal Advisory Group, with Cr Peczka appointed as Chair; and

d. Appoint Cr Vis, Cr Weeks and Cr Balcombe to the Lower Coastal Advisory Group with Cr Weeks appointed as Chair."

In accordance with Council's resolution, the proposed Terms of Reference have now been prepared and are presented for Council's consideration **(see appendices).**

COMMENT

At the Strategic Discussion Session held on 7 October 2026, Council was asked to provide feedback on the draft Terms of Reference, specifically in relation to the community/progress associations which will provide representatives to each Advisory Group, and appointment of a deputy presiding member for each group.

Terms of Reference

The Terms of Reference submitted for formal consideration are as presented to the Strategic Discussion Session, with the exception of the following minor amendments:

1. The month at the top of each Terms of Reference has been amended from September to October.

2. Cl. 2 has been amended slightly to clarify that Group members are able to submit discussion items for inclusion on the agenda for a Group meeting.

3. A new cl. 20 has been inserted to provide clarity around submission of issues arising from Group discussions for formal Council consideration.

4. Cl. 5 of the Terms of Reference for the Upper Coastal Advisory Group has been amended to correctly show the community groups that will be invited to nominate representatives to the Advisory Group.

Appointment of Deputy Presiding Members

Cl. 9 of each Terms of Reference specifies that the Presiding Member and Deputy Presiding Member of each group will be council members appointed by decision of Council following each local government election.

Council has already appointed a Presiding Member for each group. Deputy Presiding Members must now also be appointed for a period ending at the 2027 elections. The following council members are eligible for appointment:

1.	Inland Areas Advisory Group:	Cr Wilkie Cr Woods
2.	Lower Coastal Advisory Group:	Cr Balcombe Cr Vis
3.	Upper Coastal Advisory Group:	Cr Hyne Cr Stewart

Once the Terms of Reference have been adopted by Council Administration, Administration will then commence the process of inviting relevant community groups to submit details of their nominated representatives. At the same time any available positions for members of the general community will also be advertised to the public.

The maximum number of general community positions available for each group is:

Inland Areas Advisory Group:	12
Lower Coastal Advisory Group:	7
Upper Coastal Advisory Group:	8

RISK IMPLICATIONS

There are no significant risks identified with respect to ratification of the Terms of Reference for Council's place-based advisory groups. It is considered that the Terms of Reference address any matters that may reasonably be foreseen as potentially being a cause for uncertainty or confusion with respect to the manner in which the Groups function.

STATUTORY/LOCAL LAW IMPLICATIONS

Nil

POLICY IMPLICATIONS

Council Policy 1.41 - Community and Stakeholder Engagement.

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

It is considered that each of the advisory groups have the potential to provide the Shire with feedback relating to issues under all of the Aspirations recognised in the Shire's 2026-2036 Strategic Community Plan, which are as follows:

1. Protect and champion environmental diversity;
2. Creating sustainable economic growth opportunities;
3. Local connection and Shire wide opportunities;
4. Stronger support and investment in capacity and wellbeing; and
5. A connected, mobile and active community.

VOTING REQUIREMENTS - SIMPLE MAJORITY

MOTION/OFFICER RECOMMENDATION

MOVED: Councillor Vis SECONDED: Councillor Hyne

That Council:

1. Agree to adopt the Terms of Reference for the Inland Areas Advisory Group, Lower Coastal Advisory Group and Upper Coastal Advisory Group as presented; and
2. Make the following appointments to the position of Deputy Presiding Member for a period ending at the local government election on 16 October 2027:
   a. Inland Areas Advisory Group: Cr .....;
   b. Lower Coastal Advisory Group: Cr .....; and
   c. Upper Coastal Advisory Group: Cr .....

During debate, Cr Kestel moved an amendment motion as follows:

AMENDMENT MOTION

MOVED: Councillor Kestel SECONDED: Councillor Hyne

That Council amend the motion in Part 1 by adding the following after the words "as presented":

", subject to insertion of a new clause 8 under Membership and renumbering of subsequent clauses:

8. Where a person is subject to a determination by the CEO that their communications with the Shire should be restricted in accordance with Council's Dealing with Complaints policy, then:

   a. Any nomination of the person as representative or deputy representative by a community/progress association will not be accepted;

   b. Any expression of interest for a community representative position by the person will not be accepted;

   c. If the person is an existing Group member then their membership will be immediately terminated;

   d. If the position is a community/progress association representative then the association will be asked to nominate a new representative or deputy representative; and

   e. If the position is a community representative then the Shire may conduct a new expression of interest process in order to fill the position. "

CARRIED
5 / 2

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Vis and Councillor Woods*

AGAINST: *Councillor Peczka and Councillor Wilkie*

Reason for Amendment

To provide a mechanism in the Terms of Reference to ensure that persons who are the subject of a determination by the CEO in relation to restricted communication are not members of any of the Shire's place-based advisory groups.

The amendment was incorporated into the substantive.

During debate, Councillor Balcombe called for nominations for the position of Deputy Presiding Member on each of the three Advisory Groups.

Inland Areas Advisory Group

Councillor Wilkie and Councillor Woods were nominated for the position of Deputy Presiding Member.

As more than one nomination was received, Councillor Balcombe requested a show of hands to determine which nominee's name would be included in the motion for appointment. The results were:

- *Councillor Wilkie – 1 vote; and*
- *Councillor Woods – 6 votes*

As Councillor Nikki Woods received the majority of votes, her name was included in the motion for appointment as Deputy Presiding Member of the Inland Areas Advisory Group.

Lower Coastal Advisory Group

Councillor Balcombe nominated Councillor Vis for the position of Deputy Presiding Member. Councillor Vis accepted the nomination.

As no further nominations were received, Councillor Vis' name was included in the motion for appointment as Deputy Presiding Member of the Lower Coastal Advisory Group.

Upper Coastal Advisory Group

Councillor Hyne was nominated for the position of Deputy Presiding Member.

As no further nominations were received, Councillor Hyne's name was included in the motion for appointment as Deputy Presiding Member of the Upper Coastal Advisory Group.

The motion was then put.

COUNCIL RESOLUTION

MOVED: Councillor Vis SECONDED: Councillor Hyne

That Council:

1. **Agree to adopt the Terms of Reference for the Inland Areas Advisory Group, Lower Coastal Advisory Group and Upper Coastal Advisory Group as presented, subject to insertion of a new clause 8 under Membership and renumbering of subsequent clauses:**

8. Where a person is subject to a determination by the CEO that their communications with the Shire should be restricted in accordance with Council's Dealing with Complaints policy, then:

   a. Any nomination of the person as representative or deputy representative by a community/progress association will not be accepted;

   b. Any expression of interest for a community representative position by the person will not be accepted;

   c. If the person is an existing Group member then their membership will be immediately terminated;

   d. If the position is a community/progress association representative then the association will be asked to nominate a new representative or deputy representative; and

   e. If the position is a community representative then the Shire may conduct a new expression of interest process in order to fill the position.; and

2. Make the following appointments to the position of Deputy Presiding Member for a period ending at the local government election on 16 October 2027:

   a. Inland Areas Advisory Group: Cr Woods;

   b. Lower Coastal Advisory Group: Cr Vis; and

   c. Upper Coastal Advisory Group: Cr Hyne.

CARRIED
6 / 1

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis and Councillor Woods*

AGAINST: *Councillor Wilkie*

TERMS OF REFERENCE

INLAND AREAS ADVISORY GROUP

October 2026

Name:	
	Inland Areas Advisory Group (the Group)
Region Covered:	
	Includes the following localities identified by the Shire's Strategic Community Plan as comprising the Rural Areas subregion: • Orange Springs; • Cowalla; • Wanerie; • Beermullah; • Muckenburra; • Yeal; • Bambun; • Coonabidgee; • Granville; • Red Gully; • Mindarra; • Boonanarring; • Ginginup; • Gingin; • Lennard Brook; • Breera; • Moondah; and • Cullalla.
Purpose and Objectives:	
1.	The purpose of the Group is to act in an advisory and consultative capacity. The Group will discuss and provide realistic, community-informed advocacy with respect to issues affecting the Group's region of focus, such as: a. Facilities (eg sporting, community and medical) b. Services (eg waste, seniors and youth) c. Community groups and events (eg inputs from local groups and events in the area) d. Projects (eg planned, needed or desired) e. Other issues of concern to the community within the region; and f. Other issues identified by the Shire.
2.	The Shire will present discussion papers to the Group on specific matters where community feedback is required. Group members may also submit discussion items to the Shire for inclusion on the agenda for a Group meeting.

3.	The Group will provide an additional avenue of community engagement with respect to aspects of the Aspirations contained in the Shire's Strategic Community Plan 2026-2036, as follows: a. Protect and champion environment diversity; b. Creating sustainable economic growth opportunities; c. Local connection and Shire wide opportunities; d. Stronger support and investment in capacity and wellbeing; and e. Connected, mobile and active community.
4.	The Group is advisory in nature and does not have any delegated authority.
Membership:	
5.	The Group will comprise a maximum of 13 members, inclusive of: a. Council Representatives - Three council members will be appointed by Council. b. Community/Progress Association Representatives - One representative from each of the groups listed below. Each group will be asked to nominate a member to represent the group and a deputy member who can attend if the member is unavailable. Groups must advise the CEO if changes are made to their representative. i. Project Gingin c. Community Representatives - If the total number of members listed in cl. 5a) and 5b) is less than 13, then any vacant positions may be filled by selected community representatives based on an expression of interest process. Representatives will be selected by decision of Council, taking into account the following criteria: i. Must be over the age of 18; ii. Must be an elector, ratepayer or resident of the Shire of Gingin; iii. Must agree to comply with the Code of Conduct for Council Members, Committee Members and Candidates, including disclosure of any conflicts of interest; iv. Must commit to attending meetings and to advising the CEO, prior to the meeting, if they are unable to attend and whether the deputy will be attending in their place; and v. Reasons for wanting to be a member of the Group.
6.	Only one community representative application per residential address will be considered.
7.	If a representative is absent from more than 2 consecutive meetings then their position on the Group may be terminated by Council. The relevant community/progress association may be asked to appoint another member or, if the person is a community representative who is not appointed by a particular group, then Council may call for further expressions of interest.
8.	Meetings will be attended by the following Shire officers in an advisory capacity: a. CEO (or the CEO's representative); and b. Other officers as deemed appropriate by the CEO.
9.	The Presiding Member and Deputy Presiding Member will be council members appointed by decision of Council after each local government election.
10.	All terms will expire on the next local government election day. Council member appointments will be made by Council at its first meeting following election day. Prior to election day community groups will be requested to provide details of their nominated representative and deputy representative for the new two year term (these can be existing representatives), and an advertising campaign calling for expressions of interest from general community representatives for Council's consideration may be undertaken.
Meetings and Operating Procedures:	
11.	Group meetings will not be open to the public.

12.	The Shire will coordinate the activities of the Group.
13.	The Group shall meet as per an agreed schedule of meetings, which will be developed and agreed by the Group. At a minimum the Group will meet at least twice in each financial year, with the first meeting in the period August-October and the second in the period February-April. Individual meeting dates may be amended if necessary by the Shire, by the Group's presiding member or by agreement of the Group itself.
14.	Group members wishing to raise matters for inclusion on the agenda for a particular meeting must submit details to the CEO or a Shire employee nominated by the CEO at least 10 days prior to a scheduled meeting.
15.	An agenda will be circulated to all members via the secure extranet (for council members) or by email (for community representatives) at least 72 hours prior to each meeting.
16.	Meetings will ordinarily be conducted in person at a venue to be determined by the Shire. They may, at times, be convened via a Shire-approved online platform.
17.	The Presiding Member is responsible for chairing all meetings of the Group. If the Presiding Member is absent from a meeting, then the Deputy Presiding Member will assume the chair.
18.	The Shire will be responsible for keeping a record of each meeting which will include names of those in attendance, any disclosures of interest made in relation to items on the agenda and any outcomes arising from discussions. Meeting records will be circulated to Group members as soon as practicable after each meeting via the same methods used to circulate the agenda, and will be provided to all council members as part of the next available Information Bulletin.
19.	The Group may request that guests, including (but not limited to), Shire officers and/or external subject matter experts, be invited to attend specific meetings. Such invitations may only be issued by the Shire.
20.	Where it is determined by the Shire that a matter discussed at a Group meeting requires formal consideration by Council, then the Shire will prepare an officer report on the matter for presentation to a Council meeting.
Quorum:	
21.	The quorum for a meeting shall be at least 50% of the participating members of the Group.
Conduct:	
22.	All members must comply with the Shire's Code of Conduct for Council Members, Committee Members and Candidates as if the Group were a committee.
23.	Meeting agendas and notes are to be treated confidentially unless otherwise advised.
24.	Any actual or perceived conflicts of interest are to be disclosed at the start of a meeting or as soon as they become evident during discussion at the meeting.
25.	As the Group is established under the authority and management of the Shire, no individual member of the Group can claim to represent the views of the Group or the Shire of Gingin. The Shire must manage all enquiries on matters relating to Group activities or Shire of Gingin business.
Review of Terms of Reference:	
26.	These Terms of Reference will be reviewed by the Shire after each local government

	election.
27.	Any variation to these Terms of Reference must be endorsed by Council.

Version	Decision Reference	Synopsis

TERMS OF REFERENCE

LOWER COASTAL ADVISORY GROUP

October 2026

Name:	
	Lower Coastal Advisory Group (the Group)
Geographical Boundary:	
	Includes the following localities defined by the Shire's Strategic Community Plan as comprising the Lower Coastal Subregion: • Breton Bay; • Seabird; • Gabbadah; • Guilderton; • Caraban; • Woodridge; and • Neergabby.
Purpose and Objectives:	
1.	The purpose of the Group is to act in an advisory and consultative capacity. The Group will discuss and provide realistic, community-informed advocacy with respect to issues affecting the Group's region of focus, such as: a. Facilities (eg sporting, community and medical); b. Services (eg waste, seniors and youth); c. Community groups and events (eg inputs from local groups and events in the area); d. Projects (eg planned, needed or desired); e. Other issues of concern to the community within the region; and f. Other issues identified by the Shire.
2.	The Shire will present discussion papers to the Group on specific matters where community feedback is required. Group members may also submit discussion items to the Shire for inclusion on the agenda for a Group meeting.
3.	The Group will provide an additional avenue of community engagement with respect to aspects of the Aspirations contained in the Shire's Strategic Community Plan 2026-2036, as follows: a. Protect and champion environment diversity; b. Creating sustainable economic growth opportunities; c. Local connection and Shire wide opportunities; d. Stronger support and investment in capacity and wellbeing; and e. Connected, mobile and active community.
4.	The LCAG is advisory in nature and does not have any delegated authority.
Membership:	

5.	The Group will comprise a maximum of 13 members, inclusive of: a. Council Representatives - Three council members will be appointed by Council. b. Community/Progress Association Representatives - One representative from each of the groups listed below. Each group will be asked to nominate a member to represent the group and a deputy member who can attend if the member is unavailable. Groups must advise the CEO if changes are made to their representative. i. Guilderton Community Association Inc; ii. Neergabby Community Association; iii. Seabird Progress and Sports Association Inc; iv. Redfield Park Community Association; v. Sovereign Hill Community Association Inc; and vi. Woodridge Community Association. c. Community Representatives - If the total number of members listed in cl. 5a) and 5b) is less than 13, then any vacant positions may be filled by selected community representatives based on an expression of interest process. Representatives will be selected by decision of Council, taking into account the following criteria: i. Must be over the age of 18; ii. Must be an elector, ratepayer or resident of the Shire of Gingin; iii. Must agree to comply with the Code of Conduct for Council Members, Committee Members and Candidates, including disclosure of any conflicts of interest; iv. Must commit to attending meetings and to advising the CEO, prior to the meeting, if they are unable to attend and whether the deputy will be attending in their place; and v. Reasons for wanting to be a member of the Group.
6.	Only one community representative application per residential address will be considered.
7.	If a representative is absent from more than 2 consecutive meetings then their position on the Group may be terminated by Council. The relevant community/progress association may be asked to appoint another member or, if the person is a community representative who is not appointed by a particular group, then Council may call for further expressions of interest.
8.	Meetings will be attended by the following Shire officers in an advisory capacity: a. CEO (or the CEO's representative); and b. Other officers as deemed appropriate by the CEO.
9.	The Presiding Member and Deputy Presiding Member will be council members appointed by decision of Council after each local government election.
10.	All terms will expire on the next local government election day. Council member appointments will be made by Council at its first meeting following election day. Prior to election day community groups will be requested to provide details of their nominated representative and deputy representative for the new two year term (these can be existing representatives), and an advertising campaign calling for expressions of interest from general community representatives for Council's consideration may be undertaken.
Meetings and Operating Procedures:	
11.	Group meetings will not be open to the public.
12.	The Shire will coordinate the activities of the Group.
13.	The Group shall meet as per an agreed schedule of meetings, which will be developed and agreed by the Group. At a minimum the Group will meet at least twice in each financial year, with the first meeting in the period August-October and the second in the period February-April. Individual meeting dates may be amended if necessary by the Shire, by the Group's presiding member or by agreement of the Group itself.

14.	Group members wishing to raise matters for inclusion on the agenda for a particular meeting must submit details to the CEO or a Shire employee nominated by the CEO at least 10 days prior to a scheduled meeting.
15.	An agenda will be circulated to all members via the secure extranet (for council members) or by email (for community representatives) at least 72 hours prior to each meeting.
16.	Meetings will ordinarily be conducted in person at a venue to be determined by the Shire. They may, at times, be convened via a Shire-approved online platform.
17.	The Presiding Member is responsible for chairing all meetings of the Group. If the Presiding Member is absent from a meeting, then the Deputy Presiding Member will assume the chair.
18.	The Shire will be responsible for keeping a record of each meeting which will include names of those in attendance, any disclosures of interest made in relation to items on the agenda and any outcomes arising from discussions. Meeting records will be circulated to Group members as soon as practicable after each meeting via the same methods used to circulate the agenda, and will be provided to all council members as part of the next available Information Bulletin.
19.	The Group may request that guests, including (but not limited to), Shire officers and/or external subject matter experts, be invited to attend specific meetings. Such invitations may only be issued by the Shire.
20.	Where it is determined by the Shire that a matter discussed at a Group meeting requires formal consideration by Council, then the Shire will prepare an officer report on the matter for presentation to a Council meeting.
Quorum:	
21.	The quorum for a meeting shall be at least 50% of the participating members of the Group.
Conduct:	
22.	All members must comply with the Shire's Code of Conduct for Council Members, Committee Members and Candidates as if the Group were a committee.
23.	Meeting agendas and notes are to be treated confidentially unless otherwise advised.
24.	Any actual or perceived conflicts of interest are to be disclosed at the start of a meeting or as soon as they become evident during discussion at the meeting.
25.	As the Group is established under the authority and management of the Shire, no individual member of the Group can claim to represent the views of the Group or the Shire of Gingin. The Shire must manage all enquiries on matters relating to Group activities or Shire of Gingin business.
Review of Terms of Reference:	
26.	These Terms of Reference will be reviewed by the Shire after each local government election.
27.	Any variation to these Terms of Reference must be endorsed by Council.

Version	Decision Reference	Synopsis

TERMS OF REFERENCE

UPPER COASTAL ADVISORY GROUP

October 2026

Name:	
	Upper Coastal Advisory Group (the Group)
Geographical Boundary:	
	Includes the following localities comprising the Upper Coastal subregion, as defined by the Shire of Gingin's Community Strategic Plan: • Lancelin; • Ledge Point; • Karakin; and • Nilgen.
Purpose and Objectives:	
1.	The purpose of the Group is to act in an advisory and consultative capacity. The Group will discuss and provide realistic, community-informed advocacy with respect to issues affecting the Group's region of focus, such as: a. Facilities (eg sporting, community and medical); b. Services (eg waste, seniors and youth); c. Community groups and events (eg inputs from local groups and events in the area); d. Projects (eg planned, needed or desired); e. Other issues of concern to the community within the region; and f. Other issues identified by the Shire.
2.	The Shire will present discussion papers to the Group on specific matters where community feedback is required. Group members may also submit discussion items to the Shire for inclusion on the agenda for a Group meeting.
3.	The Group will provide an additional avenue of community engagement with respect to aspects of the Aspirations contained in the Shire's Strategic Community Plan 2026-2036, as follows: a. Protect and champion environment diversity; b. Creating sustainable economic growth opportunities; c. Local connection and Shire wide opportunities; d. Stronger support and investment in capacity and wellbeing; and e. Connected, mobile and active community;
4.	The Group is advisory in nature and does not have any delegated authority.
Membership:	
5.	The Group will comprise a maximum of 13 members, inclusive of:

6. 7.	a. Council Representatives - Three council members will be appointed by Council. b. Community/Progress Association Representatives - One representative from each of the groups listed below. Each group will be asked to nominate a member to represent the group and a deputy member who can attend if the member is unavailable. Groups must advise the CEO if changes are made to their representative. i. Lancelin Chamber of Commerce and Industry; ii. Lancelin District Community Association; iii. Ledge Point Community Association; iv. Seaview Park Community Association; and v. Ocean Farm Community and Recreation Association. c. Community Representatives - If the total number of members listed in cl. 5a) and 5b) is less than 13, then any vacant positions may be filled by selected community representatives based on an expression of interest process. Representatives will be selected by decision of Council, taking into account the following criteria: i. Must be over the age of 18; ii. Must be an elector, ratepayer or resident of the Shire of Gingin; iii. Must agree to comply with the Code of Conduct for Council Members, Committee Members and Candidates, including disclosure of any conflicts of interest; iv. Must commit to attending meetings and to advising the CEO, prior to the meeting, if they are unable to attend and whether the deputy will be attending in their place; and v. Reasons for wanting to be a member of the Group. Only one community representative application per residential address will be considered. If a representative is absent from more than 2 consecutive meetings then their position on the Group may be terminated by Council. The relevant community/progress association may be asked to appoint another member or, if the person is a community representative who is not appointed by a particular group, then Council may call for further expressions of interest.
8.	Meetings will be attended by the following Shire officers in an advisory capacity: a. CEO (or the CEO's representative); and b. Other officers as deemed appropriate by the CEO.
9.	The Presiding Member and Deputy Presiding Member will be council members appointed by decision of Council after each local government election.
10.	All terms will expire on the next local government election day. Council member appointments will be made by Council at its first meeting following election day. Prior to election day community groups will be requested to provide details of their nominated representative and deputy representative for the new two year term (these can be existing representatives), and an advertising campaign calling for expressions of interest from general community representatives for Council's consideration may be undertaken.
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Review of Terms of Reference:	
26.	These Terms of Reference will be reviewed by the Shire after each local government election.
27.	Any variation to these Terms of Reference must be endorsed by Council.

Version	Decision Reference	Synopsis

12 REPORTS - CORPORATE SERVICES

12.1 REVIEW - POLICY 3.10 PURCHASING

File	GOV/31
Author	Leanne Parola - Acting Executive Manager Corporate and Community Services
Reporting Officer	Leanne Parola - Acting Executive Manager Corporate and Community Services
Refer	Nil
Appendices	1. Amended Policy 3.10 Purchasing [**12.1.1** - 18 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To consider the adoption of proposed amended Council Policy 3.10 Purchasing.

BACKGROUND

Elected Members were provided with a draft version of this policy containing proposed amendments for review at the Strategic Briefing Session held on 4 August 2026 and were invited to provide feedback to the Temporary CEO by close of business on 25 August 2026.

Any feedback received was to be incorporated into a subsequent Council report, with the policy either being amended, where appropriate, for Council's consideration or presented for adoption at the next available Ordinary Council Meeting (OCM) following the review period. Where relevant, the report would also include Administration's response to any issues raised.

No formal feedback or comments were received from Elected Members during the review period. Accordingly, the policy is now presented to Council for formal adoption.

COMMENT

This Policy was due for review in August 2024 and therefore needs to be contemporised. It is appropriate to update this policy as a priority to ensure it reflects current legislative requirements and continues to provide a clear and compliant framework for procurement and purchasing activities.

The proposed amendments:

- Update the policy to align with exemptions under the *Local Government Act 1995* and *Local Government (Functions and General) Regulations 1996*;
- Improve governance and probity requirements, including those relating to ethics, conflicts of interest, transparency and recordkeeping;
- Expand the value for money principles to include whole-of-life costs, risk, sustainability, supplier capability and local economic benefit rather than price alone;
- Provide clearer procurement thresholds, quotation requirements, evaluation panel requirements and approval processes;
- Outline practices for sole source procurement, emergency purchasing, exemptions and contract variations;
- Introduce guidance on the establishment and management of panels of pre-qualified suppliers;
- Include new provisions supporting local businesses, Aboriginal businesses and Australian Disability Enterprises, consistent with legislative exemptions and Council's broader economic development objectives; and
- Clarify responsibilities and consequences for non-compliance.

RISK IMPLICATIONS

Outdated policies or the absence of appropriate policies can lead to ambiguity, inconsistency and poor governance practices. This can potentially have risk implications in the areas of reputation and compliance.

STATUTORY/LOCAL LAW IMPLICATIONS

Where any legislation applies, this has been referenced in the relevant policy.

POLICY IMPLICATIONS

Policy 1.4 Council Policy Management

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Nil

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Vis SECONDED: Councillor Kestel

That Council:

1. Adopt amended Policy 3.10 Purchasing as appendiced;

2. Authorise the CEO to make minor typographical amendments to the Policy, where the materiality of the Policy is not affected, acknowledging that such amendments will be incorporated into future template versions to improve presentation and/or correct errors;

3. Acknowledge that the policy was provided to Elected Members for review and feedback at the Strategic Briefing Session on 4 August 2026; and

4. Acknowledge that no feedback was received from Elected Members within the specified consultation period.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

Policy 3.10
Purchasing and Procurement

OBJECTIVE

The objectives of this Policy are to ensure that all purchasing activities:

- Achieve best value for money, considering whole-of-life costs and sustainable benefits including environmental, social and local economic factors;
- Comply with all relevant legislation, including the LGA, the Regulations and the Shire's policies, procedures and Codes of Conduct;
- Are recorded accurately and in accordance with the *State Records Act 2000* and the Shire's recordkeeping procedures;
- Mitigate probity risks through consistent, transparent, fair and equitable processes for all potential suppliers;
- Foster local economic development by maximising opportunities for local businesses to supply goods, services and works;
- Use consistent, efficient and accountable purchasing processes, including competitive quotation practices and appropriate assessment of value for money;
- Apply fair and impartial competitive processes, ensuring all suppliers are treated honestly and consistently;
- Uphold integrity and ethical decision-making, avoiding bias and managing actual, potential or perceived conflicts of interest;
- Support organisational efficiencies, ensuring purchasing outcomes contribute to effective use of Shire resources;
- Identify and manage risks associated with purchasing processes and outcomes, in line with the Shire's risk management procedures; and
- Ensure confidentiality, protecting commercial-in-confidence information and releasing information only when appropriately authorised to do so.

SCOPE

This Policy applies to all relevant purchasing and procurement undertaken by, or on behalf of the Shire, which includes employees, Council Members and Shire contractors.

Policy 3.10
Purchasing and Procurement

POLICY

1. Policy Statement

The Shire is committed to delivering best practice in the purchasing of goods, services and works by applying the principles of transparency, probity, good governance and sustainable procurement. The Shire will establish efficient, effective, and economical purchasing practices that comply with the LGA and the Regulations. All procurement processes and procedures to be followed are defined within this Policy and the Shire's prescribed procurement procedures.

2. Ethics and Integrity

2.1 Code of Conduct

All employees, contractors and Council Members involved in purchasing activities must comply with the Codes of Conduct and uphold the highest standards of ethics and integrity. They are required to act honestly, professionally and impartially at all times, ensuring their conduct supports the reputation and standing of the Shire.

2.2 Purchasing Principles

The following principles, standards and behaviours must be observed and enforced through all stages of the purchasing process to ensure the fair and equitable treatment of all parties:

- Full accountability shall be taken for all purchasing decisions and the efficient, effective and proper expenditure of public monies based on achieving value for money;
- All purchasing practices shall comply with relevant legislation, regulations, and requirements consistent with the Shire's policies and Code of Conduct;
- Purchasing is to be undertaken on a competitive basis where all potential suppliers are treated impartially, honestly and consistently;
- All processes, evaluations and decisions shall be transparent, free from bias and fully documented in accordance with applicable policies, audit requirements and relevant legislation;
- Any actual or perceived conflicts of interest are to be identified, disclosed and appropriately managed;
- Any information provided to the Shire by a supplier shall be treated as commercial-in-confidence and should not be released unless authorised by the supplier or relevant legislation; and

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Purchasing and Procurement

- Employees must evidence their purchasing activities with the issue of purchase orders and operate within their authorised purchasing limit.

3. Value for Money

The Shire will apply value-for-money principles when assessing all purchasing decisions. The lowest price alone does not necessarily represent the most advantageous outcome and therefore assessments must also consider quality, risk and whole-of-life value.

3.1 Assessing Value for Money

A value-for-money assessment will consider:

- TCO applies for all purchases, including all costs associated with acquisition, delivery, implementation, training, maintenance, operation, consumables and disposal.
- Technical merits, including compliance with specifications, quality standards, contractual terms, resource availability, capacity and capability, warranties, guarantees, response times, ease of maintenance, after-sales service and communication.
- Supplier financial viability, including capacity to supply without risk of default and the supplier's performance, capability and compliance history
- Competition, ensuring sufficient competitive quotations are sought wherever practicable.
- Safety requirements and risk, including product design, compliance with relevant standards and risks arising from supply, installation, operation or maintenance.
- Local economic participation, including opportunities for businesses within the Shire's boundaries to quote whenever possible.
- Sustainability benefits, including environmental, social and economic benefits, corporate social responsibility and alignment with relevant Shire policies such as Regional Price Preference.
- Risk analysis, including identification and management of risks and opportunities associated with the purchasing activity, supplier performance and the goods or services being procured.

4. Purchasing Requirements and Thresholds

4.1 Legislative and Regulatory Requirements

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All purchasing activities must comply with the LGA, the Regulations, this Policy, the Shire's Delegated Authority Register and the Shire's internal procurement procedures.

For the avoidance of doubt, where there is any inconsistency between this Policy and the Act or the Regulations, the Act and Regulations prevail.

4.2 Defining the Purchasing Value

The Shire will apply reasonable and consistent methodologies to determine purchasing value to ensure:

- the correct purchasing threshold and practice is applied; and
- purchasing for the same category of supply is combined where appropriate to achieve best value and efficiency.

A category of supply is a group of similar goods or services with common supply/demand characteristics.

4.2.1 Strategic Purchasing Value Assessments

The Shire will periodically review previous procurement activity to identify categories of supply capable of being consolidated into single contracts for improved value for money. The assessment will consider total expenditure across the maximum potential contract term.

4.2.2 Individual Purchasing Value Assessments

Where no contract exists, the purchasing value must be based on:

- the total value excluding GST;
- estimated total expenditure including extension options and TCO; and
- appropriate contract length based on market conditions and forecasted demand.

Purchasing values must not be split to avoid threshold requirements, see cl. 4.9 Anti-Avoidance.

4.3 Purchasing Value Definition

When assessing purchasing value, the Shire must consider:

- the full contract period (including extensions);
- expected total value for similar or ongoing supply within a three-year period; and
- up to 20% variation of the original value.

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Purchasing and Procurement

- Any variation exceeding 20% of the original value must be approved by Council or otherwise in accordance with delegated authority.

4.4 Purchasing from Existing Contracts

Where an existing contract exists, if appropriate, the Shire must use it if the scope is similar. Officers should check the Shire's Contracts and Quotation Register and liaise with the relevant contract manager or responsible officer before calling quotes or tenders.

4.5 Supplier Order of Priority

When selecting suppliers, the Shire will apply the following priority order where appropriate:

1. Existing pre-qualified panel or contract;
2. Local suppliers (Shire boundary first, then Regional Preference Policy applies);
3. WALGA PSA;
4. State Government CUA;
5. Other tender-exempt suppliers (including Aboriginal businesses and Disability Enterprises); and
6. Other suppliers in accordance with thresholds.

For any use of PSA and CUA, exemptions to obtaining quote thresholds may apply (see cl.4.6).

4.6 Purchasing Thresholds and Practices

The total purchasing value assessed under cl. 4.2 determines the relevant purchasing practice required below.

Table: Purchasing Thresholds and Required Practices

Purchase Value (ex GST)	Purchasing Requirement	Evaluators
$0 up to $499	No quotes required	Not applicable
From $500 and up to $9,999	Obtain at least one verbal or written quote from a suitable supplier. Evidence must be recorded.	Minimum 1 internal evaluator

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Purchasing and Procurement

Purchase Value (ex GST)	Purchasing Requirement	Evaluators
From $10,000 and up to $49,999	Seek at least two written quotes. At least one written quote must be obtained. Quotations must address a brief scope and value-for-money criteria. If purchasing from WALGA PSA, State Government CUA or other tender exempt arrangement, at least one written quotation must be obtained.	Minimum 1 internal evaluator*
From $50,000 and up to $99,999^	Formal Request for Quotation (RFQ) or WALGA eQuotes. Seek at least three written quotations and obtain at least one written quotation. If purchasing from a WALGA PSA, State Government CUA or other tender exempt arrangement, at least one written quotation must be obtained.	Minimum 2 internal evaluators*
From $100,000 and up to $249,999^	Formal Request for Quotation (RFQ) or WALGA eQuotes. Seek at least three written responses and at least two must be obtained unless approved by the CEO. If purchasing from a WALGA PSA, State Government CUA or other tender exempt arrangement, at least one written quotation must be obtained.	Minimum 2 internal evaluators*
$250,000 and over^	Use tender-exempt arrangement (WALGA PSA, State Government CUA, reg. 11(2)) or conduct a public tender under Part 4 of the Regulations. Must use detailed specifications and evaluation criteria.	Minimum 3 evaluators* (majority internal). A Probity Auditor is recommended

* At least one evaluator must have delegated authority purchasing limit to approve the quotation amount received

^Approvers for these categories must be signed off by a Manager or above

4.7 Tendering Requirements and Exemptions

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Purchasing and Procurement

Public tenders are required for purchases equal to and over $250,000 (ex GST) unless a tender exemption applies under Regulation 11(2), which includes (but is not limited to) supply through, by or in association with:

- WALGA Preferred Supply Program;
- Commonwealth, State, regional or other local governments;
- WA Aboriginal Business Directory suppliers (for contract values of ≤$250,000 and subject to value for money provisions);
- Australian Disability Enterprises;
- a pre-qualified panel; or
- a state of emergency as defined by Regulation 11(3) (see cl. 4.10).

The Shire may choose to go to tender for contracts with a value below $250,000 where considered beneficial for value, risk or sustainability. If the decision is made to undertake a public tender in this instance, the Shire's tendering procedures must be followed in full.

4.8 Sole Source of Supply

Purchases equal to and over $10,000 may proceed without quotes/tenders only where:

- the market has been tested
- only one genuine supplier exists

Noting that CEO (or authorised officer) approval and documented justification are required.

4.9 Anti-Avoidance

The Shire must not attempt to avoid tender or quotation thresholds by doing any of the following:

- Splitting purchasing activities;
- Creating multiple contracts or purchase orders; and/or
- Purposely restructuring procurement practices.

4.10 Emergency Purchases

Purchases will be exempt from quotes/tender requirements where :

- There is imminent risk to life, public safety, property, or infrastructure; or

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Purchasing and Procurement

- A State of Emergency applies in accordance with Regulation 11(3).

But purchases must:

- Be limited to what is necessary;
- Use existing contracts where possible; and
- Be documented and recorded.

Where no budget allocation exists for the emergency purchase, approval must comply with s.6.8 of the LGA and be reported to Council as soon as practicable.

4.11 Purchasing Exemptions (Non-Tender)

Further exemptions from quotes/tenders apply with the following:

- Employment advertising;
- Provision of temporary personnel via WALGA;
- Training arranged by Human Resources;
- Pre-employment medicals;
- Advertising where it is mandatory for state-wide and local public notice;
- Landgate valuations;
- Advance/prior payment of services (i.e. travel/accommodation/seminars);
- Software licence renewals ≤ $30,000 per annum per renewal;
- Artists/performers for one-off community events;
- Legal services via WALGA, approved by the CEO;
- Memberships and subscriptions;
- Statutory fees, licences, registrations;
- Utility services with a single provider;
- Postage and courier fees;
- Banking fees;
- Insurance through LGISWA (s.9.58(6)(b) LGA);

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- Light fleet (conditional to WALGA PSA's and State CUA's) if purchased by Executive Manager Operations & Assets;
- Fuel costs;
- Debt collection costs;
- Reimbursements;
- Community grants;
- Emergency Services Levy; and
- Proprietary consumables or parts where warranty is voided if substitute/s are used.

4.12 Expressions of Interest (EOI)

EOIs may be invited before a tender where:

- Requirements cannot be fully scoped;
- There are multiple methods to deliver the outcome;
- Supply requires creativity or innovation; and
- Many potential suppliers need shortlisting.

EOI's assess non-price information only.

4.13 Contract Renewals, Extensions and Variations

Contracts may not be varied unless:

- Necessary to supply the goods/services without changing scope; or
- Renewal/extension options were included in the original contract.

After all options are exhausted, a new competitive process is required unless the CEO is satisfied that undertaking a new procurement process would not represent value for money, would not be cost-effective or practical in the circumstances, or another exemption applies.

4.14 Third Party Transactions

Where a third party operates services under a management contract:

- They may receive/return funds on behalf of the Shire;
- All transactions must follow Shire procedures;

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- Funds must be remitted promptly;
- Activities are subject to audit; and
- Third parties must comply with this Policy, with breaches triggering contract remedies.

5. Records to be Retained

The Shire must retain full and accurate records of all purchasing activities in accordance with the *State Records Act 2000*, the Shire's recordkeeping procedures and all associated procurement procedures. All purchasing communications, decisions and transactions constitute official records and must be captured and stored appropriately.

The Shire will ensure that all contracts for works or services include clear requirements for contractors to create, maintain, and transfer to the Shire all records relevant to the performance of the contract.

Records for each procurement process may include, but are not limited to:

- Procurement initiation documents (e.g., business case or justification for procurement);
- Procurement planning and approval documentation detailing how the procurement will be undertaken;
- Request documentation such as RFQ, EOI, or RFT;
- Copies of public advertisements or notices of private invitation (as applicable);
- Copies of all quotations, tenders and submissions received;
- Evaluation documentation, including individual evaluator notes, scoring sheets, clarifications and evaluation reports;
- Negotiation documentation, such as negotiation plans and correspondence;
- Approval of award documentation, including delegated authority signoffs or Council authorisation;
- All correspondence to respondents regarding outcomes, including award and non-award notifications;
- Contract documents, including Contract Management Plans, variations, extensions, and any amendments; and
- Ongoing contract management records, including performance reports, meetings, communications and contractor-provided records relevant to the contract.

6. Sustainable Procurement and Corporate Social Responsibility

The Shire is committed to sustainable procurement practices and to supporting suppliers who demonstrate strong environmental, social, and corporate governance performance. Where appropriate, the Shire will provide preference to suppliers that:

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- minimise environmental impacts;
- demonstrate ethical labour practices;
- contribute positively to social outcomes; and
- operate with high standards of CSR.

Sustainability and CSR considerations must be balanced against value for money and support the Shire's sustainability objectives.

7. Local Economic Benefit

Wherever practicable, the Shire will support local economic development by:

- considering buying practices, procedures and specifications that do not unfairly disadvantage local businesses;
- identifying indirect local benefits such as servicing and support capability;
- ensuring procurement planning assesses local business capacity and local content opportunities;
- exploring the capability of local businesses to meet requirements and designing RFQs and RFTs to accommodate their capacity;
- avoiding bias in specifications and ensuring all documentation encourages local participation; and
- providing adequate and consistent information to potential suppliers.

A qualitative weighting may be applied in evaluations where:

- suppliers are located within the Shire's boundaries; or
- suppliers substantially demonstrate a benefit to the local economy.

The Shire's Regional Price Preference Policy applies to all relevant quotation and tender processes.

8. Purchasing from Disability Enterprises

Under Part 4 of the Regulations, the Shire is not required to publicly tender where goods or services are obtained from an ADE, provided the purchase:

- is listed on the relevant ADE register; and

Policy 3.10
Purchasing and Procurement

- demonstrates value for money.

Where appropriate, ADEs may be invited to quote for goods or services below the tender threshold.

A qualitative weighting may be applied to support participation by Disability Enterprises.

9. Purchasing from Aboriginal Businesses

Under Part 4 of the Regulations, the Shire is not required to publicly tender for purchases up to $250,000 where the supplier is registered on the ABDWA published by the Small Business Development Corporation.

This exemption applies only where the arrangement demonstrates value for money.

Where appropriate, Aboriginal businesses may be invited to quote below the tender threshold.

A qualitative weighting may be applied where suppliers are:

- Aboriginal-owned businesses; or
- Businesses demonstrating significant Aboriginal employment or community benefits.

10. Panels of Pre-Qualified Suppliers

10.1 Objectives

In accordance with Regulation 24AC of the Regulations, the Shire may establish a Panel where most of the following factors apply:

- The Shire determines that a range of similar goods and services are required to be purchased on a continuing and regular basis;
- There are numerous potential suppliers in the relevant market capable of providing value for money;
- The purchasing activity under the intended Panel is assessed as low to medium risk
- The Panel will streamline and improve procurement processes; and
- The Shire has the capability to establish, manage, and derive the expected benefits of the Panel.

Where practicable and cost-effective, the Shire will prefer the use of Panels for categories of supply that involve recurring or high-volume purchasing, as Panels provide efficiencies, improved value for money, and consistent contract management outcomes.

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Panels will not be created unless these factors are clearly established and can be justified.

10.2 Establishing and Managing a Panel

Where the Shire determines that a Panel is beneficial, the Panel will be established in accordance with Part 4, Division 3 of the Regulations.

Panels:

- May be established for one supply requirement or multiple similar supply categories;
- Will be created following a state-wide public invitation process;
- May operate for a minimum of 12 months with extension options determined appropriate by the Shire (generally not exceeding three years);
- Must include clearly defined evaluation criteria communicated in the application documentation; and
- Must state the expected number of suppliers per category.

The Shire will endeavour to appoint at least two suppliers to each Panel category where value for money is demonstrated.

If fewer than two suitable suppliers exist, the CEO may approve one supplier under this arrangement for a period of up to 12 months.

If a Panel member exits the Panel during the term, the Shire may replace them with the next ranked supplier, provided this intention is disclosed in accordance with Regulation 24AD(5)(d) and (e).

The Shire must manage the Panel contract to ensure:

- Supplier performance is monitored;
- Risks are managed; and
- Value for money is achieved.

A Contract Management Plan is recommended for each panel arrangement.

10.3 Distributing Work Amongst Panel Members

Under Regulation 24AD(5), when establishing a Panel, the Shire must specify which of the following arrangements will apply.

(a) Quotations invited from all panel members

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All pre-qualified suppliers (within each category) will be invited to quote for each discrete purchase, using pre-determined evaluation criteria.

(b) Exclusive supply arrangement

The Shire may purchase exclusively from specific Panel members under defined circumstances, which must be detailed in the invitation documentation.

(c) Ranking system

The Shire may establish a ranking system for allocating work, subject to the following:

1. The highest-ranked supplier is invited first
2. If declined, the next ranked supplier is invited
3. If all Panel suppliers decline, the Shire may source from outside the Panel in accordance with purchasing thresholds
4. A ranking-based Panel must not operate longer than 12 months
5. No contract awarded under a ranking system can exceed 12 months in duration, including extensions

In all cases, value for money must be demonstrated for every contract awarded under the panel.

10.4 Purchasing from a Panel

The invitation to join a Panel must clearly state whether:

- Quotations will be invited from every panel member for each requirement;
- A ranking system will apply; and
- Any other prescribed method of allocating work will be used.

All purchases from Panel members must follow the allocation method set out in the original panel establishment documentation.

10.5 Communications and Recordkeeping for Panels

Each quotation process under a panel must be fully documented, including:

- The invitation to quote;
- All communications with Panel members;

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Purchasing and Procurement

- Quotations received;
- Evaluation documentation; and
- Notification of award.

11. Policy Non-Compliance

This Policy is mandated under the LGA and Regulation 11A of the Regulations and therefore forms part of the legislative framework within which the Shire must conduct its purchasing activities.

Where compliance with legislation, this Policy, or associated procedures cannot reasonably be achieved, the Shire must retain records that clearly evidence:

- The circumstances leading to non-compliance;
- The decision-making process; and
- The rationale supporting the action taken.

All purchasing activities are subject to internal and external financial and performance audits, which assess compliance with legislative requirements and Shire policies.

If any non-compliance with legislation, this Policy, or the Code of Conduct is identified, it must be reported to the Chief Executive Officer.

A failure to comply may be subject to investigation, and any findings will consider the responsible officer's:

- Training;
- Experience;
- Level of seniority; and
- Reasonable expectations associated with their role.

Where a breach is substantiated, it may be treated as:

(a) an opportunity for additional training or guidance;
(b) a disciplinary matter, which may be subject to the reporting requirements of the *Public Sector Management Act 1994*;or
(c) serious misconduct, in which case the matter will be reported in accordance with the *Corruption, Crime and Misconduct Act 2003*.

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12. Definitions

ABDWA means the *Aboriginal Business Directory Western Australia*, published by the Small Business Development Corporation, listing verified Aboriginal-owned businesses eligible for tender exemptions under Regulation 11(2).

ADE means *Australian Disability Enterprise*, being an organisation listed on the national ADE register that provides supported employment to people with disability. Purchases from ADEs may be tender-exempt under Regulation 11(2).

Category of Supply means a grouping of similar goods, services or works with common market characteristics that may be aggregated for procurement efficiency.

CUA means a *Common Use Arrangement* established by the Western Australian State Government, being a tender-exempt panel arrangement available for use by public authorities including local governments.

Codes of Conduct means the Shire's adopted Code of Conduct for Employees and Code of Conduct for Council Members, Committee Members and Candidates, which prescribe required standards of ethical and professional behaviour.

Contract Management Plan means a document that outlines how a contract or Panel arrangement will be administered, monitored and reviewed to ensure performance and risk management.

CSR means *Corporate Social Responsibility*, being the commitment of suppliers to ethical behaviour, positive social impact, and environmental responsibility.

EOI means *Expression of Interest*, an early procurement process used to identify capable suppliers or to shortlist applicants before requesting tenders.

GST means *Goods and Services Tax.*

LGA means the *Local Government Act 1995.*

LGISWA means *Local Government Insurance Services Western Australia.*

Regulations means the *Local Government (Functions and General) Regulations 1996.*

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Purchasing and Procurement

Local Content means the extent to which goods, services, labour, materials or subcontracting are sourced from within the Shire of Gingin or recognised regional boundaries.

Panel means a *Panel of Pre-Qualified Suppliers* established under Part 4, Division 3 of the Regulations to supply defined categories of goods, services or works.

PSA means *Preferred Supplier Arrangement*, a tender-exempt panel of pre-qualified suppliers established and administered by WALGA.

Procurement means the end-to-end process of planning, sourcing, evaluating, engaging, managing and closing out contracts for the purchase of goods, services and works.

Purchasing Value means the estimated total expenditure over the full contract term, including options and TCO.

Ranking System means the method permitted under Regulation 24AD for allocating work under a Panel, whereby suppliers are invited in rank order.

Recordkeeping Plan means the Shire of Gingin's plan approved under the *State Records Act 2000.*

Regional Price Preference Policy means the Shire's adopted policy that provides pricing advantages to qualifying local and regional suppliers during evaluation.

Regulations means the *Local Government (Functions and General) Regulations 1996*.

RFQ means *Request for Quotation.*

RFT means *Request for Tender.*

Serious Misconduct means conduct defined under the *Corruption, Crime and Misconduct Act 2003.*

Shire means the Shire of Gingin.

Sole Source of Supply means a purchase where only one supplier is reasonably available, validated by market research and approved in accordance with delegated authority.

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TCO means *Total Cost of Ownership*, being all costs associated with the lifecycle of a good or service including acquisition, operation, maintenance and disposal.

Value for Money means the most advantageous outcome achieved through an assessment of price, quality, risk, sustainability and total cost of ownership, not necessarily the lowest price.

Value for Money Assessment means an evaluation process that considers cost, quality, risk, sustainability, supplier capability and other relevant factors.

WALGA means the *Western Australian Local Government Association.*

GOVERNANCE REFERENCES

Statutory Compliance	*Local Government Act 1995* Local *Government (Functions and General) Regulations 1996*

POLICY ADMINISTRATION

Review Cycle	Four years	**Next Review**	2030
Department	Office of the CEO		

Version	Decision Reference	Synopsis

12.2 LEASE - PORTION OF LOT 301 KING DRIVE, WOODRIDGE

File	CPT/25
Author	Janet Lynch - Leasing and Grants Officer
Reporting Officer	Leanne Parola - Acting Executive Manager Corporate and Community Services
Refer	Nil
Appendices	1. WCA - Leased Area [**12.2.1** - 1 page]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To consider a renewal of lease between the Shire of Gingin and the Woodridge Community Association Inc. (WCA) for Lot 301 (13) King Drive, Woodridge for a term of 5 years.

BACKGROUND

The Woodridge Hall and Community Grounds are situated on Lot 301 (13) King Drive, Woodridge on Diagram 67198, being part of the land comprised in Certificate of Title Volume 1684 Folio 087. The land is owned by the Shire of Gingin in freehold.

Also situated on the property is the Red Robin Playgroup, Woodridge Oasis Cafe, Woodridge Post Office (PO) Boxes and a Containers for Change collection point.

In November 2021, Council endorsed a two year lease with a two year further term to the WCA. This lease arrangement expired on 31 August 2025.

COMMENT

Negotiations for the renewal of the lease agreement between the Shire and WCA commenced prior to the expiry of the lease in August 2025. Discussions were subsequently delayed while the Shire sought to secure revised terms under its agreement with Australia Post for the licensed use of the PO boxes.

The existing lease area includes the Woodridge Hall, Tennis/Netball Courts and a portion of the Woodridge Community Grounds. The proposed lease area remains unchanged from the current lease and is identified in the attached **appendix**.

The continued use of these facilities by the WCA will support the ongoing delivery of community, recreational and social activities for residents and visitors to Woodridge.

The kitchen and toilet facilities within the Woodridge Community Hall are shared with the Red Robin Playgroup, which also leases a portion of the premises. All common areas are required to be cleaned after each use by the hirer/user to ensure a clean facility for the next hirer/user.

The following proposed essential terms have been agreed to by the parties, subject to Council approval:

Lessee	Woodridge Community Association Inc.
Land	Lot 301 on Diagram 67198 being part of the land comprised in Certificate of Title Volume 1684 Folio 087
Premises	Part of the Land depicted in Appendix 13.4.1, including all building, structures, alterations, additions and improvements on that part of the Land, or erected on that part of the Land during the Term.
Use of Premises	Social and recreational activities of the Woodridge Community Association Inc. and all uses reasonably ancillary to that purpose.
Term	Five (5) years
Commencement Date	1 September 2025
Rent	$1 (peppercorn) per annum
Outgoings/Services	All outgoings associated with the Premises, excluding gas, telephone and wi-fi charges, shall be payable by the Shire.
Building Insurance	Shire responsibility
Other Insurance (including contents, public liability, plate glass and the like)	Lessee responsibility
Maintenance and cleaning of Premises	Lessee responsibility
Structural Maintenance	Shire responsibility
Statutory Compliance	Lessee responsibility

The draft lease agreement between the Shire and the WCA has been prepared using the Shire's standard community lease template and is based on the same conditions as the current lease terms. The WCA has reviewed and agreed to the proposed lease arrangements.

Renewing the lease will provide certainty to both parties, enable the continued management and activation of an important community facility by the WCA, and support the ongoing delivery of community benefits from the site.

As the proposed lease is largely consistent with the existing arrangements and does not involve any expansion of the leased area or significant change in use, the associated risk to the Shire is considered low.

RISK IMPLICATIONS

Entering into the new lease agreement reduces compliance risk to ensure the current obligations by all parties and the correct lease area are documented appropriately.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Government Act 1995
Part 3 – Functions of local governments
Division 3 – Executive functions of local governments
Section 3.58 – Disposing of property

Local Government (Functions and General) Regulations 1996
Part 6 – Miscellaneous
Clause 30 – Dispositions of property excluded from Act s. 3.58

POLICY IMPLICATIONS

Policy 2.33 Execution of Documents

Peppercorn leases to community groups are Category 1B documents under Policy 2.33 and therefore Council's specific approval to affix the Common Seal to the lease document is not required.

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2026-2036

Aspiration	3. Local Connection and Shire Wide Opportunities
Strategic Objective	3.1 Empower Groups and Voluteers to Build Capacity in our Regions - Place-based Connections and Decisions

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Hyne SECONDED: Councillor Wilkie

That Council:

1. Supports the proposed essential terms for a new lease agreement with the Woodridge Community Association Inc. for an agreed portion of Lot 301 (13) King Drive, Woodridge, for a period of five (5) years.

2. Acknowledges that the Chief Executive Officer will exercise Delegation 1.1.12 to enter into the lease agreement with the Woodridge Community Association Inc.

3. Acknowledges that the lease is consistent with Council Policy 3.18 Disposition of Assets.

4. Acknowledges that the Chief Executive Officer will execute the lease as a Category 1B document in accordance with Council Policy 2.33 Execution of Documents.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

Leased Area – 19,490.0 m² as hactured



Leased Area is a portion of Lot 301 King Drive, Woodridge



12.3 MONTHLY FINANCIAL REPORT FOR THE PERIOD ENDING 31 AUGUST 2026

File	FIN/25
Author	Alarna Richards – Coordinator Financial Planning and Reporting
Reporting Officer	Leanne Parola - Acting Executive Manager Corporate and Community Services
Refer	Nil
Appendices	1. Monthly Financial Report for Period Ending 31 August 2026 [**12.3.1** - 22 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To present for Council endorsement the Monthly Financial Report for the period ending 31 August 2026.

BACKGROUND

The Financial Report is presented to Council in accordance with the *Local Government Act 1995* and *Local Government (Financial Management) Regulations 1996*.

COMMENT

The Monthly Financial Report and Supplementary Information for the period ending 31 August 2026 presents the financial performance of the Shire for the 2026/2027 financial year and compares year-to-date expenditure and revenue against the current budget.

A break-up of the **$2,622,506** variance in the Monthly Financial Report for the period ending 31 August 2026 is summarised across operations, investing and financing below, with a detailed explanation of variations within each area contained within the **appendix.**

Under Budget	
Opening Funding Surplus/Deficit	$176,966
Operating Expenditure	$1,103,331
Over Budget	
Operating Revenue	$1,399,950
Investing Activities- Revenue	$873
Investing Activities – Expenditure	$(25,580)
Financing Activities – Expenditure	$(33,033)

An explanation outlining a summary of the variances across each of the above areas is provided in Note 3 of the Monthly Financial Report, and those specific to capital works are provided within the Supplementary Information.

Council's attention is drawn to the presentation of rates revenue within the Statement of Financial Activity. Previous versions of the monthly financial statement template used by the Shire excluded minimum rate payments from general rates and presented them separately as rates excluding general rates.

Feedback from the Department of Local Government and the Office of the Auditor General received by the contractor who creates the template has resulted in a return to the presentation of minimum rate payments as part of general rates.

As the Shire's annual budget was prepared using the previous methodology, there is currently a mismatch of presentation between the budget and actuals for 2026/2027. Administration will arrange for this to be rectified as part of the budget review process.

It should also be noted that whilst the 2025/2026 final audit field work has been completed, continued work by the audit team may result in further amendments to comparative figures and the closing surplus.

Investments

As required by Council Policy 3.2 Investments, details of Council's investments are provided within the supplementary information.

Council's attention is also drawn to an amendment in the reporting of financial assets at amortised cost, specifically term deposits. These changes are reflected in the Statement of Financial Activity and Note 2 Net Current Assets Information, to show the transfer of funds from cash accounts to investment accounts.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Government Act 1995
Part 6 – Financial Management
Division 3 – Reporting on activities and finance
Section 6.4 – Financial Report

Local Government (Financial Management) Regulations 1996
Part 4 – Financial Reports
Reg 34 – Financial activity statement required each month.

Shire of Gingin Delegation Register – Delegation 1.1.10 Power to Invest and Manage Investments.

RISK IMPLICATIONS

Nil

POLICY IMPLICATIONS

Policy 3.2 Investments

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Nil

VOTING REQUIREMENTS – SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Woods SECONDED: Councillor Vis

That Council endorse the Monthly Financial Report for the period ending 31 August 2026.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

SHIRE OF GINGIN

MONTHLY FINANCIAL REPORT

LOCAL GOVERNMENT ACT 1995
LOCAL GOVERNMENT (FINANCIAL MANAGEMENT) REGULATIONS 1996

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SHIRE OF GINGIN
STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 30 AUGUST 2026

	Note	Adopted Budget Estimates (a)	YTD Budget Estimates (b)	YTD Actual (c)	Variance* $ (c) - (b)	Variance* % ((c) - (b))/(b)	Var.
		$	$	$	$	%	
OPERATING ACTIVITIES							
Revenue from operating activities							
General rates		8,791,197	12,643,847	**12,643,847**	0	0.00%	
Rates excluding general rates		3,862,851	0	**6,064**	6,064		▲
Grants, subsidies and contributions		2,744,879	242,352	**1,498,599**	1,256,247	518.36%	▲
Fees and charges		5,816,326	2,839,910	**2,926,077**	86,167	3.03%	▲
Interest revenue		701,679	3,000	**42,413**	39,413	1313.77%	▲
Other revenue		452,912	84,648	**94,967**	10,319	12.19%	▲
Profit on asset disposals		33,467	0	**1,740**	1,740		▲
		22,403,311	**15,813,757**	**17,213,707**	**1,399,950**	8.85%	
Expenditure from operating activities							
Employee costs		(9,040,280)	(1,506,456)	**(1,282,520)**	223,936	14.87%	▲
Materials and contracts		(11,373,764)	(2,096,372)	**(1,249,847)**	846,525	40.38%	▲
Utility charges		(587,850)	(97,884)	**(29,713)**	68,171	69.64%	▲
Depreciation		(11,813,889)	(1,968,926)	**(2,643)**	1,966,283	99.87%	▲
Finance costs		(160,744)	(10,028)	**(14,909)**	(4,881)	(48.67%)	▼
Insurance		(471,292)	(235,619)	**(236,581)**	(962)	(0.41%)	
Other expenditure		(864,412)	(29,748)	**(57,466)**	(27,718)	(93.18%)	▼
Loss on asset disposals		(25,997)	0	**0**	0		
		(34,338,228)	**(5,945,033)**	**(2,873,679)**	**3,071,354**	51.66%	
Amounts excluded from operating activities	2(c)	11,881,355	1,968,926	**903**	(1,968,023)	(99.95%)	▼
Amount attributable to operating activities		**(53,562)**	**11,837,650**	**14,340,931**	**2,503,281**	21.15%	
INVESTING ACTIVITIES							
Inflows from investing activities							
Proceeds from capital grants, subsidies and contributions		7,749,172	0	**3,600**	3,600		▲
Proceeds from disposal of property, plant and equipment		256,000	30,000	**27,273**	(2,727)	(9.09%)	
Proceeds from financial assets at amortised cost - self supporting loans		4,555	0	**0**	0		
		8,009,727	**30,000**	**30,873**	**873**	2.91%	
Outflows from investing activities							
Right of use assets received - non cash		(123,324)	0	**0**	0		
Acquisition of property, plant and equipment		(2,378,234)	(143,859)	**(147,299)**	(3,440)	(2.39%)	
Acquisition of infrastructure		(9,865,739)	(25,000)	**(47,141)**	(22,141)	(88.56%)	▼
Payments for financial assets at amortised cost - term deposits		0	0	**(12,000,000)**	(12,000,000)		▼
		(12,367,297)	**(168,859)**	**(12,194,439)**	**(12,025,580)**	(7121.67%)	
Amounts excluded from investing activities	2(d)	123,324	0	**12,000,000**	12,000,000		▲
Amount attributable to investing activities		**(4,234,246)**	**(138,859)**	**(163,567)**	**(24,708)**	(17.79%)	
FINANCING ACTIVITIES							
Inflows from financing activities							
Proceeds from new leases - non-cash		123,324	0	**0**	0		
Transfer from reserves		1,453,794	0	**0**	0		
		1,577,118	**0**	**0**	**0**		
Outflows from financing activities							
Repayment of borrowings		(530,585)	(313,848)	**(313,848)**	0	0.00%	
Payments for principal portion of lease liabilities		(34,220)	(2,605)	**(2,605)**	0	0.00%	
Transfer to reserves		(1,535,482)	0	**(33,033)**	(33,033)		▼
		(2,100,287)	**(316,453)**	**(349,487)**	**(33,033)**	(10.44%)	
Amounts excluded from financing activities	2(e)	(123,324)	0	**0**	0		
Amount attributable to financing activities		**(646,493)**	**(316,453)**	**(349,487)**	**(33,033)**	(10.44%)	
MOVEMENT IN SURPLUS OR DEFICIT							
Surplus or deficit at the start of the financial year	2(a)	4,934,301	4,934,301	**5,111,267**	176,966	3.59%	▲
Amount attributable to operating activities		(53,562)	11,837,650	**14,340,931**	2,503,281	21.15%	▲
Amount attributable to investing activities		(4,234,246)	(138,859)	**(163,567)**	(24,708)	(17.79%)	▼
Amount attributable to financing activities		(646,493)	(316,453)	**(349,487)**	(33,033)	(10.44%)	▼
Surplus or deficit after imposition of general rates		**0**	**16,316,639**	**18,939,145**	**2,622,506**	16.07%	▲

KEY INFORMATION

▲▼ Indicates a variance between Year to Date (YTD) Budget and YTD Actual data outside the adopted materiality threshold.
▲ Indicates a variance with a positive impact on the financial position.
▼ Indicates a variance with a negative impact on the financial position.
Refer to Note 3 for an explanation of the reasons for the variance.

This statement is to be read in conjunction with the accompanying notes.

SHIRE OF GINGIN
STATEMENT OF FINANCIAL POSITION
FOR THE PERIOD ENDED 30 AUGUST 2026

	Actual 30 June 2026	Actual as at 30 August 2026
	$	$
CURRENT ASSETS		
Cash and cash equivalents	23,120,033	9,365,188
Trade and other receivables	1,908,587	17,000,670
Other financial assets	4,554	12,004,554
Inventories	52,095	141,729
Other assets	331,189	77,457
TOTAL CURRENT ASSETS	25,416,458	38,589,598
NON-CURRENT ASSETS		
Trade and other receivables	164,082	164,082
Other financial assets	160,306	160,306
Property, plant and equipment	70,601,934	70,749,233
Infrastructure	214,819,810	214,866,951
Right-of-use assets	18,126	15,483
TOTAL NON-CURRENT ASSETS	285,764,258	285,956,055
TOTAL ASSETS	311,180,716	324,545,653
CURRENT LIABILITIES		
Trade and other payables	4,956,155	2,657,314
Other liabilities	4,946,507	6,557,577
Lease liabilities	15,928	13,323
Borrowings	530,585	216,737
Employee related provisions	1,076,824	1,076,824
Other provisions	239,332	239,332
TOTAL CURRENT LIABILITIES	11,765,331	10,761,107
NON-CURRENT LIABILITIES		
Lease liabilities	2,696	2,696
Borrowings	1,265,339	1,265,339
Employee related provisions	192,237	192,237
Other provisions	9,406,933	9,406,933
TOTAL NON-CURRENT LIABILITIES	10,867,205	10,867,205
TOTAL LIABILITIES	22,632,536	21,628,312
NET ASSETS	**288,548,180**	**302,917,341**
EQUITY		
Retained surplus	46,963,782	61,299,910
Reserve accounts	9,321,151	9,354,184
Revaluation surplus	232,263,247	232,263,247
TOTAL EQUITY	**288,548,180**	**302,917,341**

This statement is to be read in conjunction with the accompanying notes.

SHIRE OF GINGIN
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 30 AUGUST 2026

1 BASIS OF PREPARATION AND MATERIAL ACCOUNTING POLICIES

BASIS OF PREPARATION

This prescribed financial report has been prepared in accordance with the *Local Government Act 1995* and accompanying regulations.

Local Government Act 1995 requirements
Section 6.4(2) of the Local Government Act 1995 read with the *Local Government (Financial Management) Regulations 1996,* prescribe that the financial report be prepared in accordance with the *Local Government Act 1995* and, to the extent that they are not inconsistent with the Act, the Australian Accounting Standards. The Australian Accounting Standards (as they apply to local governments and not-for-profit entities) and Interpretations of the Australian Accounting Standards Board were applied with exception to the following:

The *Local Government (Financial Management) Regulations 1996* specify that vested land is a right-of-use asset to be measured at cost, and is considered a zero cost concessionary lease. All right-of-use assets under zero cost concessionary leases are measured at zero cost rather than at fair value, except for vested improvements on concessionary land leases such as roads, buildings or other infrastructure which continue to be reported at fair value, as opposed to the vested land which is measured at zero cost. The measurement of vested improvements at fair value is a departure from AASB 16 which would have required the Shire to measure any vested improvements at zero cost.

Local Government (Financial Management) Regulations 1996, regulation 34 prescribes contents of the financial report. Supplementary information does not form part of the financial report.

Accounting policies which have been adopted in the preparation of this financial report have been consistently applied unless stated otherwise. Except for cash flow and rate setting information, the financial report has been prepared on the accrual basis and is based on historical costs, modified, where applicable, by the measurement at fair value of selected non-current assets, financial assets and liabilities.

PREPARATION TIMING AND REVIEW
Date prepared: All known transactions up to 30 August 2026

The local government reporting entity
All funds through which the Shire controls resources to carry on its functions have been included in the financial statements forming part of this financial report.

All monies held in the Trust Fund are excluded from the financial statements.

Material accounting policies
Material accounting policies utilised in the preparation of these statements are as described within the 2026-27 Annual Budget. Please refer to the adopted budget document for details of these policies.

Critical accounting estimates and judgements
The preparation of a financial report in conformity with Australian Accounting Standards requires management to make judgements, estimates and assumptions that effect the application of policies and reported amounts of assets and liabilities, income and expenses.

The estimates and associated assumptions are based on historical experience and various other factors believed to be reasonable under the circumstances; the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

As with all estimates, the use of different assumptions could lead to material changes in the amounts reported in the financial report.

The following are estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year and further information on their nature and impact can be found in the relevant note:
- Fair value measurement of assets carried at reportable value including:
  - Property, plant and equipment
  - Infrastructure
- Impairment losses of non-financial assets
- Expected credit losses on financial assets
- Measurement of employee benefits
- Measurement of provisions
- Estimation uncertainties and judgements made in relation to lease accounting

SHIRE OF GINGIN
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 30 AUGUST 2026

2 NET CURRENT ASSETS INFORMATION

(a) Net current assets used in the Statement of Financial Activity

	Note	Adopted Budget Opening 1 July 2026	Actual as at 30 June 2026	Actual as at 30 August 2026
Current assets		$	$	$
Cash and cash equivalents		14,636,669	23,120,033	9,365,188
Trade and other receivables		2,536	1,908,587	17,000,670
Other financial assets		1,794,731	4,554	12,004,554
Inventories		35,527	52,095	141,729
Other assets		101,777	331,189	77,457
		16,571,240	25,416,458	38,589,598
Less: current liabilities				
Trade and other payables		(2,216,623)	(4,956,155)	(2,657,314)
Other liabilities		(3,278,186)	(4,946,507)	(6,557,577)
Lease liabilities		(25,727)	(15,928)	(13,323)
Borrowings		(228,690)	(530,585)	(216,737)
Employee related provisions		(1,102,729)	(1,076,824)	(1,076,824)
Other provisions		(98,105)	(239,332)	(239,332)
		(6,950,060)	(11,765,331)	(10,761,107)
Net current assets		9,621,180	13,651,127	27,828,491
Less: Total adjustments to net current assets	2(b)	(9,621,180)	(8,539,860)	(8,889,346)
Closing funding surplus / (deficit)		**0**	**5,111,267**	**18,939,145**

(b) Current assets and liabilities excluded from budgeted deficiency

Adjustments to net current assets				
Less: Reserve accounts		(9,971,166)	(9,321,151)	(9,354,184)
Less: Current assets not expected to be received at end of year				
- Financial assets at amortised cost - self supporting loans		(2,536)	(4,554)	(4,554)
Add: Current liabilities not expected to be cleared at the end of the year				
- Current portion of lease liabilities		25,727	15,928	13,323
- Current portion of borrowings		228,690	530,585	216,737
Add: Current liabilities covered by funds held in reserve account				
- Current portion of other provisions		98,105	239,332	239,332
Total adjustments to net current assets	2(a)	**(9,621,180)**	**(8,539,860)**	**(8,889,346)**

(c) Amounts excluded from operating activities

	Adopted Budget Estimates 30 June 2027	YTD Budget Estimates 30 August 2026	YTD Actual 30 August 2026
	$	$	$
Less: Profit on asset disposals	(33,467)	0	(1,740)
Add: Loss on disposal of assets	25,997	0	0
Add: Depreciation	11,813,889	1,968,926	2,643
Movement in current liabilities associated funds held in reserve account:			
- Other provisions	74,936	0	0
Total amounts excluded from operating activities	**11,881,355**	**1,968,926**	**903**

(d) Amounts excluded from investing activities

Add: Right of use assets received - non-cash	123,324	0	0
Reconciling item - movement between current assets			
- Financial assets at amortised cost - term deposits	0	0	12,000,000
Total amounts excluded from investing activities	**123,324**	**0**	**12,000,000**

(e) Amounts excluded from financing activities

Non-cash proceeds from new leases	(123,324)	0	0
Total non-cash amounts excluded from financing activities	**(123,324)**	**0**	**0**

CURRENT AND NON-CURRENT CLASSIFICATION
In the determination of whether an asset or liability is current or non-current, consideration is given to the time when each asset or liability is expected to be settled. Unless otherwise stated assets or liabilities are classified as current if expected to be settled within the next 12 months, being the local governments' operational cycle.

SHIRE OF GINGIN
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 30 AUGUST 2026

3 EXPLANATION OF MATERIAL VARIANCES

The material variance thresholds are adopted annually by Council as an indicator of whether the actual expenditure or revenue varies from the year to date actual materially.
The material variance adopted by Council for the 2026-27 year is $30,000 or 10.00% whichever is the greater.

Description	Var. $	Var. %	
	$	%	
Revenue from operating activities			
Rates excluding general rates Payment of ex-gratia rates for 2025/26 paid in 2026/27	6,064	3.03%	▲
Grants, subsidies and contributions Planning and development contributions received on finalisation of deed and Direct Road Grant timing	1,256,247	518.36%	▲
Fees and charges Additional fees and charges from planning, domestic refuse and waste management fees above budgeted for this period of time.	86,167	3.03%	▲
Interest revenue Timing of bank interest	39,413	1313.77%	▲
Other revenue Sucessful insurance claims	10,319	12.19%	▲
Expenditure from operating activities			
Employee costs Timing of payroll payments and training and on costs	223,936	14.87%	▲
Materials and contracts Timing of maintenance work and other non-discretionary spending	846,525	40.38%	▲
Utility charges Billing cycle timing for utilities	68,171	69.64%	▲
Depreciation Depreciation not yet raised	1,966,283	99.87%	▲
Finance costs Accrued interest on loans	(4,881)	(48.67%)	▼
Other expenditure Timing of environmental allocation to groups and community grants program payments	(27,718)	(93.18%)	▼
Amounts excluded from operating activities Depreciation not yet raised	(1,968,023)	(99.95%)	▼
Inflows from investing activities			
Proceeds from capital grants, subsidies and contributions Timing of capital grants	3,600	0.00%	▲
Outflows from investing activities			
Acquisition of infrastructure Timing of Capital works - see note 5	(22,141)	(88.56%)	▼
Payments for financial assets at amortised cost - term deposits Term Deposits over 3 months	(12,000,000)	0.00%	▼
Amounts excluded from investing activities Term Deposits over 3 months	12,000,000	0.00%	▲
Outflows from financing activities			
Transfer to reserves Transfer to reserves done as end of year process	(33,033)	0.00%	▼
Surplus or deficit at the start of the financial year End of year processes ongoing	176,966	3.59%	▲
Surplus or deficit after imposition of general rates	2,622,506	16.07%	▲

SHIRE OF GINGIN

SUPPLEMENTARY INFORMATION

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BASIS OF PREPARATION - SUPPLEMENTARY INFORMATION

Supplementary information is presented for information purposes. The information does not comply with the disclosure requirements of the Australian Accounting Standards.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

1 KEY INFORMATION

Funding Surplus or Deficit Components

Funding surplus / (deficit)

	Adopted Budget	YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)
Opening	$4.93 M	$4.93 M	$5.11 M	$0.18 M
Closing	$0.00 M	$16.32 M	$18.94 M	$2.62 M

Refer to Statement of Financial Activity

Cash and cash equivalents

	$9.37 M	% of total
Unrestricted Cash	$8.01 M	85.5%
Restricted Cash	$1.35 M	14.5%

Refer to 3 - Cash and Financial Assets

Payables

	$2.66 M	% Outstanding
Trade Payables	$0.53 M	
0 to 30 Days		100.0%
Over 30 Days		0.0%
Over 90 Days		0.0%

Refer to 9 - Payables

Receivables

	$3.97 M	% Collected
Rates Receivable	$13.03 M	3.5%
Trade Receivable	$3.97 M	% Outstanding
Over 30 Days		80.1%
Over 90 Days		72.7%

Refer to 7 - Receivables

Key Operating Activities

Amount attributable to operating activities

Adopted Budget	YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)
($0.05 M)	$11.84 M	$14.34 M	$2.50 M

Refer to Statement of Financial Activity

Rates Revenue

YTD Actual	$12.64 M	% Variance
YTD Budget	$12.64 M	0.0%

Grants and Contributions

YTD Actual	$1.50 M	% Variance
YTD Budget	$0.24 M	518.4%

Refer to 13 - Grants and Contributions

Fees and Charges

YTD Actual	$2.93 M	% Variance
YTD Budget	$2.84 M	3.0%

Refer to Statement of Financial Activity

Key Investing Activities

Amount attributable to investing activities

Adopted Budget	YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)
($4.23 M)	($0.14 M)	($0.16 M)	($0.02 M)

Refer to Statement of Financial Activity

Proceeds on sale

YTD Actual	$0.03 M	%
Adopted Budget	$0.26 M	(89.3%)

Refer to 6 - Disposal of Assets

Asset Acquisition

YTD Actual	$0.19 M	% Spent
Adopted Budget	$12.24 M	(98.4%)

Refer to 5 - Capital Acquisitions

Capital Grants

YTD Actual	$0.00 M	% Received
Adopted Budget	$7.75 M	(100.0%)

Refer to 5 - Capital Acquisitions

Key Financing Activities

Amount attributable to financing activities

Adopted Budget	YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)
($0.65 M)	($0.32 M)	($0.35 M)	($0.03 M)

Refer to Statement of Financial Activity

Borrowings

Principal repayments	($0.31 M)
Interest expense	($0.01 M)
Principal due	$1.48 M

Refer to 10 - Borrowings

Reserves

Reserves balance	$9.35 M
Net Movement	$0.03 M

Refer to 4 - Cash Reserves

Lease Liability

Principal repayments	($0.00 M)
Interest expense	($0.00 M)
Principal due	$0.02 M

Refer to Note 11 - Lease Liabilites

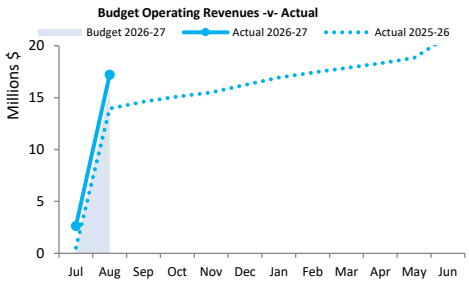
This information is to be read in conjunction with the accompanying Financial Statements and notes.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

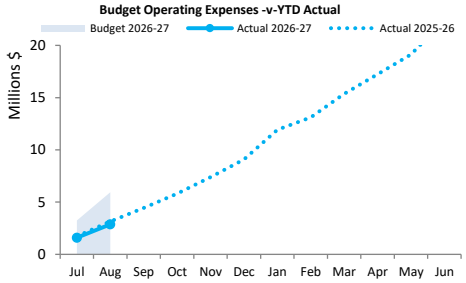
2 KEY INFORMATION - GRAPHICAL

OPERATING ACTIVITIES

OPERATING REVENUE

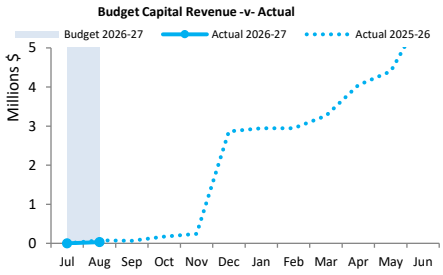


OPERATING EXPENSES

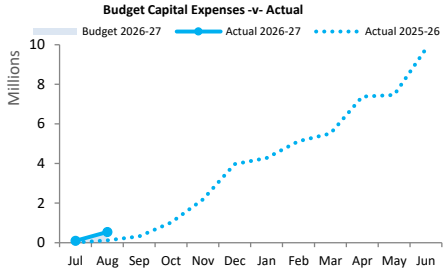


INVESTING ACTIVITIES

CAPITAL REVENUE

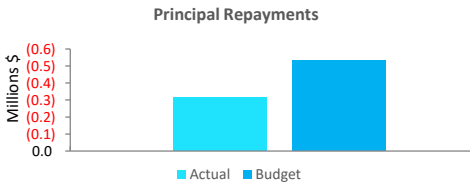


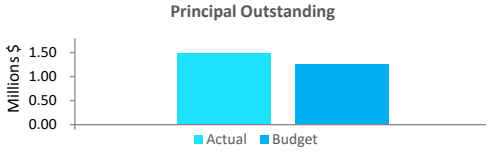
CAPITAL EXPENSES

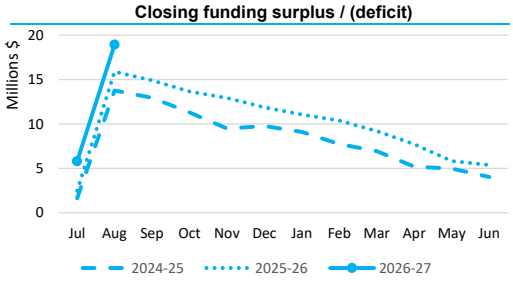


FINANCING ACTIVITIES

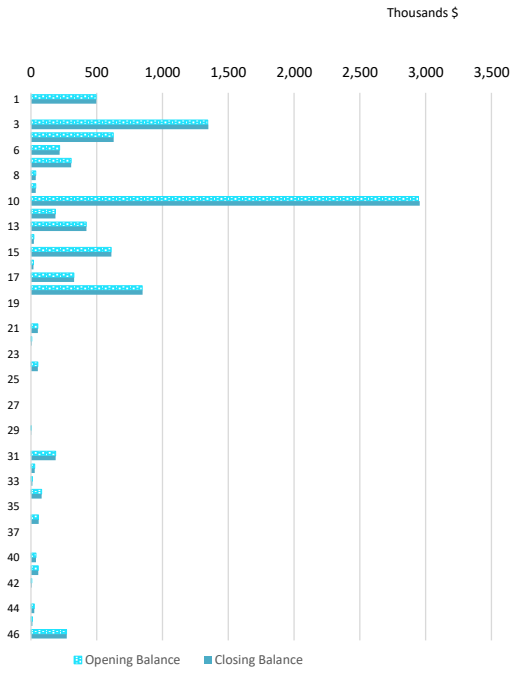
BORROWINGS







RESERVES



Refer to Note 4 - Reserves

This information is to be read in conjunction with the accompanying Financial Statements and Notes.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

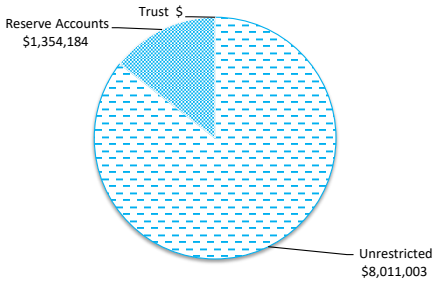
3 CASH AND CASH EQUIVALENTS

Description	Classification	Unrestricted	Reserve Accounts	Total	Trust	Institution	Interest Rate	Maturity Date
		$	$	$	$			
Municipal Bank Account	Cash and cash equivalents	3,009,203	0	3,009,203	0	Bendigo Bank	0.00%	at call
Reserve Bank Account	Cash and cash equivalents	0	1,354,184	1,354,184	0	Bendigo Bank	3.35%	at call
Cash on hand	Cash and cash equivalents	1,800	0	1,800	0	Petty Cash/Till float	N/A	at call
Term Deposit Municipal	Cash and cash equivalents	3,000,000	0	3,000,000	0	Bendigo Bank	4.80%	Oct-26
Term Deposit Municipal	Cash and cash equivalents	2,000,000	0	2,000,000	0	Bendigo Bank	4.10%	Sep-26
Total		**8,011,003**	**1,354,184**	**9,365,188**	**0**			
Comprising								
Cash and cash equivalents		8,011,003	1,354,184	9,365,188	0			
		8,011,003	**1,354,184**	**9,365,188**	**0**			

KEY INFORMATION
Cash and cash equivalents include cash on hand, cash at bank, deposits available on demand with banks and other short term highly liquid investments with original maturities of three months or less that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.
Bank overdrafts are reported as short term borrowings in current liabilities in the statement of net current assets.

The local government classifies financial assets at amortised cost if both of the following criteria are met:
- the asset is held within a business model whose objective is to collect the contractual cashflows, and
- the contractual terms give rise to cash flows that are solely payments of principal and interest.

Financial assets at amortised cost held with registered financial institutions are listed in this note, other financial assets at amortised cost are provided in Note 8 - Other assets.



SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

4 RESERVE ACCOUNTS

	Budget				Actual			
Reserve account name	Opening Balance	Transfers In (+)	Transfers Out (-)	Closing Balance	Opening Balance	Transfers In (+)	Transfers Out (-)	Closing Balance
	$	$	$	$	$	$	$	$
Reserve accounts restricted by legislation								
Public Open Space	38,094	1,348	0	39,442	38,094	135	0	38,229
Reserve accounts restricted by Council								
LSL Annual Sick Leave and Staff Contingency	494,495	17,501	0	511,996	494,495	1,752	0	496,247
Plant and Equipment Reserve	1,333,795	47,205	(374,478)	1,006,522	1,343,709	4,762	0	1,348,471
Land and Buildings Reserve	727,807	25,758	0	753,565	626,129	2,219	0	628,348
Guilderton Caravan Park Reserve	217,813	107,709	0	325,522	217,813	772	0	218,585
Shire Recreation Development Reserve	304,946	10,792	0	315,738	304,946	1,081	0	306,027
Redfield Park Reserve	36,217	1,282	0	37,499	36,217	128	0	36,345
Ocean Farm Recreation Reserve	35,862	1,269	0	37,131	35,862	127	0	35,989
Tip Rationalisation Reserve	3,437,538	521,657	(860,520)	3,098,675	2,945,345	10,438	0	2,955,783
Lancelin Community Sport and Recreation Reserve	205,926	36,394	0	242,320	186,280	660	0	186,940
Community Infrastructure	414,963	351,499	0	766,462	420,563	1,490	0	422,053
Staff Housing Reserve	21,532	762	0	22,294	21,532	76	0	21,608
Future Infrastructure Reserve	609,163	21,559	0	630,722	609,163	2,159	0	611,322
Guilderton Country Club Reserve	18,755	9,143	0	27,898	18,755	66	0	18,821
Coastal Management Reserve - Coastal Inundation	286,841	110,152	(175,250)	221,743	326,341	1,157	0	327,498
Guilderton Foreshore Reserve	842,570	90,613	0	933,183	845,463	2,996	0	848,459
Seniors Housing Reserve	56,647	31,305	0	87,952	52,905	187	0	53,092
Gingin Railway Station Reserve	6,614	234	0	6,848	6,614	23	0	6,637
Contributions to Roads Reserve - Cullalla Road Intersection	51,937	1,838	0	53,775	51,937	184	0	52,121
Contribution to Roads Reserve - Chitna Road	3,462	123	0	3,585	3,462	12	0	3,474
Contribution to Roads Reserve - Balance of Muni Funds	179,344	6,347	0	185,691	187,410	664	0	188,074
Community Infrastructure Reserve - Lower Coastal Fire Control	29,086	1,029	0	30,115	29,086	103	0	29,189
Community Infrastructure Reserve - Gingin Logo Plates	11,802	718	0	12,520	11,802	42	0	11,844
Community Infrastructure Reserve - Gingin Ambulance	80,864	8,862	0	89,726	80,865	287	0	81,152
Community Infrastructure - Lancelin Ambulance	58,005	20,053	0	78,058	58,005	206	0	58,211
Guilderton Trailer Parking Reserve	55,013	6,987	0	62,000	55,171	196	0	55,367
Gingin Outdoor Activity Space (GOAS) Playground	6,084	215	0	6,299	6,084	22	0	6,106
Community Resilience Reserve	25,567	905	(25,567)	905	25,567	91	0	25,658
Contribution to Roads Reserve - Aurisch Road Maintenance	28,267	18,979	(17,979)	29,267	11,067	39	0	11,106
Community Infrastructure - Development Reserve Fund Lot 601 Broc	270,469	58,244	0	328,713	270,469	959	0	271,428
Community Facilities Fund	0	25,000	0	25,000	0	0	0	0
	9,889,478	**1,535,482**	**(1,453,794)**	**9,971,166**	**9,321,151**	**33,033**	**0**	**9,354,184**

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

5 CAPITAL ACQUISITIONS

Capital acquisitions	Adopted Budget	YTD Budget	YTD Actual	YTD Variance
	$	$	$	$
Buildings - non specialised	39,615	30,290	27,600	(2,690)
Buildings - specialised	538,321	47,319	46,432	(887)
Plant and equipment	1,581,070	66,250	73,267	7,017
PPE - Vehicles	219,228	0	0	0
Acquisition of property, plant and equipment	**2,378,234**	**143,859**	**147,299**	**3,440**
Infrastructure - roads	3,238,624	0	11,323	11,323
Infrastructure - Footpaths and cycleways	300,000	0	11,818	11,818
Infrastructure - Parks and ovals	318,600	25,000	24,000	(1,000)
Infrastructure - Other	260,000	0	0	0
Infrastructure - Bridges	5,057,995	0	0	0
Infrastructure - Landfill assets	690,520	0	0	0
Infrastructure - Work in progress	0	0	0	0
Acquisition of infrastructure	**9,865,739**	**25,000**	**47,141**	**22,141**
Total capital acquisitions	**12,243,973**	**168,859**	**194,439**	**25,580**
Capital Acquisitions Funded By:				
Capital grants and contributions	7,749,172	0	3,600	3,600
Lease liabilities	123,324	0	0	0
Other (disposals & C/Fwd)	256,000	30,000	27,273	(2,727)
Reserve accounts				
Plant and Equipment Reserve	374,478	0	0	0
Tip Rationalisation Reserve	860,520	0	0	0
Coastal Management Reserve - Coastal Inundation	175,250	0	0	0
Contribution to Roads Reserve - Balance of Muni Funds	0	0	0	0
Community Infrastructure Reserve - Lower Coastal Fire Contr	0	0	0	0
Community Infrastructure Reserve - Gingin Logo Plates	0	0	0	0
Community Infrastructure Reserve - Gingin Ambulance	0	0	0	0
Community Infrastructure - Lancelin Ambulance	0	0	0	0
Guilderton Trailer Parking Reserve	0	0	0	0
Gingin Outdoor Activity Space (GOAS) Playground	0	0	0	0
Community Resilience Reserve	25,567	0	0	0
Contribution to Roads Reserve - Aurisch Road Maintenance	17,979	0	0	0
Community Infrastructure - Development Reserve Fund Lot 6	0	0	0	0
Community Facilities Fund	0	0	0	0
Contribution - operations	2,661,683	138,859	163,567	24,708
Capital funding total	**12,243,973**	**168,859**	**194,439**	**25,580**

KEY INFORMATION

Initial recognition

An item of property, plant and equipment or infrastructure that qualifies for recognition as an asset is measured at its cost.

Upon initial recognition, cost is determined as the amount paid (or other consideration given) to acquire the assets, plus costs incidental to the acquisition. The cost of non-current assets constructed by the Shire includes the cost of all materials used in construction, direct labour on the project and an appropriate proportion of variable and fixed overheads. For assets acquired at zero cost or otherwise significantly less than fair value, cost is determined as fair value at the date of acquisition.

Assets for which the fair value as at the date of acquisition is under $5,000 are not recognised as an asset in accordance with *Local Government (Financial Management) Regulation 17A(5).* These assets are expensed immediately.

Where multiple individual low value assets are purchased together as part of a larger asset or collectively forming a larger asset exceeding the threshold, the individual assets are recognised as one asset and capitalised.

Individual assets that are land, buildings and infrastructure acquired between scheduled revaluation dates of the asset class in accordance with the Shire's revaluation policy, are recognised at cost and disclosed as being at reportable value.

Measurement after recognition

Plant and equipment including furniture and equipment and right-of-use assets (other than vested improvements) are measured using the cost model as required under *Local Government (Financial Management) Regulation 17A(2).* Assets held under the cost model are carried at cost less accumulated depreciation and any impairment losses being their reportable value.

Reportable Value

In accordance with *Local Government (Financial Management) Regulation 17A(2),* the carrying amount of non-financial assets that are land and buildings classified as property, plant and equipment, investment properties, infrastructure or vested improvements that the local government controls.

Reportable value is for the purpose of *Local Government (Financial Management) Regulation 17A(4)* is the fair value of the asset at its last valuation date minus (to the extent applicable) the accumulated depreciation and any accumulated impairment losses in respect of the non-financial asset subsequent to its last valuation date.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

5 CAPITAL ACQUISITIONS (CONTINUED) - DETAILED

Capital expenditure total
Level of completion indicators



0%
20%
40%
60%
80%
100%
Over 100%

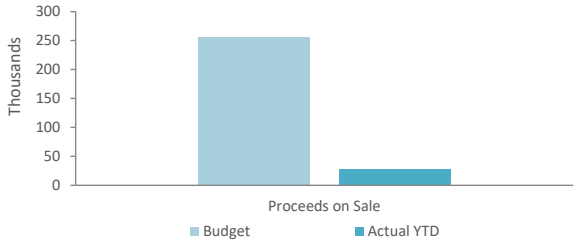
Percentage Year to Date Actual to Annual Budget expenditure where the expenditure over budget highlighted in red.

		Account Description	Adopted Budget	YTD Budget	YTD Actual	Variance (Under)/Over
			$	$	$	$
0.00	BC11100	Granville Civic Centre - Building (Capital)	86,680	0	0	0
0.36	BC11160	Guilderton Hall - Building (Capital)	25,000	10,000	9,113	887
0.00	BC11170	Seabird Hall - Building (Capital)	7,000	0	0	0
0.00	BC11190	Lancelin Hall - Building (Capital)	10,000	0	0	0
1.00	BC11200	Gingin Aquatic Centre Building Operations - Buildi	13,837	5,840	5,840	0
1.00	BC11312	Gingin Bowling Club - Building (Capital)	12,000	8,000	8,000	0
0.00	BC11319	Gingin Recreation Centre - Building (Capital)	20,000	0	0	0
0.16	BC1154	Ablution Facility Silver Creek - Building (Capital	34,240	5,604	5,604	(0)
0.99	BC12200	Gingin Depot - Building (Capital)	6,200	6,200	6,165	35
1.00	BC12290	Lancelin/Ledge Point Depot - Building (Capital)	12,415	9,090	9,090	0
0.00	BC13243	Sovereign Hill Entry Statement - Building (Capital	40,000	0	0	0
0.00	BC13260	Guilderton Caravan Park - Building (Capital)	100,000	0	0	0
0.00	BC13290	Lancelin South Caravan Park - Building (Capital)	0	0	115	(115)
0.00	BC14200	Gingin Administration Office - Building (Capital)	100,000	0	0	0
0.00	BC5100	Gingin Colocation Fire Facility - Building (Capita	27,021	0	0	0
0.00	BC5180	Ledge Point Fire Shed - Building (Capital)	10,000	0	0	0
0.82	BC9105	4 Fewster Street - Building (Capital)	15,000	15,000	12,345	2,655
0.00	BC9400	Seniors Units - Gingin - Building (Capital)	6,000	0	0	0
0.00	BC9490	Seniors Units - Lancelin - Building (Capital)	17,000	0	0	0
0.50	BSR0001	Bus Shelter Replacement Program	35,543	17,875	17,876	(1)
0.00	P011	Backhoe GG011 - Plant Capital	200,000	0	0	0
0.00	P017	Isuzu Utility 4WD Space Cab (tipper) - Guilderton	74,228	0	0	0
1.00	P020	Isuzu D-Max 4x4 3.0L Turbo Space Cab GG020 - Plant	66,250	66,250	66,197	53
0.00	P026	Loader GG026- Plant Capital	350,000	0	0	0
0.00	P043	Isuzu Space Cab Utility- GG043	75,000	0	0	0
0.00	P048	Crew Cab Truck GG048 - Plant Capital	208,370	0	0	0
0.00	P073	Isuzu Utility 4WD Space Cab - Ranger 1 GG073	70,000	0	0	0
0.00	P088	Replacement of 8 Wheeler Truck GG088	280,000	0	0	0
0.00	P12552	Trailer- GG12552	12,725	0	0	0
0.00	P12553	Trailer- GG12553	12,725	0	0	0
0.00	P5	Isuzu D-Max Terrain 4x4 Utility 5GG - Plant Capita	60,000	0	0	0
0.00	P8	Utility Isuzu 4WD Dual Cab MSP 8GG - Capital Proje	60,000	0	0	0
0.00	PE07700	Gingin Medical Centre - Plant Capital	0	0	7,069	(7,069)
0.00	PE11200	Gingin Aquatic Centre - Plant Capital	91,000	0	0	0
0.00	PE14200	Administration Office Furniture & Equip	70,000	0	0	0
0.00	PNEW10	Purchase of secondhand loader	35,000	0	0	0
0.00	PNEW11	Purchase of secondhand loader for refuse site	35,000	0	0	0
0.00	PNEW12	Purchase of secondhand track loader	100,000	0	0	0
0.00	0	0	0	0	-115	115
0.00	BR661	Weld St Bridge - Bridge (Capital)	5,057,995	0	0	0
0.00	BS001	Mooliabeenee Road (BS)	150,000	0	0	0
0.00	DC000	Drainage Construction	31,519	0	0	0
0.00	DC097	Brockman Street - Gingin - Drainage Capital	150,000	0	0	0
0.00	DC178	Edward Street - Gingin - Drainage Capital	0	0	2,700	(2,700)
0.00	FC000	Footpath Construction	0	0	11,818	(11,818)
0.00	FC098	Brockman Street - Gingin - Footpath Capital	300,000	0	0	0
0.00	LF10100	Construction Costs Capital Gingin Landfill	316,160	0	0	0
0.00	LF10170	Construction Costs Capital Seabird Landfill	344,360	0	0	0
0.00	LF10190	Construction Costs Capital Lancelin Landfill	30,000	0	0	0
0.00	OC10700	Gingin Cemetery Fence and Driveway	100,000	0	0	0
0.00	OC12201	Gingin Rural Industrial Depot - Infrastructure Other	120,000	0	0	0
0.00	PC11261	Guilderton Foreshore Capital Project	15,000	0	0	0
0.00	PC11312	Gingin Bowling Clubs	15,000	0	0	0
0.96	PC11330	Woodridge Recreation Ground	25,000	25,000	24,000	1,000
0.00	PC11360	Guilderton Skate Park/Mini Golf	8,000	0	0	0
0.00	PC1170	Seabird Douglas Park Infrastructure Parks & Garden	5,100	0	0	0
0.00	PC1191	Lancelin Wangaree Park (Capital)	20,000	0	0	0
0.00	PC1192	Lancelin Harold Park - Infrastructure Parks & Garden	25,000	0	0	0
0.00	PC13260	Guilderton Caravan Park Infrastructure	100,000	0	0	0
0.00	R2R001	Mooliabeenee Road (R2R)	0	0	7,990	(7,990)
0.00	R2R020	Cheriton Road (R2R)	270,000	0	0	0
0.00	R2R052	Bennies Road (R2R)	600,360	0	0	0
0.00	RC003	Cowalla Road (Capital)	35,000	0	0	0
0.00	RC004	Beermullah Road West (Capital)	15,219	0	0	0
0.00	RC007	Sappers Road (Capital)	8,862	0	0	0
0.03	RC009	Guilderton Road - Rural (Capital)	13,739	0	403	(403)
0.01	RC039	Cullalla Road (Capital)	30,000	0	230	(230)
0.00	RC048	Telephone Road (Capital)	400,000	0	0	0
0.00	RRG003	Cowalla Road (RRG)	1,533,925	0	0	0
0.00	TD0001	Gingin Heritage Trail Upgrade	105,500	0	0	0
0.00	140904900	Lancelin Aged Units Fencing Replacement	40,000	0	0	0
		Total	**12,243,973**	**168,859**	**194,439**	**(25,580)**

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

6 DISPOSAL OF ASSETS

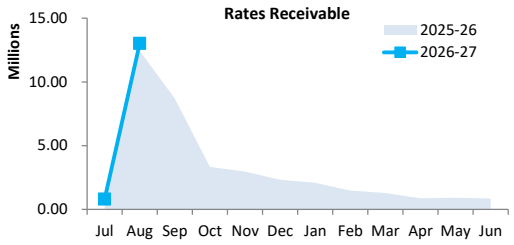
Asset Ref.	Asset description	Budget Net Book Value	Budget Proceeds	Budget Profit	Budget (Loss)	YTD Actual Net Book Value	YTD Actual Proceeds	YTD Actual Profit	YTD Actual (Loss)
		$	$	$	$	$	$	$	$
	Buildings								
	Sovereign Hill Entry Statement	15,155	0	0	(15,155)	0	0	0	0
	Plant and equipment								
	GG026 - Case loader	50,000	50,000	0	0	0	0	0	0
	GG011 - Backhoe	40,000	50,000	10,000	0	0	0	0	0
	GG088 - 8 wheeler truck	28,000	40,000	12,000	0	0	0	0	0
	Vehicles								
	GG048 - Crew cab truck	25,000	30,000	5,000	0	0	0	0	0
	GG017 - Space cab utility	10,533	13,000	2,467	0	10,533	11,818	1,285	0
	GG020 - Space cab utility	15,000	17,000	2,000	0	15,000	15,455	455	0
	GG073 - Space cab utility	17,379	12,000	0	(5,379)	0	0	0	0
	8GG - Dual cab utility	13,463	12,000	0	(1,463)	0	0	0	0
	GG043 - Space cab utility	16,000	12,000	0	(4,000)	0	0	0	0
	5GG - Dual cab utility	18,000	20,000	2,000	0	0	0	0	0
		248,530	**256,000**	**33,467**	**(25,997)**	**25,533**	**27,273**	**1,740**	**0**



SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

7 RECEIVABLES

Rates receivable	30 Jun 2026	30 Aug 2026
	$	$
Opening arrears previous year	572,666	855,422
Levied this year	12,025,936	12,649,911
Less - collections to date	(11,743,180)	(476,868)
Net rates collectable	**855,422**	**13,028,465**
% Collected	93.2%	3.5%



Receivables - general	Credit	Current	30 Days	60 Days	90+ Days	Total
	$	$	$	$	$	$
Receivables - general	(5,269)	803,137	5,684	292,889	2,915,736	4,012,177
Percentage	(0.1%)	20.0%	0.1%	7.3%	72.7%	
Balance per trial balance						
Trade receivables						4,012,177
Allowance for impairment of receivables from contracts with customers						(39,972)
Total receivables general outstanding						**3,972,205**

Amounts shown above include GST (where applicable)

KEY INFORMATION

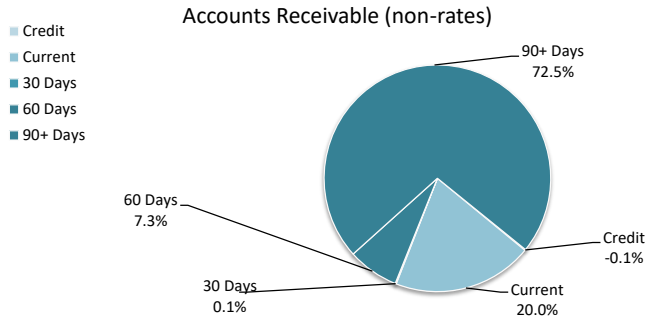
Trade and other receivables include amounts due from ratepayers for unpaid rates and service charges and other amounts due from third parties for goods sold and services performed in the ordinary course of business.

Trade receivables are recognised at original invoice amount less any allowances for uncollectable amounts (i.e. impairment). The carrying amount of net trade receivables is equivalent to fair value as it is due for settlement within 30 days.

Classification and subsequent measurement

Receivables which are generally due for settlement within 30 days except rates receivables which are expected to be collected within 12 months are classified as current assets. All other receivables such as, deferred pensioner rates receivable after the end of the reporting period are classified as non-current assets.

Trade and other receivables are held with the objective to collect the contractual cashflows and therefore the Shire measures them subsequently at amortised cost using the effective interest rate method.



SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

8 OTHER CURRENT ASSETS

Other current assets	Opening Balance 1 July 2026	Asset Increase	Asset Reduction	Closing Balance 30 August 2026
	$	$	$	$
Other financial assets at amortised cost				
Financial assets at amortised cost - term deposits	0	12,000,000	0	12,000,000
Financial assets at amortised cost - self supporting loans	4,554	0	0	4,554
Inventory				
Fuel	38,484	89,633	0	128,117
History Books	13,612	0	0	13,612
Other assets				
Prepayments	234,766	0	(234,766)	0
Contract assets	96,423	0	(18,966)	77,457
Total other current assets	**387,839**	**12,089,633**	**(253,732)**	**12,223,740**

Amounts shown above include GST (where applicable)

KEY INFORMATION

Other financial assets at amortised cost

The Shire classifies financial assets at amortised cost if both of the following criteria are met:
- the asset is held within a business model whose objective is to collect the contractual cashflows, and
- the contractual terms give rise to cash flows that are solely payments of principal and interest.

Inventory

Inventories are measured at the lower of cost and net realisable value.
Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

Contract assets

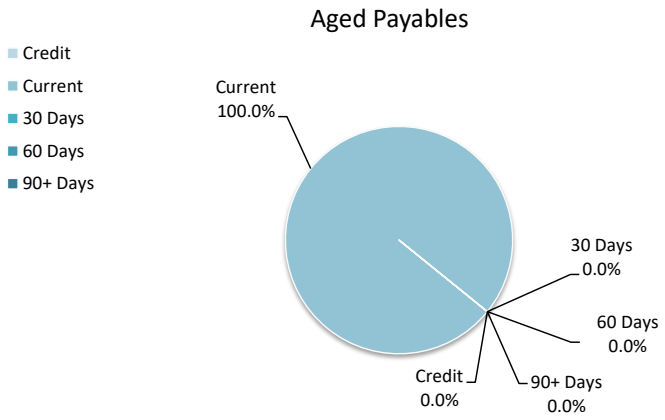
A contract asset is the right to consideration in exchange for goods or services the entity has transferred to a customer when that right is conditioned on something other than the passage of time.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

9 PAYABLES

Payables - general	Credit	Current	30 Days	60 Days	90+ Days	Total
	$	$	$	$	$	$
Payables - general	0	529,568	0	0	0	529,568
Percentage	0.0%	100.0%	0.0%	0.0%	0.0%	
Balance per trial balance						
Sundry creditors						529,569
Bonds & deposits						2,025,214
Prepaid rates (excess rates)						82,714
Accrued interest on loans						19,817
Total payables general outstanding						**2,657,314**
Amounts shown above include GST (where applicable)						

KEY INFORMATION
Trade and other payables represent liabilities for goods and services provided to the Shire prior to the end of the period that are unpaid and arise when the Shire becomes obliged to make future payments in respect of the purchase of these goods and services. The amounts are unsecured, are recognised as a current liability and are normally paid within 30 days of recognition.
The carrying amounts of trade and other payables are considered to be the same as their fair values, due to their short-term nature.



SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

10 BORROWINGS

Repayments - borrowings

Information on borrowings			New Loans		Principal Repayments		Principal Outstanding		Interest Repayments	
Particulars	Loan No.	1 July 2026	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
		$	$	$	$	$	$	$	$	$
Tip Rationalisation Site	111	301,838	0	0	(301,839)	(301,839)	-1	-1	(2,435)	(9,795)
Guilderton Community Hall Extension	114	112,830	0	0	0	(54,437)	112,830	58,393	(1,357)	(7,101)
Regional Hardcourt Facility	120	105,932	0	0	0	(33,018)	105,932	72,914	(1,199)	(6,534)
Lot 44 Weld Street, Gingin	123	51,465	0	0	0	(24,852)	51,465	26,613	(607)	(3,157)
Regional Hardcourt Facility	124A	114,398	0	0	0	(26,870)	114,398	87,528	(800)	(4,450)
Seabird Sea Wall	127	12,009	0	0	(12,009)	(12,009)	0	0	(22)	(151)
Altus Financials Suite	131	110,145	0	0	0	(10,083)	110,145	100,062	(362)	(2,086)
Gingin Outdoor Activity Space	132	91,657	0	0	0	(17,812)	91,657	73,845	(222)	(1,249)
Lancelin Cunliffe Street Carpark	133	186,433	0	0	0	(23,172)	186,433	163,261	(1,439)	(8,235)
Land for Future Gingin Sporting Precinct	134	701,608	0	0	0	(24,011)	701,608	677,597	(6,305)	(37,109)
		1,788,315	0	0	(313,848)	(528,103)	1,474,467	1,260,212	(14,748)	(79,867)
Self supporting loans										
Ledge Point Country Club Cool Room		7,609	0	0	0	(2,482)	7,609	5,127	(28)	(151)
		7,609	0	0	0	(2,482)	7,609	5,127	(28)	(151)
Total		**1,795,924**	**0**	**0**	**(313,848)**	**(530,585)**	**1,482,076**	**1,265,339**	**(14,776)**	**(80,018)**
Current borrowings		530,585					216,737			
Non-current borrowings		1,265,339					1,265,339			
		1,795,924					**1,482,076**			

All debenture repayments were financed by general purpose revenue.
Self supporting loans are financed by repayments from third parties.

KEY INFORMATION
The City has elected to recognise borrowing costs as an expense when incurred regardless of how the borrowings are applied.

Fair values of borrowings are not materially different to their carrying amounts, since the interest payable on those borrowings is either close to current market rates or the borrowings are of a short term nature.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

11 LEASE LIABILITIES

Movement in carrying amounts

Information on leases			New Leases		Principal Repayments		Principal Outstanding		Interest Repayments	
Particulars	**Lease No.**	**1 July 2026**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**
		$	$	$	$	$	$	$	$	$
Lancelin administration office	1B	8,077	0		(1,322)	(8,077)	6,755	0	(54)	(182)
Photocopier	2A	10,547	0		(1,283)	(7,851)	9,264	2,695	(79)	(315)
GG09 Vehicle lease	TBC	0	0	123,324	0	(18,292)	0	105,032	0	(5,293)
Total		**18,624**	**0**	**123,324**	**(2,605)**	**(34,220)**	**16,019**	**107,727**	**(133)**	**(5,790)**
Current lease liabilities		15,928					13,323			
Non-current lease liabilities		2,696					2,696			
		18,624					**16,019**			

All lease repayments were financed by general purpose revenue.

KEY INFORMATION
At inception of a contract, the Shire assesses if the contract contains or is a lease. A contract is or contains a lease, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. At the commencement date, a right of use asset is recognised at cost and lease liability at the present value of the lease payments that are not paid at that date. The lease payments are discounted using that date. The lease payments are discounted using the interest rate implicit in the lease, if that rate can be readily determined. If that rate cannot be readily determined, the Shire uses its incremental borrowing rate.

All contracts classified as short-term leases (i.e. a lease with a remaining term of 12 months or less) and leases of low value assets are recognised as an operating expense on a straight-line basis over the term of the lease.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

12 OTHER CURRENT LIABILITIES

Other current liabilities	Note	Opening Balance 1 July 2026	Liability transferred from/(to) non current	Liability Increase	Liability Reduction	Closing Balance 30 August 2026
		$	$	$	$	$
Other liabilities						
Contract liabilities		688,602	0	44,755	(727)	732,630
Capital grant/contributions liabilities		4,257,905	0	1,567,042	0	5,824,947
Total other liabilities		4,946,507	0	1,611,797	(727)	6,557,577
Employee Related Provisions						
Provision for annual leave		633,202	0	0	0	633,202
Provision for long service leave		443,622	0	0	0	443,622
Total Provisions		1,076,824	0	0	0	1,076,824
Other Provisions						
Provision for Landfill rehabilitation		239,332	0	0	0	239,332
Total Other Provisions		239,332	0	0	0	239,332
Total other current liabilities		**6,262,663**	**0**	**1,611,797**	**(727)**	**7,873,733**

Amounts shown above include GST (where applicable)

A breakdown of contract liabilities and associated movements is provided on the following pages at Note 13 and 14

KEY INFORMATION

Provisions

Provisions are recognised when the Shire has a present legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.
Provisions are measured using the best estimate of the amounts required to settle the obligation at the end of the reporting period.

Employee Related Provisions

Short-term employee benefits

Provision is made for the Shire's obligations for short-term employee benefits. Short-term employee benefits are benefits (other than termination benefits) that are expected to be settled wholly before 12 months after the end of the annual reporting period in which the employees render the related service, including wages, salaries and sick leave. Short-term employee benefits are measured at the (undiscounted) amounts expected to be paid when the obligation is settled.
The Shire's obligations for short-term employee benefits such as wages, salaries and sick leave are recognised as a part of current trade and other payables in the calculation of net current assets.

Other long-term employee benefits

The Shire's obligations for employees' annual leave and long service leave entitlements are recognised as employee related provisions in the statement of financial position.

Long-term employee benefits are measured at the present value of the expected future payments to be made to employees. Expected future payments incorporate anticipated future wage and salary levels, durations of service and employee departures and are discounted at rates determined by reference to market yields at the end of the reporting period on government bonds that have maturity dates that approximate the terms of the obligations. Any remeasurements for changes in assumptions of obligations for other long-term employee benefits are recognised in profit or loss in the periods in which the changes occur. The Shire's obligations for long-term employee benefits are presented as non-current provisions in its statement of financial position, except where the Shire does not have an unconditional right to defer settlement for at least 12 months after the end of the reporting period, in which case the obligations are presented as current provisions.

Contract liabilities

An entity's obligation to transfer goods or services to a customer for which the entity has received consideration (or the amount is due) from the customer.

Capital grant/contribution liabilities

Grants to acquire or construct recognisable non-financial assets to identified specifications be constructed to be controlled by the Shire are recognised as a liability until such time as the Shire satisfies its obligations under the agreement.

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

13 GRANTS, SUBSIDIES AND CONTRIBUTIONS

	Unspent grant, subsidies and contributions liability					Grants, subsidies and contributions revenue				
Provider	Liability 1 July 2026	Increase in Liability	Decrease in Liability (As revenue)	Liability 30 Aug 2026	Current Liability 30 Aug 2026	Adopted Budget Revenue	YTD Budget	Annual Budget	Expected	YTD Revenue Actual
	$	$	$	$	$	$	$	$	$	$
Grants and subsidies										
Financial Assistance Grants - General	0	0	0	0	0	290,073	72,519	290,073	290,073	74,036
Financial Assistance Grants - Roads	0	0	0	0	0	247,752	61,938	247,752	247,752	44,105
Seniors Week Grant	0	0	0	0	0	3,000	0	3,000	3,000	0
Australia Day Grant	0	0	0	0	0	10,000	0	10,000	10,000	0
Fire (MAF) Mitigation	0	0	0	0	0	222,000	0	222,000	222,000	0
Emergency Services Levy Operating Grant	0	0	0	0	0	262,740	65,685	262,740	262,740	63,137
CAP Grant Funding - Northern Beach Alliance	0	0	0	0	0	22,500	0	22,500	22,500	0
Coast WA Grant Program - Lancelin Coastal Erosion	0	0	0	0	0	270,750	0	270,750	270,750	0
Coast WA Grant Program - Emergency Erosion works	0	0	0	0	0	187,500	0	187,500	187,500	0
Coast WA Grant Program - Lancelin Coastal Erosion	0	0	0	0	0	458,250	0	458,250	458,250	0
CHRMAP Funding	0	0	0	0	0	10,580	0	10,580	10,580	0
CMPAP - Coastal Management Strategy Grant	0	0	0	0	0	20,000	0	20,000	20,000	0
Lancelin Offroad Vehicle Area Wheatbelt Development Commission	69,986	0	0	69,986	69,986	0	0	0	0	0
Science Week Grant - 2 x library events	0	0	0	0	0	3,368	3,368	3,368	3,368	8,368
SLWA Awards Nomination LA	0	0	0	0	0	5,000	0	5,000	5,000	0
SLWA Encouraging Promising Practice Grant LA	0	0	0	0	0	5,000	0	5,000	5,000	0
SLWA Technology Grant Lancelin	0	0	0	0	0	5,000	0	5,000	5,000	0
	69,986	**0**	**0**	**69,986**	**69,986**	**2,023,513**	**203,510**	**2,023,513**	**2,023,513**	**189,646**
Contributions										
Incentives for early payments of rates	0	0	0	0	0	14,000	12,000	14,000	14,000	14,409
BRMO Grant - DFES	109,339	0	0	109,339	109,339				0	
Gingin Resilience Project - Mindaroo Foundation	52,364	0	(727)	51,637	51,637	55,000	9,166	55,000	55,000	727
Fire management reimbursements	0	0	0	0	0	27,000	0	27,000	27,000	0
CESM reimbursements	0	0	0	0	0	100,709	0	100,709	100,709	0
BRMC contribution	0	0	0	0	0	74,863	12,476	74,863	74,863	0
Contributions to Youth Week	0	0	0	0	0	3,000	0	3,000	3,000	0
Developer Contributions - Country Heights	0	0	0	0	0	31,200	5,200	31,200	31,200	21,600
Developer Contributions - Lancelin South	0	0	0	0	0	25,000	0	25,000	25,000	932,233
Contributions for halls based community leases	0	0	0	0	0	7,000	0	7,000	7,000	0
Contributions for recreational based community leases	0	0	0	0	0	7,000	0	7,000	7,000	0
				0	0				0	
Ausrisch Road Maintenance	0	0	0	0	0	17,979	0	17,979	17,979	0
Direct Maintenance Grant - State Road Funds to LG	0	0	0	0	0	315,929	0	315,929	315,929	339,901
Guilderton Caravan Park Deposit Liability	456,914			456,914	456,914	0	0	0	0	0
Market Public Liability Insurance	0	0	0	0	0	2,000	0	2,000	2,000	83
DLGSC CCTV Grants Program	0	44,755	0	44,755	44,755	40,686	0	40,686	40,686	0
	618,616	**44,755**	**(727)**	**662,644**	**662,644**	**721,366**	**38,842**	**721,366**	**721,366**	**1,308,953**
TOTALS	**688,602**	**44,755**	**(727)**	**732,630**	**732,630**	**2,744,879**	**242,352**	**2,744,879**	**2,744,879**	**1,498,599**

SHIRE OF GINGIN
SUPPLEMENTARY INFORMATION
FOR THE PERIOD ENDED 30 AUGUST 2026

14 CAPITAL GRANTS, SUBSIDIES AND CONTRIBUTIONS

	Capital grant/contribution liabilities					Capital grants, subsidies and contributions revenue				
Provider	Liability 1 July 2026	Increase in Liability	Decrease in Liability (As revenue)	Liability 30 Aug 2026	Current Liability 30 Aug 2026	Adopted Budget Revenue	YTD Budget	Annual Budget	Expected	YTD Revenue Actual
	$	$	$	$	$	$	$	$	$	$
Capital grants and subsidies										
DFES - Capital Grant - Buildings	27,021	0	0	27,021	27,021	27,021	0	27,021	27,021	0
Ledge Point Off-road Vehicle Area	12,927	0	0	12,927	12,927	0	0		0	0
State Government Funding Master Trails Plan	40,500	0	0	40,500	40,500	105,500	0	105,500	105,500	0
Roads to Recovery	4,177,457	957,995	0	5,135,452	5,135,452	981,669	0	981,669	981,669	0
Regional Roads Group	0	569,047		569,047	569,047	1,022,616	0	1,022,616	1,022,616	3,600
Roads to Recovery - Special Bridges Funding	0	0	0	0	0	5,057,995	0	5,057,995	5,057,995	0
Roads to Recoery Pathways funding	0	0	0	0	0	54,371	0	54,371	54,371	0
Black Spot Funding	0	40,000	0	40,000	40,000	100,000	0	100,000	100,000	0
Commodity Route Fundign	0	0	0	0	0	400,000	0	400,000	400,000	0
	4,257,905	**1,567,042**	**0**	**5,824,947**	**5,824,947**	**7,749,172**	**0**	**7,749,172**	**7,749,172**	**3,600**

12.4 LIST OF PAID ACCOUNTS SEPTEMBER 2026

File	FIN/25
Author	Hannah Campbell –Finance Officer
Reporting Officer	Leanne Parola – Acting Executive Manager Corporate and Community Services
Refer	Nil
Appendices	1. Voucher List September 2026 [**12.4.1** - 7 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

For Council to note the payments made in September 2026.

BACKGROUND

Council has delegated authority to the Chief Executive Officer (CEO) to exercise the power to make payments from the Municipal Fund (Delegation 1.1.13 Payments from the Municipal or Trust Funds). The CEO is required to present a list to Council of those payments made since the last list was submitted.

COMMENT

Accounts totalling $2,547,587.02 were paid during the month of September 2026.

A payment schedule is included as an **appendix** to this report.

The schedule details:

• Municipal Fund electronic funds transfers (EFT)	$2,325,006.08
• Municipal Fund cheques	$0
• Municipal Fund direct debits	$222,580.94
TOTAL MUNICIPAL EXPENDITURE	**$2,547,587.02**
TOTAL EXPENDITURE	**$2,547,587.02**

All invoices have been verified, and all payments have been duly authorised in accordance with the Shire's procedures.

RISK IMPLICATIONS

Nil

STATUTORY/LOCAL LAW IMPLICATIONS

Local Government Act 1995
s.6.4 – Financial Report

Local Government (Financial Management) Regulations 1996
Reg. 13 – Payments from municipal fund or trust by CEO
Reg. 13A – Payments by employees via purchasing cards

Shire of Gingin Delegation Register – Delegation 1.1.13 Payments from the Municipal or Trust Funds

POLICY IMPLICATIONS

Nil

BUDGET IMPLICATIONS

Resource requirements are in accordance with existing budgetary allocations.

STRATEGIC IMPLICATIONS

Nil

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Woods SECONDED: Councillor Kestel

That Council note all payments made by the Temporary CEO under Delegation 1.1.13 for September 2026 totalling $2,547,587.02 as detailed in the appendices to this report, comprising:

- **Municipal Fund electronic funds transfers (EFT) $2,325,006.08**
- **Municipal Fund cheques $0**
- **Municipal Fund direct debits $222,580.94**

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*
AGAINST: *Nil*

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT	
EFT-47948	2/09/2026	Advance Office Solutions	Shire Asset: Quarterly Rental	643.50	
EFT-47949	2/09/2026	AMPAC Debt Recovery WA Pty Ltd	Debt Recovery Costs	66.00	
EFT-47950	2/09/2026	Asphaltech	Footpath Upgrade	12,999.49	
EFT-47951	2/09/2026	Australian Taxation Office (PAYG)	Payroll deduction for PE: 27/08/2026	52,528.00	S
EFT-47952	2/09/2026	Belgravia PRO Pty Ltd	Shire Facility: Hire, Management and Licencing Fees	43,252.20	
EFT-47953	2/09/2026	CarBon Leasing & Rentals Pty Ltd	Novated Lease PE: 25.08.2026	1,024.60	S
EFT-47954	2/09/2026	CFMEU	Payroll deduction for PE: 27/08/2026	60.00	S
EFT-47955	2/09/2026	Child Support Agency	Payroll deduction for PE: 27/08/2026	699.71	S
EFT-47956	2/09/2026	Civic Legal	Legal Advice	13,073.64	
EFT-47957	2/09/2026	Civil Engineering Assignments	Capital Works Designs	3,289.00	
EFT-47958	2/09/2026	DFES - Department of Fire and Emergency Services	2026/27 ESL Quarter 1	193,532.70	
EFT-47959	2/09/2026	Diverseco	Weigh Shire Vehicle	1,716.83	
EFT-47960	2/09/2026	Eagleye Technical Services	Shire Facility: Electrical Repairs	1,385.35	L
EFT-47961	2/09/2026	Ellen Brockman Integrated Catchment Group Inc	Community Funding	5,500.00	L
EFT-47962	2/09/2026	Full Flow Plumbing and Gas	Shire Facility: Plumbing Repairs	440.00	L
EFT-47963	2/09/2026	Gingin Fuel and Tyres Pty Ltd	Shire Vehicles: Supply and Fit Tyres	9,518.00	L
EFT-47964	2/09/2026	Gingin Golf Club	Community Funding	2,500.00	L
EFT-47965	2/09/2026	Indian Ocean Pest Control	Shire Facillity: Pest Report	165.00	L
EFT-47966	2/09/2026	Integrated ICT	Mobile Phone Onboarding	445.50	
EFT-47967	2/09/2026	Lancelin IGA Local Grocer	Supermarket Purchases	166.75	L
EFT-47968	2/09/2026	Landgate	UV Interim - Rural Areas - Rural	49.80	
EFT-47969	2/09/2026	LGRCEU (WA Division)	Payroll deduction for PE: 27/08/2026	72.00	S
EFT-47970	2/09/2026	McLeods Lawyers Pty Ltd	Legal Expenses	738.10	
EFT-47971	2/09/2026	Moore River Electrical Services	Shire Location: Electrical Repairs	1,540.00	L
EFT-47972	2/09/2026	Moore River Tree Services	Pruning for Various Shire Locations	5,610.00	L
EFT-47973	2/09/2026	NAPA a division of GPC Asia Pacific Pty Ltd	Shire Vehicles: Supply Parts	568.69	
EFT-47974	2/09/2026	Officeworks	Consumables and Stationery Restock	659.70	
EFT-47975	2/09/2026	Perth Trade Parts	Shire Vehicles: Supply Parts	210.05	
EFT-47976	2/09/2026	State Library of WA	Activity Boxes	291.49	
EFT-47977	2/09/2026	Sun City Group Pty Ltd	Performance Bond Reimbursement	10,000.00	R
EFT-47978	2/09/2026	The Bear Haven Co Pty Ltd	Consultancy	1,977.25	S
EFT-47979	2/09/2026	Truck Centre WA Pty Ltd	Service of Shire Vehicle	5,661.41	
EFT-47980	2/09/2026	Tutt Bryant Equipment (BT Equipment Pty Ltd T/As)	Supply/Deliver Solenoids	3,580.47	
EFT-47981	2/09/2026	Wanneroo Isuzu Ute	Purchase of Shire Asset	55,772.43	
EFT-47982	2/09/2026	Waterlogic Australia Pty Ltd	Asset Hire	180.05	
EFT-47983	2/09/2026	West Coast Technical Services Pty Ltd	Shire Facility: Install New Air Con	10,023.93	L
EFT-47984	2/09/2026	Western Australia Police Force	National Police Checks	70.40	
EFT-47985	2/09/2026	C. Pazvakavambwa	Palettes and Plates	700.00	
EFT-47986	2/09/2026	J. Hyne	Reimbursement	150.00	R
EFT-47987	9/09/2026	ASK Waste Management Pty Ltd	Development of Management Plan	825.00	
EFT-47988	9/09/2026	Aurora Delta Pty Ltd	Pre Employment Medical	210.00	S
EFT-47989	9/09/2026	Beemarra Group Pty Ltd	Shire Waste Facilities: Operations and Site Management	25,575.00	
EFT-47990	9/09/2026	BOC Pty Ltd	Shire Facilities/Locations: Supply Gas and Oxygen	114.48	
EFT-47991	9/09/2026	Bond Investments T/A Bond Hire	Shire Facilities: CCTV Towers	1,364.03	
EFT-47992	9/09/2026	Boya Equipment	Supply Part for Shire Vehicle	744.56	
EFT-47993	9/09/2026	Brightmark Group Pty Ltd	Cleaning Shire Facilities	40,815.67	
EFT-47994	9/09/2026	Bunnings Buildings Supplies Pty Ltd	Supply PPE and Hardware	455.91	
EFT-47995	9/09/2026	Caraban Limestone, Sand and Landscaping Supplies	Shire Location: Supply Limestone	1,319.78	L
EFT-47996	9/09/2026	Carringtons Traffic Services	Traffic Management	11,918.57	
EFT-47997	9/09/2026	Civil Engineering Assignments	Capital Works Designs	5,163.13	
EFT-47998	9/09/2026	Cleanflow Environmental Solutions	Various Locations: Soak Well and Pit Drainage	2,915.00	
EFT-47999	9/09/2026	Construction Training Fund	CTF Payments Collected	3,239.78	
EFT-48000	9/09/2026	Cooee Couriers & Transport	Freight	1,380.06	
EFT-48001	9/09/2026	Corsign	Signage	83.60	
EFT-48002	9/09/2026	Country Values Real Estate - Trust Account	Rent	2,320.00	L
EFT-48003	9/09/2026	Dibbles Plumbing Service	RPZ Testing Brockman Street Gingin August 2026	297.00	L
EFT-48004	9/09/2026	Duncan Solutions	Parking Meters Transactions and Support	214.43	
EFT-48005	9/09/2026	Electricity Networks Corporation	Shire Road: Emergency Works	1,991.44	
EFT-48006	9/09/2026	Environmental Health Australia (WA)	Memberships	637.50	
EFT-48007	9/09/2026	Frontline Fire and Rescue Equipment	Repairs to Shire Vehicles	9,738.22	
EFT-48008	9/09/2026	Gingin Trading	Hardware Store Purchases	1,738.30	L
EFT-48009	9/09/2026	Gull Gingin Pty Ltd	Small Plant Fuel Purchases	143.76	L
EFT-48010	9/09/2026	IGA Local Grocer Gingin	Supermarket Purchases	330.33	L
EFT-48011	9/09/2026	Integrated ICT	Supply of Shire Asset and IT Services Contract	10,766.21	
EFT-48012	9/09/2026	Iron Mountain Australia Group Services Pty Ltd	Storage	150.82	
EFT-48013	9/09/2026	John Papas Trailers Pty Ltd (As trustee for the JP Unit Trust)	Supply Shire Assets	27,995.00	

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT	
EFT-48014	9/09/2026	Kleen West Distributors	Supply Toiletries	2,333.71	
EFT-48015	9/09/2026	Lancelin Gull Roadhouse	Fuel Purchases	3,266.48	L
EFT-48016	9/09/2026	Lancelin Trade and Rural Supplies	Hardware Store Purchases	954.60	L
EFT-48017	9/09/2026	Lancelin Tree Services	Shire Location: Tree Pruning	1,320.00	L
EFT-48018	9/09/2026	Ledge Point Roofing and Maintenance	Shire Location: Roof Repair	187.00	L
EFT-48019	9/09/2026	LG Best Practices Pty Ltd	External Officer	2,772.00	
EFT-48020	9/09/2026	Linthorne Automotive	Servicing of Shire Vehicles	4,931.40	L
EFT-48021	9/09/2026	Martin's Trailer Parts	Shire Asset: Supply Parts	274.09	
EFT-48022	9/09/2026	NAPA a division of GPC Asia Pacific Pty Ltd	Shire Asset: Supply Parts	111.25	
EFT-48023	9/09/2026	Officeworks	Supply Shire Assets and Stationary	1,856.45	
EFT-48024	9/09/2026	Ohura Consulting	IR Consultancy	3,095.20	S
EFT-48025	9/09/2026	Omnicom Media Group Australia Pty Ltd (Marketforce)	Subscription	2,090.00	
EFT-48026	9/09/2026	RingCentral Australia Pty Ltd	Monthly Phone Service	1,368.39	
EFT-48027	9/09/2026	Shire of Gingin	Commission Paid on CTF Payments	66.00	
EFT-48028	9/09/2026	St John Ambulance Western Australia Ltd	Staff Training	89.00	S
EFT-48029	9/09/2026	Stewart & Heaton Clothing Co Pty Ltd	Bushfire Brigade PPE	965.58	
EFT-48030	9/09/2026	Team Global Express Pty Ltd	Freight	106.68	
EFT-48031	9/09/2026	The Bear Haven Co Pty Ltd	Consultancy	1,771.00	S
EFT-48032	9/09/2026	The National Trust of Australia (WA)	Rent	255.37	
EFT-48033	9/09/2026	Truckline	Supply Parts	150.48	
EFT-48034	9/09/2026	WEX Australia Pty Ltd	Caltex Fuel Card Purchases	1,717.11	
EFT-48035	9/09/2026	C. Pazvakavambwa	Palettes and Plates	300.00	
EFT-48036	9/09/2026	LJ Hughes	Reimbursement: Lancelin Administration Office Costs	214.15	
EFT-48037	9/09/2026	M. Fleming	Reimbursement	173.00	R
EFT-48038	9/09/2026	S. Smith	Reimbursement	300.00	R
EFT-48039	9/09/2026	Thomas Kusters	Shire Locations: Plumbing Repairs	1,190.00	
PAY-198	10/09/2026	Shire of Gingin	Net Pay	203,583.79	S
EFT-48040	16/09/2026	ADS Automation Pty Ltd	Replace Shire Asset	13,707.10	
EFT-48041	16/09/2026	Altus Planning Pty Ltd	Planning Services	6,336.00	
EFT-48042	16/09/2026	Aquatic Services WA PTY LTD	Replace Shire Asset	79,961.83	
EFT-48043	16/09/2026	Australian Taxation Office (PAYG)	Payroll deduction for PE: 10/09/2026	58,575.00	S
EFT-48044	16/09/2026	Avon Waste	Provisions of Waste Services	130,702.43	
EFT-48045	16/09/2026	Belgravia PRO Pty Ltd	Shire Facility: Licensing Fee	1,592.97	
EFT-48046	16/09/2026	Bluecoast Consulting Engineers Pty Ltd	Rock Bag Design	16,500.00	
EFT-48047	16/09/2026	CarBon Leasing & Rentals Pty Ltd	Novated Lease Inv 112471 PE: 08.09.2026	1,024.60	S
EFT-48048	16/09/2026	Carringtons Traffic Services	Traffic Management	19,361.38	
EFT-48049	16/09/2026	CFMEU	Payroll deduction for PE: 10/09/2026	60.00	S
EFT-48050	16/09/2026	Child Support Agency	Payroll deduction for PE: 10/09/2026	699.71	S
EFT-48051	16/09/2026	Civil Engineering Assignments	Capital Works Designs	3,069.00	
EFT-48052	16/09/2026	Cleanflow Environmental Solutions	Various Locations: Soak Well and Pit Drainage	14,575.00	
EFT-48053	16/09/2026	Coastal Courier	Advertising	80.00	L
EFT-48054	16/09/2026	Cohesis Pty Ltd	Intranet Additional Works	935.00	
EFT-48055	16/09/2026	Corsign	Signage/ Stickers	132.00	
EFT-48056	16/09/2026	Country Copiers / Wheatbelt Office & Business Machines	Printer Toners	346.80	
EFT-48057	16/09/2026	Department of Local Government Industry Regulation and Safety	2025/26 Adjudicator Costs	5,341.88	
EFT-48058	16/09/2026	Department of Transport	Release of Information Fee	61.20	
EFT-48059	16/09/2026	Eastern Hills Chainsaws & Mowers Pty Ltd	Supply New Equipment	967.30	
EFT-48060	16/09/2026	Frontline Fire and Rescue Equipment	Shire Vehicle Repairs	2,333.36	
EFT-48061	16/09/2026	Gingin District Community Resource Centre Inc (CRC)	Advertising and SLWA Grant	5,120.00	L
EFT-48062	16/09/2026	Gingin Florist	Bouquet	100.00	L
EFT-48063	16/09/2026	Gingin Fuel and Tyres Pty Ltd	Shire Vehicles: Supply Tyres and Parts	977.80	L
EFT-48064	16/09/2026	Have A Go News	Advertising	363.00	
EFT-48065	16/09/2026	Hofmann Family Trust T/A Seaview Fabrication & Maintenance	Supply and install handrails	5,183.76	L
EFT-48066	16/09/2026	Integrated ICT	IT Equipment	30,263.20	
EFT-48067	16/09/2026	Kleen West Distributors	Supply Toiletries	1,187.89	
EFT-48068	16/09/2026	Lancelin Appliance Services	Shire Facility: Remove and Replace Aircon	4,268.00	L
EFT-48069	16/09/2026	Lancelin IGA Local Grocer	Supermarket Purchases	154.92	L
EFT-48070	16/09/2026	Landgate	UV Interim - Rural Areas - Rural	647.40	
EFT-48071	16/09/2026	LG Best Practices Pty Ltd	External Officer	8,492.00	
EFT-48072	16/09/2026	LGRCEU (WA Division)	Payroll deduction for PE: 10/09/2026	72.00	
EFT-48073	16/09/2026	McLeods Lawyers Pty Ltd	Legal Fees	14,564.90	
EFT-48074	16/09/2026	McWilliams Davis Lawyers	Legal Fees	808.50	

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT	
EFT-48075	16/09/2026	Moore River News Inc	Advertising	310.00	L
EFT-48076	16/09/2026	Moore River Roadhouse	Fuel Purchases	1,127.75	L
EFT-48077	16/09/2026	NAPA a division of GPC Asia Pacific Pty Ltd	Shire Vehicles: Supply Parts	314.83	
EFT-48078	16/09/2026	Northern Valley News	Advertising	1,250.00	L
EFT-48079	16/09/2026	Omnicom Media Group Australia Pty Ltd (Marketforce)	Advertising	905.75	
EFT-48080	16/09/2026	Perth Trade Parts	Shire Vehicles: Supply Parts	110.52	
EFT-48081	16/09/2026	Stewart & Heaton Clothing Co Pty Ltd	Bushfire Brigade PPE	754.53	
EFT-48082	16/09/2026	Supagas Pty Limited	Various Shire Facilities: Supply Gas	392.15	
EFT-48083	16/09/2026	Team Global Express Pty Ltd	Freight	162.65	
EFT-48084	16/09/2026	The Bear Haven Co Pty Ltd	Consultancy	4,229.50	S
EFT-48085	16/09/2026	Tiffany's Catering	Catering	324.00	
EFT-48086	16/09/2026	Truck Centre WA Pty Ltd	Shire Vehicle Service	166.45	
EFT-48087	16/09/2026	Wanneroo Isuzu Ute	Purchase of Shire Asset	68,561.23	
EFT-48088	16/09/2026	West Coast Technical Services Pty Ltd	Various Shire Locations: Annual Aircon Servicing	5,850.00	L
EFT-48089	16/09/2026	G. Vivian	Refund	425.00	R
EFT-48090	23/09/2026	Beemarra Group Pty Ltd	Shire Waste Facilities: Operations and Site Management	12,787.50	
EFT-48091	23/09/2026	Belgravia PRO Pty Ltd	Shire Facility: Hire, Management and Licencing Fees	43,115.49	
EFT-48092	23/09/2026	Bluemont Pty Ltd	Remedial Works Lancelin	368,288.80	
EFT-48093	23/09/2026	Certex Lifting Pty Ltd	Shire Asset: Test and Tagging	2,160.40	
EFT-48094	23/09/2026	Civil Engineering Assignments	Capital Works Designs	2,182.40	
EFT-48095	23/09/2026	Cleanflow Environmental Solutions	Shire Location: Robotic Cutting	7,040.00	
EFT-48096	23/09/2026	Commercial Locksmiths	Shire Facilities: Replacement Keys	577.50	
EFT-48097	23/09/2026	Country Copiers / Wheatbelt Office & Business Machines	Copier Charges	233.02	
EFT-48098	23/09/2026	Country Values Real Estate - Trust Account	Rent	2,320.00	
EFT-48099	23/09/2026	Dibbles Plumbing Service	Shire Facility: Plumbing Repairs	921.80	L
EFT-48100	23/09/2026	Eagleye Technical Services	Shire Facilities: Electrical Works	5,740.47	L
EFT-48101	23/09/2026	Electricity Networks Corporation	Shire Location: Emergency Pruning	2,084.72	
EFT-48102	23/09/2026	Gingin Fuel and Tyres Pty Ltd	Shire Vehicles: Supply Parts and Fuel	16,884.20	L
EFT-48103	23/09/2026	Gull Gingin Pty Ltd	Catering	350.00	L
EFT-48104	23/09/2026	Integrated ICT	IT Services Contract	190.03	
EFT-48105	23/09/2026	JAS Auto Electrical Parts	Supply new SLK meter	1,281.01	
EFT-48106	23/09/2026	Jtagz Pty Ltd	Cat and Dog Tags	517.28	
EFT-48107	23/09/2026	Jupiter Health and Medical Services (Lancelin Medical Centre)	Accommodation Reimbursement	4,450.00	R
EFT-48108	23/09/2026	Kleen West Distributors	Supply Toiletries	346.67	
EFT-48109	23/09/2026	Lancelin Gull Roadhouse	Volunteer Week Voucher	250.00	L
EFT-48110	23/09/2026	Landgate	GRV Interim Valuation	68.05	
EFT-48111	23/09/2026	Ledge's Kanga Service and Skip Bin Hire	Skip Bin Hire	2,640.00	L
EFT-48112	23/09/2026	LG Best Practices Pty Ltd	External Officer	572.00	
EFT-48113	23/09/2026	Major Motors Pty Ltd	Supply Parts	271.04	
EFT-48114	23/09/2026	Martin's Trailer Parts	Supply Parts	621.27	
EFT-48115	23/09/2026	McLeods Lawyers Pty Ltd	Legal Fees	4,623.30	
EFT-48116	23/09/2026	Moore River Electrical Services	Shire Location: Electrical Repairs	2,585.00	L
EFT-48117	23/09/2026	Moore Sands Resources Pty Ltd	Shire Facility: Supply Sand	6,475.85	L
EFT-48118	23/09/2026	NAPA a division of GPC Asia Pacific Pty Ltd	Multiple Shire Vehicles: Supply Parts	1,425.52	
EFT-48119	23/09/2026	Perth Commercial Kitchens	Shire Facility: Supply Parts	5,641.90	
EFT-48120	23/09/2026	Team Global Express Pty Ltd	Freight	58.44	
EFT-48121	23/09/2026	Technology One Limited	Subscription	27,838.78	
EFT-48122	23/09/2026	The Bear Haven Co Pty Ltd	Consultancy	2,183.50	
EFT-48123	23/09/2026	WA Stump Grinding & Tree Services	Shire Location: Tree Removal	4,125.00	
EFT-48124	23/09/2026	D. Parmenter	Refund	325.00	R
EFT-48125	23/09/2026	H. Sutherland	Refund	25.00	R
PAY-199	24/09/2026	Shire of Gingin	Net Pay	215,386.67	S
EFT-48126	30/09/2026	Adams Advisory Pty Ltd T/AS Intent Life On Purpose	Preparation of Terms of Reference	2,178.00	
EFT-48127	30/09/2026	AFGRI Equipment Pty Ltd	Shire Vehicle Repairs	3,886.28	
EFT-48128	30/09/2026	AMPAC Debt Recovery WA Pty Ltd	Debt Recovery Costs	852.10	
EFT-48129	30/09/2026	Apex Refrigeration WA	Shire Facility: Asset Repairs	10,838.97	
EFT-48130	30/09/2026	Australia Post	Postage	8,578.97	
EFT-48131	30/09/2026	Australian Taxation Office (PAYG)	Payroll deduction for PE: 24/09/2026	54,303.00	S
EFT-48132	30/09/2026	Beemarra Group Pty Ltd	Shire Waste Facilities: Operations and Site Management	19,800.00	
EFT-48133	30/09/2026	Belgravia PRO Pty Ltd	Shire Facility: Licencing Fees	2,025.54	
EFT-48134	30/09/2026	Boya Equipment	Shire Vehicles: Supply Parts and Service	3,240.72	
EFT-48135	30/09/2026	CarBon Leasing & Rentals Pty Ltd	Novated Lease Inv 112783 PE: 22.09.2026	1,024.60	S
EFT-48136	30/09/2026	Carringtons Traffic Services	Traffic Management	9,304.99	
EFT-48137	30/09/2026	CFMEU	Payroll deduction for PE: 24/09/2026	60.00	S

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT	
EFT-48138	30/09/2026	Child Support Agency	Payroll deduction for PE: 24/09/2026	36.68	S
EFT-48139	30/09/2026	City of Albany	Library Subscription	14,029.40	
EFT-48140	30/09/2026	Complete Office Supplies Pty Ltd	Supply Equipment	810.09	
EFT-48141	30/09/2026	Corsign	Signage	327.80	
EFT-48142	30/09/2026	DB Auto Electrical & Mechanical	Servicing of Shire Vehicles	6,745.95	
EFT-48143	30/09/2026	Dibbles Plumbing Service	Shire Facilities: Plumbing Work	4,180.00	L
EFT-48144	30/09/2026	Eagleye Technical Services	Shire Facility: Electrical Work	5,470.30	L
EFT-48145	30/09/2026	Ecowater Services	Quarterly Service of ATU	252.60	
EFT-48146	30/09/2026	Frontline Fire and Rescue Equipment	Replacement Asset and BFB PPE	2,988.24	
EFT-48147	30/09/2026	Gingin District High School - GGDHS	Shire Event - Art Award	150.00	L
EFT-48148	30/09/2026	Gingin Fuel and Tyres Pty Ltd	Supply Tyres and Fuel	36,982.96	L
EFT-48149	30/09/2026	Hersey's Safety Pty Ltd	PPE	1,128.96	
EFT-48150	30/09/2026	Indian Ocean Pest Control	Shire Location: Pest Control	880.00	L
EFT-48151	30/09/2026	IT Vision	Software Support	1,100.00	
EFT-48152	30/09/2026	JB Hi-Fi Group Pty Ltd	Supply Asset	732.19	
EFT-48153	30/09/2026	Lancom Technology Solutions Pty Ltd	PPE	219.15	
EFT-48154	30/09/2026	LGRCEU (WA Division)	Payroll deduction for PE: 24/09/2026	72.00	S
EFT-48155	30/09/2026	Local Government Professionals WA - LGPWA	Training	535.00	S
EFT-48156	30/09/2026	McLeods Lawyers Pty Ltd	Legal Fees	738.10	
EFT-48157	30/09/2026	Moore River Tree Services	Various Shire Locations: Tree Removal and Pruning	15,125.00	L
EFT-48158	30/09/2026	Offshore Diving Services	Shire Asset: Reinstatement and Inpection	3,850.00	
EFT-48159	30/09/2026	Team Global Express Pty Ltd	Freight	51.77	
EFT-48160	30/09/2026	The Bear Haven Co Pty Ltd	Consultancy	1,771.00	S
EFT-48161	30/09/2026	The National Trust of Australia (WA)	Rent	255.37	
EFT-48162	30/09/2026	The Scout Association of Australia WA Branch	Community Funding	2,200.00	L
EFT-48163	30/09/2026	Training Services Australia	Training	363.00	S
EFT-48164	30/09/2026	Truck Centre WA Pty Ltd	Supply Parts	2,166.70	
EFT-48165	30/09/2026	WA Mapping	Road Reports	2,200.00	
EFT-48166	30/09/2026	WA Stump Grinding & Tree Services	Shire Location: Tree Removal and Pruning	3,795.00	
EFT-48167	30/09/2026	West Coast Technical Services Pty Ltd	Various Shire Locations: Service of Aircons	5,590.00	L
EFT-48168	30/09/2026	A. Teo	Refund	375.00	R
EFT-48169	30/09/2026	C. Fidge	Refund	112.00	R
EFT-48170	30/09/2026	C. Evans	Refund	50.00	R
EFT-48171	30/09/2026	C. Fewster	Refund	500.00	R
EFT-48172	30/09/2026	S. Gordon	Refund	138.40	R
EFT-48173	30/09/2026	T. Kusters	Supply and Install Asset	4,200.00	L
				2,325,006.08	

CHEQUES

CHEQUES TOTAL	**-**

DIRECT DEBIT

DE-8679	1/09/2026	Bendigo Bank	Bendigo Bank Fees	464.64
DE-8680	1/09/2026	Finrent Pty Ltd	Shire Asset: Rent	167.32
DE-8681	1/09/2026	Department of Transport	Licensing	1,778.75
DE-8580	1/09/2026	Water Corporation	9007282427 Water Charges	538.80
DE-8621	1/09/2026	Synergy	669 547 310 Electricity Charges	133.11
DE-8660	1/09/2026	Go Go Media	Monthly Messages On Hold	75.90
DE-8682	1/09/2026	HP Financial Services (Australia) Pty Ltd	Allocation of Lease	748.57
DE-8709	1/09/2026	Bendigo Bank	Bendigo Bank Fees	62.50
DE-8710	1/09/2026	Bendigo Bank	Bendigo Bank Fees	6.21
DE-8684	2/09/2026	Bendigo Bank	Bendigo Bank Fees	5.85
DE-8685	2/09/2026	Department of Transport	Licensing	3,155.40
DE-8686	2/09/2026	Bendigo Bank	Bendigo Bank Fees	1,822.80
DE-8687	2/09/2026	Bendigo Bank	Bendigo Bank Fees	489.09
DE-8688	2/09/2026	Bendigo Bank	Bendigo Bank Fees	48.90
DE-8689	2/09/2026	Bendigo Bank	Bendigo Bank Fees	65.75
DE-8622	2/09/2026	Synergy	285 816 690 Electricity Charges	3,107.14
DE-8623	2/09/2026	Synergy	520 356 120 Electricity Charges	208.77
DE-8625	2/09/2026	Synergy	803 650 860 Electricity Charges	3,532.66
DE-8624	2/09/2026	Synergy	803 180 850 Electricity Charges	3,278.20
DE-8626	2/09/2026	Synergy	836 441 510 Electricity Charges	547.16

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
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TYPE	DATE PAID	NAME	DETAILS	AMOUNT
DE-8694	2/09/2026	Water Corporation	9007318709 Water Charges	359.23
DE-8627	3/09/2026	Synergy	107 391 000 Electricity Charges	68.12
DE-8630	3/09/2026	Synergy	799 289 350 Electricity Charges	586.67
DE-8628	3/09/2026	Synergy	187 761 900 Electricity Charges	139.04
DE-8629	3/09/2026	Synergy	328 979 240 Electricity Charges	122.78
DE-8631	3/09/2026	Synergy	870 298 050 Electricity Charges	187.91
DE-8584	3/09/2026	Water Corporation	9007284131 Water Charges	327.62
DE-8588	3/09/2026	Water Corporation	9007286508 Water Charges	578.62
DE-8708	3/09/2026	Department of Transport	Licensing	2,438.75
DE-8711	3/09/2026	Bendigo Bank	Bendigo Bank Fees	374.91
DE-8712	3/09/2026	Bendigo Bank	Bendigo Bank Fees	112.90
DE-8713	3/09/2026	Bendigo Bank	Bendigo Bank Fees	64.00
DE-8691	4/09/2026	Department of Transport	Licensing	1,125.30
DE-8587	4/09/2026	Water Corporation	9007285863 Water Charges	132.53
DE-8590	4/09/2026	Water Corporation	9007317095 Water Charges	204.82
DE-8589	4/09/2026	Water Corporation	9007314193 Water Charges	277.10
DE-8620	4/09/2026	Water Corporation	9021402739 Water Charges	153.61
DE-8634	4/09/2026	Synergy	781 501 390 Electricity Charges	132.74
DE-8632	4/09/2026	Synergy	158 243 550 Electricity Charges	315.38
DE-8633	4/09/2026	Synergy	178 235 200 Electricity Charges	187.13
DE-8692	7/09/2026	Department of Transport	Licensing	2,809.00
DE-8583	7/09/2026	Water Corporation	9007281694 Water Charges	2,156.59
DE-8585	7/09/2026	Water Corporation	9007284561 Water Charges	210.84
DE-8597	7/09/2026	Water Corporation	9013899933 Water Charges	75.30
DE-8586	7/09/2026	Water Corporation	9007284684 Water Charges	326.61
DE-8637	7/09/2026	Synergy	285 816 500 Electricity Charges	1,917.44
DE-8635	7/09/2026	Synergy	235 782 200 Electricity Charges	196.91
DE-8636	7/09/2026	Synergy	247 878 000 Electricity Charges	121.43
DE-8654	7/09/2026	Telstra	486 9948 600 Telstra Group Plan	240.45
DE-8668	8/09/2026	Telstra	332 1096 000 Telstra Group Plan	1,672.04
DE-8639	8/09/2026	Synergy	346 843 830 Electricity Charges	1,387.12
DE-8638	8/09/2026	Synergy	190 842 510 Electricity Charges	1,300.16
DE-8619	8/09/2026	Water Corporation	9018507038 Water Charges	60.24
DE-8613	8/09/2026	Water Corporation	9014990894 Water Charges	340.36
DE-8704	8/09/2026	Department of Transport	Licensing	2,934.95
DE-8644	9/09/2026	Synergy	392 383 350 Electricity Charges	842.12
DE-8645	9/09/2026	Synergy	905 975 750 Electricity Charges	327.54
DE-8705	9/09/2026	Bendigo Bank	Bendigo Bank Fees	7.95
DE-8706	9/09/2026	Department of Justice	Lodgment Fee	543.00
DE-8707	9/09/2026	Department of Transport	Licensing	988.60
DE-8699	10/09/2026	Precision Administration Services Pty Ltd	Payroll deduction for PE: 10/09/2026	38,241.61
DE-8646	10/09/2026	Synergy	376 853 180 Electricity Charges	930.84
DE-8647	10/09/2026	Synergy	613 883 230 Electricity Charges	2,577.92
DE-8669	10/09/2026	Telstra	334 8777 339 Telstra Group Plan up to 21.08.2026	359.21
DE-8714	10/09/2026	Department of Transport	Licensing	542.15
DE-8715	10/09/2026	Bendigo Bank	Bendigo Bank Fees	17.55
DE-8716	11/09/2026	Department of Transport	Licensing	2,503.25
DE-8648	11/09/2026	Synergy	696 773 000 Electricity Charges	259.81
DE-8670	14/09/2026	Viva Energy Australia Pty Ltd	Shell Card Purchases	299.39
DE-8697	14/09/2026	Credit Card - EMRDS	Credit Card Purchases	1,900.86
DE-8717	14/09/2026	Credit Card - EMO	Credit Card Purchases	4.00
DE-8651	14/09/2026	Synergy	936 644 360 Electricity Charges	194.62
DE-8696	14/09/2026	Credit Card - CESM	Credit Card Purchases	4.00
DE-8698	14/09/2026	Credit Card - CEO	Credit Card Purchases	4,351.08
DE-8718	14/09/2026	Credit Card - Mechanic/Depot Controller	Credit Card Purchases	3,236.99
DE-8719	14/09/2026	Department of Transport	Licensing	2,593.75
DE-8740	14/09/2026	Credit Card - EMCCS	Credit Card Purchases	681.96
DE-8723	14/09/2026	Credit Card - GG Aquatic Centre Manager	Credit Card Purchases	1,760.60
DE-8721	15/09/2026	Department of Transport	Licensing	2,157.20
DE-8666	15/09/2026	Synergy	415 826 910 Electricity Charges	591.07
DE-8674	15/09/2026	Telair Pty Ltd (Mobile Phones)	Mobile Phones Charges	797.87
DE-8673	15/09/2026	Telair Pty Ltd	Internet Charges	1,790.70
DE-8722	15/09/2026	Bendigo Bank	Bendigo Bank Fees	39.61
DE-8729	16/09/2026	Department of Transport	Licensing	2,293.60
DE-8730	16/09/2026	Bendigo Bank	Bendigo Bank Fees	7.50
DE-8663	17/09/2026	Synergy	285 816 880 Electricity Charges	999.52
DE-8693	17/09/2026	Business Service Brokers T/A TeleChoice	Mobile Phone Charges	69.00

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT
DE-8736	17/09/2026	Department of Transport	Licensing	924.65
DE-8672	17/09/2026	QPC Group	Toner Freight	33.00
DE-8739	18/09/2026	Department of Transport	Licensing	1,729.85
DE-8752	21/09/2026	Department of Transport	Licensing	632.00
DE-8678	21/09/2026	Windcave Pty Ltd	Windcave Transaction Fees	1,902.07
DE-8676	22/09/2026	Vocus Communications	GESC Internet	808.50
DE-8758	22/09/2026	Department of Transport	Licensing	2,844.60
DE-8765	23/09/2026	Department of Transport	Licensing	1,789.70
DE-8675	23/09/2026	Water Corporation	9017841552 Sewerage Charges	126.75
DE-8766	23/09/2026	Bendigo Bank	Bendigo Bank Fees	5.40
DE-8772	24/09/2026	Precision Administration Services Pty Ltd	Payroll deduction for PE: 24/09/2026	40,227.91
DE-8677	24/09/2026	Synergy	948 161 960 Electricity Charges	12,257.98
DE-8671	24/09/2026	Australia Post	31.08.2026 Postage Modem and Postage	348.27
DE-8878	24/09/2026	Department of Transport	Licensing	5,026.50
DE-8879	24/09/2026	Bendigo Bank	Bendigo Bank Fees	17.85
DE-8786	25/09/2026	Department of Transport	Licensing	1,647.90
DE-8720	29/09/2026	Viva Energy Australia Pty Ltd	Shell Card Purchases	96.97
DE-8876	29/09/2026	Department of Transport	Licensing	1,451.80
DE-8695	29/09/2026	Synergy	301 688 750 Electricity Charges	135.60
DE-8683	30/09/2026	LJ Hughes	Allocation of Lease	688.25
DE-8880	30/09/2026	Department of Transport	Licensing	4,214.95
DE-8883	30/09/2026	L. Balcombe	Councilor Quarterly Payment	8,743.50
DE-8884	30/09/2026	F. Peczka	Councilor Quarterly Payment	3,927.50
DE-8885	30/09/2026	N. Woods	Councilor Quarterly Payment	2,865.00
DE-8886	30/09/2026	C. Hyne	Councilor Quarterly Payment	2,865.00
DE-8887	30/09/2026	J. Weeks	Councilor Quarterly Payment	2,865.00
DE-8888	30/09/2026	A. Vis	Councilor Quarterly Payment	2,868.75
DE-8889	30/09/2026	D. Wilkie	Councilor Quarterly Payment	2,868.75
DE-8890	30/09/2026	L. Stewart	Councilor Quarterly Payment	2,868.75
DE-8891	30/09/2026	Bendigo Bank	Bendigo Bank Fee	7.20
DIRECT DEBIT TOTAL				**222,580.94**
TOTAL MUNICIPAL				**2,547,587.02**

CREDIT CARD BREAK-UP

AUGUST				
CEO	4/08/2026	The Terrace Hotel Perth	Councillor Conference Accommodation	477.90
	4/08/2026	Expedia	Councillor Conference Accommodation	2,040.00
	9/08/2026	Australian Financial Barton	CEO Query	15.00
	12/08/2026	Quest Innaloo	Staff Training Accommodation	858.18
	21/08/2026	Accor Hotels - The Sebel Mandurah	Staff Training Accommodation	956.00
	31/08/2026	Bendigo Bank	Bank Fee	4.00
				4,351.08
EMRDS	6/08/2026	Gingin Trading	Bird Flu Signage Materials	416.21
	6/08/2026	CPP Council House	Parking	14.13
	14/08/2026	Joondalup Resort	Staff Conference Accommodation	474.00
	19/08/2026	Ink Station	Printer Materials	831.55
	19/08/2026	Ink Station	Shipping	35.97
	19/08/2026	Kmart	Shire Event Materials	125.00
	31/08/2026	Bendigo Bank	Bank Fee	4.00
				1,900.86
EMCS	1/08/2026	Mailchimp	Recurring Subscription Fee	108.93
	1/08/2026	Mailchimp International Fee	International Transaction Fee	3.27
	8/08/2026	Fuel Station	2GG Diesel	134.14
	13/08/2026	Fuel Station	2GG Diesel	153.31
	19/08/2026	Fuel Station	2GG Diesel	132.44
	26/08/2026	Fuel Station	2GG Diesel	145.87
	31/08/2026	Bendigo Bank	Bank Fee	4.00
				681.96
CESM	31/08/2026	Bendigo Bank	Bank Fee	4.00
				4.00

Payments made under Delegated Authority *2.1 Payment of Creditors* for the period 01/09/2026 - 30/09/2026

Payment Category
L - Local, R - Reimbursement, F - Funded, S - Staff, PF - Partially Funded, C - Councillor

TYPE	DATE PAID	NAME	DETAILS	AMOUNT
EMOA	31/08/2026	Bendigo Bank	Bank Fee	4.00
				4.00
MECHANIC	4/08/2026	Shire of Gingin	Change of Plate	32.00
	4/08/2026	Shire of Gingin	Plate Remake	52.10
	4/08/2026	ARB Corporation	Roller Draw Handle	96.34
	5/08/2026	ACT Alloy Canopy Toolbox	Shire Vehicle Toolbox	2,998.00
	18/08/2026	Jay Car	Plugs	54.55
	31/08/2026	Bendigo Bank	Bank Fee	4.00
				3,236.99
AQUATIC				
	25/08/2026	Doubletree Hilton Perth	Staff Conference Accommodation	1,756.60
	31/08/2026	Bendigo Bank	Bank Fee	4.00
				1,760.60
	Total			**11,939.49**
CALTEX CARD BREAKUP				
AUGUST		WEX Australia Pty Ltd	2GG: 73.40L Diesel	177.51
			GG073: 82.64L Diesel	218.60
			GG033: 172.23L Diesel	439.45
			GG070: 132.67L Diesel	340.17
			0GG: 36.50L Diesel	91.21
			GG082: 29.66L Diesel	71.15
			GG077: 51.22L Diesel	122.88
			PPITEM: 100.01L Diesel	254.14
			Transaction Fee	2.00
	Total			**1,717.11**
SHELL CARD BREAKUP				
		Viva Energy Australia Pty Ltd	GG072: 122.73L Diesel	296.89
			Transaction Fee	2.50
			GG072: 39.92L Diesel	96.97
	Total			**396.36**

13 REPORTS - REGULATORY AND DEVELOPMENT SERVICES

13.1 SCHEME AMENDMENT NO. 31 - LOT 83 CHERITON ROAD, GINGIN - INITIATION FOR ADVERTISING

This matter was brought forward for discussion as the first item of business (see pg. 10).

File	LND/8
Applicant	Dynamic Planning
Location	Lot 83 Cheriton Road, Ginginup
Owner	Country Heights Estate 2 Pty Ltd
Zoning	Rural Living
Author	Stephy Ma - Planning Officer
Reporting Officer	Mark Close - Temporary Executive Manager Regulatory and Development Services
Refer	16 May 1991 (adoption) Item 91.0419 19 May 1994 (final approval) Item 6.3.3
Appendices	1. Scheme Amendment Report [**13.1.1** - 353 pages] 2. Subdivision Concept Plan [**13.1.2** - 1 page] 3. Certificate of Title [**13.1.3** - 1 page] 4. Geotech Report [**13.1.4** - 87 pages] 5. Site and Soil Evaluation [**13.1.5** - 104 pages] 6. Traffic Impact Statement [**13.1.6** - 16 pages] 7. Urban Water Management Plan [**13.1.7** - 65 pages] 8. Vegetation and Black Cockatoo Habitat Assessment [**13.1.8** - 20 pages] 9. Bushfire Advice Brief [**13.1.9** - 16 pages]

DISCLOSURES OF INTEREST

Councillor Hyne disclosed a financial interest in relation to Item 13.1 as his real estate business has a contract with the developer of Country Heights Estate for the sale of developed lots. There may be a future financial benefit to him from the approval of this application.

Councillor Hyne left the meeting at 3:14 pm.

PURPOSE

The purpose of the report is for Council to:

1. Consider Scheme Amendment No. 31 to Local Planning Scheme No. 9;

2. Change the current 'Rural Living' zone density code of Lot 83 Cheriton Road, Ginginup (subject lot) from 'RL2' to 'RL1';

3. Adopt the amendment as a 'standard amendment' for referral to the Western Australia Planning Commission (WAPC) to consider advertising under the *Planning and Development Act 2005;*

4. Refer the amendment to the Environmental Protection Authority (EPA) for environmental review in accordance with the *Planning and Development Act 2005; and*

5. Authorise advertising of the amendment after referral to the Minister for Planning in accordance with the *Planning and Development (Local Planning Schemes) Regulations 2015.*

BACKGROUND

Site Context

The subject lot (161.11 ha) is located on the eastern side of Cheriton Road, approximately 5.7 km north-east of the Gingin townsite and approximately 2 km south of Boonanarring Nature Reserve.

The subject lot is immediately east of the existing Stage 1 – 6 Country Heights Estate development (Country Heights), which has 'Rural Living' zoning and code of 'RL1'.

The subject lot is designated as Stage 7 to 10 of Country Heights and currently zoned 'Rural Living' with code of 'RL2'. The area has a current potential of 72 new lots.

The site fronts Cheriton Road along its western boundary, which has recently undergone considerable upgrading to support the existing Country Heights development. The subject lot itself is currently vacant with pockets of native vegetation throughout.

A location plan and aerial image are provided as part of the Scheme Amendment Report (**see appendices**).

History

The subject lot was originally zoned 'Rural' under Town Planning Scheme No. 8 (TPS8) which was gazetted on 20 December 1991. Amendment No. 1 to TPS8 was adopted in 1994, which rezoned the subject lot from 'Rural' to 'Rural Residential' and provided for an average lot size of two hectares, with individual lot sizes ranging from one hectare to four hectares.

Local Planning Scheme No. 9 (LPS9) came into effect on 24 September 2012, whereby the former 'Rural Residential' and 'Rural Living' zones were consolidated into the 'Rural Living' zone, with a zone density code of RL2 (minimum two hectares).

Proposal

Amendment No. 31 to LPS9 proposes to change the code for a portion of the subject lot from 'RL2' to 'RL1', which reduces the minimum lot size from two hectares to one hectare. The amendment proposes to change the Scheme Map only; no further changes to the Scheme text are proposed.

A subdivision concept plan proposed as part of Amendment No. 31 (**see appendices**) has been developed based on 'RL1' zone density code. The plan proposes the future subdivision of the subject lot into 135 'Rural Living' lots, comprising 125 lots of one hectare and 11 lots on the eastern edge of the subject lot remaining as two hectares, and one commercial service node lot. The proposal allows transition from the surrounding rural setting to rural living from east to south.

PLANNING FRAMEWORK

Local Planning Scheme No. 9 (LPS9)

The relevant aims within LPS 9 are outlined below:

a) Promote the planned expansion of all townsites, and encourage the consolidation and expansion of services and facilities within townsites.

j) Support subdivision of rural land which is consistent with the preferred settlement strategy and which facilitates the ongoing productive rural use of the land.

The subject lot is currently zoned as 'Rural Living'. The objectives of the zone are to:

"a) protect the rural environment and landscape;

b) accommodate single dwellings at very low densities on individual allotments beyond the urban areas;

c) restrict and limit the removal of natural vegetation and encourage revegetation where appropriate;

d) prevent threats to the amenity of the zone and impacts on wildlife and native vegetation caused by the grazing of livestock;

e) avoid increased fire risk to life and property through inappropriately located and designed land use, subdivision and development; and

f) provide for a suitable level of physical and community infrastructure."

The proposed amendment is to change the density code only in order to reduce the minimum lot size. It remains consistent with the objective of the 'Rural Living' zone.

Local Planning Strategy (the Strategy)

The Strategy indicates that the subject lot is capable of supporting expansion of development to existing areas and is therefore aligned with the proposed amendment, and the proposal is a minor adjustment in impact on the lot density consistent with the informing strategy.

WAPC Gingin Regional Land Supply Assessment 2019 (the assessment)

The assessment identified the 'Country Heights' development area as a future residential land supply area comprising approximately 385 residential lots.

Standard Amendment

Division 1 Clause 35 (2) of the *Planning and Development (Local Planning Schemes) Regulations 2015* (the Regulation) permits local governments to determine the category for processing an amendment. This is permitted subject to review by the Western Australian Planning Commission (WAPC) and the Minister for Planning.

The amendment is considered as a 'standard amendment' under the Regulations, for the following reasons:

a) The amendment is consistent with the objectives of the Local Planning Strategy and 'Rural Living' zone under LPS9; and

b) The amendment does not result in any significant environmental, social, economic or governance impacts. A total number of 473 Marri trees are recorded on the subject lot for consideration under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), for breeding habitat regardless of whether they have suitable hollows or not. The management and potential environmental impact on existing Marri trees, will be through building envelopes.

c) Subject to section 48A the proposal is required to be referred to EPA, for review and consent before referral to the Western Australian Planning Commission, for consent to advertise.

Advertising of Amendment

Division 3 of the *Planning and Development (Local Planning Schemes) Regulations 2015* states that a standard amendment to a local planning scheme is required to be referred to the Environmental Planning Authority (EPA) for environmental review. The amendment must also be referred to the Minister for Planning and advertised to the public for 42 days or a longer period as approved by the Western Australian Planning Commission (WAPC).

Community Needs

Prior to the subdivision on Lot 81 Cheriton Road (existing Country Heights Development), an agreement was entered into between the Shire and the developer on cost sharing for the upgrading of Cheriton Road.

It is recommended that an assessment on the local community needs should be conducted by the applicant and submitted to the Shire for review. The assessment should identify the needs for the local community and address any associated matters.

Prior to the endorsement of the proposed Scheme Amendment, a deed or agreement should be entered into between the landowner and the Shire regarding community contribution needs.

Structure Plan/ Local Development Plan

The proposed amendment is to support the future subdivision plan of the subject lot. A Local Development Plan has been developed and endorsed to indicate the development standards for the existing Country Heights development on the west.

Prior to subdivision of the subject lot, a Local Development Plan incorporating both the existing Country Heights development and the subject lot area will be required to be prepared in accordance with Schedule 2, Part 6 of the Regulations. Upon endorsement, the existing endorsed Local Development Plan will be superseded and replaced by the new Local Development Plan.

Summary

The proposal is to change the code for a portion of the subject lot from 'RL2' to 'RL1' to provide a better lot yield for the developer. The soil analysis report demonstrates that the increase in lots meets the requirements of *State Planning Policy 2.9 – Water'* and the additional dwellings can be accommodated within the subject area. It is recommended that the amendment be supported as it remains consistent with the objectives of the 'Rural Living' zone and broader planning framework.

RISK IMPLICATIONS

Nil

STATUTORY/LOCAL LAW IMPLICATIONS

Planning and Development Act 2005
Planning and Development (Local Planning Schemes) Regulations 2015
Local Planning Scheme No. 9

POLICY IMPLICATIONS

State Planning Policy 2.5 – Rural
State Planning Policy 2.9 – Water
State Planning Policy 3.0 – Urban Growth and Settlement
State Planning Policy 3.6 – Infrastructure Contributions
State Planning Policy 3.7 – Bushfire WA Government Sewerage Policy 2019

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2026-2036

Aspiration	2. Creating Sustainable Economic Growth Opportunities
Strategic Objective	2.2 Planning Strategy to Facilitate Growth and Diversity

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Kestel SECONDED: Councillor Vis

That Council:

1. Seek approval to advertise the proposed Amendment No. 31 under section 83A of the *Planning and Development Act 2005*, without modification;

2. Adopt Amendment No. 31 for referral to the Environmental Protection Authority (EPA) for environmental review under the *Environmental Protection Act 1986*, in accordance with Clauses 81 and 82 of the *Planning and Development Act 2005;*

3. Adopt Amendment No. 31 as a 'standard amendment' for referral to the Western Australia Planning Commission (WAPC) to consider advertising under the *Planning and Development Act 2005; and*

4. Subject to approval for advertising being received from WAPC, authorise advertising of Amendment No. 31 in accordance with Part 5, Division 3, Regulation 47 of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

CARRIED UNANIMOUSLY
6 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

DYNAMIC PLANNING AND DEVELOPMENTS

LOT 83 CHERITON ROAD, GINGINUP
COUNTRY HEIGHTS ESTATE NO. 2

AMENDMENT TO SHIRE OF GINGIN LOCAL PLANNING SCHEME NO.9

AUGUST 2026 | PROJECT NO 1967

FORM 2A

Planning and Development Act 2005
RESOLUTION TO PREPARE OR ADOPT AMENDMENT TO LOCAL PLANNING SCHEME

Shire of Gingin Local Planning Scheme No. 9
Amendment No. 24

Resolved that the Local Government pursuant to section 75 of the *Planning and Development Act* 2005, amend the above Local Planning Scheme by:

1. **Amending the scheme map by modifying the RL2 designation to RL1.**

The amendment is standard under the provisions of the *Planning and Development (Local Planning Schemes) Regulations* 2015 for the following reason(s):

a) **Is consistent with the objectives identified in the Scheme for the 'Rural Living 1' zone;**

b) **Is aligned with the Shire of Gingin Local Planning Strategy 2012;**

c) **Would have minimal impact on land in the scheme area that is not the subject of the amendment;**

d) **Does not result in any significant environmental, social, economic or governance impacts on land in the scheme area; and**

e) **Is not considered a complex or basic amendment.**

Dated this _____ day of _____ 20___

_____
(Chief Executive Officer)

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Direct all inquiries and correspondence to:

15/29 Collier Road
MORLEY WA 6062

PO Box 688
INGLEWOOD WA 6932

Phone: (08) 9275 4433
E-mail: admin@dynamicplanning.net.au
Web: www.dynamicplanning.net.au

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1.0 INTRODUCTION

Dynamic Planning and Developments (DPD) acts on the behalf of the contracted purchase of Lot 83 Cheriton Road, Gingin (herein referred to as the 'subject site'). DPD has prepared this report in order to seek support from the Shire of Gingin to initiate an amendment to its Local Planning Scheme No. 9 (LPS9) to modify the density of the existing Rural Living zoning from RL2 to RL1.

The amendment will facilitate the future subdivision and development of the subject site in accordance with the existing Rural Living zoning and a density consistent with the Country Heights Estate on the opposite side of Cheriton Road. The proposed rezoning is intended to support the expansion of an existing, successful rural residential community that will capitalise on the existing available infrastructure, in particular a suitable reticulated water connection.

This report will address, in detail, various issues pertinent to the proposal, these being:

- The relevant site context.
- An overview of the proposed amendment.
- Relevant justification in support of the proposed amendment.

In accordance with Part 5, Division 1, Clause 34 of the *Planning and Development (Local Planning Schemes) Regulations 2015*, the proposed Local Planning Scheme amendment is considered to be 'standard' as defined under the provisions since the amendment:

a) Is consistent with the objectives identified in the Scheme for the 'Rural Living' zone;

b) Is aligned with the Shire of Gingin Local Planning Strategy 2012;

c) Would have minimal impact on land in the scheme area that is not the subject of the amendment;

d) Does not result in any significant environmental, social, economic or governance impacts on land in the scheme area; and

e) Is not considered a complex or basic amendment.

2.0 BACKGROUND AND SITE DESCRIPTION

2.1 Legal Description and Land Ownership

The subject site comprises of three separate landholdings with different landowners. The legal descriptions of the subject site and corresponding landowners are outlined below:

LOT	Plan No.	Vol/Folio	Address	Landowner
83	038255	2572/131	Cheriton Road, Gingin	Moller Holdings Pty Ltd

A copy of the Certificates of Title pertaining to the subject site are contained within **Attachment 1.**

2.2 Land Description

The subject site is located within the Shire of Gingin municipal area and within the Boonanarring locality. The subject site is 161.11 ha in area and is of an irregular shape.

The subject site comprises Lot 83 Cheriton Road, Gingin and is located on the eastern side of Cheriton Road. The subject site is bounded by land zoned 'General Rural' to the north, east and south, and by 'Rural Living 1' land to the west. The site fronts Cheriton Road along its western boundary which has recently undergone considerable upgrades to support the existing Country Heights Estate. The land generally exhibits a gentle fall toward the south-east in the direction of Gingin Brook. The subject site is vacant with pockets of vegetation throughout.

Figures 1 and 2 illustrate the subject site within its local and regional context, respectively.

Figure 1 Regional Context

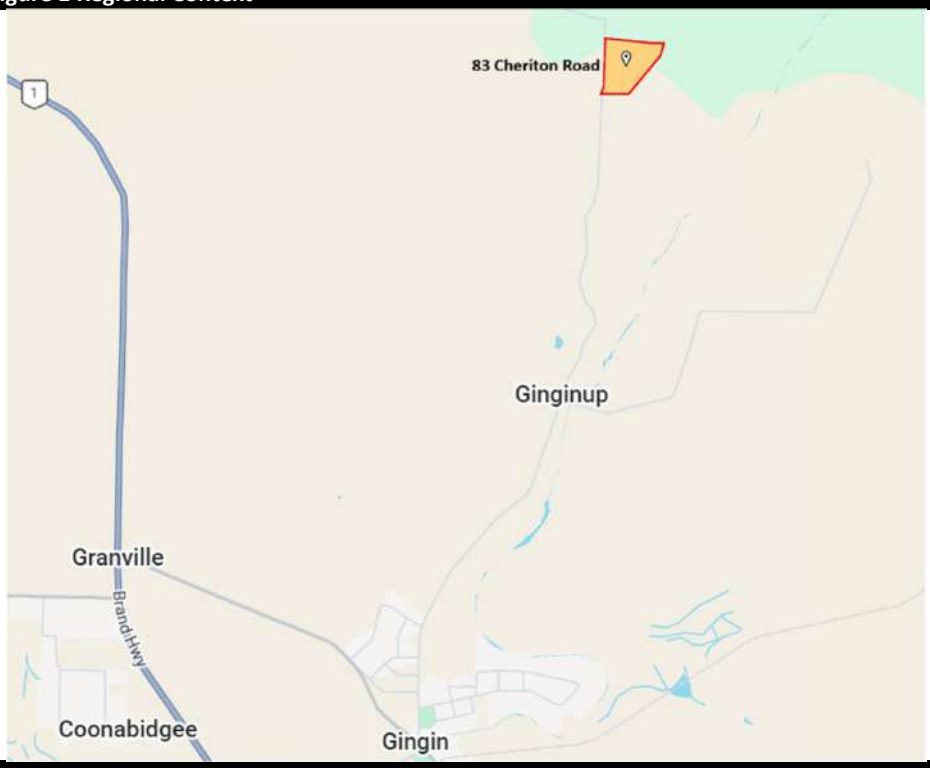


Figure 2 Local Context



3.0 LOCAL PLANNING FRAMEWORK

3.1 Shire of Gingin Local Planning Scheme No.9.

Under the provisions of the Shire of Gingin Local Planning Scheme No. 9 (LPS9), the subject site is currently zoned 'Rural Living' with an associated RL2 designation which requires the delivery of lots at a minimum lot size of 2ha. The zoning facilitates low-density rural residential subdivision and development in accordance with the relevant provisions of LPS9 and any associated local planning policies.

The proposed amendment seeks to modify the RL2 designation to RL1 in order to facilitate a more efficient residential development outcome that is consistent with the established Country Heights Estate on the opposite side of Cheriton Road, whilst also capitalising on the availability of existing infrastructure.

The objectives of the 'Rural Living' zone as per LPS9 are outlined below:

Zone	Objectives
Rural Living	*a) protect the rural environment and landscape;* *b) accommodate single dwellings at very low densities on individual allotments beyond the urban areas;* *c) restrict and limit the removal of natural vegetation and encourage revegetation where appropriate;* *d) prevent threats to the amenity of the zone and impacts on wildlife and native vegetation caused by the grazing of livestock;* *e) avoid increased fire risk to life and property through inappropriately located and designed land use, subdivision and development; and* f) *provide for a suitable level of physical and community infrastructure.*

The proposed amendment is assessed against the objectives of the Rural Living zone. As RL1 and RL2 are both codings within the Rural Living zone, the primary consideration is whether the reduced minimum lot size remains consistent with these objectives.

The intended outcome for the subject site would ultimately align with the objectives of the 'Rural Living' zone by way of:

a) The subject land is already designated for Rural Living purposes. The proposed RL1 coding would not alter the intended land use outcome and is considered capable of maintaining the rural landscape character of the locality, as is already evident in the Country Heights Estate development.
b) A minimum lot size of 1 hectare under RL1 remains consistent with a rural residential lot size as opposed to a more urban residential lot size.
c) The proposed lot size remains sufficient to maintain separation between dwellings and rural activities and is not expected to adversely affect the amenity of the locality. The locality is capable of supporting the level of development contemplated by RL1 coding.

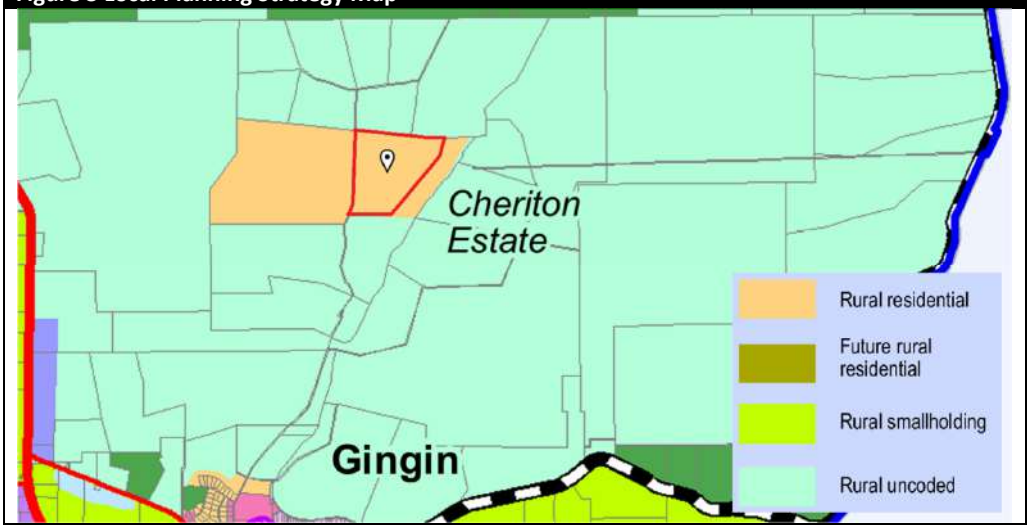
d) The suitability of RL1 development has been assessed having regard to the constraints applicable to the site with these being able to be suitably managed through subdivision and development controls.

3.2 Shire of Gingin Local Planning Strategy 2012

The Shire of Gingin Local Planning Strategy was published in 2012 (LPS2012). Regarding the subject site specifically, it is identified as land capable of supporting the continued expansion of the established rural residential locality, subject to appropriate structure planning and infrastructure provision.

Figure 3 is an extract of the Shire's Local Planning Strategy showing the subject site.

Figure 3 Local Planning Strategy Map



Regarding the supply of Rural Living land, the Strategy recognises that smaller rural holdings are historically concentrated along the Moore River and Gingin Brook corridors and identifies these areas as a logical basis for accommodating additional rural residential development.

The Strategy notes that these localities are already fragmented, have historically proven attractive for rural smallholdings, and benefit from access to the major road network. Accordingly, the Strategy supports directing further rural subdivision to defined areas rather than encouraging ad hoc fragmentation of broader rural landholdings.

The Strategy also identifies Country Heights Estate as a component of the Shire's Rural Living land supply, with an estimated capacity of approximately 260 lots/dwellings. In this regard, the proposed amendment is considered consistent with the strategic intent of the Local Planning Strategy, as it represents a logical expansion of an established rural living locality within an area specifically identified for rural residential development.

Figure 4 outlines the current land supply availability of Rural Living lots in the area.

Figure 4 Rural Living Estates Availability

Estate	Comment	Reference
Marchmont Estate, Gingin	Sold out. Resale opportunities only.	Country Values Real Estate listing for Marchmont Estate, Gingin
Honeycomb Estate, Gingin	Mostly developed. Limited remaining availability.	OpenLot estate database (Honeycomb Farm Estate, Gingin)
Country Heights Estate, Ginginup	Previous stages largely absorbed. Future stages subject to demand.	OpenLot estate database and Rural Building Co house-and-land packages
Woodridge Estate, near Guilderton	Established estate with regular resale activity.	Woodridge locality and numerous residential property listings
Sovereign Hill, Gabbadah	Established estate with strong resale demand.	Sovereign Hill Estate property sales and residential listings
Redfield Park Estate, Gabbadah	Established estate. Occasional resale listings.	Redfield Park Estate property sales and land listings
Seaview Park, Karakin	Established estate with limited turnover.	OpenLot estate database and Realestate.com.au sales listings
Ocean Farms, Nilgen	Established estate popular with lifestyle buyers.	Ray White and Realestate.com.au listings within Ocean Farm Estate
Teal Park Estate, Neergabby	Sold out. Resale market only.	Multiple property listings using Teal Park Place, Neergabby
Rangeview Estate, Wanerie	Established estate. Resale market only.	Rangeview Drive property records and active sales listings
Lennard Brook Estate	Sold out. Occasional resale opportunities.	Lennard Brook locality property listings and land sales records
Millbank Rural Estate	Established acreage estate. Resale market only.	Realestate.com.au sales listing referencing Millbank Rural Estate
Lancelin South Estate	Active staged land release.	OpenLot estate database and active Lancelin South project marketing
Moore River South (Caraban)	Future development area. Planning phase only.	OpenLot estate database (Moore River South Estate)
Lot 601 Weld Street, Gingin	Future development proposal. No lots released.	Domain development listing and OpenLot project record

Relating to the Rural Living Settlements of the Shire's Local Planning Strategy, the following objectives are specified:

- *Ensure that planning for rural living precincts addresses essential and community services, land management, and vegetation fragmentation and loss;*
- *Protect and support existing horticulture and rural small holdings enterprises along the Moore River and Gingin Brook;*
- *Protect the rural land in order to provide for a wide range of land uses associated with primary production; and*
- *Limit new settlement in rural areas.*

The intended outcome for the subject site aligns with the above objectives by:

- Facilitating a coordinated rural residential development outcome through a future Local Development Plan and associated Design Guidelines, allowing matters such as community infrastructure, servicing, land management, vegetation retention and bushfire mitigation to be considered comprehensively at a subsequent planning stage.
- Directing development toward land already identified for future rural residential purposes, thereby limiting the need for ad hoc fragmentation of broader rural landholdings elsewhere in the district.
- Providing additional rural residential land within an area specifically recognised by the Local Planning Strategy as suitable for further rural subdivision having regard to the established pattern of smaller rural holdings in the vicinity of Cheriton Road.

4.0 STATE PLANNING FRAMEWORK

4.1 DPLH / WAPC Gingin Regional Land Supply Assessment 2019

Regional Land Supply Assessments are prepared as a component of the Western Australian Planning Commission's (WAPC) Urban Development Program (UDP), which tracks and models land supply as per the requirements outlined in the Planning and Development Act 2005.

The subject site is identified in the Land Supply Assessment (LSA) as "GIN02" and designated as an investigation area.

Figure 5 Gingin Regional Land Supply Assessment 2019

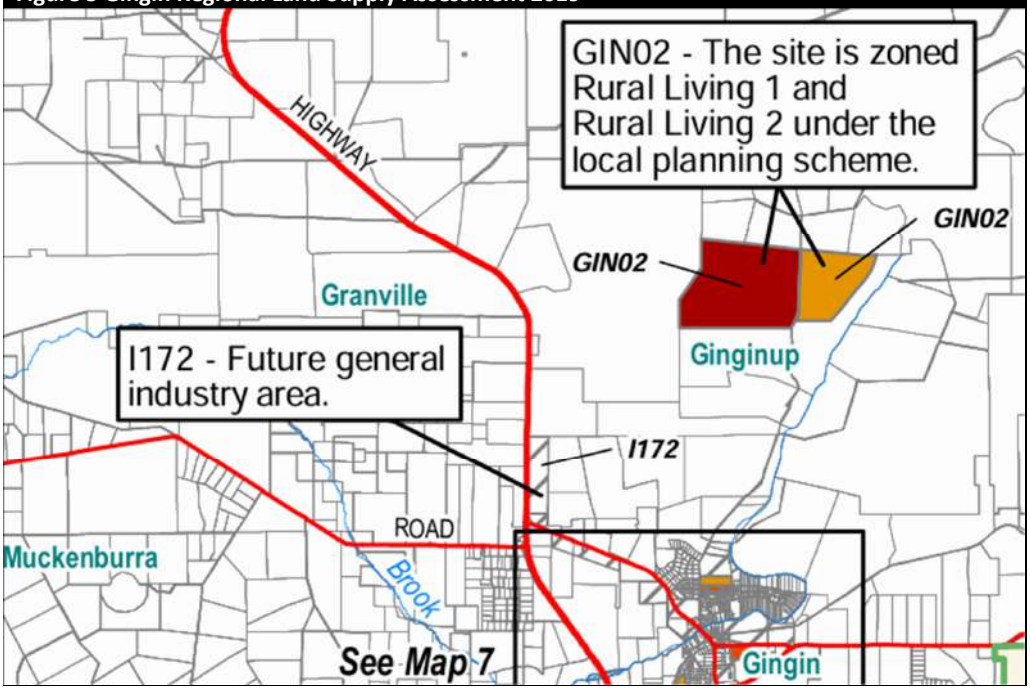


Table 3 of the Gingin Regional Land Supply Assessment 2019 identifies Lots 81 and 83 Cheriton Road (GIN02) as a future residential land supply area comprising approximately 385 residential lots. The assessment notes that conditional subdivision approval had previously been granted over Lot 83 for 72 rural residential lots, although the approval was not progressed.

The assessment demonstrates that residential development of Lot 83 has been contemplated at a strategic planning level for a considerable period of time and forms part of the broader anticipated growth of the Ginginup locality. In this regard, the proposed scheme amendment is not introducing a new development front, but rather facilitating a revised and contemporary rural residential outcome on land that has already been identified for future residential development.

4.2 State Planning Policy 2.5 – Rural Planning

The purpose of State Planning 2.5 – Rural Planning (SPP2.5) is to protect and preserve Western Australia's rural land assets due to the importance of their economic, natural resource, food production, environmental and landscape values. Ensuring broad compatibility between land uses is essential to delivering this outcome.

The objectives of SPP2.5 are outlined below:

(a) support existing, expanded and future primary production through the protection of rural land, particularly priority agricultural land and land required for animal premises and/or the production of food;

(b) provide investment security for existing, expanded and future primary production and promote economic growth and regional development on rural land for rural land uses;

(c) provide a planning framework that comprehensively considers rural land and land uses, and facilitates consistent and timely decision-making;

(d) avoid and minimise land use conflicts;

(e) promote sustainable settlement in, and adjacent to, existing urban areas; and

(f) protect and sustainably manage environmental, landscape and water resource assets.

The following table outlines how the proposed scheme amendment responds to the following sections of SPP2.5:

- Section 4 Objectives
- Section 5.3 Rural Living
- Section 5.11 Regional Facilities
- Section 6.4 Zoning Proposal affecting Rural Land
- Section 6.5 Subdivision

SPP2.5 – Rural Living		
Requirement		**Proposed Scheme Amendment**
Section 4 Objectives		
a	support existing, expanded and future primary production through the protection of rural land, particularly priority agricultural land and land required for animal premises and/or the production of food;	**Complies.** The subject site has been identified for future rural residential development under the Shire's strategic planning framework for a considerable period of time.
b	provide investment security for existing, expanded and future primary production and promote economic growth and regional development on rural land for rural land uses;	The proposed amendment facilitates a revised rural residential outcome on land already intended for this purpose and does not contribute to the fragmentation of rural land outside identified growth areas.
c	outside of the Perth and Peel planning regions, secure significant basic raw material resources and provide for their extraction;	There are no known raw material resources applicable to the subject site.
d	provide a planning framework that comprehensively considers rural land and land uses, and facilitates consistent and timely decision-making;	**Complies.** The proposed amendment provides a clear and contemporary planning framework for the future development of the subject site. The land has long been identified for rural residential development within the

		strategic planning framework for the locality, and the amendment will assist in facilitating consistent and coordinated decision-making regarding the future use and development of the site.
e	avoid and minimise land use conflicts;	**Complies.** The proposed amendment simple seeks to increase the density of Rural Living development. The resulting planning framework (with a suitable LDP and design guidelines to be prepared) will provide greater certainty regarding the future use and development of the land, while ensuring any future subdivision and development appropriately manages any potential land use conflict with surrounding rural land uses, noting similar has already been done for the Country Heights Estate.
f g	promote sustainable settlement in, and adjacent to, existing urban areas; and protect and sustainably manage environmental, landscape and water resource assets.	**Complies.** The proposed amendment seeks to facilitate additional rural residential development within an area already identified for future rural residential growth under the strategic planning framework of the locality. The proposal therefore promotes the consolidation of development within an established growth area, rather than encouraging fragmentation of rural land elsewhere in the Shire. The amendment will also allow environmental, landscape and water resource matters to be comprehensively considered as part of the future subdivision and development process, ensuring that these matters are appropriately managed as the project progresses.
Section 5.3 Rural Living Policy Measures		
a b	Rural living proposals shall not be supported where they conflict with the objectives of this policy or do not meet the criteria listed at 5.3 (b) and (c); The rural living precinct must be part of a settlement hierarchy established in an endorsed planning strategy;	**Complies.** The subject site is already zoned 'Rural Living 2' under Local Planning Scheme No. 9. The proposed amendment seeks to transition the land to 'Rural Living 1' in accordance with the strategic planning direction for the locality, rather than introduce a new or unforeseen land use. Accordingly, the proposal forms part of an established rural living area and is consistent with the settlement framework identified by the Shire of Gingin Local Planning Strategy.
c	the planning requirements for rural living precincts are that –	
	i The land be adjacent to, adjoining or close to existing urban areas with access to services, facilities and amenities;	**Complies.** The subject site forms part of an established rural residential locality and has been identified for continued rural residential development under the strategic planning framework applicable to the area. The proposed amendment facilitates the orderly progression of an existing Rural Living precinct rather than establishing a new or isolated settlement pattern.

ii	the proposal will not conflict with the primary production of nearby land, or reduce its potential;	**Complies.** The proposed amendment seeks to transition the subject site from 'Rural Living 2' to 'Rural Living 1' within an established rural residential locality. The proposal is not anticipated to adversely impact the operation or future viability of surrounding primary production activities and is consistent with the long-term planning framework for the area.
iii	areas required for priority agricultural land are avoided;	**Complies.** No portion of the subject site is currently considered a priority for agricultural land uses.
Iv	the extent of proposed settlement is guided by existing land supply and take-up, dwelling commencements and population projections;	**Complies.** 'Rural Living' lots are in high demand with supply running low. Please refer to Figure 4 below for nearby 'Rural Living' estates lot availability.
v	areas required for urban uses are avoided;	**Complies.** The subject site is not required for urban use and is not in proximity to any urban land use. In this regard, the proposal does not prejudice any urban land use existing or proposed.
vi	water supply shall be as follows – - where lots with an individual area of four hectares or less are proposed and a reticulated water supply of sufficient capacity is available in the locality, the precinct will be required to be serviced with reticulated potable water by a licensed service provider. Should an alternative to a licensed supply be proposed it must be demonstrated that a licensed supply is not available; or - where a reticulated supply is demonstrated to not be available, or the individual lots are greater than four hectares, the WAPC may consider a fit-for-purpose domestic potable water supply, which includes water for fire fighting. The supply must be demonstrated, sustainable and consistent with the standards for water and health; or - the development cannot proceed if an acceptable supply of potable water cannot be demonstrated;	**Complies.** Potable water servicing can be provided by Country Heights Water Pty Ltd, a licensed water service provider currently responsible for supplying drinking water to the existing Country Heights Estate. Existing approvals and licences administered by the Department of Water and Environmental Regulation, Department of Health and Economic Regulation Authority are intended to be amended to facilitate the supply of potable water to the subject site. In this regard, a reticulated potable water supply is available within the locality and the proposed amendment is capable of being serviced in accordance with the requirements of SPP 2.5.
vii	electricity supply shall be as follows – - where a network is available the precinct is to be serviced with electricity by a licensed service provider, or	Existing rural residential development is established immediately adjacent to the subject site, indicating that electrical infrastructure is present within the broader locality. The availability and capacity of supply to service

	- where a network is not available, the precinct is to be serviced by electricity from renewable energy source/s, by a licensed service provider, and this has been demonstrated;	the proposed development will be confirmed through future subdivision and servicing investigations.
viii	the precinct has reasonable access to community facilities, particularly education, health and recreation;	**Complies.** The subject site has reasonable access to community facilities, education, health services and recreation opportunities within the Gingin townsite, located approximately 7 kilometres to the south.
ix	the land is predominantly cleared of remnant vegetation, or the loss of remnant vegetation through clearing for building envelopes, bushfire protection and fencing is minimal and environmental values are not compromised	**Complies.** The concept plan has been prepared having regard to the environmental characteristics of the site and seeks to balance future development with the protection of environmental and landscape values.
x	the proposal demonstrates and will achieve improved environmental and landscape outcomes and a reduction in nutrient export in the context of the soil and total water management cycle, which may include rehabilitation as appropriate;	Indicative drainage basins have been incorporated into the concept design to support appropriate stormwater management outcomes, while opportunities for vegetation retention, environmental protection and bushfire management will be further refined through future subdivision and development processes. In this regard, the proposal is capable of achieving appropriate environmental, landscape and water management outcomes while minimising potential impacts on the surrounding environment and the nearby Gingin Brook system.
xi	the land is capable of supporting the development of dwellings and associated infrastructure (including wastewater disposal and keeping of stock) and is not located in a floodway or an area prone to seasonal inundation;	**Complies.** The subject site is capable of rural residential development which has been demonstrated through the various supporting reports prepared to support the amendment. In addition to the above, the subject site is not located in a Floodplain area and is not located with a separation distance buffer from adjoining land uses.
xii	the land is not subject to a separation distance or buffer from an adjoining land use, or if it is, that no sensitive land uses be permitted in the area of impact;	
xiii	the lots can be serviced by constructed road/s capable of providing access during all weather conditions, including access and egress for emergency purposes; and	
xiv	bushfire risk and natural hazards can be minimised and managed in accordance with State policy, without adversely affecting the natural environment. Proposals in areas of extreme bushfire risk will not be supported;	
d	development standards for rural living zones are to be included in local planning schemes;	**No objection.**

e	further subdivision of existing rural living lots into smaller parcels is not supported, unless provided for in a local planning strategy and/or scheme; and	**Complies.** The proposed amendment seeks to transition the subject site from 'Rural Living 2' to 'Rural Living 1' in accordance with the strategic planning framework applicable to the locality. Any future subdivision would occur pursuant to the amended provisions of the Local Planning Scheme and is therefore consistent with this policy measure.
f	rural strata proposals with a residential component are considered to be rural living and will be considered in accordance with the criteria listed at clauses 5.3 (a), (b) and (c) of this policy.	**No objection.**
Section 5.11 Regional Facilities		
a	facilities should be located on a main road or on a road that is of a suitable standard and treatment, to accommodate significant increase in traffic volumes and freight tasks which may be generated by the proposal;	**Complies.** The current concept plan includes a Community Facility site intended to service the future rural residential population and support the broader locality. The subject site fronts Cheriton Road and is capable of accommodating future development with appropriate access arrangements, servicing and infrastructure. Any future community facility or similar development would be required to demonstrate that environmental, water resource, noise, amenity and visual impacts are appropriately managed and that the proposal remains compatible with surrounding land uses. The detailed design, servicing and operational requirements of any such facility would be assessed through the relevant planning and development approval processes to ensure compliance with applicable planning policies and standards.
b	facilities should contain or satisfactorily manage potential environmental (including water resources), noise, amenity and air quality impacts on the landholding without affecting nearby rural land uses;	
c	facilities should not be visually dominant within key viewsheds, and should be visually compatible with surrounding land uses and development; and	
d	facilities should be provided with essential services commensurate with the intended land use.	
Section 6.4 Zoning Proposal affecting Rural Land		
a	the suitability of the site to be developed for the proposed use;	**Complies.** As mentioned previously, the subject site is capable of rural residential development subject to the appropriate geo-technical investigations, civil engineering design and Bushfire Management Plans.
b	the siting of the zone/land use in the context of surrounding zones/land uses (existing and proposed);	**Complies.** The proposed amendment seeks to transition the subject site from 'Rural Living 2' to 'Rural Living 1' within an area already identified for future rural residential development under the applicable strategic planning framework. The subject site forms part of an established rural residential locality and is considered capable of accommodating the proposed land use, subject to the detailed planning, environmental and infrastructure investigations that will accompany future subdivision and development proposals. The proposed amendment is consistent with the strategic planning direction applicable to the locality and does not introduce an unforeseen or isolated sensitive land use. Potential planning, environmental, servicing and
c	the capacity of the site to accommodate the proposed zone/land use and associated impacts and: i only support proposals which are consistent with endorsed planning strategies, or in exceptional circumstances, where the proposal meets the objectives and intent of WAPC policy; ii only support the introduction of sensitive zones that may affect the existing and future operation of primary production where the management of impacts and/or mitigation approaches have been	

	substantively resolved and are not wholly deferred to later stages of planning;	interface matters have been identified through the scheme amendment process and can be appropriately addressed through subsequent planning and approval processes, ensuring compatibility with surrounding land uses and the orderly development of the site.
iii	that the continuation of existing rural land uses are taken into account;	**Complies.** As the amendment aims to reclassify the subject site from 'Rural Living 2' to 'Rural Living 1', any existing rural land use of the subject site as Rural Living will not be affected.
iv	ensure that lifting of urban deferred land in a region scheme is in accordance with clause 6.4 (b);	**The subject site is not located within a region scheme.**
v	ensure that the sensitive zone does not overlap with any buffer determined to be necessary as a result of introducing the new zone, and the area within the buffer should retain its rural zoning until such time as the buffer is no longer required; and	**Complies.** The proposed amendment does not introduce an isolated or unforeseen sensitive land use, with the subject site already zoned 'Rural Living 2' and proposed to transition to 'Rural Living 1'. No known separation distance buffers affecting the subject site have been identified through the current investigations.
vi	ensure that adequate land is identified to contain impacts from existing primary production, before introducing sensitive or industrial zones on rural land.	The subject site is considered capable of accommodating the proposed zoning while appropriately managing interface issues with surrounding land uses. Any future subdivision and development would be required to consider environmental, servicing, bushfire and land use compatibility matters through the relevant planning and approval processes, ensuring that any necessary mitigation measures are identified and implemented prior to development occurring.

4.3 State Planning Policy 2.9 – Water Resources

The purpose of State Planning 2.9 – Water Resources (SPP2.9) is to ensure that planning and development considers water resources management and includes appropriate water management measures to achieve optimal water resource outcomes.

Figure 6 State Planning Policy 2.9 – Water Resources



Desktop investigations indicate that portions of the subject site are located within proximity to areas identified as Significant Wetlands associated with the Gingin Brook system. While no mapped water resource features are understood to directly affect the proposed development area, the proximity of the site to significant environmental and water resource assets highlights the importance of appropriately managing drainage, water quality, wastewater disposal and broader water resource impacts.

To demonstrate how the provisions of SPP2.9 have been suitably addressed an Urban Water Management Plan and a Site and Soil Evaluation have been prepared to support the amendment proposal.

4.4 State Planning Policy 3.0 – Urban Growth and Settlement

The purpose of State Planning 3.0 – Urban Growth and Settlement (SPP3.0) is to set out the principles and considerations which apply to planning for urban growth and settlement in Western Australia.

SPP3.0 seeks to promote the orderly and coordinated development of land, ensuring that growth occurs in a manner that is efficient, sustainable and consistent with established strategic planning objectives. The policy encourages settlement outcomes that make effective use of available land and infrastructure, while supporting the long-term social, economic and environmental wellbeing of communities.

In considering proposals for urban and rural residential growth, SPP3.0 emphasises the importance of aligning development with strategic planning frameworks, coordinating infrastructure provision and directing growth toward locations that are capable of accommodating future development in an orderly and sustainable manner.

The following table outlines how the proposed scheme amendment responds to the following sections of SPP3.0:

- Section 5.6 Managing for Rural-residential growth

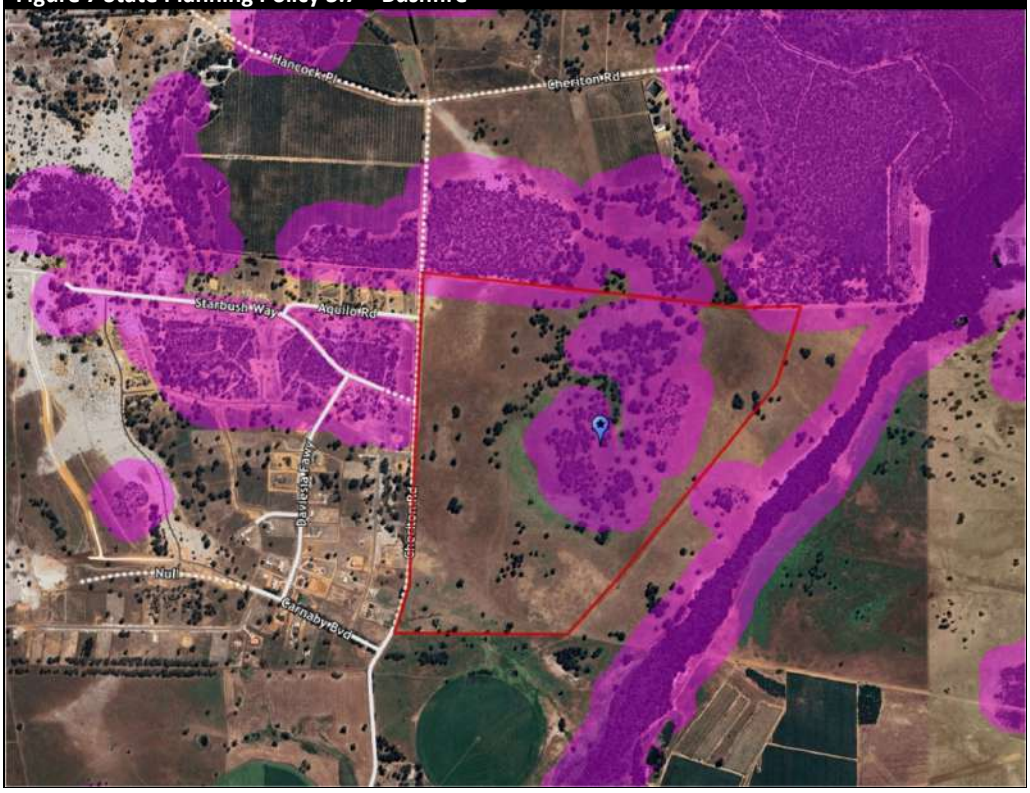
SPP3.0 – Urban Growth and Settlement		
Section 5.6 Managing for Rural-residential growth		
1	avoid productive agricultural land, important natural resources, areas of high bush fire risk or environmental sensitivity	**Complies.** The proposed amendment will facilitate a more efficient utilisation of land already identified for rural residential purposes, supporting the delivery of additional housing opportunities within an established growth area. In doing so, the proposal promotes the orderly and coordinated expansion of the locality in accordance with the strategic planning framework applicable to the area. Furthermore, other factors such as bushfire, environmental sensitives and alike will be identified and incorporated into the eventual development during the 'Future Development' zoning.
2	avoid future urban areas or areas particularly suitable for urban development in terms of their characteristics and proximity to urban services	
3	give preference to locations near existing settlements with available services and facilities in order to support the local community and avoid locations where services are not available or costly extensions are necessary;	**Complies.** The subject site is positioned across a property already designated as 'Rural Living 1'. The subject site features no natural features which cannot be overcome reasonably.
4	minimise potential for conflict with incompatible activities associated with productive rural uses or natural resource management;	
5	only include locations which are suitable for this type of development, such as land which is topographically varied, visually attractive and with distinctive environmental attributes or otherwise has potential for lifestyle pursuits; and	

6	take a realistic approach by allocating land based on forecast estimates of demand for rural living not on the speculative development of land.	**Complies.** 'Rural Living' lots are in high demand with supply running low. Please refer to Figure 4 in the previous section for nearby 'Rural Living' estates lot availability.

4.5 State Planning Policy 3.7 – Bushfire

The purpose of State Planning 3.7 – Bushfire (SPP3.7) is to implement effective, risk-based land use planning and development controls which in the first instance avoids the bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level. The preservation of life and the management of bushfire impact are paramount.

Figure 7 State Planning Policy 3.7 – Bushfire



As per Figure 7 above, portions of the subject site are identified as being bushfire prone which requires consideration of the provisions included in SPP3.7. To address these provisions, a Bushfire Advice Brief has been prepared to support the amendment proposal with subsequent Bushfire Management Plan(s) to be provided as part of a subsequent subdivision approval process.

5.0 PROPOSED AMENDMENT AND CONCEPT SUBDIVISION PLAN

5.1 Proposed Scheme Amendment

The proposed scheme amendment seeks approval to amend the Shire of Gingin Local Planning Scheme No. 9 by:

1. Amending the scheme map by modifying the 'RL2' designation over the land to RL1.

A Scheme Amendment Plan is provided in **Attachment 2.**

The intent of the scheme amendment is to increase the rural living density applicable to the subject site and capitalise on the availability of existing infrastructure.

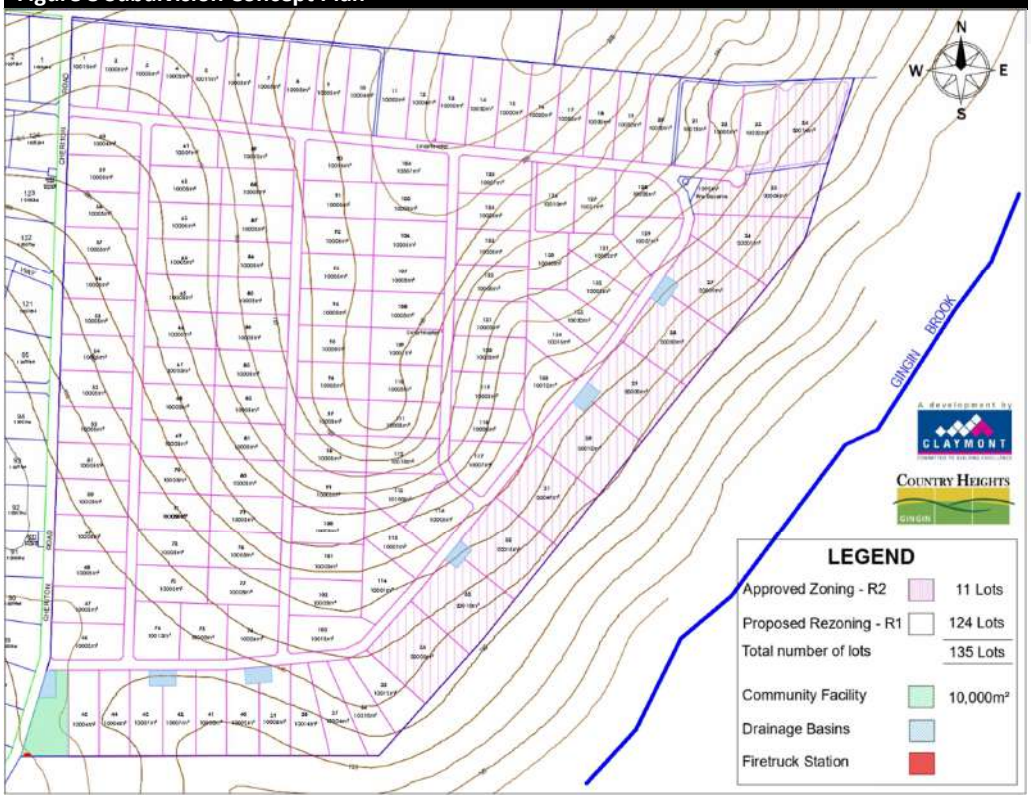
As part of early investigations into the development potential of the subject site under the RL1 designation, several concept subdivision designs have been developed. Figure 8 shows the most recent plan of subdivision which has been informed by the various technical inputs into the amendment process. A copy of the plan is provided in **Attachment 3**.

Key aspects of the subdivision concept plan include:

- Total of 135 Rural Living Lots
  - 124 Lots with a land area of 1 ha
  - 11 Lots with a land area of 2 ha
- 1 Commercial Services Node Lot
  - 1 ha in area
  - Capable of facilitating Commercial Services and Public Service (i.e DFES)
- Drainage Basins
  - Drainage basins are strategically positioned within the subdivision to collect and manage stormwater runoff from surrounding lots
- Minimal traffic impacts
  - 2 Vehicular Access points to Cheriton Road
  - 20-meter-wide road reserves throughout
  - Connectivity with Country Heights Estate 1 across Cheriton Road to the west

The design of the concept subdivision plan will be discussed further in subsequent sections of this document.

Figure 8 Subdivision Concept Plan



5.2 Proposed Restrictive Covenants

It is intended that as part of the subdivision and development of the subject site, estate-specific Design Guidelines will be implemented via restrictive covenants to assist in establishing a consistent framework for future residential development within the estate.

Such measures can contribute to a coordinated and high-quality built form outcome by providing guidance on matters such as dwelling design, streetscape presentation, landscaping, fencing, outbuildings and other built form elements. The application of Design Guidelines can also provide greater certainty regarding the future character and quality of development throughout the estate.

The preparation of Design Guidelines and associated covenant provisions would support the orderly and coordinated development of the land and assist in achieving a high standard of residential amenity and streetscape presentation throughout the estate.

6.0 SUPPORTING DOCUMENTATION

6.1 Development Servicing

A range of supporting technical documentation has been prepared to accompany the proposed Scheme Amendment and demonstrate the suitability of the land for future development. The supporting investigations address key planning considerations including groundwater management, geological and geotechnical conditions, traffic and transport impacts, drainage and bushfire risk. These matters are discussed in the following sections, with reference to the relevant consultant reports contained within the attachments.

6.1.1 Sewer

A Site and Soil Evaluation (SSE) prepared by Carel van der Westhuizen of Pendragon Environmental Solutions assessed the hydrogeological characteristics of the subject land and its suitability for future rural residential development. The assessment included a review of available groundwater data, field investigations and soil testing undertaken by Structerre Consulting.

The investigations confirmed that groundwater was not encountered during drilling to a depth of approximately 2.5 metres below ground level, despite investigations taking place following a period of above-average seasonal rainfall. The site is not located within a Public Drinking Water Source Area and is not affected by mapped floodplain constraints. The assessment also notes the absence of natural waterways traversing the site and concludes that the risk of off-site effluent transport is low.

The SSE concludes that the land is capable of supporting rural residential development through the implementation of appropriately designed on-site wastewater management systems. The report recommends the use of both primary and secondary treatment systems across the estate, depending on lot location and soil characteristics, and confirms that sufficient land area exists within the proposed lots to accommodate compliant wastewater disposal areas. Accordingly, groundwater conditions are not considered to represent a constraint to the proposed Scheme Amendment.

A full copy of the report is provided in **Attachment 5.**

6.1.2 Geological Conditions

A Geotechnical Investigation was undertaken by Structerre Consulting to determine the suitability of the land for future subdivision and development. The investigation included borehole drilling, permeability testing and laboratory analysis of representative soil samples across the site.

The assessment identified generally favourable ground conditions comprising predominantly sandy soils with localised clayey materials across portions of the site. Groundwater was not encountered during field investigations and the site was found to be suitable for residential subdivision and associated infrastructure, subject to standard engineering, drainage and earthworks requirements being addressed at subsequent stages of development.

Structerre concludes that the site is suitable for the proposed subdivision development and that no significant geotechnical constraints exist which would preclude the orderly and proper development

of the land. Any geotechnical matters identified can be adequately managed through detailed engineering design, subdivision conditions and future development approvals. Accordingly, the geological and geotechnical characteristics of the site do not represent a barrier to the proposed amendment.

A full copy of the report is provided in **Attachment 4.**

6.1.3 Traffic and Roads

A Transport Impact Statement prepared by Donald Veal Consultants (DVC) assessed the capacity of the surrounding road network to accommodate development generated by the proposal. The assessment considered the existing road hierarchy, site access arrangements and anticipated traffic generation associated with the future development of the site.

The assessment indicates that no significant transportation constraints have been identified which would prevent the future development of the land. DVC advises that it is not aware of any planned changes to the road network in the immediate locality and did not identify any obvious requirement for upgrades to Cheriton Road arising from the proposal.

The findings of the assessment support the conclusion that the existing road network is capable of accommodating the traffic movements associated with future development of the site. Any site-specific access, intersection or internal road design matters can be further refined through the subdivision approval process and associated engineering design. As such, traffic and transport considerations do not represent a constraint to the amendment.

A full copy of the report is provided in **Attachment 6.**

6.1.4 Stormwater Drainage

An Urban Water Management Plan has been prepared to support the proposed development and establishes a stormwater management strategy based on the retention and infiltration of runoff within the site. The plan identifies that the site's soils are generally suitable for infiltration, with geotechnical investigations recording a median permeability rate of 7.3 metres per day. Accordingly, stormwater is proposed to be managed through a combination of lot-based soakwells, roadside swales and strategically located infiltration basins designed to accommodate runoff generated by the future development.

The proposed drainage system has been designed to manage both minor and major storm events. Minor storm events, including 1-year and 5-year ARI events, are proposed to be managed through infiltration within roadside swales and on-site soakwell systems. Major storm events, including the 100-year ARI event, are proposed to be accommodated through a network of infiltration basins distributed across four sub-catchments within the development area. The Urban Water Management Plan concludes that these measures are capable of containing and infiltrating the increased runoff generated by the proposed subdivision while maintaining pre-development drainage conditions.

In addition to stormwater quantity management, the drainage network incorporates water quality measures through the use of vegetated bio-retention swales and infiltration basins planted with native reeds and sedges to assist in the treatment of stormwater prior to infiltration.

A full copy of the report is provided in **Attachment 7.**

6.1.5 Water Reticulation

Potable water for the proposed Country Heights Estate 2 development is intended to be supplied through a privately operated reticulation network managed by Country Heights Water Pty Ltd. The proposed water supply will be sourced from a licensed groundwater bore within the Gingin Groundwater Allocation Plan area, with the licence permitting extraction of up to 200,000 kilolitres per annum from the Gingin–Perth–Leederville–Parmelia confined aquifer system.

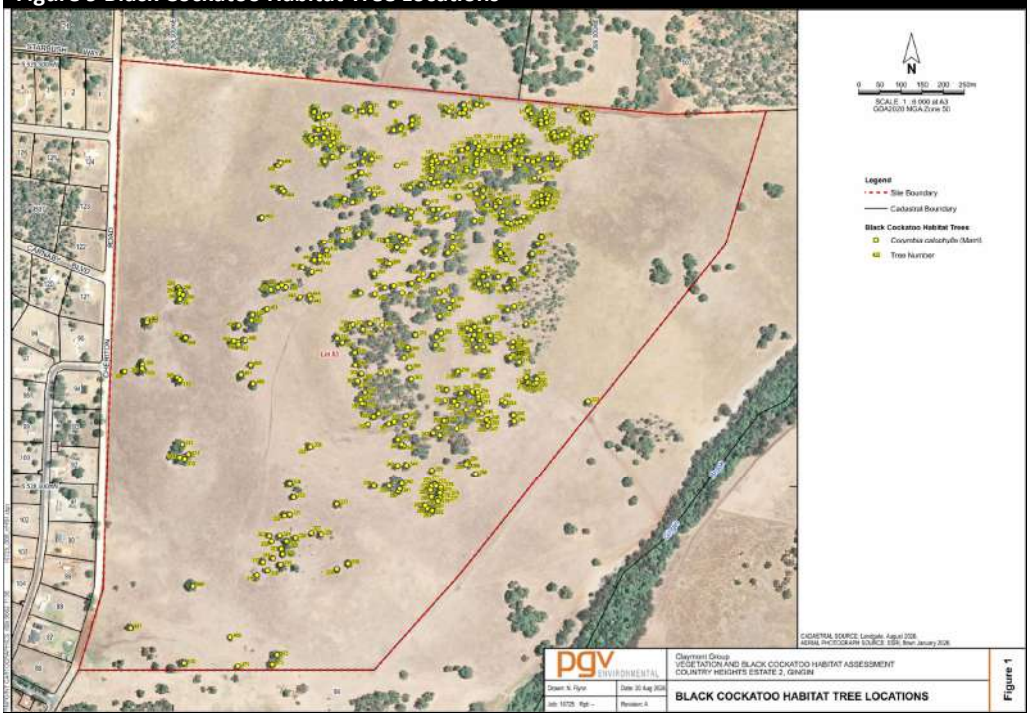
The Urban Water Management Plan identifies the private reticulation network as the primary potable water servicing strategy for the development and notes that groundwater recharge is an important consideration, given the reliance on groundwater resources for future water supply. Stormwater management measures, including on-site infiltration systems, have been incorporated into the broader water management strategy to support groundwater recharge and the long-term sustainability of the water source.

6.2 Environmental

Vegetation and Black Cockatoo Habitat Assessment

A Vegetation and Black Cockatoo Habitat Assessment prepared by PGV Environmental found that the subject land comprises predominantly cleared farmland with scattered mature Marri trees and a small remnant of Banksia woodland. The woodland was assessed as being in a Completely Degraded condition due to the absence of a native understorey and does not meet the criteria for the Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community.

Figure 9 Black Cockatoo Habitat Tree Locations



The assessment identified 473 Marri trees with a diameter at breast height exceeding 50 cm, which are regarded as potential Black Cockatoo breeding habitat under EPBC Act guidance. However, no suitable breeding hollows or evidence of breeding activity were recorded. The site was confirmed as providing foraging habitat for Black Cockatoos, with evidence of Carnaby's Black Cockatoo feeding observed during the survey.

Accordingly, the principal environmental consideration associated with the site relates to its function as Black Cockatoo foraging habitat, rather than the presence of high-quality native vegetation or threatened ecological communities. The assessment recommends retaining mature Marri trees where practicable, and notes that any future clearing may require referral under the EPBC Act where relevant impact thresholds are exceeded.

It is considered that a rural residential subdivision has the ability to retain the majority of the identified trees within the lots, provided compliance with bushfire can be achieved through the provision of APZ's around building envelopes. As such this isn't considered to be a constraint to development at the site.

A full copy of the report is provided in **Attachment 8.**

6.3 Bushfire

A Bushfire Advice Brief has been prepared by Bushfire Prone Planning to assess bushfire risk associated with future development of the site and identify any mitigation measures required to support subdivision and development outcomes. This advice brief highlights that compliance with all but Element 3 of State Planning Policy 3.7 can be complied with. In relation to Element 3, it is noted that the existing Country Heights Estate is already non-compliant with this Element and as such, it represents an expansion of the existing approved development at the site with the bushfire risk able to be suitably managed within the site itself.

A full copy of the advice is provided in **Attachment 9.**

7.0 CONCLUSION

The proposed amendment to the Shire of Gingin Local Planning Scheme No. 9, as described above, is considered to be entirely appropriate for approval as per the following:

- The subject site has long been identified for rural residential development within the Shire's strategic planning framework and forms part of an established rural living locality.
- The amendment seeks to apply a consistent Rural Living 1 zoning across the subject site, replacing the existing Rural Living 2 designation and facilitating a more efficient rural residential outcome which aligns with the intended role and function of the land.
- The subject site is located adjacent to an existing rural residential estates and represents a logical and orderly extension of established development within the locality rather than an isolated or fragmented growth area.
- The proposal will assist in increasing the supply of rural residential land within the Shire and provide additional housing opportunities in an area already identified for future growth.
- Preliminary investigations undertaken to date have not identified any fatal constraints to the proposed amendment. Technical matters relating to servicing, environmental values, bushfire, drainage, traffic and infrastructure can be appropriately addressed through the relevant planning, subdivision and development approval processes.
- The amendment is consistent with the strategic planning direction applicable to the locality and is expected to provide a net community benefit through the delivery of additional rural residential opportunities within an established growth area.

Accordingly, it is considered that the proposed amendment represents an orderly and logical progression of the locality's long-term development objectives and should be supported for initiation and approval.

We consider the proposed amendment appropriate for initiation and approval given the above and the net community benefit.

ATTACHMENTS

ATTACHMENT 1 – Certificates of Title

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
2572	**131**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 83 ON DEPOSITED PLAN 38255

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

MOLLER HOLDINGS PTY LTD OF POST OFFICE BOX 1947, WANGARA

(AF J009392) REGISTERED 3/9/2004

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 3053/1909. AS TO THE PORTION OF VICTORIA LOCATION 1373 ONLY SEE SKETCH ON VOL 1450 FOL 221.
2. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 6619/1920. AS TO THE PORTION OF VICTORIA LOCATION 1373 ONLY SEE SKETCH ON VOL 1450 FOL 221.
3. Q599252 CAVEAT BY COUNTRY HEIGHTS ESTATE 2 PTY LTD LODGED 30/9/2025.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

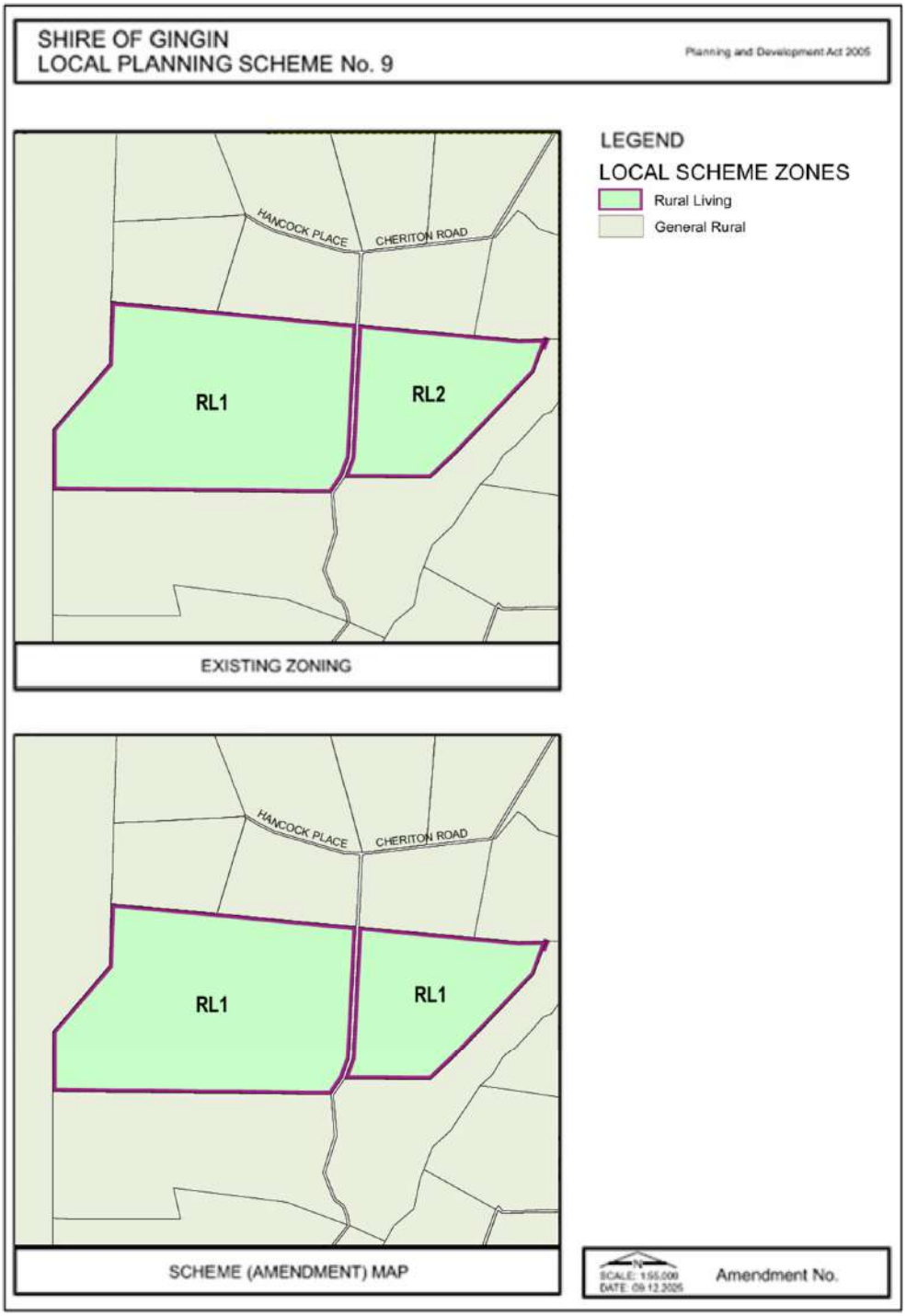
The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP38255
PREVIOUS TITLE:	1450-221
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF GINGIN

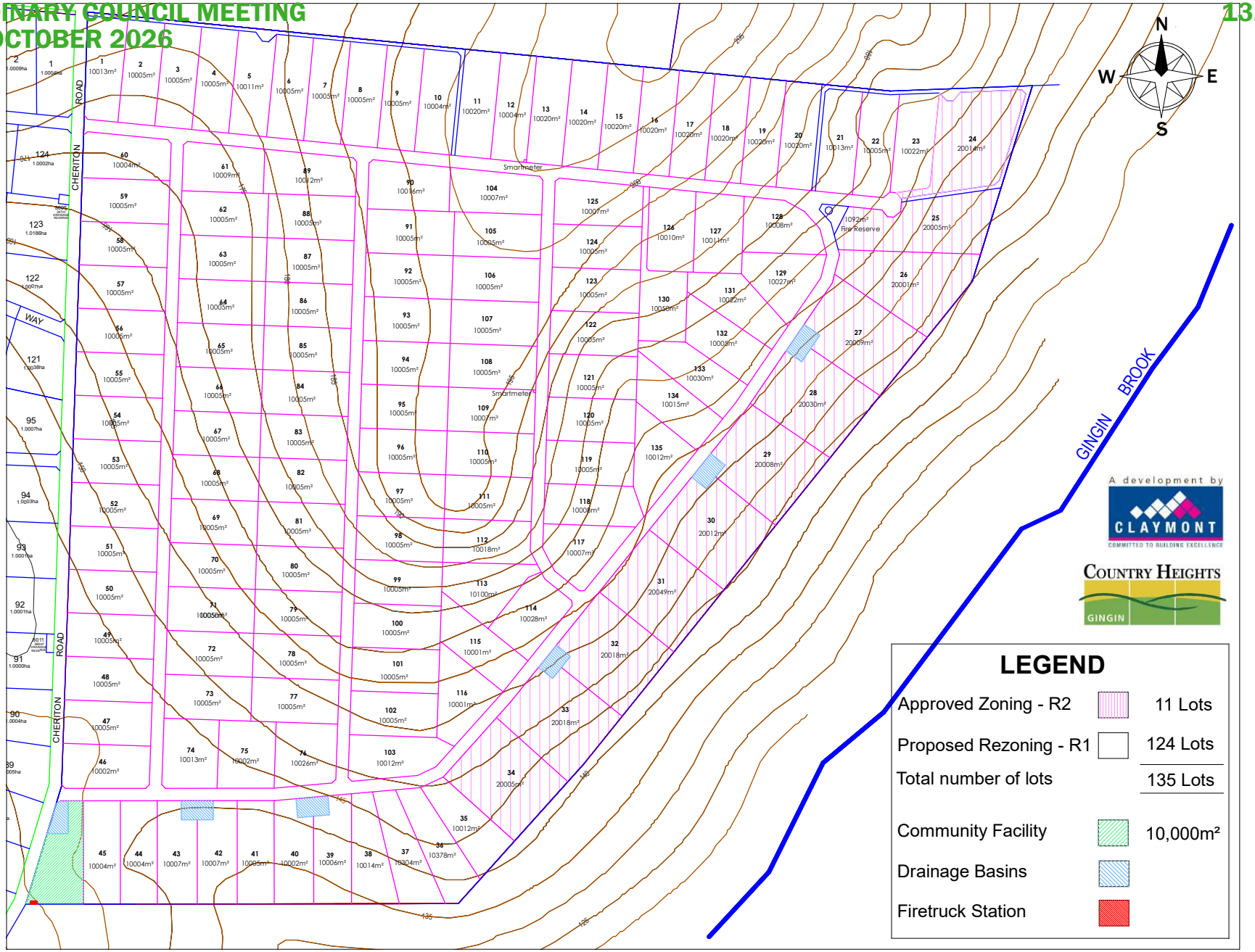
LANDGATE COPY OF ORIGINAL NOT TO SCALE 26/08/2026 03:02 PM Request number: 70301989

Landgate
www.landgate.wa.gov.au

ATTACHMENT 2 – Scheme Amendment Plan


SHIRE OF GINGIN
LOCAL PLANNING SCHEME No. 9
Planning and Development Act 2005
HANCOCK PLACE
CHERITON ROAD
RL1
RL2
EXISTING ZONING
LEGEND
LOCAL SCHEME ZONES
Rural Living
General Rural
HANCOCK PLACE
CHERITON ROAD
RL1
RL1
SCHEME (AMENDMENT) MAP
SCALE: 1:5,000
DATE: 09.12.2025
Amendment No.

ATTACHMENT 3 – Subdivision Concept Plan


N
W
E
S
CHERITON ROAD
CHERITON WAY
CHERITON ROAD
GINGIN BROOK
Smartmeter
Smartmeter
1092m²
Fire Reserve
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2
11 Lots
Proposed Rezoning - R1
124 Lots
Total number of lots
135 Lots
Community Facility
10,000m²
Drainage Basins
Firetruck Station

ATTACHMENT 4 – Geotechnical Evaluation

STRUCterre consulting

Geotechnical Investigation



Job No: J489094

Pendragon Enviromental Solutions Pty Ltd

Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup WA

Thursday 9 October 2025

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Disclaimer

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1. Project Details

1.1 Introduction

At the request of Pendragon Environmental Solutions Pty Ltd on behalf of The Developer, Structerre Consulting (Structerre) have conducted a Geotechnical Investigation at Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup, WA. The purpose of the investigation was to provide the following for residential subdivision purposes:

- Desk top study including a summary of geology, groundwater, site history (obtained from historical photographs) and potential presence of Acid Sulphate Soils (ASS)
- Summary of encountered ground and groundwater conditions, including borehole logs and indicative mapping of sand resources
- Site Classification in accordance with AS2870-2011 Residential slabs and footings
- Earthquake site factor in accordance with AS1170.4
- Recommendations for stormwater drainage design, including in-situ soil permeability
- Site preparation requirements (earthworks), including site traffic, excavation, reuse of materials and batter slopes, compaction requirements, expected shrinkage and bulking factors, and sub-surface settlement of fill during compaction
- Recommendations on earthworks and site preparation requirements including use of existing materials as fill or for use in public open space, recommendations on imported materials, compaction methods, testing, dewatering requirement, if necessary;
- Preliminary pavement design parameter, indicative California Bearing Ratio (CBR) values determined from penetrometer results and ground conditions encountered
- Earth pressure coefficients for granular backfill for retaining wall design.

This report details the scope of the geotechnical investigation, present and interpretation of ground conditions and material properties across the site, provides geotechnical design parameters for the design of the proposed infrastructure, and evaluates the suitability of materials for use in earthworks. Interpretation of site conditions is based on the subsurface lithology revealed during the investigation programme, visual assessment of the in-situ materials and the results of in situ field tests.

Terms of reference for this investigation were presented in a Structerre Consulting proposal reference Q113820 (dated 10 June 2025), which was submitted to and accepted by The Client.

1.2 Site Description & Proposed Development

The site is located at Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup WA, Shire of Gingin. Cheriton Road lies to the west of the site, with farmland to the north, east and south. Gingin Brook also lies to the east of the site.

The site is undulating and slopes up towards the northern section. At the time of the field investigation the property was covered in vegetation with small to large sized trees and was previously used as farmland. Gingin Brook was noted to the east in close proximity to the site.

We understand that the site is to be developed for a rural residential subdivision, comprising residential buildings, with associated road networks.

1.3 Field Investigation – Scope of Works

The field investigation was carried out on 8, 10, 12 and 19 September 2025 and comprised:

- Forty-three (43) x Sample Retrieval Probe boreholes to a maximum depth of 2.5m over the site for material assessment and soil profiling;
- Thirty-nine (39) x In-situ percolation tests to determine the permeability of the materials within the upper 1.0m; and
- Eighteen (18) x Perth Sand Penetrometer Tests (PSP) tests in accordance with AS 1289.6.3.3 (1997) to a depth of up to 1.0m for evaluation of relative densities of the upper layers, and

The BH test locations are presented on the site plan, enclosed within Appendix A.

Suitably qualified geotechnical personnel from Structerre supervised the fieldwork and all fieldwork, interpretation and terminology used in this report are in accordance with the guidelines presented in AS1726-2017 Geotechnical Site Investigations.

2. Desk Study

2.1 Geological Setting

The Perth sheet 1:2 50,000 Environmental Geology Series (Sheet SH 50-14 and Part Sheet SH 50-13, 1978) prepared by the Geological Survey of Western Australia indicates that the following geological layers underlie the site:

- Colluvium – soil and undifferentiated sand over laterite of coastal plain includes minor alluviated areas (Qpo)

2.2 Ground Surface & Groundwater Level

The Perth Groundwater Atlas (Waters & Rivers Commission) indicates the ground surface level at this site was approximately 135.0 to 205.0m Australian Height Datum (AHD).

There is no publicly available information regarding historic groundwater levels for the site. It should be noted that the groundwater levels can vary significantly due to seasonal variation, and any published data should be used only as a guide.

2.3 Acid Sulphate Soils

There is no publicly available information regarding that the site lies within a risk zone of ASS occurring.

2.4 Site History

Historical aerial photographs dating back to 1981 are publicly available through Landgate Map Viewer were assessed and a summary is presented in Table 1.

Table 1 - Historical Site Information

Date	Description
1981	The site is farmland
2025	Site remains relatively unchanged to the current day

3. Results of the Investigation

3.1 Subsurface Soil Profile

The subsurface soil profile presented below was determined from the ground conditions encountered within the boreholes and through the interpretation of the DCP test results:

Table 2 - Subsurface Soil Profile

Test Location	Material Description / Depth (m)				
(BH)	Topsoil	SAND/ Silty SAND	Clayey SAND	Sandy CLAY	Anticipated Site Class*
1	0.1	2.5	-	-	Class "A"
2	0.1	2.5	-	-	Class "A"
3	0.2	2.5	-	-	Class "A"
4	0.2	2.5	-	-	Class "A"
5	0.2	2.5	-	-	Class "A"
6	0.1	2.5	-	-	Class "A"
7	0.2	2.5	-	-	Class "A"
8	0.2	2.5	-	-	Class "A"
9	0.2	2.5	-	-	Class "A"
10	0.1	2.5	-	-	Class "A"
11	0.2	2.5	-	-	Class "A"
12	0.1	2.5	-	-	Class "A"
13	0.2	2.5	-	-	Class "A"
14	0.2	2.5	-	-	Class "A"
15	0.1	2.5	-	-	Class "A"
16	0.1	2.5	-	-	Class "A"
17	0.3	1.7	2.5	-	Class "S"
18	0.1	2.5	-	-	Class "A"
19	0.1	2.5	-	-	Class "A"
20	0.2	2.5	-	-	Class "A"
21	0.2	2.5	-	-	Class "A"
22	0.2	2.5	-	-	Class "A"
23	0.2	1.5	2.0	-	Class "S"
24	0.1	2.5	-	-	Class "A"
25	0.2	2.5	-	-	Class "A"
26	0.1	1.9	2.5	-	Class "A"
27	0.2	2.5	-	-	Class "A"
28	0.1	2.5	-	-	Class "A"
29	0.1	0.9	-	1.6	Class "S"
30	0.1	2.5	-	-	Class "A"
31	0.1	2.5	-	-	Class "A"
32	0.3	0.9	-	2.2	Class "S"

33	0.2	2.5	-	-	Class "A"
34	0.2	2.5	-	-	Class "A"
35	0.3	2.5	-	-	Class "A"
36	0.2	2.5	-	-	Class "A"
37	0.2	2.5	-	-	Class "A"
38	0.2	-	2.5	-	Class "S"
39	0.1	2.5	-	-	Class "A"

The soils encountered are consistent with the expected site conditions as predicted from the Environmental Geology Map. It is important to note that there may be pockets of fill on site that are deeper than that encountered by the investigation boreholes. The subsurface soil conditions encountered are presented in the bore logs, within Appendix C.

*AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

3.2 Groundwater

Groundwater was not encountered in any of the investigation holes during or immediately after drilling. However, water may perch above the more cohesive materials encountered at between 1.5m to 2.5m in the wetter months of the year.

3.3 Percolation Testing

Percolation testing of the in-situ soils was undertaken in thirty-nine (39) locations. Results of the testing are summarised below:

Table 3 - In Situ Percolation Test Results

Test Location	Testing Depth (m)	Soil Type	Permeability (m/day)
1	0.75 – 1.0	SAND/Silty SAND	20.0
2	0.65 – 0.9	SAND/Silty SAND	8.5
3	0.65 – 0.9	SAND/Silty SAND	7.3
4	0.75 – 1.0	SAND/Silty SAND	1.6
5	0.65 – 0.9	SAND/Silty SAND	10.9
6	0.75 – 1.0	SAND/Silty SAND	10.0
7	0.5 – 0.75	SAND/Silty SAND	9.1
8	0.65 – 0.9	SAND/Silty SAND	2.6
9	0.75 – 1.0	SAND/Silty SAND	13.1
10	0.75 – 1.0	SAND/Silty SAND	4.9
11	0.75 – 1.0	SAND/Silty SAND	2.9

12	0.75 – 1.0	SAND/Silty SAND	0.64
13	0.75 – 1.0	SAND/Silty SAND	1.3
14	0.75 – 1.0	SAND/Silty SAND	4.5
15	0.75 – 1.0	SAND/Silty SAND	20.0
16	0.75 – 1.0	SAND/Silty SAND	11.1
17	0.65 – 0.9	SAND/Silty SAND	2.1
18	0.65 – 0.9	SAND/Silty SAND	17.7
19	0.65 – 0.9	SAND/Silty SAND	5.8
20	0.75 – 1.0	SAND/Silty SAND	2.4
21	0.65 – 0.9	SAND/Silty SAND	9.9
22	0.75 – 1.0	SAND/Silty SAND	2.8
23	0.65 – 0.9	SAND/Silty SAND	8.5
24	0.65 – 0.9	SAND/Silty SAND	7.7
25	0.75 – 1.0	SAND/Silty SAND	16.5
26	0.75 – 1.0	SAND/Silty SAND	0.8
27	0.65 – 0.9	SAND/Silty SAND	1.5
28	0.65 – 0.9	SAND/Silty SAND	8.6
29	0.45 – 0.7	SAND/Silty SAND	0.9
30	0.55 – 0.8	SAND/Silty SAND	3.6
31	0.75 – 1.0	SAND/Silty SAND	4.4
32	0.65 – 0.9	SAND/Silty SAND	1.2
33	0.55 – 0.8	SAND/Silty SAND	9.2
34	0.55 – 0.8	SAND/Silty SAND	3.8
35	0.65 – 0.9	SAND/Silty SAND	20.0
36	0.75 – 1.0	SAND/Silty SAND	13.0
37	0.65 – 0.9	SAND/Silty SAND	6.3
38	0.65 – 0.9	Clayey SAND	8.0
39	0.45 – 0.7	SAND/Silty SAND	19.2

The percolation results indicate that the encountered ground conditions are generally suitable for infiltration.

3.4 Laboratory Test Results

Selected representative soil samples were tested by Structerre's in-house NATA accredited laboratory for Atterberg Limits, Particle Size Distribution (PSD) and California Bearing Ratio. The results are attached in Appendix D.

3.4.1 Atterberg Limits

Atterberg Limits were tested by Structerre's in-house NATA accredited laboratory. Results of the testing are summarised below:

Table 4 - Atterberg Limit Test Results

Sample	Test Hole	Depth (m)	Soil Description	Liquid Limit % AS1289 3.1.2	Plastic Limit % AS1289 3.2.1	Plasticity Index % AS1289 3.3.1	Linear Shrinkage % AS1289 3.4.1
1	BH17	1.7 - 2.2	Clayey Sand	29	12	17	6.5
2	BH23	1.5 – 2.0	Clayey SAND trace gravel	51	22	29	9.5
3	BH32	1.0 – 1.4	Sandy CLAY trace gravel	56	22	34	15
4	BH38	2.0 – 2.5	Clayey SAND	32	14	18	7

Test results indicate that the materials tested have moderate to high shrink swell capacity or degree of expansion.

3.4.2 Particle Size Distribution

Table 5 – Particle Size Distribution Test Results

Test Hole	Depth (m)	Soil Description	%Fines
BH11	1.0 – 1.5	SAND with silt	12
BH19	1.0 – 1.5	Silty SAND	13

Test results indicate that the samples tested are poorly graded SAND with silt (SP).

3.4.3 California Bearing Ratio (CBR)

Representative samples were collected and tested by our accredited laboratory in accordance with AS1289.5.2.1 (2003) and AS1289.6.1.1 (1998). The test certificates are presented in Appendix D and summarised below:

Table 6 - California Bearing Ratio (CBR) Test Results

Location	Sample Depths (m)	Soil Description	Optimum Moisture Content (%)	Maximum Dry Density (t/m³)	CBR Value
BH40	0.2 – 0.4	Silty SAND	14.5	1.79	17
BH41	0.2 – 0.4	Silty SAND	11.5	1.89	20
BH42	0.2 – 0.4	Silty SAND	11.0	1.78	19
BH43	0.2 – 0.4	Silty SAND	13.0	1.79	16

Based on the above results a conservative soaked CBR of 12%, is recommended for pavement design.

4. Geotechnical Construction Considerations

4.1 Site Classification

AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

The site in its current (undeveloped) condition is classified as Class “P”, due to the presence of topsoils, organic material and vegetation. Based on results of this investigation the site can be classified as Class “A” and/or Class “S” provided that all unsuitable materials are removed and replaced with engineer-controlled sand fill materials in accordance with earthwork recommendations outlined in Section 4.3 in this report.

To achieve a Class “A” following minimal earthworks (topsoil strip) and utilising a minimum of 1.8m separation of sand (non-reactive sand cover), above the underlying reactive (clayey) materials.

To achieve a Class “S” with ys 10mm can be achieved following minimal earthworks (topsoil strip) and utilising a minimum of 1.0m sand cover (insitu sand cover).

See the Table 2 for current sand cover at each borehole location.

4.2 Seismic Site Subsoil Class

The seismic subsoil site class has been assessed in accordance with AS 1170.4-2007, using the results of this investigation and published information.

Table 7 - Summary of Seismic Parameters

Hazard Factor	Site Sub-soil Class
0.10	Class Ce -shallow soil site

4.3 Earthworks

All earthworks shall be undertaken in accordance with AS 3798-2007 Guidelines on Earthworks For Commercial and Residential Developments and are to include but not limited to the following:

4.3.1 Earthworks Equipment

It is considered that standard small to medium sized earthmoving equipment would be appropriate for the proposed development.

The ground surface was generally competent and should not pose significant issues to either excavation or site traffic movements. Near surface materials may become saturated during the wetter months of the year, which may impede site movement.

4.3.2 Clearing and Topsoil Stripping

All surface vegetation (i.e. grass and bushes) to be stripped and removed off site. Trees should be grubbed, stockpiled and mulched for use in landscaping areas within the proposed subdivision. Loose ground resulting from the removal of vegetation (i.e. trees) should be profiled, compacted and in filled with suitably compacted fill.

Based on the investigation the topsoil is approximately 0.2m thick. The encountered topsoil may be used as is in landscape areas but is not suitable for use as structural fill.

4.3.3 Uncontrolled Fill

Uncontrolled fill was not encountered during the investigation. However, should it be identified during earthworks, it is recommended that screening and blending be undertaken before reusing as structural fill provided it is uncontaminated, dry, non-reactive and free from organics (i.e. <2%) and deleterious materials.

4.3.4 Proof Compaction

The near surface sand materials can be proof compacted by utilising the following methodology:

- Apply a minimum of 4 passes with a self-propelled, smooth drum vibratory roller (operating in high amplitude mode) allowing a minimum of 20% overlap. The surface should then be given an additional minimum of 4 passes with the vibrating roller operating in low amplitude. Areas that deform excessively under rolling should be removed and replaced with clean sand. On completion of vibratory rolling, the roller should be operated in static mode, applying a minimum of 2 passes over the site.

Should the base materials be cohesive, the following proof compaction methodology can be utilising:

- Moisture condition to +/- 2% of standard optimum moisture content (AS1289 5.1.1)
- Apply a minimum of 6 passes with a self-propelled, pad foot vibratory roller (operating in high amplitude mode) allowing a minimum of 20% overlap.

All weak areas, which deform excessively under rolling, should be removed and replaced with clean sand/crushed limestone. After excavation and proof compaction, the excavated base is to be inspected and approved by a representative from this office prior to backfilling. At this stage it can be assessed whether any further materials need to be removed or whether further compaction of the base is required.

The compaction requirements are set out below, as per AS3798:2007

Table 8 - Compaction Requirements

Item	Application	Minimum relative compaction %	
		Minimum density ratio (Standard Compaction Effort) (Cohesive soils)	Minimum density index (Cohesionless soils)
1	Residential - lot, fill, house, sites	95	70
2	Fill to support pavements General Fill Subgrade (to a depth of 0.3m)	 95 98	 70 75

4.3.5 Cohesionless Sand Structural Fill

A minimum of 1.8m sand cover is to be placed or maintained above the reactive material in order to achieve a Class "A" site.

A minimum of 1.0m sand cover is to be maintained above the reactive material in order to achieve a Class "S" site with ys 10mm vertical surface movement.

The ground level can be built up to design levels with imported fill. The imported fill should consist of free draining sand with not more than 5% passing a 75µm sieve and be free of organic matter and other deleterious materials. Generally, the fill sand materials should be placed in layers not exceeding 300mm loose thickness and compacted to achieve the criteria stated in the above table.

It is recommended that a Perth Sand Penetrometer (PSP) / Density correlation be undertaken to confirm the PSP requirements. However, the following criteria can be used as a guide:

- A minimum of 7 PSP blows over the interval 150 – 450mm, 9 PSP blows over the interval 450 – 750mm and 11 PSP blows over the interval 750 – 1050mm.

It is recommended that the earthworks be inspected and approved by a representative from this office.

4.4 Temporary and Permanent Slopes

The following temporary and permanent excavation batters are considered suitable for non-surcharged (i.e. no surcharge within 4.0 m of crest), dry, cohesionless sand slopes of less than 2.0m in height, in accordance with the Building Code of Australia (BCA) Table 3.1.1.1.

Table 9 - Slope Gradients

	Temporary	Permanent
Cut	1V : 2H	1V : 2.5H
Fill	1V : 2H	1V : 2.5H

Slopes greater than 2.0m or if steeper slopes are required should be analysed on a case-by-case basis.

4.5 Drainage

Based on the in-situ materials encountered and the results of the percolation tests, the site can generally be considered suitable for on-site disposal of stormwater runoff.

Low permeability may be encountered at locations where silty SAND was identified. The drainage design should take into account the results, but it is to be noted that this investigation is preliminary in nature. It is recommended that The Client confirm the permeability rates during and after the completion of the earthworks.

The design of the drainage system, is unknown at this time, but may include:

- Rainwater Tanks;
- Dams / Compensation basin;
- Overland flow paths; and
- Soakwells, if permeable cover and / or design are appropriate.

Sub soil drainage may be required to control groundwater perching in the upper soil layers within the building footprint.

It is recommended that The Client confirm the permeability rates following the completion of the earthworks.

4.6 Pavement Design

Based on the results of the field laboratory testing California Bearing Ratio (CBR) value of 16 to 20% can be adopted for the proposed subgrade. A recommended CBR of 12% may be adopted for imported granular fill materials compact to 95% of MMDD in accordance with AS 1289 5.2.1-2003.

For detailed design and construction of the pavements, it is recommended that the CBR values be verified with laboratory Soaked CBR testing on the anticipated subgrade material.

The provisional design below is based on typical urban road and meets the minimum requirements of the Shire:

4.7 Indicative California Bearing Ratio (CBR)

The indicative California Bearing Ratio (CBR) value of the subgrade material (following earthworks) can be estimated from the site investigation results and would be appropriate for preliminary design purposes. The indicative value is shown in the below table:

Table 10 - Indicative CBR Values

Material	Indicative CBR (%)	Compaction
SAND (In-situ or Imported Fill)	12	95% of MMDD*

* Implies the maximum dry density ratio using Modified compaction in accordance with AS 1289 5.2.1-2003.

4.8 Retaining Walls

Any retaining walls proposed to be installed at the site will likely support sandy soils. Where imported granular backfill is to be used in conjunction with retaining walls, the geotechnical properties will vary depending upon the nature of the granular materials imported.

For cohesion-less free draining sand, the following parameters can be used as a guide for design purposes:

- Angle of internal friction, Ø = 33°
- Coefficient of active earth pressure Ka = 0.29
- Coefficient of passive earth pressure Kp = 3.39
- At rest coefficient of earth pressure K0 = 0.46
- Bulk density 18 kN/m3

Retaining structures should be designed in accordance with AS 4678-2002 Earth Retaining Structures. Where significant eccentric and/or horizontal loading is applied, further assessment will be required. Additionally, handheld compaction equipment is utilised within 2.0m of the walls, to reduce the potential increase in lateral pressure on the retaining wall.

Retaining wall design should ensure adequate drainage to the rear of the wall. It is recommended that the drainage comprises free draining sand and weepholes that are interconnected with a suitable sized perforated drainage pipe.. Where possible a sand layer should be provided across the site, to allow potential perched water to flow freely across the site, with limited impedance.

Experience indicates that excavation immediately in front of retaining walls (i.e. due to service installation) may cause movement to the wall to occur. This can lead to cracking of adjoining structures and needs to be accounted for in the design and construction sequencing of the new works.

5. Conclusions

A site investigation was carried out at the proposed commercial development site to assess the geotechnical conditions. Parameter and design recommendations are incorporated in the body of the report. The following conclusions have been drawn from the site investigation:

- The site is considered suitable for the proposed subdivisional development.
- The average subsurface soil profile encountered comprised topsoil up to 0.3m, Natural Silty SAND/Sand to 2.5m, underlain by clayey sand to sandy clay to the investigation depth of 2.5m.
- Groundwater was not encountered across the site
- The site can be classified as Class “A” and Class “S” in accordance with AS 2870-2011 provided the recommended earthworks are undertaken.
- It is considered that the current site conditions are suitable for on-site drainage.
- In general, small to medium sized earthworks equipment are considered suitable for the proposed development.
- Site movement and excavations should not pose a significant issue. However, note that the near surface materials may become saturated during the wet months of the year and impede site movements.
- Recommended earthworks include stripping of topsoil and any unsuitable materials, proof compaction of the base, excavation of loose materials (where necessary), placement of engineered fill and compaction of final level.

6. Limitation of Field Investigations

This report has been prepared in accordance with generally accepted consulting practice for The Developer using information supplied at the time and for the project specific requirements as understood by Structerre. To the best of our knowledge the information contained in this report is accurate at the date of issue, however it should be emphasised that any changes to ground conditions and/or the proposed structures may invalidate the recommendations given herein.

The conclusions and recommendations in this report are based on the site conditions revealed through selective point sampling, representing the conditions of the site in total, although the area investigated represents only a small portion of the site. The actual characteristics may vary significantly between successive test locations and sample intervals other than where observations, explorations and investigations have been made.

The materials and their geotechnical properties presented in this report may not represent the full range of materials and strengths that actually exist on site and the recommendations should be regarded as preliminary in nature. Allowances should be made for variability in ground conditions and any consequent impact on the development. Structerre accepts no responsibility and shall not be liable for any consequence of variations in ground conditions.

We trust this meets with your requirements. Should you require any additional information, or clarification of the above, please contact the undersigned.

For and behalf of Structerre Consulting.

Signature
David Harding
Geotechnical Supervisor

(08) 9205 4500
wageotechengineering@structerre.com.au

Signature
Mel Castle
Geotechnical Manager

9 October 2025

7. References

Department of Water – Perth Groundwater Atlas

Geological Survey of Western Australia 1:50,000 Environmental Geology Series

AS 1170.4-2007 Structural design actions – Earthquake actions in Australia

AS 1289.3.1.2-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the liquid limit of a soil

AS 1289.3.2.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the plastic limit of a soil

AS 1289.3.3.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Calculation of the plasticity index of a soil

AS 1289.3.4.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the linear shrinkage of a soil

AS 1289.6.3.2-1997 Methods of testing soils for engineering purposes – Soil strength and consolidation tests – Determination of the penetration resistance of a soil – 9kg dynamic cone penetrometer test

AS 1726-2017 Geotechnical site investigation

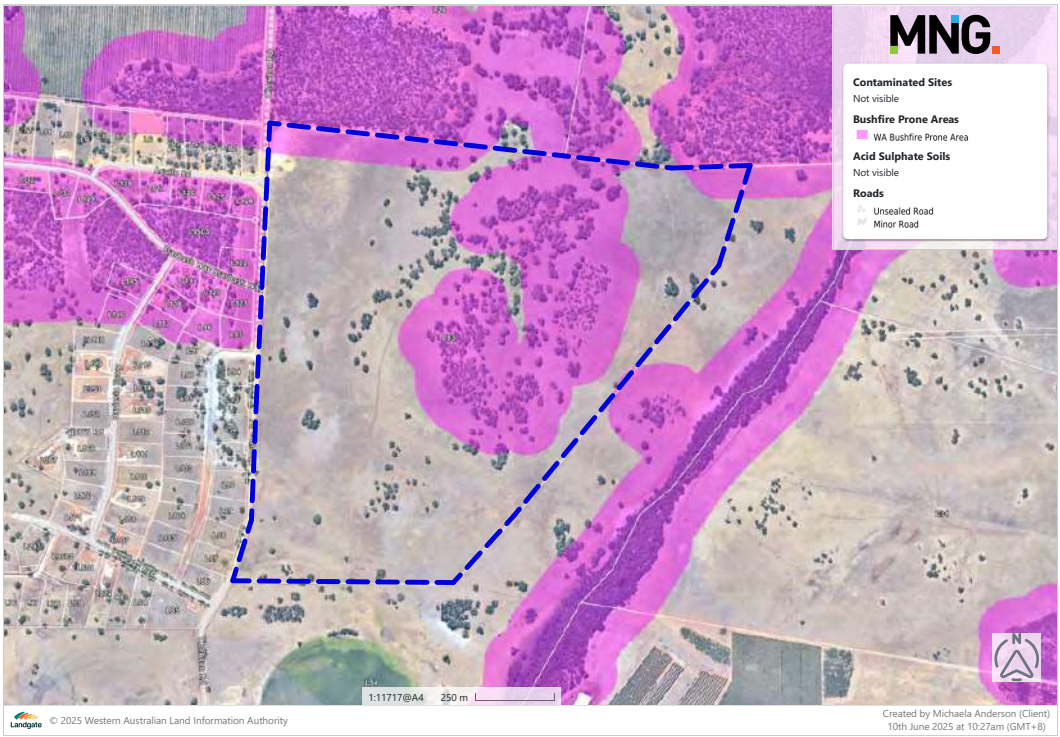
AS 2870-2011 Residential slabs and footings

AS 3798-2007 Guidelines on earthworks for commercial and residential developments

AS 4055-2012 Wind loads for housing

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Appendix A – Site Plans



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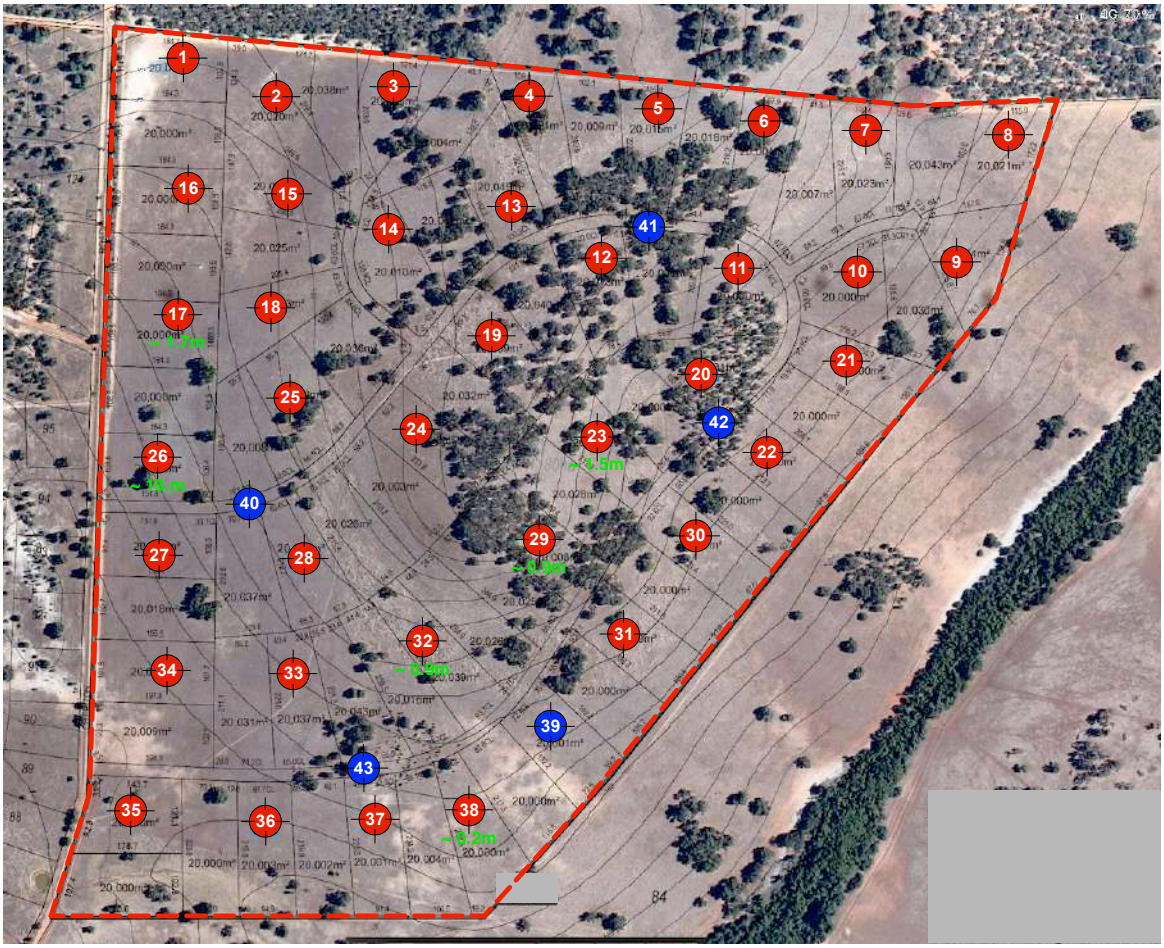
Zemla Pty Ltd (ABN 71 349 772 837) ATF the Young Purich and Higham Unit Trust trading as Structerre Consulting

1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Geotechnical - Acid Sulphate Soils & Bushfire Prone Area
DATE:	8 Sep '25
DRAWN BY:	MM
CHECKED BY:	DH

DOC: GE:3.001

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Note: Showing approximate test locations only

LEGEND

- Borehole and Percolation Test
- Borehole
- ~ m Depths to Reactive Material

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	PROJECT #: D366941	CLIENT: **Pendragon Environmental Solutions Pty Ltd**
	JOB #: J489094	
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	DATE: 8 Sep '25	DRAWN BY: MM / CHECKED BY: DH

DOC: GE:3.001

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Appendix B – Site Photos



PHOTO 1 - Facing east from BH6 location



PHOTO 2 - Facing east from BH16 location

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1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	8 Sep '25
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PHOTO 3 - Facing northeast from BH30 location



PHOTO 4 - Facing north from BH35 location

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1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

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SCALE:	NTS
TITLE:	Site Photographs
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PHOTO 5 - Facing west from BH39 location



PHOTO 6 - Facing south from BH41 location

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1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	8 Sep '25
DRAWN BY:	MM
CHECKED BY:	DH

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Appendix C – Borelogs & Borelog Terminology

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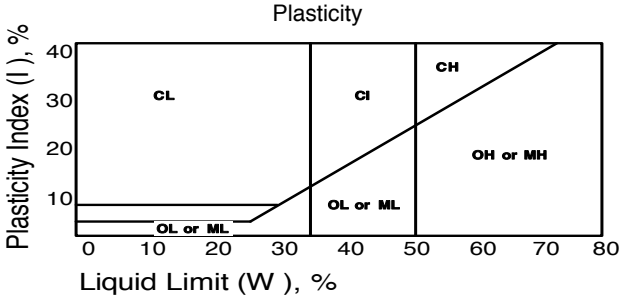
Residential | Geotechnical | Commercial & Infrastructure | Inspect & Investigate | Energy Assessment | Environmental

BOREHOLE TERMINOLOGY

Particle Size Distribution

Major Division	Subdivision	Size
Boulders		>200mm
Cobbles		200 - 63mm
Gravel	Coarse	63 - 20mm
	Medium	20- 6mm
	Fine	6 - 2.36mm
Sand	Coarse	2.36 - 0.6mm
	Medium	0.6 - 0.2mm
	Fine	0.2 - 0.075mm

Plasticity



Consistency of Cohesive Soils

Term	Undrained Strength Su (kPa)	Field Guide
Very Soft	< 12	Exudes between the fingers when squeezed in hand
Soft	12 - 25	Can be moulded by light finger pressure
Firm	25 - 50	Can be moulded by strong finger pressure
Stiff	50 - 100	Cannot be moulded by Fingers. Can be indented by thumb.
Very Stiff	100 - 200	Can be indented by thumb nail
Hard	> 200	Can be indented with difficulty by thumb nail.
Friable	-	Crumbles or powders when scraped by thumbnail

Consistency/Density of Non-Cohesive Soils

Term	Density Index (%)	SPT "N" Value Comparison
Very Loose	< 15	0 - 4
Loose	15 - 35	4 - 10
Medium Dense	35 - 65	10 - 30
Dense	65 - 85	30 - 50
Very Dense	> 85	> 50

Moisture Content

D	Dry
M	Moist
W	Wet
S	Saturated

Minor Components

Term	Assessment Guide	Proportion of Minor Component In:
Trace	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component	Coarse grained soils: < 5 % Fine grained soils: <15%
With	Presence easily detected by feel or eye, soil properties little different to general properties of primary component	Coarse grained soils: 5 - 12 % Fine grained soils: 15 - 30%

Soil Legend

FILL	CLAY	GRAVEL	CONCRETE
TOPSOIL	SILT	LIMESTONE	COMBINATIONS
PEAT	SAND	BEDROCK	eg: Clay, Silty, Sandy

USCS

GW	Well graded gravel	SC	Clayey sand	OL	Organic low plasticity silt	CL	Low plasticity clay
GP	Poorly graded gravel	SM	Silty sand	ML	Low plasticity silt	CI	Intermediate plasticity clay
SW	Well graded sand			MH	High plasticity silt	CH	High plasticity clay
SP	Poorly graded sand			OH	Organic high plasticity silt	PT	Peat

DOC:GE:3.003

WA | QLD | NSW | VIC

1 Erindale Road, Balcatta, Western Australia 6021 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email wageotecheng@structerre.com.au | Web www.structerre.com.au
ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

Borehole Record: BH01

Project: Country Heights Stage 2	**Position:** Easting: 397922.86	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538999.73	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): poorly graded, medium grained, yellow.				26.9	
	2.0									
					BH01 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398149.34
Northing: 6538970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow, moist.				8.5	
	1.0					M	VL			
	2.0									
					BH02 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH03

Project: Country Heights Stage 2	**Position:** Easting: 398395.46	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538948.37	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
					Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.				7.2	
	1.0	Natural		SM		D	L-MD			
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH04

Project: Country Heights Stage 2	**Position:** Easting: 398584.82	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538928.84	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL	2 2 2 1 2	1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH05

Project: Country Heights Stage 2	**Position:** Easting: 398791.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538907.74	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.9	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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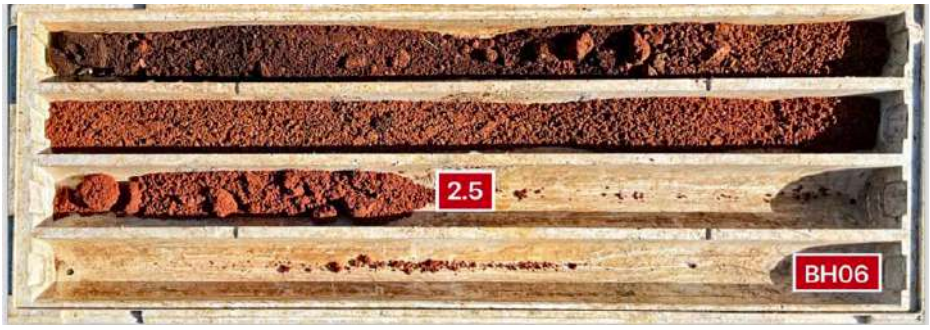
Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6538886.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	1.0	Non-soil / Natural		TS / SP	Topsoil. Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.	M	L	3, 4, 5, 5, 3, 4	10.0	
	2.0				BH06 Terminated at 2.5 m					



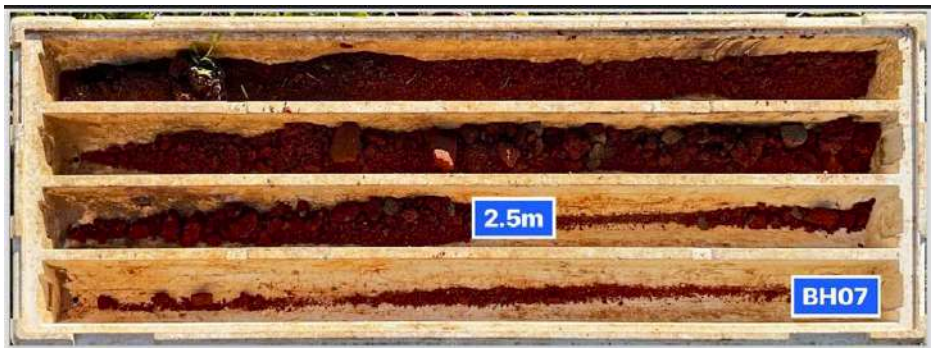
Depth: 2.5 m

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Borehole Record: BH07

Project: Country Heights Stage 2	**Position:** Easting: 399151.94	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538823.27	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		9.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH08

Project: Country Heights Stage 2	**Position:** Easting: 399327.39	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538813.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL	2 2 2 2 2 2	2.6	
	2.0				BH08 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH09

Project: Country Heights Stage 2	**Position:** Easting: 399237.85	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538628.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		13.0	
	2.0				BH09 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH10

Project: Country Heights Stage 2	**Position:** Easting: 399083.76	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538673.85	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL	2 2 2	4.8	
	2.0				BH10 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH11

Project: Country Heights Stage 2	**Position:** Easting: 398870.57	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538633.26	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0				BH11 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH12

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398615.45
Northing: 6538696.44
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		0.6	
	2.0									
					BH12 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH13

Project: Country Heights Stage 2	**Position:** Easting: 398499.21	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538782.89	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0				BH13 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH14

Project: Country Heights Stage 2	**Position:** Easting: 398290.47	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538657.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	3 3 2 2 2 2	4.4	
	2.0				BH14 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH15

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398111.44
Northing: 6538754.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0				BH15 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH16

Project: Country Heights Stage 2	**Position:** Easting: 397936.39	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538733.90	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL	2 2 2	11.1	
	2.0									
					BH16 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH17

Project: Country Heights Stage 2	**Position:** Easting: 397982.96	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538508.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	2.0			SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
					BH17 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH18

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398196.04
Northing: 6538559.25
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0									
					BH18 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH19

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398457.38
Northing: 6538469.86
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		5.7	
	2.0									
					BH19 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH20

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398840.10
Northing: 6538527.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
	2.0			SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
					BH20 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH21

Project: Country Heights Stage 2	**Position:** Easting: 399104.69	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538511.75	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0				BH21 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH22

Project: Country Heights Stage 2	**Position:** Easting: 398993.81	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538280.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.			2		
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	3 2 2 2 2	2.8	
	2.0				BH22 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH23

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398683.95
Northing: 6538328.13
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
	1.0			SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					



Depth: 2.0 m

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Borehole Record: BH24

Project: Country Heights Stage 2	**Position:** Easting: 398161.71	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538216.24	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		7.7	
	2.0									
					BH24 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH25

Project: Country Heights Stage 2	**Position:** Easting: 398162.26	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538410.42	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		16.4	
	2.0				BH25 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH26

Project: Country Heights Stage 2	**Position:** Easting: 397926.64	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538319.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH27

Project: Country Heights Stage 2	**Position:** Easting: 397696.87	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6536458.35	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0				BH27 Terminated at 2.5 m					



Depth: 2.5 m

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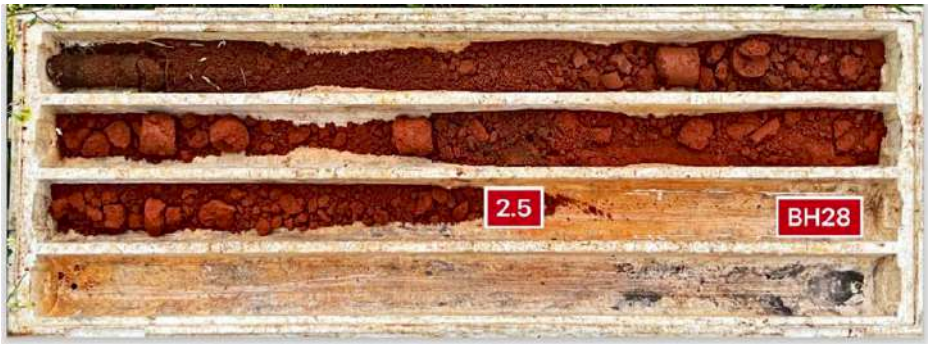
Borehole Record: BH28

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398160.48
Northing: 6538215.91
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH29

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398595.97
Northing: 6538165.21
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					



Depth: 1.6 m

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Borehole Record: BH30

Project: Country Heights Stage 2	**Position:** Easting: 398854.12	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538166.71	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2 2 2 2 2 3	3.6	
	2.0									
					BH30 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH31

Project: Country Heights Stage 2	**Position:** Easting: 398697.24	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538016.07	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0				BH31 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH32

Project: Country Heights Stage 2	**Position:** Easting: 398411.77	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538095.78	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.			3		
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD	4, 6, 6, 25	1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					



Depth: 2.2 m

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Borehole Record: BH33

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398208.25
Northing: 6538028.01
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

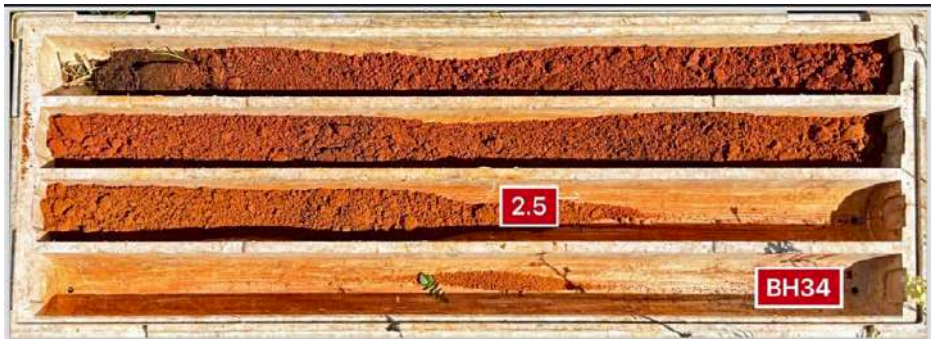
Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.3	
	2.0				BH33 Terminated at 2.5 m					

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Borehole Record: BH34

Project: Country Heights Stage 2	**Position:** Easting: 398159.74	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538218.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 2 2	3.8	
	2.0				BH34 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH35

Project: Country Heights Stage 2	**Position:** Easting: 397916.50	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537792.97	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.6	
	2.0				BH35 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH36

Project: Country Heights Stage 2	**Position:** Easting: 398115.47	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537715.14	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0				BH36 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH37

Project: Country Heights Stage 2	**Position:** Easting: 398276.71	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537683.69	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0				BH37 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH38

Project: Country Heights Stage 2	**Position:** Easting: 398415.96	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537786.32	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0				BH38 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH39

Project: Country Heights Stage 2	**Position:** Easting: 398585.31	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537913.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH40

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398039.92
Northing: 6538317.00
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH40 Terminated at 0.4 m (Target Depth)					

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Borehole Record: BH41

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398689.55
Northing: 6538753.80
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH41 Terminated at 0.4 m (Target Depth)					

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Borehole Record: BH42

Project: Country Heights Stage 2	**Position:** Easting: 398848.53	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538360.46	**Drill Rig** Hand Auger
Loc Comment:	**Elevation:** 170.72(m)	**Drill Supplier** Example supplier
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH42 Terminated at 0.4 m (Target Depth)					

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Borehole Record: BH43

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398244.44
Northing: 6537887.63
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH43 Terminated at 0.4 m (Target Depth)					

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STRUCterre consulting

Appendix D – Laboratory Test Results

STRUCterre consulting

Sample No.	**41070**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH17 1.7-2.2m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	29
Plastic Limit	AS 1289.3.2.1	12
Plasticity Index	AS 1289.3.3.1	17
Linear Shrinkage	AS 1289.3.4.1	6.5
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	100
0.425	53
0.075	26

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory

Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

WA | QLD | NSW | VIC
44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email perth@structerre.com.au | Web www.structerre.com.au
ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

STRUCterre consulting

Sample No.	**41071**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH23 1.5-2.0m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	51
Plastic Limit	AS 1289.3.2.1	22
Plasticity Index	AS 1289.3.3.1	29
Linear Shrinkage	AS 1289.3.4.1	9.5
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	97
0.425	38
0.075	30

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND trace gravel
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory

Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
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STRUCterre consulting

Sample No.	**41072**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH32 1.0-1.4m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	56
Plastic Limit	AS 1289.3.2.1	22
Plasticity Index	AS 1289.3.3.1	34
Linear Shrinkage	AS 1289.3.4.1	15
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	99
0.425	72
0.075	37

AS 1726:2017 Clause 6.1
Material Description: Sandy CLAY trace gravel
AS Group Symbol: CH or OH

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email perth@structerre.com.au | Web www.structerre.com.au
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STRUCterre consulting

Sample No.	**41073**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH38 2.0-2.5m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	32
Plastic Limit	AS 1289.3.2.1	14
Plasticity Index	AS 1289.3.3.1	18
Linear Shrinkage	AS 1289.3.4.1	7
Nature of Shrinkage		Cracking

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	100
0.425	40
0.075	21

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent _____ **Date:** 01-Oct-25
Authorized Signatory Laboratory Supervisor

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
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Malaga Laboratory
44 Crocker Drive, Malaga, WA 6090
Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11763
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

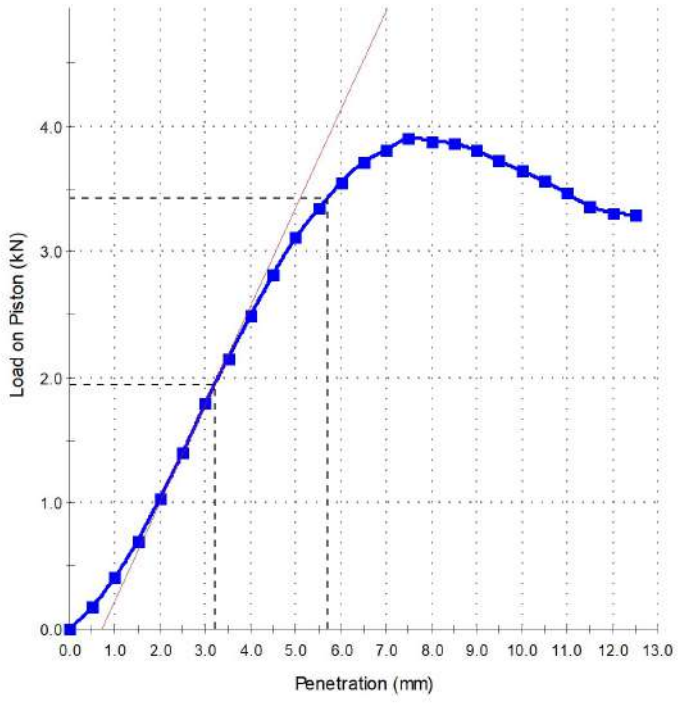
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH40
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**17**
Dry Density before Soaking (t/m³):	1.70
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	14.6
Moisture Ratio before Soaking (%):	99.0
Dry Density after Soaking (t/m³):	1.71
Density Ratio after Soaking (%):	95.5
Swell (%):	-0.5
Moisture Content of Top 30mm (%):	14.2
Moisture Content of Remaining Depth (%):	15.4
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MDD:25S-11763
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

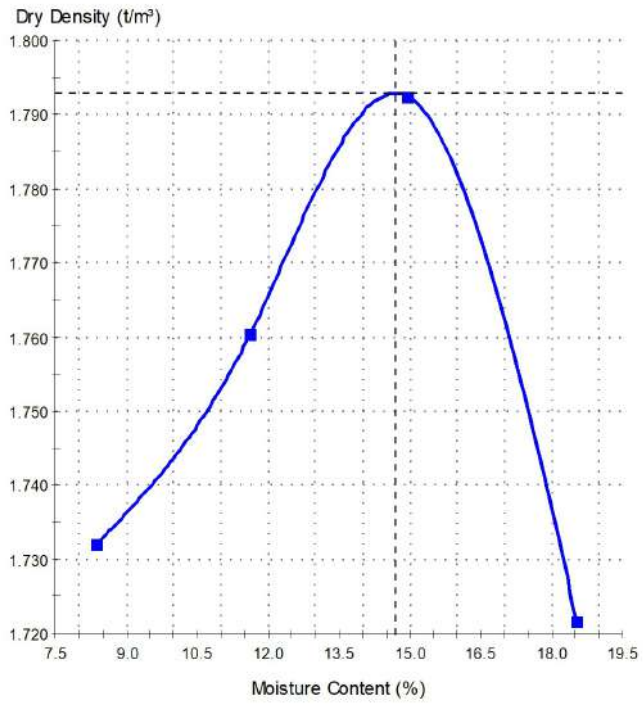
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH40
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

	AS 1289.5.1.1
Standard MDD (t/m³):	**1.79**
Standard OMC (%):	**14.5**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11764
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

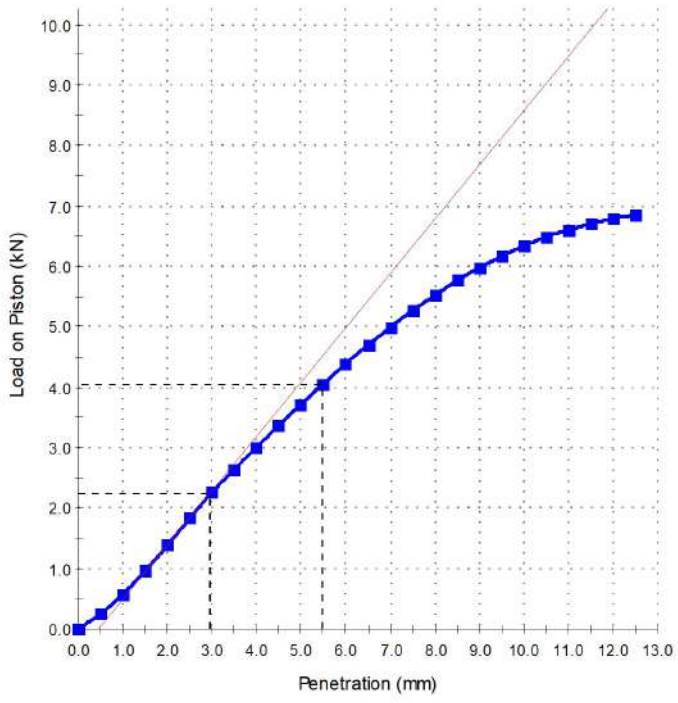
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH41
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

	AS 1289.6.1.1
CBR at 5.0mm (%):	**20**
Dry Density before Soaking (t/m³):	1.79
Density Ratio before Soaking (%):	94.5
Moisture Content before Soaking (%):	12.1
Moisture Ratio before Soaking (%):	103.0
Dry Density after Soaking (t/m³):	1.79
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	13.6
Moisture Content of Remaining Depth (%):	13.2
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MDD:25S-11764
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

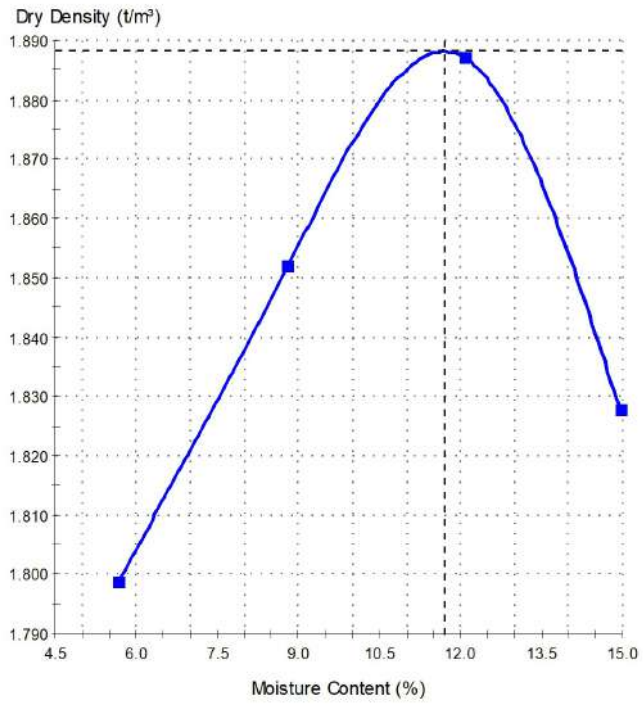
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH41
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

	AS 1289.5.1.1
Standard MDD (t/m³):	**1.89**
Standard OMC (%):	**11.5**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11765
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

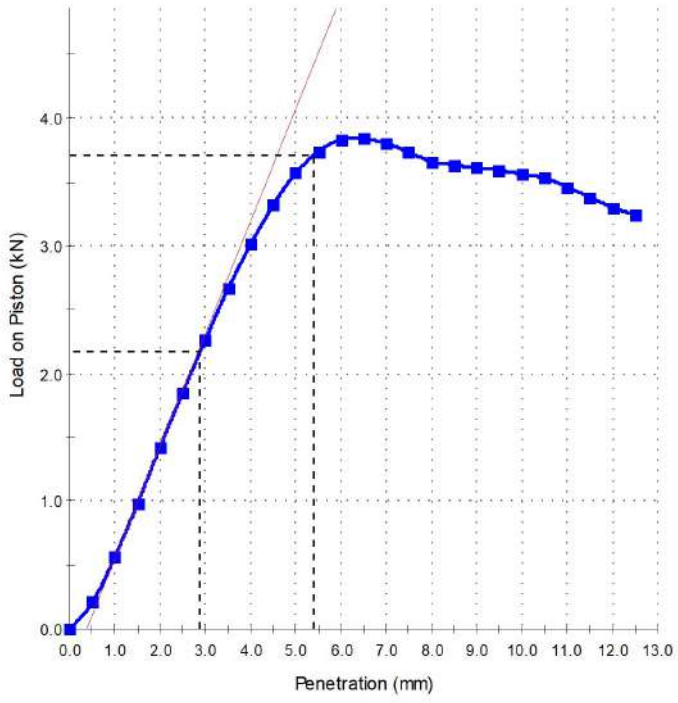
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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH42
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**19**
Dry Density before Soaking (t/m³):	1.69
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	10.9
Moisture Ratio before Soaking (%):	98.0
Dry Density after Soaking (t/m³):	1.69
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	14.3
Moisture Content of Remaining Depth (%):	16.6
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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ABN: 71 349 772 837 / ACN: 008 966 283

Maximum Dry Density Report

Report Number: MDD:25S-11765
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

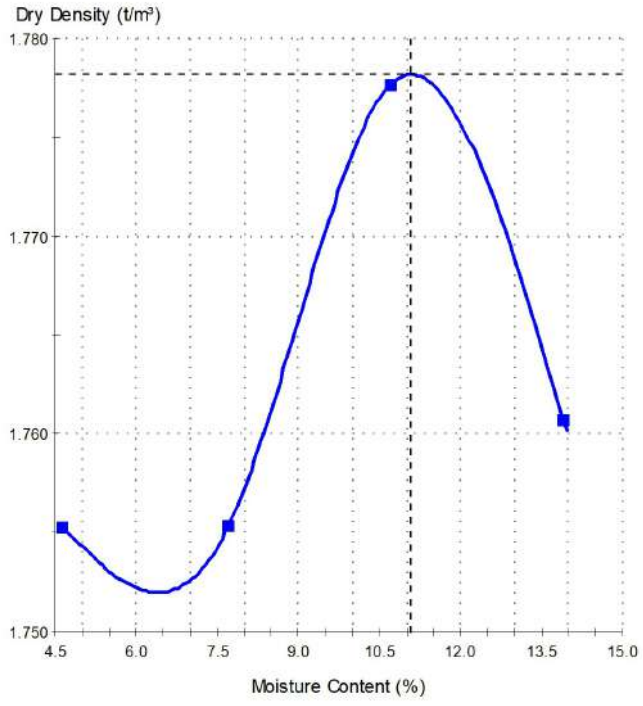
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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH42
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.1.1

Standard MDD (t/m³):	**1.78**
Standard OMC (%):	**11.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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California Bearing Ratio Test Report

Report Number: CBR:25S-11766
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

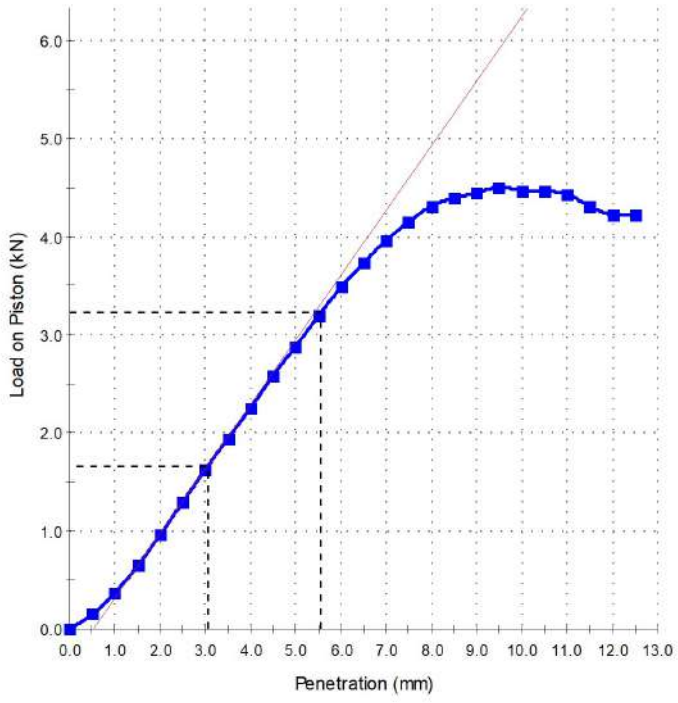
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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH43
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**16**
Dry Density before Soaking (t/m³):	1.70
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	13.0
Moisture Ratio before Soaking (%):	100.5
Dry Density after Soaking (t/m³):	1.70
Density Ratio after Soaking (%):	95.5
Swell (%):	0.0
Moisture Content of Top 30mm (%):	13.7
Moisture Content of Remaining Depth (%):	13.6
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MDD:25S-11766
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

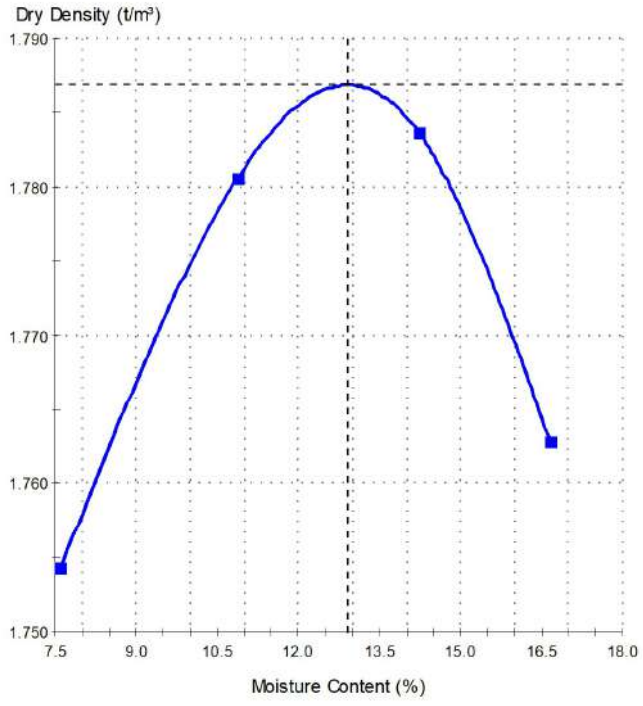
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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH43
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

	AS 1289.5.1.1
Standard MDD (t/m³):	**1.79**
Standard OMC (%):	**13.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Report Number: MDD:25S-11766
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

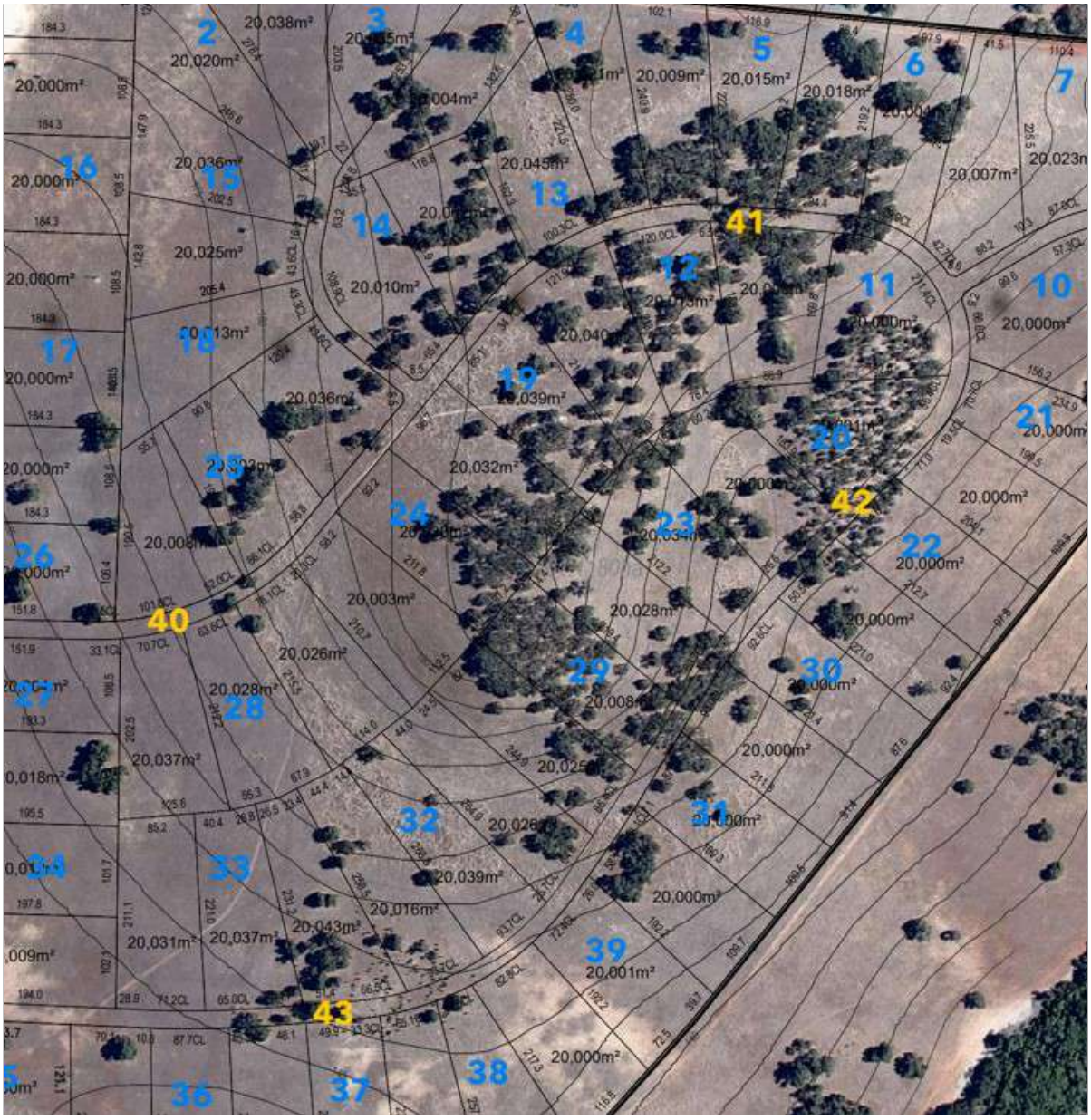
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Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Jonty Sargent

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Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MAT:25S-11921
Date of Issue26/09/2025
Issue Number: 1

Material Test Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

Approved Signatory: Jonty Sargent

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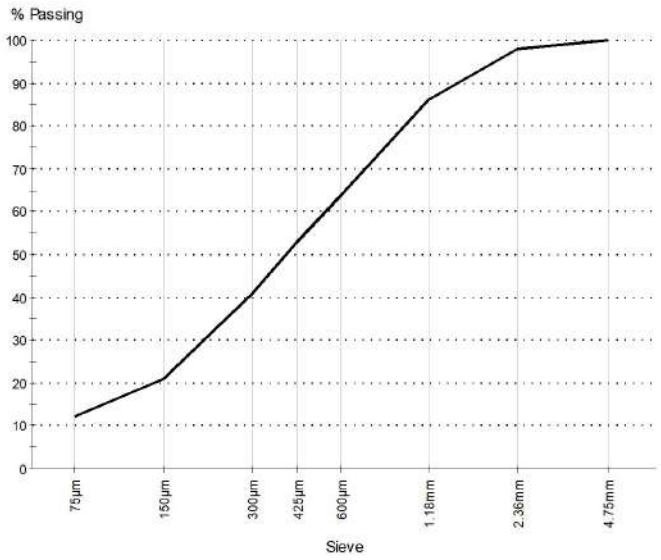
Sample Details

Sample ID	Material Assessment
Field Sample ID	BH11
Date Tested	25/09/2025
Date Sampled	24/09/2025
Soil Description	SAND with silt, trace gravel
Proposed Use	Fill
Depth of Test	1000 - 1500
Depth of Layer	
Sampling Method	Sample submitted by client
TRN	-
Work Order ID	W25-04992

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 25/09/2025

Note: Sample Washed

Sieve Size	% Passing	Limits
4.75mm	100	
2.36mm	98	
1.18mm	86	
600µm	64	
425µm	53	
300µm	41	
150µm	21	
75µm	12	

Comments

N/A

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Malaga Laboratory
44 Crocker Drive, Malaga, WA 6090
Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MAT:25S-11922
Date of Issue26/09/2025
Issue Number: 1

Material Test Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

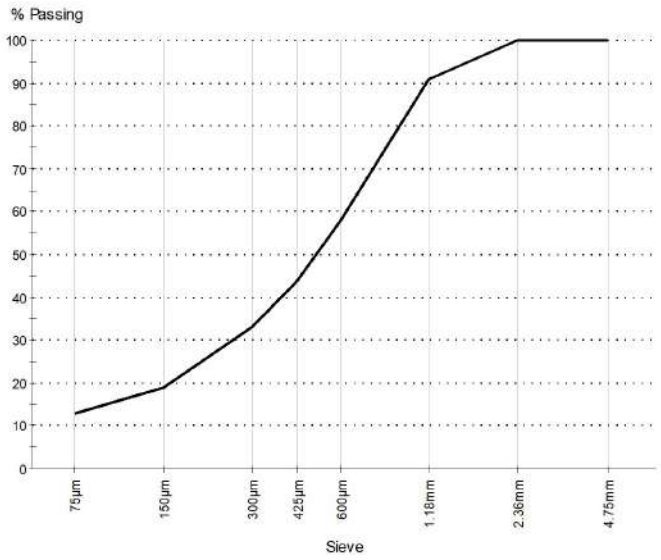
Sample Details

Sample ID	Material Assessment
Field Sample ID	BH19
Date Tested	25/09/2025
Date Sampled	24/09/2025
Soil Description	Silty Sand
Proposed Use	Fill
Depth of Test	1000 - 1500
Depth of Layer	
Sampling Method	Sample submitted by client
TRN	-
Work Order ID	W25-04992

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 25/09/2025

Note: Sample Washed

Sieve Size	% Passing	Limits
4.75mm	100	
2.36mm	100	
1.18mm	91	
600µm	58	
425µm	44	
300µm	33	
150µm	19	
75µm	13	

Comments

N/A

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ATTACHMENT 5 – Site Soil Evaluation

Site Soil Evaluation

Lot 83 Cheriton Road Country Heights Estate 2

Revision No 2
June 2026

pendragon environmental solutions
ABN: 92 147 485 416

Leaders in Environmental Practice

Pendragon Environmental Solutions

ABN: 92 147 485 416

info@pendragonenvironmental.com
www.pendragonenvironmental.com

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Report

Title:	Site Soil Evaluation Lot 83 Cheriton Road, Country Heights Estate 2
File:	PES18013
Author(s):	Carel van Der Westhuizen
Client:	Claymont Property Development and Construction Group
Contact:	Jerry Goh
Synopsis:	This document details the Site Soil Evaluation (SSE) for Lot 83 Cheriton Road, Country Heights Estate 2, undertaken in strict accordance with guidance provided by the Department of Health, Western Australia (DoH) based on the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, Government Sewerage Policy 2019, State Planning Policy 2.9, AS/NZS 1547 and other supporting documentation. Guidance for the design and management of on-site wastewater systems in areas that are not connected to reticulated sewerage have now been incorporated into the State Planning Policy 2.9 Water (SPP 2.9; Western Australian Planning Commission, WAPC, December 2025) using the approach of the Australian Standard AS/NZS1547:2012 *On-site Domestic Wastewater Management* (AS/NZS 1547).

Document Control

Revision No	Date	Author(s)	Reviewer(s)
1	30 March 2026	Carel van der Westhuizen	Ryan Lawrence
2	26 June 2026	Carel van der Westhuizen	Ryan Lawrence

Distribution

Revision No	Date	Approved	Recipient(s)	Copies
1	30 March 2026	Carel van der Westhuizen	Claymont Group	electronic
2	26 June 2026	Carel van der Westhuizen	Claymont Group	electronic

Revision

Revision No	Date	Description
1	30 March 2026	Issued to support development applications and approvals.
2	26 June 2026	Revised to include latest development layout
Recipients are responsible for eliminating all superseded documents in their possession		

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Appendix A: Bore Construction and Lithological Profiles.

Appendix B: Aerobic Treatment Units.

Executive Summary

A Site and Soil Evaluation was undertaken at Lot 83 Cheriton Road (Country Heights Estate 2), partially located in a sewage sensitive area, to assess the suitability of the proposed subdivision for onsite wastewater management and to recommend the type of onsite wastewater system to support a planning submission under the Government Sewerage Policy 2019. The proposed multi lot subdivision, of approximately 1,611,180m², comprises a Community Facility (10,005m² in size) and 136 subdivided lots (>10,000m²) of which 106 are located within the sewage sensitive area.

This assessment is based on detailed geotechnical investigation, testing and assessment. It includes a conceptual design of suitable onsite sewage systems, with sizing and design considerations and justification for their selection. The final detailed design and selection of the system (must be a system/product approved by the Department of Health) is the responsibility of the lot owner, which should be undertaken at the time of the building application and submitted to Local Government (the Shire of Gingin) for approval. The preferred and approved Department of Health system(s) at the existing Lot 81 Cheriton Road (Country Heights Estate 1) is provided by Taylex Australia Pty Ltd. However, the lot owner has the responsibility to select, design and apply for a new effluent system that must be in strict accordance with the current governing regulations and requirements and this document in addition to maintain, manage and monitor the approved system.

The salient findings of this investigation and assessment pertain to:

- In accordance with PlanWA online mapping, Lot 83 is partially located within a sewage sensitive area.
- Lot 83 is not inside a public drinking water source area in accordance with the Public Drinking Water Source Areas (PDWSA) online mapping.
- There are no natural waterways that effect Lot 83, its overall site slope is calculated at <10%, it is not affected by the 1%AEP Floodplain (Western Australia Floodplain Mapping, Department of Water and Environmental Regulation) and there are no records or visual evidence that it is located within the 10%AEP surface inundation floodplain.
- Whilst the Perth Groundwater Map (Department of Water Affairs and Environmental Regulation) has no records, ground water was not encountered within 2.5m depth below ground level during investigations undertaken in September 2025 after an above average rainfall season.
- Drilling encountered differing soil profiles across Lot 83 generally classified as either a Category 1, Category 3 or Category 4 in accordance with Australian Standard AS1547.
- Soil permeabilities, using a Constant Head Method (Australian Standard AS1547), vary between 1m/day and 32m/day.
- The Phosphorus Retention Index (PRI), testing by an independent soil testing laboratory, varies between 1.7 and 48.9 resulting in a low (>20), medium (5 – 20) and high (<5) level of risk.

Based on the investigations and assessments detailed in this document, it may be concluded that a sustainable onsite sewage management system can be installed to meet the needs of the proposed subdivision of Lot 83 Cheriton Road. As sufficient land area is available for effluent disposal (the Land Application Areas were calculated; refer Section 4), the recommendations of these findings are:

- Stormwater shall be managed and maintained within each individual lot. Civil and stormwater works are to be designed (by others) in accordance with the requirements of the Shire of Gingin.
- For the Community Facility and proposed Lots 12 to 50, 67 to 85 and 90 to 136, provide a secondary level treatment wastewater system with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respectively by a suitable

Department of Health (DoH) approved treatment system, with the effluent to be applied to Land Application Area (LAA) with a minimum area as calculated (refer to Section 4.3).

- For the proposed Lots 1 to 11, 51 to 66 and 86 to 89, provide a primary treated effluent system of a volume to meet the final calculated daily hydraulic load.
- Sizing of the Land Application Area must be consistent with the classified Soil Category determined for an individual proposed lot in accordance with this document.
- The base of the Land Application Area shall maintain a minimum of 1.5m vertical separation with the highest groundwater level, if encountered, for all the proposed lots.
- Lots 14 to 49, 67 to 85, 90 to 103, 106 to 123, 126 to 136 and the Community Facility are classified as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 180m^2 for the residential lots and 200m^2 for the Community Facility.
- Lots 12,13, 50, 104, 105, 124 and 125 are classified as *Category 3 Soils: Loams – High/moderate structured* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 225m^2.
- Lots 98 to 100, 111 and 112 are classified as *Category 4 Soils: Clay Loams – High/moderate structured* [AS 1547-2012] which necessitates secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 257m^2.
- Lots 1 to 11, 58 to 66 and 86 to 89 are classified, as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitates primary treatment effluent systems with a minimum Land Application Area of 339m^2.
- Lots 51 to 57 are classified as *Category 3 Soils: Loams–High/moderate Structured* [AS 1547-2012] which necessitates primary treated effluent systems with a minimum Land Application Area of 429m^2.
- Daily Hydraulic Loads are subject to future detailed design at the time of application for installation of the wastewater treatment system and on-site effluent disposal.
- Location of the Land Application Area must comply with the setbacks in accordance with this document.
- Operation, management and maintenance of the treatment and disposal system must be in accordance with the manufacturer's specifications, Australian Standard AS/NZS 1547 and the recommendations made in this document.

1. Qualifications and Experience

Field investigations and reporting have been undertaken and overseen by Structerre Consulting during a detailed geotechnical investigation:

- Geotechnical Technician: Tony Broadway (more than 10 years' experience across a wide range of site and soil conditions.
- Civil and Geotechnical Engineer: Farhad Silwanagh (more than 10 years' experience in civil and geotechnical engineering including the design consultation for various sized wastewater treatment applications for single residence and mixed-use commercial developments).

Assessment and reporting were undertaken by:

Carel van der Westhuizen (MSc Hydrogeology, CEnvP SC Specialist, AfilI.EAust, MAIG, MALGA, MEIANZ, MIAH)
Principal Hydrogeologist and Site Contamination Specialist
Director Pendragon Environmental Solutions

Carel has more than 45 years' experience in hydrogeological and hydrogeochemical investigations and assessments for many different residential, commercial and mining developments in wide ranging land use and climatic settings. He possesses technical expertise and experience in the fields of onsite wastewater management, water balances and the selection of appropriate wastewater treatment systems, disposal and reuse options. His latest relevant evaluation included the approved 171 lot development over 7 stages (the Beachcomber Estate in Queensland), located within and adjacent to sensitive wetlands, groundwater dependent ecosystems, nature corridors and drainage reserves with bio-swales, using advanced secondary sewage treatment with nutrient reduction in accordance with the Queensland Plumbing and Wastewater Code.

Relevant to this evaluation: Carel is currently responsible for liaison, monitoring, approvals and compliance of the existing water supply, treatment and distribution of drinking water to Country Heights Estate 1 (on behalf of Country Heights Water Pty Ltd, the licenced service provider, in liaison with All Water Resources responsible for upgrading, maintaining and monitoring of the existing water treatment plant), which includes:

- Department of Water and Environmental Regulation (DWER) Groundwater Licence GWL178900(4), Drinking Water Source Protection Plan and Groundwater Operating Strategy: managing regulatory requirements and compliance reporting.
- Department of Health Western Australia (DoH) Memorandum of Understanding: compliance quarterly and annual drinking water quality assessment and reporting.
- Economic Regulation Authority Western Australia (ERA) WL49: policies, procedures, compliance reporting and water asset management planning and bi-annual audits.

The current approvals, agreements and licences will be amended on approval of a WAPC subdivision application to supply drinking water to Country Heights Estate 2 (Lot 83).

2. Description of Development

At the time of the field investigation (September 2025), the site was undeveloped with grass and isolated trees (Figure 2.1).

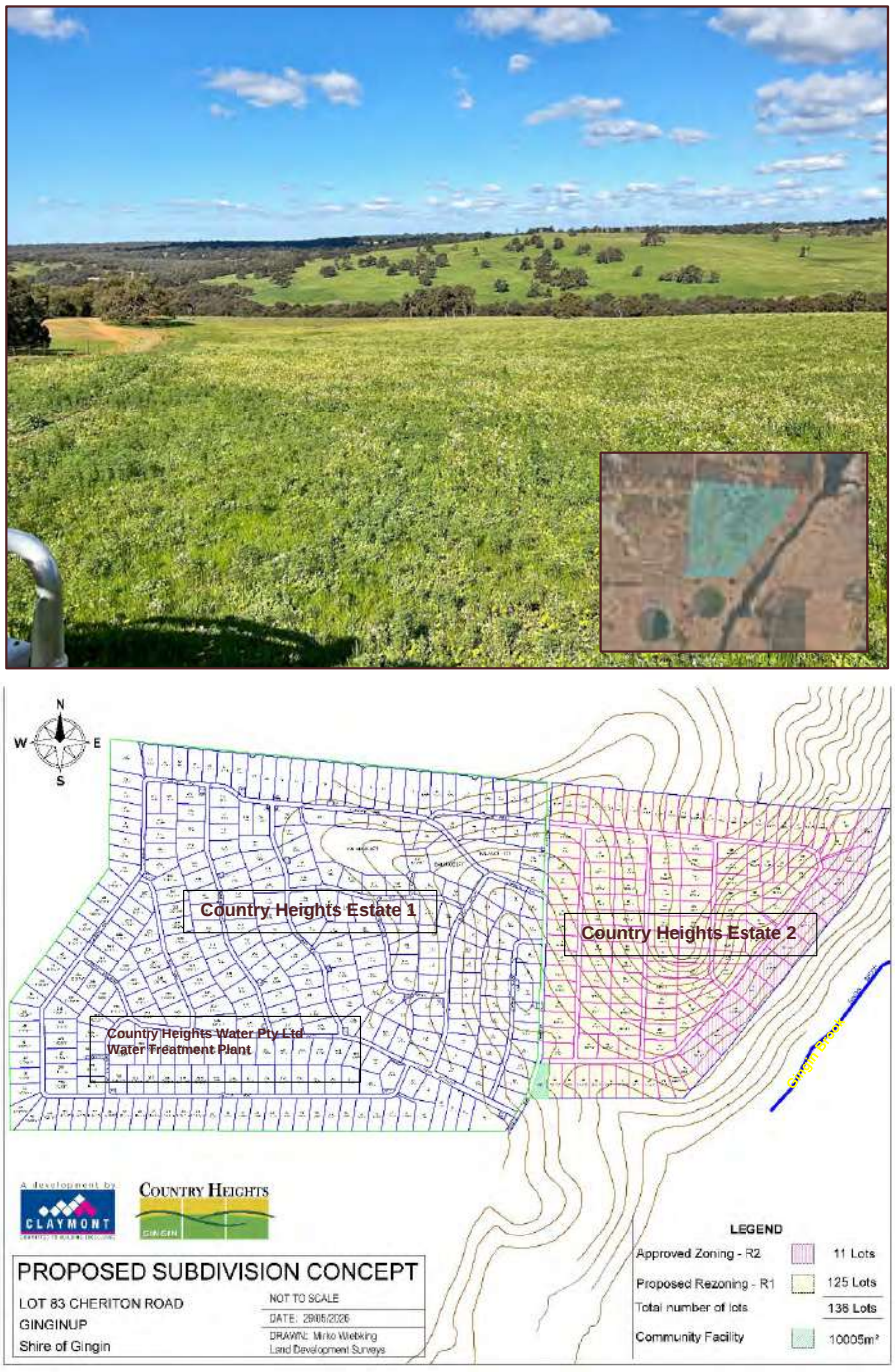
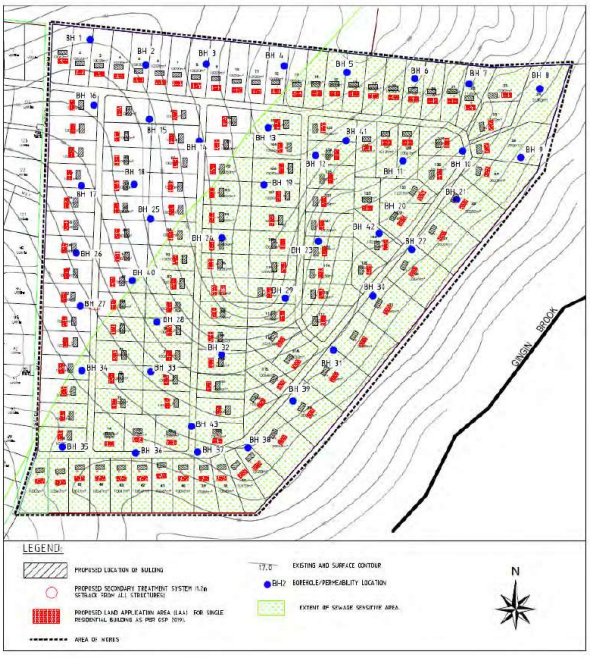


Figure 2.1 Project Layout.

Summary of the proposed development:

Table 2.1: Description of Development.

Development Characteristic	Description
Site	Lot 83 Cheriton Road, Ginginup WA 6503.
Owner/Developer	Claymont Property Development and Construction Group.
Postal Address	PO Box 7584, Cloisters Square, WA 6850.
Contact for SSE	Carel van der Westhuizen (Mobile: +61-439-993-933, e-mail: carel@pendragonenvironmental.com.
Date of Field Work	September 2025.
Local Government	Shire of Gingin.
Zoning	R1, R2 and Community Facility.
Lot Numbers and Sizes (m^2)	136 subdivided lots (>10,000m^2) and a Community Facility (10,005m^2).
Surface Water	Gingin Brook (classified as environmentally sensitive) drains from north-east to south-west, 250m east of the site.
Groundwater Supply	Country Heights Water Pty Ltd (refer Figure 1.1). GWL178900(4): Annual Water Entitlement 200,000kL from the confined Leederville Aquifer.
Availability of Sewer	The area is currently unsewered and unlikely to be serviced by reticulated sewerage within the next 10 to 20 years due to low development density in the area and high cost associated with any extension.
Anticipated Wastewater Volume	Sewage: estimated wastewater loads: Residential lots: 5-bedroom residence with a daily hydraulic load of 900L/day (150L/person/day, [AS1547]). Community Facility: 100 persons with a daily hydraulic load of 1,000L/day (10L/person/day, [AS1547]).
Development located within	Public Drinking Water Source Area (PDWSA): outside the existing legally constituted PDWSA Bore Compound on Lot 8009 (refer Figure 1.1). Sewage Sensitive Areas (green hatched area): 

3. Site and Soil Assessment

3.1 Site Assessment

The site investigation was undertaken by Structerre Consulting on the 8th of September 2025.

Weather Stations No 009178 (Gingin Aero) recorded the following monthly rainfall (mm) for 2025:

Statistic Gingin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall 2025	0	0	7	13	41	124	191	214	79	29	21.4	0	719
Average (29 years)	13	14	18	27	71	110	129	112	74	34	19	9	632

A comparison with Station No 009021 (Perth Airport):

Statistic Perth	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall 2025	4	0	28	7	59	159	174	202	97	54	8	17	809
Average (82 years)	10	14	17	39	96	154	154	119	72	43	26	11	755
Evaporation (mm/m; 38 years)	316	298	216	155	90	68	63	81	115	162	236	273	2,081

reveals that both stations received above average rain during 2025. The following details regarding both sites, taking due cognisance of the difference in years of recording, the timing of the survey and climatic assessment, are relevant:

- Gingin, on average, received more than 1mm rain on 74 days throughout the year, whilst Perth receives more than 1mm rain on 85 days throughout the year.
- Average monthly evaporation (not measured at Gingin) is exceeded by average monthly rain during the months of May, June, July and August.

  However, in Perth, rainfall typically exceeds evaporation on 15 days during the wet season, particularly in July (https://www.watercorporation.com.au/our-water/rainfall-and-dams/rainfall).

The assessment of the suitability of this site to retain on-site sewage and the recommendations in this document are based on detailed reviews of available publications, information and data from various government agencies relating to the topography and geological and hydrogeological setting in addition to site investigations including visual inspection, borehole drilling and sampling, soil identification and percolation testing and.

Generally, based on the results of the site and soil assessment, the proposed sewage system will be able to satisfactorily meet the requirements of AS 1547 and the Health Regulations 1974 (Treatment of Sewage and Disposal of Effluent and Liquid Waste), Planning for Water Guidelines – State Planning Policy 2.9 Water, December 2025; and Government Sewerage Policy 2019.

The following key features are relevant to Lot 83, Country Heights Estate 2:

- The site is in a sewage sensitive area (PlanWA online mapping).
- There are no groundwater bores on Lot 83.
- The site is not in a public drinking water source area (PDWSA online mapping).
- Lot 83 is not affected by the 1%AEP Floodplain (online mapping) and there are no natural waterways that effect the Lot.
- The risk of effluent transport offsite is considered low.

Table 3.1 summarises the key features regarding the proposed management of effluent.

Table 3.1: Site Characteristics and Mitigation Measures.

Feature	Description	Level of Constraint	Mitigation Measure
Climate	Refer discussion above	Low	None required
Exposure	Isolated trees across site; considered to have high exposure to sun and wind	Low	None required
Vegetation	Hydrophilic vegetation absent in and surrounding site	Low	None required
Landform and Drainage	No visible water ponding at time of assessment	Low	None required
Slope	North to south-east at less than 10%	Low	Ensure Land Application Area (LAA) is flat and level (<10% slope)
Fill	Natural soils, no imported fill material observed at time of assessment	Low	None required
Surface Gravel and Rock Outcrop	No surface gravel or rock outcrop observed	Low	None required
Erosion Potential	No evidence of sheet or rill erosion; no evidence of landslip and landslip potential is low due to slope of site	Low	None required
Vertical Separation from Groundwater	Ground and/or perched water was not encountered during drilling to a depth of 2.5m below surface level; the Perth Groundwater Map has no records for this site. The surface elevation varies between 112mAHD and 208mAHD (Landgate)	Low	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system
Public Drinking Water Source Areas and Sewage Sensitive Areas	Lot 83 is located in a sewage sensitive area (or Sensitive Water Resource Area) within 1km from wetlands, but not in a public drinking water source area	High	Provide secondary treatment with nutrient ad phosphorous removal
Phosphorus Retention	The Department of Primary Industries and Regional Development (DPIRD): a Phosphorus Export Hazard at 30-50% (high to extreme); Phosphorus Retention Index (PRI) testing (CSBP Soil and Plant Analysis) reported a range between 1.7 and 48.9:	Moderate	
Surface Waters and Separation from Water Resources	Gingin Brook does not affect Lot 83	Low	None required
Rainfall Run-on and Seepage	No evidence of stormwater run-on observed	Low	None required
Flood Potential	Lot 83 is not affected by the 1%AEP Floodplain	Low	None required
Potential Inundation Areas	Lot 83 is not affected by the 10% AEP Rainfall Event; there are no records or evidence of the 10%AEP surface inundation floodplain impacting Lot 83 and groundwater was not encountered up to 2.5m below surface	Low	None required
Horizontal Setback Distances	All relevant setback distances to the LAA are achievable for proposed lots	Low	None required
Available Land Application Area (LAA)	Considering all the constraints and buffers, the site has ample suitable land for a LAA for secondary treated effluent disposal	Low	None required

Level of Risk (DWER, ChemCentre		
Low	Medium	High
>20	5 - 20	<5

3.2 Soil Assessment

A geotechnical site investigation (Structerre Consulting, 2025) was undertaken on the 8th of September 2025. A soil retrieval probe was used to sample 38 soil bores up to 2.5m in depth. Constant Head permeability testing was carried in accordance with Australian Standard AS1547:2012.

The site geotechnical assessment revealed the sub surface materials comprise gravels and sands and loams and clay loams across Lot 83 which was sufficient to adequately characterise the soils expected throughout the area of interest (refer Tables 3.2, 3.3 and 3.4 below). Soil profile descriptions may be found in Appendix A.

Table 3.2: Soil Assessment.

Feature	Assessment	Level of Constraint	Mitigation Measure
Profile Depth	Soil Profile 1: Category 1 gravels and sands Soil Profile 2: Category 3 loams Soil Profile 3: Category 4 clay loams Reference should be made to Table 3.3	Low to moderate	Provide treatment systems as detailed in this document, with large daily hydraulic loads
Depth to Water Level	Ground and/or perched water was not encountered during drilling to a depth of 2.5m below surface level; the Perth Groundwater Map has no records for this site	Low	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system
Particle Size distribution	90% passing 75mm	Low	None required
Soil Colour	Yellow/reddish	Low	None required
Soil Permeability and Design Loading Rates	Based on soil profiles and permeability testing, the soils are consistent with soil Categories 1, 3 and 4 (AS1547-2012) Permeability testing using the Constant Head Method (AS1547); refer Table 3.4: Category 1: mean permeability of 10m/day Category 3: mean permeability of 1.3m/day Category 4: mean permeability of 1.1m/day	Moderate	Provide treatment systems as detailed in this document
Soil Category	The proposed lots were categorised accordingly. Refer to Section 7 Conclusions for details	Moderate	

Table 3.3: Soil Profiles.

Soil Profile	Description		Category	Relevant Lots
Profile 1	0 - 100mm 100 - 2,500mm	Topsoil SAND: medium grained, yellow	Category 1	Lots 1 - 11, 14 - 49, 58 - 97, 101 - 103, 106 - 110, 113 - 123, 126 -136 and Community Facility
Profile 2	0 - 100 mm 100 -1,200mm 1,200 - 1,900mm 1,900 - 2,500mm	Topsoil SAND: medium grained, brown SAND: medium grained, brown Clayey SAND: medium grained, medium plasticity clay, with fine trace gravel, brown/red	Category 3	Lots 12, 13, 50 - 57, 104, 105, 124 and 125
Profile 3	0 - 100 mm 100 - 900mm 900 - 1,600mm	Topsoil SAND: medium to coarse grained, medium trace gravel, brown Sandy CLAY: medium grained, high plasticity, with medium trace gravel, brown Refusal at 1.6m due to stiff clay	Category 4	Lots 98 - 100, 111 and 112

Table 3.4: Permeability Testing.

Test Location	Test Depth	Soil Type	Permeability (Constant Head [AS1547]) m/day
Perc1	0 – 0.7m	SAND	26.9
Perc2	0 – 0.7m	SAND	8.5
Perc3	0 – 0.7m	SAND	7.2
Perc4	0 – 0.7m	SAND	1.7
Perc5	0 – 0.7m	SAND	10.9
Perc6	0 – 0.7m	SAND	10.0
Perc7	0 – 0.7m	SAND	9.1
Perc8	0 – 0.7m	SAND	2.6
Perc9	0 – 0.7m	SAND	13.0
Perc10	0 – 0.7m	SAND	4.8
Perc11	0 – 0.7m	SAND	2.9
Perc12	0 – 0.7m	SAND	0.6
Perc13	0 – 0.7m	SAND	1.3
Perc14	0 – 0.7m	SAND	4.4
Perc15	0 – 0.7m	SAND	26.9
Perc16	0 – 0.7m	SAND	11.1
Perc17	0 – 0.7m	SAND	1.8
Perc18	0 – 0.7m	SAND	17.7
Perc19	0 – 0.7m	SAND	5.7
Perc20	0 – 0.7m	SAND	2.4
Perc21	0 – 0.7m	SAND	9.8
Perc22	0 – 0.7m	SAND	2.8
Perc23	0 – 0.7m	SAND	8.5
Perc24	0 – 0.7m	SAND	7.7
Perc25	0 – 0.7m	SAND	16.4
Perc26	0 – 0.7m	SAND	0.7
Perc27	0 – 0.7m	SAND	1.5
Perc28	0 – 0.7m	SAND	8.5
Perc29	0 – 0.7m	SAND	0.9
Perc30	0 – 0.7m	SAND	3.6
Perc31	0 – 0.7m	SAND	4.3
Perc32	0 – 0.7m	Sandy CLAY	1.2
Perc33	0 – 0.7m	SAND	9.3
Perc34	0 – 0.7m	SAND	3.8
Perc35	0 – 0.7m	SAND	31.6
Perc36	0 – 0.7m	SAND	13
Perc37	0 – 0.7m	SAND	6.3
Perc38	0 – 0.7m	SAND	19.1

3.3 Overall Land Capability

Based on the finding of the site and soil assessment detailed above, the proposed onsite sewage system (refer Section 4) will be able to be designed and installed to satisfactorily meet the requirements of AS1547, the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, Government Sewerage Policy 2019 and Planning for Water Guidelines – State Planning Policy 2.9 Water dated December 2025.

4. Wastewater Management System

The following sections provide an overview of a suitable onsite sewage system, with sizing and design considerations and justification for its selection. The final detailed design and selection of the system (must be a system/product approved by the Department of Health: http://www.health.wa.gov.au/) is the responsibility of the lot owner, which should be undertaken at the time of the building application and submitted to Local Government for approval. The preferred system(s) at Lot 81 Country Heights Estate 1 is provided by Taylex Australia Pty Ltd (Appendix B) approved by the Department of Health.

The lot owner has the responsibility to apply for a new effluent system that must be in strict accordance with the current governing regulations and requirements.

Reference should be made to Figures 4.1, 4.2 and 4.3 at the end of this section.

4.1 Secondary Treatment System

A secondary treated effluent with nutrient removal and disposal, with a minimum required effluent quality of, is to be provided:

- Biochemical Oxygen Demand (BOD) ≤20 mg/L.
- Total Suspended Solids (TSS) ≤30 mg/L.
- Escherichia (E) coli ≤10 cfu/100 mL.
- Phosphorus concentration ≤1mg/L.
- Nitrogen concentration ≤10mg/L.
- 90% of samples shall have a BOD_5 ≤ 20 g/m^3 with no sample greater than 30 g/m^3.
- 90% of the samples shall have TSS ≤ 30 g/m^3 with no sample greater than 45 g/m^3.

4.2 Septic System

Proposed Lots 1 to 11, 51 to 66 and 86 to 89 are located outside the sewage sensitive area. These lots are to be provided with a standard primary treatment septic system consisting of septic tanks and leach drains.

4.3 Land Application System

4.3.1 Sizing the disposal system

The system must be sized in accordance with disposal of the calculated daily hydraulic load, the soil classification and quality of effluent being disposed of.

Data to be used in the sizing of irrigation disposal area:

- Estimated Daily Hydraulic Load (5-bedroom residence):
  - Maximum 6 residents @ 150L/day = 900L/day.
  - Total 900L/day Hydraulic Load (Department of Health Treatment of Sewage and Disposal of Effluent and Liquid Waste, 1974).

- Estimated Daily Hydraulic Load (Community Facility: public building, infrequent use):
  - Maximum 100 persons @ 10L/day = 1,000L/day.
  - Total 1,000L/day Hydraulic Load (Department of Health Treatment of Sewage and Disposal of Effluent and Liquid Waste, 1974).

4.3.2 Sizing of Leach Drains

The required total length of leach drain required is calculated using the approved filtration area (m^2/m) of the selected leach drain:

- Approved DS Water Management Flatbed Leach Drain with a filtration area of $2.4m^2/m$. The length of the Leach Drain = L/day/DLR/IA (L/day is the daily wastewater flow, DLR is the design loading rate and IA is the area of the leach drain).

4.3.3 Secondary Wastewater Treatment System

The Land Application Area (LAA) must be in accordance with Planning for Water Guidelines – State Planning Policy 2.9 Water, December 2025, Appendix F.

Lots Classified as Category 1

For Lots 14 - 49, 67 - 85, 90 - 103, 106 - 123 and 126 - 136, classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $180m^2$. Secondary Treatment for Soil *Category 1 - Gravels and Sands* (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.20 = $180m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 900/50/2.4 = 7.5m = provide 10m i.e. two x 5m Inverted Flatbed Leach Drains.

For Community Facility classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $200m^2$. Secondary Treatment for Soil *Category 1 - Gravels and Sands* (Hydraulic Loading x Secondary Treated Conversion Factor = 1,000 x 0.20 = $200m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 1,000 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 1,000/50/2.4 = 8.4m = provide 10m i.e. two x 5m Inverted Flatbed Leach Drains.

Lots Classified as Category 3

For residential Lots 12, 13,50,104,105, 124 and 125 classified as *Category 3 Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $225m^2$ Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.25 = $225m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 900/50/2.4 = 7.5m = provide 10m i.e. two by 5m Inverted Flatbed Leach Drains.

Lots Classified as Category 4

For Lots 98 - 100, 111 and 112 classified as *Category 4 Clay Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $257m^2$ Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.29 = $257m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 10 and IA = infiltration area for approved leach drain section] = 900/10/2.4 = 37.5m = provide 40m i.e. two by 20m Inverted Flatbed Leach Drains.

4.3.4 Primary Wastewater Treatment System

The Land Application Area (LAA) must be in accordance with Planning for Water Guidelines – State Planning Policy 2.9, December 2025, Appendix F.

Lots Classified as Category 1

For Lots 1 - 11, 58 - 66 and 86 - 89, classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for primary treatment with minimum area of 339m^2 Primary Treatment for Soil Category 1 - Gravels and Sands (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.38 = 339m^2). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 20 and IA = infiltration area for approved leach drain section] = 900/20/2.4 = 18.75m = provide 20m i.e. two x 10m Inverted Flatbed Leach Drains.

Lots Classified as Category 3

For Lots 51 - 57 inclusive classified as *Category 3 Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of 429m^2 Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.48 = 429m^2). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 15 and IA = infiltration area for approved leach drain section] = 900/15/2.4 = 25.0m = provide 26m i.e. two by 13m Inverted Flatbed Leach Drains.

Note: application for a new effluent system is to be sized in accordance with current governing regulations. The property owner has the responsibility for the final selection of the secondary treatment system and will include the details of it in the Onsite sewage system Approval to Install application form for Local Government approval.

4.3.5 Siting and configuration of the proposed disposal system

The effluent disposal system must be located in a designated area to enhance its amenity and evapotranspiration and shall:

- Not be used for purposes that compromise the effectiveness of the system or access for maintenance purposes.
- Be used only for effluent application.
- Have boundaries clearly delineated by appropriate vegetation or other type of border.
- Have no run-off or seepage of effluent beyond the designated area.

4.3.6 Buffer distances

Setback buffer distances from effluent land application areas and treatment systems are required to prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for Lot 83 are:

- The disposal system should maintain minimum horizontal setbacks of:
  - 100m from the high water mark of a reservoir or any bore used for public drinking, waterways, significant wetlands and not within a waterway foreshore area or wetland buffer (the separation distance is to be measured from of the edge of the riparian or wetland vegetation).
  - 30m from potable private bore intended for consumption.
  - 1.8m downslope from property boundaries (may be dependent on local authority guidelines).
  - 1.2m from driveways and paved surfaces.

- 6.0m from any stormwater drainage systems.
- 1.8m from building footings.

- 1.5m vertical separation from the discharge point of the effluent disposal system to the highest ground water level.
- On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses and/or shrubs).

4.3.7 Installation of the disposal system

Installation of the disposal system must be carried out by a suitably qualified and licensed plumber or drainer experienced with onsite sewage disposal systems. Figure 4.3 shows the preliminary siting of the proposed wastewater disposal system in line with the required setbacks. This plan may differ based on the final number of occupants per building, dwelling location and any other intended developments on site.



Figure 4.1 Site Plan – Type of System Requirements.

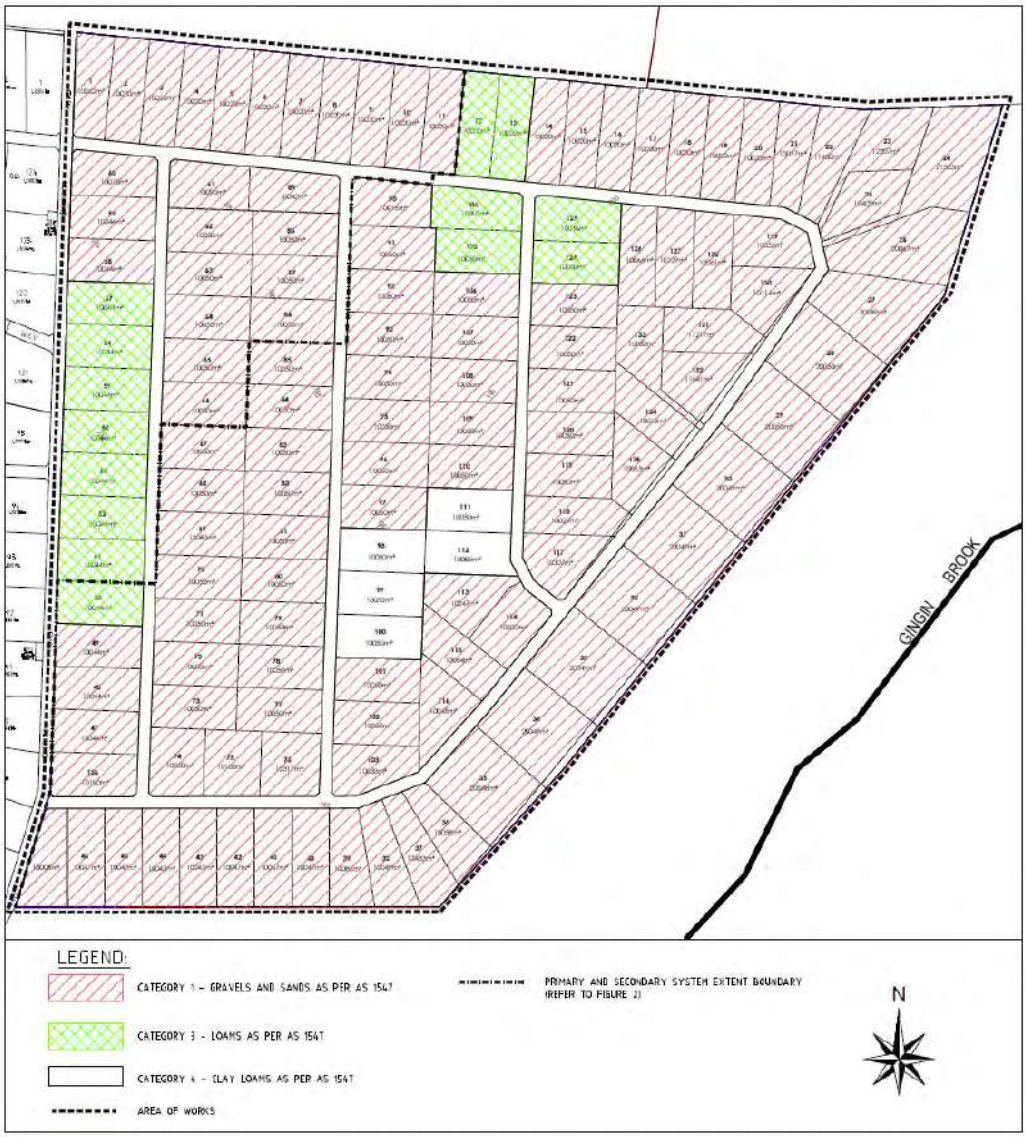


Figure 4.2 Site Plan – Soil Categories.

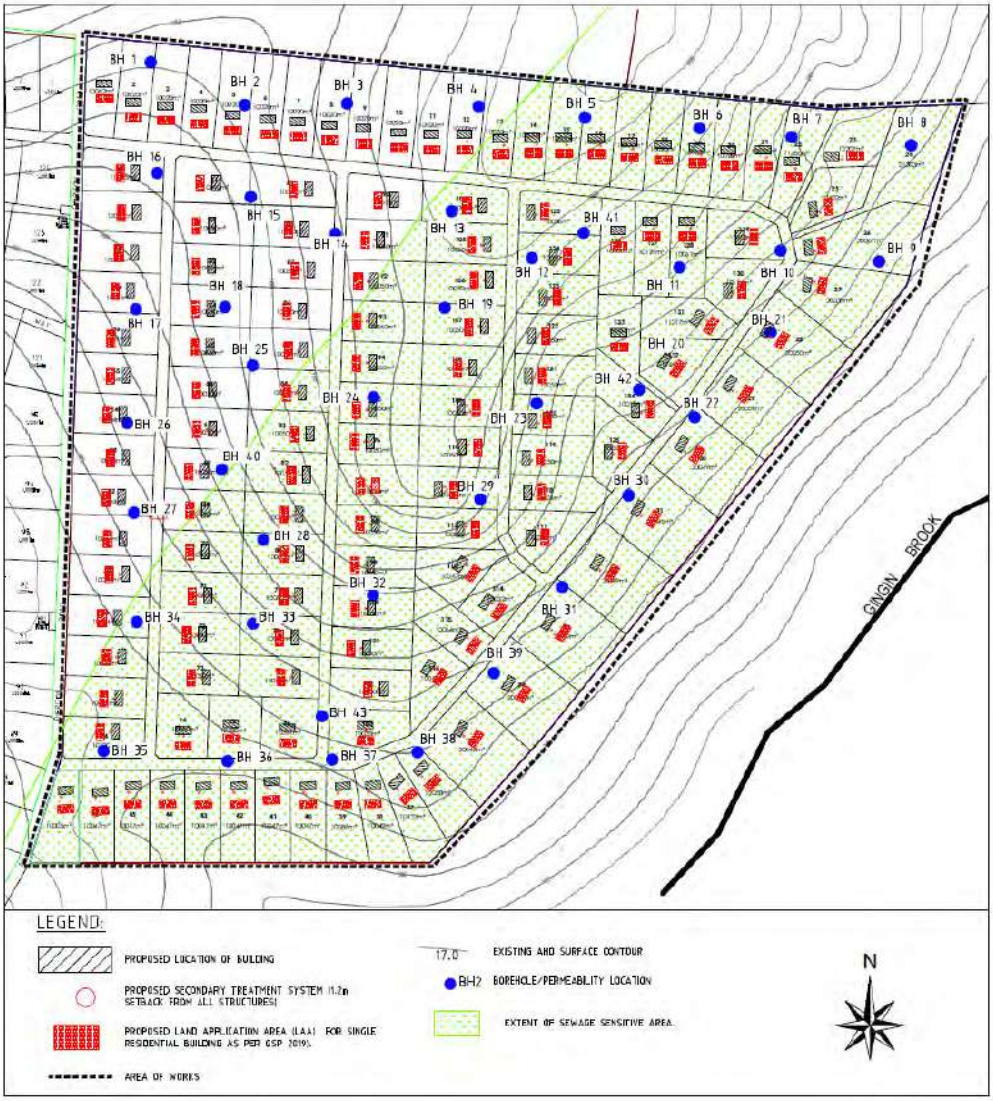


Figure 4.3 Site Plan – Effluent Disposal System.

5. Stormwater Management

The Land Application Areas (LAA's) for the proposed subdivision are located on the elevated section of Lot 83, hence stormwater run-off is not expected to be a concern. It is expected that run-off from the developed site will be managed and maintained within the lots.

Stormwater drainage is to be designed (by others) to the requirements and approval of the Shire of Gingin with proposed criteria of 1 in 20-year ARI 5-minute duration event (subject to council approval).

6. Monitoring, Operation and Maintenance

Maintenance is to be carried out in accordance with the manufacturer's specifications and in accordance with Australian Standard AS/NZS 1547-2012 Section 6, Appendices T and U. The treatment system will only function effectively if maintained appropriately and regularly.

To ensure the treatment system functions effectively, residents must:

- Scrape dishes and remove fats and solids before washing and keep as much fat and oil out of the system as possible.
- Not dispose solids, sanitary napkins and other hygiene products in the system.
- Not use a food waste disposal unit.
- Use household cleaning products that are suitable for aerobic treatment systems.
- Conserve water (AAA rated fixtures and appliances are recommended).

To maintain adequate performance of the system, residents must ensure that:

- Tanks and biosolids settling vessels undergo regular pump-out by licensed waste contractors to remove accumulated sediment.
- No structures and/or paths are constructed over the land application area and vehicles must not access the land application area to prevent damage.
- Aerobic Treatment Units (ATU's) undergo maintenance servicing as required by the local governing authority and a provider approved by the Department of Health, Western Australia.

7. Conclusions and Recommendations

Based on the investigations and assessments detailed in this document, it may be concluded that, taking due cognisance that Lot 83 is partially located in a Sensitive Water Resource Area (106 of the 137 proposed lots), a sustainable onsite sewage management system can be installed to meet the needs of the proposed subdivision of Lot 83 Cheriton Road, Ginginup. It is recommended that:

- For the proposed Community Centre and residential Lots 12 to 50, 67 to 85, 90 to 136, provide a secondary treated effluent system with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respectively of a volume to meet the final calculated daily hydraulic load.
- For the proposed Lots 1 to 11, 61 to 66 and 86 to 89, provide a primary treated effluent system of a volume to meet the final calculated daily hydraulic load.
- Sizing of the Land Application Area must be consistent with the classified Soil Category determined for an individual proposed lot in accordance with this document.
- The base of the Land Application Area shall maintain a minimum of 1.5m vertical separation with the highest groundwater level, if encountered, for all the proposed lots.
- The Community Facility and residential Lots 14 to 29, 67 to 85, 90 to 103, 106 to 123, 126 to 136 are classified as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 180m^2; 200m^2 for the Community Facility.
- Lots 12, 13, 50, 104, 105, 124 and 125 are classified as *Category 3 Soils: Loams – High/moderate structured* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 225m^2.
- Lots 98 to 100, 111 and 112 are classified as *Category 4 Soils: Clay Loams – High/moderate structured* [AS 1547-2012] which necessitates secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 257m^2.
- Lots 1 to 11, 58 to 66 and 86 to 89 are classified, as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitates primary treatment effluent systems with a minimum Land Application Area of 339m^2.
- Lots 51 to 57 are classified as *Category 3 Soils: Loams–High/moderate Structured* [AS 1547-2012] which necessitates primary treated effluent systems with a minimum Land Application Area of 429m^2.
- Location of the Land Application Area must comply with the setbacks in accordance with this document.
- Operation, management and maintenance of the treatment and disposal system must be in accordance with the manufacturer's specifications, Australian Standard AS/NZS 1547 and the recommendations made in this document.

References

Australian Standard: AS/NZS 1547:2012 On-site Domestic Wastewater Management. Standards, Australia/Standards New Zealand (2012).

Australian Standard: AS/NZS 1289:2014 Methods of Testing Soils for Engineering Purposes Definitions and General Requirements, Standards Australia/Standards New Zealand (2014).

Department of Health Western Australia, 2019: Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations, Government Sewerage Policy.

Department of Health Western Australia, 2001: Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (ATU's).

Department of Mines, Industry Regulation and Safety
GeoVIEW.WA *https://geoview.dmp.wa.gov.au/geoview/?Viewer=GeoView*

Department of Planning, Lands and Heritage:
https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA

Department of Primary Industries and Regional Development
https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915 aaf3c6a0f

Department of Water and Environmental Regulation *Western Australia Floodplain Mapping*
https://dow.maps.arcgis.com/apps/webappviewer/index.html?id=9817b8d31c224846abb68a 75478e9cf0

Department of Water and Environmental Regulation. *Water Information Reporting*
http://wir.water.wa.gov.au/Pages/Water-Information-Reporting.aspx

Department of Water and Environmental Regulation. *Public Drinking Water Source Area Mapping Tool*
https://www.water.wa.gov.au/maps-and-data/maps/public-drinking-water-source-area-mapping-tool

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Structerre Consulting, 2025: Geotechnical Investigation, Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup Western Australia.

Water Corporation WA. *ESInet* *https://esinet.watercorporation.com.au/*

Appendices

Appendix A: Bore Construction and Lithological Profiles.

Appendix B: Aerobic Treatment Units.

Appendix A: Bore Construction and Lithological Profiles.

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Appendix A: Soil profiles

Borehole Record: BH01

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397922.86
Northing: 6538999.73
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
					Sand (SP): poorly graded, medium grained, yellow.				26.9	
	1.0	Natural		SP						
	2.0									
					BH01 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396149.34
Northing: 6539970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	0.0	Non-soil / Natural		TS / SP	Topsoil. Sand (SP): very loose, poorly graded, medium grained, yellow, moist.	M	VL		0.5	
	1.0									
	2.0									
					BH02 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH03

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396395.46
Northing: 6538948.37
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Tony Broadway/Ankush Rebadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		7.2	
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH04

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398584.82
Northing: 6538928.84
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH05

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398791.92
Northing: 6538907.74
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.5	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6538686.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	0.0	Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.	M	L	3, 4, 5, 5, 3, 4	10.0	
	1.0									
	2.0									
					BH06 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH07

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399151.94
Northing: 6538823.27
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		6.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH08

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399327.39
Northing: 6536813.58
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL		2.6	
	2.0									
					BH08 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH09

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 399237.85
Northing: 6536626.58
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		t3.0	
	2.0									
					BH09 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH10

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 399083.76
Northing: 6538673.85
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL		4.8	
	2.0									
					BH10 Terminated at 2.5 m					

STRUCterre consulting

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH11

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396870.57
Northing: 6538633.26
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0									
					BH11 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH12

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396615.45
Northing: 6538696.44
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		D.E	
	2.0									
					BH12 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH13

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399499.21
Northing: 6538782.89
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0									
					BH13 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH14

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398290.47
Northing: 6538657.28
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		44	
	2.0									
					BH14 Terminated at 2.5 m					

STRUCterre consulting

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH15

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 396111.44
Northing: 6538754.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0									
					BH15 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH16

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 397936.39
Northing: 6536733.90
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL		11.1	
	2.0									
					BH16 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH17

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 397982.96
Northing: 6538508.94
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	1.0									
				SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
	2.0									
					BH17 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH18

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396196.04
Northing: 6536559.25
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0									
					BH18 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH19

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489084

Position: Easting: 398457.38
Northing: 6538469.86
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	0.0	Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		57	
	1.0									
	2.0									
					BH19 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH20

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398840.10
Northing: 6538527.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
				SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
	2.0									
					BH20 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH21

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399104.69
Northing: 6538511.75
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0									
					BH21 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH22

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398993.81
Northing: 6536280.94
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		2.8	
	2.0									
					BH22 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH23

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396683.95
Northing: 6536328.13
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
	1.0			SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH24

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398161.71
Northing: 6538216.24
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		77	
	2.0									
					BH24 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH25

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396162.26
Northing: 6538410.42
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		18.4	
	2.0									
					BH25 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH26

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397926.64
Northing: 6538319.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

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Borehole Record: BH27

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397696.87
Northing: 6536458.35
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0				BH27 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH28

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396160.48
Northing: 6536215.91
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH29

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489084

Position: Easting: 396595.97
Northing: 6536165.21
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH30

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396854.12
Northing: 6538166.71
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		3.6	
	2.0									
					BH30 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH31

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396697.24
Northing: 6538016.07
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Avikush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0									
					BH31 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH32

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396411.77
Northing: 6538095.78
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD		1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH33

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 396208.25
Northing: 6538028.01
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.5	
	2.0									
					BH33 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH34

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396159.74
Northing: 6536218.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL			
	2.0				BH34 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH35

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397916.50
Northing: 6537792.97
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.9	
	2.0									
					BH35 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH36

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398115.47
Northing: 6537715.14
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0				BH36 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH37

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489084

Position: Easting: 398276.71
Northing: 6537683.69
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Avikush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0									
					BH37 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

STRUCterre consulting

Borehole Record: BH38

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398415.96
Northing: 6537786.32
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Arikusti Rabadis/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0				BH38 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH39

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396585.31
Northing: 6537913.28
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH40

Project: Country Heights Stage 2	**Position:** Easting: 398039.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538317.00	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** 171.14(m)	**Drill Supplier** Structerre Consulting
Job No: D366941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH40 Terminated at 0.4 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH41

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396889.55
Northing: 6538753.80
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH41 Terminated at 0.4 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH42

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398848.53
Northing: 6538360.46
Elevation: 170.72(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH42 Terminated at 0.4 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH43

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396244.44
Northing: 6537887.83
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH43 Terminated at 0.4 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Appendix B: Borehole photos

Bore Hole 1



Bore Hole 10



Bore Hole 20



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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

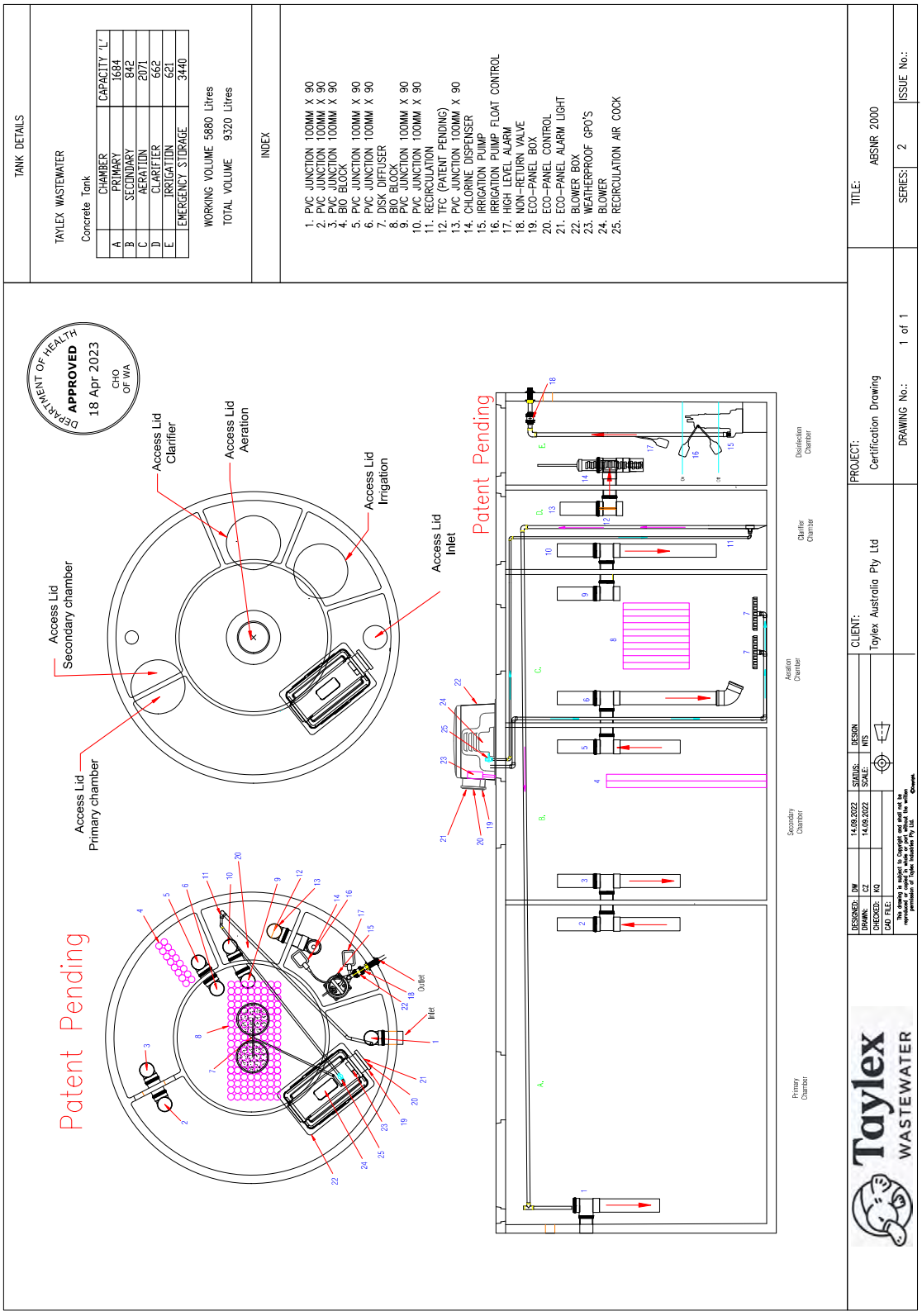
Bore Hole 30



Bore Hole 399



Appendix B: Aerobic Treatment Units.


TANK DETAILS
TAYLEX WASTEWATER
Concrete Tank
CHAMBER
CAPACITY 'L'
A PRIMARY 1684
B SECONDARY 842
C AERATION 2071
C CLARIFIER 662
D IRRIGATION 621
E EMERGENCY STORAGE 3440
WORKING VOLUME 5880 Litres
TOTAL VOLUME 9320 Litres
INDEX
1. PVC JUNCTION 100MM X 90
2. PVC JUNCTION 100MM X 90
3. PVC JUNCTION 100MM X 90
4. BIO BLOCK
5. PVC JUNCTION 100MM X 90
6. PVC JUNCTION 100MM X 90
7. DISK DIFFUSER
8. BIO BLOCK
9. PVC JUNCTION 100MM X 90
10. PVC JUNCTION 100MM X 90
11. RECIRCULATION
12. TFC (PATENT PENDING)
13. PVC JUNCTION 100MM X 90
14. CHLORINE DISPENSER
15. IRRIGATION PUMP
16. IRRIGATION PUMP FLOAT CONTROL
17. HIGH LEVEL ALARM
18. NON-RETURN VALVE
19. ECO-PANEL BOX
20. ECO-PANEL CONTROL
21. ECO-PANEL ALARM LIGHT
22. BLOWER BOX
23. WEATHERPROOF GPO'S
24. BLOWER
25. RECIRCULATION AIR COCK
DEPARTMENT OF HEALTH
APPROVED
18 Apr 2023
CHO
OF WA
Access Lid
Clarifier
Access Lid
Aeration
Access Lid
Irrigation
Access Lid
Secondary chamber
Access Lid
Inlet
Access Lid
Primary chamber
Patent Pending
Patent Pending
Outlet
Inlet
Disinfection Chamber
Clarifier Chamber
Aeration Chamber
Secondary Chamber
Primary Chamber
TITLE:
ABSNR 2000
PROJECT:
Certification Drawing
CLIENT:
Taylex Australia Pty Ltd
DRAWING No.: 1 of 1
SERIES: 2
ISSUE No.:
DESIGNED: DW
DRAWN: CZ
CHECKED: KG
CAD FILE:
14.09.2022
14.09.2022
STATUS:
SCALE:
DESIGN
MTS
Taylex
WASTEWATER

Taylex WASTEWATER

DEPARTMENT OF HEALTH
APPROVED
18 Apr 2023
CHO
OF WA

Specification

CONCRETE ADVANCED BLOWER SYSTEM
-Nutrient Reduction
-2000L/per day

ABSNR-2000

Taylex WASTEWATER

DEPARTMENT OF HEALTH
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18 Apr 2023
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OF WA

TAYLEX ADVANCED BLOWER SYSTEM NUTRIENT REDUCTION 2000L/ per day ABSNR -2000

Specification

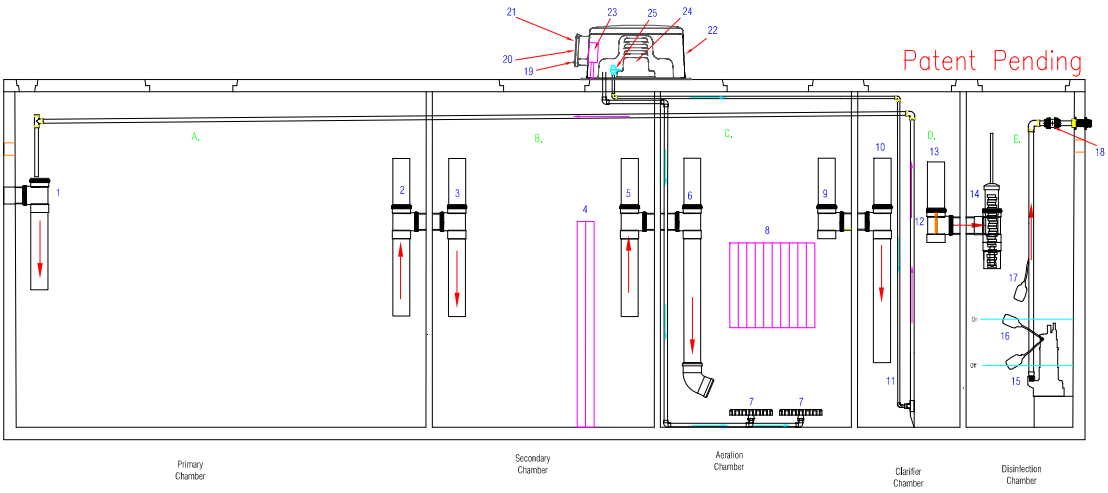
General Description:

The Taylex Advanced Blower System NR 2000 (ABSNR-2000) Secondary Treatment System (STS) is designed to treat the wastewater from a residential dwelling up to 2,000 Litres per day, with a daily flow of 150 Litres per person and an average daily BOD^5 70g per person.

The Taylex ABSNR-2000 STS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 9,320 Litres and an operating capacity of 5,880 Litres.

Flow path of wastewater:

1. A primary pre-treatment chamber, with a capacity of 1,684 Litres.
2. A secondary pre-treatment chamber, with a capacity of 842 Litres.
3. An aeration chamber, with a capacity of 2,071 Litres. This chamber is fitted with bio block media, 2, 9" disk diffusers.
4. A sedimentation / clarifier chamber, with a capacity of 662 Litres, containing a Taylex Filter Control (TFC) fitted to the outlet, and recirculation to the primary.
5. A Disinfection chamber, with a capacity of 621 Litres, incorporating a capacity of 300 Litres for chlorine contact of effluent. A chlorine disinfection unit is installed on the inlet to the irrigation chamber. The system is fitted with either a Davey D25 or D42 Irrigation Pump.
6. An Emergency Storage Buffer 3440 Litres.
7. The automatic irrigation pump transfers the treated effluent to the effluent disposal area / land application area (LAA).



Taylex WASTEWATER

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Product Specification Table:

Australian Standards Compliance		
Effluent Testing	AS1546.3:2017	
Tank Design and Testing	In Ground	AS1546.1:2008
	Above Ground	AS3735.2001
System Model	ABSNR-2000	CONCRETE
Treatment Level	Advanced Secondary + % Nutrient Reduction	

Tank Capacity	
Total Tank Capacity	9320L
Operating Capacity	5880L

System Chamber Capacities	
Primary Chamber	1684L
Secondary Chamber	842L
Aeration Chamber	2071L
Clarifier Chamber	662L
irrigation Chamber	621L
Emergency Storage	3440L
Maximum Hydraulic Loading Capacity	2,000 litres per day / 13EP

Design Parameters		
Parameter	Total Per Day	Total Per person Per Day
Daily Flow	2,000L/ 13 EP	150L
Maximum Organic Loading BOD^5	910g	70g
Total Suspended Solids (TSS)	910g	70g
Total Nitrogen (TN)	195g	15g
Total Phosphorus (TP)	32.5g	2.5g

Effluent Compliance: AS1546.3:2017		
Biochemical Oxygen Demand (BOD^5)	<10mg/l	
Total Suspended Solids (TSS)	<10mg/l	
E.Coli	<10cfu/100ml	
Min. FAC	Min 0.5 mg/l	

Temperature		
Operating Temperature C°	Minimum	Maximum
	-2°C	45°C

Electricity Consumption	
Kilowatt hours per day (kWh/d)	2.50
Kilowatt hours per 1000L (kWh/1000L)	1.33

Servicing and Maintenance	
Servicing Frequency	Every 3 months

Taylex WASTEWATER

Components List & Repair/ Replacement Instructions:

1. Primary Chamber – 100mm inlet Junction, BIO Block
2. Secondary Chamber – 100mm Junction x 2
3. Aeration Chamber – 100mm Junction x 2, BIO Block, Air Lift, Disk Diffuser
4. Clarifier Chamber – 100mm Junction, Taylex Filter Control, Recirculation Chamber
5. Irrigation Chamber – 100mm Junction, Chlorine Dispenser, Irrigation Pump, High Level Alarm Float, 100mm Elbow

Component List

TANK

Concrete Tank and Lid
Made from 32mpa concrete with SL 41Mesh

Repair / Replacement Details:
Replacement lids available from Taylex Industries or your local Service Agents.

Chips and cracks can be repaired using Sika panel patch or mortar.



1) 2) 3) 5) 100mm Sweep Tee With dropper pipe and riser

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.

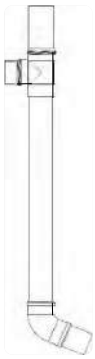


4) BIO Block Media
Width - 385mm
Length - 110mm
Height - 1400mm
Surface Area – 20.6m²

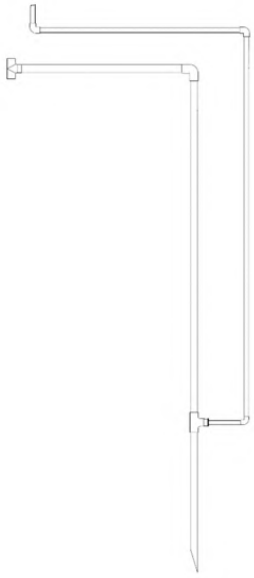


6) 100mm Sweep Tee With 1000mm dropper pipe and 100mm 45° M&F Bend

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.



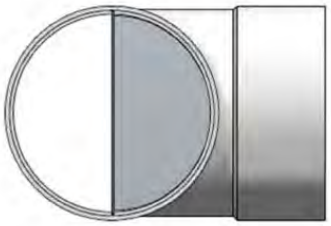
Taylex WASTEWATER

7)	Diffuser x 2 Material – EPDM Diameter – 250mm (9inch) Repair / Replacement Details: Turn the system off. Replace the diffuser by making a new complete aeration pipe assembly fitted with the Diffuser. Cut the main aeration supply line, place the new diffuser in the system, weighed down with a small concrete block and rotate the diffuser under the biomass. Re fix the new aeration pipe assembly complete with a joining socket. Removing the old Diffuser is not required. Turn the system on. Purchase the complete assembly from Taylex.	
8)	BIO Block Media Width - 550mm Length - 1100mm Height - 500mm Surface Area - 105m^2	
9) 10) 13)	100mm Sweep Tee With dropper pipe and riser Repair / Replacement Details: Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.	
11)	Recirculation System For the transfer of fluids using the 'Venturi Principle'. Air is injected toward the base of a vertical open ended PVC conduit. Continuous displacement occurs as the air moves vertically to the liquid, drawing liquid through the bottom of the conduit. The air/liquid mixture reaches a vertical maximum where it then moves through the 90° bend into the primary chamber. The conduit is arranged in the base of the clarifier so that the residual sludge constitutes the main vacuum target. Sludge Base Removal Sludge deposit removal is to be scheduled 1 time per 6 years or as determined necessary by a licenced Taylex Sales Technician or the client or due to mechanical failure. Servicing Routine maintenance/servicing of the Taylex ABSNR -2000 is to be scheduled quarterly or as determined necessary by an approved Taylex Sales Technician or due to mechanical failure. Refer to Field Service Report sheet for testing requirements. Repair / Replacement Details: Turn the system off. Replace the Sludge Recirculation Assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.	

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12) Taylex Filter Control (TFC)
Material – Stainless steel

Repair / Replacement Details:
Replace the TFC assembly by cutting the 100mm slab repair coupling, install the replacement TFC assembly.



14) Chlorine Dispenser
Material – HD Polyethylene
Length – 500mm
Diameter – 90mm

The chlorine dispenser is placed in the 100mm Tee located in the irrigation chamber.

Repair / Replacement Details:
Repairing the Chlorine Dispenser is not recommended. If the Dispenser is damaged, replace it with a new unit. Purchase the complete assembly from Taylex.



15) Irrigation Pump
The irrigation pump is self-controlled via a ball bearing activated float switch. When the according volume is reached in the pump chamber, the ball bearing in the float moves and creates an active connection. The treated effluent is pumped to the approved dispersal zone, as the chamber reaches minimum volume, the float drops and de-activates the pump. The type and capacity of the pump will be in accordance with the land application requirements.

Repair / Replacement Details:
Turn the system off. Replace the pump by disconnecting the barrel union, be sure not to drop the internal valve assembly. Lift the Pump Assembly out of the tank. Undo the threaded fitting connect to the outlet of the pump. Re apply thread tape and fix the threaded fitting back onto the pump. Return the assembly to the tank and re-connect the barrel union, ensuring the valve is seated correctly. Turn the system on. Purchase the correct pump from Taylex or a local outlet, ensuring the performance is identical to the pump removed.

DAVEY D25 – 9m Head	DAVEY D42A/B3 – 32m Head
Voltage – 220 -240 IP 68	Voltage – 220 -240 IP 68
AMPS – 1.9 Phase 1 50hZ	AMPS – 4.3 Phase 1 50hZ
Max Flow – 200L/min 7m	Max Flow – 130L/min 7m



Taylex WASTEWATER

17)	Alarm System High Water Material – PVC Length – 20mm Width - 90mm Trigger – High Water Code – 3 Visual – Red L.E.D - 3 Flashes Audible – Micro Buzzer Voltage – 12V Repair / Replacement Details: Turn the system off. Replace the float by disconnecting the electrical connection in the terminal block, located in the lower section of the control box. Feed the new float cable into the control box and connect to the terminal block, fixing the screws firmly. Re fix the float to the pipe assembly and loop the lead around the barrel union, to set the float height. Turn the system on. Purchase the float from Taylex.	
18)	Non- Return Valve Height – 85mm Length – 140mm Width – 85mm Repair / Replacement Details: Turn the system off. Replace the Non- Return Valve by cutting the pipe in either side of the valve. Re-join the pipe using sockets and glue the Valve and sockets together. Ensure the glue is set before turning the system back on.	
19)	Control Panel Box Material – HD Polyethylene Height – 210mm Length – 190mm Width – 85mm The weather proof control box is fixed to the side of the blower box using stainless steel screws. The control panel is fitted to the inside of this box and is connected to the power, high water alarm and pressure switch, via a gland at the back of the box. Repair / Replacement Details: Repairing boxes is not recommended. Replacements boxes be purchased from Taylex or your local service agent.	
20)	ECO Control Panel (240v to 12V Power Supply) Length – 160mm Height – 100mm The Taylex ECO is a 12V controller powered by the 240v to 12v power supply plug. As the unit is 12V all works including replacements and repairs do not need to be completed by a Licenced Electrician. All service agents can therefore complete all works within the Control Box and on the Taylex ECO Controllers. The Taylex ECO Controller Assembly (complete with Controller, Control Panel Box, 3 x GPO Assembly and Blower Box) is classed as electrical equipment and has been certified to comply with AS/NZS 3820, meeting the Electrical Safety requirements in Australia and New Zealand Repair / Replacement Details: Turn the system off. Replace the Control Panel by removing the 4 screws in the control box. Disconnect the Loom plug from the rear of the panel. Connect the loom to the new panel; return the new Control Panel to the control box and re fix the 4 screws. Turn the system on. Purchase the Control Panel from Taylex.	

Taylex WASTEWATER

21) L.E.D Light
Height – 30mm
Length – 20mm

The LED visual alarm is constructed within the Eco Panel. This LED Red light will flash when an alarm is present. The number of flashes represent the particular code.

Repair / Replacement Details:
Replacement of the LED lights only is not possible; the complete Control Panel must be replaced. Purchase the Control Panel from Taylex.



22) Blower Box
Material – HD Polyethylene
Height – 350mm
Length – 600mm
Width – 400mm

The Blower boxed is fitted to the lid of the ABS using 4 x 30mm anchors.

Repair / Replacement Details:

Repairing boxes is not recommended. Replacement boxes can be purchased from Taylex or your local service agent.



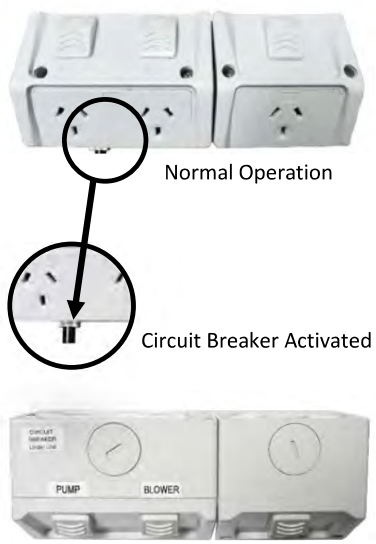
23) Weatherproof GPO's

Single	Double
Height – 85mm	Height – 85mm
Length – 85mm	Length – 115mm
Width – 80mm	Width – 80mm

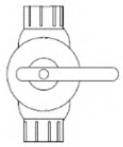
Mains 10amp power is connected through the 25mm coupling provided on the side of the ABSNR -2000 and pulled up through a conduit into the Single GPO. The 12volt power pack plugs into the single GPO to power the control panel. The blower and irrigation pump are plugged into the double GPO.

The double GPO contains a 5amp circuit breaker, which will activate if either the pump or blower (or both) draw too many amps, indicating a fault with the pump or blower. The breaker can be reset by pushing in the button if activated. The systems normal operation including alarms will continue to function, if the breaker is activated.

Repair / Replacement Details:
Replacing the GPO's can only be completed by a licenced electrician, please refer to the Taylex Electrical Connection instructions for details. Replacements can be purchased from Taylex or your local service agent.



Taylex WASTEWATER

24)	Nitto 120L Blower Material – Alloy / Plastic Height – 232mm Width – 210mm Length – 407mm Weight – 9.7kg Noise Rating: 40dB(A) Capacity – 120L Back Pressure Range – 5kpa – 25kpa Motor Power – 130 Watts Power Source – 240V 50hZ Repair / Replacement Details: Purchase replacement Blowers and parts from Taylex.	
25)	Recirculation Control Valve The Recirculation system has been designed to recirculate a precise volume of bacteria and sludge back to the primary chamber for denitrification and sludge management. The control valve should be set to '10' on the dial for optimum operation. Repair / Replacement Details: Turn the system off. Replace the Recirculation assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.	

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WASTEWATER

Wastewater Specification Guide

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V4.1.3 — MAY 2024

Taylex
WASTEWATER

Wastewater Recycling Systems for Australian & New Zealand homes that protect your family and our environment.

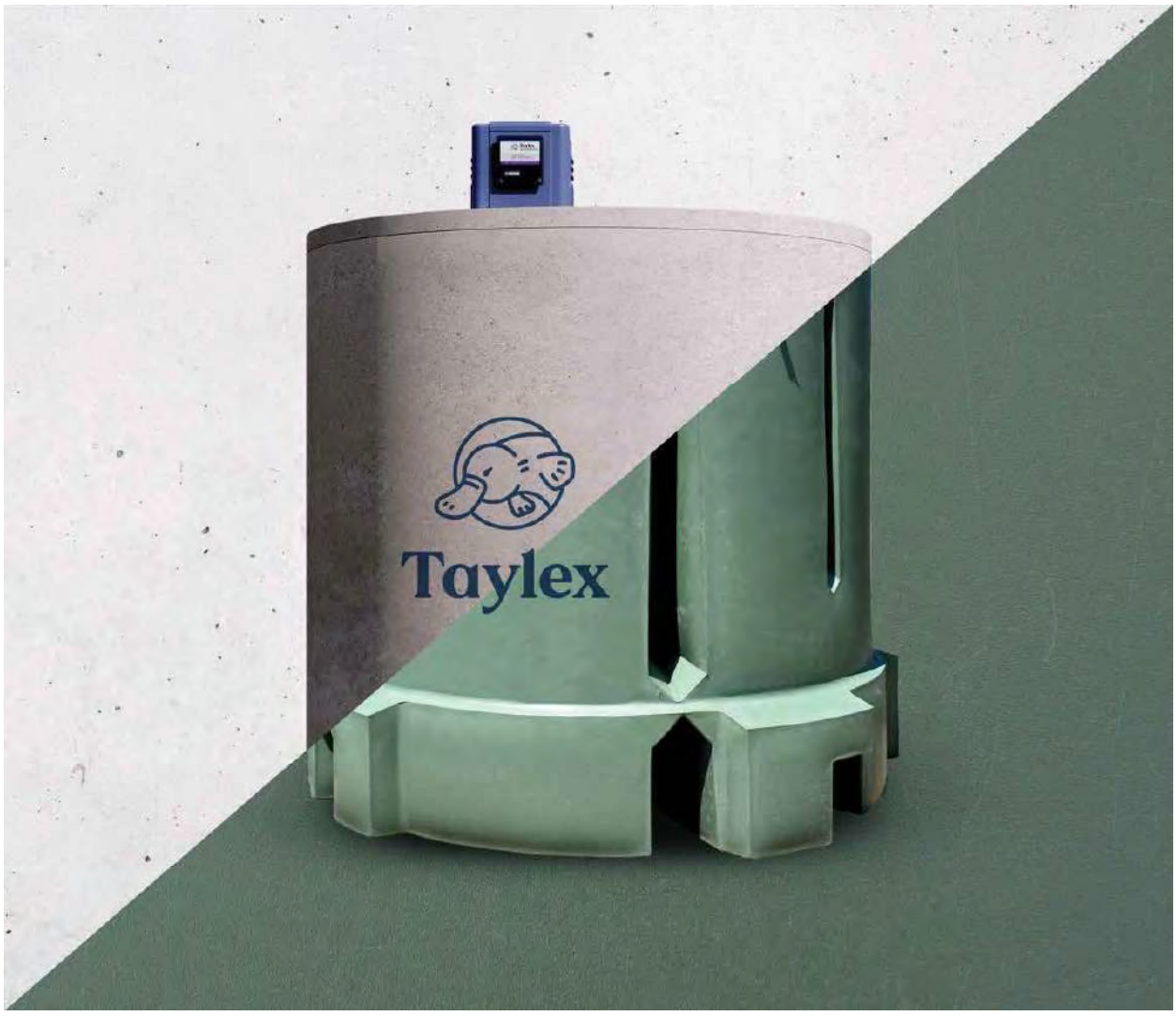
Taylex Systems produce the highest quality effluent for the safest and best environmental outcomes.

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Concrete or Poly?

Both the Taylex concrete and polymer wastewater treatment systems are six stage Advanced Secondary Wastewater treatment systems that exceed the national standards and are certified in all Australian states and territories. So why have both options available if they essentially do the same thing?

Our concrete Secondary Wastewater Treatment Systems are suited to 90% of all domestic installations. Taylex Polymer Tanks are designed to accommodate site conditions where it is not possible to crane in a concrete treatment system e.g. steep terrain. Our unique polymer mould cleverly uses 'Sandwich closed-cell foam polymer' to mould the compartment walls in one piece. There are no joins or glued-in compartments and all partitions extend to the lid of the tank, so you can enjoy the same peace of mind as if you had a Taylex concrete system.



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Trust Taylex

Welcome to Taylex, an Australian family-owned company founded in 1969. We have over 80 employees and over 90 trained wastewater specialists who market, install and service our range nationally in Australia and New Zealand. Post installation, we have a network of over 300 trained Service Technicians to provide the ongoing care and maintenance for your system.

We manufacture a range of products for Wastewater, Rainwater and Stormwater, we also offer Servicing for our wastewater systems. Taylex was the first company to manufacture Home Sewage Treatment Systems in Australia and we continue to be leaders in our field.

Expertise

With over 50 years of experience, building our reputation, Taylex is a trusted voice in the wastewater industry. We work closely with the national manufacturers association and governing bodies to lobby for more stringent wastewater regulations to ensure the highest level of treatment is met and to provide you with the best results possible.

Integrity

We honour warranties. We stand behind our products, for their lifetime, no questions, no fine print. We are an Australian owned and made family business. We are passionate about producing quality products that work. We take care of our staff. We value the environment and human health.

Flexibility

Taylex has a system that will work for you. In difficult terrain or soil, for the size of your house and slope of your block, Taylex systems are adaptable, we are eager to work with you and become part of the solution.

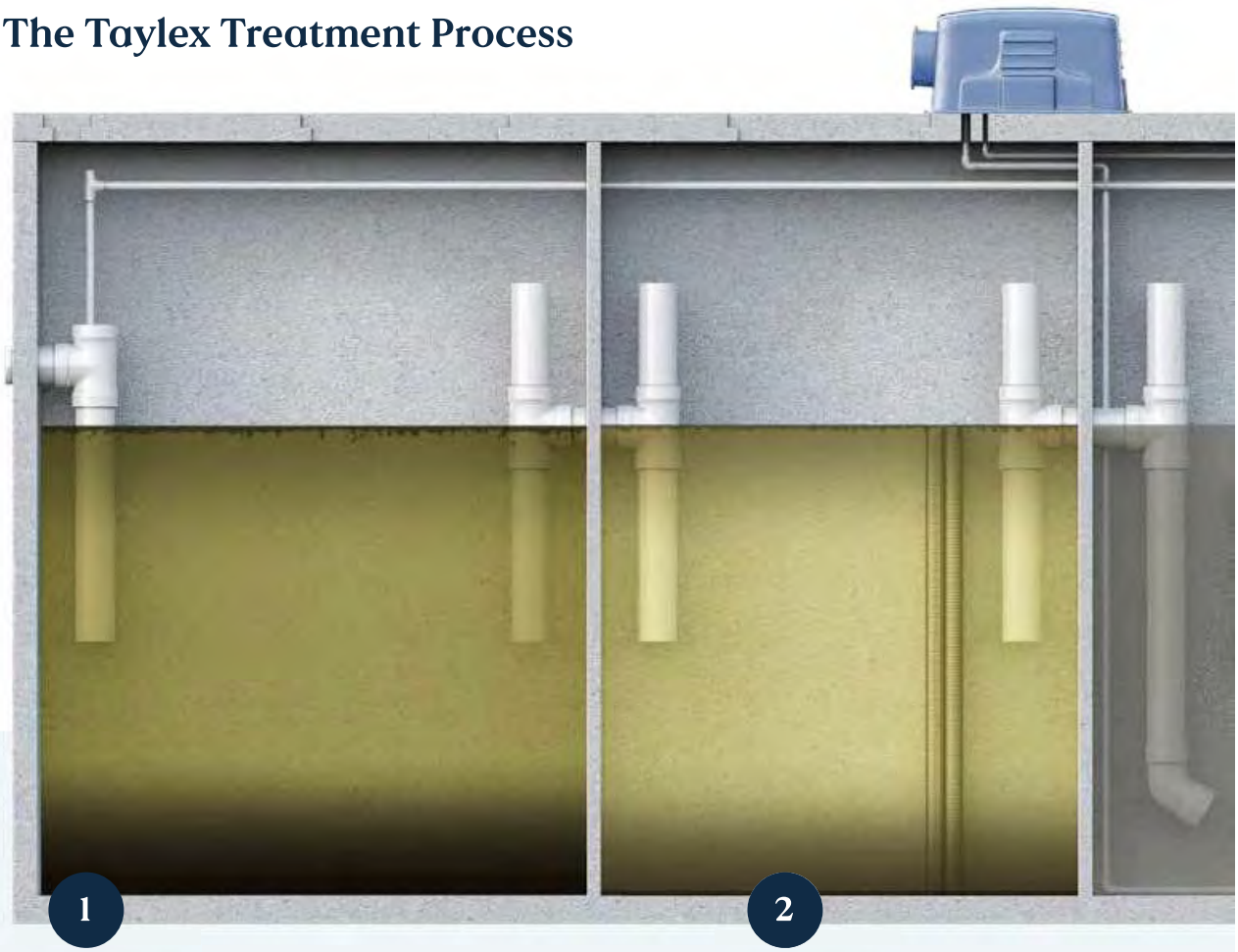
Innovation

Taylex is at the cutting edge of environmentally sound wastewater treatment that is healthy for your family and the environment. We are constantly testing and improving our systems to not only provide unparalleled quality and unmatched results, but to ensure the most stringent safety standards are met. We are constantly striving to improve and perfect.

Functionality

Our Systems work! Taylex use Monolithic, single piece moulds meaning no deteriorating seals or weak post-joined walls, which could expose your family to catastrophic failure of your system. There's no skimping on parts from the biggest pump down to the smallest seal. Our systems are designed and engineered to last as long as your home.

The Taylex Treatment Process







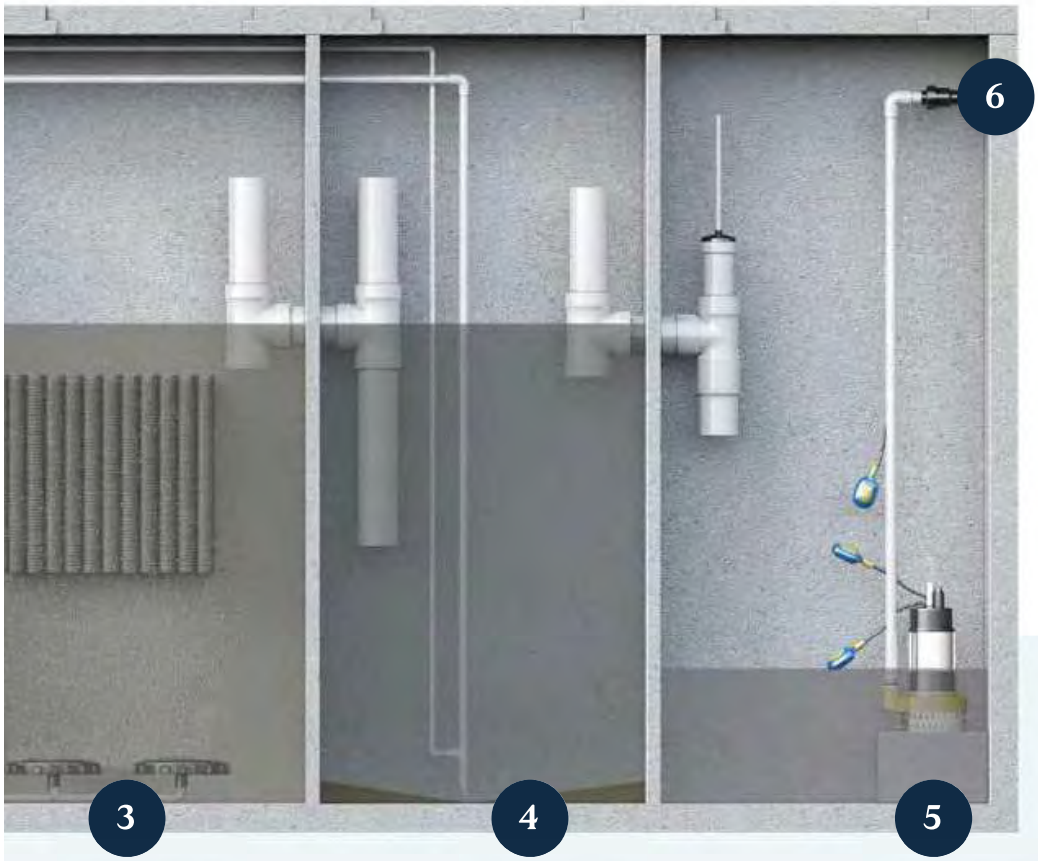
Primary Chamber

The first stop for your household wastewater is in the 'Primary Chamber'. Here solids will naturally sink to the bottom and fats and oils will naturally float to the top, leaving a clearer "Supernatant Zone" in the middle. This zone will transfer to the next stage of treatment.

Watch our video to see it in action!

Secondary Chamber

Next is the 'Secondary Chamber'. Further settling happens here. Again, water from the middle flows onto the next stage, there is an additional "Bio-Mass" block in this chamber to assist with the separation of solids. In a traditional Septic System, this is where the journey would end and effluent would now be pumped onto your property and into our environment, relying on sand or soil to do the rest. With a Taylex Wastewater Treatment System, there are still four more steps to produce clean, clear, safe water for your yard.



Irrigation Pump

Lastly, when the Disinfection Chamber fills up, your dependable irrigation pump automatically switches on to send your water out to do its job in your yard. Crystal clear water irrigates your designated area and returns safely to nature, contributing to a healthy water cycle.



Aeration Chamber

The 'Aeration Chamber' is next up. This is where the magic happens. Your quiet, reliable, energy-efficient blower sends oxygen into the chamber in the form of tiny bubbles. These bubbles pass through a specially designed structure called "Bio-Mass". Bio Mass is purpose designed to trap the air bubbles to feed naturally occurring 'Aerobic bacteria'. These microscopic Eco-Warriors are now hard at work, chomping through most of the remaining organic matter, polishing the water, and eliminating odour.



Clarification Chamber

Step four is in the 'Clarification Chamber'. More settling occurs here. Once settled to the bottom, this potent mix of Aerobic bacteria and fine particle solids are recirculated to the Primary Chamber to keep it healthy and working hard (not smelly).



Disinfection Chamber

The final step in the treatment process is the 'Disinfection Chamber'. The water gets a 'kiss' goodbye from our Chlorinator which removes any harmful bacteria, viruses and pathogens, using less chlorine per litre than your average swimming pool.

Emergency Storage

Taylex systems have the largest emergency storage buffers currently available on the market. In cases where surge loading events can't be avoided (like thunderstorms and power outages) your family has up to 3.9 days of storage (assuming a 1500L daily flow). That's 1,963 toilet flushes or 13 hours of shower time!

Taylex 1500 ABS systems are designed to process and treat 1,500L of wastewater.
Average wastewater generated per day:

150L / ONE PERSON **600L / FAMILY OF FOUR**

	STANDARD	TALL 400	TALL 600	POLY
Emergency Buffer Zone	3,440L	5,182L	5,890L	1,541L
Days of Storage Based on 1500L/day	2.3	3.5	3.9	1
Toilet Flushes	1,146	1,727	1,963	347
Shower Time	7.6hr	11.5hr	13hr	2.3hr
Washing Loads	22.9	34.5	39.2	6.9

It is important to note that where possible, Surge loading your system should be avoided as it may impact the operational efficiency of your system.

Our Range of Invert Levels

A ratio of 1:60 Fall must be met when installing any wastewater system. Factors that affect choice of invert level include, but are not limited to, size of the house, topography of the block, preferred location of the system. A riser can be added to facilitate invert when required.



ABS STANDARD

Invert Height	670mm
Total Drainage Run	Determined by slope gradient
Depth In Ground	2,200mm
Emergency Storage	3,440Ltr (2.3 days)



ABS TALL 400

Invert Height	1,070mm
Total Drainage Run	Up to 22m
Depth In Ground	2,600mm
Emergency Storage	5,182L (3.5 days)



ABS TALL 600

Invert Height	1,270mm
Total Drainage Run	Up to 40m
Depth In Ground	2,800mm
Emergency Storage	5,890L (3.9 days)



ABS TALL & RISER

- Depth In Ground Invert Height = Base system dimensions + dimensions of the riser/s.
- Total Drainage Run: 35m+
- Risers have no effect on emergency storage.
- Risers available in 600 (781kg), 800 (1,040kg) and 1000mm (1,300kg).

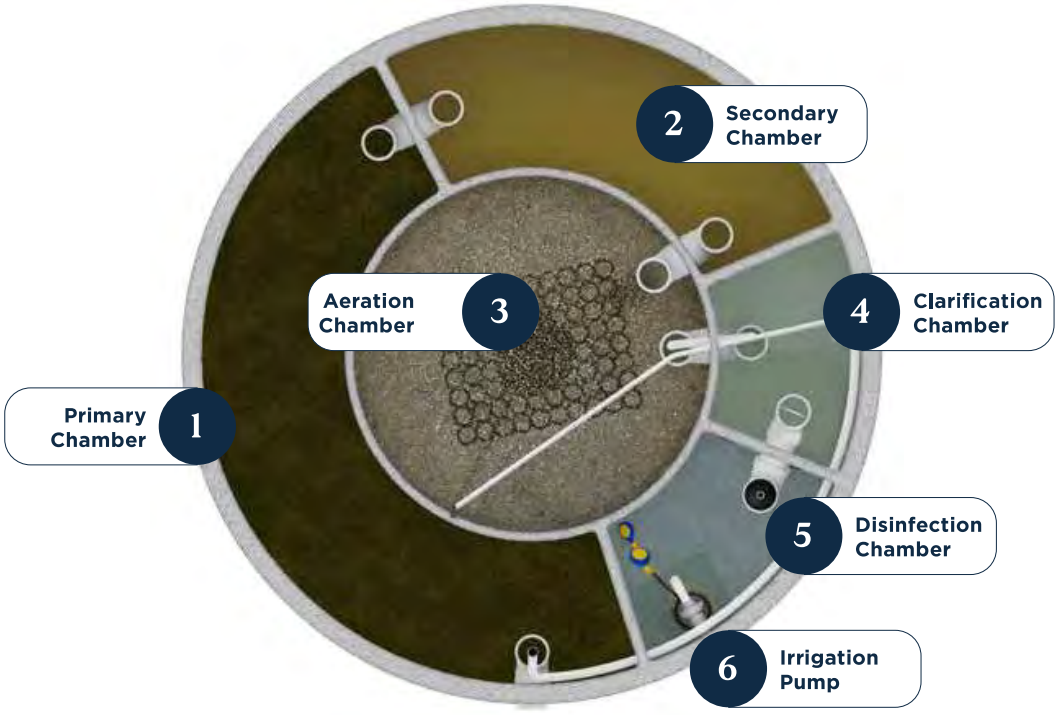


ABS POLY

Invert Height	500mm
Total Drainage Run	Determined by slope gradient
Depth In Ground	2,200mm
Emergency Storage	1,541 L (1 day)

ABS Advanced Secondary Treatment Systems up to 10EP

	ABS 1500 (10EP)		
TANK COMPLIANCE			
Tank Design & Testing (In Ground)	AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**		
	Required	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.5mg/l	99.59%
Total Suspended Solids (TSS)	<10mg/l	7.6mg/l	97.66%
E. Coli	<10cfu/100ml	1.4cfu/ml	99.99%
Total Nitrogen	N/A	N/A	N/A
Total Phosphorus	N/A	N/A	N/A
Free Available Chlorine (FAC)	N/A	1.05 mg/l	
Operating Temperature	Min. -2°C Max. 45°C		
TANK CAPACITY			
Poly	7,449L		
Concrete Standard	9,320L		
Concrete Tall 400	11,062L		
Concrete Tall 600	11,770L		
Operating Capacity	Concrete: 5,880L Poly: 5,908L		
EMERGENCY STORAGE			
Poly	1,541L		
Concrete Standard	3,440L		
Concrete Tall 400	5,182L		
Concrete Tall 600	5,890L		
Riser	No effect on emergency storage.		
SYSTEM CHAMBER CAPACITIES	**CONCRETE 1500**	**POLY 1500**	
Primary Chamber	1,684L	1,646L	
Secondary Chamber	842L	881L	
Aeration Chamber	2,071L	2,053L	
Clarifier Chamber	662L	663L	
Irrigation Chamber	621L	665L	
Maximum Hydraulic Loading Capacity	1,500L per day	1,500L per day	
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	1,500L/ 10EP	150L	
Maximum Organic Loading (BOD^5)	700g	70g	
Total Suspended Solids (TSS)	700g	70g	
Total Nitrogen (TN)	150g	15g	
Total Phosphorus(TP)	25g	2.5g	
ELECTRICITY CONSUMPTION			
Kilowatt hours per day (kWh/d)	2.21		
Kilowatt hours per 1000L (kWh/1000L)	1.62		
SERVICING AND MAINTENANCE			
Servicing Frequency	Every 3 months		



AUSTRALIAN STANDARD – AS1546.3:2017

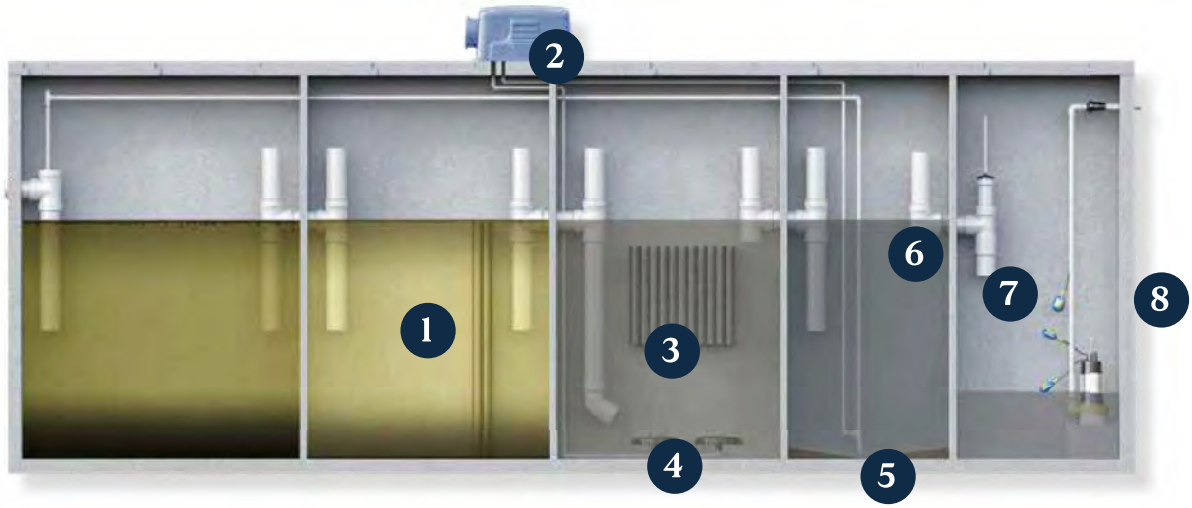
INFLUENT CRITERIA	**ASI546.3:2017** 42 Week Test*	**AS1546.3:2017** Required Average
BOD^5	150 – 750mg/l	≥300mg/l
TSS	150 – 750mg/l	≥300mg/l
Total Nitrogen	20 – 150mg/l	≥60mg/l
Total Phosphorus	6 – 25mg/l	≥8mg/l
EFFLUENT CRITERIA	**AS1546.3:2017** Advanced Secondary Quality Effluent	
	90% of Samples	**Maximum**
BOD^5	≤10mg/l	≤20mg/l
TSS	≤10mg/l	≤20mg/l
E.coli	<≤10cfu/100ml	<≤30cfu/100ml

*34 Weeks + 8 Weeks Commissioning

ABSNR Advanced Secondary Treatment Systems with % Nutrient Reductions

	ABS 1350 NR (9EP)			ABS 2000 NR (13EP)		
TANK COMPLIANCE						
Tank Design & Testing (In Ground)	AS1546.1:2008			AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001			AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**			**AS1546.3:2017**		
	Aust. Std	**Av. Results**	**% Reduction**	**Aust. Std**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.63 mg/l	99.50%	<10mg/l	2.59 mg/l	99.20%
Total Suspended Solids (TSS)	<10mg/l	4.29 mg/l	98.90%	<10mg/l	5.63 mg/l	98.56%
E. Coli	<10cfu/100ml	0.95 cfu/100ml	99.99%	<10cfu/100ml	0.80 cfu/100ml	99.99%
Total Nitrogen (TN)	N/A	23.30 mg/l	66.90%	N/A	31.94 mg/l	54.70%
Total Phosphorus (TP)	N/A	8.56 mg/l	26.46%	N/A	8.76 mg/l	24.74%
Free Available Chlorine (FAC)	N/A	1.05 mg/l		N/A	0.80 mg/l	
Combined Nutrient Reduction (TN + TP)	N/A	93.36%		N/A	79.44%	
Operating Temperature	Min. -2°C Max. 45°C			Min. -2°C Max. 45°C		
TANK CAPACITY						
Poly	7,449L			7,449L		
Concrete Standard	9,320L			9,320L		
Concrete Tall 400	11,062L			11,062L		
Concrete Tall 600	11,770L			11,770L		
Operating Capacity	Concrete: 5,880L Poly: 5,908L			Concrete: 5,880L Poly: 5,908L		
EMERGENCY STORAGE						
Poly	1,541L			1,541L		
Concrete Standard	3,440L			3,440L		
Concrete Tall 400	5,182L			5,182L		
Concrete Tall 600	5,890L			5,890L		
Riser	No effect on emergency storage.			No effect on emergency storage.		
SYSTEM CHAMBER CAPACITIES	**CONCRETE**	**POLY**		**CONCRETE**	**POLY**	
Primary Chamber	1,684L	1,646L		1,684L	1,646L	
Secondary Chamber	842L	881L		842L	881L	
Aeration Chamber	2,071L	2,053L		2,071L	2,053L	
Clarifier Chamber	662L	663L		662L	663L	
Irrigation Chamber	621L	665L		621L	665L	
Maximum Hydraulic Loading Capacity	1,350L per day	1,350L per day		2,000L per day	2,000L per day	
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**		**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	1,350L/ 9EP	150L		2,000L/ 13EP	150L	
Maximum Organic Loading (BOD^5)	630g	70g		910g	70g	
Total Suspended Solids (TSS)	630g	70g		910g	70g	
Total Nitrogen (TN)	135g	15g		195g	15g	
Total Phosphorus(TP)	22.5g	2.5g		32.5g	2.5g	
ELECTRICITY CONSUMPTION						
Kilowatt hours per day (kWh/d)	1.90			2.50		
Kilowatt hours per 1000L (kWh/1000L)	1.52			1.33		
SERVICING AND MAINTENANCE						
Servicing Frequency	Every 3 months			Every 3 months		

The New Taylex ABS Nutrient Reduction Systems.



New Developments in the Taylex ABS NR

1. Retention Bio Mass - Withholds excess solids, creating a clearer supernatant zone.
2. Larger 120L Blower - Allows for enhanced oxygenation of the aeration chamber.
3. Larger Aeration Bio Mass - Broader colony for Aerobic bacteria, amplifying digestion/treatment.
4. Dual-Disk Diffusers - Evenly disperses dissolved oxygen throughout the chamber.
5. Enhanced Sludge Recirculation - Removes fine particle solids from clarification chamber.
6. Taylex Filter Control (TFC) Patent Pending - Delivers a constant, stable flow to the irrigation chamber.
7. Precise Chlorination - Provides efficient disinfection and uses less chlorine per litre.

Importance of Nutrient Reduction

The ABS NR is tested to the Advanced Secondary Standard with a % Nutrient Reduction. Meaning that the treatment processes are more efficient in digesting and disposing of excess levels of potentially harmful elements, preventing them from entering and degrading the environment.

Nitrogen & Phosphorus are classified as Macronutrients and are key factors in plant growth and development. However, when excess levels of these nutrients (i.e. the levels found in wastewater) are added on top of what is naturally occurring it can put a substantial strain on the wider environment. Excess nutrients lead to stunted root/plant growth and in worst cases polluted groundwater and dead top soil.

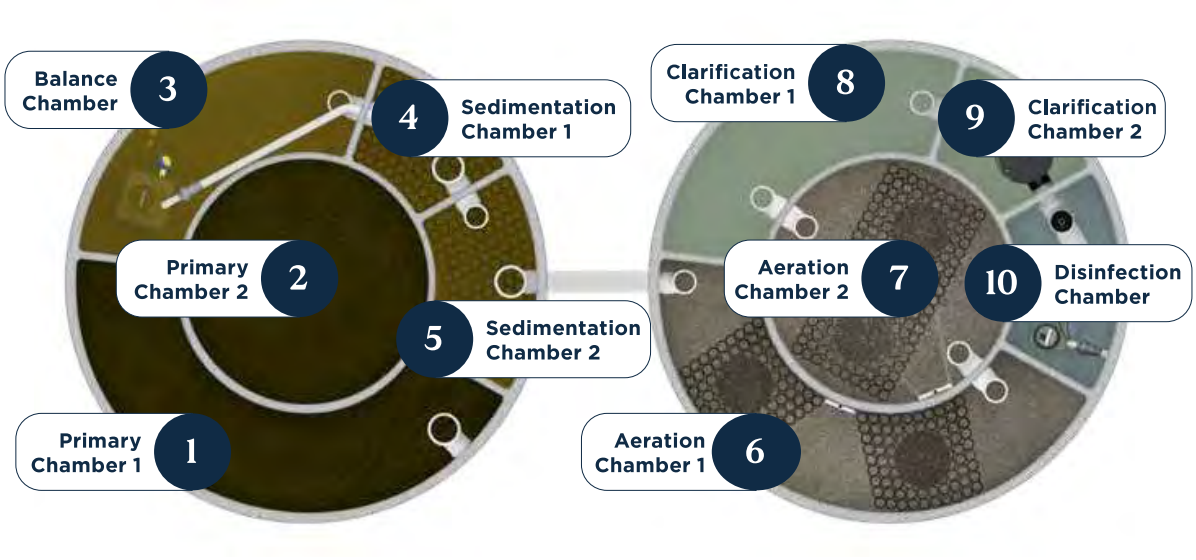
Because of our nutrient reduction, this environmental strain is significantly minimised. Additionally the Land application areas (LAAs) required for Taylex ABS NR systems are substantially reduced.



ABS Advanced Secondary Treatment Systems 10EP+

	ABS 4200 (28EP)			ABS 5000 (33EP)		
TANK COMPLIANCE						
Tank Design & Testing (In Ground)	AS1546.1:2008			AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001			AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**			**AS1546.3:2017**		
	Required	**Av. Results**	**% Reduction**	**Required**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.07mg/l	99.7%	<10mg/l	1.07mg/l	99.7%
Total Suspended Solids (TSS)	<10mg/l	4.41mg/l	98.7%	<10mg/l	6.12mg/l	98.12%
E. Coli		0.32cfu/100ml	99.99%		0.41cfu/100ml	99.99%
Total Nitrogen (TN)	N/A	38.54mg/l	45.35%	N/A	45.68mg/l	37.21%
Total Phosphorus (TP)	N/A	9.64mg/l	13.72%	N/A	9.21mg/l	15.27%
Operating Temperature	Min. -2°C Max. 45°C			Min. -2°C Max. 45°C		
TANK CAPACITY						
Total Tank Capacity	22,124L			22,124L		
Operating Capacity	14,451L			14,451L		
Emergency Storage	7,673L			7,673L		
SYSTEM CHAMBER CAPACITIES						
Primary Chamber	2,350L			2,350L		
Primary Chamber 2	2,280L			2,280L		
Balance Chamber	1,490L			1,490L		
Sedimentation Chamber 1	640L			640L		
Sedimentation Chamber 2	850L			850L		
Aeration Chamber 1	2,200L			2,200L		
Aeration Chamber 2	2,110L			2,110L		
Clarifier Chamber 1	1,340L			1,340L		
Clarifier Chamber 2	570L			570L		
Chlorination Pump Well	621L			621L		
Maximum Hydraulic Loading Capacity	4,200L per day			5,000 per day		
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**		**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	4,200L/ 28EP	150L		5,000L/ 32EP	150L	
Maximum Organic Loading (BOD^5)	1,960g	70g		2,331g	70g	
Total Suspended Solids (TSS)	1,960g	70g		2,331g	70g	
Total Nitrogen (TN)	420g 100mg/l	15g		500g 100mg/l	15g	
Total Phosphorus(TP)	70g 100mg/l	2.5g		83g 100mg/l	2.5g	
ELECTRICITY CONSUMPTION						
Kilowatt hours per day (kWh/d)	5.16			6.16		
Kilowatt hours per 1000L (kWh/1000L)	1.35			1.36		
SERVICING AND MAINTENANCE						
Servicing Frequency	Every 3 months			Every 3 months		

The Taylex 4200/5000 system is a two tank, ten chamber system and is designed to treat wastewater from large domestic or suitable commercial dwellings up to 4200 or 5000 litres per day. Separating these processes into two tanks allows for more in-tank treatment time and produces effluent of a superior quality.



TANK 1

Tank 1 consists of two Primary Chambers (1), (2), a Balance Chamber (3) and two Sedimentation Chambers (4), (5). The main operational objective of this tank is to separate and refine wastewater to a degree that could not be achieved in a traditional one-tank system.

TANK 2

Tank 2 consists of two Aeration Chambers (6), (7), two Clarification Chambers (8), (9) and a Disinfection Chamber (10). The main operational objective of this tank is to polish and disinfect the wastewater. Most of the advanced treatment happens here and due to the size of this tank and the extended in-tank treatment time the wastewater will leave as clean, clear, environmentally safe water.

AUSTRALIAN STANDARD – AS1546.3:2017

INFLUENT CRITERIA	**ASI546.3:2017** 42 Week Test*	**AS1546.3:2017** Required Average
BOD^5	150 – 750mg/l	≥300mg/l
TSS	150 – 750mg/l	≥300mg/l
Total Nitrogen	20 – 150mg/l	≥60mg/l
Total Phosphorus	6 – 25mg/l	≥8mg/l
EFFLUENT CRITERIA	**AS1546.3:2017** Advanced Secondary Quality Effluent	
	90% of Samples	**Maximum**
BOD^5	≤10mg/l	≤20mg/l
TSS	≤10mg/l	≤20mg/l
E.coli	<≤10cfu/100ml	<≤30cfu/100ml

*34 Weeks + 8 Weeks Commissioning

Summary of Advanced Secondary Results

	ABS 1500 (10EP)		ABSNR 1350 (9EP)		ABSNR 2000 (13EP)	
EFFLUENT COMPLIANCE	**AS1546.3:2017**		**AS1546.3:2017**		**AS1546.3:2017**	
	Av. Results	**% Reduction**	**Av. Results**	**% Reduction**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	1.5 mg/l	99.59%	1.63mg/l	99.50%	2.59mg/l	99.20%
Total Suspended Solids (TSS)	7.6 mg/l	97.66%	4.29mg/l	98.90%	5.63mg/l	98.56%
E. Coli	1.4 cfu/ml	99.99%	0.95cfu/100ml	99.99%	0.80cfu/100ml	99.99%
Total Nitrogen (TN)	66 mg/l	11%	23.30mg/l	66.90%	31.94mg/l	54.70%
Total Phosphorus (TP)	10.19 mg/l	17.83%	8.56mg/l	26.46%	8.76mg/l	24.74%
Free Available Chlorine (FAC)	1.05 mg/l		1.05mg/l		0.80mg/l	
Servicing Frequency	Every 3 months		Every 3 months		Every 3 months	

Certificate of Compliance

	ABS 1500 (10EP)	ABS 1350 NR (9EP)	ABS 2000 NR (13EP)	ABS4200	ABS5000
Concrete	40/22	4382-3039-01	4384-3039-01	40/26	40/24
Poly	40/22	4386-3039-01	4388-3039-01	N/A	N/A

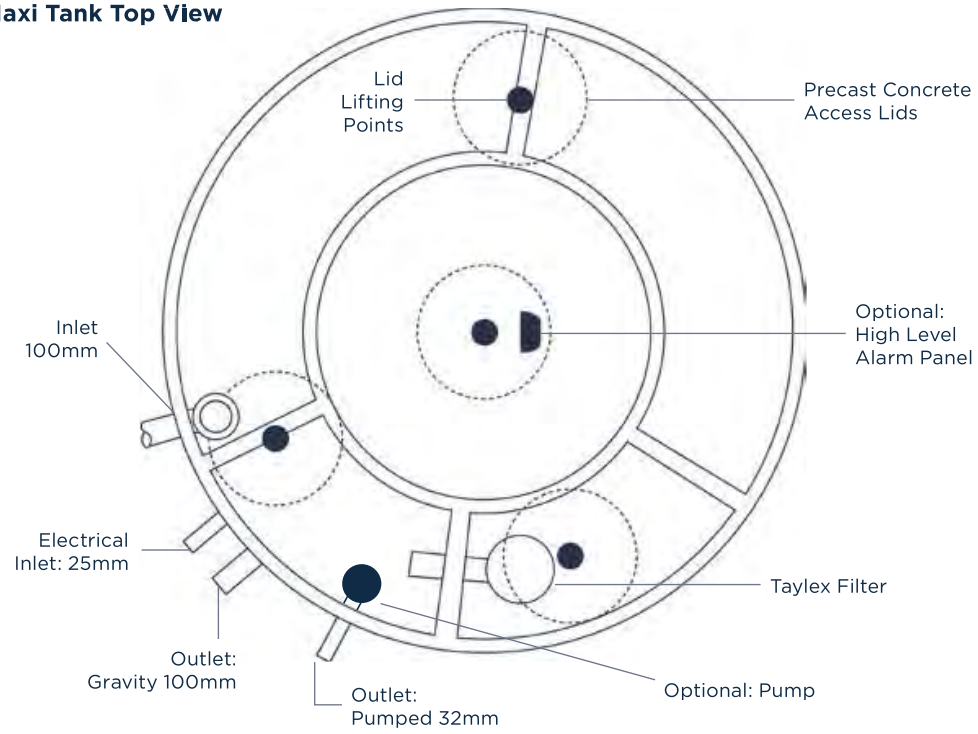
State Approvals

System	Operating Capacity	QLD	NSW	VIC	TAS	SA	WA	NT
ABS 1500	1500	18/2020-01	STS-AWTS049	40/22	DOC/20/89089	WWP-20069	F-AA-51817	2020/3459EH
PABS 1500	1500	18/2020-01	STS-AWTS050	40/22	DOC/20/89089	WWP-20068	F-AA-51817	2020/3459EH
ABS 1350 NR	1350	02/2023	STS-AWTS067	4382-3039-01	DOC/22/109242	WWP-20132	F-AA-51817	2023/4917EH
PABS 1350 NR	1350	06/2023	STS-AWTS068	4386-3039-01	DOC/22/109242	WWP-20132	F-AA-51817	2023/4917EH
ABS 2000 NR	2000	04/2023	STS-AWTS069	4384-3039-01	DOC/22/109449	WWP-20134	F-AA-51817	2023/4918EH
PABS 2000 NR	2000	08/2023	STS-AWTS070	4388-3039-01	DOC/22/109449	WWP-20134	F-AA-51817	2023/4918EH
ABS4200	4200	24/2021	40/26	40/26	N/A	WWP-20113	N/A	N/A
ABS5000	5000	N/A	40/24	40/24	DOC/22/102412	WWP-20082	F-AA-51817	2022/4255EH

Maxi Septic System

MAXI SEPTIC	CONCRETE	POLY
Height	2300mm	2500mm
Inlet Invert (from Base)	1530mm & 1830mm	1770mm
Tank Diameter	2440mm	2400mm x 2530mm
Operating Capacity	6300L	6066L
Maximum Dry Weight	6.1 T A concrete 'Tall' tank is also available.	450kg Allow 600kg as all tanks are water tested.

Maxi Tank Top View



Every Taylex Maxi Tank is covered by a full manufacturer warranty. There is a 15-year warranty on the pre-cast concrete and a one-year warranty* on all electrical and mechanical components. Warranty applies from the date of commissioning or 90 days from the date of purchase (whichever is sooner).

*12-months standard warranty on electrical components (pump + controller where fitted)

Servicing

Twelve months servicing is packaged with every Taylex wastewater system.

All home sewerage treatment systems are required to be serviced quarterly. Your local council will enforce these requirements. Systems may only be serviced by licensed wastewater service personnel. Contact your local accredited Taylex service agent or contact Taylex directly with any questions or enquiries about servicing your Taylex systems.



Servicing straight from the manufacturer

Fully licensed factory trained service technicians.



Discounted spare parts

Provide spare parts to current contract holders at a discounted rate.



Discounted call-outs

Prioritised and discounted emergency call-outs. After hours emergency phone support.



Fast 24hr response time

Technicians dedicated to your local area with a 24hr response time.



Friendly service and advice

Pre property purchase service and advice.



Council Requirements

We send your service reports to your local council on your behalf and ensure that all council reporting requirements are met.

Warranty

Every Taylex Wastewater Treatment System is covered by a full manufacturer's warranty.

There is a 15 year warranty* on all ABS concrete & Poly systems. There is also a three year* warranty on all electrical and mechanical components, including the irrigation pump (a 12 month standard warranty and a further 24 months extended warranty is available when you purchase your 2nd and 3rd year of service calls with a Taylex Accredited Service Agent). Warranties apply from the date of commissioning or 90 days from the date of purchase (which-ever is sooner).

To ensure your warranty is valid, the following should be observed:

- **DO NOT** use system or allow wastewater to enter tanks before power services are available to the System and a Taylex Authorised specialist has been notified of pending occupancy of the property and has subsequently commissioned (activated) the system.
- **DO NOT** cover lids with soil.
- **DO NOT** position decking, concrete paths or driveways over System DO NOT allow surface water to enter the System by incorrect falls and landscaping around the system.
- **NEVER** turn the power off unless instructed to do so by your Service Agent.

This guarantee does not cover damage caused by misuse, neglect, failure to keep the unit clean and functional, accident, use of incorrect power supply, or repair or attempts to repair by unauthorised personnel. The benefits conferred by this warranty are in addition to all other rights and remedies in respect of the product which the consumer has under Australian Consumer Law.

*Terms and Conditions apply.

Taylex Warranty Statement


Taylex
WASTEWATER





Head Office
Taylex Australia Pty Ltd
56 Prairie Rd, Ormeau QLD 4208
ABN 43 646 051 989

Phone
07 3441 5200

TAYLEX.COM.AU

ATTACHMENT 6 – Traffic Impact Statement



June 2026

Final

Lot 83 Cheriton Road, Ginginup

A development by

CLAYMONT

COMMITTED TO BUILDING EXCELLENCE

Prepared For:

Claymont

Transport Impact Statement

Report

COUNTRY HEIGHTS

GINGIN

T: +61 8 9274 7076
F: +61 8 9274 4854
E: Admin@dvcworld.com

6 Burgess St Midland WA 6056
PO Box 5060 Midland WA 6056
www.dvcworld.com

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1. INTRODUCTION

1.1 BACKGROUND

Claymont has commissioned Donald Veal Consultants (DVC) to prepare this Transport Impact Statement (TIS) report in support of a subdivision application for Lot 83, Cheriton Road, Ginginup. The subdivision proposal is to provide 136 residential lots.

1.2 SCOPE OF THIS REPORT

The structure and scope of this Transport Statement are in accordance with Volume 3 (Subdivision Developments) of the Western Australian Planning Commission's Transport Impact Assessment Guidelines (2016).

The proposed land use is for residential lots. The proposed development is expected to between 10 and 100 trips in the peak hour. This is considered to constitute a moderate impact. Accordingly, only a brief non-technical Transport Impact Statement is required.

2. EXISTING SITE CONDITIONS

2.1 LOCATION

The development site is located on the eastern side of Cheriton Road in Ginginup, some 8km to the north of Gingin, in the Shire of Gingin. The general locality is shown in **Figure 2.1**, with more detail in **Figure 2.2**.



Figure 2.1: General Locality Map *Source: Google Earth*

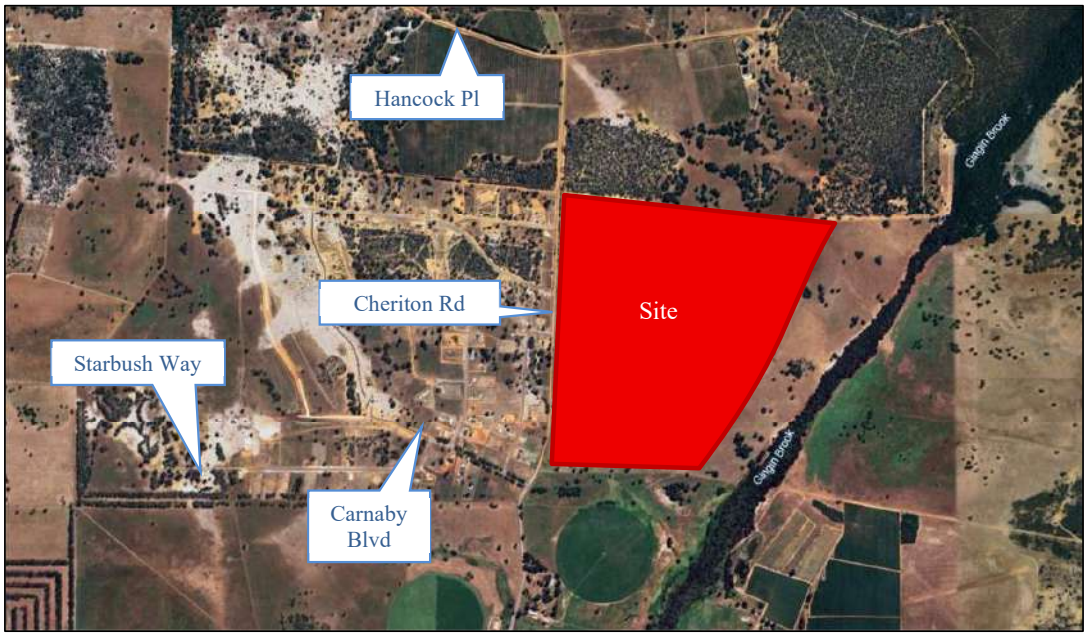


Figure 2.2: General Locality Plan *Source: Google Earth*

2.2 CURRENT LAND USES

The subject site is currently vacant and undeveloped, as shown in **Photo 1**.



Photo 1: The Site is currently vacant *Source: Google Street View*

According to the Shire of Gingin Local Planning Strategy map, the Site is currently zoned Rural residential. See **Figure 2.3**.

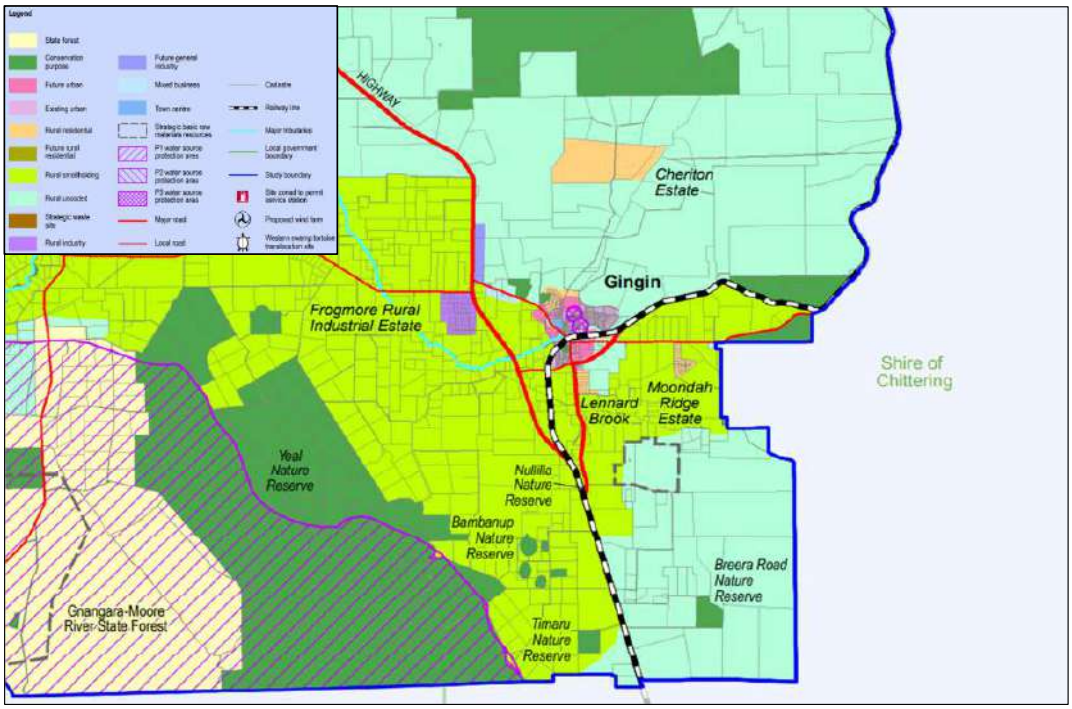


Figure 2.3: Land use Map *Source: Shire of Gingin Local Planning Strategy*

2.3 ADJCACENT ROAD NETWORK

The existing road network surrounding the site consists mainly of Cheriton Road and Hancock Place, however, a number of new roads have been constructed within the sub-division to the west of the site, including Starbush Way, Daviesia Fairway and Carnaby Boulevard.

These roads are all classified as Access Roads under Main Roads WA's (MRWA) Functional Road Hierarchy.

See **Figure 2.4.**

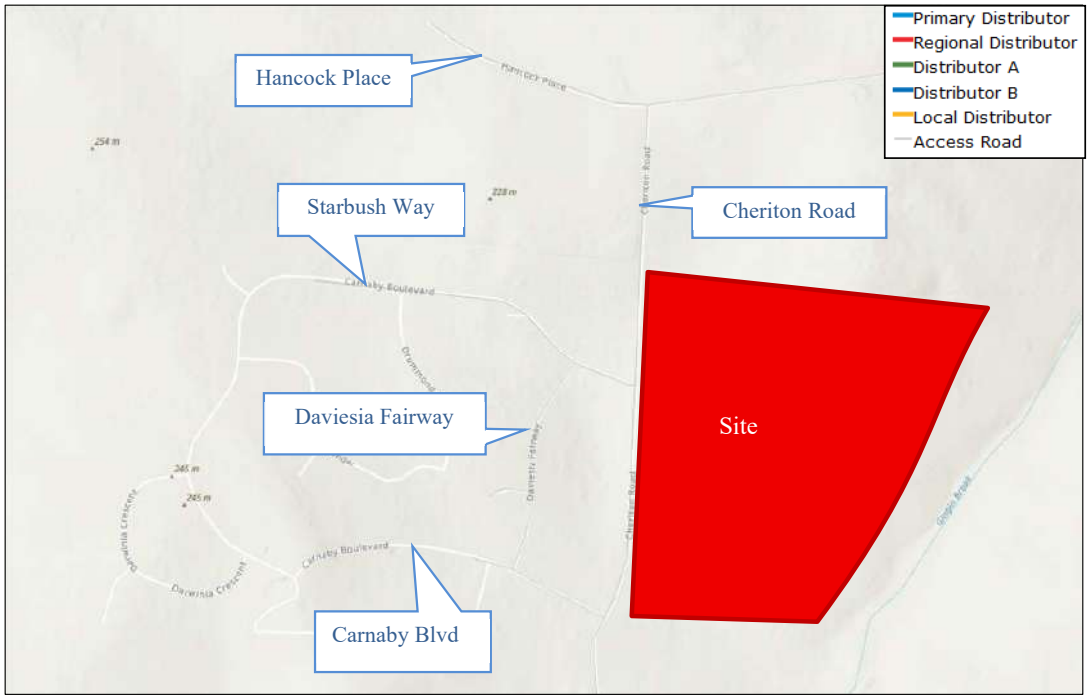


Figure 2.4: MRWA Functional Road Hierarchy *Source: MRWA*

Cheriton Road has recently been sealed along the site's western frontage, as part of the adjacent subdivision works. See **Photo 2**.



Photo 2: Cheriton Road looking north from Starbush intersection *Source: WML*

Whilst MRWA's Road information Mapping database shows that it has a speed limit of 80km/h, reducing to 50km/h approximately midway along the site frontage, it is understood that Cheriton Road is now posted at 80km/h past the site, with some sub-standard curves further south having advisory speed limits of 50.

All other roads in this vicinity have a posted speed limit of 50 km/h. See **Figure 2.5**.

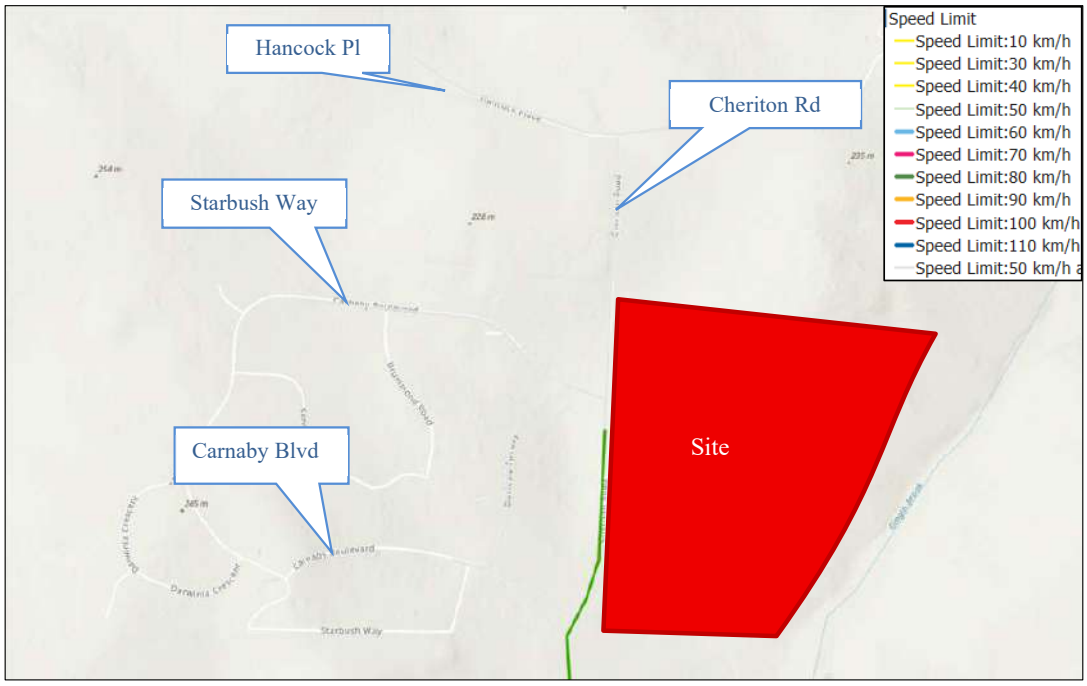


Figure 2.5: Posted Speed limits *Source: MRWA*

2.4 EXISTING TRAFFIC VOLUMES

MRWA's Traffic Map data base was checked for any recent traffic counts in the vicinity of the site, but no data was available. However, traffic volumes are expected to be low, typically less than 1,000 vehicle movements per day (vpd).

2.5 CRASH HISTORY

The MRWA Crash Analysis Reporting System (CARS) was interrogated for crash data within the blue area shown in **Figure 2.6**, for the latest five-year period from January 2021 to December 2025.

Two crashes were recorded on Cheriton Road during this time. One resulted in major property damage only, while the other required medical assistance. One of these crashes involved a kangaroo, whilst the other was a parking related incident.

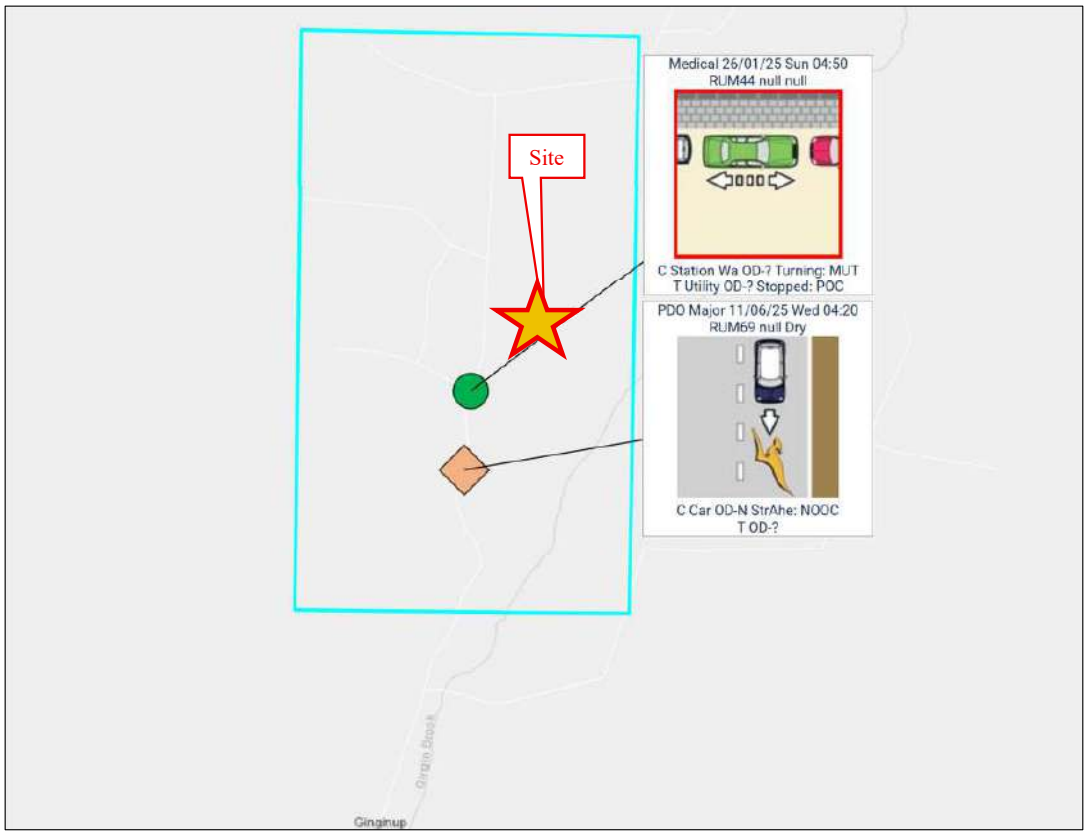


Figure 2.6: Crash Diagram for Area surrounding the Intersection *Source: CrashMaps*

2.6 PLANNED CHANGES TO THE ROAD NETWORK

DVC is unaware of any planned changes to the road network in the immediate vicinity of the site.

3. PROPOSAL

3.1 PROPOSED DEVELOPMENT

The subdivision proposal is to provide 136 residential lots on a 161.118 Ha Site, with each lot being above 1 Ha in size. **Figure 3.1** shows the latest concept layout plan. Further plans are included in **Appendix A**.

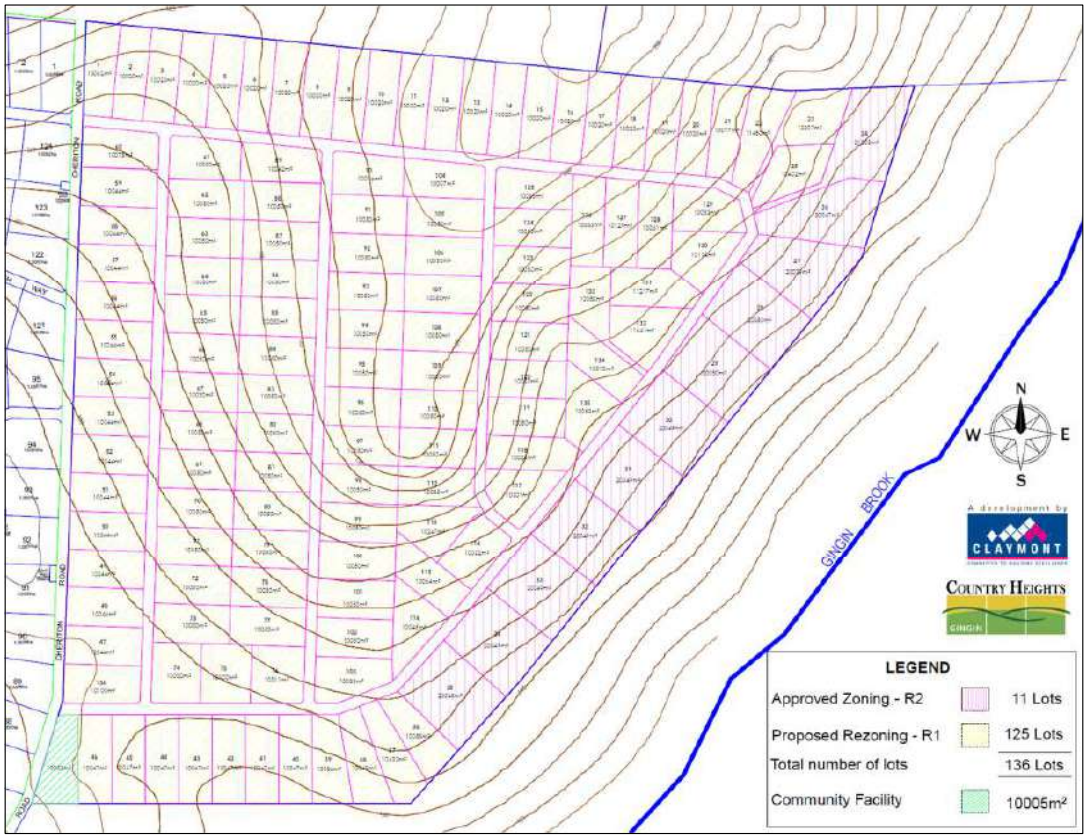


Figure 3.1: Site Concept Plan *Source: Claymont*

3.2 ACCESS ARRANGEMENTS

The internal road network of the subdivision will connect to Cheriton Road in two locations. As per the above concept plan, one of these will be located towards the northern end of the site and the other near the southern boundary.

It is noted that the northern access point will form a four-way intersection with Aquilo Road.

4. TRAFFIC IMPACT

4.1 TRIP GENERATION

RTA's Guide to Traffic Generating Developments provides a standard trip generation rate for residential developments of 9 daily vehicle trips per dwelling, with around 0.8 trips per dwelling in each weekday peak hour.

However, given the rural location, and based on DVC's previous experience of similar developments, it is considered unlikely that the lots would generate this number of daily trips. In our experience the likely trip generation would be in the region of 5 to 6 daily trips, with a peak hour rate of around 0.6.

This would indicate that the development might generate around 816 trips daily, including some 82 trips in the peak hour.

4.2 TRIP DISTRIBUTION

During the morning peak typically 75% of movements would be expected to exit the site and 25% to enter the site. This might reasonably be expected to be reversed for the afternoon peak period. See **Table 4.1**.

Table 4.1: Peak hour Trip Generation

Peak period	No. of Lots	Trip rate		Peak hour trips		Total
		Inbound	Outbound	Inbound	Outbound	trips
AM	136	0.15	0.45	20	62	82
PM	136	0.45	0.15	62	20	82

The Gingin townsite lies 8km to the south of the development, and offers a high school, Grocery stores, and other commercial businesses. It would therefore be expected that the majority of trips would be undertaken to and from the south.

4.3 SERVICE VEHICLES

The main service vehicle trips to be generated by the development will be refuse collection trucks, which are expected to service general waste and recycling bins from the verge.

4.4 ROAD SAFETY

No significant road safety issues have been identified in the proposed concept plan. However, care should be taken with the design and layout of the proposed four-way intersection on Cheriton Road, at the northern crossover to the site.

5. SUSTAINABLE TRANSPORT

5.1 PEDESTRIANS AND CYCLISTS

There are no cyclist or pedestrian facilities on Cheriton Road. See **Photo 3**.



Photo 3: Cheriton Road *Source: Google Street View*

However, it is not expected that the development would generate any pedestrian or cyclist trips in this area.

Again, the concept layout does not appear to show any cycle lanes or footpaths on the internal road network.

5.2 PUBLIC TRANSPORT

Currently, there are no public transport services operating within the vicinity of the site. However, there is a Trans WA service from Perth to Geraldton, which goes through the Gingin townsite, some 8 km to the south.

There is also a school bus service, again connecting to Gingin.

6. SUMMARY AND RECOMMENDATION

6.1 SUMMARY

Claymont has commissioned Donald Veal Consultants (DVC) to prepare this Transport Impact Statement report in support of a subdivision application for a future rural residential development at Lot 83 Cheriton Road, Ginginup. The subdivision proposal is to provide 136 residential lots.

The site is expected to generate some 816 vehicle per day (vpd) on weekdays and 82 vehicles per hour (vph) in the peak hour. The forecast peak hour traffic generation is within the 10 to 100 peak hour trip range generally identified for moderate impact developments under the WAPC Transport Impact Assessment Guidelines; hence no further analysis is required.

No specific road safety issues have been identified from the proposed subdivision concept, other than the proposed four-way intersection with Cheriton Road, at the northern site access. Care should be exercised with the design and layout of this intersection.

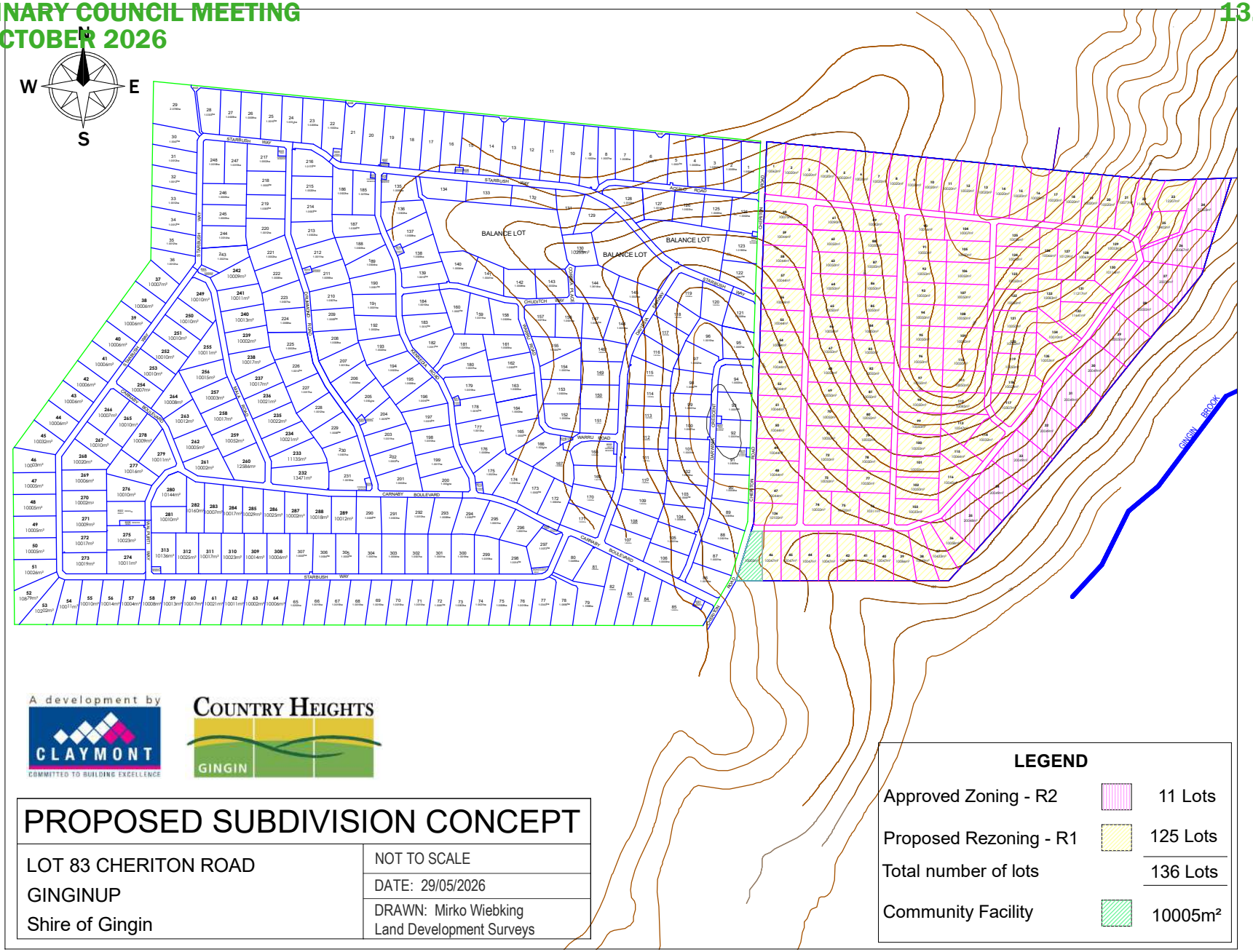
Service vehicle trips will primarily consist of weekly and fortnightly refuse collection.

Currently, there are no public transport services operating within the vicinity of the site. However, there is a Trans WA service from Perth to Geraldton, which runs through the Gingin townsite, some 8 km to the south, as well as a school bus service.

6.2 RECOMMENDATIONS

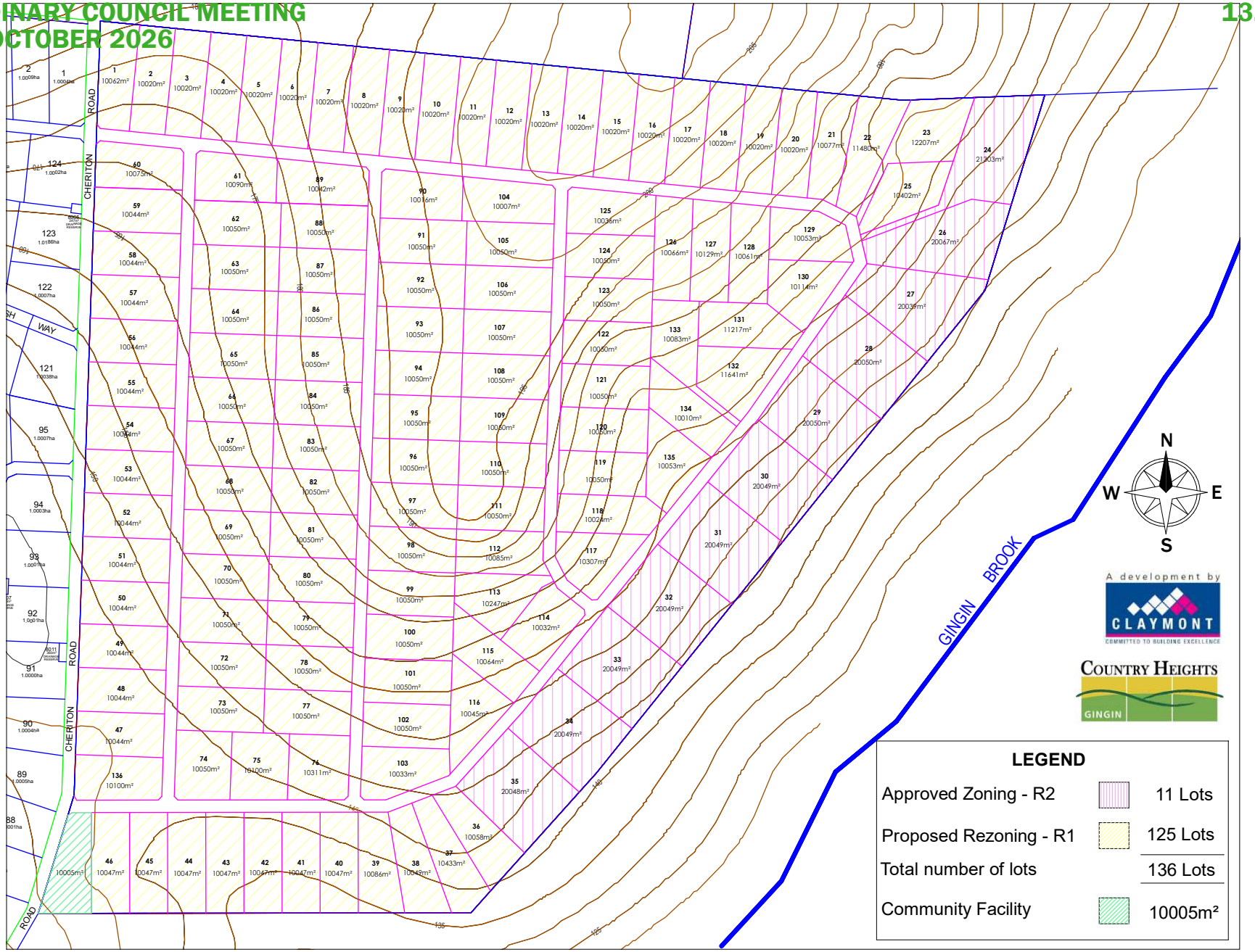
Based on this report we fully support the development application in terms of its traffic and road safety impact and recommend its approval.

APPENDIX A: CONCEPT PLANS



PROPOSED SUBDIVISION CONCEPT

LOT 83 CHERITON ROAD GINGINUP Shire of Gingin	NOT TO SCALE DATE: 29/05/2026 DRAWN: Mirko Wiebking Land Development Surveys


CHERITON ROAD
WAY
GINGIN BROOK
N
W
E
S
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2 11 Lots
Proposed Rezoning - R1 125 Lots
Total number of lots 136 Lots
Community Facility 10005m²

ATTACHMENT 7 – Urban Water Management Plan

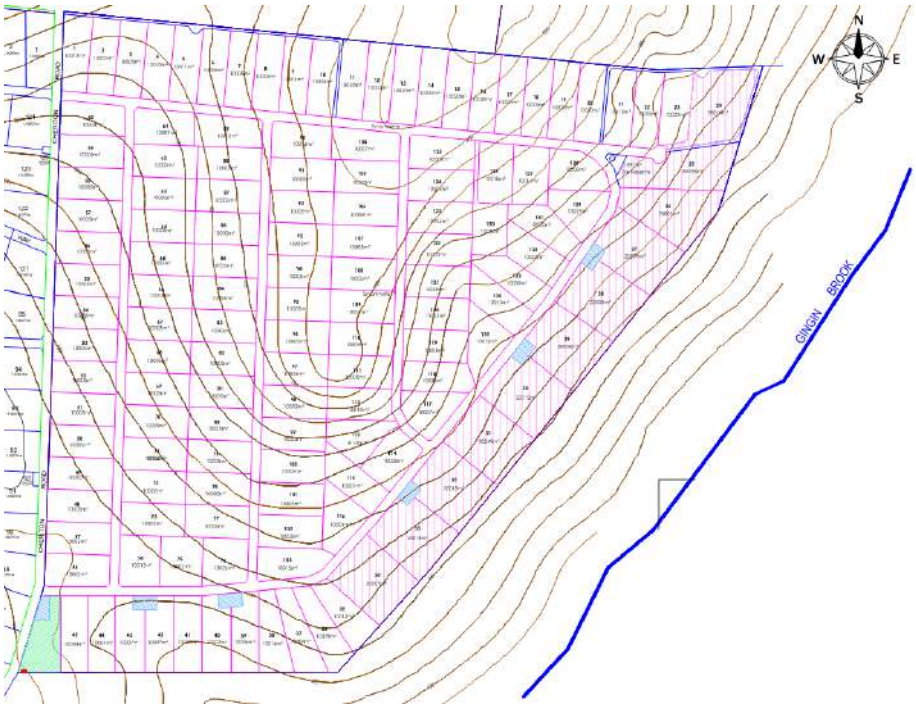
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ABN: 63 613 953 772
2 Draper Place, Kewdale, WA 6105
admin@engenuityengineering.com.au
www.engenuityengineering.com.au

CLIENT:	**Claymont Group Pty Ltd**
ADDRESS:	Level 1, 189 St Georges Terrace, Perth WA 6000
DATE:	29 July 2026
JOB NUMBER:	12079
REF:	12079-Country Height Estate 2_Cheriton Road, Ginginup, WA-RPT01

URBAN WATER MANAGEMENT PLAN

RE: Country Height Estate 2_Cheriton Road, Ginginup, WA



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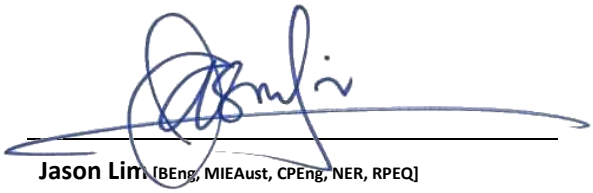
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This document is certified by:



Jason Lim [BEng, MIEAust, CPEng, NER, RPEQ]

Commercial and Civil Engineering Manager
ENGenuity Engineering PTY LTD

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PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

BUNBURY OFFICE
73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599

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1.0 SUMMARY

ENGenuity Engineering has been engaged by our client, Claymont Group Pty Ltd, to prepare an Urban Water Management Plan for the proposed Country Heights Estate Stage 2 rural residential development at Lot 83 Cheriton Road, Ginginup WA. The proposed development comprises the subdivision of the approximately 162-hectare site into 136 rural residential lots, including 125 lots proposed to be re-zoned to the Rural Living 1 zone to facilitate a minimum lot area of 1Ha, and 11 lots to remain under the current zoning, Rural living 2, and maintain a 2Ha minimum lot size. The proposed development includes a 1 Ha lot to be dedicated to council as a community facility site, and associated internal roads corridors providing access, drainage infrastructure and service corridors to service the proposed subdivision.

The key elements of the drainage design have been summarised in the below table.

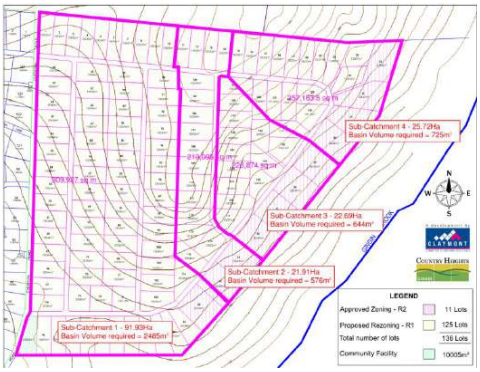
Table 1-1 KEY ELEMENTS OF THE DESIGN

Key Elements	Proposed Solution
Management of Groundwater Quantity	Geotechnical investigation of the site confirms that the soil conditions are suitable for infiltration with a median permeability recorded at 7.3m/Day. On this basis, it is proposed that stormwater flows are returned to the groundwater network by a combination of lot based soakwells, roadside swales and drainage infiltration basins designed to offset the increased runoff from the site to match the predevelopment conditions. Groundwater recharge is of particular importance for the site as the development will be utilising groundwater extraction from the Gingin – Perth – Leerderville – Parmelia Confined Aquifer for potable water supply.
Management of Minor storm flows	Minor storm Flows (1 year and 5 year ARI events) are proposed to be managed by infiltration via lot based soakwells (to be conditioned on future individual lot building approvals), and infiltration via roadside swales. Given the median soil permeability of 7.3m/day, the travel time in the roadside swales is considered sufficient to infiltrate the stormflows up to and including the 5 year ARI event.
Management of Major Storm Flows	Major storm Flows (100-year ARI event) are proposed to be managed by infiltration via drainage infiltration basins positioned within the sub catchment areas of the proposed development. Given that the 5-year ARI event is being captured and infiltrated within the roadside swales, drainage infiltration basins have been sized to contain the increase in runoff volume expected between the pre- and post-development 100-year storm events, minus the 5-year storm event volume. The 4 sub-catchment areas and proposed Infiltration Basin Volumes are detailed below in Figure 1-2.

PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

BUNBURY OFFICE
73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599

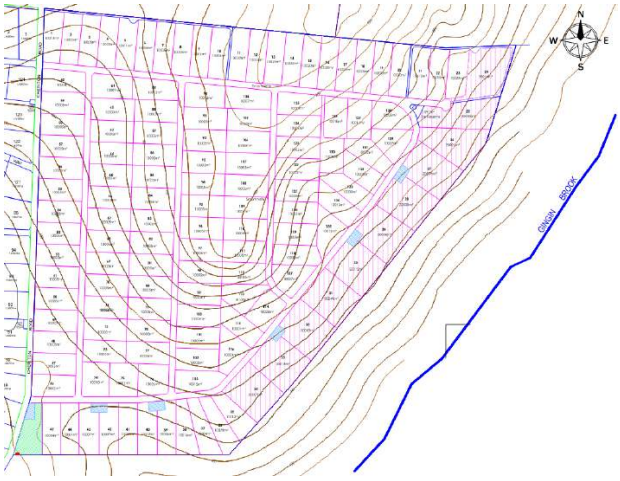
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	Figure 1-1 SUB-CATCHMENT INFILTRATION BASIN VOLUMES  Rational Method Calculations of the expected pre and post-development flow rates can be seen in Section 6.1.
Management of Stormwater Quality	Stormwater Quality is proposed to be managed by bio-retention vegetation planted within the proposed roadside swales and infiltration basin. The vegetation will include native reeds and sedges to aid in the mechanical and chemical treatment of stormwater flows lessening sediments, gross pollutants and nutrients leaching into the groundwater system. In addition to the vegetation within the stormwater network providing bio-retention treatment, it is proposed that additional soil testing be undertaken during the detailed design phase of the development to investigate the potential benefit of soil replacement within areas of the roadside swales, with a sandy-loam material with an elevated Phosphorus Retention Index (PRI). This is to be considered in areas of extremely high permeability where PRI may be low, and the absorptive capacity of the soils during infiltration is limited.
Implementation and Monitoring	An Implementation plan has been detailed for the project as detailed in Section 8.6. A Monitoring Plan has been details for the project as detailed in Section 8.7.

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2.0 PLANNING APPROVAL

Table 2-1 PLANNING APPROVAL

Planning Approval Elements	
Site Address	Lot 83 Cheriton Road, Ginginup WA
WAPC subdivision application or approval	WAPC Number Pending
Surrounding approvals	Surrounding approvals include the previous stage of the Country Heights Estate Subdivision (west side of Cheriton Road) under WAPC No. 153068
Location Plan	The site is located approximately 7.5km North of the Shire of Gingin Council Chambers. *Figure 2-1 SITE LOCATION* 
Proposed Subdivision design	The proposed 136 rural residential lot subdivision is shown below. It is proposed that 6 infiltration basins will receive flows from the roadside swale network and be located in the southernmost lots as shown below. *Figure 2-2 PROPOSED SUBDIVISION PLAN* 

3.0 DESIGN OBJECTIVES

The following issues concerning stormwater quantity and quality will be addressed within this report:

- Identify the location of the lawful discharge point(s) of discharge.
- Prepare a concept stormwater layout for the proposed development.
- Review the pre and post developed Stormwater Quantity flow rates and if required, develop a suitable stormwater detention/infiltration design to mitigate additional flows impacting downstream neighbours or council owned infrastructure.
- Address a Stormwater Quality Plan for the proposed development.

The following site-specific supporting information has informed the UWMP:

• Proposed Subdivision Layout Plan prepared for Country Heights Estate 2 (Appendix A)

• Geotechnical Investigation prepared by Structure Consulting dated 9 October 2025 (Appendix D)

Further, the design has been guided by the following guidelines:

• Better Urban Water Management (WAPC, 2008);

• Stormwater Management Manual for Western Australia (DoW, 2004 – 2007).

• Australian Rainfall and Runoff: A Guide to Flood Estimation (Geoscience Australia, 2016)

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4.0 SITE CHARACTERISTICS

4.1 LOCATION AND SITE TOPOGRAPHY

The proposed development site is located approximately 7.5 km north of the Gingin town center and approximately 74.5 km north of the Perth Central Business District. The site address is Lot 83 Cheriton Road, Ginginup WA and is situated within the Shire of Gingin. The site is bordered by Cheriton Road to the west, and rural farmland to the north, east and south, with Gingin Brook located approximately 300m from the site's eastern boundary.

The topography of the site in its current state is undulating, with the land generally falling away from a central crest line that peaks towards the northern portion of the site. Ground-surface levels across the site range from approximately RL210m at the center of the northern boundary to RL135-144m along the southern boundary. Existing surface runoff follows the natural topography, all flows are directed towards the south-east, with concentrated flow occurring through localized low points towards Gingin Brook. The western portion of the crest locally overland flows to the southwest before turning east and ultimately also contributes to Gingin brook. The total site area is approximately 162 hectares.

It is understood that the historic uses of the site and surrounding land was primarily cattle and livestock grazing/farming.

Figure 4-1 AERIAL PHOTOGRAPH



4.2 LAWFUL POINT OF DISCHARGE

Based on the available site contour, stormwater runoff from the site discharges along the eastern and southern site boundaries generally as overland sheet flow.

Figure 4-2 EXISTING FLOW PATHS



4.3 GEOTECHNICAL CONDITIONS

A geotechnical investigation of Lot 83 was undertaken by Structerre Consulting in September 2025 (Job No. J489094, dated 9 October 2025), as seen in Appendix D.

The investigation indicates the site is underlain by colluvium; soil and undifferentiated sand over laterite of coastal plain, including minor alluviated areas. The subsurface profile across the site typically comprises:

- Topsoil: 0.1 m to 0.3 m thick (typically about 0.2 m), overlying,
- SAND / silty SAND: extending to the full 2.5 m investigation depth at 33 of the 39 profiled borehole locations, underlain in places by,
- Clayey SAND: encountered from 1.7 m (BH17), 1.5 m (BH23), 1.9 m (BH26) and from 0.2 m (BH38), and
- Sandy CLAY: encountered from approximately 0.9 m at BH29 and BH32.

Groundwater was not encountered in any borehole, and no uncontrolled fill and no laterite were identified during the investigation. Laboratory testing of the deeper cohesive soils returned liquid limits of 29 to 56 percent, plasticity indices of 17 to 34 percent and linear shrinkage of 6.5 to 15 percent, indicating moderate to high shrink-swell capacity

Thirty-nine in-situ percolation tests were undertaken at depths of between 0.45 m and 1.0 m to provide information on the drainage capabilities of the soil present over the site; all tests but one were within SAND / silty SAND. Results from the tests suggest the following:

- 22 out of 39 tests have high to very high infiltration rates (greater than 5m/d)
- 14 tests have a moderate infiltration rate (between 1m/d and 5m/d), and
- 3 tests have a low infiltration rate (<1m/d), recorded at BH12 (0.64 m/day), BH26 (0.8 m/day) and BH29 (0.9 m/day).
- The percolation test results indicate the encountered ground conditions are generally suitable for infiltration, and the site can be managed by on-site disposal of stormwater runoff.

The full percolation test results are reproduced in Table 3 below (median 7.3 m/day; range 0.64 to 20.0 m/day).

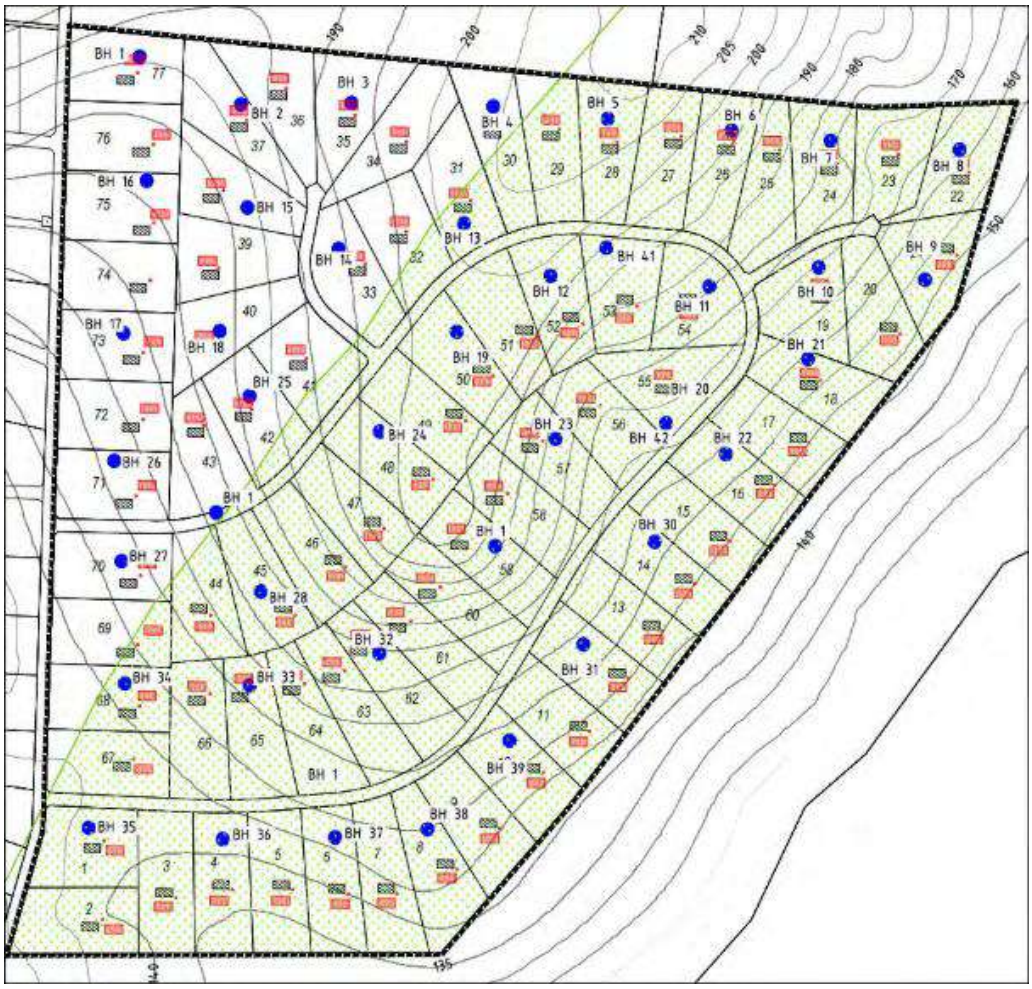
Table 4-1 PERMEABILITY TEST RESULTS (STRUCTERRE, 2025)

Borehole Location	Testing Depth (m)	Soil Type	Permeability (m/day)
BH 1	0.75 – 1.0	SAND	26.9
BH 2	0.65 – 0.9	SAND	8.5
BH 3	0.65 – 0.9	SAND	7.2
BH 4	0.75 – 1.0	SAND	1.7
BH 5	0.65 – 0.9	SAND	10.9
BH 6	0.75 – 1.0	SAND	10.0
BH 7	0.5 – 0.75	SAND	9.1
BH 8	0.65 – 0.9	SAND	2.6
BH 9	0.75 – 1.0	SAND	13.0
BH 10	0.75 – 1.0	SAND	4.8
BH 11	0.75 – 1.0	SAND	2.9
BH 12	0.75 – 1.0	SAND	0.6
BH 13	0.75 – 1.0	SAND	1.3
BH 14	0.75 – 1.0	SAND	4.4
BH 15	0.75 – 1.0	SAND	26.9
BH 16	0.75 – 1.0	SAND	11.1
BH 17	0.65 – 0.9	SAND	1.8
BH 18	0.65 – 0.9	SAND	17.7
BH 19	0.65 – 0.9	SAND	5.7
BH 20	0.75 – 1.0	SAND	2.4
BH 21	0.65 – 0.9	SAND	9.8
BH 22	0.75 – 1.0	SAND	2.8
BH 23	0.65 – 0.9	SAND	8.5
BH 24	0.65 – 0.9	SAND	7.7
BH 25	0.75 – 1.0	SAND	16.4
BH 26	0.75 – 1.0	SAND	0.7
BH 27	0.65 – 0.9	SAND	1.5
BH 28	0.65 – 0.9	SAND	8.5
BH 29	0.45 – 0.7	SAND	0.9
BH 30	0.55 – 0.8	SAND	3.6
BH 31	0.75 – 1.0	SAND	4.3
BH 32	0.65 – 0.9	SAND/SANDY CLAY	1.2
BH 33	0.55 – 0.8	SAND	9.3
BH 34	0.55 – 0.8	SAND	3.8
BH 35	0.65 – 0.9	SAND	31.6
BH 36	0.75 – 1.0	SAND	13.0
BH 37	0.65 – 0.9	SAND	6.3
BH 38	0.45 – 0.7	SAND	19.1

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Based on the analysis of the permeability testing, a preliminary permeability value of 7.3 m/day (the median of the 39 in-situ percolation results) has been adopted as being indicative of the site. The three results below 1.0 m/day were recorded at BH12, BH26 and BH29; drainage infrastructure in the vicinity of these locations should adopt locally reduced rates or be verified by additional testing. Structerre also recommends that permeability rates be reconfirmed during and after completion of the earthworks.

Figure 4-3 *AREAS WHERE REDUCED PERMEABILITY RATES WERE IDENTIFIED*



5.0 WATER SUSTAINABILITY INITIATIVES

The development has been designed to encourage the efficient use of water resources in accordance with the objectives of the State Water Plan (2007). Water conservation is proposed to be achieved through the use of water-efficient fixtures, waterwise landscaping, responsible household water use, and, where appropriate, consideration of alternative non-potable water source usage.

Potable water will be supplied from a licensed groundwater bore within the Gingin Groundwater Allocation Plan area. The groundwater licence permits extraction of 200,000kL per annum.

It is proposed that the development will promote a waterwise development by encouraging future home owners to implement strategies such as:

- Installation of water-efficient plumbing fixtures and appliances.
- Use of high-efficiency hot water systems.
- Building layouts that minimise hot water losses.
- Pool covers for all new swimming pools.
- On-site retention of stormwater through appropriately sized soakwells.
- Promotion of waterwise landscaping and responsible outdoor water use.

Landscaping will incorporate waterwise design principles to reduce irrigation demand and improve long-term water efficiency. Where practical, landscaping will include drought-tolerant or native species, hydro-zoning of vegetation, improved soil conditions to enhance moisture retention, and efficient irrigation systems where required. However, given the large rural residential lot sizes, extensive reticulated irrigation is not anticipated within the development.

In addition to the above, as detailed in the stormwater quality section of this report, infiltration is proposed to be promoted by the use of roadside swales and infiltration basins sized to allow the capture and reabsorption of surface waters for groundwater recharge.

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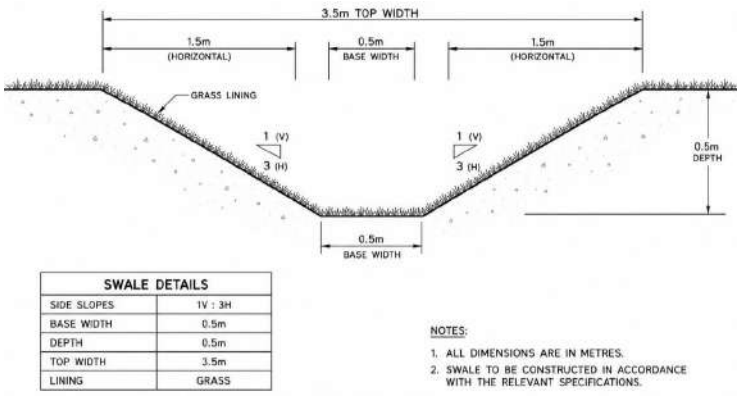
6.0 STORMWATER AND GROUNDWATER MANAGEMENT

6.1 STORMWATER QUANTITY

6.1.1 MINOR STORM EVENTS

Flows from the minor storm events, 1 year and 5 year, are proposed to be managed by infiltration via lot based soakwells (to be conditioned on future individual lot building approvals), and infiltration via roadside swales. Given the median soil permeability of 7.3m/day (0.08mm/s), the travel time in the roadside swales is expected to be approximately 10 minutes and the expected storm infiltration depth is expected to be approx. 50mm during the 10 minute storm event, and the ongoing infiltration capacity is expected to infiltrate all storm intensities under 4.8mm/hr. Based on these approximations from the geotechnical conditions at the site, the roadside swales are sufficient to infiltrate stormflows up to and including the 5 year ARI event; and will work in combination with the future lot based soakwell systems.

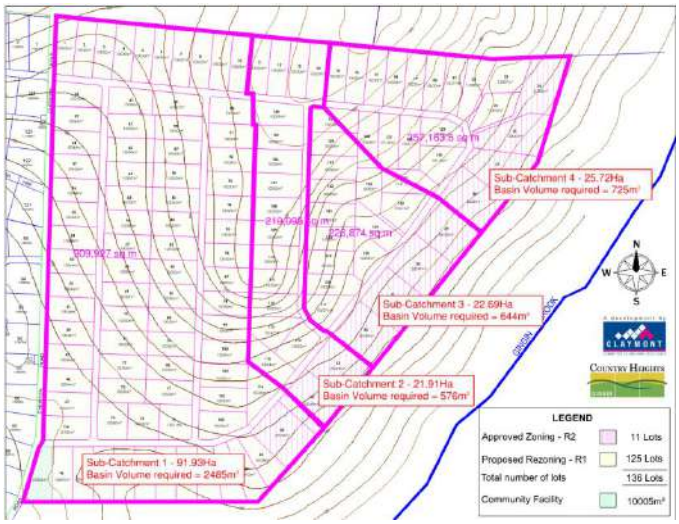
Figure 6-1 TYPICAL ROADSIDE SWALE SECTION



6.1.1 MAJOR STORM EVENTS

Management of major storm flows (up to the 100-year ARI event) are proposed to be managed by drainage infiltration basins positioned within the sub catchment areas of the proposed development. Given that the 5-year ARI event is being captured and infiltrated within the roadside swales, the infiltration basins have been sized to contain the increase in runoff volume expected between the pre- and post-development 100-year storm events, minus the 5-year storm event volume. The 4 sub-catchment areas and proposed Infiltration Basin Volumes are detailed below.

Figure 6-2 SUB-CATCHMENT INFILTRATION BASIN VOLUMES



Rational Method Calculations of the expected pre- and post-development storm flows and volumes and the calculation of the basin volumes can be seen below Table 6-1.

Rational Method Calculations can be reviewed in Appendix C.

Table 6-1 BASIN STORAGE VOLUMES

Sub-catchment	Post-Development 5-year Storm Volume (m^3)	Pre-Development 100-year Storm Volume (m^3)	Post-Development 100-year Storm Volume (m^3)	Infiltration Basin Storage Volume (m^3)
1	250.4	2279.3	5014.5	2485
2	82.8	548.8	1207.5	576
3	37.4	568.1	1249.9	644
4	48.1	644.3	1417.4	725

6.2 STORMWATER QUALITY

Stormwater Quality is proposed to be managed by bio-retention vegetation planted within the roadside swales and infiltration basins. The vegetation will include native reeds and sedges to aid in the mechanical and chemical treatment of stormwater flows lessening sediments, gross pollutants and nutrients leaching in the surface water system, and subsequently into the groundwater system.

In addition to the vegetation within the stormwater network providing bio-retention treatment, it is proposed that additional soil testing be undertaken during the detailed design phase of the development to investigate the potential benefit of soil replacement within areas of the roadside swales, with a sandy-loam material with an elevated Phosphorus Retention Index (PRI). This is to be considered in areas of extremely high permeability, where the PRI may be low, and the absorptive capacity of the soils during infiltration is limited.

Further to the above, it is proposed that future lot owners should be educated and encouraged to utilise onsite wastewater treatment systems that incorporated 'secondary treatment' of effluent and potentially disinfection by chlorination or UV light to lessen the nutrient loading of subsoils by septic irrigation. It should be noted that the depth to the regional aquifers is expected to be in the order of approximately 100m based on geotechnical investigations of neighbouring sites, and as such the risk of pathogen migration through the extensive soil layers and impacting the regional aquifers is generally considered low.

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7.0 LANDSCAPE CONCEPT

The site is predominantly cleared and covered with grassed vegetation. A central corridor retains existing native trees and shrubs, representing the primary area of remnant vegetation. Typical existing site conditions identified during the geotechnical investigation are shown in Figure 7-1.

Figure 7-1 TYPICAL EXISTING SITE CONDITIONS (STRUCTERRE, 2025)



The landscape strategy for the development has been designed to minimise irrigation demand through the use of water-efficient planting, appropriate soil treatments, and sustainable irrigation practices, where required. The following measures will be implemented where practical:

- Select drought-tolerant, waterwise plant species that are well suited to local climatic conditions, with preference given to native vegetation.
- Group plants with similar water requirements to maximise irrigation efficiency where possible.
- Improve planting areas with soil conditioners to a depth of 300mm where required.
- Establish native reeds, sedges, and other suitable species within roadside bio-retention swales and infiltration basins to support stormwater treatment and enhance ecological function.
- Provide purchasers of residential lots with waterwise landscaping guidance to encourage low-water-use garden designs at the individual lot scale.
- Retain existing native vegetation wherever reasonably practicable through the detailed earthworks and site design process.

Given the large residential lot sizes and the intended rural character of the development, reticulated irrigation systems are not anticipated to form part of the development, as extensive irrigated landscaping is not expected to be required by future landowners.

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8.0 MONITORING, MANAGEMENT AND IMPLEMENTATION OF SUBDIVISION WORKS

8.1 PRE-CONSTRUCTION

Prior to construction, erosion and sediment control measures will be installed to minimise site disturbance and protect downstream water quality. Controls will include:

- Designated construction access routes and stabilised entry/exit points in accordance with IECA Guidelines.
- Sediment fencing along the downslope perimeter of disturbed areas.
- Temporary check dams where required to reduce surface water runoff velocities.

8.2 CONSTRUCTION

During earthworks and construction, the following measures will be implemented to minimise sediment transport and maintain water quality:

- Sediment fencing around exposed batters and stockpiles.
- Temporary diversion swales, turf filter strips, rock check dams and sediment basins where required, also considerations should be made for constructing the infiltration basins and utilising these areas as temporary sedimentation basins during the roadworks and bulk earthworks phases.
- Progressive stabilisation and revegetation of disturbed areas.
- Routine inspection and maintenance of erosion and sediment controls, particularly following rainfall events.
- Installation of permanent stormwater treatment infrastructure during the final stages of construction to minimise filter media clogging.

8.3 CONSTRUCTION MANAGEMENT

Construction activities will be undertaken in accordance with industry best practice and an approved Erosion and Sediment Management Plan (ESMP) to minimise impacts on adjacent land, waterways and existing drainage infrastructure.

8.4 DRAINAGE INFRASTRUCTURE

Drainage swales, infiltration basins and associated stormwater infrastructure will be inspected throughout construction and prior to Practical Completion to ensure they remain free of excessive sediment buildup, litter and construction debris.

Roads will be monitored during construction and swept where necessary to reduce sediment overloading the drainage network.

8.5 DUST AND SEDIMENT CONTROL

Dust and sediment will be managed through a combination of vegetation retention where practicable, progressive regrowth and stabilisation of disturbed areas, dust suppression using non-potable water, covered truck loads and stabilised site access points.

Temporary erosion and sediment controls will be maintained throughout construction in accordance with the approved ESMP and relevant regulatory requirements.

8.6 POST-DEVELOPMENT MONITORING

Following construction, the stormwater management system will be monitored to confirm ongoing performance. Inspections will focus on:

- Drainage performance and ponding duration
- Erosion and scour
- Sediment accumulation
- Litter
- Vegetation health

Where monitoring identifies reduced drainage performance or water quality issues, maintenance or corrective actions will be undertaken. Monitoring outcomes will be documented by the developer and provided to the Shire of Gingin during the defect liability period.

Table 8-1 MONITORING PLAN

Item	Frequency	Action
Surface water quality	Monthly during winter, or as required	Inspect ponding and water quality; undertake testing if required.
Erosion and scour	Following significant rainfall / six-monthly while surface vegetation is disturbed.	Repair affected areas.
Sediment build-up	Six-monthly	Remove accumulated sediment where required.
Litter	As required	Remove litter and debris.
Vegetation health	Quarterly	Control weeds and replace failed vegetation where necessary.

8.7 IMPLEMENTATION RESPONSIBILITIES

Table 8-2 IMPLEMENTATION PLAN

Activity	Responsibility
Construction of drainage infrastructure	Developer
Maintenance during defects liability period	Developer
Ongoing drainage maintenance	Shire of Gingin
Water infrastructure	Country Heights Water Pty Ltd
Sewer Infrastructure	Managed by Lot owners by onsite wastewater treatment systems
Lot soakwells	Lot Owners
Waterwise landscaping education	Shire of Gingin
Post-development monitoring and reporting	Developer

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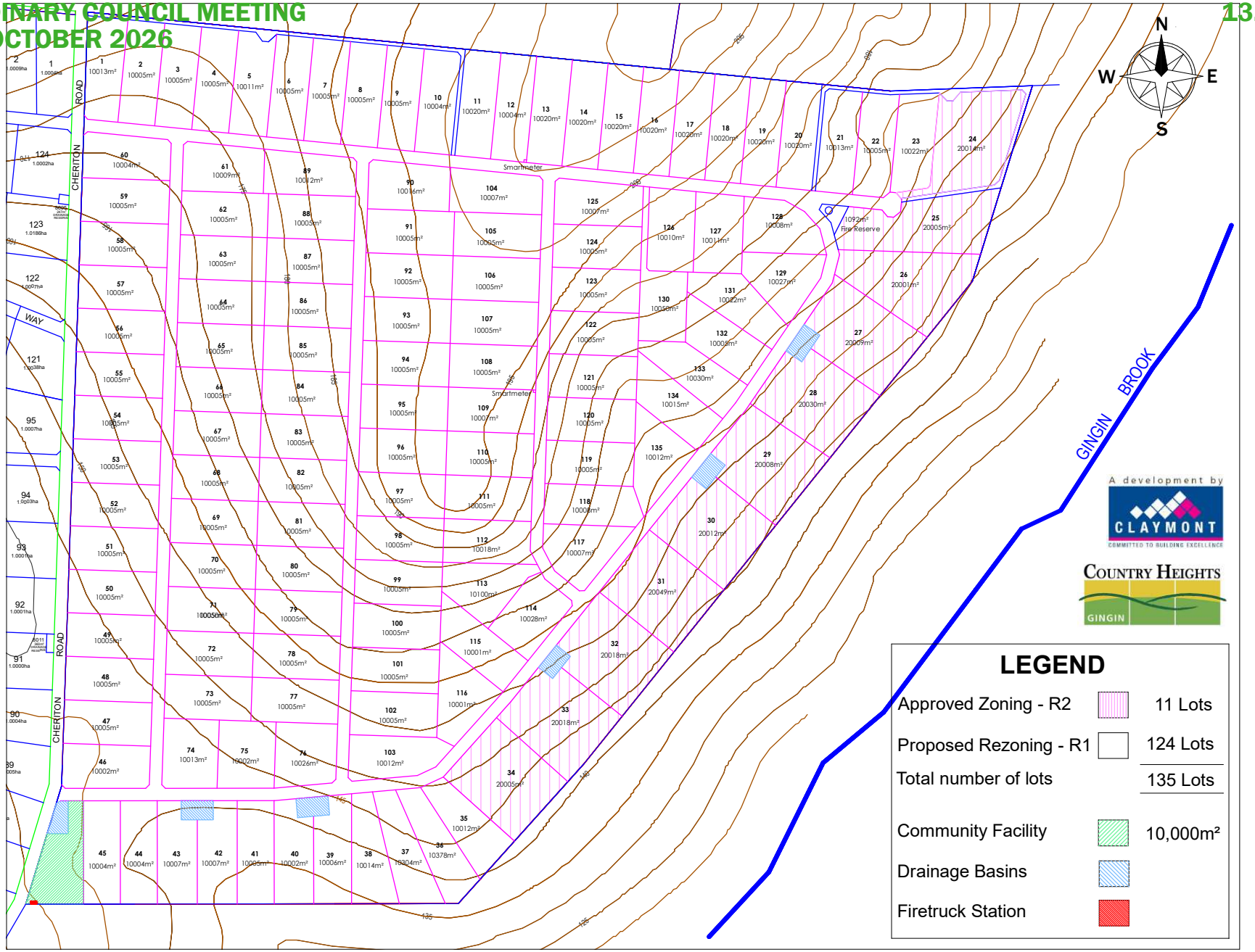
APPENDICES

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Appendix A – PROPOSED SUBDIVISION LAYOUT

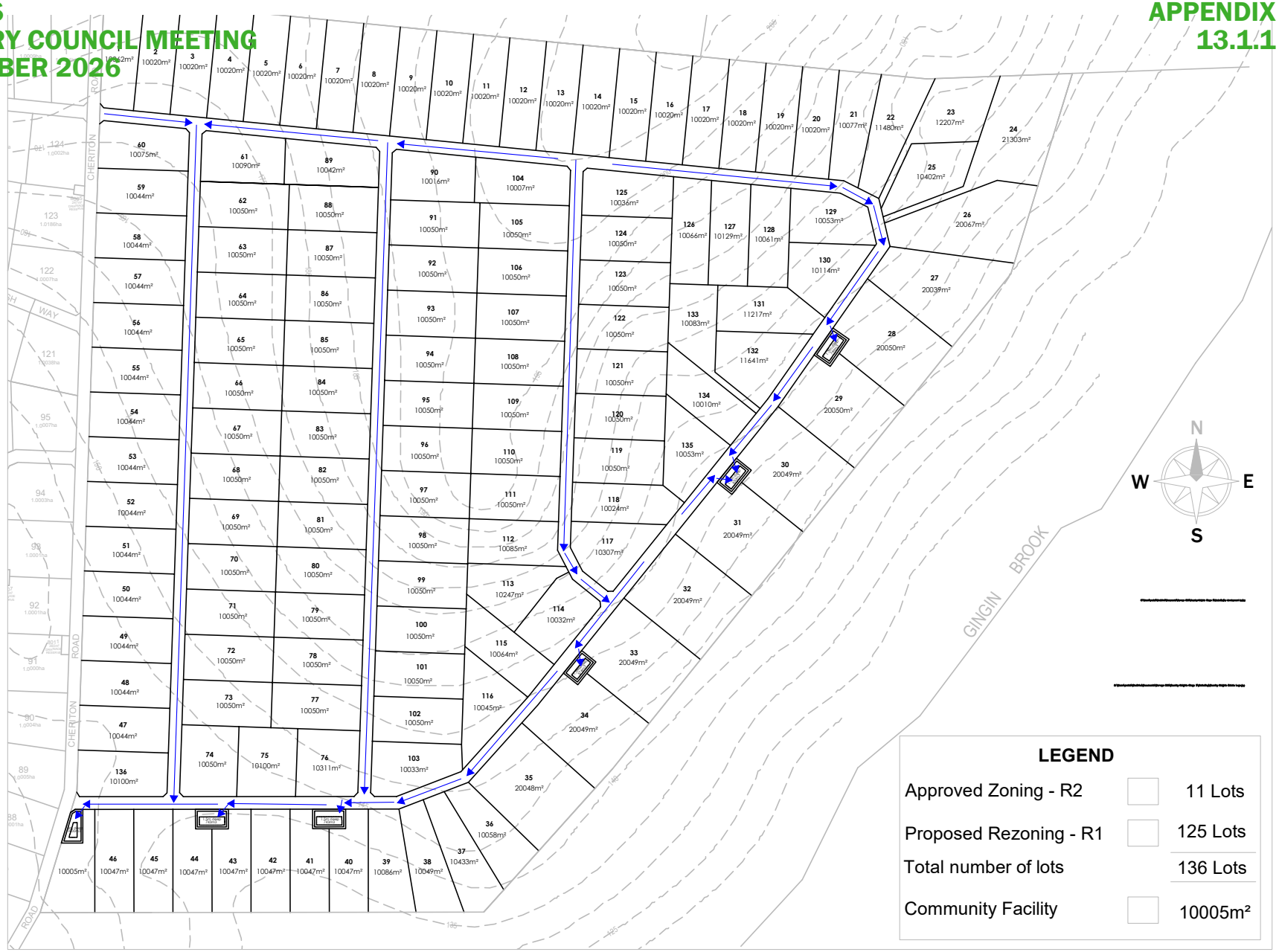
PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

BUNBURY OFFICE
73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599


N
W
E
S
CHERITON ROAD
WAY
GINGIN BROOK
Smartmeter
1092m² Fire Reserve
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2 11 Lots
Proposed Rezoning - R1 124 Lots
Total number of lots 135 Lots
Community Facility 10,000m²
Drainage Basins
Firetruck Station

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Appendix B – CONCEPT STORMWARTER DRAINAGE PLAN


CHERITON ROAD
GINGIN BROOK
N
W
E
S
LEGEND
Approved Zoning - R2
11 Lots
Proposed Rezoning - R1
125 Lots
Total number of lots
136 Lots
Community Facility
10005m²

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Appendix C – RATIONAL METHOD CALCULATIONS

	Pre-Development Runoff											
	1 in 5 ARI						1 in 100 ARI					
Catchment	time (hrs)	i, (mm/hr)	C	Road Area (ha)	Q(m3/s)	V(m3)	time (hrs)	i, (mm/hr)	C	Full Catchment Area (ha)	Q(m3/s)	V(m3)
1	0.167	71.7	0.1	6.97	0.1388	83.5	0.167	150	0.1	90.99	3.7913	2279.3
2	0.167	71.7	0.1	2.31	0.0459	27.6	0.167	150	0.1	21.91	0.9129	548.8
3	0.167	71.7	0.1	1.04	0.0207	12.5	0.167	150	0.1	22.68	0.9450	568.1
4	0.167	71.7	0.1	1.34	0.0267	16.0	0.167	150	0.1	25.72	1.0717	644.3

	Post-Development Runoff											
	1 in 5 ARI						1 in 100 ARI					
Catchment	time (hrs)	i, (mm/hr)	C	Road Area (ha)	Q(m3/s)	V(m3)	time (hrs)	i, (mm/hr)	C	Full Catchment Area (ha)	Q(m3/s)	V(m3)
1	0.167	71.7	0.3	6.97	0.4165	250.4	0.167	150	0.22	90.99	8.3408	5014.5
2	0.167	71.7	0.3	2.31	0.1378	82.8	0.167	150	0.22	21.91	2.0084	1207.5
3	0.167	71.7	0.3	1.04	0.0621	37.4	0.167	150	0.22	22.68	2.0790	1249.9
4	0.167	71.7	0.3	1.34	0.0801	48.1	0.167	150	0.22	25.72	2.3577	1417.4

	Storage Volume Required		
Catchment	1:5 Storage	1:100 ARI Difference	Infiltration Storage Volume (m3)
1	250.4	2735.2	2485
2	82.8	658.6	576
3	37.4	681.8	644
4	48.1	773.1	725

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Appendix D – BORELOGS

Borehole Record: BH01

Project: Country Heights Stage 2	**Position:** Easting: 397922.86	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538999.73	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): poorly graded, medium grained, yellow.				26.9	
	2.0									
					BH01 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398149.34
Northing: 6538970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow, moist.				8.5	
	1.0					M	VL			
	2.0									
					BH02 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH03

Project: Country Heights Stage 2	**Position:** Easting: 398395.46	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538948.37	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
					Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.				7.2	
	1.0	Natural		SM		D	L-MD			
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH04

Project: Country Heights Stage 2	**Position:** Easting: 398584.82	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538928.84	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL	2 2 2 1 2	1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH05

Project: Country Heights Stage 2	**Position:** Easting: 398791.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538907.74	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.9	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6538886.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	1.0	Non-soil / Natural		TS / SP	Topsoil. Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.	M	L	3, 4, 5, 5, 3, 4	10.0	
					BH06 Terminated at 2.5 m					



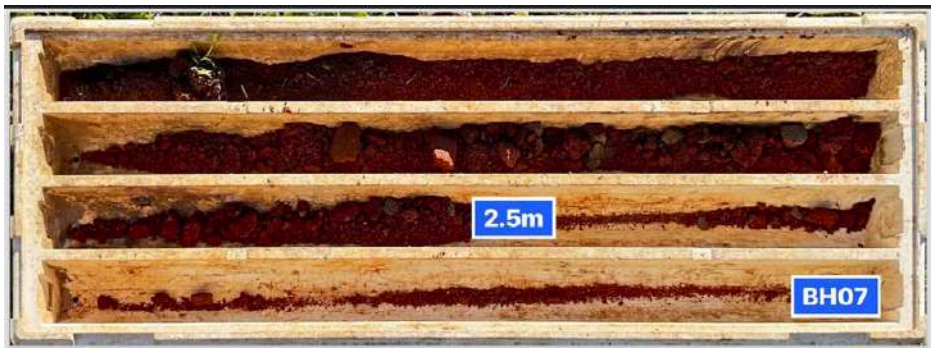
Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH07

Project: Country Heights Stage 2	**Position:** Easting: 399151.94	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538823.27	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		9.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH08

Project: Country Heights Stage 2	**Position:** Easting: 399327.39	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538813.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL	2 2 2 2 2 2	2.6	
	2.0				BH08 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH09

Project: Country Heights Stage 2	**Position:** Easting: 399237.85	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538628.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		13.0	
	2.0				BH09 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH10

Project: Country Heights Stage 2	**Position:** Easting: 399083.76	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538673.85	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL	2 2 2	4.8	
	2.0				BH10 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH11

Project: Country Heights Stage 2	**Position:** Easting: 398870.57	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538633.26	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0				BH11 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH12

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398615.45
Northing: 6538696.44
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		0.6	
	2.0				BH12 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH13

Project: Country Heights Stage 2	**Position:** Easting: 398499.21	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538782.89	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0				BH13 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH14

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398290.47
Northing: 6538657.28
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	3 3 2 2 2 2	4.4	
	2.0				BH14 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH15

Project: Country Heights Stage 2	**Position:** Easting: 398111.44	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538754.55	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0									
					BH15 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH16

Project: Country Heights Stage 2	**Position:** Easting: 397936.39	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538733.90	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL	2 2 2	11.1	
	2.0									
					BH16 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH17

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397982.96
Northing: 6538508.94
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	2.0			SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
					BH17 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH18

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398196.04
Northing: 6538559.25
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0				BH18 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH19

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398457.38
Northing: 6538469.86
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		5.7	
	2.0									
					BH19 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH20

Project: Country Heights Stage 2	**Position:** Easting: 398840.10	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538527.55	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
	2.0			SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
					BH20 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH21

Project: Country Heights Stage 2	**Position:** Easting: 399104.69	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538511.75	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0				BH21 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH22

Project: Country Heights Stage 2	**Position:** Easting: 398993.81	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538280.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2, 3, 2, 2, 2, 2	2.8	
	2.0									
					BH22 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH23

Project: Country Heights Stage 2	**Position:** Easting: 398683.95	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538328.13	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
				SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					



Depth: 2.0 m

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Borehole Record: BH24

Project: Country Heights Stage 2	**Position:** Easting: 398161.71	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538216.24	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		7.7	
	2.0									
					BH24 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH25

Project: Country Heights Stage 2	**Position:** Easting: 398162.26	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538410.42	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		16.4	
	2.0				BH25 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH26

Project: Country Heights Stage 2	**Position:** Easting: 397926.64	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538319.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 1 2 1 2	0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH27

Project: Country Heights Stage 2	**Position:** Easting: 397696.87	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6536458.35	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0				BH27 Terminated at 2.5 m					



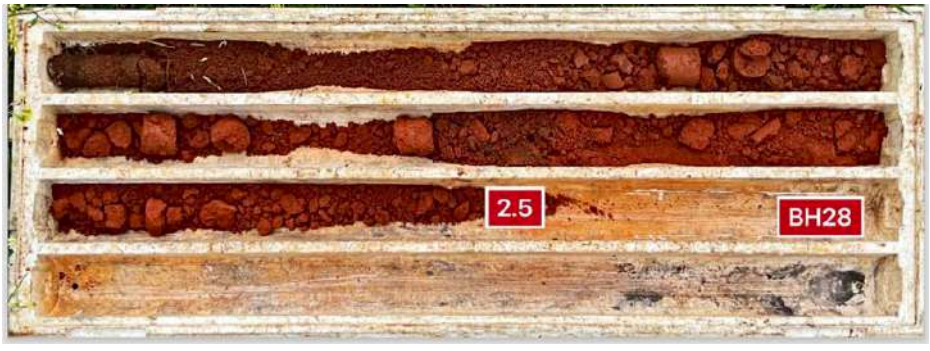
Depth: 2.5 m

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Borehole Record: BH28

Project: Country Heights Stage 2	**Position:** Easting: 398160.48	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538215.91	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH29

Project: Country Heights Stage 2	**Position:** Easting: 398595.97	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538165.21	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					



Depth: 1.6 m

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Borehole Record: BH30

Project: Country Heights Stage 2	**Position:** Easting: 398854.12	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538166.71	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2 2 2 2 2 3	3.6	
	2.0									
					BH30 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH31

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398697.24
Northing: 6538016.07
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0				BH31 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH32

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398411.77
Northing: 6538095.78
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.			3		
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD	4, 6, 6, 25	1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					



Depth: 2.2 m

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Borehole Record: BH33

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398208.25
Northing: 6538028.01
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

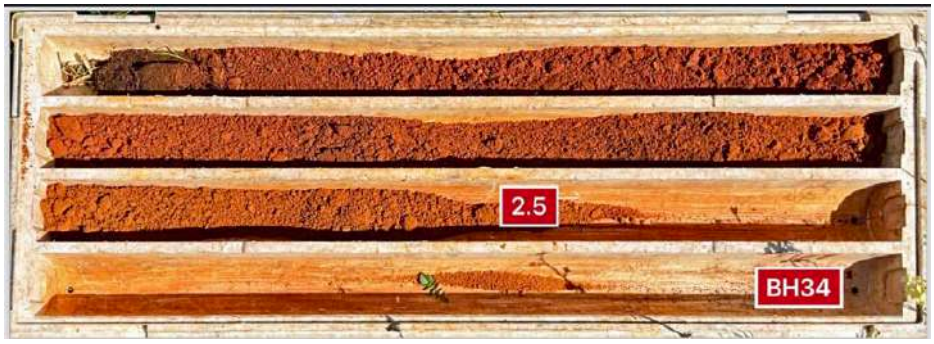
Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.3	
	2.0				BH33 Terminated at 2.5 m					

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Borehole Record: BH34

Project: Country Heights Stage 2	**Position:** Easting: 398159.74	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538218.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 2 2	3.8	
	2.0				BH34 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH35

Project: Country Heights Stage 2	**Position:** Easting: 397916.50	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537792.97	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.6	
	2.0									
					BH35 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH36

Project: Country Heights Stage 2	**Position:** Easting: 398115.47	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537715.14	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0				BH36 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH37

Project: Country Heights Stage 2	**Position:** Easting: 398276.71	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537683.69	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0				BH37 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH38

Project: Country Heights Stage 2	**Position:** Easting: 398415.96	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537786.32	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0									
					BH38 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH39

Project: Country Heights Stage 2	**Position:** Easting: 398585.31	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537913.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					



Depth: 2.5 m

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ATTACHMENT 8 – Environmental Report

pgv ENVIRONMENTAL

Phone + 61 8 9202 6819
Mob +61 0 427 005 226
Email paul@pgv.net.au

Suite 3, 67 Howe Street
Osborne Park WA 6017

ABN 44 981 725 498
Knightside Nominees Pty Ltd

24 August 2026

Stephanie Ng

Claymont Group
Level 1, 189 St Georges Tce
Perth WA 6000

Dear Stephanie,

RE: Country Heights Estate 2, Gingin – Vegetation and Black Cockatoo Habitat Assessment

Following is our Vegetation and Black Cockatoo Habitat Assessment of Country Heights Estate 2, Gingin. Country Heights Estate 2 (the site) is located on Lot 83 Cheriton Road and is 161.12ha.

Plate 1: Survey area (2026 Aerial Photograph)



1 Site History

The earliest available aerial imagery from 1981 shows that the majority of the vegetation had already been cleared or parkland cleared by this time (Plate 2). A denser block of vegetation is apparent at the central eastern part of the site. That block has thinned out significantly since 1981 as shown on the 2026 aerial photograph (Plate 1).

Plate 2: 1981 Aerial Photography



2 Vegetation Assessment

A vegetation assessment was undertaken by PGV Environmental on 9 July 2026. The assessment found that there is no intact native vegetation on the site. The area of vegetation in the central eastern part of the site that has thinned out over the last 45 years is a stand of Banksia woodland consisting of Slender Banksia *(Banksia attenuata),* Firewood Banksia *(Banksia menziesii)* and Prickly Bark *(Eucalyptus todtiana)* (Plate 3). There is no native understorey, therefore the vegetation condition is rated as Completely Degraded. The vegetation does not meet the criteria to be the Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community due to its poor condition.

Plate 3: Banksia woodland on the Site



All of the other trees on the site are Marri trees (*Corymbia calophylla)* with a mix of young trees (Plate 4) and more mature trees (Plate 5).

Plate 4: Young Marri Trees on site



Plate 5: Mature Marri Trees on site



3 Black Cockatoo Habitat

3.1 Methodology

A Black Cockatoo Habitat assessment was undertaken by Dr Paul van der Moezel and Neasa Flynn from PGV Environmental on 9 and 27 July 2026. The aim of the assessment was to document any trees that could provide foraging or breeding habitat for Black Cockatoos. The survey measured all Marri trees with a Diameter at Breast Height (DBH) of 50cm or greater. Information recorded for all trees included:

- Species and Common Name
- Height
- DBH
- Co-ordinates (hand-held GPS)
- Tree Health
- Presence of hollows

3.2 Breeding Habitat

The assessment recorded 473 trees with a DBH of 50cm or greater (Attachment 1 and Figure 1). All trees were Marri. Marri trees with a DBH of 50cm or greater are considered under the EPBC Act to be breeding habitat regardless of whether they have suitable hollows or not. The rationale behind this is that a Marri tree of this size may form a suitable hollow for breeding within the next 50 years.

Most of the trees were in healthy condition. No hollows suitable for Black Cockatoos to breed in were observed on any tree.

3.3 Foraging Habitat

Four tree species are present on the site that provide foraging habitat for Black Cockatoos (Table 1). The location of foraging habitat on the site is provided in Figure 2. There was evidence of foraging by Carnaby's Black Cockatoo on Marri nuts (Plate6).

Table 1: Summary of Trees on the Site

Species	Common Name	Native to the Area	Value for Forest Red-tailed Black-Cockatoo	Value for Carnaby's Black-Cockatoo	Value for Baudin's Black-Cockatoo
Corymbia calophylla	Marri	Yes	F, N	F, n, R	F, n
Banksia attenuata	Slender Banksia	Yes		F	
Banksia menziesii	Firewood Banksia	Yes		F	
Eucalyptus todtiana	Pricklybark			F	

*Value for Cockatoo species is indicated by an F = foraging, R = roosting, N or n = nesting (main and less commonly used species, respectively).

Plate 6: Black Cockatoo Foraging on Marri



4 Conclusion

The assessment of Country Heights Estate 2 Gingin found that the site is largely cleared, with a large amount native Marri trees in the paddocks and a small remnant of degraded Banksia woodland in the central-eastern portion of the site.

The Banksia woodland patch does not meet the criteria to be the Banksia Woodlands of the Swan Coastal Plain TEC due to its completely degraded condition.

A total of 473 Marri trees were recorded that are defined as potential breeding habitat for Carnaby's and Forest Red-tailed Black Cockatoos. However, none of the trees currently is used by Black Cockatoos for breeding.

All trees on the site, regardless of age, provide foraging habitat for Black Cockatoos. Evidence of Black Cockatoo foraging was observed beneath several Marri trees, confirming the site's value to Black Cockatoos.

It is recommended that as many mature Marri trees as possible be retained where practical to maintain existing Black Cockatoo habitat.

Any unavoidable impact that requires the clearing of more than 1ha of foraging habitat and any potential breeding habitat trees may require a referral under the Commonwealth EPBC Act to determine if there is a significant impact on Black Cockatoos.

Please contact me if you would like to discuss any aspect of this tree assessment.

Yours sincerely



Paul van der Moezel
Managing Director

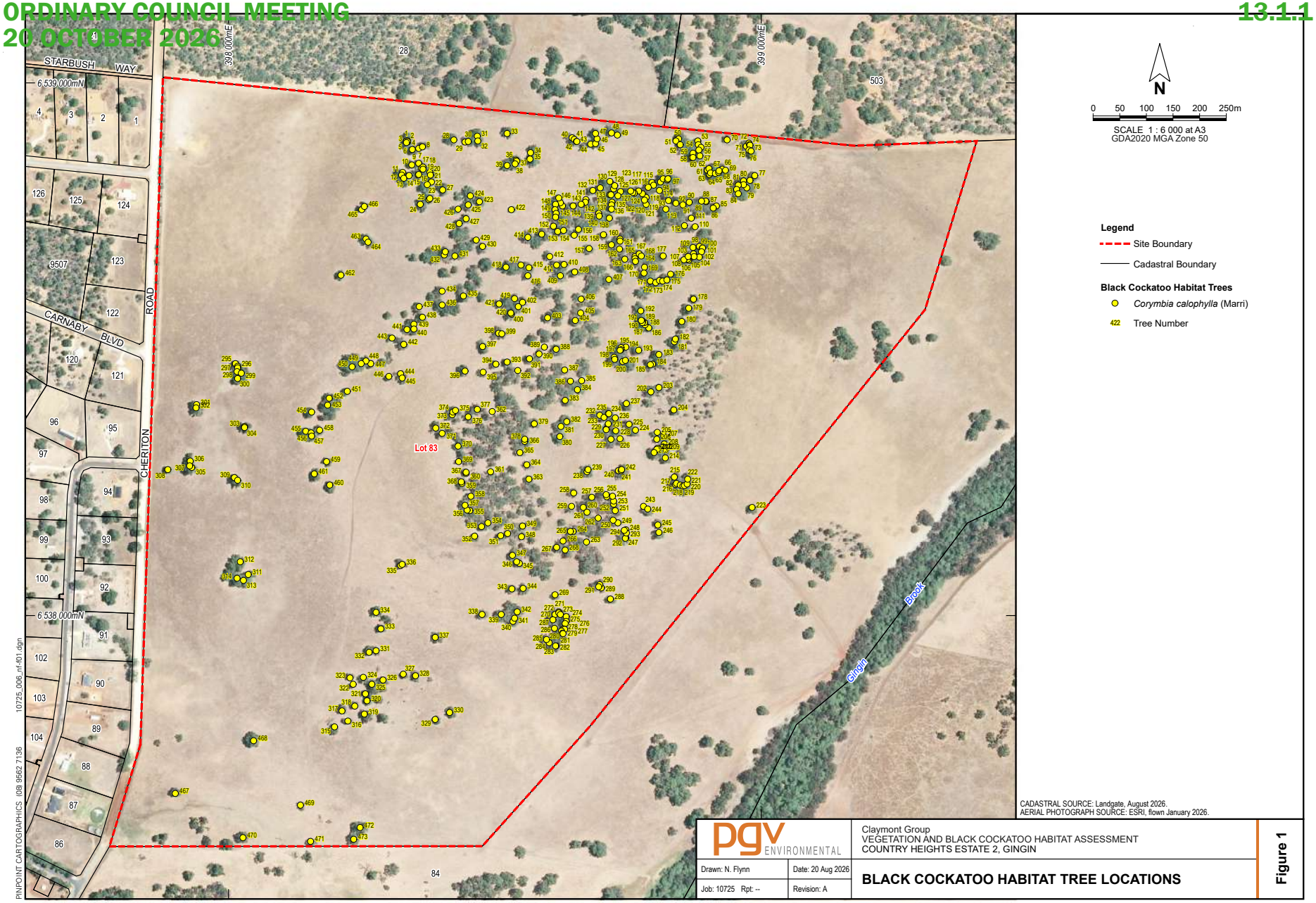
Figures

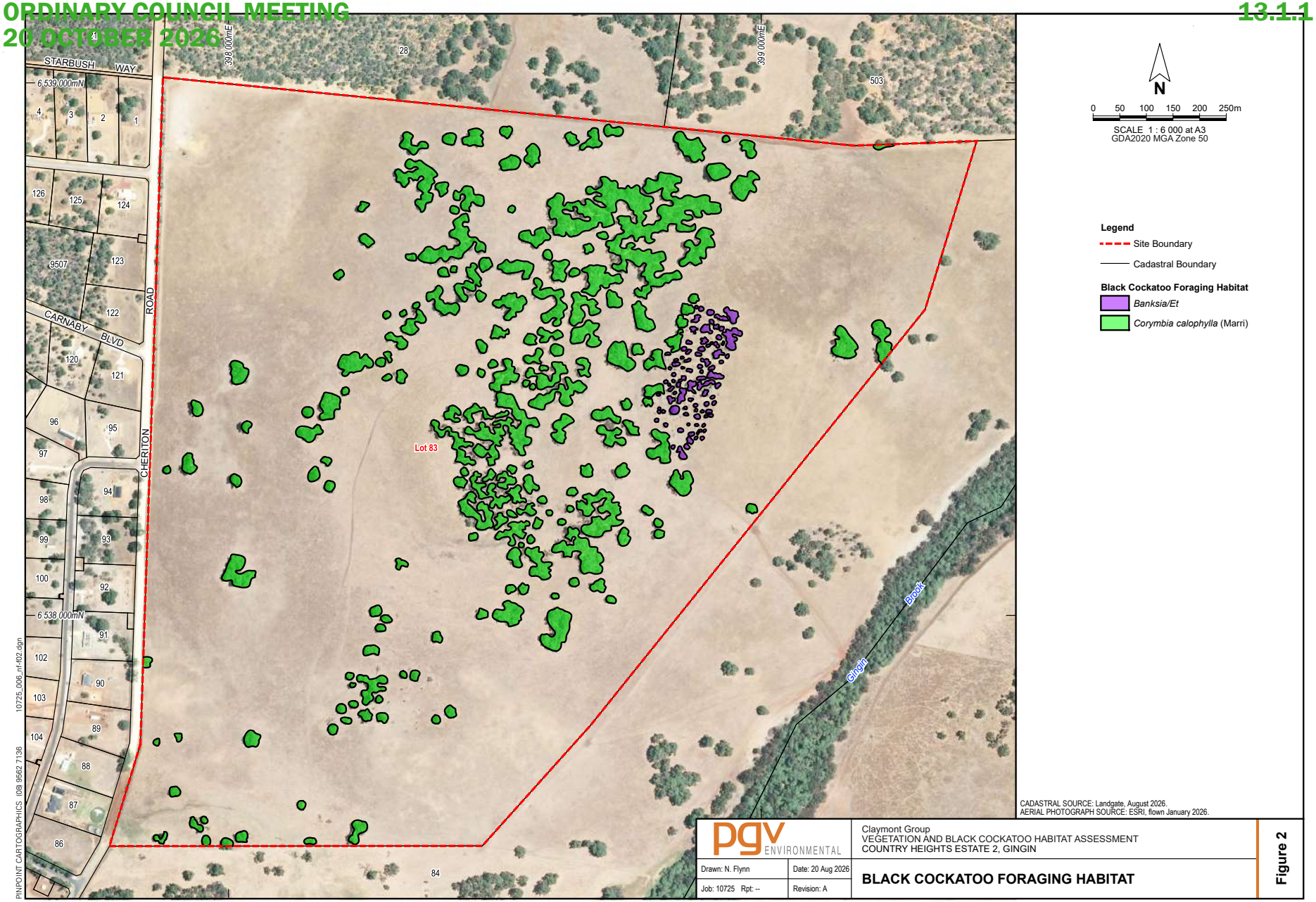
Figure 1: Black Cockatoo Habitat Tree Locations
Figure 2: Black Cockatoo Foraging Habitat

Attachments

Attachment 1: Tree Data

FIGURES


STARBUSH WAY
CARNABY BLVD
CHERITON ROAD
398 000mE
399 000mE
6 539 000mN
6 538 000mN
Lot 83
Gingin Brook
N
0 50 100 150 200 250m
SCALE 1 : 6 000 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Black Cockatoo Habitat Trees
Corymbia calophylla (Marri)
422 Tree Number
CADASTRAL SOURCE: Landgate, August 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown January 2026.
PGV ENVIRONMENTAL
Claymont Group
VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
COUNTRY HEIGHTS ESTATE 2, GINGIN
Drawn: N. Flynn
Date: 20 Aug 2026
Job: 10725 Rpt: --
Revision: A
BLACK COCKATOO HABITAT TREE LOCATIONS
Figure 1
10725_006_rf-f01.dgn
PINPOINT CARTOGRAPHICS (08) 9662 7136


STARBUSH WAY
CARNABY BLVD
CHERITON ROAD
398 000mE
399 000mE
6 539 000mN
6 538 000mN
Lot 83
Gingin Brook
N
0 50 100 150 200 250m
SCALE 1 : 6 000 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Black Cockatoo Foraging Habitat
Banksia/Et
Corymbia calophylla (Marri)
CADASTRAL SOURCE: Landgate, August 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown January 2026.
PINPOINT CARTOGRAPHICS (08) 9662 7136
10725_006_nf-f02.dgn
pgv ENVIRONMENTAL
Claymont Group
VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
COUNTRY HEIGHTS ESTATE 2, GINGIN
Drawn: N. Flynn
Date: 20 Aug 2026
Job: 10725 Rpt: --
Revision: A
BLACK COCKATOO FORAGING HABITAT
Figure 2

ATTACHMENT 1

Tree Data

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
1	*Corymbia calophylla*	Marri	398336	6538889		21	90				Healthy, no hollows
2	*Corymbia calophylla*	Marri	398336	6538891		21	50				Healthy, no hollows
3	*Corymbia calophylla*	Marri	398334	6538891		21	75				Healthy, no hollows
4	*Corymbia calophylla*	Marri	398336	6538890		21	50				Healthy, no hollows, foraging
5	*Corymbia calophylla*	Marri	398334	6538888		20	105				Healthy, no hollows
6	*Corymbia calophylla*	Marri	398345	6538875		22	95				Healthy, no hollows
7	*Corymbia calophylla*	Marri	398357	6538877		14	80				Avergage tree, no hollows
8	*Corymbia calophylla*	Marri	398364	6538880		20	120				Healthy, no hollows
9	*Corymbia calophylla*	Marri	398357	6538849		18	110				Healthy, no hollows
10	*Corymbia calophylla*	Marri	398344	6538846		18	130				Healthy, no hollows
11	*Corymbia calophylla*	Marri	398327	6538832		22	115				Healthy, no hollows
12	*Corymbia calophylla*	Marri	398325	6538827		19	70				Healthy, no hollows
13	*Corymbia calophylla*	Marri	398329	6538821		20	90				Healthy, no hollows
14	*Corymbia calophylla*	Marri	398339	6538826		15	60				Healthy, no hollows
15	*Corymbia calophylla*	Marri	398356	6538827		15	75				Avergage tree, no hollows
16	*Corymbia calophylla*	Marri	398357	6538828		17	75				Healthy, no hollows
17	*Corymbia calophylla*	Marri	398362	6538840		22	125				Healthy, no hollows
18	*Corymbia calophylla*	Marri	398365	6538842		19	75				Healthy, no hollows
19	*Corymbia calophylla*	Marri	398365	6538838		14	60				Healthy, no hollows
20	*Corymbia calophylla*	Marri	398378	6538832		14	65				Healthy, no hollows, bees at base
21	*Corymbia calophylla*	Marri	398379	6538827		18	90				Healthy, no hollows
22	*Corymbia calophylla*	Marri	398381	6538814		17	75				Healthy, no hollows
23	*Corymbia calophylla*	Marri	398373	6538809		19	100				Healthy, no hollows
24	*Corymbia calophylla*	Marri	398360	6538772		18	105				Healthy, no hollows
25	*Corymbia calophylla*	Marri	398376	6538781		17	105				Healthy, no hollows
26	*Corymbia calophylla*	Marri	398378	6538783		13	60				Healthy, no hollows, leaning
27	*Corymbia calophylla*	Marri	398402	6538799		20	80	60			Healthy, no hollows
28	*Corymbia calophylla*	Marri	398423	6538893		20	135				Healthy, no hollows
29	*Corymbia calophylla*	Marri	398444	6538889		13	55				Avergage tree, no hollows
30	*Corymbia calophylla*	Marri	398450	6538890		13	70				Healthy, no hollows
31	*Corymbia calophylla*	Marri	398467	6538900		20	105				Healthy, no hollows
32	*Corymbia calophylla*	Marri	398468	6538891		19	110				Healthy, no hollows
33	*Corymbia calophylla*	Marri	398523	6538905		19	95				Healthy, no hollows
34	*Corymbia calophylla*	Marri	398567	6538869		20	115				Healthy, no hollows
35	*Corymbia calophylla*	Marri	398566	6538857		18	175				Healthy, no hollows
36	*Corymbia calophylla*	Marri	398540	6538855		14	80	70			Healthy, no hollows
37	*Corymbia calophylla*	Marri	398541	6538853		19	70				Healthy, no hollows
38	*Corymbia calophylla*	Marri	398538	6538848		13	80				Healthy, no hollows
39	*Corymbia calophylla*	Marri	398523	6538845		12	110				Healthy, no hollows
40	*Corymbia calophylla*	Marri	398645	6538897		12	90				Healthy, no hollows
41	*Corymbia calophylla*	Marri	398649	6538894		15	60				Healthy, no hollows
42	*Corymbia calophylla*	Marri	398653	6538890		15	55				Healthy, no hollows
43	*Corymbia calophylla*	Marri	398654	6538890		16	60				Healthy, no hollows
44	*Corymbia calophylla*	Marri	398680	6538885		10	55				Healthy, smallhollow, Pink & Grey Gallah nesting
45	*Corymbia calophylla*	Marri	398689	6538886		15	95				Healthy, no hollows
46	*Corymbia calophylla*	Marri	398692	6538895		14	50				Healthy, no hollows
47	*Corymbia calophylla*	Marri	398689	6538905		17	110				Healthy, no hollows
48	*Corymbia calophylla*	Marri	398719	6538906		20	120				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
49	*Corymbia calophylla*	Marri	398730	6538902		20	90				Healthy, no hollows
50	*Corymbia calophylla*	Marri	398845	6538895		16	130				Healthy, no hollows
51	*Corymbia calophylla*	Marri	398840	6538891		15	55				Healthy, no hollows
52	*Corymbia calophylla*	Marri	398848	6538884		16	90				Healthy, no hollows
53	*Corymbia calophylla*	Marri	398881	6538891		14	70				Healthy, no hollows
54	*Corymbia calophylla*	Marri	398882	6538884		13	70				Healthy, no hollows
55	*Corymbia calophylla*	Marri	398887	6538879		9	65				Healthy, no hollows
56	*Corymbia calophylla*	Marri	398883	6538874		14	65				Healthy, no hollows
57	*Corymbia calophylla*	Marri	398885	6538863		16	65				Healthy, no hollows
58	*Corymbia calophylla*	Marri	398870	6538860		20	60				Healthy, no hollows
59	*Corymbia calophylla*	Marri	398872	6538868		21	70				Healthy, no hollows
60	*Corymbia calophylla*	Marri	398872	6538860		19	60				Healthy, no hollows
61	*Corymbia calophylla*	Marri	398899	6538836		9	90				Poor health, no hollows
62	*Corymbia calophylla*	Marri	398902	6538839		21	65				Healthy, no hollows
63	*Corymbia calophylla*	Marri	398903	6538828		14	75				Healthy, no hollows
64	*Corymbia calophylla*	Marri	398905	6538831		20	75				Healthy, no hollows
65	*Corymbia calophylla*	Marri	398914	6538830		15	60				Healthy, no hollows
66	*Corymbia calophylla*	Marri	398927	6538838		12	65				Healthy, no hollows
67	*Corymbia calophylla*	Marri	398920	6538832		15	50				Healthy, no hollows
68	*Corymbia calophylla*	Marri	398921	6538835		20	85				Healthy, no hollows
69	*Corymbia calophylla*	Marri	398933	6538836		18	95				Healthy, no hollows
70	*Corymbia calophylla*	Marri	398936	6538893		10	60				Healthy, no hollows
71	*Corymbia calophylla*	Marri	398972	6538881		11	55	30			Healthy, no hollows, leaning
72	*Corymbia calophylla*	Marri	398977	6538887		10	50				Healthy, no hollows, leaning
73	*Corymbia calophylla*	Marri	398978	6538884		15	65				Healthy, no hollows
74	*Corymbia calophylla*	Marri	398979	6538883		14	65				Healthy, no hollows
75	*Corymbia calophylla*	Marri	398977	6538874		10	60				Healthy, no hollows
76	*Corymbia calophylla*	Marri	398981	6538872		11	75				Healthy, no hollows
77	*Corymbia calophylla*	Marri	398988	6538826		13	110				Healthy, no hollows
78	*Corymbia calophylla*	Marri	398979	6538817		11	50				Healthy, no hollows
79	*Corymbia calophylla*	Marri	398973	6538803		13	60				Healthy, no hollows
80	*Corymbia calophylla*	Marri	398967	6538816		11	60				Average tree, no hollows
81	*Corymbia calophylla*	Marri	398967	6538809		12	70				Healthy, no hollows
82	*Corymbia calophylla*	Marri	398957	6538808		12	50				Healthy, no hollows, leaning
83	*Corymbia calophylla*	Marri	398954	6538800		16	100				Healthy, no hollows
84	*Corymbia calophylla*	Marri	398957	6538792		11	50				Average tree, no hollows
85	*Corymbia calophylla*	Marri	398916	6538769		12	95				Healthy, no hollows
86	*Corymbia calophylla*	Marri	398910	6538765		17	90				Healthy, no hollows
87	*Corymbia calophylla*	Marri	398897	6538777		13	55				Healthy, no hollows
88	*Corymbia calophylla*	Marri	398896	6538778		12	65				Healthy, no hollows
89	*Corymbia calophylla*	Marri	398888	6538778		13	50	15			Healthy, no hollows
90	*Corymbia calophylla*	Marri	398865	6538776		12	60				Healthy, no hollows
91	*Corymbia calophylla*	Marri	398853	6538771		12	55	25			Healthy, no hollows
92	*Corymbia calophylla*	Marri	398840	6538774		16	80				Healthy, no hollows
93	*Corymbia calophylla*	Marri	398826	6538779		10	70				Healthy, no hollows
94	*Corymbia calophylla*	Marri	398811	6538814		14	50	40			Healthy, no hollows
95	*Corymbia calophylla*	Marri	398816	6538820		14	55	50			Healthy, no hollows
96	*Corymbia calophylla*	Marri	398824	6538818		15	50				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
97	*Corymbia calophylla*	Marri	398825	6538820		18	75				Healthy, no hollows
98	*Corymbia calophylla*	Marri	398884	6538693		15	55				Healthy, no hollows
99	*Corymbia calophylla*	Marri	398889	6538689		17	65				Healthy, no hollows
100	*Corymbia calophylla*	Marri	398890	6538690		17	55				Healthy, no hollows
101	*Corymbia calophylla*	Marri	398888	6538683		16	65				Healthy, no hollows
102	*Corymbia calophylla*	Marri	398884	6538673		16	75				Healthy, no hollows
103	*Corymbia calophylla*	Marri	398873	6538679		17	80				Healthy, no hollows
104	*Corymbia calophylla*	Marri	398874	6538674		14	50				Healthy, no hollows
105	*Corymbia calophylla*	Marri	398864	6538667		12	50				Healthy, no hollows
106	*Corymbia calophylla*	Marri	398862	6538669		10	50				Healthy, no hollows
107	*Corymbia calophylla*	Marri	398855	6538668		17	60				Healthy, no hollows
108	*Corymbia calophylla*	Marri	398863	6538674		12	50				Healthy, no hollows, leaning
109	*Corymbia calophylla*	Marri	398872	6538691		14	55	50			Healthy, no hollows
110	*Corymbia calophylla*	Marri	398876	6538730		9	60				Healthy, no hollows
111	*Corymbia calophylla*	Marri	398869	6538746		10	60				Healthy, no hollows, leaning
112	*Corymbia calophylla*	Marri	398856	6538732		12	60	45	50+		Healthy, no hollows
113	*Corymbia calophylla*	Marri	398821	6538763		17	80				Healthy, no hollows
114	*Corymbia calophylla*	Marri	398809	6538798		14	60				Healthy, no hollows
115	*Corymbia calophylla*	Marri	398795	6538813		13	90				Healthy, no hollows, leaning
116	*Corymbia calophylla*	Marri	398798	6538808		17	75				Healthy, no hollows
117	*Corymbia calophylla*	Marri	398788	6538804		12	50				Healthy, no hollows
118	*Corymbia calophylla*	Marri	398784	6538785		17	80				Healthy, no hollows
119	*Corymbia calophylla*	Marri	398784	6538772		15	70				Average tree, no hollows
120	*Corymbia calophylla*	Marri	398781	6538780		16	70				Healthy, no hollows
121	*Corymbia calophylla*	Marri	398777	6538792		12	55				Healthy, no hollows
122	*Corymbia calophylla*	Marri	398770	6538797		10	60				Healthy, no hollows, leaning
123	*Corymbia calophylla*	Marri	398762	6538793		15	55				Healthy, no hollows
124	*Corymbia calophylla*	Marri	398759	6538794		16	85				Healthy, no hollows
125	*Corymbia calophylla*	Marri	398755	6538797		16	55				Healthy, no hollows
126	*Corymbia calophylla*	Marri	398736	6538796		12	65				Healthy, no hollows
127	*Corymbia calophylla*	Marri	398731	6538788		20	60				Healthy, no hollows, foraging
128	*Corymbia calophylla*	Marri	398723	6538801		17	50				Healthy, no hollows
129	*Corymbia calophylla*	Marri	398725	6538807		13	55				Healthy, no hollows
130	*Corymbia calophylla*	Marri	398716	6538815		19	85				Healthy, no hollows, foraging
131	*Corymbia calophylla*	Marri	398698	6538803		20	90				Healthy, no hollows
132	*Corymbia calophylla*	Marri	398684	6538798		14	70				Healthy, no hollows
133	*Corymbia calophylla*	Marri	398716	6538790		20	80				Healthy, no hollows
134	*Corymbia calophylla*	Marri	398718	6538790		24	65				Healthy, no hollows
135	*Corymbia calophylla*	Marri	398720	6538776		16	50				Average health, no hollows
136	*Corymbia calophylla*	Marri	398719	6538771		14	50	40			Healthy, no hollows
137	*Corymbia calophylla*	Marri	398719	6538763		17	65				Healthy, no hollows
138	*Corymbia calophylla*	Marri	398715	6538746		10	50				Healthy, no hollows
139	*Corymbia calophylla*	Marri	398695	6538755		19	50				Healthy, no hollows
140	*Corymbia calophylla*	Marri	398696	6538750		11	50				Average health, no hollows, foraging
141	*Corymbia calophylla*	Marri	398671	6538781		15	85				Healthy, no hollows, bees at base
142	*Corymbia calophylla*	Marri	398670	6538776		16	50				Healthy, no hollows
143	*Corymbia calophylla*	Marri	398662	6538772		14	60				Healthy, no hollows
144	*Corymbia calophylla*	Marri	398647	6538769		12	50				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
145	*Corymbia calophylla*	Marri	398627	6538769		11	55				Healthy, no hollows
146	*Corymbia calophylla*	Marri	398623	6538775		13	90				Healthy, no hollows
147	*Corymbia calophylla*	Marri	398620	6538784		12	60				Healthy, no hollows
148	*Corymbia calophylla*	Marri	398614	6538772		15	60	50			Healthy, no hollows, foraging carnabys
149	*Corymbia calophylla*	Marri	398613	6538762		15	55				Healthy, no hollows
150	*Corymbia calophylla*	Marri	398615	6538755		16	50	45	40+		Healthy, no hollows
151	*Corymbia calophylla*	Marri	398614	6538748		11	60				Healthy, no hollows
152	*Corymbia calophylla*	Marri	398610	6538731		14	65				Healthy, no hollows
153	*Corymbia calophylla*	Marri	398618	6538721		20	90				Healthy, no hollows
154	*Corymbia calophylla*	Marri	398629	6538723		11	70				Healthy, no hollows
155	*Corymbia calophylla*	Marri	398649	6538714		12	60				Healthy, no hollows
156	*Corymbia calophylla*	Marri	398657	6538725		11	60				Healthy, no hollows
157	*Corymbia calophylla*	Marri	398677	6538689		9	90				Healthy, no hollows
158	*Corymbia calophylla*	Marri	398704	6538715		7	60				Healthy, no hollows
159	*Corymbia calophylla*	Marri	398719	6538696		12	60				Healthy, no hollows
160	*Corymbia calophylla*	Marri	398735	6538707		16	50				Healthy, no hollows
161	*Corymbia calophylla*	Marri	398735	6538703		16	70				Healthy, no hollows
162	*Corymbia calophylla*	Marri	398734	6538688		14	75				Healthy, no hollows
163	*Corymbia calophylla*	Marri	398744	6538669		11	50				Healthy, no hollows
164	*Corymbia calophylla*	Marri	398763	6538674		12	70				Healthy, no hollows
165	*Corymbia calophylla*	Marri	398763	6538670		10	80				Average tree, no hollows
166	*Corymbia calophylla*	Marri	398764	6538665		16	70				Healthy, no hollows
167	*Corymbia calophylla*	Marri	398771	6538679		17	60	15	14		Healthy, no hollows
168	*Corymbia calophylla*	Marri	398775	6538675		17	55				Healthy, no hollows
169	*Corymbia calophylla*	Marri	398781	6538654		16	55				Healthy, no hollows
170	*Corymbia calophylla*	Marri	398780	6538643		14	80				Healthy, no hollows
171	*Corymbia calophylla*	Marri	398792	6538628		22	80				Healthy, no hollows
172	*Corymbia calophylla*	Marri	398802	6538625		18	75				Healthy, no hollows
173	*Corymbia calophylla*	Marri	398809	6538629		15	50	40			Healthy, no hollows
174	*Corymbia calophylla*	Marri	398815	6538628		12	50				Healthy, no hollows
175	*Corymbia calophylla*	Marri	398823	6538630		20	60	55			Healthy, no hollows
176	*Corymbia calophylla*	Marri	398830	6538641		22	165				Healthy, no hollows
177	*Corymbia calophylla*	Marri	398816	6538675		15	100				Healthy, no hollows
178	*Corymbia calophylla*	Marri	398873	6538594		18	80				Healthy, no hollows, foraging Carnabys
179	*Corymbia calophylla*	Marri	398864	6538577		19	130				Healthy, no hollows
180	*Corymbia calophylla*	Marri	398851	6538552		15	120				Healthy, no hollows
181	*Corymbia calophylla*	Marri	398837	6538514		15	85				Healthy, no hollows
182	*Corymbia calophylla*	Marri	398839	6538519		17	55				Healthy, no hollows
183	*Corymbia calophylla*	Marri	398808	6538490		17	95				Healthy, no hollows
184	*Corymbia calophylla*	Marri	398796	6538472		20	60				Healthy, no hollows
185	*Corymbia calophylla*	Marri	398792	6538471		13	70				Healthy, no hollows, leaning
186	*Corymbia calophylla*	Marri	398789	6538540		15	60				Healthy, no hollows
187	*Corymbia calophylla*	Marri	398782	6538546		21	145				Healthy, no hollows
188	*Corymbia calophylla*	Marri	398781	6538550		20	105				Healthy, no hollows
189	*Corymbia calophylla*	Marri	398777	6538553		12	50				Healthy, no hollows
190	*Corymbia calophylla*	Marri	398777	6538550		13	60	50			Healthy, no hollows
191	*Corymbia calophylla*	Marri	398775	6538554		18	90				Healthy, no hollows
192	*Corymbia calophylla*	Marri	398774	6538572		17	80				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
193	*Corymbia calophylla*	Marri	398770	6538498		16	95	85			Healthy, no hollows
194	*Corymbia calophylla*	Marri	398746	6538504		10	60				Healthy, no hollows, severe lean
195	*Corymbia calophylla*	Marri	398737	6538503		14	70				Healthy, no hollows
196	*Corymbia calophylla*	Marri	398737	6538499		20	50				Healthy, no hollows
197	*Corymbia calophylla*	Marri	398735	6538498		19	55				Healthy, no hollows
198	*Corymbia calophylla*	Marri	398724	6538485		18	65				Healthy, no hollows
199	*Corymbia calophylla*	Marri	398725	6538481		18	55				Healthy, no hollows
200	*Corymbia calophylla*	Marri	398740	6538477		20	120				Healthy, no hollows
201	*Corymbia calophylla*	Marri	398745	6538479		22	130				Healthy, no hollows
202	*Corymbia calophylla*	Marri	398793	6538420		25	110				Healthy, no hollows
203	*Corymbia calophylla*	Marri	398808	6538428		20	60				Healthy, no hollows
204	*Corymbia calophylla*	Marri	398836	6538386		18	80				Healthy, no hollows
205	*Corymbia calophylla*	Marri	398805	6538344		15	75				Healthy, no hollows
206	*Corymbia calophylla*	Marri	398804	6538331		18	80				Healthy, no hollows
207	*Corymbia calophylla*	Marri	398817	6538338		14	65				Healthy, no hollows
208	*Corymbia calophylla*	Marri	398818	6538322		18	80	40			Healthy, no hollows
209	*Corymbia calophylla*	Marri	398821	6538312		22	90				Healthy, no hollows
210	*Corymbia calophylla*	Marri	398807	6538313		20	70				Healthy, no hollows
211	*Corymbia calophylla*	Marri	398805	6538314		22	60				Healthy, no hollows
212	*Corymbia calophylla*	Marri	398804	6538312		10	60				Healthy, no hollows
213	*Corymbia calophylla*	Marri	398799	6538306		16	90				Healthy, no hollows
214	*Corymbia calophylla*	Marri	398820	6538296		14	105				Healthy, no hollows
215	*Corymbia calophylla*	Marri	398837	6538260		20	115				Healthy, no hollows, leaning
216	*Corymbia calophylla*	Marri	398839	6538246		20	70				Healthy, no hollows
217	*Corymbia calophylla*	Marri	398841	6538248		19	100				Healthy, no hollows
218	*Corymbia calophylla*	Marri	398848	6538245		15	60				Healthy, no hollows, leaning
219	*Corymbia calophylla*	Marri	398853	6538243		19	60				Healthy, no hollows
220	*Corymbia calophylla*	Marri	398856	6538244		15	100				Healthy, no hollows
221	*Corymbia calophylla*	Marri	398861	6538247		20	60				Healthy, no hollows
222	*Corymbia calophylla*	Marri	398862	6538256		17	75				Healthy, no hollows
223	*Corymbia calophylla*	Marri	398983	6538203		16	105				Healthy, no hollows
224	*Corymbia calophylla*	Marri	398764	6538348		20	75				Healthy, no hollows
225	*Corymbia calophylla*	Marri	398752	6538359		16	80				Healthy, no hollows
226	*Corymbia calophylla*	Marri	398735	6538332		17	70				Average health, no hollows
227	*Corymbia calophylla*	Marri	398718	6538331		21	120				Healthy, no hollows
228	*Corymbia calophylla*	Marri	398727	6538347		22	115				Healthy, no hollows
229	*Corymbia calophylla*	Marri	398709	6538350		18	80				Healthy, no hollows
230	*Corymbia calophylla*	Marri	398709	6538349		11	65				Healthy, no hollows
231	*Corymbia calophylla*	Marri	398713	6538360		11	70				Healthy, no hollows
232	*Corymbia calophylla*	Marri	398697	6538376		18	95				Healthy, no hollows
233	*Corymbia calophylla*	Marri	398705	6538372		21	90				Healthy, no hollows, foraging
234	*Corymbia calophylla*	Marri	398713	6538379		22	100				Healthy, no hollows
235	*Corymbia calophylla*	Marri	398714	6538379		21	70				Healthy, no hollows
236	*Corymbia calophylla*	Marri	398726	6538371		21	75	50			Healthy, no hollows
237	*Corymbia calophylla*	Marri	398747	6538398		19	105				Healthy, no hollows
238	*Corymbia calophylla*	Marri	398673	6538270		18	65				Healthy, no hollows
239	*Corymbia calophylla*	Marri	398675	6538274		20	90				Healthy, no hollows
240	*Corymbia calophylla*	Marri	398732	6538272		18	60				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
241	*Corymbia calophylla*	Marri	398737	6538272		18	75				Healthy, no hollows
242	*Corymbia calophylla*	Marri	398738	6538274		15	110				Healthy, no hollows
243	*Corymbia calophylla*	Marri	398779	6538205		13	55				Healthy, no hollows
244	*Corymbia calophylla*	Marri	398787	6538200		14	65				Healthy, no hollows
245	*Corymbia calophylla*	Marri	398806	6538170		11	115				Healthy, no hollows
246	*Corymbia calophylla*	Marri	398808	6538156		21	105				Healthy, no hollows
247	*Corymbia calophylla*	Marri	398746	6538146		14	85	50	50+		Healthy, no hollows
248	*Corymbia calophylla*	Marri	398746	6538161		14	60				Healthy, no hollows, foraging
249	*Corymbia calophylla*	Marri	398731	6538174		11	70				Healthy, no hollows
250	*Corymbia calophylla*	Marri	398722	6538179		15	65				Healthy, no hollows
251	*Corymbia calophylla*	Marri	398726	6538197		13	60				Healthy, no hollows
252	*Corymbia calophylla*	Marri	398723	6538209		22	85				Healthy, no hollows
253	*Corymbia calophylla*	Marri	398723	6538215		11	70				Average health, no hollows
254	*Corymbia calophylla*	Marri	398721	6538224		10	55				Healthy, no hollows
255	*Corymbia calophylla*	Marri	398710	6538223		13	55				Healthy, no hollows
256	*Corymbia calophylla*	Marri	398709	6538227		21	80				Healthy, no hollows
257	*Corymbia calophylla*	Marri	398682	6538222		16	100				Healthy, no hollows
258	*Corymbia calophylla*	Marri	398648	6538230		14	120				Healthy, no hollows
259	*Corymbia calophylla*	Marri	398644	6538205		9	110				Average health, small hollows
260	*Corymbia calophylla*	Marri	398666	6538203		17	100				Average health, no hollows
261	*Corymbia calophylla*	Marri	398673	6538194		21	70				Healthy, no hollows
262	*Corymbia calophylla*	Marri	398694	6538183		20	80				Healthy, no hollows
263	*Corymbia calophylla*	Marri	398672	6538138		20	60				Healthy, no hollows
264	*Corymbia calophylla*	Marri	398647	6538158		16	80				Healthy, no hollows
265	*Corymbia calophylla*	Marri	398642	6538158		20	65	45			Healthy, no hollows
266	*Corymbia calophylla*	Marri	398628	6538140		19	80				Healthy, no hollows
267	*Corymbia calophylla*	Marri	398616	6538128		18	100				Healthy, no hollows
268	*Corymbia calophylla*	Marri	398632	6538123		17	70				Healthy, no hollows
269	*Corymbia calophylla*	Marri	398613	6538039		17	75				Healthy, no hollows
270	*Corymbia calophylla*	Marri	398613	6538002		12	55				Healthy, no hollows
271	*Corymbia calophylla*	Marri	398620	6538007		12	55				Healthy, no hollows
272	*Corymbia calophylla*	Marri	398620	6538005		13	55				Healthy, no hollows
273	*Corymbia calophylla*	Marri	398623	6538002		20	55				Healthy, no hollows
274	*Corymbia calophylla*	Marri	398634	6537998		24	70				Healthy, no hollows
275	*Corymbia calophylla*	Marri	398634	6538989		15	50				Healthy, no hollows
276	*Corymbia calophylla*	Marri	398632	6538985		22	65				Healthy, no hollows
277	*Corymbia calophylla*	Marri	398629	6538975		16	120				Healthy, no hollows
278	*Corymbia calophylla*	Marri	398631	6538974		14	50				Healthy, no hollows
279	*Corymbia calophylla*	Marri	398625	6538971		11	55				Healthy, no hollows
280	*Corymbia calophylla*	Marri	398627	6538967		13	50				Termites, no hollows
281	*Corymbia calophylla*	Marri	398628	6537966		19	85				Healthy, no hollows
282	*Corymbia calophylla*	Marri	398615	6537943		14	85				Healthy, no hollows
283	*Corymbia calophylla*	Marri	398614	6537943		16	65				Healthy, no hollows
284	*Corymbia calophylla*	Marri	398602	6537949		14	100				Healthy, no hollows
285	*Corymbia calophylla*	Marri	398597	6537955		20	80				Healthy, no hollows
286	*Corymbia calophylla*	Marri	398612	6537976		10	80				Healthy, no hollows
287	*Corymbia calophylla*	Marri	398609	6537992		22	70				Healthy, no hollows
288	*Corymbia calophylla*	Marri	398717	6538031		18	80	30			Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
289	*Corymbia calophylla*	Marri	398700	6538052		12	80				Healthy, no hollows
290	*Corymbia calophylla*	Marri	398697	6538058		10	65	55			Healthy, no hollows
291	*Corymbia calophylla*	Marri	398695	6538054		12	90				Healthy, no hollows
292	*Corymbia calophylla*	Marri	398745	6538145		20	80	50	45		Healthy, no hollows
293	*Corymbia calophylla*	Marri	398747	6538155		12	50				Healthy, no hollows
294	*Corymbia calophylla*	Marri	398743	6538160		16	55				Healthy, no hollows
295	*Corymbia calophylla*	Marri	398013	6538473		26	85				Healthy, no hollows
296	*Corymbia calophylla*	Marri	398017	6538468		23	56				Healthy, no hollows
297	*Corymbia calophylla*	Marri	398017	6538465		23	72				Healthy, no hollows
298	*Corymbia calophylla*	Marri	398016	6538458		19	68				Healthy, no hollows
299	*Corymbia calophylla*	Marri	398024	6538455		24	72				Healthy, no hollows
300	*Corymbia calophylla*	Marri	398017	6538445		22	78				Healthy, no hollows
301	*Corymbia calophylla*	Marri	397940	6538396		18	105				Healthy, no hollows
302	*Corymbia calophylla*	Marri	397939	6538390		18	101				Healthy, no hollows
303	*Corymbia calophylla*	Marri	398030	6538355		24	104				Healthy, no hollows
304	*Corymbia calophylla*	Marri	398030	6538353		20	79				Average tree, no hollows
305	*Corymbia calophylla*	Marri	397931	6538278		22	73				Healthy, no hollows
306	*Corymbia calophylla*	Marri	397928	6538290		17	86				Healthy, no hollows
307	*Corymbia calophylla*	Marri	397927	6538281		18	63				Healthy, no hollows
308	*Corymbia calophylla*	Marri	397886	6538274		17	84				Healthy, no hollows
309	*Corymbia calophylla*	Marri	398011	6538259		16	100				Healthy, no hollows
310	*Corymbia calophylla*	Marri	398017	6538254		17	107				Healthy, no hollows
311	*Corymbia calophylla*	Marri	398037	6538077		8	72				Leaning, no hollows
312	*Corymbia calophylla*	Marri	398022	6538101	9:47	15	84				Sawfly lvs, no hollows
313	*Corymbia calophylla*	Marri	398028	6538066		17	79				Healthy, no hollows
314	*Corymbia calophylla*	Marri	398016	6538070		18	69				Healthy, no hollows
315	*Corymbia calophylla*	Marri	398199	6537791		10	121				Healthy, no hollows
316	*Corymbia calophylla*	Marri	398224	6538802		13	79				Healthy, no hollows
317	*Corymbia calophylla*	Marri	398213	6538821		15	117				Healthy, no hollows
318	*Corymbia calophylla*	Marri	398237	6538830		14	81				Healthy, no hollows
319	*Corymbia calophylla*	Marri	398255	6538815		22	90	83	78		Healthy, no hollows
320	*Corymbia calophylla*	Marri	398260	6538840		16	68				Healthy, no hollows
321	*Corymbia calophylla*	Marri	398257	6537853		13	58				Healthy, no hollows
322	*Corymbia calophylla*	Marri	398234	6537871		13	76				Healthy, no hollows
323	*Corymbia calophylla*	Marri	398228	6537883		9	76				Healthy, no hollows
324	*Corymbia calophylla*	Marri	398253	6537884		16	74				Healthy, no hollows
325	*Corymbia calophylla*	Marri	398269	6537871		22	98				Healthy, no hollows
326	*Corymbia calophylla*	Marri	398290	6537879		19	69				Healthy, no hollows
327	*Corymbia calophylla*	Marri	398328	6537890		14	60	48			Healthy, no hollows
328	*Corymbia calophylla*	Marri	398351	6537887		17	77				Unhealthy, no hollows
329	*Corymbia calophylla*	Marri	398388	6537805		12	74				Healthy, no hollows
330	*Corymbia calophylla*	Marri	398415	6537818		10	64	61			Healthy, no hollows
331	*Corymbia calophylla*	Marri	398277	6537934		12	67				Healthy, no hollows
332	*Corymbia calophylla*	Marri	398264	6537931		15	97				Healthy, no hollows
333	*Corymbia calophylla*	Marri	398286	6537975		20	92				Healthy, no hollows
334	*Corymbia calophylla*	Marri	398277	6538006		15	118				Healthy, no hollows
335	*Corymbia calophylla*	Marri	398323	6538094		10	76				Healthy, no hollows
336	*Corymbia calophylla*	Marri	398326	6538096		9	79				Stunted, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
337	*Corymbia calophylla*	Marri	398388	6537959		12	122				Healthy, no hollows
338	*Corymbia calophylla*	Marri	398476	6538002		14	99				Healthy, no hollows
339	*Corymbia calophylla*	Marri	398512	6538002		15	75				Healthy, no hollows
340	*Corymbia calophylla*	Marri	398534	6537989		16	78				Healthy, no hollows
341	*Corymbia calophylla*	Marri	398537	6537995		15	66				Healthy, no hollows
342	*Corymbia calophylla*	Marri	398542	6538007		22	116				Healthy, no hollows
343	*Corymbia calophylla*	Marri	398532	6538050		11	98				Healthy, no hollows
344	*Corymbia calophylla*	Marri	398553	6538051		12	92				Healthy, no hollows
345	*Corymbia calophylla*	Marri	398546	6538098		10	57				Healthy, no hollows
346	*Corymbia calophylla*	Marri	398541	6538101		15	83	31			Healthy, no hollows
347	*Corymbia calophylla*	Marri	398533	6538113		14	93				Healthy, no hollows
348	*Corymbia calophylla*	Marri	398550	6538148		13	57				Average tree, no hollows
349	*Corymbia calophylla*	Marri	398552	6538168		14	64				Healthy, no hollows
350	*Corymbia calophylla*	Marri	398524	6538154		12	75				Healthy, no hollows, foraging Carbanys
351	*Corymbia calophylla*	Marri	398511	6538150		11	87				Healthy, no hollows
352	*Corymbia calophylla*	Marri	398462	6538149		10	91				Healthy, no hollows
353	*Corymbia calophylla*	Marri	398475	6538167		14	62				Healthy, no hollows
354	*Corymbia calophylla*	Marri	398487	6538174		16	70				Healthy, no hollows
355	*Corymbia calophylla*	Marri	398453	6538197		20	67				Healthy, no hollows
356	*Corymbia calophylla*	Marri	398448	6538198		2	79				Healthy, no hollows
357	*Corymbia calophylla*	Marri	398444	6538207		11	79				Healthy, no hollows
358	*Corymbia calophylla*	Marri	398455	6538224		14	55	48			Healthy, no hollows
359	*Corymbia calophylla*	Marri	398438	6538248		15	87				Healthy, no hollows
360	*Corymbia calophylla*	Marri	398446	6538267		9	77				Healthy, no hollows
361	*Corymbia calophylla*	Marri	398492	6538270		15	80	45			Healthy, no hollows
362	*Corymbia calophylla*	Marri	398495	6538383		10	70				Healthy, no hollows
363	*Corymbia calophylla*	Marri	398564	6538256		12	69				Healthy, no hollows
364	*Corymbia calophylla*	Marri	398560	6538283		19	108				Resprouting on stems, no hollows
365	*Corymbia calophylla*	Marri	398547	6538306		18	70				Healthy, no hollows
366	*Corymbia calophylla*	Marri	398556	6538327		18	88				Healthy, no hollows
367	*Corymbia calophylla*	Marri	398446	6538269		8	78	35			Healthy, no hollows
368	*Corymbia calophylla*	Marri	398437	6538251		17	82				Healthy, no hollows
369	*Corymbia calophylla*	Marri	398432	6538289		13	66				Healthy, no hollows
370	*Corymbia calophylla*	Marri	398431	6538318		15	57				Healthy, no hollows
371	*Corymbia calophylla*	Marri	398401	6538342		20	88				Healthy, no hollows
372	*Corymbia calophylla*	Marri	398389	6538352		19	94				Healthy, no hollows
373	*Corymbia calophylla*	Marri	398420	6538377		11	68				Healthy, no hollows
374	*Corymbia calophylla*	Marri	398421	6538382		14	59				Healthy, no hollows
375	*Corymbia calophylla*	Marri	398426	6538385		19	92				Healthy, no hollows
376	*Corymbia calophylla*	Marri	398450	6538373		18	63				Healthy, no hollows
377	*Corymbia calophylla*	Marri	398467	6538387		17	80				Healthy, no hollows
378	*Corymbia calophylla*	Marri	398556	6538331		20	79				Healthy, no hollows
379	*Corymbia calophylla*	Marri	398574	6538360		15	74				Healthy, no hollows
380	*Corymbia calophylla*	Marri	398622	6538336		13	99				Healthy, no hollows
381	*Corymbia calophylla*	Marri	398624	6538355		17	102				Healthy, no hollows
382	*Corymbia calophylla*	Marri	398635	6538364		20	113				Healthy, no hollows
383	*Corymbia calophylla*	Marri	398632	6538404		17	75				Healthy, no hollows
384	*Corymbia calophylla*	Marri	398655	6538424		11	85				Healthy, no hollows, termites

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
385	*Corymbia calophylla*	Marri	398663	6538441		10	58				Healthy, no hollows
386	*Corymbia calophylla*	Marri	398642	6538440		12	60				Healthy, no hollows
387	*Corymbia calophylla*	Marri	398631	6538461		14	53				Average tree, no hollows
388	*Corymbia calophylla*	Marri	398615	6538500		17	119				Healthy, no hollows
389	*Corymbia calophylla*	Marri	398593	6538504		15	64				Small hollows
390	*Corymbia calophylla*	Marri	398583	6538491		14	67				Healthy, no hollows
391	*Corymbia calophylla*	Marri	398565	6538482		19	83				Healthy, no hollows
392	*Corymbia calophylla*	Marri	398543	6538460		20	59				Dead main top branch, no hollows
393	*Corymbia calophylla*	Marri	398523	6538476		20	68				Healthy, no hollows
394	*Corymbia calophylla*	Marri	398502	6538472		12	59				Healthy, no hollows
395	*Corymbia calophylla*	Marri	398478	6538457		11	67				Average tree, no hollows
396	*Corymbia calophylla*	Marri	398444	6538459		20	119				Healthy, no hollows
397	*Corymbia calophylla*	Marri	398477	6538505		15	93				Healthy, no hollows
398	*Corymbia calophylla*	Marri	398507	6538530		11	100				Healthy, no hollows
399	*Corymbia calophylla*	Marri	398513	6538529		16	64				Healthy, no hollows
400	*Corymbia calophylla*	Marri	398531	6538566		20	113				Healthy, no hollows
401	*Corymbia calophylla*	Marri	398544	6538580		21	95				Healthy, no hollows
402	*Corymbia calophylla*	Marri	398552	6538588		18	65				Healthy, no hollows
403	*Corymbia calophylla*	Marri	398599	6538559		13	67				Healthy, no hollows
404	*Corymbia calophylla*	Marri	398651	6538554		21	63				Healthy, no hollows
405	*Corymbia calophylla*	Marri	398661	6538568		10	71				Healthy, no hollows
406	*Corymbia calophylla*	Marri	398662	6538594		10	64				Healthy, no hollows
407	*Corymbia calophylla*	Marri	398714	6538631		21	111				Healthy, no hollows
408	*Corymbia calophylla*	Marri	398650	6538645		20	64				Healthy, no hollows
409	*Corymbia calophylla*	Marri	398623	6538638		20	102				Healthy, no hollows
410	*Corymbia calophylla*	Marri	398630	6538659		17	68	24			Healthy, no hollows
411	*Corymbia calophylla*	Marri	398616	6538658		14	64				Healthy, no hollows
412	*Corymbia calophylla*	Marri	398603	6538674		14	78				Healthy, no hollows
413	*Corymbia calophylla*	Marri	398588	6538716		22	101				Healthy, no hollows
414	*Corymbia calophylla*	Marri	398562	6538710		19	97				Healthy, no hollows
415	*Corymbia calophylla*	Marri	398564	6538653		20	77	43			Healthy, no hollows
416	*Corymbia calophylla*	Marri	398562	6538638		21	81				Healthy, no hollows
417	*Corymbia calophylla*	Marri	398549	6538658		19	60				Healthy, no hollows
418	*Corymbia calophylla*	Marri	398521	6538654		19	94				Healthy, no hollows
419	*Corymbia calophylla*	Marri	398537	6538595		20	53	45			Healthy, no hollows
420	*Corymbia calophylla*	Marri	398530	6538568		19	104				Healthy, no hollows
421	*Corymbia calophylla*	Marri	398508	6538585		13	76				Healthy, no hollows
422	*Corymbia calophylla*	Marri	398531	6538762		8	91				Healthy, no hollows
423	*Corymbia calophylla*	Marri	398471	6538777		11	114				Healthy, no hollows
424	*Corymbia calophylla*	Marri	398454	6538788		22	112				Healthy, no hollows
425	*Corymbia calophylla*	Marri	398450	6538771		19	75				Healthy, no hollows
426	*Corymbia calophylla*	Marri	398431	6538763		11	70				Dead branches, no hollows
427	*Corymbia calophylla*	Marri	398446	6538745		19	86				Healthy, no hollows
428	*Corymbia calophylla*	Marri	398433	6538736		15	68				Healthy, no hollows
429	*Corymbia calophylla*	Marri	398465	6538705		17	56				Healthy, no hollows
430	*Corymbia calophylla*	Marri	398477	6538693		20	57	57	56		Healthy, no hollows
431	*Corymbia calophylla*	Marri	398425	6538675		16	63	60			Dead 2nd trunk, no hollows
432	*Corymbia calophylla*	Marri	398405	6538677		23	69				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
433	*Corymbia calophylla*	Marri	398407	6538683		10	62	57			Healthy, no hollows
434	*Corymbia calophylla*	Marri	398401	6538609		15	69	60			Healthy, no hollows
435	*Corymbia calophylla*	Marri	398441	6538600		20	71				Healthy, no hollows
436	*Corymbia calophylla*	Marri	398401	6538583		19	88	32			Healthy, no hollows
437	*Corymbia calophylla*	Marri	398358	6538580		11	76				Leaning, no hollows
438	*Corymbia calophylla*	Marri	398364	6538560		21	83				Healthy, no hollows
439	*Corymbia calophylla*	Marri	398348	6538547		19	90				Healthy, no hollows
440	*Corymbia calophylla*	Marri	398348	6538538		12	88	46			Healthy, no hollows
441	*Corymbia calophylla*	Marri	398335	6538537		10	66				Healthy, no hollows
442	*Corymbia calophylla*	Marri	398329	6538509		19	93				Healthy, no hollows
443	*Corymbia calophylla*	Marri	398307	6538521		10	76				Healthy, no hollows
444	*Corymbia calophylla*	Marri	398323	6538454		11	96				Some dead branches, no hollows
445	*Corymbia calophylla*	Marri	398326	6538446		10	64				Healthy, no hollows
446	*Corymbia calophylla*	Marri	398301	6538449		8	76				Healthy, no hollows
447	*Corymbia calophylla*	Marri	398267	6538473		12	66				Healthy, no hollows
448	*Corymbia calophylla*	Marri	398258	6538478		13	75				Healthy, no hollows
449	*Corymbia calophylla*	Marri	398249	6538473		20	67				Healthy, no hollows
450	*Corymbia calophylla*	Marri	398232	6538467		21	67				Healthy, no hollows
451	*Corymbia calophylla*	Marri	398223	6538421		8	81				Healthy, no hollows
452	*Corymbia calophylla*	Marri	398189	6538408		17	62				Healthy, no hollows
453	*Corymbia calophylla*	Marri	398186	6538395		18	86				Healthy, no hollows
454	*Corymbia calophylla*	Marri	398156	6538382		16	111				Healthy, no hollows
455	*Corymbia calophylla*	Marri	398145	6538346		18	80				Healthy, no hollows
456	*Corymbia calophylla*	Marri	398155	6538343		21	61	56			Healthy, no hollows
457	*Corymbia calophylla*	Marri	398156	6538337		18	71				Healthy, no hollows
458	*Corymbia calophylla*	Marri	398171	6538348		17	116				Healthy, no hollows
459	*Corymbia calophylla*	Marri	398184	6538289		11	90				Healthy, no hollows
460	*Corymbia calophylla*	Marri	398190	6538245		18	83				Healthy, no hollows
461	*Corymbia calophylla*	Marri	398161	6538266		18	105				Healthy, no hollows
462	*Corymbia calophylla*	Marri	398211	6538639		10	112	56	30		Healthy, no hollows
463	*Corymbia calophylla*	Marri	398258	6538707		16	76	53			Healthy, no hollows
464	*Corymbia calophylla*	Marri	398262	6538701		12	70				Healthy, no hollows
465	*Corymbia calophylla*	Marri	398250	6538762		15	70				Healthy, no hollows, borers
466	*Corymbia calophylla*	Marri	398255	6538768		15	80				Healthy, no hollows, borers
467	*Corymbia calophylla*	Marri	397900	6537666		15	75				Healthy, no hollows
468	*Corymbia calophylla*	Marri	398047	653776		17	85				Healthy, no hollows
469	*Corymbia calophylla*	Marri	398135	6537644		10	75				Healthy, no hollows
470	*Corymbia calophylla*	Marri	398027	6537583		16	70				Healthy, no hollows
471	*Corymbia calophylla*	Marri	398154	6537576		11	55				Healthy, no hollows
472	*Corymbia calophylla*	Marri	398247	6538642		15	70				Healthy, no hollows
473	*Corymbia calophylla*	Marri	398235	6537580		12	65				Healthy, no hollows

ATTACHMENT 9 – Bushfire Advice

BPP Group Pty Ltd.
ABN: 39 166 551 784
Suite 11, 36 Johnson Street Guildford WA 6055
PO Box 388 Guildford WA 6935
P: 6477 1144 | E: admin@bushfireprone.com.au

BUSHFIRE ADVICE BRIEF

This document is NOT to be submitted to a government authority as part of a building permit or planning application.

It does not contain the required detailed and justified information content for a Bushfire Attack Level Report and/or a Bushfire Management Plan that are to be submitted with building permit or planning applications.

WA - THE ESTABLISHMENT OF REQUIREMENTS TO APPLY BUSHFIRE PROTECTION MEASURES

To assist with mitigating the risks of loss of life, injury, or destroyed or damaged assets resulting from a bushfire event, the WA Government has legislated the application of certain bushfire protection measures in the planning and/or construction phases of specified development.

These requirements are established by the following:

- **For Land Use Planning:** *State Planning Policy 3.7 Bushfire*, November 2024 (SPP 3.7) and the associated Planning for Bushfire Guidelines, November 2024 (Guidelines). The mechanism to require development approval and the application of SPP 3.7 is provided by the deemed provisions of the Local Planning Scheme Regulations 2015, made under the WA Planning and Development Act 2005.
- **For Building Design and Construction:** The Building Code of Australia (BCA) contained in the National Construction Code (NCC) and referenced by the WA Building Regulations 2012, made under the WA Building Act 2011.

PURPOSE OF THE ADVICE BRIEF AND ITS LIMITATIONS

Purpose: Assessments and Advice Regarding Land Use Planning

To conduct an appropriate appraisal of the subject site and the proposed works/ use, for the purpose of:

1. Concisely presenting indicative information to inform proponents regarding the ability of the proposed works/ use to comply with the required bushfire planning protection measures; and
2. Where constraints are identified and potential solutions exist, these are discussed and the required steps to progress are identified.

[Note that the site visit conducted for the Advice Brief does not necessarily remove the requirement for a further site visit to assess and record site data in more detail consequent to the application of the advice provided].

Limitations: Information for Building Design and Construction

The requirement for specific detailed and justified information to inform certain building design and construction, necessitates the provision of this information in separate documents:

1. For Classes 1, 2, 3 and associated 10a buildings, the BCA establishes the bushfire performance requirements. The deemed to satisfy bushfire construction requirements are those corresponding to a determined BAL rating and are detailed in AS 3959:2018 or the NASH Standard 2014 (Class 1 and 10a only). However, the Advice Brief will only provide an indicative BAL rating or indicate the ability to not exceed BAL-29.

   The determined BAL rating and supporting information would be provided in a separate **BAL Assessment Report**.
2. For certain Class 9 buildings where compliance with NCC 2022 is required, relevant design bushfire data is required to inform persons responsible for ensuring that the bushfire performance requirements of the BCA can be met.

   Bushfire Prone Planning would present this information, and justification for its development, in a separate **Design Bushfire Data Statement**.

ASSESSMENT AND PROPOSED DEVELOPMENT/USE DETAILS

ASSESSMENT					
BPP Job Reference No.		16804			
Client Details	Contact	Stephanie Ng	Business	Claymont Developments	
Bushfire Planning Consultant		Selina Hutcheon (BPAD Level 1 No. 63345)			
Appraisal Method:	Site Visit and Desktop		Date	10 July 2026	
PROPOSED DEVELOPMENT/USE					
Description	Proposed Subdivision				
Site Location	Lot 83 Cheriton Rd, Ginginup		Lot Size	61.118ha	
Is a planning application that addresses the requirements established by State Planning Policy 3.7?				Yes	
Applicable National Construction Code (NCC) building classification.		N/A			

SUMMARY STATEMENTS

BPP understand the proposal seeks to expand the existing developed area of Ginginup. The existing subdivision was approved despite the challenges faced by the overlength no-through road. Due to the overlength no through road issue, BPP is of the opinion that additional subdivision works will not be approved unless the proposal is able to provide a secondary access option.

Based on this preliminary assessment, BPP does not consider it is currently in a position to prepare a Bushfire Management Plan (BMP) that can reasonably demonstrate compliance with the intent of State Planning Policy 3.7 for the proposed subdivision, unless positive feedback is received from the Shire of Gingin.

Potential for the proposal to achieve the objectives and policy outcomes of SPP 3.7:

Element 1,2, and 4 can be complied with. Element 3 will not comply and will require an Outcomes Based Approach.

ADVICE / RECOMMENDATIONS

1. A FSAR will be required to be installed on the northern edge of Lots which adjoin Class A forest/Class D Scrub.
2. Strategic tanks may be required. We recommend discussing these with the Shire of Gingin.
3. An Outcomes Based Approach will be required to address the overlength no-through road. More details in this document.

IDENTIFICATION OF BUSHFIRE PRONE VEGETATION

ONSITE VEGETATION
EXPLANATORY INFORMATION Typically, the landowner can potentially manage this vegetation i.e., remove and/or maintain in a minimal fuel, low threat state in perpetuity, as part of an asset protection zone (APZ). The APZ creates separation between the potential bushfire hazard and a building. This can remove the potential for flame contact (from the bushfire itself) and lowers the level of radiant heat that can be transferred to the building (from the bushfire itself). ***IMPORTANT*** ***CERTAIN TYPES AND/OR EXTENTS OF NATIVE VEGETATION CANNOT BE MODIFIED OR REMOVED WITHOUT PERMISSION BEING OBTAINED FROM THE RELEVANT AGENCY/AUTHORITY. SEEK THE ADVICE OF YOUR LOCAL GOVERNMENT FIRST.*** Note that the BAL rating does not consider the building's potential exposure to radiant heat, flames and embers from other vulnerable combustible materials/items/structures that might exist around a building and be ignited by embers from a bushfire that is some distance away. These are consequential fires, and this risk can be the primary risk and must be separately considered and managed by the property owner/manager.

Location Description and Classification	Explanation
Class A - Forest	Dense areas of trees, sparser areas of trees with shrub/scrub understoreys.
Class B - Woodland	Sparser areas of trees with lower foliage cover over grasslands.
Class G - Grassland	Grasslands which are not managed or cannot guarantee to be managed on an ongoing basis.

Assessment Comments:

Due to the large Lot sizes, it is unlikely that the entirety of the subdivision will be managed to a low threat state. Building envelopes should be located such that they have a minimum of the below distances:

Area – Vegetation type and slope (applies to downslope only)	Required separation distance between vegetation and a future building
Area 1 – Forest 5-10 degrees	33m
Area 2 – Forest 0-5 degrees	27m
Area 3 – Woodland 5-10 degrees	17m
Area 4 – Woodland 10-15 degrees	28m
Area 5 – Scrub 5-10 degrees	17m
Area 6 -Grassland – 5-10 degrees	10m
Area 7 - Grassland – 10-15 degrees	12m
Area 8 - Excluded	N/A

OFFSITE VEGETATION
EXPLANATORY INFORMATION In most situations, the owner of the subject site will have no authority to reduce these offsite bushfire hazards by clearing or modifying the vegetation and maintaining the land in a minimal fuel, low threat state in perpetuity. Consequently, the potential bushfire threats from this vegetation will typically remain. This may limit the separation distances that can be achieved (i.e., the size of the APZ that can be established). An exception for relevant parts of the land may exist when: 1. The offsite landowner is subject to a legislated management responsibility e.g., compliance with a fire break/fuel load notice; or 2. A formal agreement for the management of the vegetation on relevant areas of land is established with the offsite landowner (or its responsible manager) e.g., a private landowner or a government agency.

Location Description and Classification	Explanation
Class A Forest	Dense areas of offsite vegetation exceeding 6m in height. Typically contain Eucalypt trees.
Class B Woodland	Clumps of trees on neighbouring properties similar to those onsite.
Class D Scrub	Tall shrubs and low trees 2-6m in height. On neighbouring properties and the adjoining Cheriton Rd verge.
Class G Grassland	Grasslands which are not managed or cannot guarantee to be managed on an ongoing basis.
Exclusion Clauses (e) and (f)	Low threat areas of vegetation such as low threat managed properties and non-vegetated elements such as roads/buildings.

Assessment Comments:

Offsite vegetation cannot be guaranteed to be managed, therefore should be classified as worst case scenario. The vegetation on the verge of Cheriton Rd falls partly within the Lot boundaries and may be able to be removed by the future landowner.

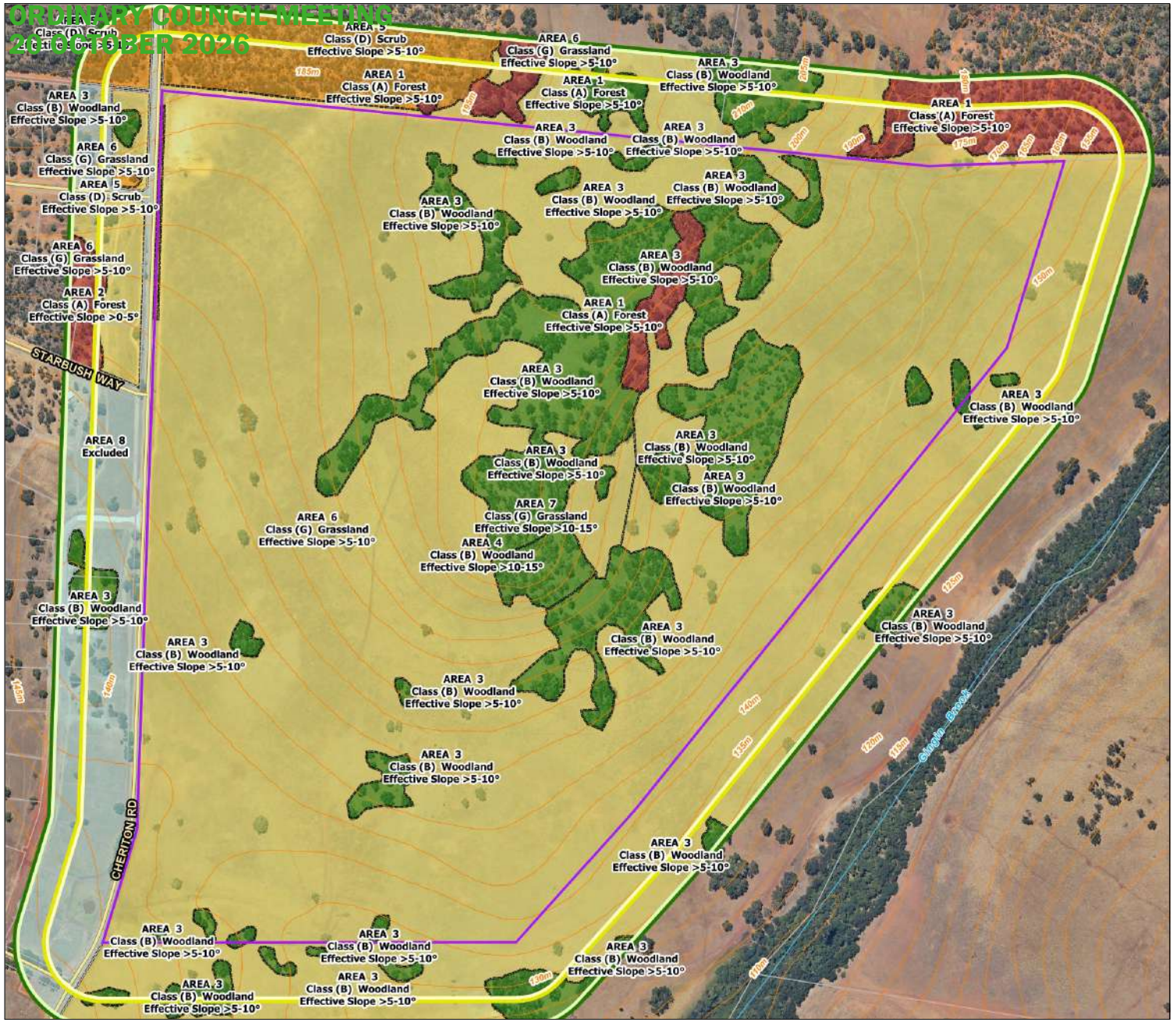


Figure 3.4

Classified Vegetation & Topography (Existing)

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

- Subject Site
- Cadastral
- Buildings
- Hydrants
- Vegetation Distance (m)
- 150m Assessment Area
- 100m Assessment Area

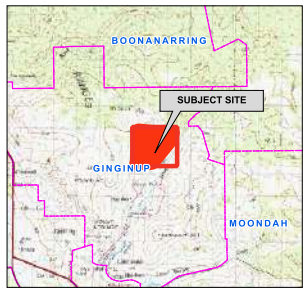
Classified Vegetation

- Forest
- Woodland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

0 50 100 150 200

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 09-07-2026
SCALE (A3): 1 : 6000

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

16804-Fig_3-4_VEG--Lot 83 Cheriton Road Ginginup.qgz

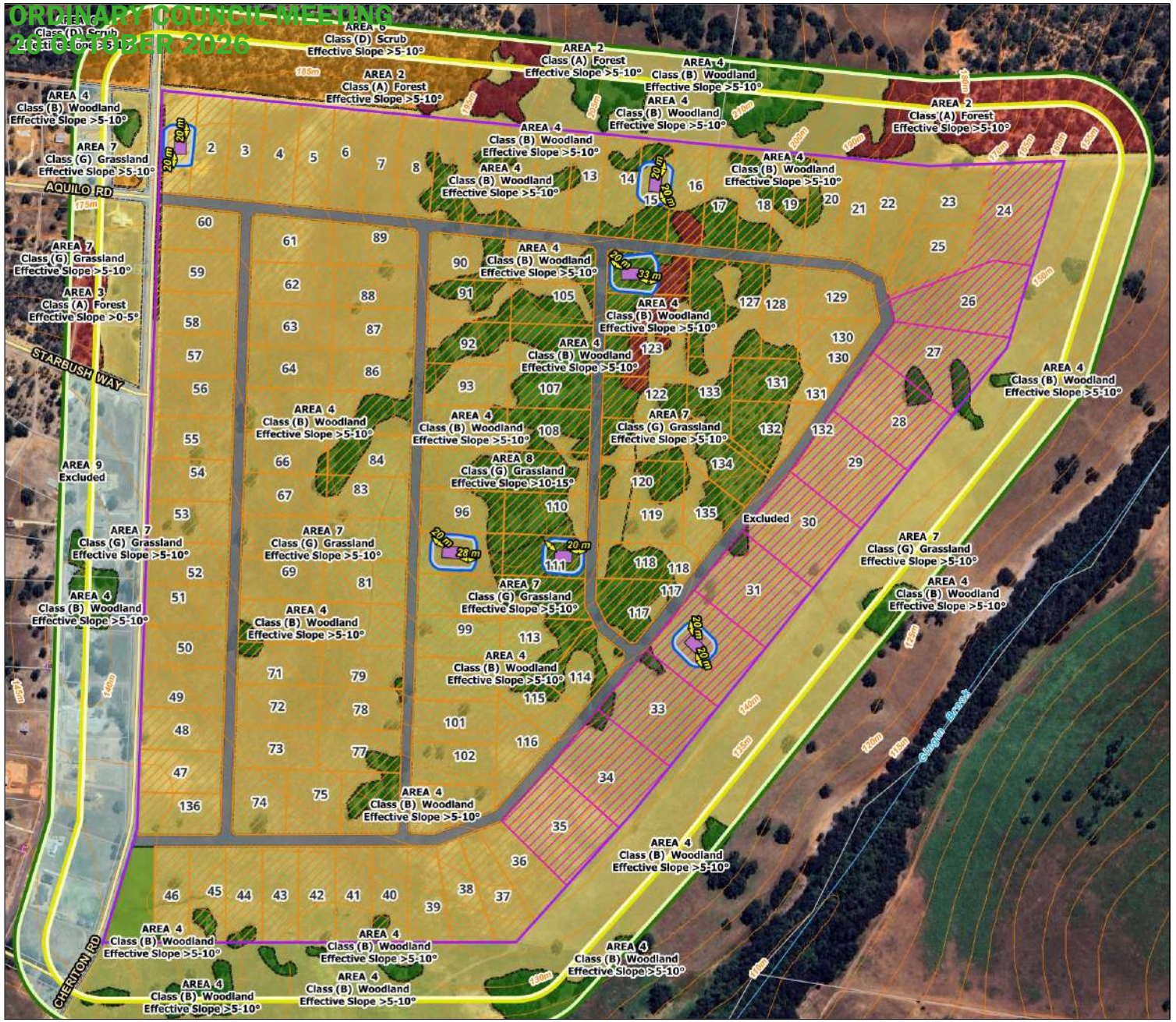


Figure 3.4.1

Classified Vegetation & Topography (Post Dev)

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

- Subject Site
- Cadastral
- Example APZ
- APZ Distance (m)
- 100m Assessment Area
- 150m Assessment Area
- Building Envelope 20x30m

Classified Vegetation

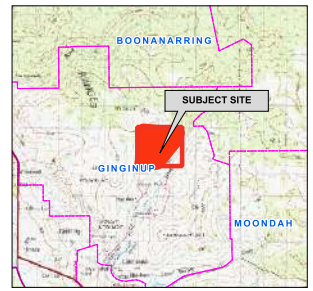
- Forest
- Woodland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

Proposed Subdivision

- R1
- R2
- Road
- POS

0 50 100 150 200
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 09-07-2026
SCALE (A3): 1 : 6000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-4-1_POSTVEG-Lot 83 Cheriton Road Ginginup.qgz

POTENTIAL FOR THE PROPOSAL TO ACHIEVE THE OBJECTIVES AND POLICY OUTCOMES OF SPP 3.7

EXPLANATORY INFORMATION

Any development, in a designated bushfire prone area, that is required to have planning approval from the relevant decision maker, must meet the requirements established by SPP 3.7 and the associated Guidelines.

The Guidelines establish the key bushfire protection measures that are considered by the regulatory authorities to result in acceptable levels of the risks associated with a bushfire event.

These protection measures are established within the bushfire protection criteria as Acceptable Solutions and grouped under the four Elements of Location, Siting and Design, Vehicular Access and Water Supply (as relevant to the planning proposal stage). The planning proposal's ability to achieve the applicable acceptable and therefore the policy outcomes of SPP 3.7, is assessed.

When all relevant acceptable solutions cannot be achieved, SPP 3.7 establishes an alternative pathway (the outcomes-based approach) that can be applied to determining if SPP 3.7 Policy Outcomes can be satisfied.

The Applicable Bushfire Protection Criteria (BPC)	BPC 5: Structure Plans & Subdivision Applications

THROUGH APPLICATION OF THE ACCEPTABLE SOLUTION PATHWAY

Element 1: Location	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

THE BROADER LANDSCAPE TYPE (BLT) ASSESSMENT - OUTCOME SUMMARY				
Criteria	Criterion Characteristics and Designated Point Value			Assessed Points [1]
	5 Points	2 Points	1 Point	
Proximity of the planning proposal to a 'suitable destination'.	>10 km	1-10 km	<1 km	**2**
The road pattern from the planning proposal to a suitable destination.	Complex and Indirect	Mixed Road Patterns	Simple and/or Direct	**1**
THE PREDOMINANT VEGETATION PATTERN EXTERNAL	Large Tracts Of Classified Vegetation	Mosaic	Cleared Vegetation	**2**
EXPOSURE TO AREAS OF EXTERNAL BUSHFIRE HAZARDS ASSESSED AS 'LARGE TRACTS OF CLASSIFIED VEGETATION'.	Three or Four Aspects	Two Aspects	One Aspect or None	**1**
Note 1: Refer to assessment supporting information and maps on the following pages.				
DETERMINED BROADER LANDSCAPE TYPE (BLT)				
Broader Landscape Type A ..... Total Assessed Points ≤ 11				
IMPLICATIONS FOR THE SUBJECT PLANNING PROPOSAL AND CONTENT OF THIS BMP				
The determination of the planning proposal's location within a Broader Landscape Type A, demonstrates compliance with BPC Element 1: Location. No further assessments are required.				

The proposal is within Broader Landscape Type A. This achieves compliance with Element 1. The relevant maps are included in Attachment 2.

Element 2: Siting and Design	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

Residential BMPs or BAL assessments will be required to ensure buildings are within BAL-29 or below. APZ will be required to be installed on each Lot. Example building envelopes and APZs have been included in the post development vegetation map to indicate possible building locations which do not rely on the maintenance of neighbouring lots.

If building envelopes are to be included as part of the subdivision, these should consider avoiding native vegetation to allow it to be retained, and form a connecting path between lots to provide additional protection to future buildings.

The POS area will likely require a landscaping plan to ensure the BAL ratings in the BMP are appropriately accounted for.

Element 3: Vehicular Access	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
		✓			

Assessment Comments:

The proposal is not able to comply with the requirements for access routes – public road access should be provided in two different directions to two different suitable destinations, with an all-weather surface.

The no through road (Cheriton Rd) is greater than the maximum length of 200m. The southwest corner of the subdivision is 5.6km by road distance from the point of two-way access at Cheriton Rd/Mchavloe Dr.

The no through road may exceed 200m if it meets the following:

- Alternative access including an emergency access way cannot be provided due to site constraints (met)
- Travels towards a suitable destination (met)
- The balance of the no-through road that is greater than 200m from the subject site is wholly within BAL-LOW, or is within a residential built -out area, or is within Area 1.

The last requirement could be considered partially met as the majority of the road is not within the Bushfire Prone Area, with only a small amount of road within the Bushfire Prone Area.

An alternative approach was prepared in the previous BMP, which under the current Guidelines is considered an "Outcomes Based Approach". See the following page for further assessment.

As there is no perimeter road proposed along the northern boundary, a Fire Service Access Route (FSAR) can be expected to be required next to adjoining forest vegetation. This would be similar to the one travelling along the rear of Lots 1-26 in the Lot 81 subdivision. The relevant Lots in the Lot 83 subdivision are Lots 1-11 and Lots 23/24. The current Guidelines require FSAR to have a minimum of 10m horizontal clearance, 4.5 vertical clearance and 15 tonnes weight capacity. The FSAR should connect with a public road every 500m. This will need to be factored into the design.

Element 4: Water Supply	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

Water tanks or hydrants are required as a minimum requirement. Strategic water tanks may be required to be installed by the developer. These are 50KL tanks installed as dedicated firefighting tanks. It is recommended that this be discussed with the Shire of Gingin prior to finalising the subdivision application. Installing hydrants as well as individual tanks or strategic tanks may be required as part of the Outcomes Based Approach to overcome the no-through road issue.

APPLICATION OF THE OUTCOMES-BASED APPROACH (THE ALTERNATIVE PATHWAY)

EXPLANATORY INFORMATION

The methodology and processes to be applied in utilising this approach will be unique to each planning proposal. The approach can vary significantly in approach, complexity of assessment and the amount of detail required.

Significant costs may be incurred to develop and justify the process and the assessment - with no guarantee of success. Nonetheless, it is viable pathway to apply in certain circumstances and potentially straightforward for minor variations from the acceptable solutions.

Using the alternative pathway will require the involvement of a Level 3 (BPAD) accredited bushfire practitioner with appropriate levels of bushfire experience.

Will the planning proposal require the application of the outcomes based approach?	Yes

Assessment Comments:

The proposal cannot comply with Element 3 due to the existing overlength no-through road.

Potential to Satisfy the Objectives and Policy Outcomes of SPP 3.7	Almost None	Limited	Possibly	Probable
	✓			

Assessment Comments:

The proposal is located at the end from the point of two-way access an existing no through road (Cheriton Rd) which is 5.6km from the closest point of two-way access. This is a legacy issue which cannot easily be remedied by the proposal as there are no other roads the proposal could connect to.

The proposal is unlikely to be supported by the Shire/WAPC unless a secondary access route is able to be provided, This may take the form of another road or Emergency Access Way.

If a BMP is to proceed, additional protection measures must be applied to ensure persons are equipped to stay and defend in the event of a bushfire.

Proposed additional protection measures to be applied would include:

Increasing the required APZ to be a minimum of BAL-19 by creating a further setback from offsite vegetation and managing additional grassland on each Lot. This will reduce the maximum kW of radiant heat impacting a home and increase the required managed area creating a safer area and protecting homes from a bushfire.

Additional water supply by installing hydrants and either installing strategic tanks or requiring all purchasers to install a 10,000L tank per habitable building. This will ensure water access is available and sufficient for emergency services.

A possible Outcomes Based Approach will also address:

While the no-through road does not comply with the 200m maximum length, the no through road is largely not considered to be within a Bushfire Prone Area. The road adjoins Class G Grassland paddock areas largely noticed to be <10cm in height at the time of the site visit. Only a small section of road is bushfire prone where trees from the creek to the east extend towards the road. While there is inherent risk with the length of the no-through road, a grass fire is likely to pass quickly through the area and will not leave smouldering logs or branches typical of forest fires, allowing persons sheltering in their homes to evacuate after the fire front has passed.

ATTACHMENT 1 – INFORMATION LINKS AND RELEVANT CONTACTS

INFORMATION LINKS	
DFES – Map of Bushfire Prone Areas	https://maps.slip.wa.gov.au/landgate/bushfireprone/
Department of Planning, Lands and Heritage – all bushfire planning documentation	https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas
AS 3959:2018 Construction of buildings in bushfire prone areas	https://infostore.saiglobal.com/en-au/standards/as-3959-2018-122340_saig_as_as_2685241/
NASH Standard – Steel Framed Construction in Bushfire Area	https://nash.asn.au/nash/publications/nash-standards
Local Government – Firebreak Notice	Firebreak_Orders_2025_-_DIGITAL_VERSION.pdf
Bushfire Practitioner Accreditation (FPA Australia)	http://www.fpaa.com.au/bpad.aspx

ATTACHMENT 2 – BROADER LANDSCAPE ASSESSMENT



Figure 3.1

Broader Landscape Vegetation Aspects

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

Subject Site

Broader Landscape Assessment

2km Assessment Area
Assesment Aspects

Road Access

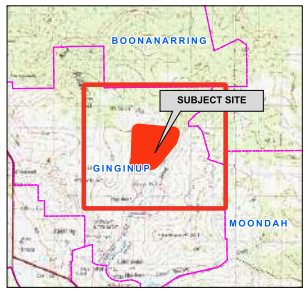
Local Road
Access Track

Vegetation Categories

Other Classified Vegetation
Unmanaged Grassland
Low Threat Vegetation

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
SCALE (A3): 1 : 19000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-1_BLA_VEG--Lot 83 Cheriton Road Ginginup.qgz

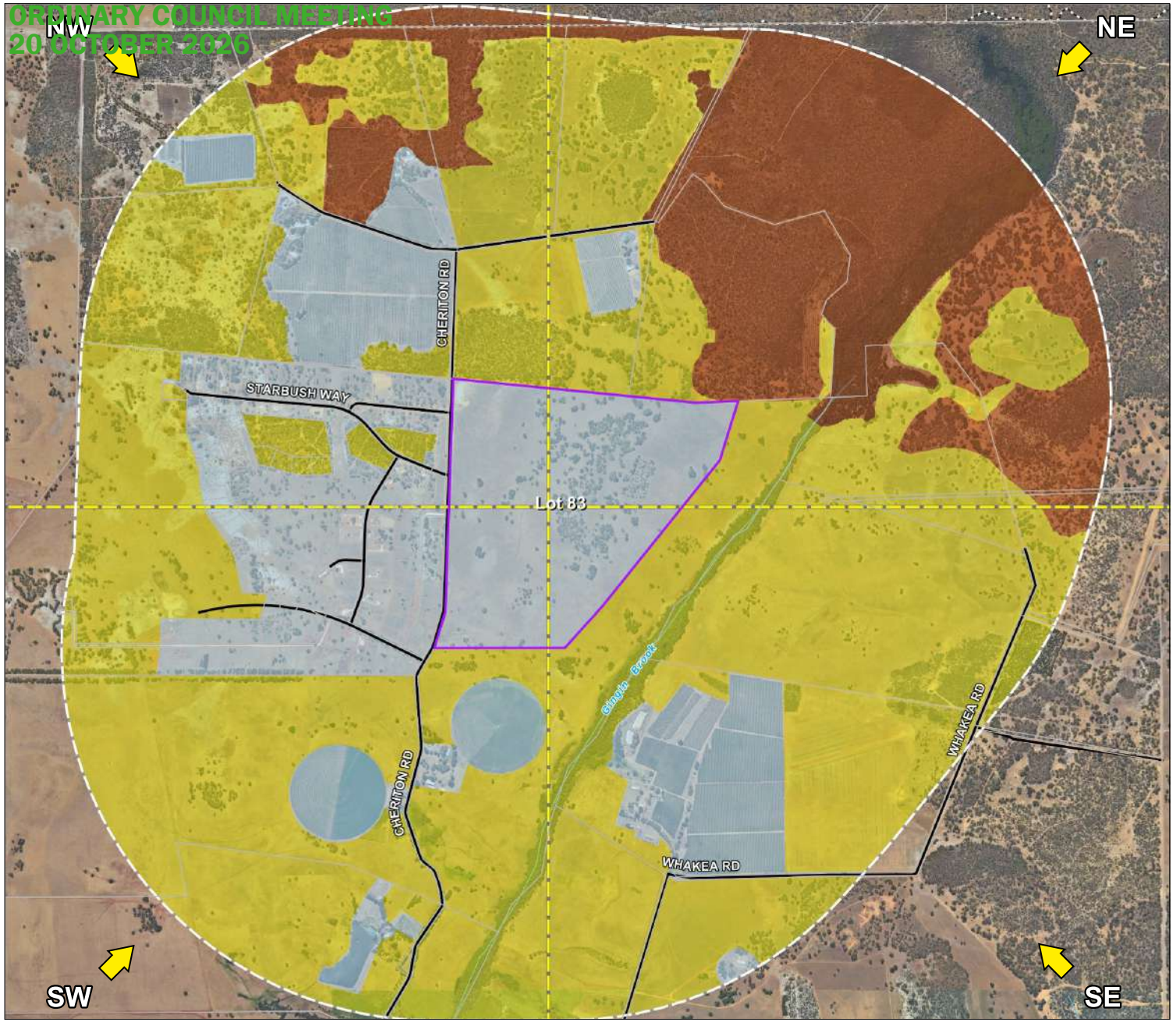


Figure 3.2

Predominant Vegetation Pattern

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

Subject Site

Broader Landscape Assessment

2km Assessment Area
Assesment Aspects

Road Access

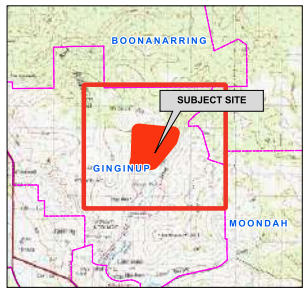
Local Road
Access Track

Vegetation Patterns

Large Tracts of Classified Vegetation
Mosaic Pattern
Low Threat Vegetation

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
SCALE (A3): 1 : 19000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-2_BLA_MOS--Lot 83 Cheriton Road Ginginup.qgz

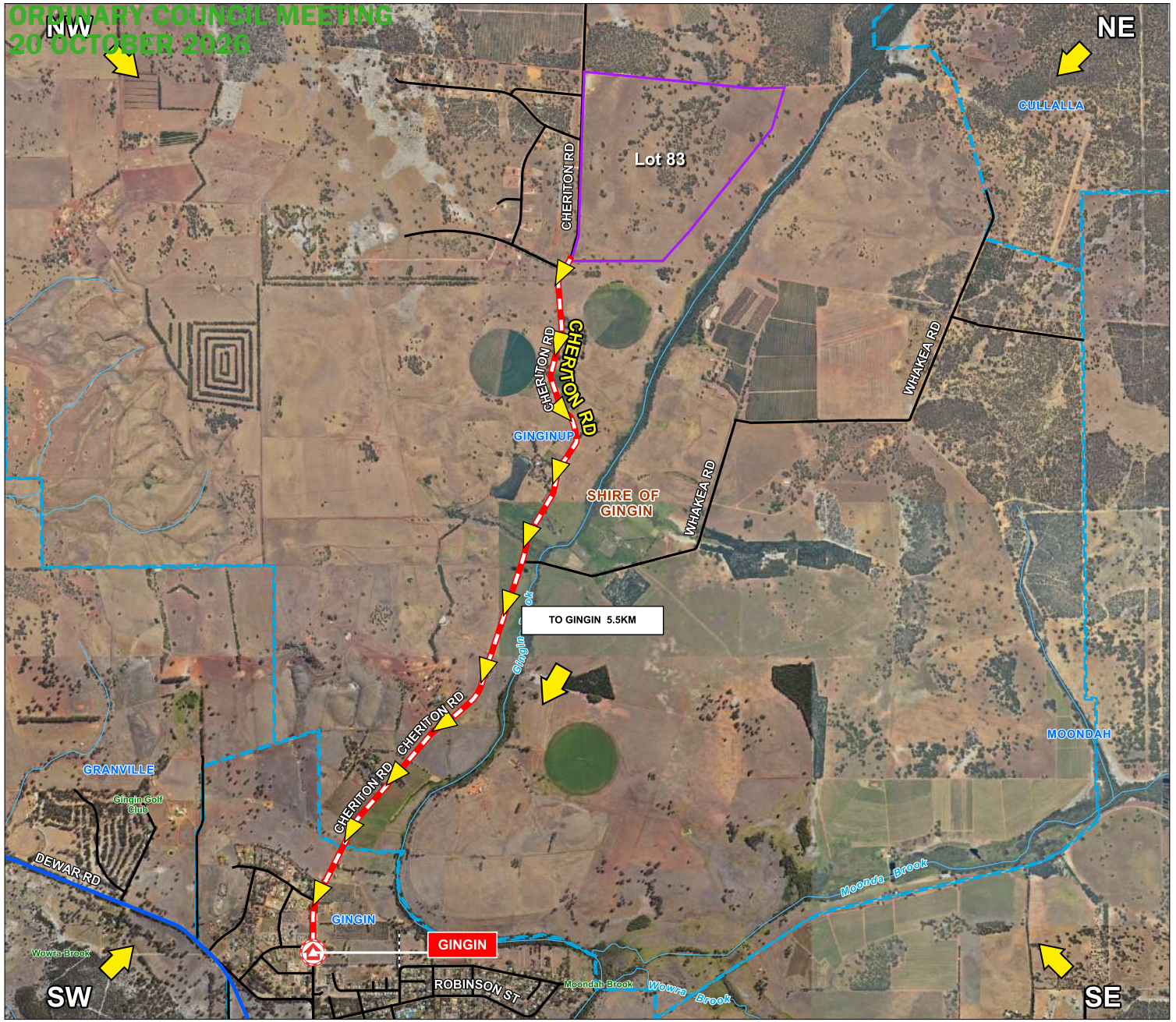


Figure 3.3

Vehicular Access Routes and Suitable Destinations

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

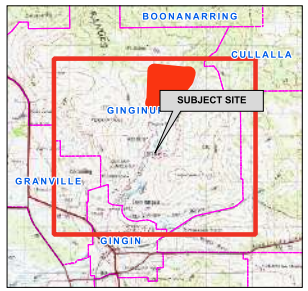
- Subject Site
- Evacuation Location
- Primary Evacuation Route

Road Access

- District Road
- Local Road
- Access Track

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
SCALE (A3): 1 : 27000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-3_BLA_Road-Lot 83 Cheriton Road Ginginup.qgz

ATTACHMENT 3 – EXPLANATION OF BUSHFIRE ATTACK LEVELS AND REFERENCES FOR CONSTRUCTION REQUIREMENTS

Bushfire Attack Level	Explanation of BAL Levels [1]	References for Construction Requirements	
		AS 3959:2018 Construction of Buildings in Bushfire Prone Areas	**The Nash Standard – Steel Framed Construction in Bushfire Areas**
		Referenced by the Building Code of Australia for Building Classes 1, 2, 3 & 10a	Referenced by the Building Code of Australia for Building Classes 1 & 10a
BAL – LOW	There is insufficient risk to warrant specific construction requirements but there is still some risk. *(Note: DFES recommend that ember attack protection features be incorporated in the design where practicable).*	Section 4. No Requirements	No Requirements
BAL – 12.5	There is a risk of ember attack. Construction elements are expected to be exposed to heat flux not greater than 12.5 kW/m^2	Sections 3 & 5.	All construction requirements for BAL-12.5 to BAL-40 are the same except for windows and external doors, which must comply with AS 3959. The construction requirements are set out as essentially non-combustible construction systems for each of the following building elements: • Section 1.4: General Requirements • Section 2: Roof and Ceiling System • Section 3: External Wall System • Section 4: Floor System • Section 5: Carports Verandahs and Decks.
BAL – 19	There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m^2.	Sections 3 & 6	
BAL – 29	There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 29 kW/m^2.	Sections 3 & 7.	
BAL – 40	There is a much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m^2.	Sections 3 & 8.	
BAL – FZ (Flame Zone)	There is an extremely high risk of ember attack and burning debris ignited by windborne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.	Sections 3 & 9.	The construction requirements are set out in Sections 1-5 and differ from the requirements for all other BAL ratings.

[1] AS 3959:2018 *Construction of buildings in bushfire prone areas,* defines a Bushfire Attack Level (BAL) as a "means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat flux expressed in kW/m^2, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire."

Planning and Development Act 2005

RESOLUTION TO AMEND LOCAL PLANNING SCHEME

Shire of Gingin Local Planning Scheme No. 9

Amendment No. 24

Resolved that the Local Government pursuant to section 75 of the *Planning and Development Act* 2005, amend the above Local Planning Scheme by:

1. **Amending the scheme map by modifying the RL2 designation to RL1.**

COUNCIL ADOPTION

This Standard Amendment was adopted by resolution of the Council of the Shire of Gingin at the Ordinary Meeting of the Council held on the [insert date]

.....

SHIRE PRESIDENT

.....

CHIEF EXECUTIVE OFFICER

COUNCIL RESOLUTION TO ADVERTISE

By resolution of the Council of the Shire of Gingin at the Ordinary Meeting of the Council held on the [insert date], proceed to advertise this Amendment.

.....

SHIRE PRESIDENT

.....

CHIEF EXECUTIVE OFFICER

COUNCIL RECOMMENDATION

This Amendment is recommended [for support/ not to be supported] by resolution of the Shire of Gingin at the Ordinary Meeting of the Council held on the [insert date] and the Common Seal of the Shire of Gingin was hereunto affixed by the authority of a resolution of the Council in the presence of:

.....

SHIRE PRESIDENT

.....

CHIEF EXECUTIVE OFFICER

WAPC ENDORSEMENT (r.63)

.....

DELEGATED UNDER S.16 OF

THE P&D ACT 2005

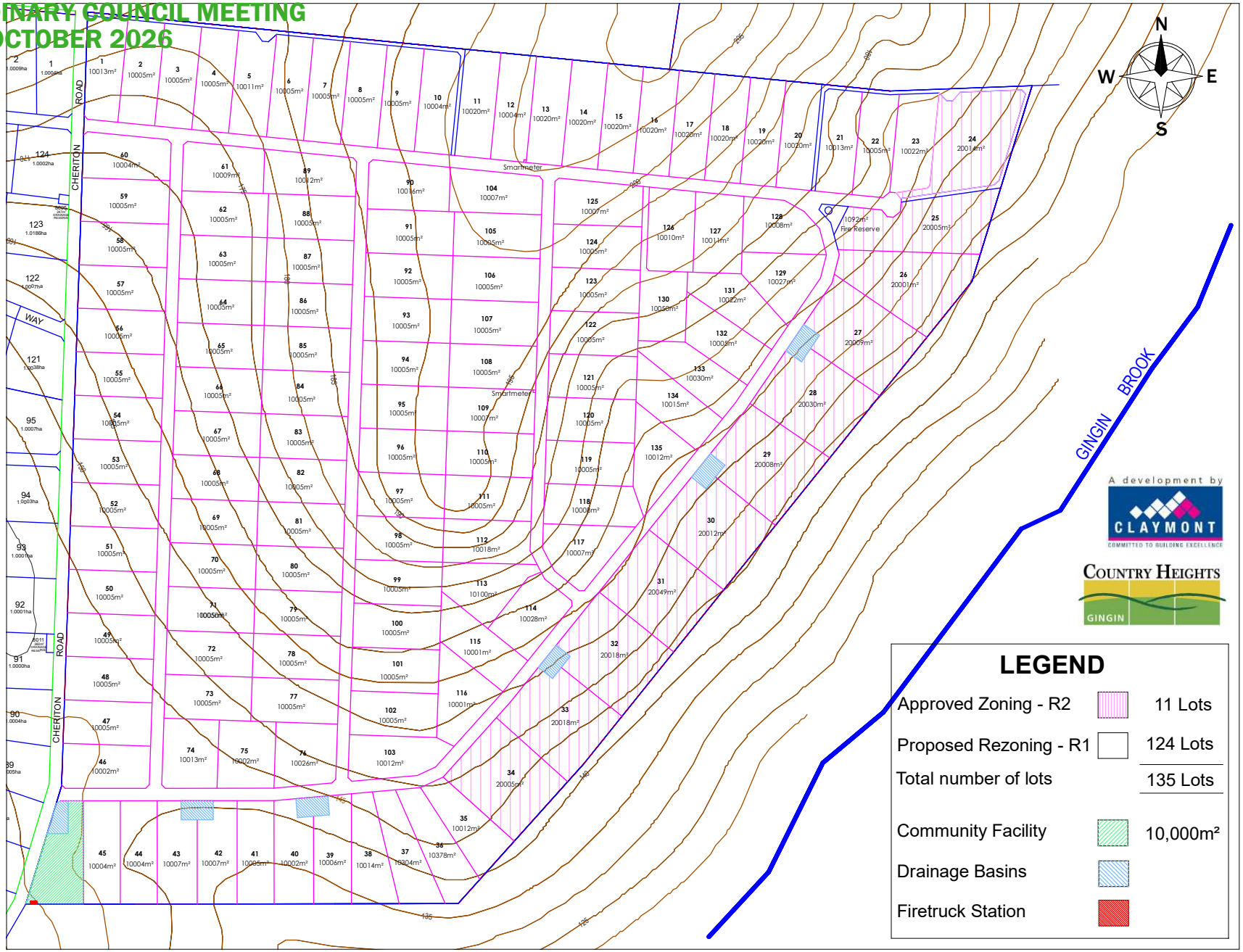
DATE.....

APPROVAL GRANTED

.....

MINISTER FOR PLANNING

DATE.....


N
W
E
S
CHERITON ROAD
WAY
GINGIN BROOK
Smartmeter
1092m²
Fire Reserve
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2
11 Lots
Proposed Rezoning - R1
124 Lots
Total number of lots
135 Lots
Community Facility
10,000m²
Drainage Basins
Firetruck Station

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
2572	**131**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 83 ON DEPOSITED PLAN 38255

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

COUNTRY HEIGHTS ESTATE 2 PTY LTD OF PO BOX 93 DANDENONG VIC 3175
(T Q989852) REGISTERED 31/8/2026

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 3053/1909. AS TO THE PORTION OF VICTORIA LOCATION 1373 ONLY SEE SKETCH ON VOL 1450 FOL 221.
2. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 6619/1920. AS TO THE PORTION OF VICTORIA LOCATION 1373 ONLY SEE SKETCH ON VOL 1450 FOL 221.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	DP38255
PREVIOUS TITLE:	1450-221
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF GINGIN

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STRUCterre consulting

Geotechnical Investigation



Job No: J489094

Pendragon Enviromental Solutions Pty Ltd

Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup WA

Thursday 9 October 2025

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1. Project Details

1.1 Introduction

At the request of Pendragon Environmental Solutions Pty Ltd on behalf of The Developer, Structerre Consulting (Structerre) have conducted a Geotechnical Investigation at Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup, WA. The purpose of the investigation was to provide the following for residential subdivision purposes:

- Desk top study including a summary of geology, groundwater, site history (obtained from historical photographs) and potential presence of Acid Sulphate Soils (ASS)
- Summary of encountered ground and groundwater conditions, including borehole logs and indicative mapping of sand resources
- Site Classification in accordance with AS2870-2011 Residential slabs and footings
- Earthquake site factor in accordance with AS1170.4
- Recommendations for stormwater drainage design, including in-situ soil permeability
- Site preparation requirements (earthworks), including site traffic, excavation, reuse of materials and batter slopes, compaction requirements, expected shrinkage and bulking factors, and sub-surface settlement of fill during compaction
- Recommendations on earthworks and site preparation requirements including use of existing materials as fill or for use in public open space, recommendations on imported materials, compaction methods, testing, dewatering requirement, if necessary;
- Preliminary pavement design parameter, indicative California Bearing Ratio (CBR) values determined from penetrometer results and ground conditions encountered
- Earth pressure coefficients for granular backfill for retaining wall design.

This report details the scope of the geotechnical investigation, present and interpretation of ground conditions and material properties across the site, provides geotechnical design parameters for the design of the proposed infrastructure, and evaluates the suitability of materials for use in earthworks. Interpretation of site conditions is based on the subsurface lithology revealed during the investigation programme, visual assessment of the in-situ materials and the results of in situ field tests.

Terms of reference for this investigation were presented in a Structerre Consulting proposal reference Q113820 (dated 10 June 2025), which was submitted to and accepted by The Client.

1.2 Site Description & Proposed Development

The site is located at Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup WA, Shire of Gingin. Cheriton Road lies to the west of the site, with farmland to the north, east and south. Gingin Brook also lies to the east of the site.

The site is undulating and slopes up towards the northern section. At the time of the field investigation the property was covered in vegetation with small to large sized trees and was previously used as farmland. Gingin Brook was noted to the east in close proximity to the site.

We understand that the site is to be developed for a rural residential subdivision, comprising residential buildings, with associated road networks.

1.3 Field Investigation – Scope of Works

The field investigation was carried out on 8, 10, 12 and 19 September 2025 and comprised:

- Forty-three (43) x Sample Retrieval Probe boreholes to a maximum depth of 2.5m over the site for material assessment and soil profiling;
- Thirty-nine (39) x In-situ percolation tests to determine the permeability of the materials within the upper 1.0m; and
- Eighteen (18) x Perth Sand Penetrometer Tests (PSP) tests in accordance with AS 1289.6.3.3 (1997) to a depth of up to 1.0m for evaluation of relative densities of the upper layers, and

The BH test locations are presented on the site plan, enclosed within Appendix A.

Suitably qualified geotechnical personnel from Structerre supervised the fieldwork and all fieldwork, interpretation and terminology used in this report are in accordance with the guidelines presented in AS1726-2017 Geotechnical Site Investigations.

2. Desk Study

2.1 Geological Setting

The Perth sheet 1:2 50,000 Environmental Geology Series (Sheet SH 50-14 and Part Sheet SH 50-13, 1978) prepared by the Geological Survey of Western Australia indicates that the following geological layers underlie the site:

- Colluvium – soil and undifferentiated sand over laterite of coastal plain includes minor alluviated areas (Qpo)

2.2 Ground Surface & Groundwater Level

The Perth Groundwater Atlas (Waters & Rivers Commission) indicates the ground surface level at this site was approximately 135.0 to 205.0m Australian Height Datum (AHD).

There is no publicly available information regarding historic groundwater levels for the site. It should be noted that the groundwater levels can vary significantly due to seasonal variation, and any published data should be used only as a guide.

2.3 Acid Sulphate Soils

There is no publicly available information regarding that the site lies within a risk zone of ASS occurring.

2.4 Site History

Historical aerial photographs dating back to 1981 are publicly available through Landgate Map Viewer were assessed and a summary is presented in Table 1.

Table 1 - Historical Site Information

Date	Description
1981	The site is farmland
2025	Site remains relatively unchanged to the current day

3. Results of the Investigation

3.1 Subsurface Soil Profile

The subsurface soil profile presented below was determined from the ground conditions encountered within the boreholes and through the interpretation of the DCP test results:

Table 2 - Subsurface Soil Profile

Test Location	Material Description / Depth (m)				
(BH)	Topsoil	SAND/ Silty SAND	Clayey SAND	Sandy CLAY	Anticipated Site Class*
1	0.1	2.5	-	-	Class "A"
2	0.1	2.5	-	-	Class "A"
3	0.2	2.5	-	-	Class "A"
4	0.2	2.5	-	-	Class "A"
5	0.2	2.5	-	-	Class "A"
6	0.1	2.5	-	-	Class "A"
7	0.2	2.5	-	-	Class "A"
8	0.2	2.5	-	-	Class "A"
9	0.2	2.5	-	-	Class "A"
10	0.1	2.5	-	-	Class "A"
11	0.2	2.5	-	-	Class "A"
12	0.1	2.5	-	-	Class "A"
13	0.2	2.5	-	-	Class "A"
14	0.2	2.5	-	-	Class "A"
15	0.1	2.5	-	-	Class "A"
16	0.1	2.5	-	-	Class "A"
17	0.3	1.7	2.5	-	Class "S"
18	0.1	2.5	-	-	Class "A"
19	0.1	2.5	-	-	Class "A"
20	0.2	2.5	-	-	Class "A"
21	0.2	2.5	-	-	Class "A"
22	0.2	2.5	-	-	Class "A"
23	0.2	1.5	2.0	-	Class "S"
24	0.1	2.5	-	-	Class "A"
25	0.2	2.5	-	-	Class "A"
26	0.1	1.9	2.5	-	Class "A"
27	0.2	2.5	-	-	Class "A"
28	0.1	2.5	-	-	Class "A"
29	0.1	0.9	-	1.6	Class "S"
30	0.1	2.5	-	-	Class "A"
31	0.1	2.5	-	-	Class "A"
32	0.3	0.9	-	2.2	Class "S"

33	0.2	2.5	-	-	Class "A"
34	0.2	2.5	-	-	Class "A"
35	0.3	2.5	-	-	Class "A"
36	0.2	2.5	-	-	Class "A"
37	0.2	2.5	-	-	Class "A"
38	0.2	-	2.5	-	Class "S"
39	0.1	2.5	-	-	Class "A"

The soils encountered are consistent with the expected site conditions as predicted from the Environmental Geology Map. It is important to note that there may be pockets of fill on site that are deeper than that encountered by the investigation boreholes. The subsurface soil conditions encountered are presented in the bore logs, within Appendix C.

*AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

3.2 Groundwater

Groundwater was not encountered in any of the investigation holes during or immediately after drilling. However, water may perch above the more cohesive materials encountered at between 1.5m to 2.5m in the wetter months of the year.

3.3 Percolation Testing

Percolation testing of the in-situ soils was undertaken in thirty-nine (39) locations. Results of the testing are summarised below:

Table 3 - In Situ Percolation Test Results

Test Location	Testing Depth (m)	Soil Type	Permeability (m/day)
1	0.75 – 1.0	SAND/Silty SAND	20.0
2	0.65 – 0.9	SAND/Silty SAND	8.5
3	0.65 – 0.9	SAND/Silty SAND	7.3
4	0.75 – 1.0	SAND/Silty SAND	1.6
5	0.65 – 0.9	SAND/Silty SAND	10.9
6	0.75 – 1.0	SAND/Silty SAND	10.0
7	0.5 – 0.75	SAND/Silty SAND	9.1
8	0.65 – 0.9	SAND/Silty SAND	2.6
9	0.75 – 1.0	SAND/Silty SAND	13.1
10	0.75 – 1.0	SAND/Silty SAND	4.9
11	0.75 – 1.0	SAND/Silty SAND	2.9

12	0.75 – 1.0	SAND/Silty SAND	0.64
13	0.75 – 1.0	SAND/Silty SAND	1.3
14	0.75 – 1.0	SAND/Silty SAND	4.5
15	0.75 – 1.0	SAND/Silty SAND	20.0
16	0.75 – 1.0	SAND/Silty SAND	11.1
17	0.65 – 0.9	SAND/Silty SAND	2.1
18	0.65 – 0.9	SAND/Silty SAND	17.7
19	0.65 – 0.9	SAND/Silty SAND	5.8
20	0.75 – 1.0	SAND/Silty SAND	2.4
21	0.65 – 0.9	SAND/Silty SAND	9.9
22	0.75 – 1.0	SAND/Silty SAND	2.8
23	0.65 – 0.9	SAND/Silty SAND	8.5
24	0.65 – 0.9	SAND/Silty SAND	7.7
25	0.75 – 1.0	SAND/Silty SAND	16.5
26	0.75 – 1.0	SAND/Silty SAND	0.8
27	0.65 – 0.9	SAND/Silty SAND	1.5
28	0.65 – 0.9	SAND/Silty SAND	8.6
29	0.45 – 0.7	SAND/Silty SAND	0.9
30	0.55 – 0.8	SAND/Silty SAND	3.6
31	0.75 – 1.0	SAND/Silty SAND	4.4
32	0.65 – 0.9	SAND/Silty SAND	1.2
33	0.55 – 0.8	SAND/Silty SAND	9.2
34	0.55 – 0.8	SAND/Silty SAND	3.8
35	0.65 – 0.9	SAND/Silty SAND	20.0
36	0.75 – 1.0	SAND/Silty SAND	13.0
37	0.65 – 0.9	SAND/Silty SAND	6.3
38	0.65 – 0.9	Clayey SAND	8.0
39	0.45 – 0.7	SAND/Silty SAND	19.2

The percolation results indicate that the encountered ground conditions are generally suitable for infiltration.

3.4 Laboratory Test Results

Selected representative soil samples were tested by Structerre's in-house NATA accredited laboratory for Atterberg Limits, Particle Size Distribution (PSD) and California Bearing Ratio. The results are attached in Appendix D.

3.4.1 Atterberg Limits

Atterberg Limits were tested by Structerre's in-house NATA accredited laboratory. Results of the testing are summarised below:

Table 4 - Atterberg Limit Test Results

Sample	Test Hole	Depth (m)	Soil Description	Liquid Limit % AS1289 3.1.2	Plastic Limit % AS1289 3.2.1	Plasticity Index % AS1289 3.3.1	Linear Shrinkage % AS1289 3.4.1
1	BH17	1.7 - 2.2	Clayey Sand	29	12	17	6.5
2	BH23	1.5 – 2.0	Clayey SAND trace gravel	51	22	29	9.5
3	BH32	1.0 – 1.4	Sandy CLAY trace gravel	56	22	34	15
4	BH38	2.0 – 2.5	Clayey SAND	32	14	18	7

Test results indicate that the materials tested have moderate to high shrink swell capacity or degree of expansion.

3.4.2 Particle Size Distribution

Table 5 – Particle Size Distribution Test Results

Test Hole	Depth (m)	Soil Description	%Fines
BH11	1.0 – 1.5	SAND with silt	12
BH19	1.0 – 1.5	Silty SAND	13

Test results indicate that the samples tested are poorly graded SAND with silt (SP).

3.4.3 California Bearing Ratio (CBR)

Representative samples were collected and tested by our accredited laboratory in accordance with AS1289.5.2.1 (2003) and AS1289.6.1.1 (1998). The test certificates are presented in Appendix D and summarised below:

Table 6 - California Bearing Ratio (CBR) Test Results

Location	Sample Depths (m)	Soil Description	Optimum Moisture Content (%)	Maximum Dry Density (t/m³)	CBR Value
BH40	0.2 – 0.4	Silty SAND	14.5	1.79	17
BH41	0.2 – 0.4	Silty SAND	11.5	1.89	20
BH42	0.2 – 0.4	Silty SAND	11.0	1.78	19
BH43	0.2 – 0.4	Silty SAND	13.0	1.79	16

Based on the above results a conservative soaked CBR of 12%, is recommended for pavement design.

4. Geotechnical Construction Considerations

4.1 Site Classification

AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

The site in its current (undeveloped) condition is classified as Class “P”, due to the presence of topsoils, organic material and vegetation. Based on results of this investigation the site can be classified as Class “A” and/or Class “S” provided that all unsuitable materials are removed and replaced with engineer-controlled sand fill materials in accordance with earthwork recommendations outlined in Section 4.3 in this report.

To achieve a Class “A” following minimal earthworks (topsoil strip) and utilising a minimum of 1.8m separation of sand (non-reactive sand cover), above the underlying reactive (clayey) materials.

To achieve a Class “S” with ys 10mm can be achieved following minimal earthworks (topsoil strip) and utilising a minimum of 1.0m sand cover (insitu sand cover).

See the Table 2 for current sand cover at each borehole location.

4.2 Seismic Site Subsoil Class

The seismic subsoil site class has been assessed in accordance with AS 1170.4-2007, using the results of this investigation and published information.

Table 7 - Summary of Seismic Parameters

Hazard Factor	Site Sub-soil Class
0.10	Class Ce -shallow soil site

4.3 Earthworks

All earthworks shall be undertaken in accordance with AS 3798-2007 Guidelines on Earthworks For Commercial and Residential Developments and are to include but not limited to the following:

4.3.1 Earthworks Equipment

It is considered that standard small to medium sized earthmoving equipment would be appropriate for the proposed development.

The ground surface was generally competent and should not pose significant issues to either excavation or site traffic movements. Near surface materials may become saturated during the wetter months of the year, which may impede site movement.

4.3.2 Clearing and Topsoil Stripping

All surface vegetation (i.e. grass and bushes) to be stripped and removed off site. Trees should be grubbed, stockpiled and mulched for use in landscaping areas within the proposed subdivision. Loose ground resulting from the removal of vegetation (i.e. trees) should be profiled, compacted and in filled with suitably compacted fill.

Based on the investigation the topsoil is approximately 0.2m thick. The encountered topsoil may be used as is in landscape areas but is not suitable for use as structural fill.

4.3.3 Uncontrolled Fill

Uncontrolled fill was not encountered during the investigation. However, should it be identified during earthworks, it is recommended that screening and blending be undertaken before reusing as structural fill provided it is uncontaminated, dry, non-reactive and free from organics (i.e. <2%) and deleterious materials.

4.3.4 Proof Compaction

The near surface sand materials can be proof compacted by utilising the following methodology:

- Apply a minimum of 4 passes with a self-propelled, smooth drum vibratory roller (operating in high amplitude mode) allowing a minimum of 20% overlap. The surface should then be given an additional minimum of 4 passes with the vibrating roller operating in low amplitude. Areas that deform excessively under rolling should be removed and replaced with clean sand. On completion of vibratory rolling, the roller should be operated in static mode, applying a minimum of 2 passes over the site.

Should the base materials be cohesive, the following proof compaction methodology can be utilising:

- Moisture condition to +/- 2% of standard optimum moisture content (AS1289 5.1.1)
- Apply a minimum of 6 passes with a self-propelled, pad foot vibratory roller (operating in high amplitude mode) allowing a minimum of 20% overlap.

All weak areas, which deform excessively under rolling, should be removed and replaced with clean sand/crushed limestone. After excavation and proof compaction, the excavated base is to be inspected and approved by a representative from this office prior to backfilling. At this stage it can be assessed whether any further materials need to be removed or whether further compaction of the base is required.

The compaction requirements are set out below, as per AS3798:2007

Table 8 - Compaction Requirements

Item	Application	Minimum relative compaction %	
		Minimum density ratio (Standard Compaction Effort) (Cohesive soils)	Minimum density index (Cohesionless soils)
1	Residential - lot, fill, house, sites	95	70
2	Fill to support pavements General Fill Subgrade (to a depth of 0.3m)	 95 98	 70 75

4.3.5 Cohesionless Sand Structural Fill

A minimum of 1.8m sand cover is to be placed or maintained above the reactive material in order to achieve a Class "A" site.

A minimum of 1.0m sand cover is to be maintained above the reactive material in order to achieve a Class "S" site with ys 10mm vertical surface movement.

The ground level can be built up to design levels with imported fill. The imported fill should consist of free draining sand with not more than 5% passing a 75µm sieve and be free of organic matter and other deleterious materials. Generally, the fill sand materials should be placed in layers not exceeding 300mm loose thickness and compacted to achieve the criteria stated in the above table.

It is recommended that a Perth Sand Penetrometer (PSP) / Density correlation be undertaken to confirm the PSP requirements. However, the following criteria can be used as a guide:

- A minimum of 7 PSP blows over the interval 150 – 450mm, 9 PSP blows over the interval 450 – 750mm and 11 PSP blows over the interval 750 – 1050mm.

It is recommended that the earthworks be inspected and approved by a representative from this office.

4.4 Temporary and Permanent Slopes

The following temporary and permanent excavation batters are considered suitable for non-surcharged (i.e. no surcharge within 4.0 m of crest), dry, cohesionless sand slopes of less than 2.0m in height, in accordance with the Building Code of Australia (BCA) Table 3.1.1.1.

Table 9 - Slope Gradients

	Temporary	Permanent
Cut	1V : 2H	1V : 2.5H
Fill	1V : 2H	1V : 2.5H

Slopes greater than 2.0m or if steeper slopes are required should be analysed on a case-by-case basis.

4.5 Drainage

Based on the in-situ materials encountered and the results of the percolation tests, the site can generally be considered suitable for on-site disposal of stormwater runoff.

Low permeability may be encountered at locations where silty SAND was identified. The drainage design should take into account the results, but it is to be noted that this investigation is preliminary in nature. It is recommended that The Client confirm the permeability rates during and after the completion of the earthworks.

The design of the drainage system, is unknown at this time, but may include:

- Rainwater Tanks;
- Dams / Compensation basin;
- Overland flow paths; and
- Soakwells, if permeable cover and / or design are appropriate.

Sub soil drainage may be required to control groundwater perching in the upper soil layers within the building footprint.

It is recommended that The Client confirm the permeability rates following the completion of the earthworks.

4.6 Pavement Design

Based on the results of the field laboratory testing California Bearing Ratio (CBR) value of 16 to 20% can be adopted for the proposed subgrade. A recommended CBR of 12% may be adopted for imported granular fill materials compact to 95% of MMDD in accordance with AS 1289 5.2.1-2003.

For detailed design and construction of the pavements, it is recommended that the CBR values be verified with laboratory Soaked CBR testing on the anticipated subgrade material.

The provisional design below is based on typical urban road and meets the minimum requirements of the Shire:

4.7 Indicative California Bearing Ratio (CBR)

The indicative California Bearing Ratio (CBR) value of the subgrade material (following earthworks) can be estimated from the site investigation results and would be appropriate for preliminary design purposes. The indicative value is shown in the below table:

Table 10 - Indicative CBR Values

Material	Indicative CBR (%)	Compaction
SAND (In-situ or Imported Fill)	12	95% of MMDD*

* Implies the maximum dry density ratio using Modified compaction in accordance with AS 1289 5.2.1-2003.

4.8 Retaining Walls

Any retaining walls proposed to be installed at the site will likely support sandy soils. Where imported granular backfill is to be used in conjunction with retaining walls, the geotechnical properties will vary depending upon the nature of the granular materials imported.

For cohesion-less free draining sand, the following parameters can be used as a guide for design purposes:

- Angle of internal friction, Ø = 33°
- Coefficient of active earth pressure Ka = 0.29
- Coefficient of passive earth pressure Kp = 3.39
- At rest coefficient of earth pressure K0 = 0.46
- Bulk density 18 kN/m3

Retaining structures should be designed in accordance with AS 4678-2002 Earth Retaining Structures. Where significant eccentric and/or horizontal loading is applied, further assessment will be required. Additionally, handheld compaction equipment is utilised within 2.0m of the walls, to reduce the potential increase in lateral pressure on the retaining wall.

Retaining wall design should ensure adequate drainage to the rear of the wall. It is recommended that the drainage comprises free draining sand and weepholes that are interconnected with a suitable sized perforated drainage pipe.. Where possible a sand layer should be provided across the site, to allow potential perched water to flow freely across the site, with limited impedance.

Experience indicates that excavation immediately in front of retaining walls (i.e. due to service installation) may cause movement to the wall to occur. This can lead to cracking of adjoining structures and needs to be accounted for in the design and construction sequencing of the new works.

5. Conclusions

A site investigation was carried out at the proposed commercial development site to assess the geotechnical conditions. Parameter and design recommendations are incorporated in the body of the report. The following conclusions have been drawn from the site investigation:

- The site is considered suitable for the proposed subdivisional development.
- The average subsurface soil profile encountered comprised topsoil up to 0.3m, Natural Silty SAND/Sand to 2.5m, underlain by clayey sand to sandy clay to the investigation depth of 2.5m.
- Groundwater was not encountered across the site
- The site can be classified as Class “A” and Class “S” in accordance with AS 2870-2011 provided the recommended earthworks are undertaken.
- It is considered that the current site conditions are suitable for on-site drainage.
- In general, small to medium sized earthworks equipment are considered suitable for the proposed development.
- Site movement and excavations should not pose a significant issue. However, note that the near surface materials may become saturated during the wet months of the year and impede site movements.
- Recommended earthworks include stripping of topsoil and any unsuitable materials, proof compaction of the base, excavation of loose materials (where necessary), placement of engineered fill and compaction of final level.

6. Limitation of Field Investigations

This report has been prepared in accordance with generally accepted consulting practice for The Developer using information supplied at the time and for the project specific requirements as understood by Structerre. To the best of our knowledge the information contained in this report is accurate at the date of issue, however it should be emphasised that any changes to ground conditions and/or the proposed structures may invalidate the recommendations given herein.

The conclusions and recommendations in this report are based on the site conditions revealed through selective point sampling, representing the conditions of the site in total, although the area investigated represents only a small portion of the site. The actual characteristics may vary significantly between successive test locations and sample intervals other than where observations, explorations and investigations have been made.

The materials and their geotechnical properties presented in this report may not represent the full range of materials and strengths that actually exist on site and the recommendations should be regarded as preliminary in nature. Allowances should be made for variability in ground conditions and any consequent impact on the development. Structerre accepts no responsibility and shall not be liable for any consequence of variations in ground conditions.

We trust this meets with your requirements. Should you require any additional information, or clarification of the above, please contact the undersigned.

For and behalf of Structerre Consulting.

Signature
David Harding
Geotechnical Supervisor

(08) 9205 4500
wageotechengineering@structerre.com.au

Signature
Mel Castle
Geotechnical Manager

9 October 2025

7. References

Department of Water – Perth Groundwater Atlas

Geological Survey of Western Australia 1:50,000 Environmental Geology Series

AS 1170.4-2007 Structural design actions – Earthquake actions in Australia

AS 1289.3.1.2-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the liquid limit of a soil

AS 1289.3.2.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the plastic limit of a soil

AS 1289.3.3.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Calculation of the plasticity index of a soil

AS 1289.3.4.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the linear shrinkage of a soil

AS 1289.6.3.2-1997 Methods of testing soils for engineering purposes – Soil strength and consolidation tests – Determination of the penetration resistance of a soil – 9kg dynamic cone penetrometer test

AS 1726-2017 Geotechnical site investigation

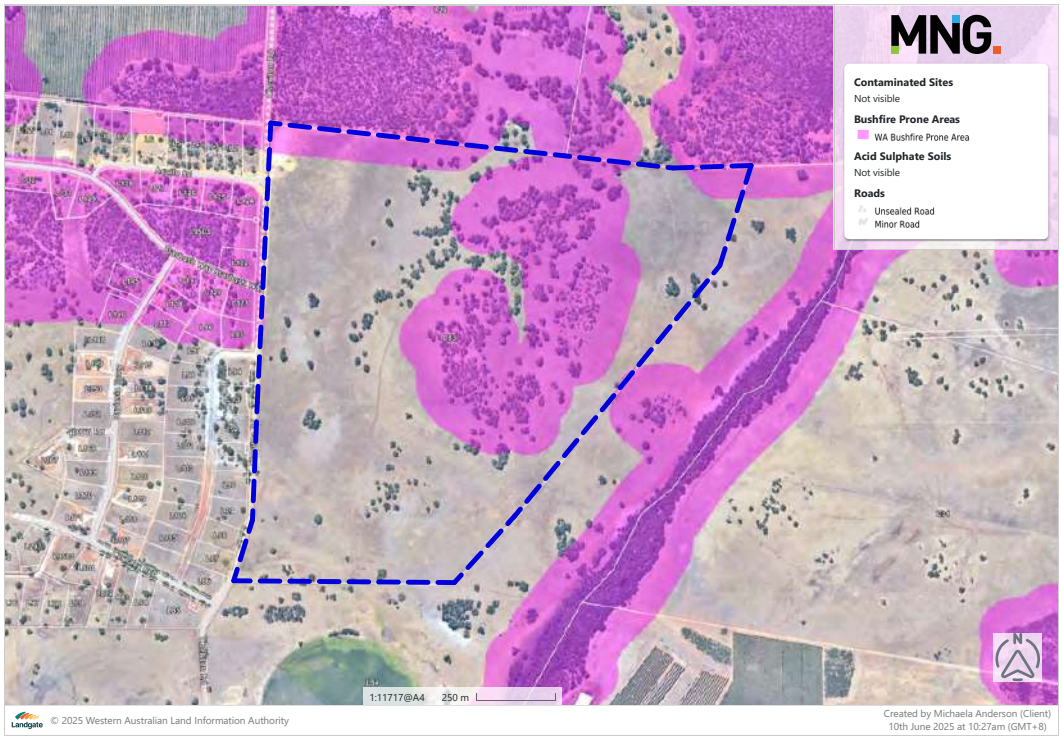
AS 2870-2011 Residential slabs and footings

AS 3798-2007 Guidelines on earthworks for commercial and residential developments

AS 4055-2012 Wind loads for housing

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Appendix A – Site Plans



STRUCterre consulting

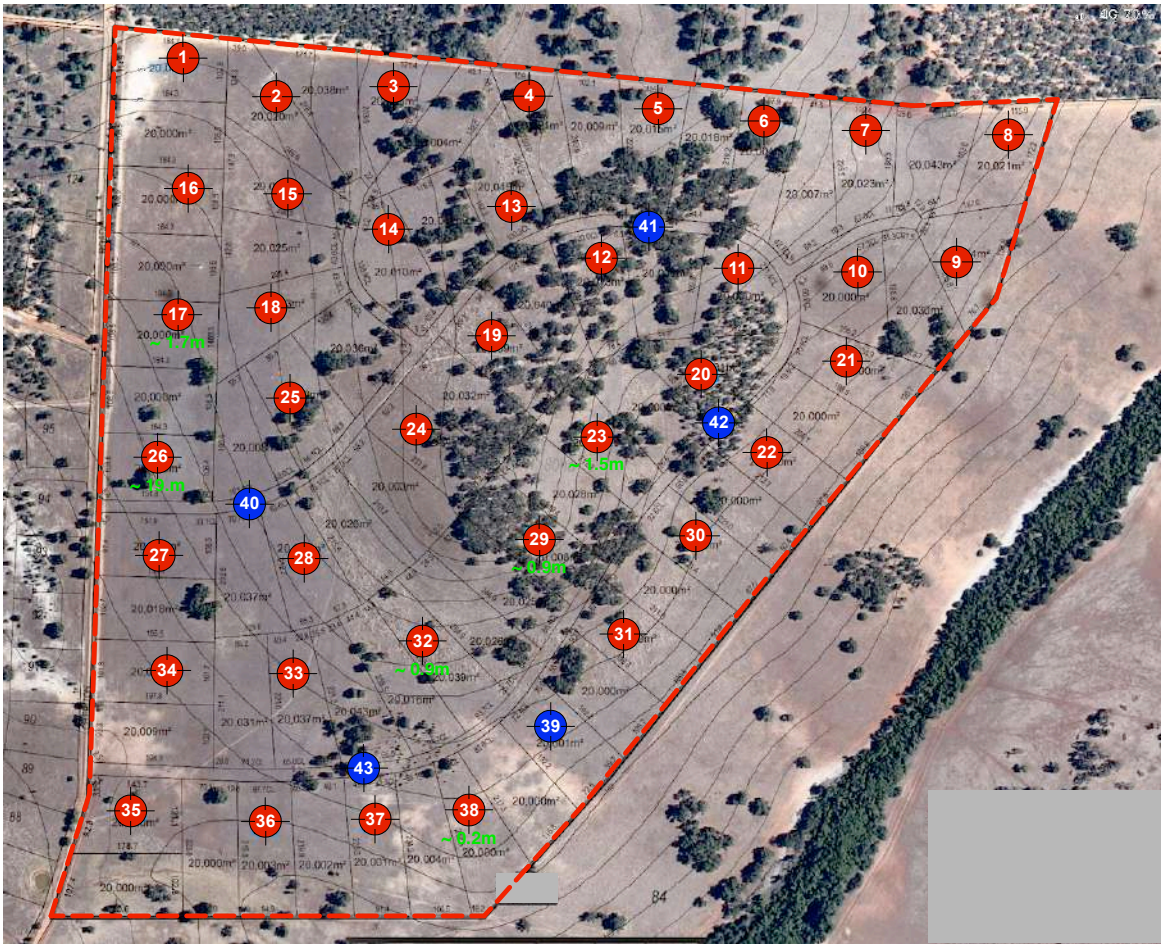
Zemla Pty Ltd (ABN 71 349 772 837) ATF the Young Purich and Higham Unit Trust trading as Structerre Consulting

1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Geotechnical - Acid Sulphate Soils & Bushfire Prone Area
DATE:	8 Sep '25
DRAWN BY:	MM
CHECKED BY:	DH

DOC: GE:3.001

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Note: Showing approximate test locations only

LEGEND

- Borehole and Percolation Test
- Borehole
- ~ m Depths to Reactive Material

STRUCterre consulting	PROJECT: Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup	
	PROJECT #: D366941	CLIENT: **Pendragon Environmental Solutions Pty Ltd**
	JOB #: J489094	
Zemla Pty Ltd (ABN 71 349 772 837) ATF the Young Purich and Higham Unit Trust trading as Structerre Consulting 1 ERINDALE ROAD, BALCATTA, WA 6021 TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au	SCALE: NTS	TITLE: Geotechnical Investigation Site Plan
	DATE: 8 Sep '25	DRAWN BY: MM / CHECKED BY: DH

DOC: GE:3.001

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Appendix B – Site Photos



PHOTO 1 - Facing east from BH6 location



PHOTO 2 - Facing east from BH16 location

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1 ERINDALE ROAD, BALCATTA, WA 6021
TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	8 Sep '25
DRAWN BY:	MM
CHECKED BY:	DH

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PHOTO 3 - Facing northeast from BH30 location



PHOTO 4 - Facing north from BH35 location

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PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
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CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	8 Sep '25
DRAWN BY:	MM
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PHOTO 5 - Facing west from BH39 location



PHOTO 6 - Facing south from BH41 location

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PROJECT:	Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup
PROJECT #:	D366941
JOB #:	J489094
CLIENT:	**Pendragon Environmental Solutions Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	8 Sep '25
DRAWN BY:	MM
CHECKED BY:	DH

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Appendix C – Borelogs & Borelog Terminology

STRUCterre consulting engineers

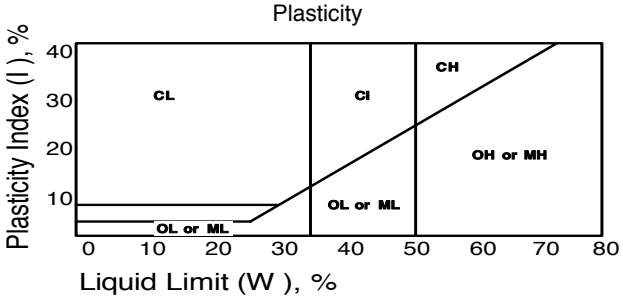
Residential | Geotechnical | Commercial & Infrastructure | Inspect & Investigate | Energy Assessment | Environmental

BOREHOLE TERMINOLOGY

Particle Size Distribution

Major Division	Subdivision	Size
Boulders		>200mm
Cobbles		200 - 63mm
Gravel	Coarse	63 - 20mm
	Medium	20- 6mm
	Fine	6 - 2.36mm
Sand	Coarse	2.36 - 0.6mm
	Medium	0.6 - 0.2mm
	Fine	0.2 - 0.075mm

Plasticity



Consistency of Cohesive Soils

Term	Undrained Strength Su (kPa)	Field Guide
Very Soft	< 12	Exudes between the fingers when squeezed in hand
Soft	12 - 25	Can be moulded by light finger pressure
Firm	25 - 50	Can be moulded by strong finger pressure
Stiff	50 - 100	Cannot be moulded by Fingers. Can be indented by thumb.
Very Stiff	100 - 200	Can be indented by thumb nail
Hard	> 200	Can be indented with difficulty by thumb nail.
Friable	-	Crumbles or powders when scraped by thumbnail

Consistency/Density of Non-Cohesive Soils

Term	Density Index (%)	SPT "N" Value Comparison
Very Loose	< 15	0 - 4
Loose	15 - 35	4 - 10
Medium Dense	35 - 65	10 - 30
Dense	65 - 85	30 - 50
Very Dense	> 85	> 50

Moisture Content

D	Dry
M	Moist
W	Wet
S	Saturated

Minor Components

Term	Assessment Guide	Proportion of Minor Component In:
Trace	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component	Coarse grained soils: < 5 % Fine grained soils: <15%
With	Presence easily detected by feel or eye, soil properties little different to general properties of primary component	Coarse grained soils: 5 - 12 % Fine grained soils: 15 - 30%

Soil Legend

FILL	CLAY	GRAVEL	CONCRETE
TOPSOIL	SILT	LIMESTONE	COMBINATIONS
PEAT	SAND	BEDROCK	eg: Clay, Silty, Sandy

USCS

GW	Well graded gravel	SC	Clayey sand	OL	Organic low plasticity silt	CL	Low plasticity clay
GP	Poorly graded gravel	SM	Silty sand	ML	Low plasticity silt	CI	Intermediate plasticity clay
SW	Well graded sand			MH	High plasticity silt	CH	High plasticity clay
SP	Poorly graded sand			OH	Organic high plasticity silt	PT	Peat

DOC:GE:3.003

WA | QLD | NSW | VIC

1 Erindale Road, Balcatta, Western Australia 6021 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email wageotecheng@structerre.com.au | Web www.structerre.com.au
ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

Borehole Record: BH01

Project: Country Heights Stage 2	**Position:** Easting: 397922.86	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538999.73	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): poorly graded, medium grained, yellow.				26.9	
	2.0									
					BH01 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398149.34
Northing: 6538970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow, moist.				8.5	
	1.0					M	VL			
	2.0									
					BH02 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH03

Project: Country Heights Stage 2	**Position:** Easting: 398395.46	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538948.37	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		7.2	
	1.0									
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH04

Project: Country Heights Stage 2	**Position:** Easting: 398584.82	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538928.84	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL	2, 2, 2, 1, 2	1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH05

Project: Country Heights Stage 2	**Position:** Easting: 398791.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538907.74	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.9	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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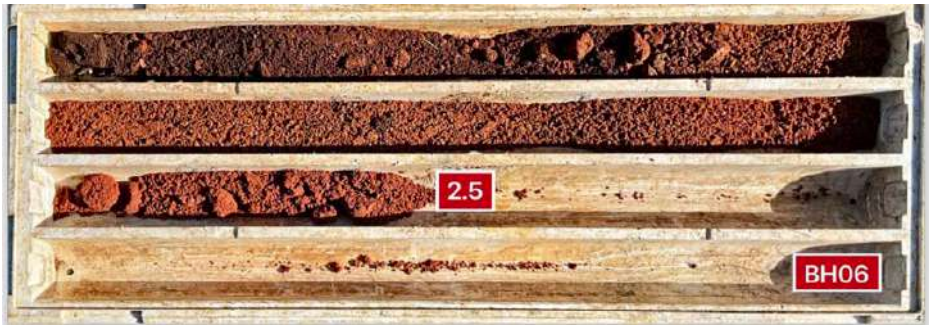
Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6538886.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	1.0	Non-soil / Natural		TS / SP	Topsoil. Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.	M	L	3, 4, 5, 5, 3, 4	10.0	
	2.0				BH06 Terminated at 2.5 m					



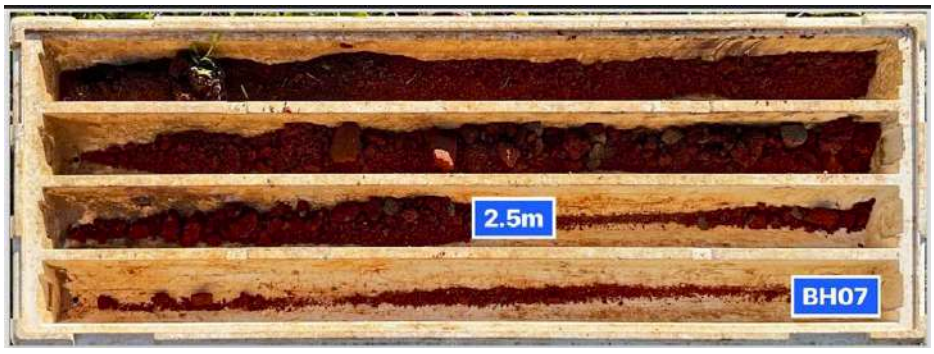
Depth: 2.5 m

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Borehole Record: BH07

Project: Country Heights Stage 2	**Position:** Easting: 399151.94	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538823.27	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		9.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH08

Project: Country Heights Stage 2	**Position:** Easting: 399327.39	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538813.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL	2 2 2 2 2 2	2.6	
	2.0				BH08 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH09

Project: Country Heights Stage 2	**Position:** Easting: 399237.85	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538628.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		13.0	
	2.0				BH09 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH10

Project: Country Heights Stage 2	**Position:** Easting: 399083.76	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538673.85	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL	2 2 2	4.8	
	2.0				BH10 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH11

Project: Country Heights Stage 2	**Position:** Easting: 398870.57	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538633.26	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0				BH11 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH12

Project: Country Heights Stage 2	**Position:** Easting: 398615.45	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538696.44	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		0.6	
	2.0									
					BH12 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH13

Project: Country Heights Stage 2	**Position:** Easting: 398499.21	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538782.89	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0				BH13 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH14

Project: Country Heights Stage 2	**Position:** Easting: 398290.47	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538657.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	3 3 2 2 2 2	4.4	
	2.0				BH14 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH15

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398111.44
Northing: 6538754.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0				BH15 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH16

Project: Country Heights Stage 2	**Position:** Easting: 397936.39	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538733.90	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL	2 2 2	11.1	
	2.0									
					BH16 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH17

Project: Country Heights Stage 2	**Position:** Easting: 397982.96	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538508.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	2.0			SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
					BH17 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH18

Project: Country Heights Stage 2	**Position:** Easting: 398196.04	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538559.25	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0									
					BH18 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH19

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398457.38
Northing: 6538469.86
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		5.7	
	2.0				BH19 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH20

Project: Country Heights Stage 2	**Position:** Easting: 398840.10	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538527.55	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
	2.0			SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
					BH20 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH21

Project: Country Heights Stage 2	**Position:** Easting: 399104.69	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538511.75	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0				BH21 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH22

Project: Country Heights Stage 2	**Position:** Easting: 398993.81	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538280.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2, 3, 2, 2, 2, 2	2.8	
	2.0									
					BH22 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH23

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398683.95
Northing: 6538328.13
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
	1.0			SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					



Depth: 2.0 m

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Borehole Record: BH24

Project: Country Heights Stage 2	**Position:** Easting: 398161.71	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538216.24	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		7.7	
	2.0									
					BH24 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH25

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398162.26
Northing: 6538410.42
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		16.4	
	2.0				BH25 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH26

Project: Country Heights Stage 2	**Position:** Easting: 397926.64	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538319.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 1 2 1 2	0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH27

Project: Country Heights Stage 2	**Position:** Easting: 397696.87	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6536458.35	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0				BH27 Terminated at 2.5 m					



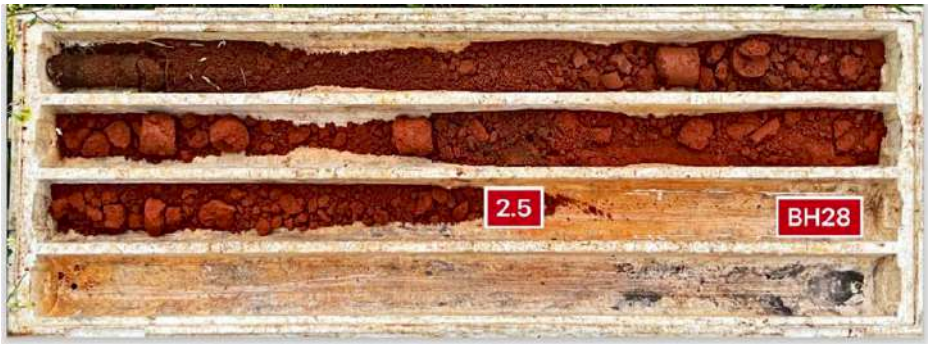
Depth: 2.5 m

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Borehole Record: BH28

Project: Country Heights Stage 2	**Position:** Easting: 398160.48	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538215.91	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH29

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398595.97
Northing: 6538165.21
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					



Depth: 1.6 m

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Borehole Record: BH30

Project: Country Heights Stage 2	**Position:** Easting: 398854.12	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538166.71	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2 2 2 2 2 3	3.6	
	2.0									
					BH30 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH31

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398697.24
Northing: 6538016.07
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0				BH31 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH32

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398411.77
Northing: 6538095.78
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.			3		
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD	4, 6, 6, 25	1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					



Depth: 2.2 m

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Borehole Record: BH33

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398208.25
Northing: 6538028.01
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

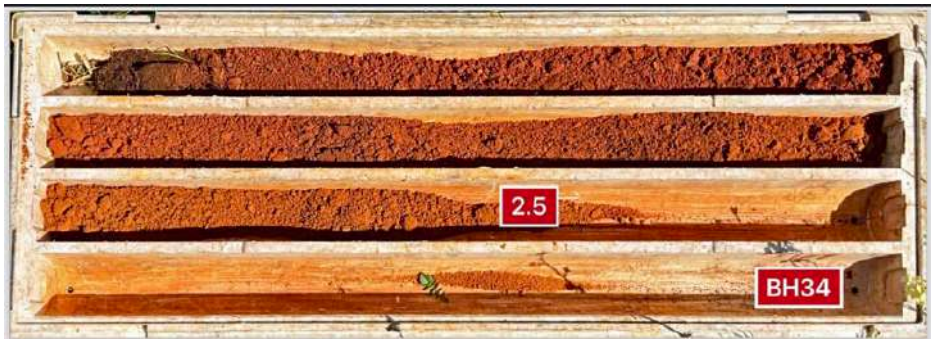
Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.3	
	2.0				BH33 Terminated at 2.5 m					

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Borehole Record: BH34

Project: Country Heights Stage 2	**Position:** Easting: 398159.74	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538218.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		3.8	
	2.0				BH34 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH35

Project: Country Heights Stage 2	**Position:** Easting: 397916.50	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537792.97	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.6	
	2.0				BH35 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH36

Project: Country Heights Stage 2	**Position:** Easting: 398115.47	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537715.14	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0				BH36 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH37

Project: Country Heights Stage 2	**Position:** Easting: 398276.71	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537683.69	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0				BH37 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH38

Project: Country Heights Stage 2	**Position:** Easting: 398415.96	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537786.32	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0				BH38 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH39

Project: Country Heights Stage 2	**Position:** Easting: 398585.31	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537913.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH40

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398039.92
Northing: 6538317.00
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH40 Terminated at 0.4 m (Target Depth)					

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH41

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398689.55
Northing: 6538753.80
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH41 Terminated at 0.4 m (Target Depth)					

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH42

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398848.53
Northing: 6538360.46
Elevation: 170.72(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH42 Terminated at 0.4 m (Target Depth)					

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH43

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398244.44
Northing: 6537887.63
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP 0 5 10 15 20 25 30	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH43 Terminated at 0.4 m (Target Depth)					

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Appendix D – Laboratory Test Results

STRUCterre consulting

Sample No.	**41070**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH17 1.7-2.2m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	29
Plastic Limit	AS 1289.3.2.1	12
Plasticity Index	AS 1289.3.3.1	17
Linear Shrinkage	AS 1289.3.4.1	6.5
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	100
0.425	53
0.075	26

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory

Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

WA | QLD | NSW | VIC
44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email perth@structerre.com.au | Web www.structerre.com.au
ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

STRUCterre consulting

Sample No.	**41071**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH23 1.5-2.0m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	51
Plastic Limit	AS 1289.3.2.1	22
Plasticity Index	AS 1289.3.3.1	29
Linear Shrinkage	AS 1289.3.4.1	9.5
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	97
0.425	38
0.075	30

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND trace gravel
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory

Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
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STRUCterre consulting

Sample No.	**41072**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH32 1.0-1.4m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	56
Plastic Limit	AS 1289.3.2.1	22
Plasticity Index	AS 1289.3.3.1	34
Linear Shrinkage	AS 1289.3.4.1	15
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	99
0.425	72
0.075	37

AS 1726:2017 Clause 6.1
Material Description: Sandy CLAY trace gravel
AS Group Symbol: CH or OH

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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44 Crocker Drive, Malaga, WA 6090 | PO Box 792, Balcatta, Western Australia 6914
Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email perth@structerre.com.au | Web www.structerre.com.au
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STRUCterre consulting

Sample No.	**41073**	**Client**	Geotechnical
Job No.	J489094	**Project**	Lot 83 Cheriton Rd, Ginginup

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH38 2.0-2.5m	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	32
Plastic Limit	AS 1289.3.2.1	14
Plasticity Index	AS 1289.3.3.1	18
Linear Shrinkage	AS 1289.3.4.1	7
Nature of Shrinkage		Cracking

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	100
0.425	40
0.075	21

AS 1726:2017 Clause 6.1
Material Description: Clayey SAND
AS Group Symbol: SC

NATA WORLD RECOGNISED ACCREDITATION

Accreditation Number 18742

Jonty Sargent
Authorized Signatory

Laboratory Supervisor

Date: 01-Oct-25

Soils Analysis Workbook V 4.06 13-May-25

AS 1289.3.6.1 Report Feb 18

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Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email perth@structerre.com.au | Web www.structerre.com.au
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Malaga Laboratory
44 Crocker Drive, Malaga, WA 6090
Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11763
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

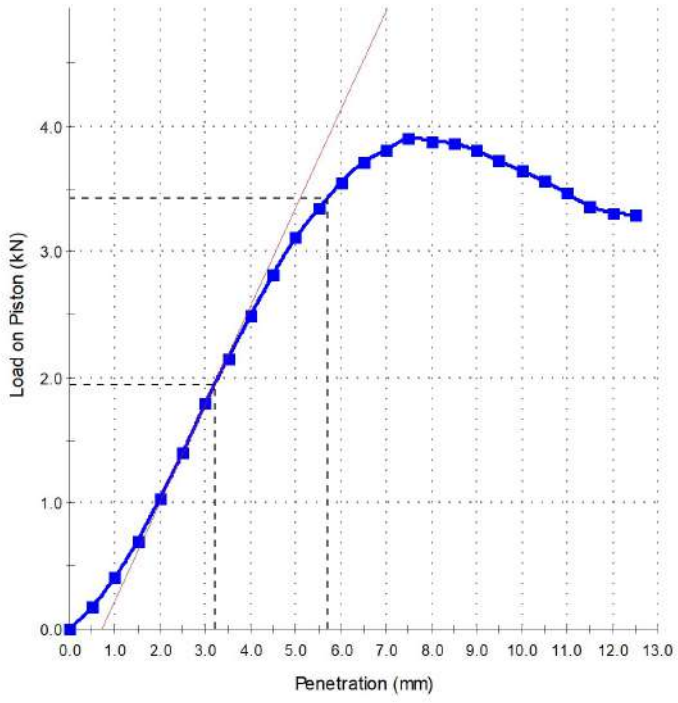
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH40
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**17**
Dry Density before Soaking (t/m³):	1.70
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	14.6
Moisture Ratio before Soaking (%):	99.0
Dry Density after Soaking (t/m³):	1.71
Density Ratio after Soaking (%):	95.5
Swell (%):	-0.5
Moisture Content of Top 30mm (%):	14.2
Moisture Content of Remaining Depth (%):	15.4
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MDD:25S-11763
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

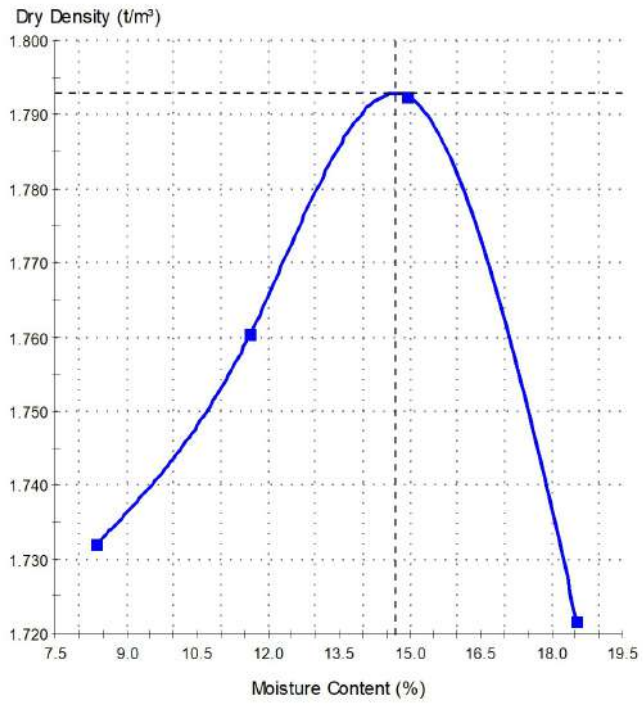
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH40
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

	AS 1289.5.1.1
Standard MDD (t/m³):	**1.79**
Standard OMC (%):	**14.5**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11764
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

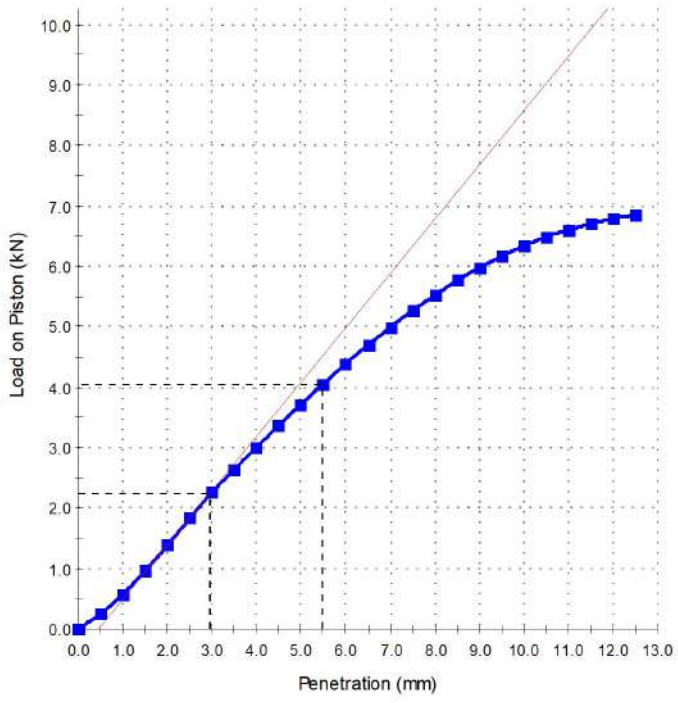
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH41
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

	AS 1289.6.1.1
CBR at 5.0mm (%):	**20**
Dry Density before Soaking (t/m³):	1.79
Density Ratio before Soaking (%):	94.5
Moisture Content before Soaking (%):	12.1
Moisture Ratio before Soaking (%):	103.0
Dry Density after Soaking (t/m³):	1.79
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	13.6
Moisture Content of Remaining Depth (%):	13.2
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Maximum Dry Density Report

Report Number: MDD:25S-11764
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

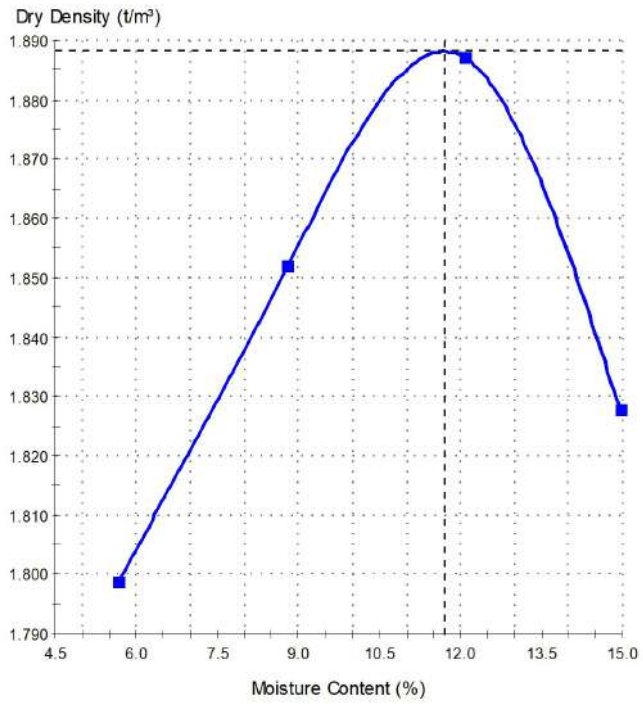
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH41
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.1.1

Standard MDD (t/m³):	**1.89**
Standard OMC (%):	**11.5**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11765
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

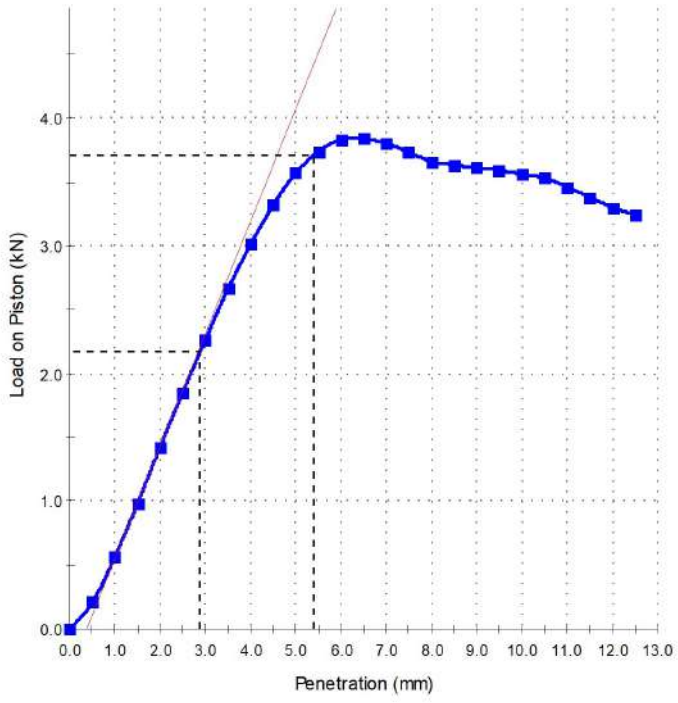
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH42
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**19**
Dry Density before Soaking (t/m³):	1.69
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	10.9
Moisture Ratio before Soaking (%):	98.0
Dry Density after Soaking (t/m³):	1.69
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	14.3
Moisture Content of Remaining Depth (%):	16.6
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
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Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Maximum Dry Density Report

Report Number: MDD:25S-11765
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

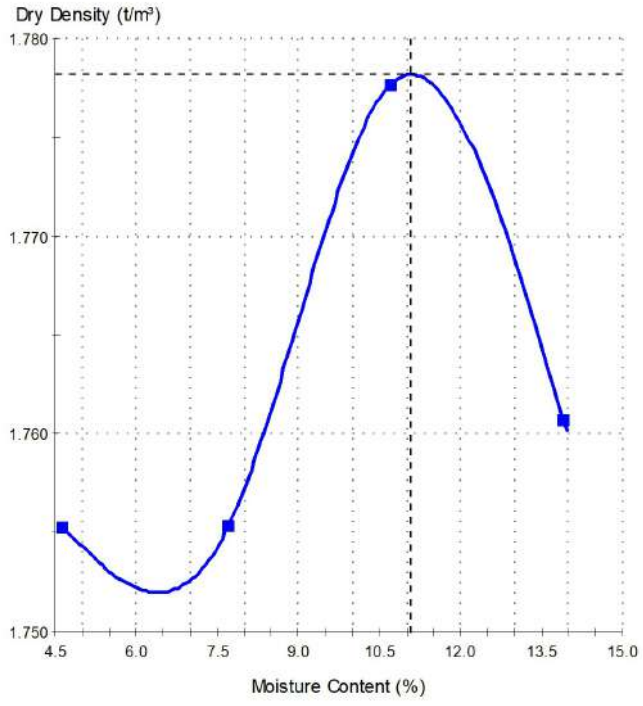
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH42
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.1.1

Standard MDD (t/m³):	**1.78**
Standard OMC (%):	**11.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:25S-11766
Date of Issue01/10/2025
Issue Number: 1

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

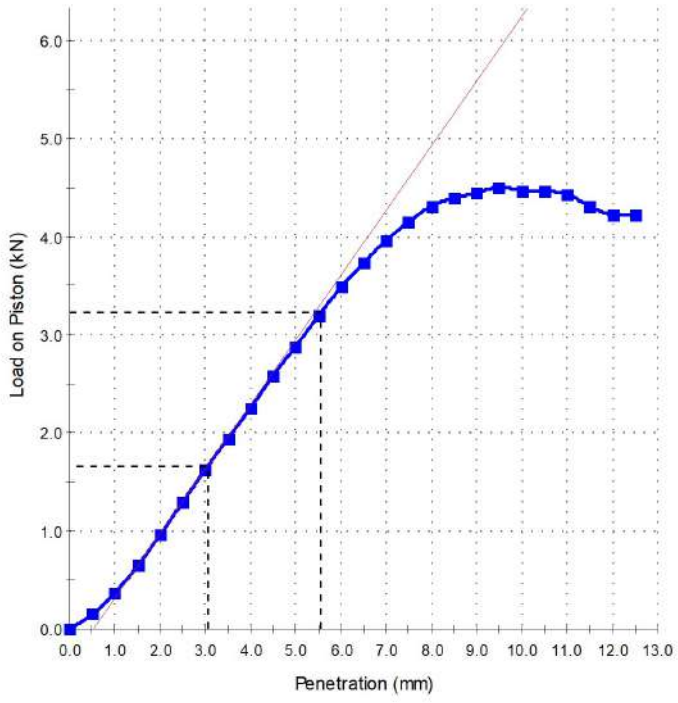
Approved Signatory: Jonty Sargent

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Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH43
Date Tested:	26/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Load vs Penetration



Test Results

	AS 1289.6.1.1
CBR at 5.0mm (%):	**16**
Dry Density before Soaking (t/m³):	1.70
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	13.0
Moisture Ratio before Soaking (%):	100.5
Dry Density after Soaking (t/m³):	1.70
Density Ratio after Soaking (%):	95.5
Swell (%):	0.0
Moisture Content of Top 30mm (%):	13.7
Moisture Content of Remaining Depth (%):	13.6
Compaction Hammer Used:	Standard AS 1289.5.1.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24
Plasticity Determination Method:	Visual/Tactile

Comments

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Malaga Laboratory
44 Crocker Drive, Malaga, WA 6090
Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MDD:25S-11766
Date of Issue01/10/2025
Issue Number: 1

Maximum Dry Density Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

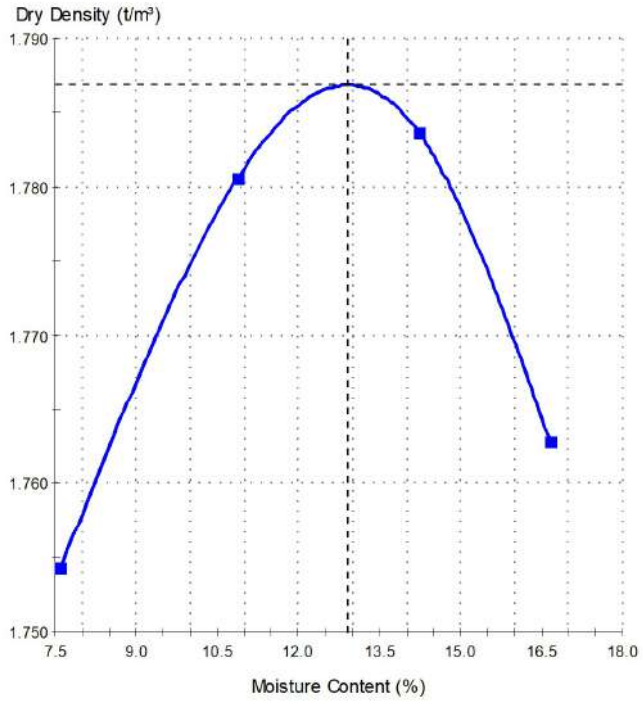
Approved Signatory: Jonty Sargent

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Material Assessment	**Field Sample ID:**	BH43
Date Tested:	24/09/2025	**Date Sampled:**	22/09/2025
Soil Description:	Silty SAND	**Proposed Use:**	Fill
Depth of Test:	200 - 400	**Depth of Layer:**	
Sampling Method:	Sample submitted by client	**TRN:**	-
Work Order ID:	W25-04934		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.1.1

Standard MDD (t/m³):	**1.79**
Standard OMC (%):	**13.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Maximum Dry Density Report

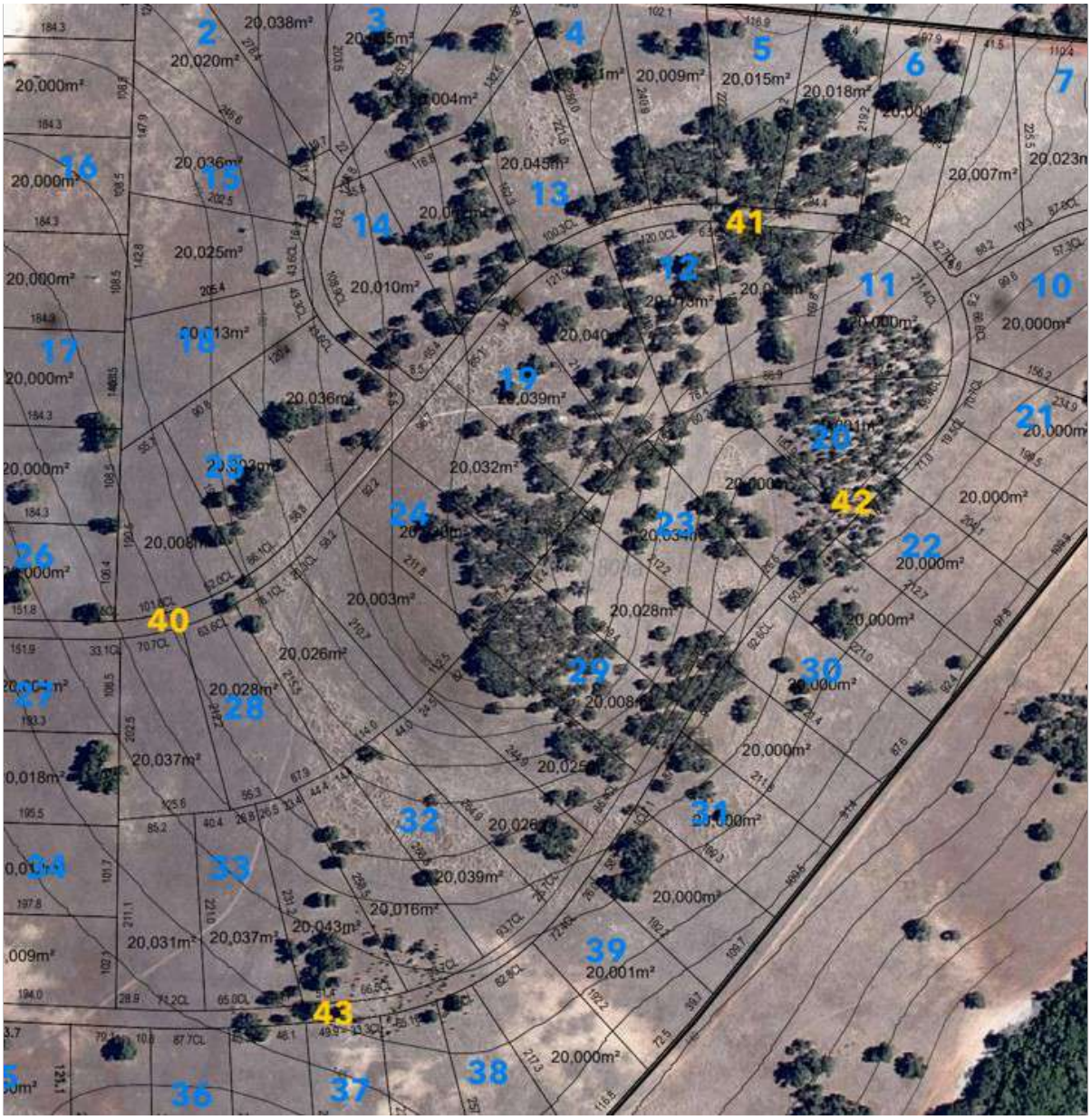
Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

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Approved Signatory: Jonty Sargent

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Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MAT:25S-11921
Date of Issue26/09/2025
Issue Number: 1

Material Test Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

Approved Signatory: Jonty Sargent

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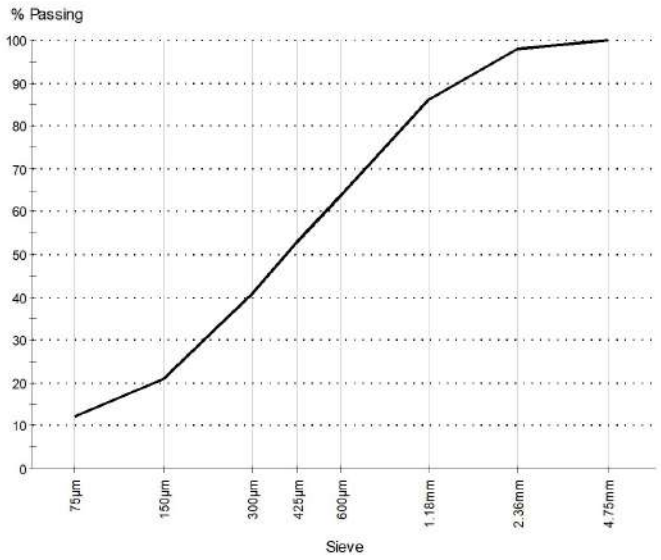
Sample Details

Sample ID	Material Assessment
Field Sample ID	BH11
Date Tested	25/09/2025
Date Sampled	24/09/2025
Soil Description	SAND with silt, trace gravel
Proposed Use	Fill
Depth of Test	1000 - 1500
Depth of Layer	
Sampling Method	Sample submitted by client
TRN	-
Work Order ID	W25-04992

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 25/09/2025

Note: Sample Washed

Sieve Size	% Passing	Limits
4.75mm	100	
2.36mm	98	
1.18mm	86	
600µm	64	
425µm	53	
300µm	41	
150µm	21	
75µm	12	

Comments

N/A

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Post: PO Box 792, Balcatta WA 6914
Ph : (08) 9205 4500
Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Report Number: MAT:25S-11922
Date of Issue26/09/2025
Issue Number: 1

Material Test Report

Client:	Pendragon Environmental Solutions Pty Ltd
Client Address:	1 Agnew Way Subiaco WA 6008
Project:	COUNTRY HEIGHTS ESTATE 2 - Lot 83 CHERITON RD GINGINUP
Project No:	D366941

Accreditation Number 18742

Approved Signatory: Jonty Sargent

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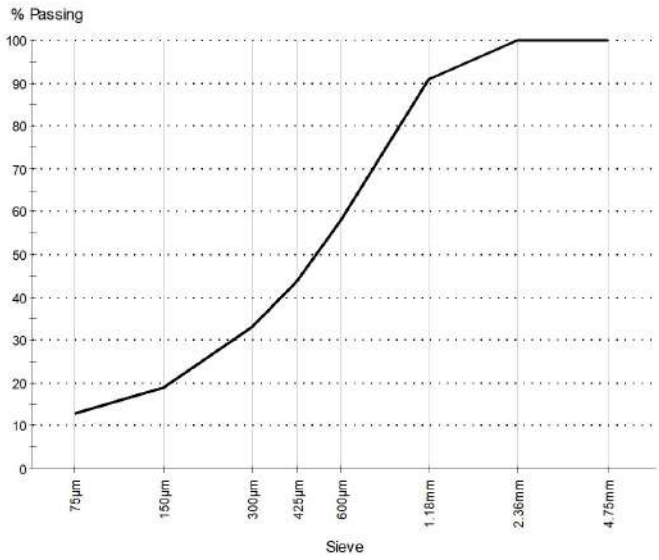
Sample Details

Sample ID	Material Assessment
Field Sample ID	BH19
Date Tested	25/09/2025
Date Sampled	24/09/2025
Soil Description	Silty Sand
Proposed Use	Fill
Depth of Test	1000 - 1500
Depth of Layer	
Sampling Method	Sample submitted by client
TRN	-
Work Order ID	W25-04992

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by: Oven
Date Tested: 25/09/2025

Note: Sample Washed

Sieve Size	% Passing	Limits
4.75mm	100	
2.36mm	100	
1.18mm	91	
600µm	58	
425µm	44	
300µm	33	
150µm	19	
75µm	13	

Comments

N/A

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Site Soil Evaluation

Lot 83 Cheriton Road Country Heights Estate 2

Revision No 2
June 2026

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www.pendragonenvironmental.com

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Report

Title:	Site Soil Evaluation Lot 83 Cheriton Road, Country Heights Estate 2
File:	PES18013
Author(s):	Carel van Der Westhuizen
Client:	Claymont Property Development and Construction Group
Contact:	Jerry Goh
Synopsis:	This document details the Site Soil Evaluation (SSE) for Lot 83 Cheriton Road, Country Heights Estate 2, undertaken in strict accordance with guidance provided by the Department of Health, Western Australia (DoH) based on the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, Government Sewerage Policy 2019, State Planning Policy 2.9, AS/NZS 1547 and other supporting documentation. Guidance for the design and management of on-site wastewater systems in areas that are not connected to reticulated sewerage have now been incorporated into the State Planning Policy 2.9 Water (SPP 2.9; Western Australian Planning Commission, WAPC, December 2025) using the approach of the Australian Standard AS/NZS1547:2012 *On-site Domestic Wastewater Management* (AS/NZS 1547).

Document Control

Revision No	Date	Author(s)	Reviewer(s)
1	30 March 2026	Carel van der Westhuizen	Ryan Lawrence
2	26 June 2026	Carel van der Westhuizen	Ryan Lawrence

Distribution

Revision No	Date	Approved	Recipient(s)	Copies
1	30 March 2026	Carel van der Westhuizen	Claymont Group	electronic
2	26 June 2026	Carel van der Westhuizen	Claymont Group	electronic

Revision

Revision No	Date	Description
1	30 March 2026	Issued to support development applications and approvals.
2	26 June 2026	Revised to include latest development layout
Recipients are responsible for eliminating all superseded documents in their possession		

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Appendix A: Bore Construction and Lithological Profiles.

Appendix B: Aerobic Treatment Units.

Executive Summary

A Site and Soil Evaluation was undertaken at Lot 83 Cheriton Road (Country Heights Estate 2), partially located in a sewage sensitive area, to assess the suitability of the proposed subdivision for onsite wastewater management and to recommend the type of onsite wastewater system to support a planning submission under the Government Sewerage Policy 2019. The proposed multi lot subdivision, of approximately 1,611,180m², comprises a Community Facility (10,005m² in size) and 136 subdivided lots (>10,000m²) of which 106 are located within the sewage sensitive area.

This assessment is based on detailed geotechnical investigation, testing and assessment. It includes a conceptual design of suitable onsite sewage systems, with sizing and design considerations and justification for their selection. The final detailed design and selection of the system (must be a system/product approved by the Department of Health) is the responsibility of the lot owner, which should be undertaken at the time of the building application and submitted to Local Government (the Shire of Gingin) for approval. The preferred and approved Department of Health system(s) at the existing Lot 81 Cheriton Road (Country Heights Estate 1) is provided by Taylex Australia Pty Ltd. However, the lot owner has the responsibility to select, design and apply for a new effluent system that must be in strict accordance with the current governing regulations and requirements and this document in addition to maintain, manage and monitor the approved system.

The salient findings of this investigation and assessment pertain to:

- In accordance with PlanWA online mapping, Lot 83 is partially located within a sewage sensitive area.
- Lot 83 is not inside a public drinking water source area in accordance with the Public Drinking Water Source Areas (PDWSA) online mapping.
- There are no natural waterways that effect Lot 83, its overall site slope is calculated at <10%, it is not affected by the 1%AEP Floodplain (Western Australia Floodplain Mapping, Department of Water and Environmental Regulation) and there are no records or visual evidence that it is located within the 10%AEP surface inundation floodplain.
- Whilst the Perth Groundwater Map (Department of Water Affairs and Environmental Regulation) has no records, ground water was not encountered within 2.5m depth below ground level during investigations undertaken in September 2025 after an above average rainfall season.
- Drilling encountered differing soil profiles across Lot 83 generally classified as either a Category 1, Category 3 or Category 4 in accordance with Australian Standard AS1547.
- Soil permeabilities, using a Constant Head Method (Australian Standard AS1547), vary between 1m/day and 32m/day.
- The Phosphorus Retention Index (PRI), testing by an independent soil testing laboratory, varies between 1.7 and 48.9 resulting in a low (>20), medium (5 – 20) and high (<5) level of risk.

Based on the investigations and assessments detailed in this document, it may be concluded that a sustainable onsite sewage management system can be installed to meet the needs of the proposed subdivision of Lot 83 Cheriton Road. As sufficient land area is available for effluent disposal (the Land Application Areas were calculated; refer Section 4), the recommendations of these findings are:

- Stormwater shall be managed and maintained within each individual lot. Civil and stormwater works are to be designed (by others) in accordance with the requirements of the Shire of Gingin.
- For the Community Facility and proposed Lots 12 to 50, 67 to 85 and 90 to 136, provide a secondary level treatment wastewater system with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respectively by a suitable

Department of Health (DoH) approved treatment system, with the effluent to be applied to Land Application Area (LAA) with a minimum area as calculated (refer to Section 4.3).

- For the proposed Lots 1 to 11, 51 to 66 and 86 to 89, provide a primary treated effluent system of a volume to meet the final calculated daily hydraulic load.
- Sizing of the Land Application Area must be consistent with the classified Soil Category determined for an individual proposed lot in accordance with this document.
- The base of the Land Application Area shall maintain a minimum of 1.5m vertical separation with the highest groundwater level, if encountered, for all the proposed lots.
- Lots 14 to 49, 67 to 85, 90 to 103, 106 to 123, 126 to 136 and the Community Facility are classified as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 180m^2 for the residential lots and 200m^2 for the Community Facility.
- Lots 12,13, 50, 104, 105, 124 and 125 are classified as *Category 3 Soils: Loams – High/moderate structured* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 225m^2.
- Lots 98 to 100, 111 and 112 are classified as *Category 4 Soils: Clay Loams – High/moderate structured* [AS 1547-2012] which necessitates secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 257m^2.
- Lots 1 to 11, 58 to 66 and 86 to 89 are classified, as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitates primary treatment effluent systems with a minimum Land Application Area of 339m^2.
- Lots 51 to 57 are classified as *Category 3 Soils: Loams–High/moderate Structured* [AS 1547-2012] which necessitates primary treated effluent systems with a minimum Land Application Area of 429m^2.
- Daily Hydraulic Loads are subject to future detailed design at the time of application for installation of the wastewater treatment system and on-site effluent disposal.
- Location of the Land Application Area must comply with the setbacks in accordance with this document.
- Operation, management and maintenance of the treatment and disposal system must be in accordance with the manufacturer's specifications, Australian Standard AS/NZS 1547 and the recommendations made in this document.

1. Qualifications and Experience

Field investigations and reporting have been undertaken and overseen by Structerre Consulting during a detailed geotechnical investigation:

- Geotechnical Technician: Tony Broadway (more than 10 years' experience across a wide range of site and soil conditions.
- Civil and Geotechnical Engineer: Farhad Silwanagh (more than 10 years' experience in civil and geotechnical engineering including the design consultation for various sized wastewater treatment applications for single residence and mixed-use commercial developments).

Assessment and reporting were undertaken by:

Carel van der Westhuizen (MSc Hydrogeology, CEnvP SC Specialist, AfilI.EAust, MAIG, MALGA, MEIANZ, MIAH)
Principal Hydrogeologist and Site Contamination Specialist
Director Pendragon Environmental Solutions

Carel has more than 45 years' experience in hydrogeological and hydrogeochemical investigations and assessments for many different residential, commercial and mining developments in wide ranging land use and climatic settings. He possesses technical expertise and experience in the fields of onsite wastewater management, water balances and the selection of appropriate wastewater treatment systems, disposal and reuse options. His latest relevant evaluation included the approved 171 lot development over 7 stages (the Beachcomber Estate in Queensland), located within and adjacent to sensitive wetlands, groundwater dependent ecosystems, nature corridors and drainage reserves with bio-swales, using advanced secondary sewage treatment with nutrient reduction in accordance with the Queensland Plumbing and Wastewater Code.

Relevant to this evaluation: Carel is currently responsible for liaison, monitoring, approvals and compliance of the existing water supply, treatment and distribution of drinking water to Country Heights Estate 1 (on behalf of Country Heights Water Pty Ltd, the licenced service provider, in liaison with All Water Resources responsible for upgrading, maintaining and monitoring of the existing water treatment plant), which includes:

- Department of Water and Environmental Regulation (DWER) Groundwater Licence GWL178900(4), Drinking Water Source Protection Plan and Groundwater Operating Strategy: managing regulatory requirements and compliance reporting.
- Department of Health Western Australia (DoH) Memorandum of Understanding: compliance quarterly and annual drinking water quality assessment and reporting.
- Economic Regulation Authority Western Australia (ERA) WL49: policies, procedures, compliance reporting and water asset management planning and bi-annual audits.

The current approvals, agreements and licences will be amended on approval of a WAPC subdivision application to supply drinking water to Country Heights Estate 2 (Lot 83).

2. Description of Development

At the time of the field investigation (September 2025), the site was undeveloped with grass and isolated trees (Figure 2.1).

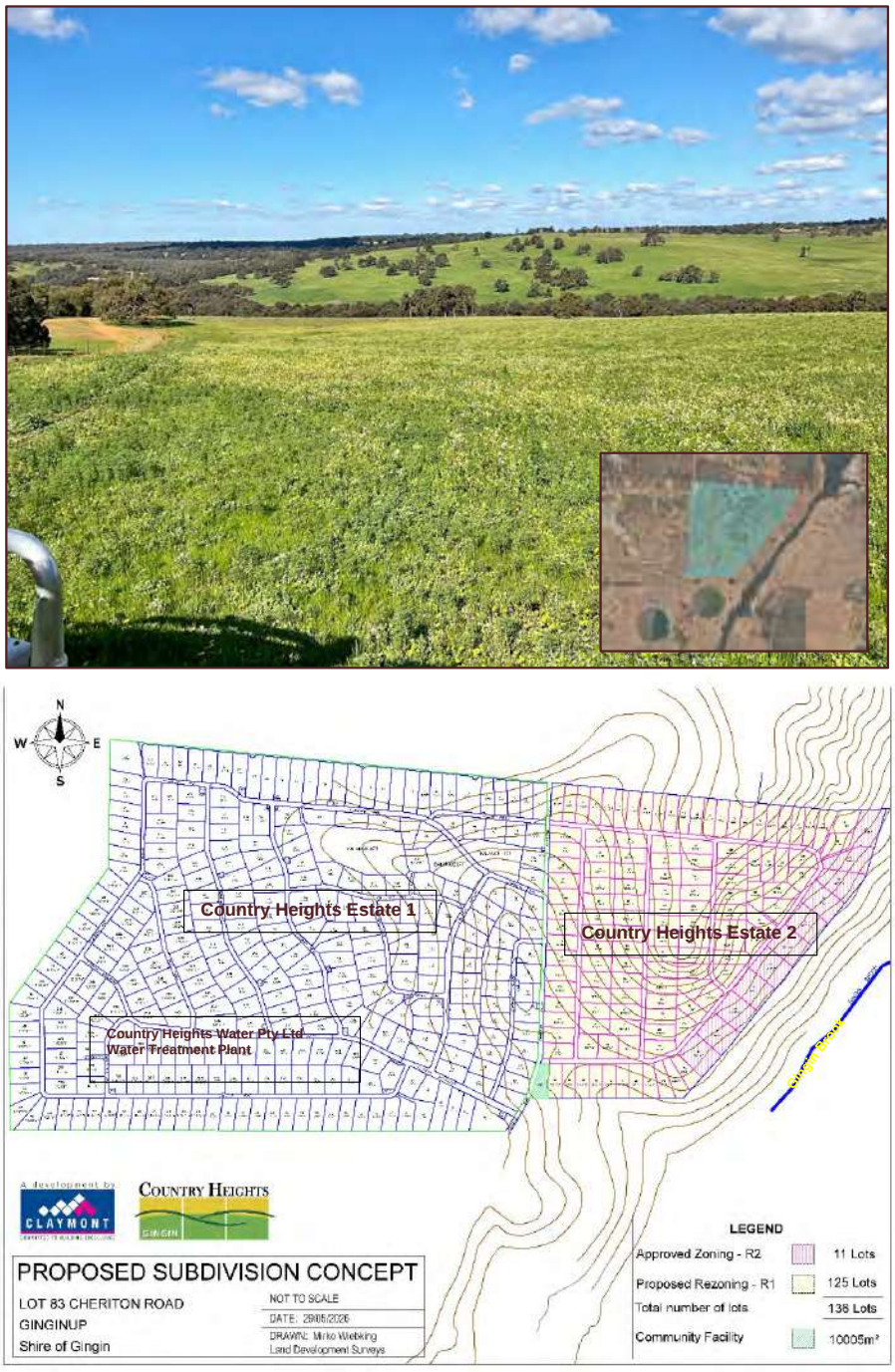
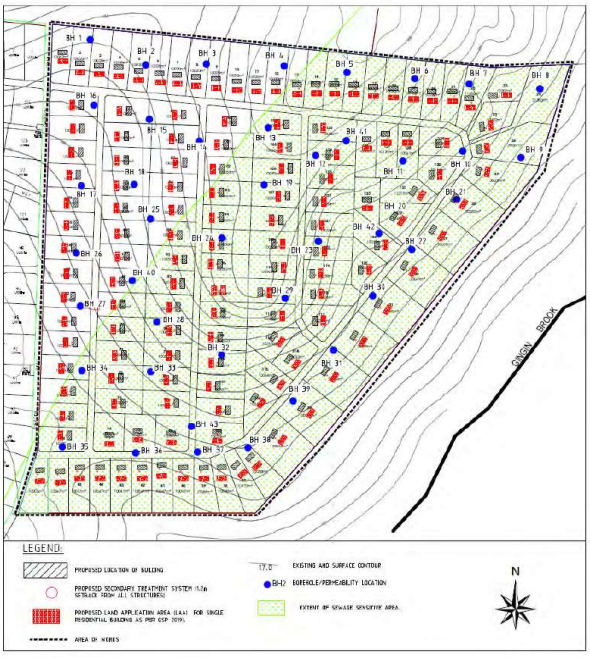


Figure 2.1 Project Layout.

Summary of the proposed development:

Table 2.1: Description of Development.

Development Characteristic	Description
Site	Lot 83 Cheriton Road, Ginginup WA 6503.
Owner/Developer	Claymont Property Development and Construction Group.
Postal Address	PO Box 7584, Cloisters Square, WA 6850.
Contact for SSE	Carel van der Westhuizen (Mobile: +61-439-993-933, e-mail: carel@pendragonenvironmental.com.
Date of Field Work	September 2025.
Local Government	Shire of Gingin.
Zoning	R1, R2 and Community Facility.
Lot Numbers and Sizes (m^2)	136 subdivided lots (>10,000m^2) and a Community Facility (10,005m^2).
Surface Water	Gingin Brook (classified as environmentally sensitive) drains from north-east to south-west, 250m east of the site.
Groundwater Supply	Country Heights Water Pty Ltd (refer Figure 1.1). GWL178900(4): Annual Water Entitlement 200,000kL from the confined Leederville Aquifer.
Availability of Sewer	The area is currently unsewered and unlikely to be serviced by reticulated sewerage within the next 10 to 20 years due to low development density in the area and high cost associated with any extension.
Anticipated Wastewater Volume	Sewage: estimated wastewater loads: Residential lots: 5-bedroom residence with a daily hydraulic load of 900L/day (150L/person/day, [AS1547]). Community Facility: 100 persons with a daily hydraulic load of 1,000L/day (10L/person/day, [AS1547]).
Development located within	Public Drinking Water Source Area (PDWSA): outside the existing legally constituted PDWSA Bore Compound on Lot 8009 (refer Figure 1.1). Sewage Sensitive Areas (green hatched area): 

3. Site and Soil Assessment

3.1 Site Assessment

The site investigation was undertaken by Structerre Consulting on the 8th of September 2025.

Weather Stations No 009178 (Gingin Aero) recorded the following monthly rainfall (mm) for 2025:

Statistic Gingin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall 2025	0	0	7	13	41	124	191	214	79	29	21.4	0	719
Average (29 years)	13	14	18	27	71	110	129	112	74	34	19	9	632

A comparison with Station No 009021 (Perth Airport):

Statistic Perth	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall 2025	4	0	28	7	59	159	174	202	97	54	8	17	809
Average (82 years)	10	14	17	39	96	154	154	119	72	43	26	11	755
Evaporation (mm/m; 38 years)	316	298	216	155	90	68	63	81	115	162	236	273	2,081

reveals that both stations received above average rain during 2025. The following details regarding both sites, taking due cognisance of the difference in years of recording, the timing of the survey and climatic assessment, are relevant:

- Gingin, on average, received more than 1mm rain on 74 days throughout the year, whilst Perth receives more than 1mm rain on 85 days throughout the year.
- Average monthly evaporation (not measured at Gingin) is exceeded by average monthly rain during the months of May, June, July and August.

  However, in Perth, rainfall typically exceeds evaporation on 15 days during the wet season, particularly in July (https://www.watercorporation.com.au/our-water/rainfall-and-dams/rainfall).

The assessment of the suitability of this site to retain on-site sewage and the recommendations in this document are based on detailed reviews of available publications, information and data from various government agencies relating to the topography and geological and hydrogeological setting in addition to site investigations including visual inspection, borehole drilling and sampling, soil identification and percolation testing and.

Generally, based on the results of the site and soil assessment, the proposed sewage system will be able to satisfactorily meet the requirements of AS 1547 and the Health Regulations 1974 (Treatment of Sewage and Disposal of Effluent and Liquid Waste), Planning for Water Guidelines – State Planning Policy 2.9 Water, December 2025; and Government Sewerage Policy 2019.

The following key features are relevant to Lot 83, Country Heights Estate 2:

- The site is in a sewage sensitive area (PlanWA online mapping).
- There are no groundwater bores on Lot 83.
- The site is not in a public drinking water source area (PDWSA online mapping).
- Lot 83 is not affected by the 1%AEP Floodplain (online mapping) and there are no natural waterways that effect the Lot.
- The risk of effluent transport offsite is considered low.

Table 3.1 summarises the key features regarding the proposed management of effluent.

Table 3.1: Site Characteristics and Mitigation Measures.

Feature	Description	Level of Constraint	Mitigation Measure
Climate	Refer discussion above	Low	None required
Exposure	Isolated trees across site; considered to have high exposure to sun and wind	Low	None required
Vegetation	Hydrophilic vegetation absent in and surrounding site	Low	None required
Landform and Drainage	No visible water ponding at time of assessment	Low	None required
Slope	North to south-east at less than 10%	Low	Ensure Land Application Area (LAA) is flat and level (<10% slope)
Fill	Natural soils, no imported fill material observed at time of assessment	Low	None required
Surface Gravel and Rock Outcrop	No surface gravel or rock outcrop observed	Low	None required
Erosion Potential	No evidence of sheet or rill erosion; no evidence of landslip and landslip potential is low due to slope of site	Low	None required
Vertical Separation from Groundwater	Ground and/or perched water was not encountered during drilling to a depth of 2.5m below surface level; the Perth Groundwater Map has no records for this site. The surface elevation varies between 112mAHD and 208mAHD (Landgate)	Low	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system
Public Drinking Water Source Areas and Sewage Sensitive Areas	Lot 83 is located in a sewage sensitive area (or Sensitive Water Resource Area) within 1km from wetlands, but not in a public drinking water source area	High	Provide secondary treatment with nutrient ad phosphorous removal
Phosphorus Retention	The Department of Primary Industries and Regional Development (DPIRD): a Phosphorus Export Hazard at 30-50% (high to extreme); Phosphorus Retention Index (PRI) testing (CSBP Soil and Plant Analysis) reported a range between 1.7 and 48.9:	Moderate	
Surface Waters and Separation from Water Resources	Gingin Brook does not affect Lot 83	Low	None required
Rainfall Run-on and Seepage	No evidence of stormwater run-on observed	Low	None required
Flood Potential	Lot 83 is not affected by the 1%AEP Floodplain	Low	None required
Potential Inundation Areas	Lot 83 is not affected by the 10% AEP Rainfall Event; there are no records or evidence of the 10%AEP surface inundation floodplain impacting Lot 83 and groundwater was not encountered up to 2.5m below surface	Low	None required
Horizontal Setback Distances	All relevant setback distances to the LAA are achievable for proposed lots	Low	None required
Available Land Application Area (LAA)	Considering all the constraints and buffers, the site has ample suitable land for a LAA for secondary treated effluent disposal	Low	None required

Level of Risk (DWER, ChemCentre		
Low	Medium	High
>20	5 - 20	<5

3.2 Soil Assessment

A geotechnical site investigation (Structerre Consulting, 2025) was undertaken on the 8th of September 2025. A soil retrieval probe was used to sample 38 soil bores up to 2.5m in depth. Constant Head permeability testing was carried in accordance with Australian Standard AS1547:2012.

The site geotechnical assessment revealed the sub surface materials comprise gravels and sands and loams and clay loams across Lot 83 which was sufficient to adequately characterise the soils expected throughout the area of interest (refer Tables 3.2, 3.3 and 3.4 below). Soil profile descriptions may be found in Appendix A.

Table 3.2: Soil Assessment.

Feature	Assessment	Level of Constraint	Mitigation Measure
Profile Depth	Soil Profile 1: Category 1 gravels and sands Soil Profile 2: Category 3 loams Soil Profile 3: Category 4 clay loams Reference should be made to Table 3.3	Low to moderate	Provide treatment systems as detailed in this document, with large daily hydraulic loads
Depth to Water Level	Ground and/or perched water was not encountered during drilling to a depth of 2.5m below surface level; the Perth Groundwater Map has no records for this site	Low	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system
Particle Size distribution	90% passing 75mm	Low	None required
Soil Colour	Yellow/reddish	Low	None required
Soil Permeability and Design Loading Rates	Based on soil profiles and permeability testing, the soils are consistent with soil Categories 1, 3 and 4 (AS1547-2012) Permeability testing using the Constant Head Method (AS1547); refer Table 3.4: Category 1: mean permeability of 10m/day Category 3: mean permeability of 1.3m/day Category 4: mean permeability of 1.1m/day	Moderate	Provide treatment systems as detailed in this document
Soil Category	The proposed lots were categorised accordingly. Refer to Section 7 Conclusions for details	Moderate	

Table 3.3: Soil Profiles.

Soil Profile	Description		Category	Relevant Lots
Profile 1	0 - 100mm 100 - 2,500mm	Topsoil SAND: medium grained, yellow	Category 1	Lots 1 - 11, 14 - 49, 58 - 97, 101 - 103, 106 - 110, 113 - 123, 126 -136 and Community Facility
Profile 2	0 - 100 mm 100 -1,200mm 1,200 - 1,900mm 1,900 - 2,500mm	Topsoil SAND: medium grained, brown SAND: medium grained, brown Clayey SAND: medium grained, medium plasticity clay, with fine trace gravel, brown/red	Category 3	Lots 12, 13, 50 - 57, 104, 105, 124 and 125
Profile 3	0 - 100 mm 100 - 900mm 900 - 1,600mm	Topsoil SAND: medium to coarse grained, medium trace gravel, brown Sandy CLAY: medium grained, high plasticity, with medium trace gravel, brown Refusal at 1.6m due to stiff clay	Category 4	Lots 98 - 100, 111 and 112

Table 3.4: Permeability Testing.

Test Location	Test Depth	Soil Type	Permeability (Constant Head [AS1547]) m/day
Perc1	0 – 0.7m	SAND	26.9
Perc2	0 – 0.7m	SAND	8.5
Perc3	0 – 0.7m	SAND	7.2
Perc4	0 – 0.7m	SAND	1.7
Perc5	0 – 0.7m	SAND	10.9
Perc6	0 – 0.7m	SAND	10.0
Perc7	0 – 0.7m	SAND	9.1
Perc8	0 – 0.7m	SAND	2.6
Perc9	0 – 0.7m	SAND	13.0
Perc10	0 – 0.7m	SAND	4.8
Perc11	0 – 0.7m	SAND	2.9
Perc12	0 – 0.7m	SAND	0.6
Perc13	0 – 0.7m	SAND	1.3
Perc14	0 – 0.7m	SAND	4.4
Perc15	0 – 0.7m	SAND	26.9
Perc16	0 – 0.7m	SAND	11.1
Perc17	0 – 0.7m	SAND	1.8
Perc18	0 – 0.7m	SAND	17.7
Perc19	0 – 0.7m	SAND	5.7
Perc20	0 – 0.7m	SAND	2.4
Perc21	0 – 0.7m	SAND	9.8
Perc22	0 – 0.7m	SAND	2.8
Perc23	0 – 0.7m	SAND	8.5
Perc24	0 – 0.7m	SAND	7.7
Perc25	0 – 0.7m	SAND	16.4
Perc26	0 – 0.7m	SAND	0.7
Perc27	0 – 0.7m	SAND	1.5
Perc28	0 – 0.7m	SAND	8.5
Perc29	0 – 0.7m	SAND	0.9
Perc30	0 – 0.7m	SAND	3.6
Perc31	0 – 0.7m	SAND	4.3
Perc32	0 – 0.7m	Sandy CLAY	1.2
Perc33	0 – 0.7m	SAND	9.3
Perc34	0 – 0.7m	SAND	3.8
Perc35	0 – 0.7m	SAND	31.6
Perc36	0 – 0.7m	SAND	13
Perc37	0 – 0.7m	SAND	6.3
Perc38	0 – 0.7m	SAND	19.1

3.3 Overall Land Capability

Based on the finding of the site and soil assessment detailed above, the proposed onsite sewage system (refer Section 4) will be able to be designed and installed to satisfactorily meet the requirements of AS1547, the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, Government Sewerage Policy 2019 and Planning for Water Guidelines – State Planning Policy 2.9 Water dated December 2025.

4. Wastewater Management System

The following sections provide an overview of a suitable onsite sewage system, with sizing and design considerations and justification for its selection. The final detailed design and selection of the system (must be a system/product approved by the Department of Health: http://www.health.wa.gov.au/) is the responsibility of the lot owner, which should be undertaken at the time of the building application and submitted to Local Government for approval. The preferred system(s) at Lot 81 Country Heights Estate 1 is provided by Taylex Australia Pty Ltd (Appendix B) approved by the Department of Health.

The lot owner has the responsibility to apply for a new effluent system that must be in strict accordance with the current governing regulations and requirements.

Reference should be made to Figures 4.1, 4.2 and 4.3 at the end of this section.

4.1 Secondary Treatment System

A secondary treated effluent with nutrient removal and disposal, with a minimum required effluent quality of, is to be provided:

- Biochemical Oxygen Demand (BOD) ≤20 mg/L.
- Total Suspended Solids (TSS) ≤30 mg/L.
- Escherichia (E) coli ≤10 cfu/100 mL.
- Phosphorus concentration ≤1mg/L.
- Nitrogen concentration ≤10mg/L.
- 90% of samples shall have a BOD_5 ≤ 20 g/m^3 with no sample greater than 30 g/m^3.
- 90% of the samples shall have TSS ≤ 30 g/m^3 with no sample greater than 45 g/m^3.

4.2 Septic System

Proposed Lots 1 to 11, 51 to 66 and 86 to 89 are located outside the sewage sensitive area. These lots are to be provided with a standard primary treatment septic system consisting of septic tanks and leach drains.

4.3 Land Application System

4.3.1 Sizing the disposal system

The system must be sized in accordance with disposal of the calculated daily hydraulic load, the soil classification and quality of effluent being disposed of.

Data to be used in the sizing of irrigation disposal area:

- Estimated Daily Hydraulic Load (5-bedroom residence):
  - Maximum 6 residents @ 150L/day = 900L/day.
  - Total 900L/day Hydraulic Load (Department of Health Treatment of Sewage and Disposal of Effluent and Liquid Waste, 1974).

- Estimated Daily Hydraulic Load (Community Facility: public building, infrequent use):
  - Maximum 100 persons @ 10L/day = 1,000L/day.
  - Total 1,000L/day Hydraulic Load (Department of Health Treatment of Sewage and Disposal of Effluent and Liquid Waste, 1974).

4.3.2 Sizing of Leach Drains

The required total length of leach drain required is calculated using the approved filtration area (m^2/m) of the selected leach drain:

- Approved DS Water Management Flatbed Leach Drain with a filtration area of $2.4m^2/m$. The length of the Leach Drain = L/day/DLR/IA (L/day is the daily wastewater flow, DLR is the design loading rate and IA is the area of the leach drain).

4.3.3 Secondary Wastewater Treatment System

The Land Application Area (LAA) must be in accordance with Planning for Water Guidelines – State Planning Policy 2.9 Water, December 2025, Appendix F.

Lots Classified as Category 1

For Lots 14 - 49, 67 - 85, 90 - 103, 106 - 123 and 126 - 136, classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $180m^2$. Secondary Treatment for Soil *Category 1 - Gravels and Sands* (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.20 = $180m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 900/50/2.4 = 7.5m = provide 10m i.e. two x 5m Inverted Flatbed Leach Drains.

For Community Facility classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $200m^2$. Secondary Treatment for Soil *Category 1 - Gravels and Sands* (Hydraulic Loading x Secondary Treated Conversion Factor = 1,000 x 0.20 = $200m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 1,000 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 1,000/50/2.4 = 8.4m = provide 10m i.e. two x 5m Inverted Flatbed Leach Drains.

Lots Classified as Category 3

For residential Lots 12, 13,50,104,105, 124 and 125 classified as *Category 3 Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $225m^2$ Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.25 = $225m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 50 and IA = infiltration area for approved leach drain section] = 900/50/2.4 = 7.5m = provide 10m i.e. two by 5m Inverted Flatbed Leach Drains.

Lots Classified as Category 4

For Lots 98 - 100, 111 and 112 classified as *Category 4 Clay Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of $257m^2$ Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.29 = $257m^2$). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 10 and IA = infiltration area for approved leach drain section] = 900/10/2.4 = 37.5m = provide 40m i.e. two by 20m Inverted Flatbed Leach Drains.

4.3.4 Primary Wastewater Treatment System

The Land Application Area (LAA) must be in accordance with Planning for Water Guidelines – State Planning Policy 2.9, December 2025, Appendix F.

Lots Classified as Category 1

For Lots 1 - 11, 58 - 66 and 86 - 89, classified as *Category 1: Gravels and Sands - Structureless (massive) [AS 1547-2012]* provide LAA for primary treatment with minimum area of 339m^2 Primary Treatment for Soil Category 1 - Gravels and Sands (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.38 = 339m^2). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 20 and IA = infiltration area for approved leach drain section] = 900/20/2.4 = 18.75m = provide 20m i.e. two x 10m Inverted Flatbed Leach Drains.

Lots Classified as Category 3

For Lots 51 - 57 inclusive classified as *Category 3 Loams - High/moderate [AS 1547-2012]* provide LAA for secondary treatment with minimum area of 429m^2 Secondary Treatment for Soil Category 3 - Loams (Hydraulic Loading x Secondary Treated Conversion Factor = 900 x 0.48 = 429m^2). The Length of Leach Drain = L/day/DLR/IA [where L/Day = 900 (daily hydraulic load), DLR = 15 and IA = infiltration area for approved leach drain section] = 900/15/2.4 = 25.0m = provide 26m i.e. two by 13m Inverted Flatbed Leach Drains.

Note: application for a new effluent system is to be sized in accordance with current governing regulations. The property owner has the responsibility for the final selection of the secondary treatment system and will include the details of it in the Onsite sewage system Approval to Install application form for Local Government approval.

4.3.5 Siting and configuration of the proposed disposal system

The effluent disposal system must be located in a designated area to enhance its amenity and evapotranspiration and shall:

- Not be used for purposes that compromise the effectiveness of the system or access for maintenance purposes.
- Be used only for effluent application.
- Have boundaries clearly delineated by appropriate vegetation or other type of border.
- Have no run-off or seepage of effluent beyond the designated area.

4.3.6 Buffer distances

Setback buffer distances from effluent land application areas and treatment systems are required to prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for Lot 83 are:

- The disposal system should maintain minimum horizontal setbacks of:
  - 100m from the high water mark of a reservoir or any bore used for public drinking, waterways, significant wetlands and not within a waterway foreshore area or wetland buffer (the separation distance is to be measured from of the edge of the riparian or wetland vegetation).
  - 30m from potable private bore intended for consumption.
  - 1.8m downslope from property boundaries (may be dependent on local authority guidelines).
  - 1.2m from driveways and paved surfaces.

- 6.0m from any stormwater drainage systems.
- 1.8m from building footings.

- 1.5m vertical separation from the discharge point of the effluent disposal system to the highest ground water level.
- On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses and/or shrubs).

4.3.7 Installation of the disposal system

Installation of the disposal system must be carried out by a suitably qualified and licensed plumber or drainer experienced with onsite sewage disposal systems. Figure 4.3 shows the preliminary siting of the proposed wastewater disposal system in line with the required setbacks. This plan may differ based on the final number of occupants per building, dwelling location and any other intended developments on site.



Figure 4.1 Site Plan – Type of System Requirements.

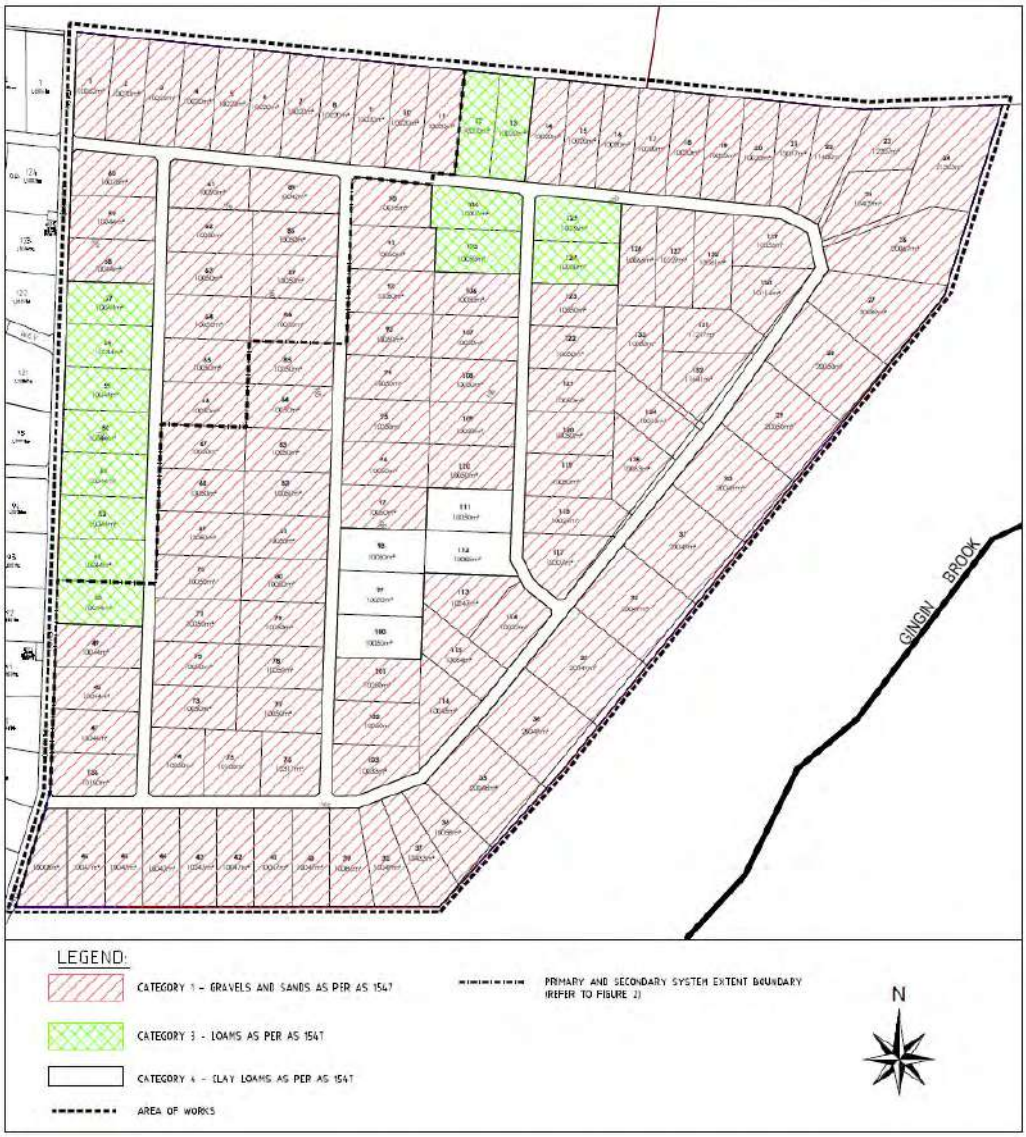


Figure 4.2 Site Plan – Soil Categories.

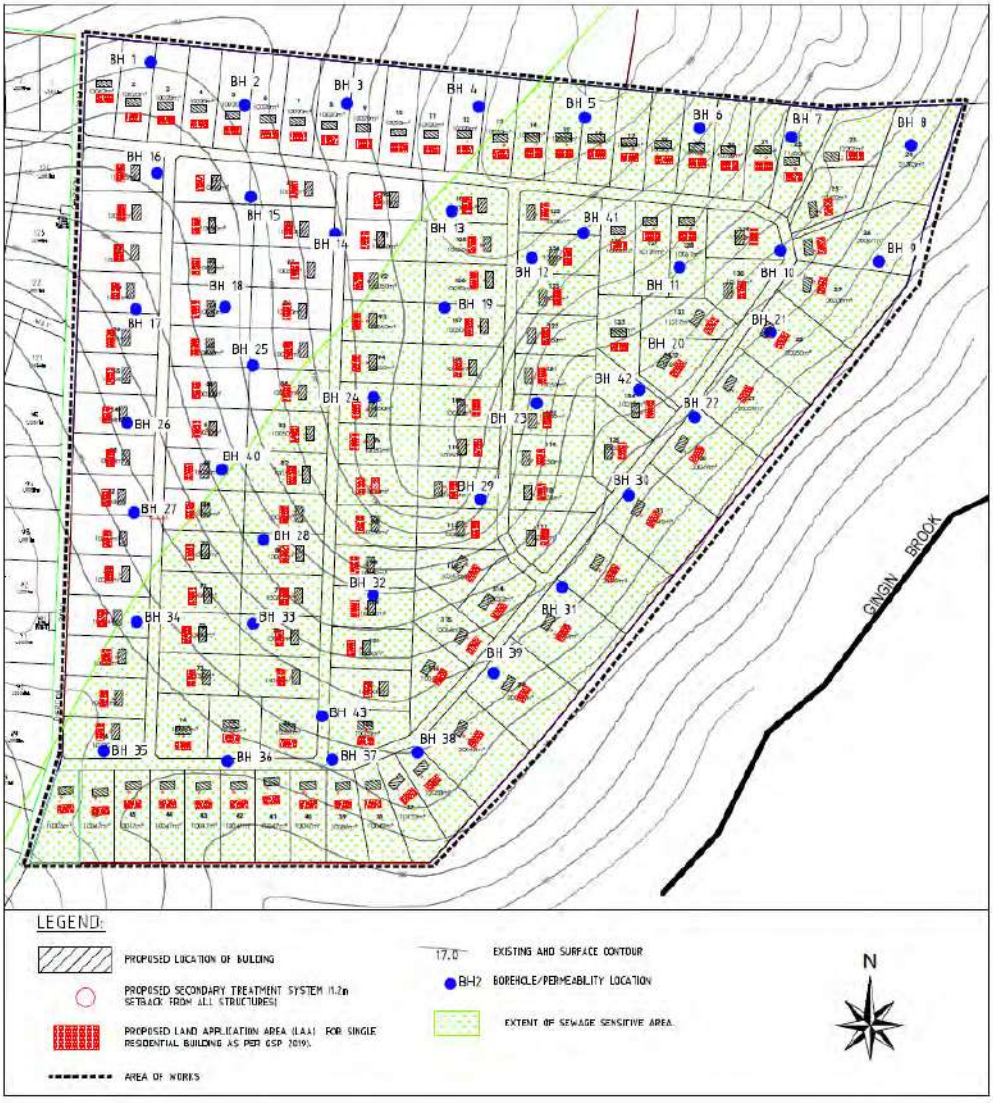


Figure 4.3 Site Plan – Effluent Disposal System.

5. Stormwater Management

The Land Application Areas (LAA's) for the proposed subdivision are located on the elevated section of Lot 83, hence stormwater run-off is not expected to be a concern. It is expected that run-off from the developed site will be managed and maintained within the lots.

Stormwater drainage is to be designed (by others) to the requirements and approval of the Shire of Gingin with proposed criteria of 1 in 20-year ARI 5-minute duration event (subject to council approval).

6. Monitoring, Operation and Maintenance

Maintenance is to be carried out in accordance with the manufacturer's specifications and in accordance with Australian Standard AS/NZS 1547-2012 Section 6, Appendices T and U. The treatment system will only function effectively if maintained appropriately and regularly.

To ensure the treatment system functions effectively, residents must:

- Scrape dishes and remove fats and solids before washing and keep as much fat and oil out of the system as possible.
- Not dispose solids, sanitary napkins and other hygiene products in the system.
- Not use a food waste disposal unit.
- Use household cleaning products that are suitable for aerobic treatment systems.
- Conserve water (AAA rated fixtures and appliances are recommended).

To maintain adequate performance of the system, residents must ensure that:

- Tanks and biosolids settling vessels undergo regular pump-out by licensed waste contractors to remove accumulated sediment.
- No structures and/or paths are constructed over the land application area and vehicles must not access the land application area to prevent damage.
- Aerobic Treatment Units (ATU's) undergo maintenance servicing as required by the local governing authority and a provider approved by the Department of Health, Western Australia.

7. Conclusions and Recommendations

Based on the investigations and assessments detailed in this document, it may be concluded that, taking due cognisance that Lot 83 is partially located in a Sensitive Water Resource Area (106 of the 137 proposed lots), a sustainable onsite sewage management system can be installed to meet the needs of the proposed subdivision of Lot 83 Cheriton Road, Ginginup. It is recommended that:

- For the proposed Community Centre and residential Lots 12 to 50, 67 to 85, 90 to 136, provide a secondary treated effluent system with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respectively of a volume to meet the final calculated daily hydraulic load.
- For the proposed Lots 1 to 11, 61 to 66 and 86 to 89, provide a primary treated effluent system of a volume to meet the final calculated daily hydraulic load.
- Sizing of the Land Application Area must be consistent with the classified Soil Category determined for an individual proposed lot in accordance with this document.
- The base of the Land Application Area shall maintain a minimum of 1.5m vertical separation with the highest groundwater level, if encountered, for all the proposed lots.
- The Community Facility and residential Lots 14 to 29, 67 to 85, 90 to 103, 106 to 123, 126 to 136 are classified as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 180m^2; 200m^2 for the Community Facility.
- Lots 12, 13, 50, 104, 105, 124 and 125 are classified as *Category 3 Soils: Loams – High/moderate structured* [AS 1547-2012] which necessitate secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 225m^2.
- Lots 98 to 100, 111 and 112 are classified as *Category 4 Soils: Clay Loams – High/moderate structured* [AS 1547-2012] which necessitates secondary treatment wastewater systems with nutrient removal capabilities with a minimum Land Application Area of 257m^2.
- Lots 1 to 11, 58 to 66 and 86 to 89 are classified, as *Category 1 Soils: Gravels and Sands - Structureless (massive)* [AS 1547-2012] which necessitates primary treatment effluent systems with a minimum Land Application Area of 339m^2.
- Lots 51 to 57 are classified as *Category 3 Soils: Loams–High/moderate Structured* [AS 1547-2012] which necessitates primary treated effluent systems with a minimum Land Application Area of 429m^2.
- Location of the Land Application Area must comply with the setbacks in accordance with this document.
- Operation, management and maintenance of the treatment and disposal system must be in accordance with the manufacturer's specifications, Australian Standard AS/NZS 1547 and the recommendations made in this document.

References

Australian Standard: AS/NZS 1547:2012 On-site Domestic Wastewater Management. Standards, Australia/Standards New Zealand (2012).

Australian Standard: AS/NZS 1289:2014 Methods of Testing Soils for Engineering Purposes Definitions and General Requirements, Standards Australia/Standards New Zealand (2014).

Department of Health Western Australia, 2019: Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations, Government Sewerage Policy.

Department of Health Western Australia, 2001: Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (ATU's).

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GeoVIEW.WA *https://geoview.dmp.wa.gov.au/geoview/?Viewer=GeoView*

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https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915 aaf3c6a0f

Department of Water and Environmental Regulation *Western Australia Floodplain Mapping*
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Structerre Consulting, 2025: Geotechnical Investigation, Country Heights Estate 2 - Lot 83 Cheriton Road, Ginginup Western Australia.

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Appendices

Appendix A: Bore Construction and Lithological Profiles.

Appendix B: Aerobic Treatment Units.

Appendix A: Bore Construction and Lithological Profiles.

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Appendix A: Soil profiles

Borehole Record: BH01

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397922.86
Northing: 6538999.73
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
					Sand (SP): poorly graded, medium grained, yellow.				26.9	
	1.0	Natural		SP						
	2.0									
					BH01 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396149.34
Northing: 6538970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	0.0	Non-soil / Natural		TS / SP	Topsoil. Sand (SP): very loose, poorly graded, medium grained, yellow, moist.	M	VL		6.5	
	1.0									
	2.0									
					BH02 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH03

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396395.46
Northing: 6538948.37
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Tony Broadway/Ankush Rebadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		7.2	
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH04

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398584.82
Northing: 6538928.84
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH05

Project: Country Heights Stage 2	**Position:** Easting: 398791.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538907.74	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.5	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6536886.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
	0.0	Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.	M	L	3, 4, 5, 5, 3, 4	10.0	
	1.0									
	2.0									
					BH06 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH07

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399151.94
Northing: 6538823.27
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		6.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH08

Project: Country Heights Stage 2	**Position:** Easting: 399327.39	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6536813.58	**Drill Rig** SRP - 1HJR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL		2.6	
	2.0									
					BH08 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH09

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 399237.85
Northing: 6536626.58
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		t3.0	
	2.0									
					BH09 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH10

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 399083.76
Northing: 6538673.85
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL		4.8	
	2.0									
					BH10 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH11

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396870.57
Northing: 6538633.26
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0									
					BH11 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH12

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396615.45
Northing: 6538696.44
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		D.E	
	2.0									
					BH12 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH13

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399499.21
Northing: 6536782.89
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0									
					BH13 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH14

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398290.47
Northing: 6538657.28
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		44	
	2.0									
					BH14 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH15

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 396111.44
Northing: 6538754.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0									
					BH15 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH16

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397936.39
Northing: 6538733.90
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL		11.1	
	2.0									
					BH16 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

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Borehole Record: BH17

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 397982.96
Northing: 6538508.94
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	1.0									
				SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
	2.0									
					BH17 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH18

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396196.04
Northing: 6536559.25
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0									
					BH18 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH19

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489084

Position: Easting: 398457.38
Northing: 6538469.86
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		57	
	2.0									
					BH19 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH20

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398840.10
Northing: 6538527.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
				SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
	2.0									
					BH20 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH21

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399104.69
Northing: 6538511.75
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0									
					BH21 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH22

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398993.81
Northing: 6536280.94
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		2.8	
	2.0									
					BH22 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH23

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396683.95
Northing: 6536328.13
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
	1.0			SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH24

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398161.71
Northing: 6538216.24
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		77	
	2.0									
					BH24 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH25

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396162.26
Northing: 6538410.42
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		18.4	
	2.0									
					BH25 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH26

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397926.64
Northing: 6538319.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

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Borehole Record: BH27

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397696.87
Northing: 6536458.35
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0									
					BH27 Terminated at 2.5 m					

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PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH28

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396160.48
Northing: 6536215.91
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HJR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH29

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489084

Position: Easting: 396595.97
Northing: 6536165.21
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH30

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396854.12
Northing: 6538166.71
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L		3.6	
	2.0									
					BH30 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH31

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396697.24
Northing: 6538016.07
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Avikush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0									
					BH31 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH32

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396411.77
Northing: 6538095.78
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD		1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH33

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D0666941 J489094

Position: Easting: 396208.25
Northing: 6538028.01
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.5	
	2.0									
					BH33 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH34

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396159.74
Northing: 6536218.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL			
	2.0				BH34 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH35

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397916.50
Northing: 6537792.97
Elevation: Not Surveyed
Inclination:

Date Drilled: 12/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.5	
	2.0				BH35 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH36

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398115.47
Northing: 6537715.14
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0									
					BH36 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH37

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489084

Position: Easting: 398276.71
Northing: 6537683.69
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Avikush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0				BH37 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH38

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398415.96
Northing: 6537786.32
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Arikusti Rabadis/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0				BH38 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH39

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396585.31
Northing: 6537913.28
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH40

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 398039.92
Northing: 6538317.00
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH40 Terminated at 0.4 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH41

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 396889.55
Northing: 6538753.80
Elevation: 171.14(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH41 Terminated at 0.4 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH42

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398848.53
Northing: 6538360.46
Elevation: 170.72(m)
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH42 Terminated at 0.4 m (Target Depth)					

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Borehole Record: BH43

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D366941 J489094

Position: Easting: 396244.44
Northing: 6537887.83
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig Hand Auger
Drill Supplier Example supplier
Logged/Checked: Majid Ali/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, medium grained, pale brown.		L			
					BH43 Terminated at 0.4 m (Target Depth)					

STRUCterre consulting

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

Appendix B: Borehole photos

Bore Hole 1



Bore Hole 10



Bore Hole 20



STRUCterre consulting

PROJECT No: D366941
JOB No: J489105
PROJECT ADDRESS: Lot 83 Cheriton Rd, Ginginup
CLIENT: Pendragon Enviromnental Solutions

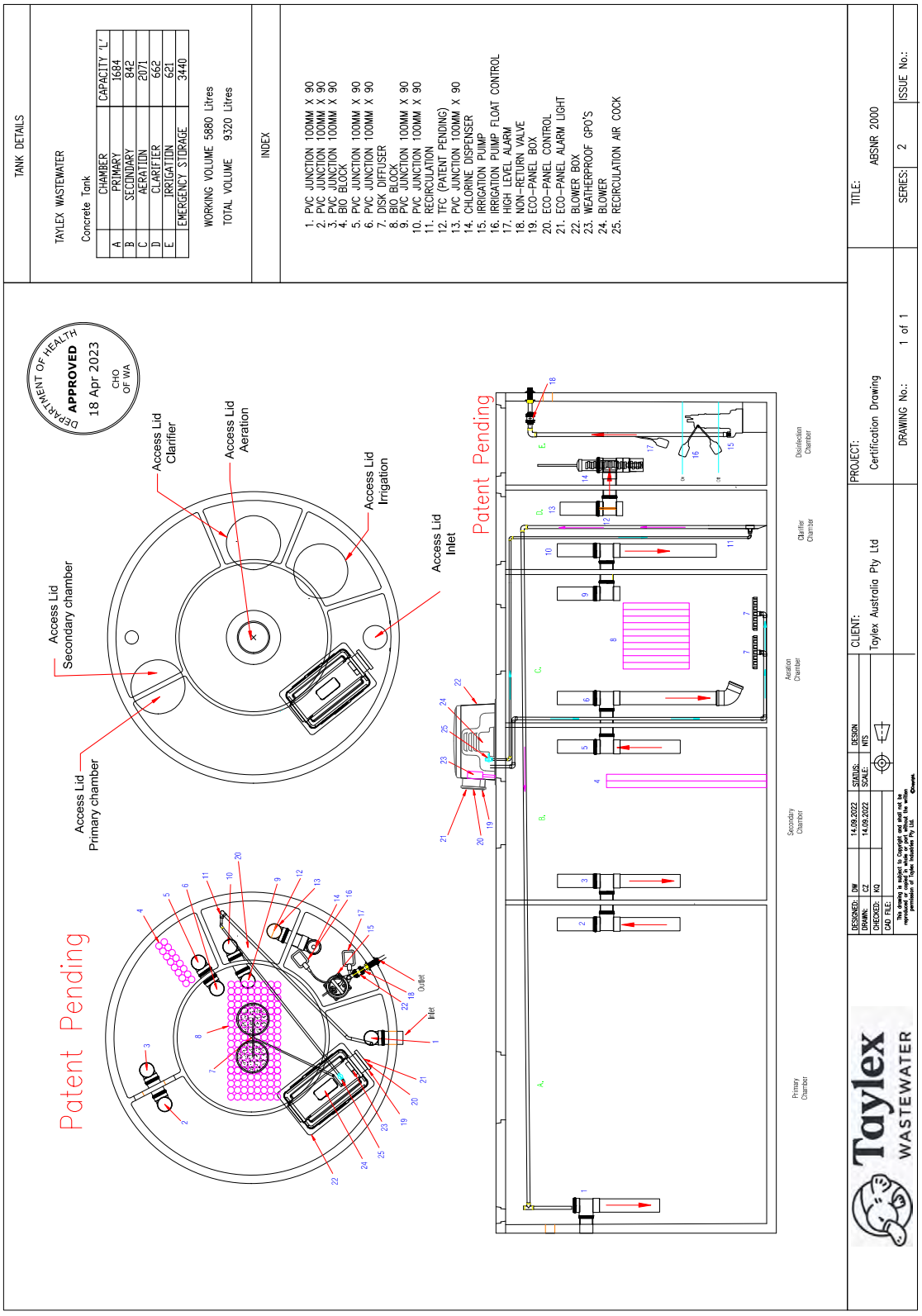
Bore Hole 30



Bore Hole 399



Appendix B: Aerobic Treatment Units.


TANK DETAILS
TAYLEX WASTEWATER
Concrete Tank
CHAMBER
CAPACITY 'L'
A PRIMARY 1684
B SECONDARY 842
C AERATION 2071
C CLARIFIER 662
D IRRIGATION 621
E EMERGENCY STORAGE 3440
WORKING VOLUME 5880 Litres
TOTAL VOLUME 9320 Litres
INDEX
1. PVC JUNCTION 100MM X 90
2. PVC JUNCTION 100MM X 90
3. PVC JUNCTION 100MM X 90
4. BIO BLOCK
5. PVC JUNCTION 100MM X 90
6. PVC JUNCTION 100MM X 90
7. DISK DIFFUSER
8. BIO BLOCK
9. PVC JUNCTION 100MM X 90
10. PVC JUNCTION 100MM X 90
11. RECIRCULATION
12. TFC (PATENT PENDING)
13. PVC JUNCTION 100MM X 90
14. CHLORINE DISPENSER
15. IRRIGATION PUMP
16. IRRIGATION PUMP FLOAT CONTROL
17. HIGH LEVEL ALARM
18. NON-RETURN VALVE
19. ECO-PANEL BOX
20. ECO-PANEL CONTROL
21. ECO-PANEL ALARM LIGHT
22. BLOWER BOX
23. WEATHERPROOF GPO'S
24. BLOWER
25. RECIRCULATION AIR COCK
DEPARTMENT OF HEALTH
APPROVED
18 Apr 2023
CHO
OF WA
Access Lid
Clarifier
Access Lid
Aeration
Access Lid
Irrigation
Access Lid
Secondary chamber
Access Lid
Inlet
Access Lid
Primary chamber
Patent Pending
Patent Pending
Outlet
Inlet
Disinfection Chamber
Clarifier Chamber
Aeration Chamber
Secondary Chamber
Primary Chamber
TITLE:
ABSNR 2000
PROJECT:
Certification Drawing
CLIENT:
Taylex Australia Pty Ltd
DRAWING No.: 1 of 1
SERIES: 2
ISSUE No.:
DESIGNED: DW
DRAWN: CZ
CHECKED: KG
CAD FILE:
14.09.2022
14.09.2022
STATUS:
SCALE:
DESIGN
MTS
Taylex
WASTEWATER

Taylex WASTEWATER

DEPARTMENT OF HEALTH
APPROVED
18 Apr 2023
CHO
OF WA

Specification

CONCRETE ADVANCED BLOWER SYSTEM
-Nutrient Reduction
-2000L/per day

ABSNR-2000

Taylex WASTEWATER

DEPARTMENT OF HEALTH
APPROVED
18 Apr 2023
CHO
OF WA

TAYLEX ADVANCED BLOWER SYSTEM NUTRIENT REDUCTION 2000L/ per day ABSNR -2000

Specification

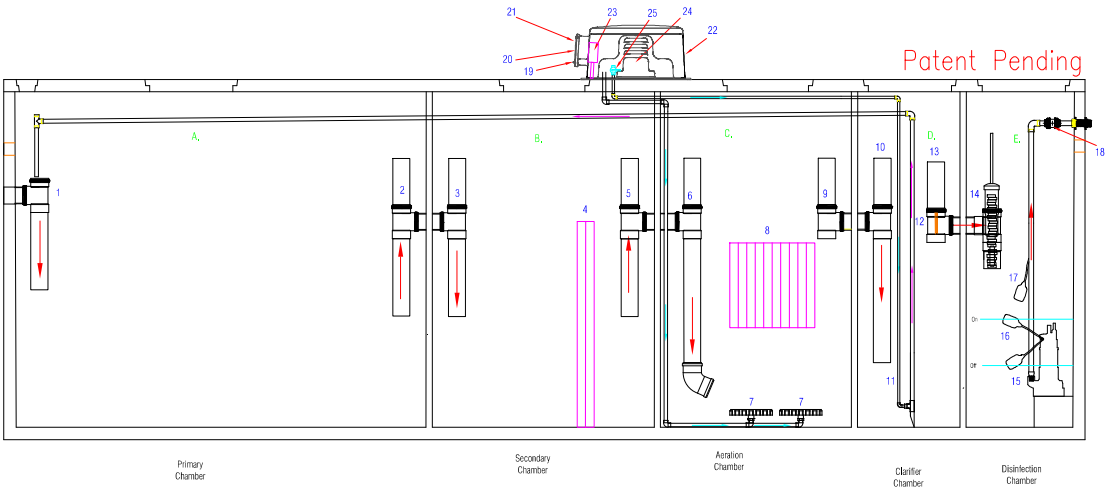
General Description:

The Taylex Advanced Blower System NR 2000 (ABSNR-2000) Secondary Treatment System (STS) is designed to treat the wastewater from a residential dwelling up to 2,000 Litres per day, with a daily flow of 150 Litres per person and an average daily BOD^5 70g per person.

The Taylex ABSNR-2000 STS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 9,320 Litres and an operating capacity of 5,880 Litres.

Flow path of wastewater:

1. A primary pre-treatment chamber, with a capacity of 1,684 Litres.
2. A secondary pre-treatment chamber, with a capacity of 842 Litres.
3. An aeration chamber, with a capacity of 2,071 Litres. This chamber is fitted with bio block media, 2, 9" disk diffusers.
4. A sedimentation / clarifier chamber, with a capacity of 662 Litres, containing a Taylex Filter Control (TFC) fitted to the outlet, and recirculation to the primary.
5. A Disinfection chamber, with a capacity of 621 Litres, incorporating a capacity of 300 Litres for chlorine contact of effluent. A chlorine disinfection unit is installed on the inlet to the irrigation chamber. The system is fitted with either a Davey D25 or D42 Irrigation Pump.
6. An Emergency Storage Buffer 3440 Litres.
7. The automatic irrigation pump transfers the treated effluent to the effluent disposal area / land application area (LAA).



Taylex WASTEWATER

DEPARTMENT OF HEALTH
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CHO
OF WA

Product Specification Table:

Australian Standards Compliance		
Effluent Testing	AS1546.3:2017	
Tank Design and Testing	In Ground	AS1546.1:2008
	Above Ground	AS3735.2001
System Model	ABSNR-2000	CONCRETE
Treatment Level	Advanced Secondary + % Nutrient Reduction	

Tank Capacity	
Total Tank Capacity	9320L
Operating Capacity	5880L

System Chamber Capacities	
Primary Chamber	1684L
Secondary Chamber	842L
Aeration Chamber	2071L
Clarifier Chamber	662L
irrigation Chamber	621L
Emergency Storage	3440L
Maximum Hydraulic Loading Capacity	2,000 litres per day / 13EP

Design Parameters		
Parameter	Total Per Day	Total Per person Per Day
Daily Flow	2,000L/ 13 EP	150L
Maximum Organic Loading BOD^5	910g	70g
Total Suspended Solids (TSS)	910g	70g
Total Nitrogen (TN)	195g	15g
Total Phosphorus (TP)	32.5g	2.5g

Effluent Compliance: AS1546.3:2017		
Biochemical Oxygen Demand (BOD^5)	<10mg/l	
Total Suspended Solids (TSS)	<10mg/l	
E.Coli	<10cfu/100ml	
Min. FAC	Min 0.5 mg/l	

Temperature		
Operating Temperature C°	Minimum	Maximum
	-2°C	45°C

Electricity Consumption	
Kilowatt hours per day (kWh/d)	2.50
Kilowatt hours per 1000L (kWh/1000L)	1.33

Servicing and Maintenance	
Servicing Frequency	Every 3 months

Taylex WASTEWATER

Components List & Repair/ Replacement Instructions:

1. Primary Chamber – 100mm inlet Junction, BIO Block
2. Secondary Chamber – 100mm Junction x 2
3. Aeration Chamber – 100mm Junction x 2, BIO Block, Air Lift, Disk Diffuser
4. Clarifier Chamber – 100mm Junction, Taylex Filter Control, Recirculation Chamber
5. Irrigation Chamber – 100mm Junction, Chlorine Dispenser, Irrigation Pump, High Level Alarm Float, 100mm Elbow

Component List

TANK

Concrete Tank and Lid
Made from 32mpa concrete with SL 41Mesh

Repair / Replacement Details:
Replacement lids available from Taylex Industries or your local Service Agents.

Chips and cracks can be repaired using Sika panel patch or mortar.



1) 2) 3) 5) 100mm Sweep Tee With dropper pipe and riser

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.

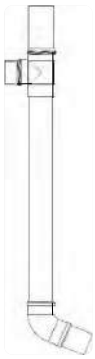


4) BIO Block Media
Width - 385mm
Length - 110mm
Height - 1400mm
Surface Area – 20.6m²

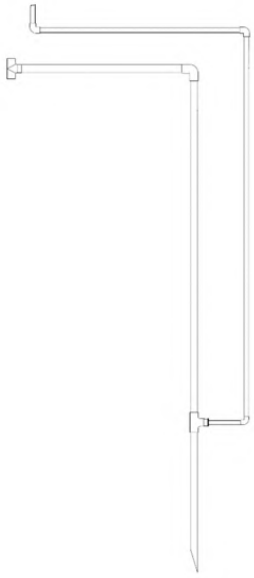


6) 100mm Sweep Tee With 1000mm dropper pipe and 100mm 45° M&F Bend

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.



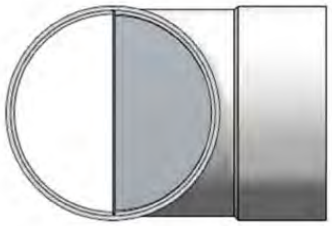
Taylex WASTEWATER

7)	Diffuser x 2 Material – EPDM Diameter – 250mm (9inch) Repair / Replacement Details: Turn the system off. Replace the diffuser by making a new complete aeration pipe assembly fitted with the Diffuser. Cut the main aeration supply line, place the new diffuser in the system, weighed down with a small concrete block and rotate the diffuser under the biomass. Re fix the new aeration pipe assembly complete with a joining socket. Removing the old Diffuser is not required. Turn the system on. Purchase the complete assembly from Taylex.	
8)	BIO Block Media Width - 550mm Length - 1100mm Height - 500mm Surface Area - 105m^2	
9) 10) 13)	100mm Sweep Tee With dropper pipe and riser Repair / Replacement Details: Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair coupling install new tee.	
11)	Recirculation System For the transfer of fluids using the 'Venturi Principle'. Air is injected toward the base of a vertical open ended PVC conduit. Continuous displacement occurs as the air moves vertically to the liquid, drawing liquid through the bottom of the conduit. The air/liquid mixture reaches a vertical maximum where it then moves through the 90° bend into the primary chamber. The conduit is arranged in the base of the clarifier so that the residual sludge constitutes the main vacuum target. Sludge Base Removal Sludge deposit removal is to be scheduled 1 time per 6 years or as determined necessary by a licenced Taylex Sales Technician or the client or due to mechanical failure. Servicing Routine maintenance/servicing of the Taylex ABSNR -2000 is to be scheduled quarterly or as determined necessary by an approved Taylex Sales Technician or due to mechanical failure. Refer to Field Service Report sheet for testing requirements. Repair / Replacement Details: Turn the system off. Replace the Sludge Recirculation Assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.	

Taylex WASTEWATER

12) Taylex Filter Control (TFC)
Material – Stainless steel

Repair / Replacement Details:
Replace the TFC assembly by cutting the 100mm slab repair coupling, install the replacement TFC assembly.



14) Chlorine Dispenser
Material – HD Polyethylene
Length – 500mm
Diameter – 90mm

The chlorine dispenser is placed in the 100mm Tee located in the irrigation chamber.

Repair / Replacement Details:
Repairing the Chlorine Dispenser is not recommended. If the Dispenser is damaged, replace it with a new unit. Purchase the complete assembly from Taylex.



15) Irrigation Pump
The irrigation pump is self-controlled via a ball bearing activated float switch. When the according volume is reached in the pump chamber, the ball bearing in the float moves and creates an active connection. The treated effluent is pumped to the approved dispersal zone, as the chamber reaches minimum volume, the float drops and de-activates the pump. The type and capacity of the pump will be in accordance with the land application requirements.

Repair / Replacement Details:
Turn the system off. Replace the pump by disconnecting the barrel union, be sure not to drop the internal valve assembly. Lift the Pump Assembly out of the tank. Undo the threaded fitting connect to the outlet of the pump. Re apply thread tape and fix the threaded fitting back onto the pump. Return the assembly to the tank and re-connect the barrel union, ensuring the valve is seated correctly. Turn the system on. Purchase the correct pump from Taylex or a local outlet, ensuring the performance is identical to the pump removed.

DAVEY D25 – 9m Head
Voltage – 220 -240 IP 68
AMPS – 1.9 Phase 1 50hZ
Max Flow – 200L/min 7m

DAVEY D42A/B3 – 32m Head
Voltage – 220 -240 IP 68
AMPS – 4.3 Phase 1 50hZ
Max Flow – 130L/min 7m



Taylex WASTEWATER

17) Alarm System High Water
Material – PVC
Length – 20mm
Width - 90mm
Trigger – High Water
Code – 3
Visual – Red L.E.D - 3 Flashes
Audible – Micro Buzzer
Voltage – 12V

Repair / Replacement Details:
Turn the system off. Replace the float by disconnecting the electrical connection in the terminal block, located in the lower section of the control box. Feed the new float cable into the control box and connect to the terminal block, fixing the screws firmly. Re fix the float to the pipe assembly and loop the lead around the barrel union, to set the float height. Turn the system on. Purchase the float from Taylex.



18) Non- Return Valve
Height – 85mm
Length – 140mm
Width – 85mm

Repair / Replacement Details:
Turn the system off. Replace the Non- Return Valve by cutting the pipe in either side of the valve. Re-join the pipe using sockets and glue the Valve and sockets together. Ensure the glue is set before turning the system back on.



19) Control Panel Box
Material – HD Polyethylene
Height – 210mm
Length – 190mm
Width – 85mm

The weather proof control box is fixed to the side of the blower box using stainless steel screws. The control panel is fitted to the inside of this box and is connected to the power, high water alarm and pressure switch, via a gland at the back of the box.

Repair / Replacement Details:
Repairing boxes is not recommended. Replacements boxes be purchased from Taylex or your local service agent.



20) ECO Control Panel
(240v to 12V Power Supply)
Length – 160mm
Height – 100mm

The Taylex ECO is a 12V controller powered by the 240v to 12v power supply plug. As the unit is 12V all works including replacements and repairs do not need to be completed by a Licenced Electrician. All service agents can therefore complete all works within the Control Box and on the Taylex ECO Controllers.

The Taylex ECO Controller Assembly (complete with Controller, Control Panel Box, 3 x GPO Assembly and Blower Box) is classed as electrical equipment and has been certified to comply with AS/NZS 3820, meeting the Electrical Safety requirements in Australia and New Zealand

Repair / Replacement Details:
Turn the system off. Replace the Control Panel by removing the 4 screws in the control box. Disconnect the Loom plug from the rear of the panel. Connect the loom to the new panel; return the new Control Panel to the control box and re fix the 4 screws. Turn the system on. Purchase the Control Panel from Taylex.



Taylex WASTEWATER

21) L.E.D Light
Height – 30mm
Length – 20mm

The LED visual alarm is constructed within the Eco Panel. This LED Red light will flash when an alarm is present. The number of flashes represent the particular code.

Repair / Replacement Details:
Replacement of the LED lights only is not possible; the complete Control Panel must be replaced. Purchase the Control Panel from Taylex.



22) Blower Box
Material – HD Polyethylene
Height – 350mm
Length – 600mm
Width – 400mm

The Blower boxed is fitted to the lid of the ABS using 4 x 30mm anchors.

Repair / Replacement Details:

Repairing boxes is not recommended. Replacement boxes can be purchased from Taylex or your local service agent.



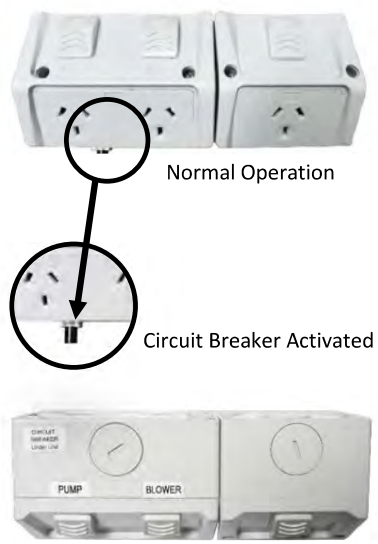
23) Weatherproof GPO's

Single	Double
Height – 85mm	Height – 85mm
Length – 85mm	Length – 115mm
Width – 80mm	Width – 80mm

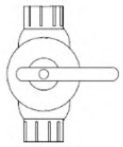
Mains 10amp power is connected through the 25mm coupling provided on the side of the ABSNR -2000 and pulled up through a conduit into the Single GPO. The 12volt power pack plugs into the single GPO to power the control panel. The blower and irrigation pump are plugged into the double GPO.

The double GPO contains a 5amp circuit breaker, which will activate if either the pump or blower (or both) draw too many amps, indicating a fault with the pump or blower. The breaker can be reset by pushing in the button if activated. The systems normal operation including alarms will continue to function, if the breaker is activated.

Repair / Replacement Details:
Replacing the GPO's can only be completed by a licenced electrician, please refer to the Taylex Electrical Connection instructions for details. Replacements can be purchased from Taylex or your local service agent.



Taylex
WASTEWATER

24)	Nitto 120L Blower Material – Alloy / Plastic Height – 232mm Width – 210mm Length – 407mm Weight – 9.7kg Noise Rating: 40dB(A) Capacity – 120L Back Pressure Range – 5kpa – 25kpa Motor Power – 130 Watts Power Source – 240V 50hZ Repair / Replacement Details: Purchase replacement Blowers and parts from Taylex.	
25)	Recirculation Control Valve The Recirculation system has been designed to recirculate a precise volume of bacteria and sludge back to the primary chamber for denitrification and sludge management. The control valve should be set to '10' on the dial for optimum operation. Repair / Replacement Details: Turn the system off. Replace the Recirculation assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.	

Taylex
WASTEWATER

Wastewater Specification Guide

TAYLEX.COM.AU

V4.1.3 — MAY 2024

Taylex
WASTEWATER

Wastewater Recycling Systems for Australian & New Zealand homes that protect your family and our environment.

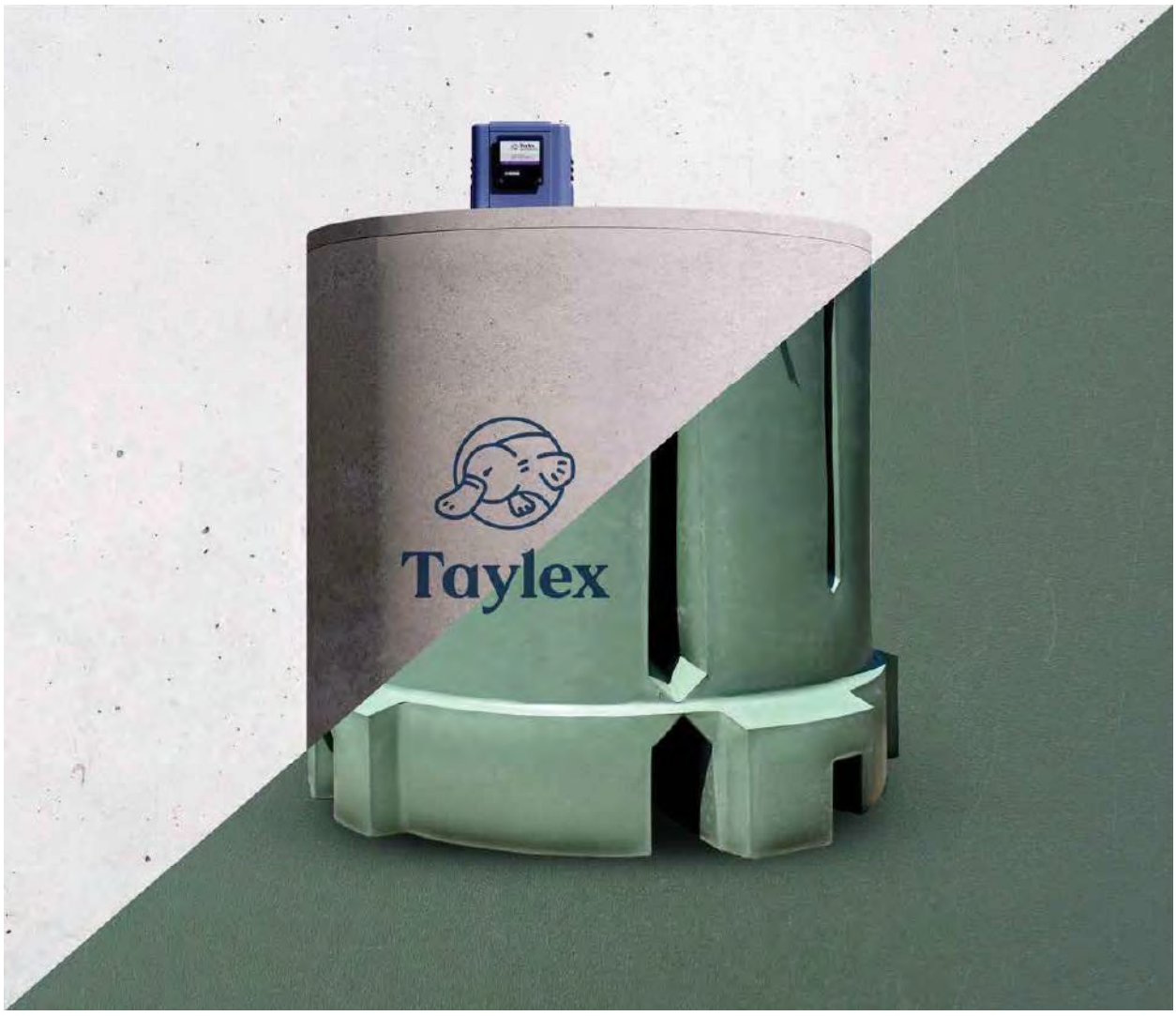
Taylex Systems produce the highest quality effluent for the safest and best environmental outcomes.

Concrete or Poly?	1
Trust Taylex	2
How does my Wastewater Treatment System work?	3
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Concrete or Poly?

Both the Taylex concrete and polymer wastewater treatment systems are six stage Advanced Secondary Wastewater treatment systems that exceed the national standards and are certified in all Australian states and territories. So why have both options available if they essentially do the same thing?

Our concrete Secondary Wastewater Treatment Systems are suited to 90% of all domestic installations. Taylex Polymer Tanks are designed to accommodate site conditions where it is not possible to crane in a concrete treatment system e.g. steep terrain. Our unique polymer mould cleverly uses 'Sandwich closed-cell foam polymer' to mould the compartment walls in one piece. There are no joins or glued-in compartments and all partitions extend to the lid of the tank, so you can enjoy the same peace of mind as if you had a Taylex concrete system.



1

Trust Taylex

Welcome to Taylex, an Australian family-owned company founded in 1969. We have over 80 employees and over 90 trained wastewater specialists who market, install and service our range nationally in Australia and New Zealand. Post installation, we have a network of over 300 trained Service Technicians to provide the ongoing care and maintenance for your system.

We manufacture a range of products for Wastewater, Rainwater and Stormwater, we also offer Servicing for our wastewater systems. Taylex was the first company to manufacture Home Sewage Treatment Systems in Australia and we continue to be leaders in our field.

Expertise

With over 50 years of experience, building our reputation, Taylex is a trusted voice in the wastewater industry. We work closely with the national manufacturers association and governing bodies to lobby for more stringent wastewater regulations to ensure the highest level of treatment is met and to provide you with the best results possible.

Integrity

We honour warranties. We stand behind our products, for their lifetime, no questions, no fine print. We are an Australian owned and made family business. We are passionate about producing quality products that work. We take care of our staff. We value the environment and human health.

Flexibility

Taylex has a system that will work for you. In difficult terrain or soil, for the size of your house and slope of your block, Taylex systems are adaptable, we are eager to work with you and become part of the solution.

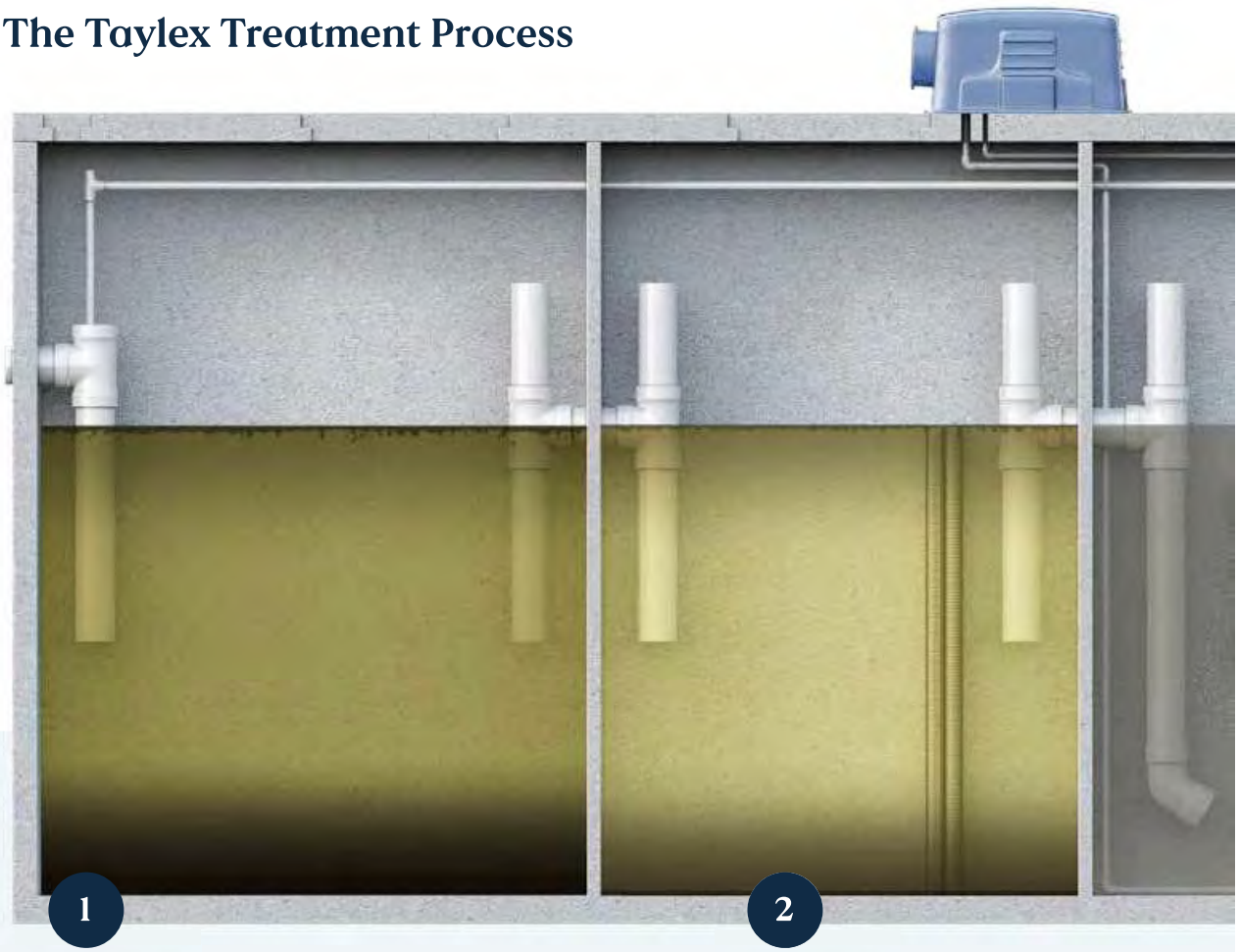
Innovation

Taylex is at the cutting edge of environmentally sound wastewater treatment that is healthy for your family and the environment. We are constantly testing and improving our systems to not only provide unparalleled quality and unmatched results, but to ensure the most stringent safety standards are met. We are constantly striving to improve and perfect.

Functionality

Our Systems work! Taylex use Monolithic, single piece moulds meaning no deteriorating seals or weak post-joined walls, which could expose your family to catastrophic failure of your system. There's no skimping on parts from the biggest pump down to the smallest seal. Our systems are designed and engineered to last as long as your home.

The Taylex Treatment Process



1



Primary Chamber

The first stop for your household wastewater is in the 'Primary Chamber'. Here solids will naturally sink to the bottom and fats and oils will naturally float to the top, leaving a clearer "Supernatant Zone" in the middle. This zone will transfer to the next stage of treatment.

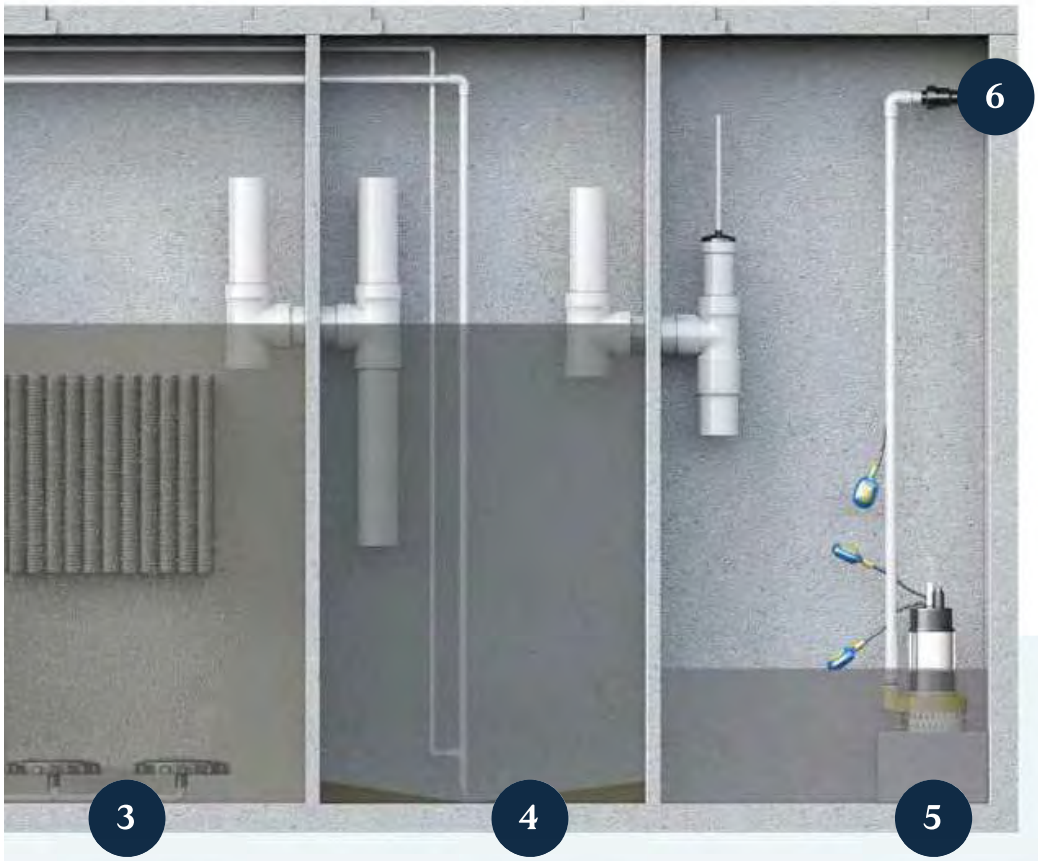
Watch our video to see it in action!

2



Secondary Chamber

Next is the 'Secondary Chamber'. Further settling happens here. Again, water from the middle flows onto the next stage, there is an additional "Bio-Mass" block in this chamber to assist with the separation of solids. In a traditional Septic System, this is where the journey would end and effluent would now be pumped onto your property and into our environment, relying on sand or soil to do the rest. With a Taylex Wastewater Treatment System, there are still four more steps to produce clean, clear, safe water for your yard.



Irrigation Pump

Lastly, when the Disinfection Chamber fills up, your dependable irrigation pump automatically switches on to send your water out to do its job in your yard. Crystal clear water irrigates your designated area and returns safely to nature, contributing to a healthy water cycle.



Aeration Chamber

The 'Aeration Chamber' is next up. This is where the magic happens. Your quiet, reliable, energy-efficient blower sends oxygen into the chamber in the form of tiny bubbles. These bubbles pass through a specially designed structure called "Bio-Mass". Bio Mass is purpose designed to trap the air bubbles to feed naturally occurring 'Aerobic bacteria'. These microscopic Eco-Warriors are now hard at work, chomping through most of the remaining organic matter, polishing the water, and eliminating odour.



Clarification Chamber

Step four is in the 'Clarification Chamber'. More settling occurs here. Once settled to the bottom, this potent mix of Aerobic bacteria and fine particle solids are recirculated to the Primary Chamber to keep it healthy and working hard (not smelly).



Disinfection Chamber

The final step in the treatment process is the 'Disinfection Chamber'. The water gets a 'kiss' goodbye from our Chlorinator which removes any harmful bacteria, viruses and pathogens, using less chlorine per litre than your average swimming pool.

Emergency Storage

Taylex systems have the largest emergency storage buffers currently available on the market. In cases where surge loading events can't be avoided (like thunderstorms and power outages) your family has up to 3.9 days of storage (assuming a 1500L daily flow). That's 1,963 toilet flushes or 13 hours of shower time!

Taylex 1500 ABS systems are designed to process and treat 1,500L of wastewater.
Average wastewater generated per day:

150L / ONE PERSON **600L / FAMILY OF FOUR**

	STANDARD	TALL 400	TALL 600	POLY
Emergency Buffer Zone	3,440L	5,182L	5,890L	1,541L
Days of Storage Based on 1500L/day	2.3	3.5	3.9	1
Toilet Flushes	1,146	1,727	1,963	347
Shower Time	7.6hr	11.5hr	13hr	2.3hr
Washing Loads	22.9	34.5	39.2	6.9

It is important to note that where possible, Surge loading your system should be avoided as it may impact the operational efficiency of your system.

Our Range of Invert Levels

A ratio of 1:60 Fall must be met when installing any wastewater system. Factors that affect choice of invert level include, but are not limited to, size of the house, topography of the block, preferred location of the system. A riser can be added to facilitate invert when required.



ABS STANDARD

Invert Height	670mm
Total Drainage Run	Determined by slope gradient
Depth In Ground	2,200mm
Emergency Storage	3,440Ltr (2.3 days)



ABS TALL 400

Invert Height	1,070mm
Total Drainage Run	Up to 22m
Depth In Ground	2,600mm
Emergency Storage	5,182L (3.5 days)



ABS TALL 600

Invert Height	1,270mm
Total Drainage Run	Up to 40m
Depth In Ground	2,800mm
Emergency Storage	5,890L (3.9 days)



ABS TALL & RISER

- Depth In Ground Invert Height = Base system dimensions + dimensions of the riser/s.
- Total Drainage Run: 35m+
- Risers have no effect on emergency storage.
- Risers available in 600 (781kg), 800 (1,040kg) and 1000mm (1,300kg).

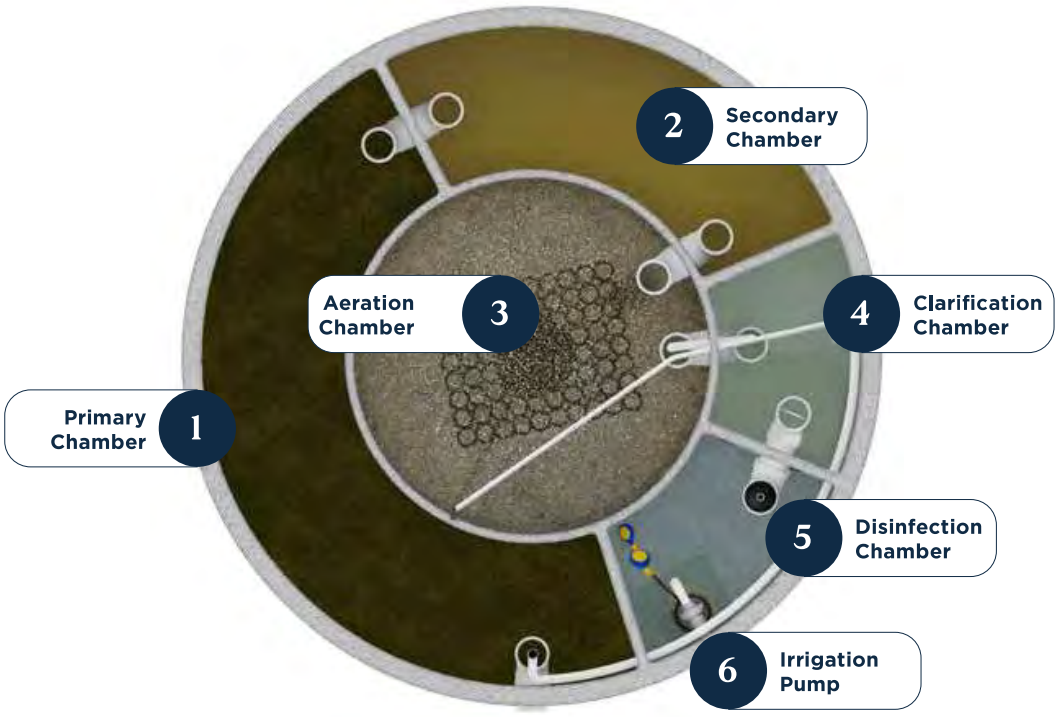


ABS POLY

Invert Height	500mm
Total Drainage Run	Determined by slope gradient
Depth In Ground	2,200mm
Emergency Storage	1,541 L (1 day)

ABS Advanced Secondary Treatment Systems up to 10EP

	ABS 1500 (10EP)		
TANK COMPLIANCE			
Tank Design & Testing (In Ground)	AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**		
	Required	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.5mg/l	99.59%
Total Suspended Solids (TSS)	<10mg/l	7.6mg/l	97.66%
E. Coli	<10cfu/100ml	1.4cfu/ml	99.99%
Total Nitrogen	N/A	N/A	N/A
Total Phosphorus	N/A	N/A	N/A
Free Available Chlorine (FAC)	N/A	1.05 mg/l	
Operating Temperature	Min. -2°C Max. 45°C		
TANK CAPACITY			
Poly	7,449L		
Concrete Standard	9,320L		
Concrete Tall 400	11,062L		
Concrete Tall 600	11,770L		
Operating Capacity	Concrete: 5,880L Poly: 5,908L		
EMERGENCY STORAGE			
Poly	1,541L		
Concrete Standard	3,440L		
Concrete Tall 400	5,182L		
Concrete Tall 600	5,890L		
Riser	No effect on emergency storage.		
SYSTEM CHAMBER CAPACITIES	**CONCRETE 1500**	**POLY 1500**	
Primary Chamber	1,684L	1,646L	
Secondary Chamber	842L	881L	
Aeration Chamber	2,071L	2,053L	
Clarifier Chamber	662L	663L	
Irrigation Chamber	621L	665L	
Maximum Hydraulic Loading Capacity	1,500L per day	1,500L per day	
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	1,500L/ 10EP	150L	
Maximum Organic Loading (BOD^5)	700g	70g	
Total Suspended Solids (TSS)	700g	70g	
Total Nitrogen (TN)	150g	15g	
Total Phosphorus(TP)	25g	2.5g	
ELECTRICITY CONSUMPTION			
Kilowatt hours per day (kWh/d)	2.21		
Kilowatt hours per 1000L (kWh/1000L)	1.62		
SERVICING AND MAINTENANCE			
Servicing Frequency	Every 3 months		



AUSTRALIAN STANDARD – AS1546.3:2017

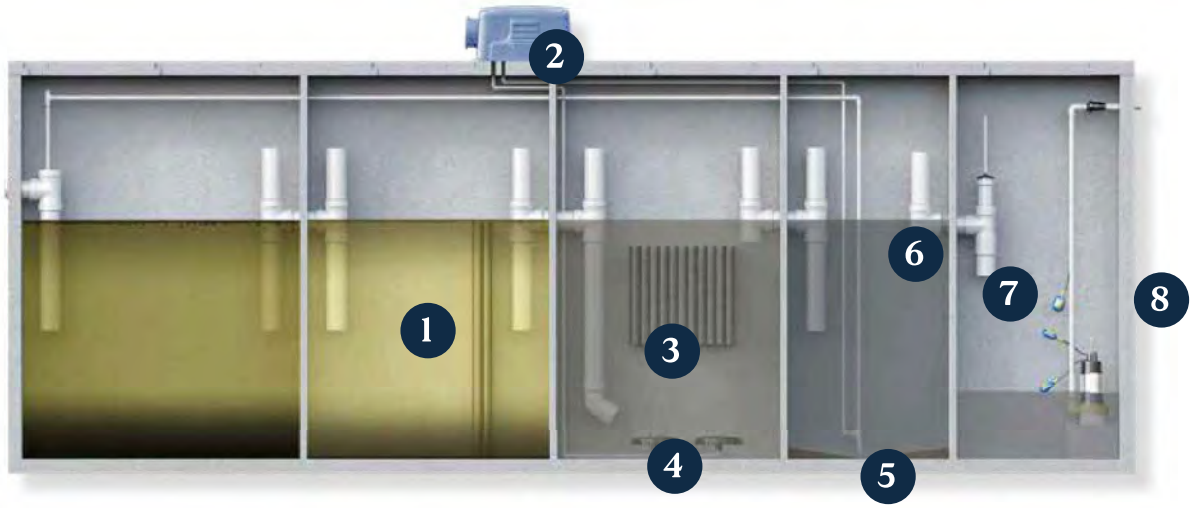
INFLUENT CRITERIA	**ASI546.3:2017** 42 Week Test*	**AS1546.3:2017** Required Average
BOD^5	150 – 750mg/l	≥300mg/l
TSS	150 – 750mg/l	≥300mg/l
Total Nitrogen	20 – 150mg/l	≥60mg/l
Total Phosphorus	6 – 25mg/l	≥8mg/l
EFFLUENT CRITERIA	**AS1546.3:2017** Advanced Secondary Quality Effluent	
	90% of Samples	**Maximum**
BOD^5	≤10mg/l	≤20mg/l
TSS	≤10mg/l	≤20mg/l
E.coli	<≤10cfu/100ml	<≤30cfu/100ml

*34 Weeks + 8 Weeks Commissioning

ABSNR Advanced Secondary Treatment Systems with % Nutrient Reductions

	ABS 1350 NR (9EP)			ABS 2000 NR (13EP)		
TANK COMPLIANCE						
Tank Design & Testing (In Ground)	AS1546.1:2008			AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001			AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**			**AS1546.3:2017**		
	Aust. Std	**Av. Results**	**% Reduction**	**Aust. Std**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.63 mg/l	99.50%	<10mg/l	2.59 mg/l	99.20%
Total Suspended Solids (TSS)	<10mg/l	4.29 mg/l	98.90%	<10mg/l	5.63 mg/l	98.56%
E. Coli	<10cfu/100ml	0.95 cfu/100ml	99.99%	<10cfu/100ml	0.80 cfu/100ml	99.99%
Total Nitrogen (TN)	N/A	23.30 mg/l	66.90%	N/A	31.94 mg/l	54.70%
Total Phosphorus (TP)	N/A	8.56 mg/l	26.46%	N/A	8.76 mg/l	24.74%
Free Available Chlorine (FAC)	N/A	1.05 mg/l		N/A	0.80 mg/l	
Combined Nutrient Reduction (TN + TP)	N/A	93.36%		N/A	79.44%	
Operating Temperature	Min. -2°C Max. 45°C			Min. -2°C Max. 45°C		
TANK CAPACITY						
Poly	7,449L			7,449L		
Concrete Standard	9,320L			9,320L		
Concrete Tall 400	11,062L			11,062L		
Concrete Tall 600	11,770L			11,770L		
Operating Capacity	Concrete: 5,880L Poly: 5,908L			Concrete: 5,880L Poly: 5,908L		
EMERGENCY STORAGE						
Poly	1,541L			1,541L		
Concrete Standard	3,440L			3,440L		
Concrete Tall 400	5,182L			5,182L		
Concrete Tall 600	5,890L			5,890L		
Riser	No effect on emergency storage.			No effect on emergency storage.		
SYSTEM CHAMBER CAPACITIES	**CONCRETE**	**POLY**		**CONCRETE**	**POLY**	
Primary Chamber	1,684L	1,646L		1,684L	1,646L	
Secondary Chamber	842L	881L		842L	881L	
Aeration Chamber	2,071L	2,053L		2,071L	2,053L	
Clarifier Chamber	662L	663L		662L	663L	
Irrigation Chamber	621L	665L		621L	665L	
Maximum Hydraulic Loading Capacity	1,350L per day	1,350L per day		2,000L per day	2,000L per day	
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**		**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	1,350L/ 9EP	150L		2,000L/ 13EP	150L	
Maximum Organic Loading (BOD^5)	630g	70g		910g	70g	
Total Suspended Solids (TSS)	630g	70g		910g	70g	
Total Nitrogen (TN)	135g	15g		195g	15g	
Total Phosphorus(TP)	22.5g	2.5g		32.5g	2.5g	
ELECTRICITY CONSUMPTION						
Kilowatt hours per day (kWh/d)	1.90			2.50		
Kilowatt hours per 1000L (kWh/1000L)	1.52			1.33		
SERVICING AND MAINTENANCE						
Servicing Frequency	Every 3 months			Every 3 months		

The New Taylex ABS Nutrient Reduction Systems.



New Developments in the Taylex ABS NR

1. Retention Bio Mass - Withholds excess solids, creating a clearer supernatant zone.
2. Larger 120L Blower - Allows for enhanced oxygenation of the aeration chamber.
3. Larger Aeration Bio Mass - Broader colony for Aerobic bacteria, amplifying digestion/treatment.
4. Dual-Disk Diffusers - Evenly disperses dissolved oxygen throughout the chamber.
5. Enhanced Sludge Recirculation - Removes fine particle solids from clarification chamber.
6. Taylex Filter Control (TFC) Patent Pending - Delivers a constant, stable flow to the irrigation chamber.
7. Precise Chlorination - Provides efficient disinfection and uses less chlorine per litre.

Importance of Nutrient Reduction

The ABS NR is tested to the Advanced Secondary Standard with a % Nutrient Reduction. Meaning that the treatment processes are more efficient in digesting and disposing of excess levels of potentially harmful elements, preventing them from entering and degrading the environment.

Nitrogen & Phosphorus are classified as Macronutrients and are key factors in plant growth and development. However, when excess levels of these nutrients (i.e. the levels found in wastewater) are added on top of what is naturally occurring it can put a substantial strain on the wider environment. Excess nutrients lead to stunted root/plant growth and in worst cases polluted groundwater and dead top soil.

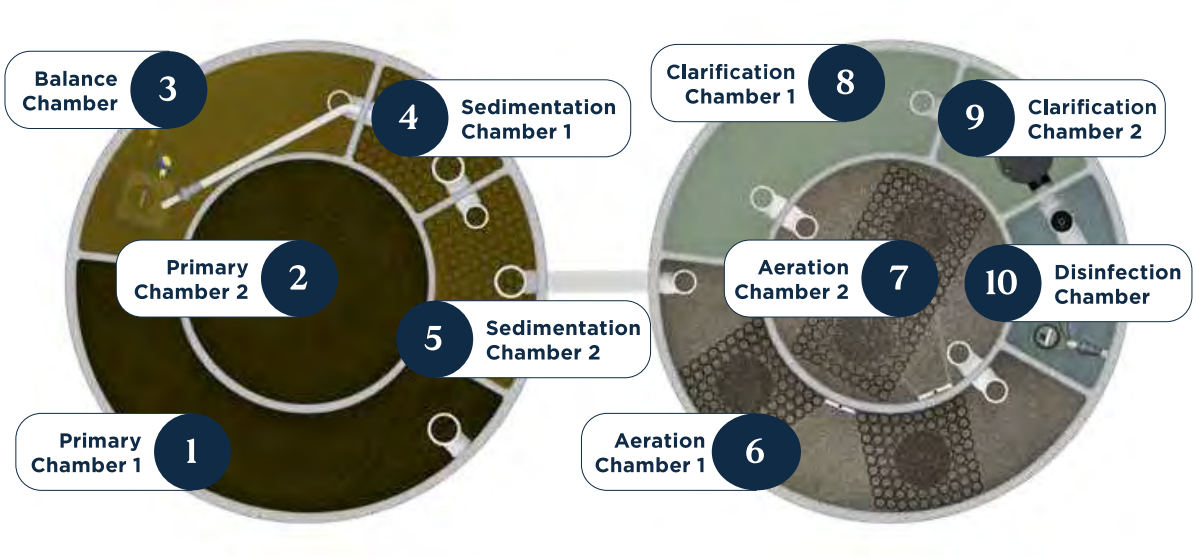
Because of our nutrient reduction, this environmental strain is significantly minimised. Additionally the Land application areas (LAAs) required for Taylex ABS NR systems are substantially reduced.



ABS Advanced Secondary Treatment Systems 10EP+

	ABS 4200 (28EP)			ABS 5000 (33EP)		
TANK COMPLIANCE						
Tank Design & Testing (In Ground)	AS1546.1:2008			AS1546.1:2008		
Tank Design & Testing (Above Ground)	AS3735:2001			AS3735:2001		
EFFLUENT COMPLIANCE	**AS1546.3:2017**			**AS1546.3:2017**		
	Required	**Av. Results**	**% Reduction**	**Required**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	<10mg/l	1.07mg/l	99.7%	<10mg/l	1.07mg/l	99.7%
Total Suspended Solids (TSS)	<10mg/l	4.41mg/l	98.7%	<10mg/l	6.12mg/l	98.12%
E. Coli		0.32cfu/100ml	99.99%		0.41cfu/100ml	99.99%
Total Nitrogen (TN)	N/A	38.54mg/l	45.35%	N/A	45.68mg/l	37.21%
Total Phosphorus (TP)	N/A	9.64mg/l	13.72%	N/A	9.21mg/l	15.27%
Operating Temperature	Min. -2°C Max. 45°C			Min. -2°C Max. 45°C		
TANK CAPACITY						
Total Tank Capacity	22,124L			22,124L		
Operating Capacity	14,451L			14,451L		
Emergency Storage	7,673L			7,673L		
SYSTEM CHAMBER CAPACITIES						
Primary Chamber	2,350L			2,350L		
Primary Chamber 2	2,280L			2,280L		
Balance Chamber	1,490L			1,490L		
Sedimentation Chamber 1	640L			640L		
Sedimentation Chamber 2	850L			850L		
Aeration Chamber 1	2,200L			2,200L		
Aeration Chamber 2	2,110L			2,110L		
Clarifier Chamber 1	1,340L			1,340L		
Clarifier Chamber 2	570L			570L		
Chlorination Pump Well	621L			621L		
Maximum Hydraulic Loading Capacity	4,200L per day			5,000 per day		
DESIGN PARAMETERS	**PER DAY**	**PER PERSON/PER DAY**		**PER DAY**	**PER PERSON/PER DAY**	
Daily Flow	4,200L/ 28EP	150L		5,000L/ 32EP	150L	
Maximum Organic Loading (BOD^5)	1,960g	70g		2,331g	70g	
Total Suspended Solids (TSS)	1,960g	70g		2,331g	70g	
Total Nitrogen (TN)	420g 100mg/l	15g		500g 100mg/l	15g	
Total Phosphorus(TP)	70g 100mg/l	2.5g		83g 100mg/l	2.5g	
ELECTRICITY CONSUMPTION						
Kilowatt hours per day (kWh/d)	5.16			6.16		
Kilowatt hours per 1000L (kWh/1000L)	1.35			1.36		
SERVICING AND MAINTENANCE						
Servicing Frequency	Every 3 months			Every 3 months		

The Taylex 4200/5000 system is a two tank, ten chamber system and is designed to treat wastewater from large domestic or suitable commercial dwellings up to 4200 or 5000 litres per day. Separating these processes into two tanks allows for more in-tank treatment time and produces effluent of a superior quality.



TANK 1

Tank 1 consists of two Primary Chambers (1), (2), a Balance Chamber (3) and two Sedimentation Chambers (4), (5). The main operational objective of this tank is to separate and refine wastewater to a degree that could not be achieved in a traditional one-tank system.

TANK 2

Tank 2 consists of two Aeration Chambers (6), (7), two Clarification Chambers (8), (9) and a Disinfection Chamber (10). The main operational objective of this tank is to polish and disinfect the wastewater. Most of the advanced treatment happens here and due to the size of this tank and the extended in-tank treatment time the wastewater will leave as clean, clear, environmentally safe water.

AUSTRALIAN STANDARD – AS1546.3:2017

INFLUENT CRITERIA	**ASI546.3:2017** 42 Week Test*	**AS1546.3:2017** Required Average
BOD^5	150 – 750mg/l	≥300mg/l
TSS	150 – 750mg/l	≥300mg/l
Total Nitrogen	20 – 150mg/l	≥60mg/l
Total Phosphorus	6 – 25mg/l	≥8mg/l
EFFLUENT CRITERIA	**AS1546.3:2017** Advanced Secondary Quality Effluent	
	90% of Samples	**Maximum**
BOD^5	≤10mg/l	≤20mg/l
TSS	≤10mg/l	≤20mg/l
E.coli	<≤10cfu/100ml	<≤30cfu/100ml

*34 Weeks + 8 Weeks Commissioning

Summary of Advanced Secondary Results

	ABS 1500 (10EP)		ABSNR 1350 (9EP)		ABSNR 2000 (13EP)	
EFFLUENT COMPLIANCE	**AS1546.3:2017**		**AS1546.3:2017**		**AS1546.3:2017**	
	Av. Results	**% Reduction**	**Av. Results**	**% Reduction**	**Av. Results**	**% Reduction**
Biochemical Oxygen Demand (BOD^5)	1.5 mg/l	99.59%	1.63mg/l	99.50%	2.59mg/l	99.20%
Total Suspended Solids (TSS)	7.6 mg/l	97.66%	4.29mg/l	98.90%	5.63mg/l	98.56%
E. Coli	1.4 cfu/ml	99.99%	0.95cfu/100ml	99.99%	0.80cfu/100ml	99.99%
Total Nitrogen (TN)	66 mg/l	11%	23.30mg/l	66.90%	31.94mg/l	54.70%
Total Phosphorus (TP)	10.19 mg/l	17.83%	8.56mg/l	26.46%	8.76mg/l	24.74%
Free Available Chlorine (FAC)	1.05 mg/l		1.05mg/l		0.80mg/l	
Servicing Frequency	Every 3 months		Every 3 months		Every 3 months	

Certificate of Compliance

	ABS 1500 (10EP)	ABS 1350 NR (9EP)	ABS 2000 NR (13EP)	ABS4200	ABS5000
Concrete	40/22	4382-3039-01	4384-3039-01	40/26	40/24
Poly	40/22	4386-3039-01	4388-3039-01	N/A	N/A

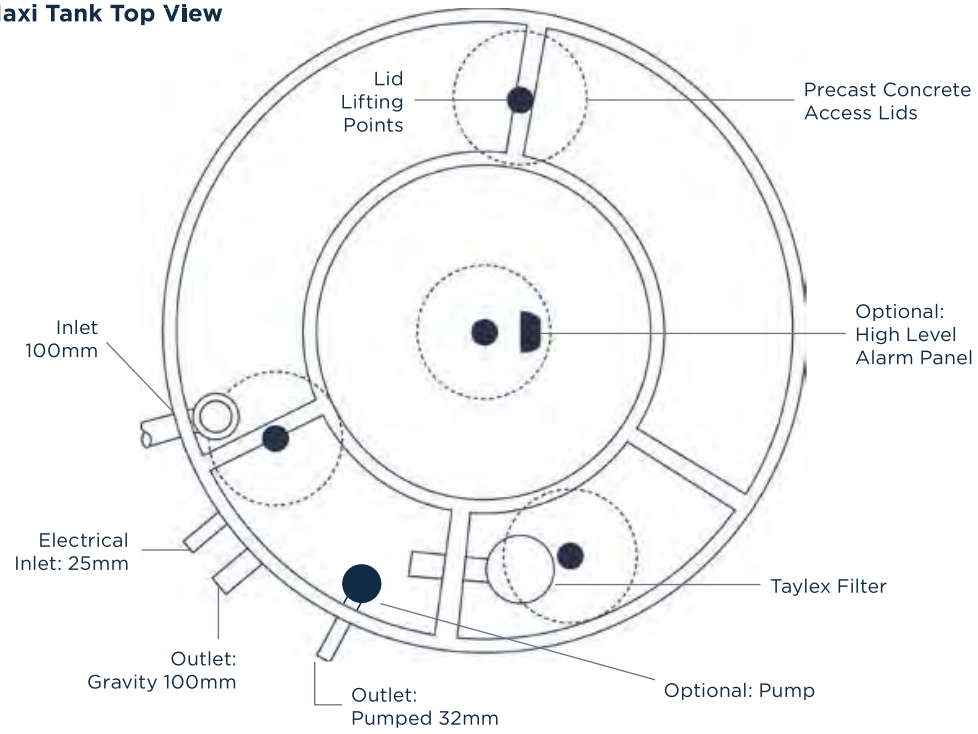
State Approvals

System	Operating Capacity	QLD	NSW	VIC	TAS	SA	WA	NT
ABS 1500	1500	18/2020-01	STS-AWTS049	40/22	DOC/20/89089	WWP-20069	F-AA-51817	2020/3459EH
PABS 1500	1500	18/2020-01	STS-AWTS050	40/22	DOC/20/89089	WWP-20068	F-AA-51817	2020/3459EH
ABS 1350 NR	1350	02/2023	STS-AWTS067	4382-3039-01	DOC/22/109242	WWP-20132	F-AA-51817	2023/4917EH
PABS 1350 NR	1350	06/2023	STS-AWTS068	4386-3039-01	DOC/22/109242	WWP-20132	F-AA-51817	2023/4917EH
ABS 2000 NR	2000	04/2023	STS-AWTS069	4384-3039-01	DOC/22/109449	WWP-20134	F-AA-51817	2023/4918EH
PABS 2000 NR	2000	08/2023	STS-AWTS070	4388-3039-01	DOC/22/109449	WWP-20134	F-AA-51817	2023/4918EH
ABS4200	4200	24/2021	40/26	40/26	N/A	WWP-20113	N/A	N/A
ABS5000	5000	N/A	40/24	40/24	DOC/22/102412	WWP-20082	F-AA-51817	2022/4255EH

Maxi Septic System

MAXI SEPTIC	CONCRETE	POLY
Height	2300mm	2500mm
Inlet Invert (from Base)	1530mm & 1830mm	1770mm
Tank Diameter	2440mm	2400mm x 2530mm
Operating Capacity	6300L	6066L
Maximum Dry Weight	6.1 T A concrete 'Tall' tank is also available.	450kg Allow 600kg as all tanks are water tested.

Maxi Tank Top View



Every Taylex Maxi Tank is covered by a full manufacturer warranty. There is a 15-year warranty on the pre-cast concrete and a one-year warranty* on all electrical and mechanical components. Warranty applies from the date of commissioning or 90 days from the date of purchase (whichever is sooner).

*12-months standard warranty on electrical components (pump + controller where fitted)

Servicing

Twelve months servicing is packaged with every Taylex wastewater system.

All home sewerage treatment systems are required to be serviced quarterly. Your local council will enforce these requirements. Systems may only be serviced by licensed wastewater service personnel. Contact your local accredited Taylex service agent or contact Taylex directly with any questions or enquiries about servicing your Taylex systems.



Servicing straight from the manufacturer

Fully licensed factory trained service technicians.



Discounted spare parts

Provide spare parts to current contract holders at a discounted rate.



Discounted call-outs

Prioritised and discounted emergency call-outs. After hours emergency phone support.



Fast 24hr response time

Technicians dedicated to your local area with a 24hr response time.



Friendly service and advice

Pre property purchase service and advice.



Council Requirements

We send your service reports to your local council on your behalf and ensure that all council reporting requirements are met.

Warranty

Every Taylex Wastewater Treatment System is covered by a full manufacturer's warranty.

There is a 15 year warranty* on all ABS concrete & Poly systems. There is also a three year* warranty on all electrical and mechanical components, including the irrigation pump (a 12 month standard warranty and a further 24 months extended warranty is available when you purchase your 2nd and 3rd year of service calls with a Taylex Accredited Service Agent). Warranties apply from the date of commissioning or 90 days from the date of purchase (which-ever is sooner).

To ensure your warranty is valid, the following should be observed:

- **DO NOT** use system or allow wastewater to enter tanks before power services are available to the System and a Taylex Authorised specialist has been notified of pending occupancy of the property and has subsequently commissioned (activated) the system.
- **DO NOT** cover lids with soil.
- **DO NOT** position decking, concrete paths or driveways over System DO NOT allow surface water to enter the System by incorrect falls and landscaping around the system.
- **NEVER** turn the power off unless instructed to do so by your Service Agent.

This guarantee does not cover damage caused by misuse, neglect, failure to keep the unit clean and functional, accident, use of incorrect power supply, or repair or attempts to repair by unauthorised personnel. The benefits conferred by this warranty are in addition to all other rights and remedies in respect of the product which the consumer has under Australian Consumer Law.

*Terms and Conditions apply.

Taylex Warranty Statement


Taylex
WASTEWATER





Head Office
Taylex Australia Pty Ltd
56 Prairie Rd, Ormeau QLD 4208
ABN 43 646 051 989

Phone
07 3441 5200

TAYLEX.COM.AU



June 2026

Final

Lot 83 Cheriton Road, Ginginup

A development by CLAYMONT
COMMITTED TO BUILDING EXCELLENCE

Prepared For:

Claymont

Transport Impact Statement

Report

COUNTRY HEIGHTS
GINGIN

T: +61 8 9274 7076
F: +61 8 9274 4854
E: Admin@dvcworld.com

6 Burgess St Midland WA 6056
PO Box 5060 Midland WA 6056
www.dvcworld.com

Client: Claymont
Project: Lot 83 Cheriton Road, Ginginup, TIS

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1	0	30/06/2026	Final Report	SZ/SGY	SGY	SGY

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Donald Veal Consultants Pty Ltd

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1. INTRODUCTION

1.1 BACKGROUND

Claymont has commissioned Donald Veal Consultants (DVC) to prepare this Transport Impact Statement (TIS) report in support of a subdivision application for Lot 83, Cheriton Road, Ginginup. The subdivision proposal is to provide 136 residential lots.

1.2 SCOPE OF THIS REPORT

The structure and scope of this Transport Statement are in accordance with Volume 3 (Subdivision Developments) of the Western Australian Planning Commission's Transport Impact Assessment Guidelines (2016).

The proposed land use is for residential lots. The proposed development is expected to between 10 and 100 trips in the peak hour. This is considered to constitute a moderate impact. Accordingly, only a brief non-technical Transport Impact Statement is required.

2. EXISTING SITE CONDITIONS

2.1 LOCATION

The development site is located on the eastern side of Cheriton Road in Ginginup, some 8km to the north of Gingin, in the Shire of Gingin. The general locality is shown in **Figure 2.1**, with more detail in **Figure 2.2**.



Figure 2.1: General Locality Map *Source: Google Earth*

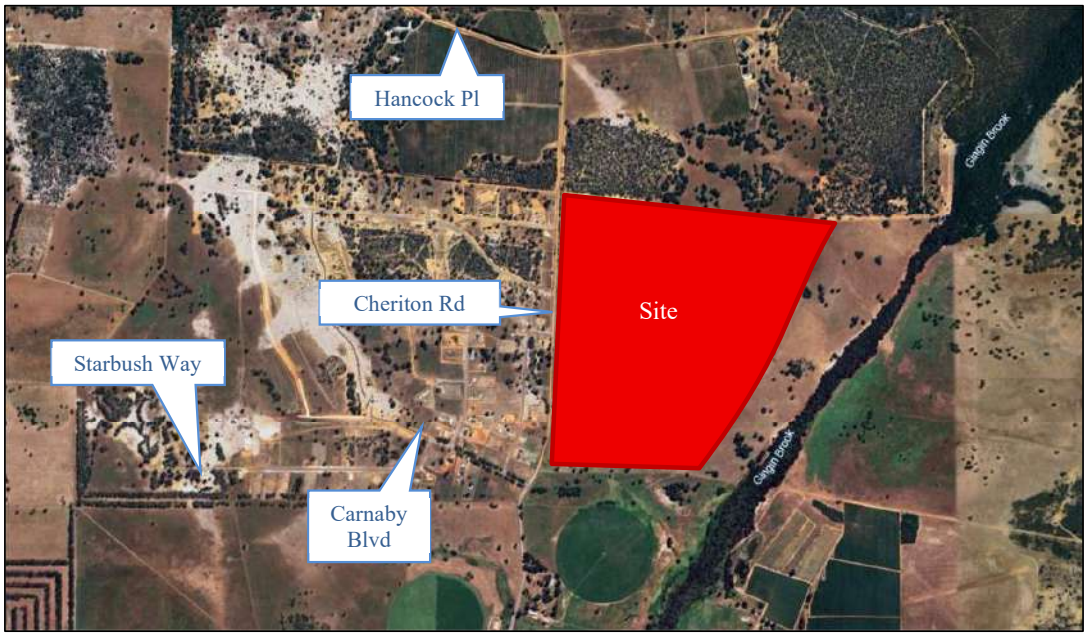


Figure 2.2: General Locality Plan *Source: Google Earth*

2.2 CURRENT LAND USES

The subject site is currently vacant and undeveloped, as shown in **Photo 1**.



Photo 1: The Site is currently vacant *Source: Google Street View*

According to the Shire of Gingin Local Planning Strategy map, the Site is currently zoned Rural residential. See **Figure 2.3**.

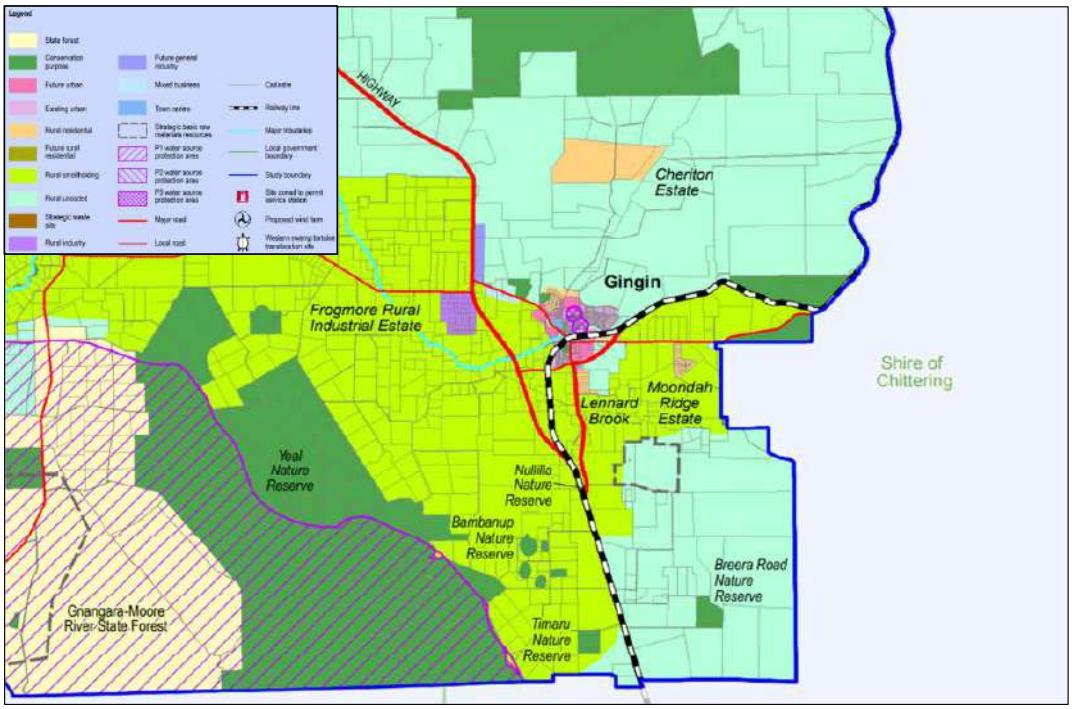


Figure 2.3: Land use Map *Source: Shire of Gingin Local Planning Strategy*

2.3 ADJCACENT ROAD NETWORK

The existing road network surrounding the site consists mainly of Cheriton Road and Hancock Place, however, a number of new roads have been constructed within the sub-division to the west of the site, including Starbush Way, Daviesia Fairway and Carnaby Boulevard.

These roads are all classified as Access Roads under Main Roads WA's (MRWA) Functional Road Hierarchy.

See **Figure 2.4.**

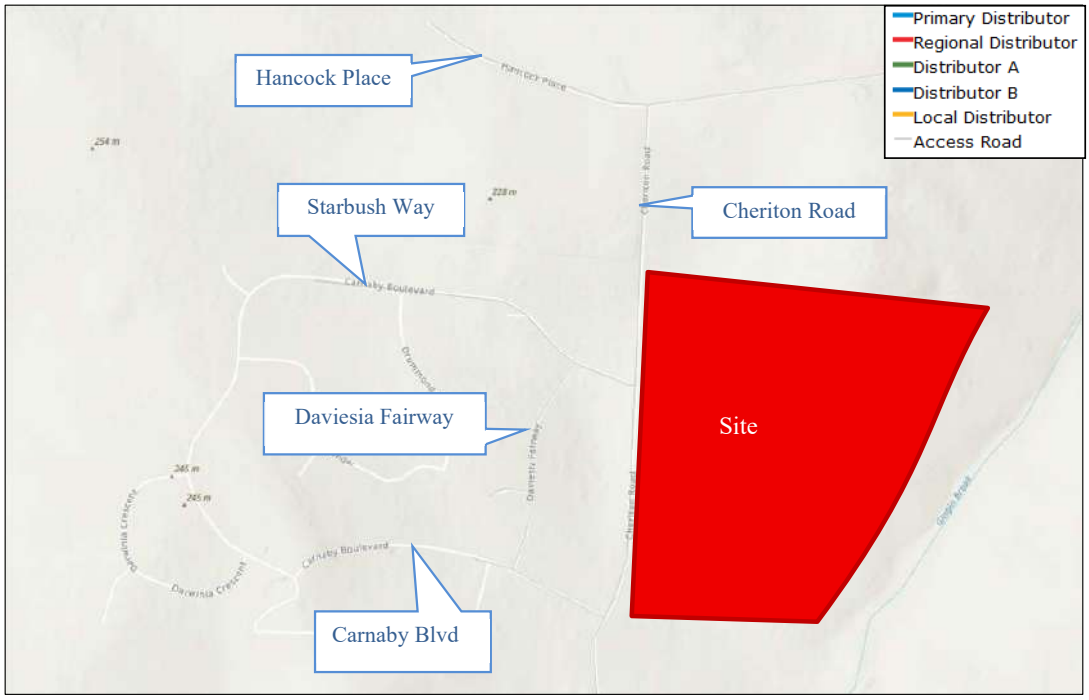


Figure 2.4: MRWA Functional Road Hierarchy *Source: MRWA*

Cheriton Road has recently been sealed along the site's western frontage, as part of the adjacent subdivision works. See **Photo 2**.



Photo 2: Cheriton Road looking north from Starbush intersection *Source: WML*

Whilst MRWA's Road information Mapping database shows that it has a speed limit of 80km/h, reducing to 50km/h approximately midway along the site frontage, it is understood that Cheriton Road is now posted at 80km/h past the site, with some sub-standard curves further south having advisory speed limits of 50.

All other roads in this vicinity have a posted speed limit of 50 km/h. See **Figure 2.5**.

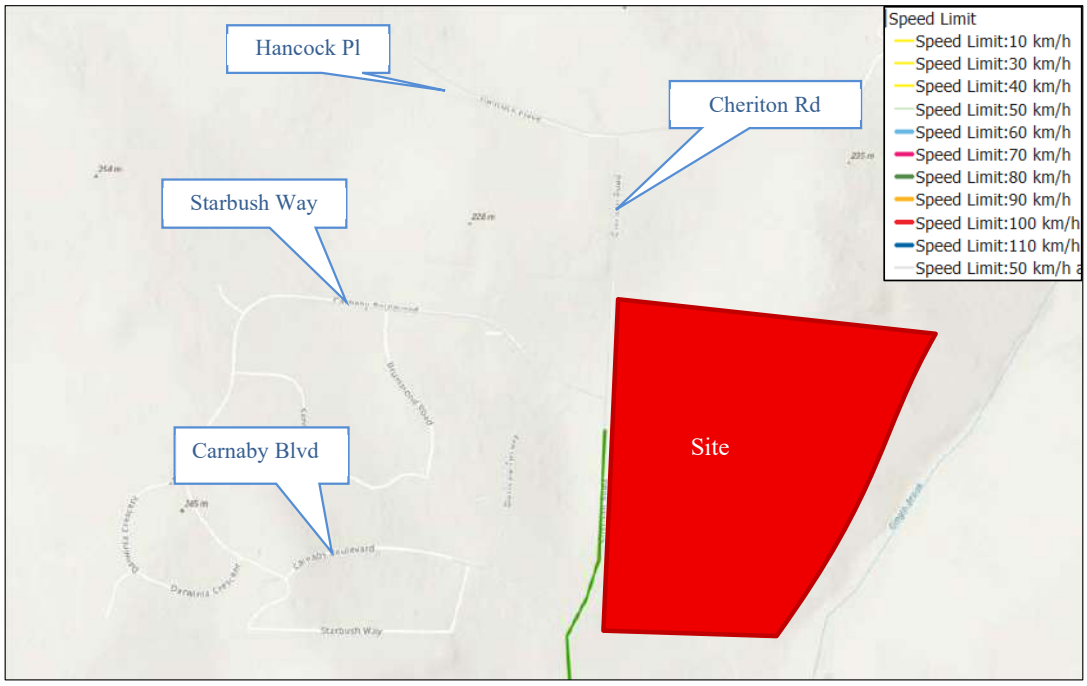


Figure 2.5: Posted Speed limits *Source: MRWA*

2.4 EXISTING TRAFFIC VOLUMES

MRWA's Traffic Map data base was checked for any recent traffic counts in the vicinity of the site, but no data was available. However, traffic volumes are expected to be low, typically less than 1,000 vehicle movements per day (vpd).

2.5 CRASH HISTORY

The MRWA Crash Analysis Reporting System (CARS) was interrogated for crash data within the blue area shown in **Figure 2.6**, for the latest five-year period from January 2021 to December 2025.

Two crashes were recorded on Cheriton Road during this time. One resulted in major property damage only, while the other required medical assistance. One of these crashes involved a kangaroo, whilst the other was a parking related incident.

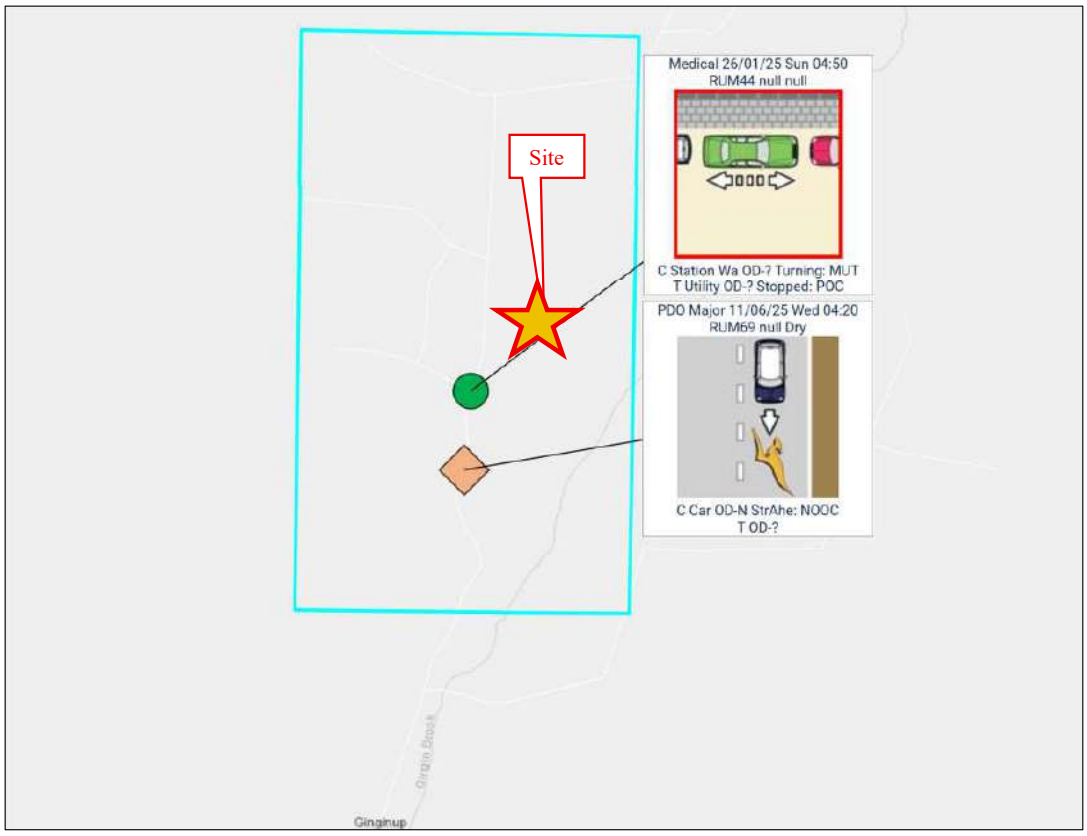


Figure 2.6: Crash Diagram for Area surrounding the Intersection *Source: CrashMaps*

2.6 PLANNED CHANGES TO THE ROAD NETWORK

DVC is unaware of any planned changes to the road network in the immediate vicinity of the site.

3. PROPOSAL

3.1 PROPOSED DEVELOPMENT

The subdivision proposal is to provide 136 residential lots on a 161.118 Ha Site, with each lot being above 1 Ha in size. **Figure 3.1** shows the latest concept layout plan. Further plans are included in **Appendix A**.

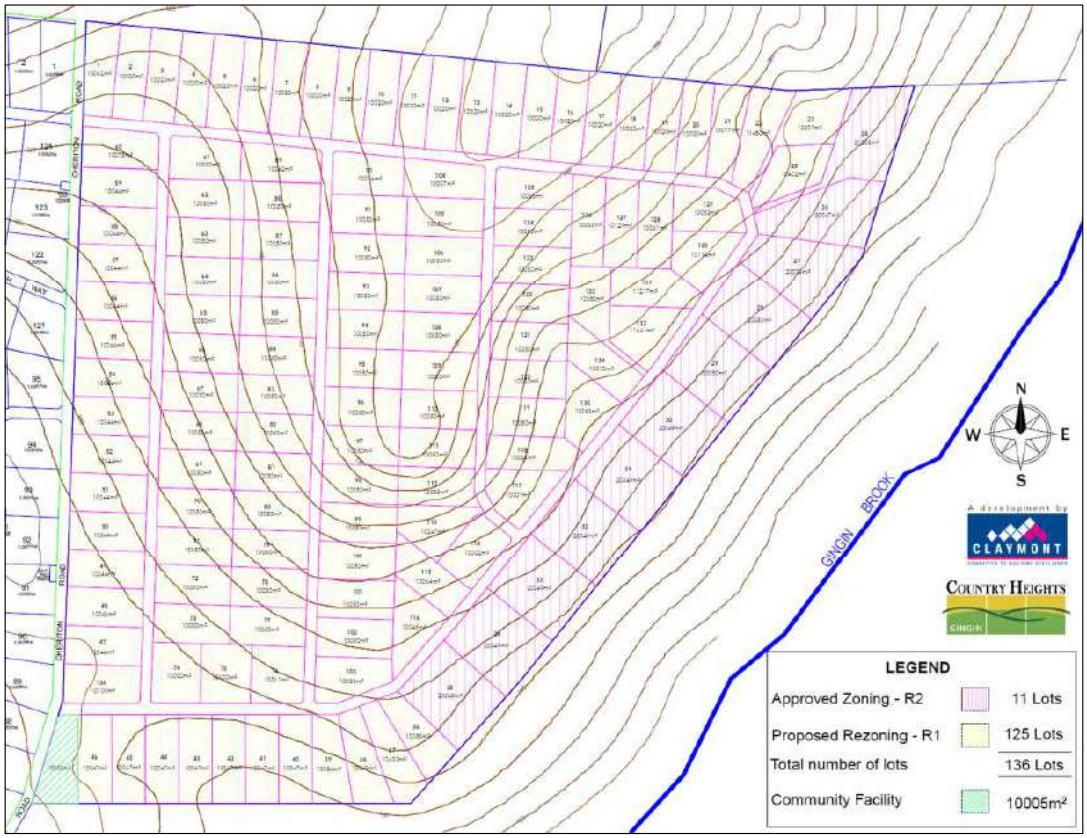


Figure 3.1: Site Concept Plan *Source: Claymont*

3.2 ACCESS ARRANGEMENTS

The internal road network of the subdivision will connect to Cheriton Road in two locations. As per the above concept plan, one of these will be located towards the northern end of the site and the other near the southern boundary.

It is noted that the northern access point will form a four-way intersection with Aquilo Road.

4. TRAFFIC IMPACT

4.1 TRIP GENERATION

RTA's Guide to Traffic Generating Developments provides a standard trip generation rate for residential developments of 9 daily vehicle trips per dwelling, with around 0.8 trips per dwelling in each weekday peak hour.

However, given the rural location, and based on DVC's previous experience of similar developments, it is considered unlikely that the lots would generate this number of daily trips. In our experience the likely trip generation would be in the region of 5 to 6 daily trips, with a peak hour rate of around 0.6.

This would indicate that the development might generate around 816 trips daily, including some 82 trips in the peak hour.

4.2 TRIP DISTRIBUTION

During the morning peak typically 75% of movements would be expected to exit the site and 25% to enter the site. This might reasonably be expected to be reversed for the afternoon peak period. See **Table 4.1**.

Table 4.1: Peak hour Trip Generation

Peak period	No. of Lots	Trip rate		Peak hour trips		Total
		Inbound	Outbound	Inbound	Outbound	trips
AM	136	0.15	0.45	20	62	82
PM	136	0.45	0.15	62	20	82

The Gingin townsite lies 8km to the south of the development, and offers a high school, Grocery stores, and other commercial businesses. It would therefore be expected that the majority of trips would be undertaken to and from the south.

4.3 SERVICE VEHICLES

The main service vehicle trips to be generated by the development will be refuse collection trucks, which are expected to service general waste and recycling bins from the verge.

4.4 ROAD SAFETY

No significant road safety issues have been identified in the proposed concept plan. However, care should be taken with the design and layout of the proposed four-way intersection on Cheriton Road, at the northern crossover to the site.

5. SUSTAINABLE TRANSPORT

5.1 PEDESTRIANS AND CYCLISTS

There are no cyclist or pedestrian facilities on Cheriton Road. See **Photo 3**.



Photo 3: Cheriton Road *Source: Google Street View*

However, it is not expected that the development would generate any pedestrian or cyclist trips in this area.

Again, the concept layout does not appear to show any cycle lanes or footpaths on the internal road network.

5.2 PUBLIC TRANSPORT

Currently, there are no public transport services operating within the vicinity of the site. However, there is a Trans WA service from Perth to Geraldton, which goes through the Gingin townsite, some 8 km to the south.

There is also a school bus service, again connecting to Gingin.

6. SUMMARY AND RECOMMENDATION

6.1 SUMMARY

Claymont has commissioned Donald Veal Consultants (DVC) to prepare this Transport Impact Statement report in support of a subdivision application for a future rural residential development at Lot 83 Cheriton Road, Ginginup. The subdivision proposal is to provide 136 residential lots.

The site is expected to generate some 816 vehicle per day (vpd) on weekdays and 82 vehicles per hour (vph) in the peak hour. The forecast peak hour traffic generation is within the 10 to 100 peak hour trip range generally identified for moderate impact developments under the WAPC Transport Impact Assessment Guidelines; hence no further analysis is required.

No specific road safety issues have been identified from the proposed subdivision concept, other than the proposed four-way intersection with Cheriton Road, at the northern site access. Care should be exercised with the design and layout of this intersection.

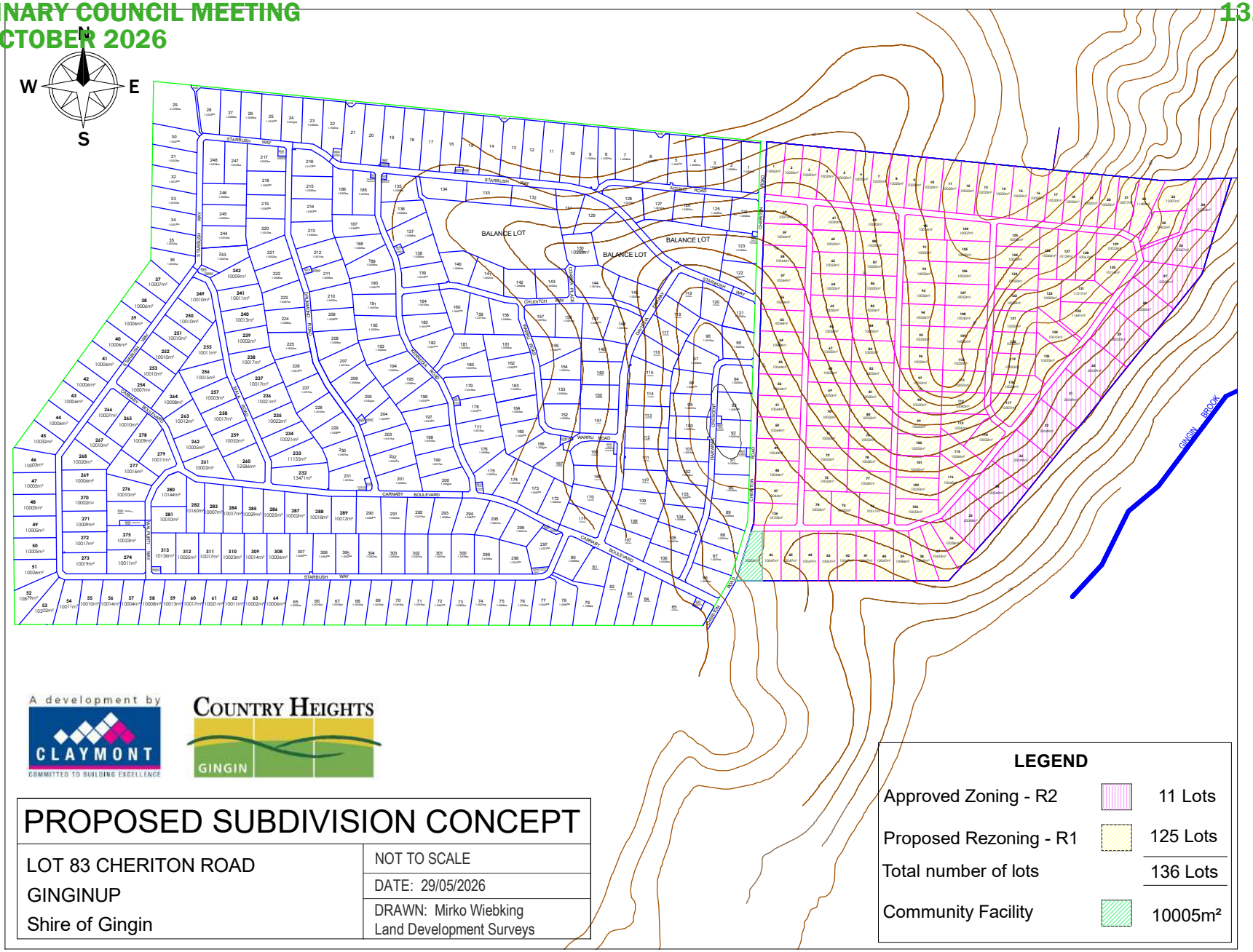
Service vehicle trips will primarily consist of weekly and fortnightly refuse collection.

Currently, there are no public transport services operating within the vicinity of the site. However, there is a Trans WA service from Perth to Geraldton, which runs through the Gingin townsite, some 8 km to the south, as well as a school bus service.

6.2 RECOMMENDATIONS

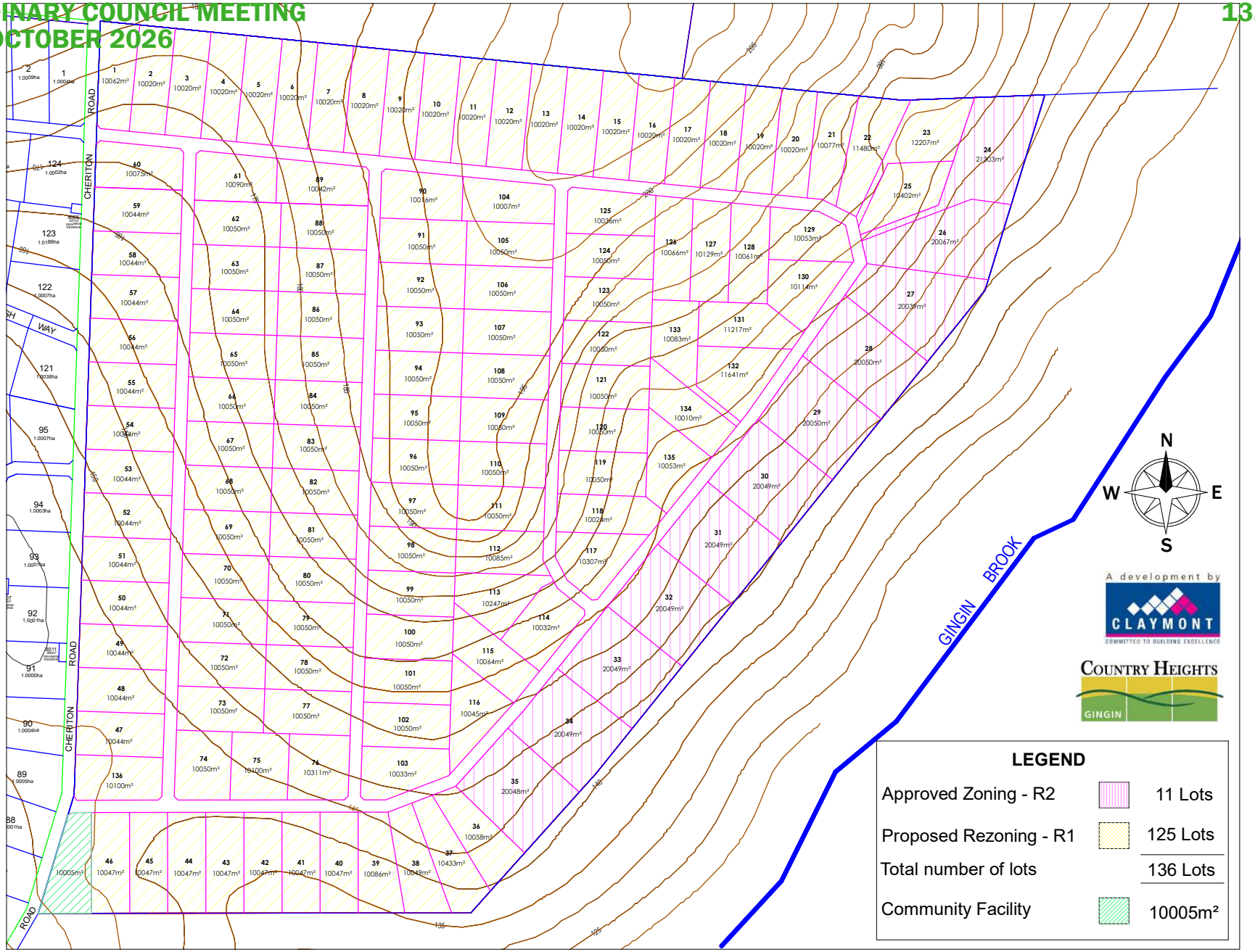
Based on this report we fully support the development application in terms of its traffic and road safety impact and recommend its approval.

APPENDIX A: CONCEPT PLANS



PROPOSED SUBDIVISION CONCEPT

LOT 83 CHERITON ROAD GINGINUP Shire of Gingin	NOT TO SCALE DATE: 29/05/2026 DRAWN: Mirko Wiebking Land Development Surveys


CHERITON ROAD
GINGIN BROOK
N
W
E
S
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2 11 Lots
Proposed Rezoning - R1 125 Lots
Total number of lots 136 Lots
Community Facility 10005m²

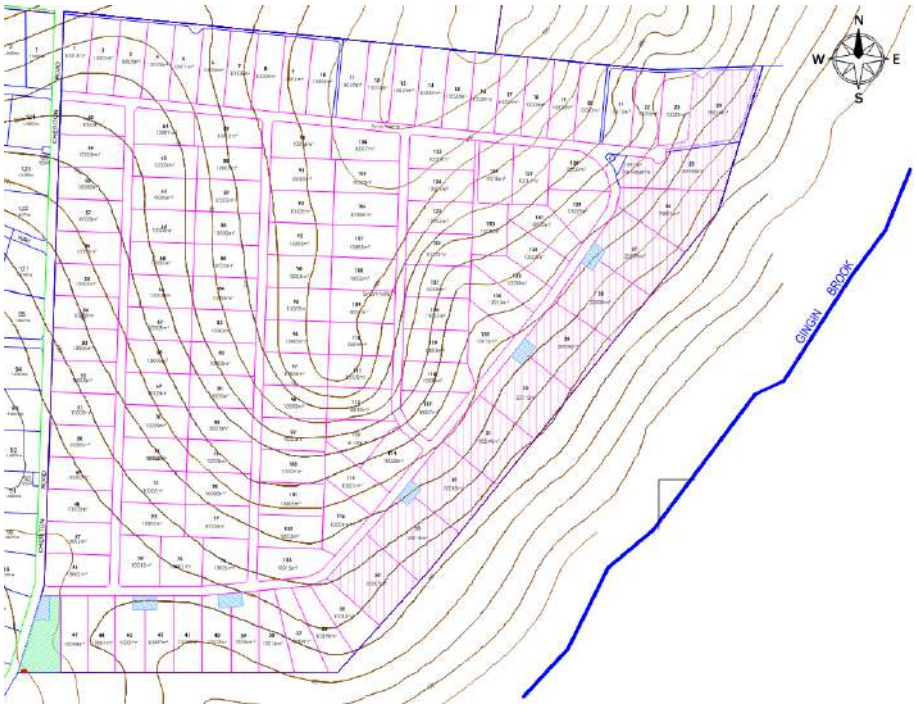
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ABN: 63 613 953 772
2 Draper Place, Kewdale, WA 6105
admin@engenuityengineering.com.au
www.engenuityengineering.com.au

CLIENT:	**Claymont Group Pty Ltd**
ADDRESS:	Level 1, 189 St Georges Terrace, Perth WA 6000
DATE:	29 July 2026
JOB NUMBER:	12079
REF:	12079-Country Height Estate 2_Cheriton Road, Ginginup, WA-RPT01

URBAN WATER MANAGEMENT PLAN

RE: Country Height Estate 2_Cheriton Road, Ginginup, WA



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ENGenuity Engineering PTY LTD

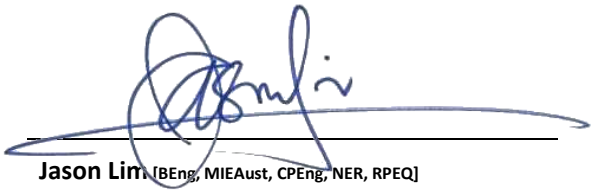
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2	29/07/2026	Blake Miles	Jason Lim	Final Issue

This document is certified by:



Jason Lim [BEng, MIEAust, CPEng, NER, RPEQ]

Commercial and Civil Engineering Manager
ENGenuity Engineering PTY LTD

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PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

BUNBURY OFFICE
73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599

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1.0 SUMMARY

ENGenuity Engineering has been engaged by our client, Claymont Group Pty Ltd, to prepare an Urban Water Management Plan for the proposed Country Heights Estate Stage 2 rural residential development at Lot 83 Cheriton Road, Ginginup WA. The proposed development comprises the subdivision of the approximately 162-hectare site into 136 rural residential lots, including 125 lots proposed to be re-zoned to the Rural Living 1 zone to facilitate a minimum lot area of 1Ha, and 11 lots to remain under the current zoning, Rural living 2, and maintain a 2Ha minimum lot size. The proposed development includes a 1 Ha lot to be dedicated to council as a community facility site, and associated internal roads corridors providing access, drainage infrastructure and service corridors to service the proposed subdivision.

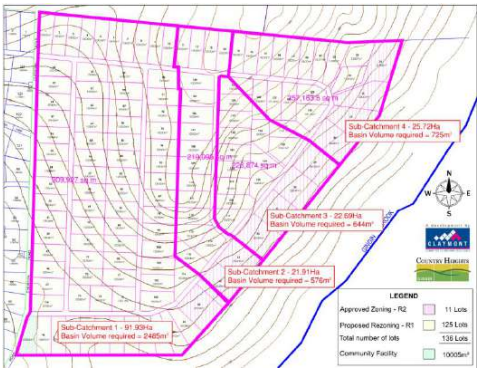
The key elements of the drainage design have been summarised in the below table.

Table 1-1 KEY ELEMENTS OF THE DESIGN

Key Elements	Proposed Solution
Management of Groundwater Quantity	Geotechnical investigation of the site confirms that the soil conditions are suitable for infiltration with a median permeability recorded at 7.3m/Day. On this basis, it is proposed that stormwater flows are returned to the groundwater network by a combination of lot based soakwells, roadside swales and drainage infiltration basins designed to offset the increased runoff from the site to match the predevelopment conditions. Groundwater recharge is of particular importance for the site as the development will be utilising groundwater extraction from the Gingin – Perth – Leerderville – Parmelia Confined Aquifer for potable water supply.
Management of Minor storm flows	Minor storm Flows (1 year and 5 year ARI events) are proposed to be managed by infiltration via lot based soakwells (to be conditioned on future individual lot building approvals), and infiltration via roadside swales. Given the median soil permeability of 7.3m/day, the travel time in the roadside swales is considered sufficient to infiltrate the stormflows up to and including the 5 year ARI event.
Management of Major Storm Flows	Major storm Flows (100-year ARI event) are proposed to be managed by infiltration via drainage infiltration basins positioned within the sub catchment areas of the proposed development. Given that the 5-year ARI event is being captured and infiltrated within the roadside swales, drainage infiltration basins have been sized to contain the increase in runoff volume expected between the pre- and post-development 100-year storm events, minus the 5-year storm event volume. The 4 sub-catchment areas and proposed Infiltration Basin Volumes are detailed below in Figure 1-2.

PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

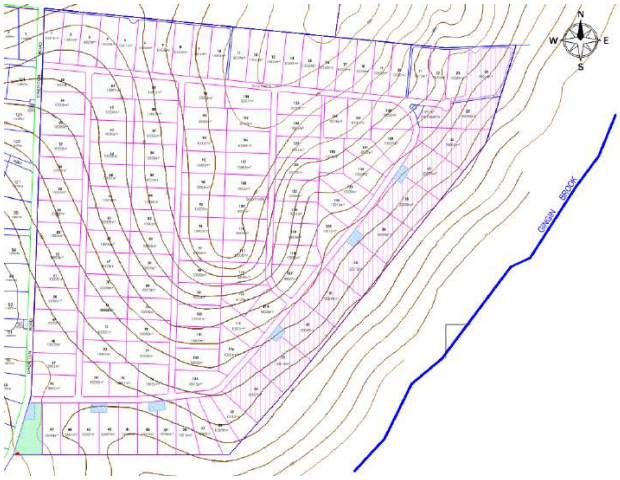
BUNBURY OFFICE
73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599

	Figure 1-1 SUB-CATCHMENT INFILTRATION BASIN VOLUMES  Rational Method Calculations of the expected pre and post-development flow rates can be seen in Section 6.1.
Management of Stormwater Quality	Stormwater Quality is proposed to be managed by bio-retention vegetation planted within the proposed roadside swales and infiltration basin. The vegetation will include native reeds and sedges to aid in the mechanical and chemical treatment of stormwater flows lessening sediments, gross pollutants and nutrients leaching into the groundwater system. In addition to the vegetation within the stormwater network providing bio-retention treatment, it is proposed that additional soil testing be undertaken during the detailed design phase of the development to investigate the potential benefit of soil replacement within areas of the roadside swales, with a sandy-loam material with an elevated Phosphorus Retention Index (PRI). This is to be considered in areas of extremely high permeability where PRI may be low, and the absorptive capacity of the soils during infiltration is limited.
Implementation and Monitoring	An Implementation plan has been detailed for the project as detailed in Section 8.6. A Monitoring Plan has been details for the project as detailed in Section 8.7.

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2.0 PLANNING APPROVAL

Table 2-1 PLANNING APPROVAL

Planning Approval Elements	
Site Address	Lot 83 Cheriton Road, Ginginup WA
WAPC subdivision application or approval	WAPC Number Pending
Surrounding approvals	Surrounding approvals include the previous stage of the Country Heights Estate Subdivision (west side of Cheriton Road) under WAPC No. 153068
Location Plan	The site is located approximately 7.5km North of the Shire of Gingin Council Chambers. *Figure 2-1 SITE LOCATION* 
Proposed Subdivision design	The proposed 136 rural residential lot subdivision is shown below. It is proposed that 6 infiltration basins will receive flows from the roadside swale network and be located in the southernmost lots as shown below. *Figure 2-2 PROPOSED SUBDIVISION PLAN* 

3.0 DESIGN OBJECTIVES

The following issues concerning stormwater quantity and quality will be addressed within this report:

- Identify the location of the lawful discharge point(s) of discharge.
- Prepare a concept stormwater layout for the proposed development.
- Review the pre and post developed Stormwater Quantity flow rates and if required, develop a suitable stormwater detention/infiltration design to mitigate additional flows impacting downstream neighbours or council owned infrastructure.
- Address a Stormwater Quality Plan for the proposed development.

The following site-specific supporting information has informed the UWMP:

• Proposed Subdivision Layout Plan prepared for Country Heights Estate 2 (Appendix A)

• Geotechnical Investigation prepared by Structure Consulting dated 9 October 2025 (Appendix D)

Further, the design has been guided by the following guidelines:

• Better Urban Water Management (WAPC, 2008);

• Stormwater Management Manual for Western Australia (DoW, 2004 – 2007).

• Australian Rainfall and Runoff: A Guide to Flood Estimation (Geoscience Australia, 2016)

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4.0 SITE CHARACTERISTICS

4.1 LOCATION AND SITE TOPOGRAPHY

The proposed development site is located approximately 7.5 km north of the Gingin town center and approximately 74.5 km north of the Perth Central Business District. The site address is Lot 83 Cheriton Road, Ginginup WA and is situated within the Shire of Gingin. The site is bordered by Cheriton Road to the west, and rural farmland to the north, east and south, with Gingin Brook located approximately 300m from the site's eastern boundary.

The topography of the site in its current state is undulating, with the land generally falling away from a central crest line that peaks towards the northern portion of the site. Ground-surface levels across the site range from approximately RL210m at the center of the northern boundary to RL135-144m along the southern boundary. Existing surface runoff follows the natural topography, all flows are directed towards the south-east, with concentrated flow occurring through localized low points towards Gingin Brook. The western portion of the crest locally overland flows to the southwest before turning east and ultimately also contributes to Gingin brook. The total site area is approximately 162 hectares.

It is understood that the historic uses of the site and surrounding land was primarily cattle and livestock grazing/farming.

Figure 4-1 AERIAL PHOTOGRAPH



4.2 LAWFUL POINT OF DISCHARGE

Based on the available site contour, stormwater runoff from the site discharges along the eastern and southern site boundaries generally as overland sheet flow.

Figure 4-2 EXISTING FLOW PATHS



4.3 GEOTECHNICAL CONDITIONS

A geotechnical investigation of Lot 83 was undertaken by Structerre Consulting in September 2025 (Job No. J489094, dated 9 October 2025), as seen in Appendix D.

The investigation indicates the site is underlain by colluvium; soil and undifferentiated sand over laterite of coastal plain, including minor alluviated areas. The subsurface profile across the site typically comprises:

- Topsoil: 0.1 m to 0.3 m thick (typically about 0.2 m), overlying,
- SAND / silty SAND: extending to the full 2.5 m investigation depth at 33 of the 39 profiled borehole locations, underlain in places by,
- Clayey SAND: encountered from 1.7 m (BH17), 1.5 m (BH23), 1.9 m (BH26) and from 0.2 m (BH38), and
- Sandy CLAY: encountered from approximately 0.9 m at BH29 and BH32.

Groundwater was not encountered in any borehole, and no uncontrolled fill and no laterite were identified during the investigation. Laboratory testing of the deeper cohesive soils returned liquid limits of 29 to 56 percent, plasticity indices of 17 to 34 percent and linear shrinkage of 6.5 to 15 percent, indicating moderate to high shrink-swell capacity

Thirty-nine in-situ percolation tests were undertaken at depths of between 0.45 m and 1.0 m to provide information on the drainage capabilities of the soil present over the site; all tests but one were within SAND / silty SAND. Results from the tests suggest the following:

- 22 out of 39 tests have high to very high infiltration rates (greater than 5m/d)
- 14 tests have a moderate infiltration rate (between 1m/d and 5m/d), and
- 3 tests have a low infiltration rate (<1m/d), recorded at BH12 (0.64 m/day), BH26 (0.8 m/day) and BH29 (0.9 m/day).
- The percolation test results indicate the encountered ground conditions are generally suitable for infiltration, and the site can be managed by on-site disposal of stormwater runoff.

The full percolation test results are reproduced in Table 3 below (median 7.3 m/day; range 0.64 to 20.0 m/day).

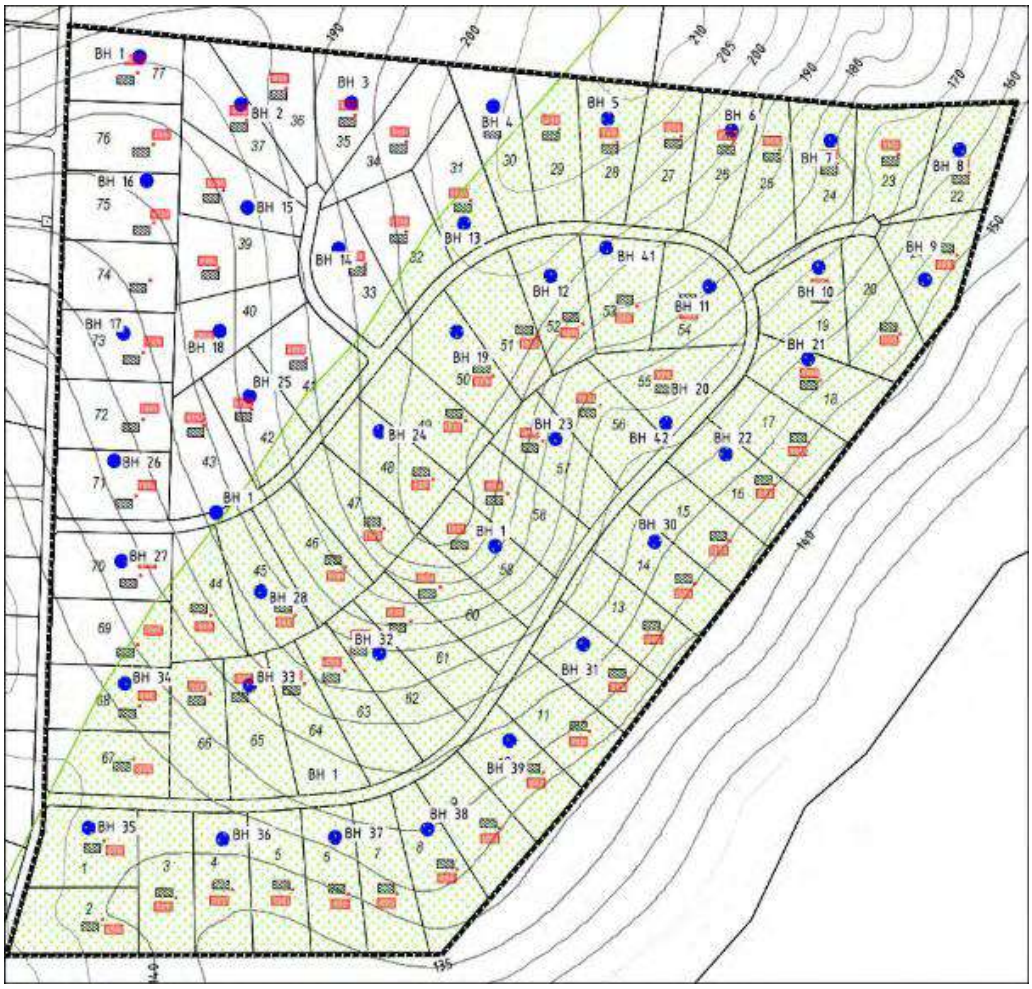
Table 4-1 PERMEABILITY TEST RESULTS (STRUCTERRE, 2025)

Borehole Location	Testing Depth (m)	Soil Type	Permeability (m/day)
BH 1	0.75 – 1.0	SAND	26.9
BH 2	0.65 – 0.9	SAND	8.5
BH 3	0.65 – 0.9	SAND	7.2
BH 4	0.75 – 1.0	SAND	1.7
BH 5	0.65 – 0.9	SAND	10.9
BH 6	0.75 – 1.0	SAND	10.0
BH 7	0.5 – 0.75	SAND	9.1
BH 8	0.65 – 0.9	SAND	2.6
BH 9	0.75 – 1.0	SAND	13.0
BH 10	0.75 – 1.0	SAND	4.8
BH 11	0.75 – 1.0	SAND	2.9
BH 12	0.75 – 1.0	SAND	0.6
BH 13	0.75 – 1.0	SAND	1.3
BH 14	0.75 – 1.0	SAND	4.4
BH 15	0.75 – 1.0	SAND	26.9
BH 16	0.75 – 1.0	SAND	11.1
BH 17	0.65 – 0.9	SAND	1.8
BH 18	0.65 – 0.9	SAND	17.7
BH 19	0.65 – 0.9	SAND	5.7
BH 20	0.75 – 1.0	SAND	2.4
BH 21	0.65 – 0.9	SAND	9.8
BH 22	0.75 – 1.0	SAND	2.8
BH 23	0.65 – 0.9	SAND	8.5
BH 24	0.65 – 0.9	SAND	7.7
BH 25	0.75 – 1.0	SAND	16.4
BH 26	0.75 – 1.0	SAND	0.7
BH 27	0.65 – 0.9	SAND	1.5
BH 28	0.65 – 0.9	SAND	8.5
BH 29	0.45 – 0.7	SAND	0.9
BH 30	0.55 – 0.8	SAND	3.6
BH 31	0.75 – 1.0	SAND	4.3
BH 32	0.65 – 0.9	SAND/SANDY CLAY	1.2
BH 33	0.55 – 0.8	SAND	9.3
BH 34	0.55 – 0.8	SAND	3.8
BH 35	0.65 – 0.9	SAND	31.6
BH 36	0.75 – 1.0	SAND	13.0
BH 37	0.65 – 0.9	SAND	6.3
BH 38	0.45 – 0.7	SAND	19.1

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Based on the analysis of the permeability testing, a preliminary permeability value of 7.3 m/day (the median of the 39 in-situ percolation results) has been adopted as being indicative of the site. The three results below 1.0 m/day were recorded at BH12, BH26 and BH29; drainage infrastructure in the vicinity of these locations should adopt locally reduced rates or be verified by additional testing. Structerre also recommends that permeability rates be reconfirmed during and after completion of the earthworks.

Figure 4-3 *AREAS WHERE REDUCED PERMEABILITY RATES WERE IDENTIFIED*



5.0 WATER SUSTAINABILITY INITIATIVES

The development has been designed to encourage the efficient use of water resources in accordance with the objectives of the State Water Plan (2007). Water conservation is proposed to be achieved through the use of water-efficient fixtures, waterwise landscaping, responsible household water use, and, where appropriate, consideration of alternative non-potable water source usage.

Potable water will be supplied from a licensed groundwater bore within the Gingin Groundwater Allocation Plan area. The groundwater licence permits extraction of 200,000kL per annum.

It is proposed that the development will promote a waterwise development by encouraging future home owners to implement strategies such as:

- Installation of water-efficient plumbing fixtures and appliances.
- Use of high-efficiency hot water systems.
- Building layouts that minimise hot water losses.
- Pool covers for all new swimming pools.
- On-site retention of stormwater through appropriately sized soakwells.
- Promotion of waterwise landscaping and responsible outdoor water use.

Landscaping will incorporate waterwise design principles to reduce irrigation demand and improve long-term water efficiency. Where practical, landscaping will include drought-tolerant or native species, hydro-zoning of vegetation, improved soil conditions to enhance moisture retention, and efficient irrigation systems where required. However, given the large rural residential lot sizes, extensive reticulated irrigation is not anticipated within the development.

In addition to the above, as detailed in the stormwater quality section of this report, infiltration is proposed to be promoted by the use of roadside swales and infiltration basins sized to allow the capture and reabsorption of surface waters for groundwater recharge.

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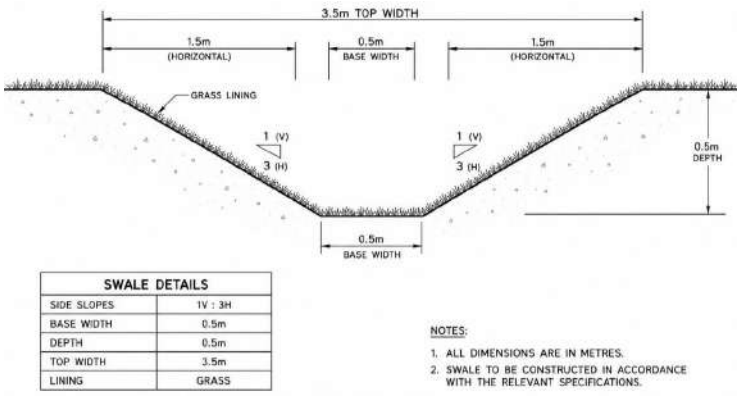
6.0 STORMWATER AND GROUNDWATER MANAGEMENT

6.1 STORMWATER QUANTITY

6.1.1 MINOR STORM EVENTS

Flows from the minor storm events, 1 year and 5 year, are proposed to be managed by infiltration via lot based soakwells (to be conditioned on future individual lot building approvals), and infiltration via roadside swales. Given the median soil permeability of 7.3m/day (0.08mm/s), the travel time in the roadside swales is expected to be approximately 10 minutes and the expected storm infiltration depth is expected to be approx. 50mm during the 10 minute storm event, and the ongoing infiltration capacity is expected to infiltrate all storm intensities under 4.8mm/hr. Based on these approximations from the geotechnical conditions at the site, the roadside swales are sufficient to infiltrate stormflows up to and including the 5 year ARI event; and will work in combination with the future lot based soakwell systems.

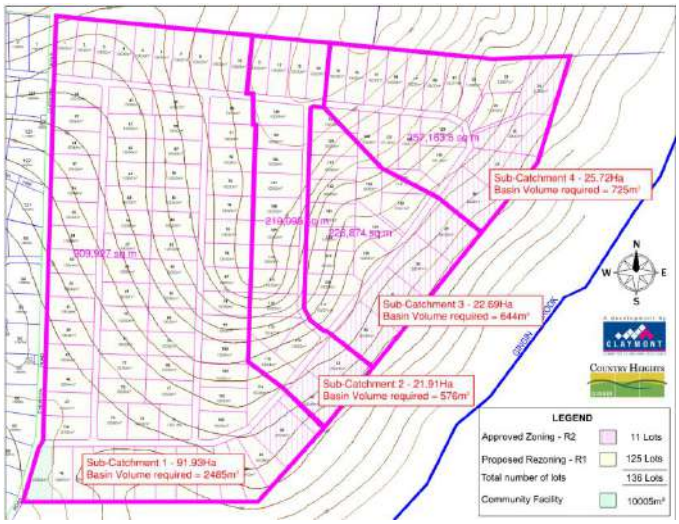
Figure 6-1 TYPICAL ROADSIDE SWALE SECTION



6.1.1 MAJOR STORM EVENTS

Management of major storm flows (up to the 100-year ARI event) are proposed to be managed by drainage infiltration basins positioned within the sub catchment areas of the proposed development. Given that the 5-year ARI event is being captured and infiltrated within the roadside swales, the infiltration basins have been sized to contain the increase in runoff volume expected between the pre- and post-development 100-year storm events, minus the 5-year storm event volume. The 4 sub-catchment areas and proposed Infiltration Basin Volumes are detailed below.

Figure 6-2 SUB-CATCHMENT INFILTRATION BASIN VOLUMES



Rational Method Calculations of the expected pre- and post-development storm flows and volumes and the calculation of the basin volumes can be seen below Table 6-1.

Rational Method Calculations can be reviewed in Appendix C.

Table 6-1 BASIN STORAGE VOLUMES

Sub-catchment	Post-Development 5-year Storm Volume (m^3)	Pre-Development 100-year Storm Volume (m^3)	Post-Development 100-year Storm Volume (m^3)	Infiltration Basin Storage Volume (m^3)
1	250.4	2279.3	5014.5	2485
2	82.8	548.8	1207.5	576
3	37.4	568.1	1249.9	644
4	48.1	644.3	1417.4	725

6.2 STORMWATER QUALITY

Stormwater Quality is proposed to be managed by bio-retention vegetation planted within the roadside swales and infiltration basins. The vegetation will include native reeds and sedges to aid in the mechanical and chemical treatment of stormwater flows lessening sediments, gross pollutants and nutrients leaching in the surface water system, and subsequently into the groundwater system.

In addition to the vegetation within the stormwater network providing bio-retention treatment, it is proposed that additional soil testing be undertaken during the detailed design phase of the development to investigate the potential benefit of soil replacement within areas of the roadside swales, with a sandy-loam material with an elevated Phosphorus Retention Index (PRI). This is to be considered in areas of extremely high permeability, where the PRI may be low, and the absorptive capacity of the soils during infiltration is limited.

Further to the above, it is proposed that future lot owners should be educated and encouraged to utilise onsite wastewater treatment systems that incorporated 'secondary treatment' of effluent and potentially disinfection by chlorination or UV light to lessen the nutrient loading of subsoils by septic irrigation. It should be noted that the depth to the regional aquifers is expected to be in the order of approximately 100m based on geotechnical investigations of neighbouring sites, and as such the risk of pathogen migration through the extensive soil layers and impacting the regional aquifers is generally considered low.

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7.0 LANDSCAPE CONCEPT

The site is predominantly cleared and covered with grassed vegetation. A central corridor retains existing native trees and shrubs, representing the primary area of remnant vegetation. Typical existing site conditions identified during the geotechnical investigation are shown in Figure 7-1.

Figure 7-1 TYPICAL EXISTING SITE CONDITIONS (STRUCTERRE, 2025)



The landscape strategy for the development has been designed to minimise irrigation demand through the use of water-efficient planting, appropriate soil treatments, and sustainable irrigation practices, where required. The following measures will be implemented where practical:

- Select drought-tolerant, waterwise plant species that are well suited to local climatic conditions, with preference given to native vegetation.
- Group plants with similar water requirements to maximise irrigation efficiency where possible.
- Improve planting areas with soil conditioners to a depth of 300mm where required.
- Establish native reeds, sedges, and other suitable species within roadside bio-retention swales and infiltration basins to support stormwater treatment and enhance ecological function.
- Provide purchasers of residential lots with waterwise landscaping guidance to encourage low-water-use garden designs at the individual lot scale.
- Retain existing native vegetation wherever reasonably practicable through the detailed earthworks and site design process.

Given the large residential lot sizes and the intended rural character of the development, reticulated irrigation systems are not anticipated to form part of the development, as extensive irrigated landscaping is not expected to be required by future landowners.

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8.0 MONITORING, MANAGEMENT AND IMPLEMENTATION OF SUBDIVISION WORKS

8.1 PRE-CONSTRUCTION

Prior to construction, erosion and sediment control measures will be installed to minimise site disturbance and protect downstream water quality. Controls will include:

- Designated construction access routes and stabilised entry/exit points in accordance with IECA Guidelines.
- Sediment fencing along the downslope perimeter of disturbed areas.
- Temporary check dams where required to reduce surface water runoff velocities.

8.2 CONSTRUCTION

During earthworks and construction, the following measures will be implemented to minimise sediment transport and maintain water quality:

- Sediment fencing around exposed batters and stockpiles.
- Temporary diversion swales, turf filter strips, rock check dams and sediment basins where required, also considerations should be made for constructing the infiltration basins and utilising these areas as temporary sedimentation basins during the roadworks and bulk earthworks phases.
- Progressive stabilisation and revegetation of disturbed areas.
- Routine inspection and maintenance of erosion and sediment controls, particularly following rainfall events.
- Installation of permanent stormwater treatment infrastructure during the final stages of construction to minimise filter media clogging.

8.3 CONSTRUCTION MANAGEMENT

Construction activities will be undertaken in accordance with industry best practice and an approved Erosion and Sediment Management Plan (ESMP) to minimise impacts on adjacent land, waterways and existing drainage infrastructure.

8.4 DRAINAGE INFRASTRUCTURE

Drainage swales, infiltration basins and associated stormwater infrastructure will be inspected throughout construction and prior to Practical Completion to ensure they remain free of excessive sediment buildup, litter and construction debris.

Roads will be monitored during construction and swept where necessary to reduce sediment overloading the drainage network.

8.5 DUST AND SEDIMENT CONTROL

Dust and sediment will be managed through a combination of vegetation retention where practicable, progressive regrowth and stabilisation of disturbed areas, dust suppression using non-potable water, covered truck loads and stabilised site access points.

Temporary erosion and sediment controls will be maintained throughout construction in accordance with the approved ESMP and relevant regulatory requirements.

8.6 POST-DEVELOPMENT MONITORING

Following construction, the stormwater management system will be monitored to confirm ongoing performance. Inspections will focus on:

- Drainage performance and ponding duration
- Erosion and scour
- Sediment accumulation
- Litter
- Vegetation health

Where monitoring identifies reduced drainage performance or water quality issues, maintenance or corrective actions will be undertaken. Monitoring outcomes will be documented by the developer and provided to the Shire of Gingin during the defect liability period.

Table 8-1 MONITORING PLAN

Item	Frequency	Action
Surface water quality	Monthly during winter, or as required	Inspect ponding and water quality; undertake testing if required.
Erosion and scour	Following significant rainfall / six-monthly while surface vegetation is disturbed.	Repair affected areas.
Sediment build-up	Six-monthly	Remove accumulated sediment where required.
Litter	As required	Remove litter and debris.
Vegetation health	Quarterly	Control weeds and replace failed vegetation where necessary.

8.7 IMPLEMENTATION RESPONSIBILITIES

Table 8-2 IMPLEMENTATION PLAN

Activity	Responsibility
Construction of drainage infrastructure	Developer
Maintenance during defects liability period	Developer
Ongoing drainage maintenance	Shire of Gingin
Water infrastructure	Country Heights Water Pty Ltd
Sewer Infrastructure	Managed by Lot owners by onsite wastewater treatment systems
Lot soakwells	Lot Owners
Waterwise landscaping education	Shire of Gingin
Post-development monitoring and reporting	Developer

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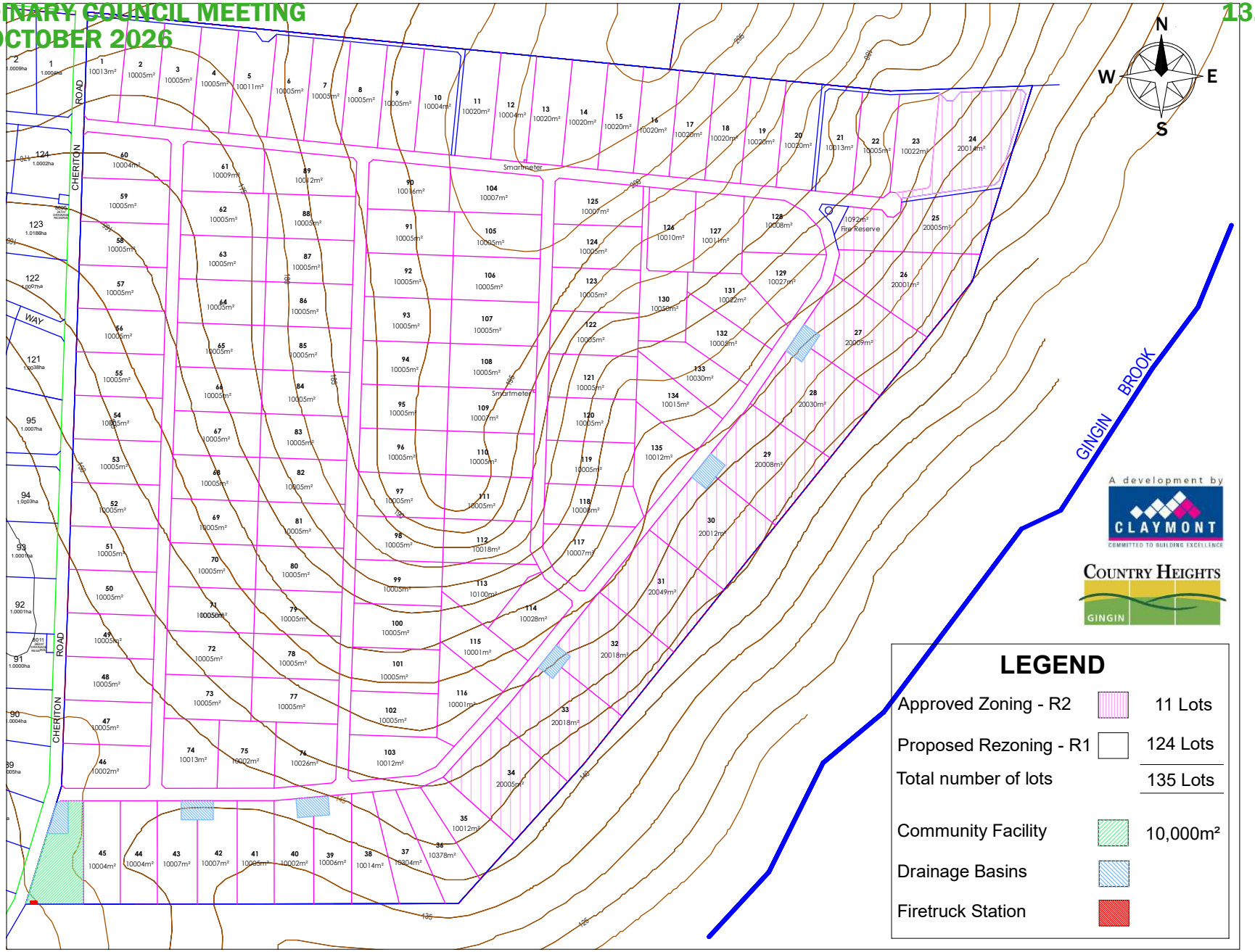
APPENDICES

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Appendix A – PROPOSED SUBDIVISION LAYOUT

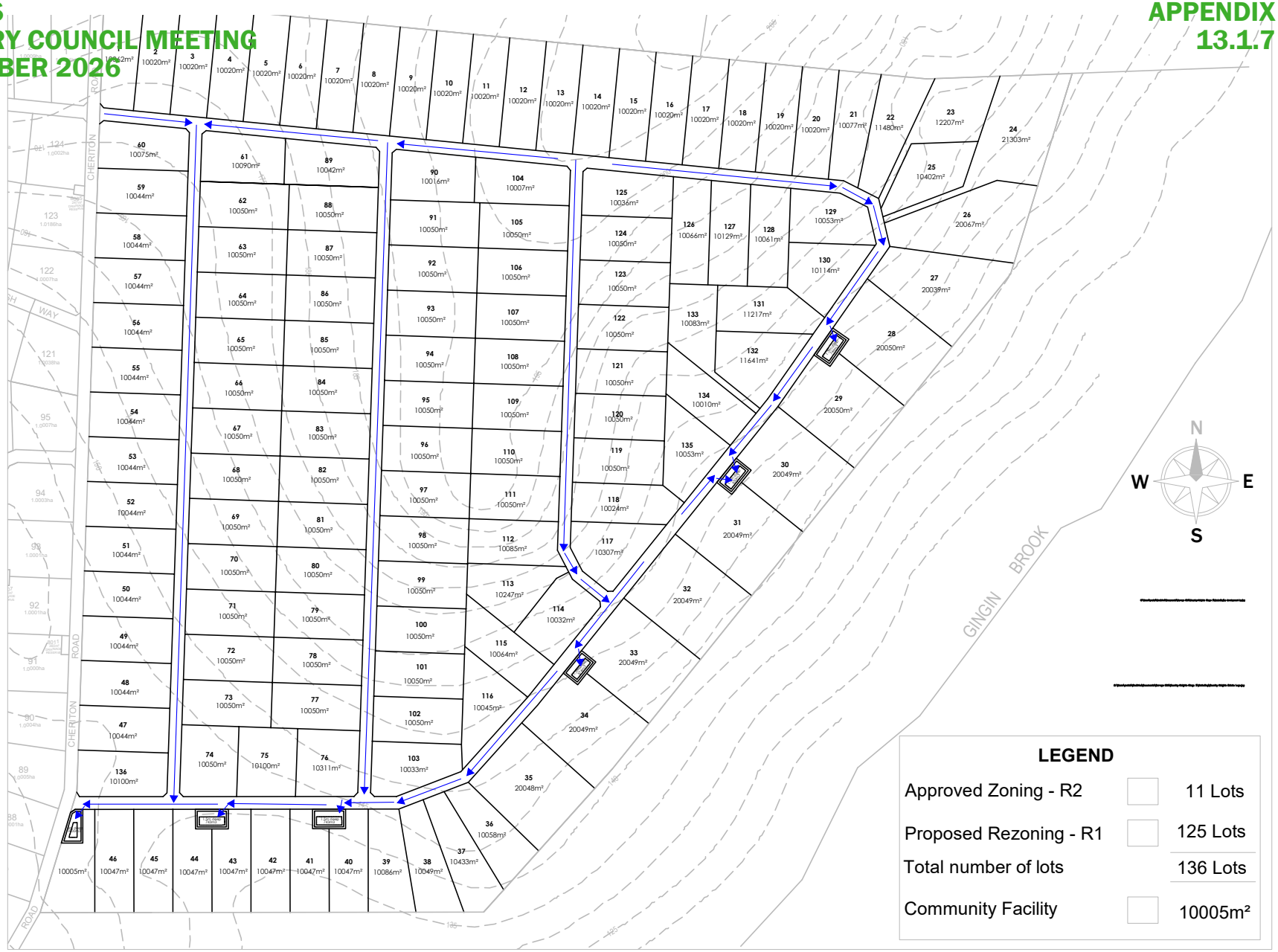
PERTH OFFICE
2 Draper Place
Kewdale WA 6105
Ph: 08 6555 4955

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73 Victoria Street
Bunbury WA 6230
Ph: 08 9791 4599


N
W
E
S
CHERITON ROAD
CHERITON WAY
CHERITON ROAD
GINGIN BROOK
Smartmeter
Smartmeter
1092m²
Fire Reserve
A development by
CLAYMONT
COMMITTED TO BUILDING EXCELLENCE
COUNTRY HEIGHTS
GINGIN
LEGEND
Approved Zoning - R2
11 Lots
Proposed Rezoning - R1
124 Lots
Total number of lots
135 Lots
Community Facility
10,000m²
Drainage Basins
Firetruck Station

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Appendix B – CONCEPT STORMWARTER DRAINAGE PLAN


CHERITON ROAD
GINGIN BROOK
N
W
E
S
LEGEND
Approved Zoning - R2 11 Lots
Proposed Rezoning - R1 125 Lots
Total number of lots 136 Lots
Community Facility 10005m²

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Appendix C – RATIONAL METHOD CALCULATIONS

	Pre-Development Runoff											
	1 in 5 ARI						1 in 100 ARI					
Catchment	time (hrs)	i, (mm/hr)	C	Road Area (ha)	Q(m3/s)	V(m3)	time (hrs)	i, (mm/hr)	C	Full Catchment Area (ha)	Q(m3/s)	V(m3)
1	0.167	71.7	0.1	6.97	0.1388	83.5	0.167	150	0.1	90.99	3.7913	2279.3
2	0.167	71.7	0.1	2.31	0.0459	27.6	0.167	150	0.1	21.91	0.9129	548.8
3	0.167	71.7	0.1	1.04	0.0207	12.5	0.167	150	0.1	22.68	0.9450	568.1
4	0.167	71.7	0.1	1.34	0.0267	16.0	0.167	150	0.1	25.72	1.0717	644.3

	Post-Development Runoff											
	1 in 5 ARI						1 in 100 ARI					
Catchment	time (hrs)	i, (mm/hr)	C	Road Area (ha)	Q(m3/s)	V(m3)	time (hrs)	i, (mm/hr)	C	Full Catchment Area (ha)	Q(m3/s)	V(m3)
1	0.167	71.7	0.3	6.97	0.4165	250.4	0.167	150	0.22	90.99	8.3408	5014.5
2	0.167	71.7	0.3	2.31	0.1378	82.8	0.167	150	0.22	21.91	2.0084	1207.5
3	0.167	71.7	0.3	1.04	0.0621	37.4	0.167	150	0.22	22.68	2.0790	1249.9
4	0.167	71.7	0.3	1.34	0.0801	48.1	0.167	150	0.22	25.72	2.3577	1417.4

	Storage Volume Required		
Catchment	1:5 Storage	1:100 ARI Difference	Infiltration Storage Volume (m3)
1	250.4	2735.2	2485
2	82.8	658.6	576
3	37.4	681.8	644
4	48.1	773.1	725

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Appendix D – BORELOGS

Borehole Record: BH01

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 397922.86
Northing: 6538999.73
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): poorly graded, medium grained, yellow.				26.9	
	2.0									
					BH01 Terminated at 2.5 m					



Depth: 2.5 m

This report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

Borehole Record: BH02

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398149.34
Northing: 6538970.45
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow, moist.				8.5	
	1.0					M	VL			
	2.0									
					BH02 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH03

Project: Country Heights Stage 2	**Position:** Easting: 398395.46	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538948.37	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
					Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.				7.2	
	1.0	Natural		SM		D	L-MD			
	2.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, orange, dry.	D	MD			
					BH03 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH04

Project: Country Heights Stage 2	**Position:** Easting: 398584.82	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538928.84	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL	2, 2, 2, 1, 2	1.7	
	1.0			SP	Sand (SP): loose, poorly graded, medium grained, yellow, dry.	D	L			
	2.0				BH04 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH05

Project: Country Heights Stage 2	**Position:** Easting: 398791.92	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538907.74	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		10.9	
	1.0			SP	Sand (SP): medium dense, poorly graded, fine to medium grained, pale yellow, with fine gravel, dry.	D	MD			
	2.0									
					BH05 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH06

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 399003.80
Northing: 6538886.09
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): loose, poorly graded, brown, trace coarse gravel, moist.			3, 4, 5, 5, 3, 4	10.0	
	1.0					M	L			
	2.0									
					BH06 Terminated at 2.5 m					



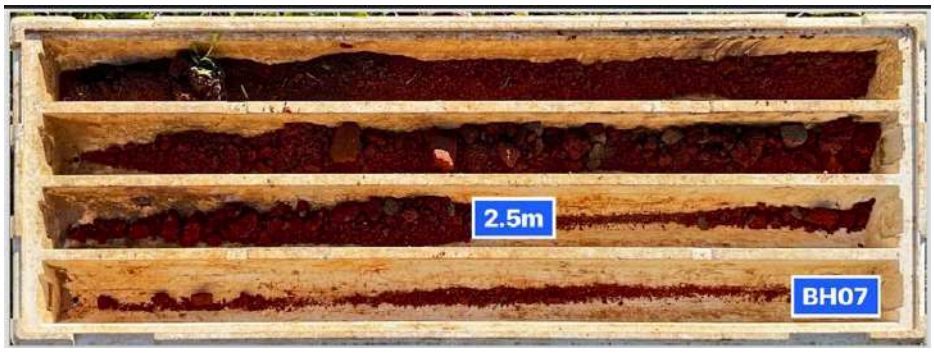
Depth: 2.5 m

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Borehole Record: BH07

Project: Country Heights Stage 2	**Position:** Easting: 399151.94	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538823.27	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Tony Broadway/Ankush Rabadia

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SM	Silty Sand (SM): loose to medium dense, poorly graded, fine to medium grained, brown, dry.	D	L-MD		9.1	
	1.0			SM	Silty Sand (SM): medium dense, poorly graded, fine to medium grained, brown, trace coarse gravel, dry.	D	MD			
	2.0				BH07 Terminated at 2.5 m (Target Depth)					



Depth: 2.5 m

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Borehole Record: BH08

Project: Country Heights Stage 2	**Position:** Easting: 399327.39	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538813.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, pale brown, moist.	M	VL	2 2 2 2 2 2	2.6	
	2.0				BH08 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH09

Project: Country Heights Stage 2	**Position:** Easting: 399237.85	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538628.58	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		13.0	
	2.0				BH09 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH10

Project: Country Heights Stage 2	**Position:** Easting: 399083.76	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538673.85	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown.		VL	2 2 2	4.8	
	2.0				BH10 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH11

Project: Country Heights Stage 2	**Position:** Easting: 398870.57	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538633.26	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		2.9	
	2.0				BH11 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH12

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398615.45
Northing: 6538696.44
Elevation: Not Surveyed
Inclination:

Date Drilled: 08/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		0.6	
	2.0									
					BH12 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH13

Project: Country Heights Stage 2	**Position:** Easting: 398499.21	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538782.89	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.3	
	2.0				BH13 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH14

Project: Country Heights Stage 2	**Position:** Easting: 398290.47	**Date Drilled:** 08/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538657.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	3, 3, 2, 2, 2, 2	4.4	
	2.0				BH14 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH15

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398111.44
Northing: 6538754.55
Elevation: Not Surveyed
Inclination:

Date Drilled: 10/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, yellow.		L		26.9	
	2.0				BH15 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH16

Project: Country Heights Stage 2	**Position:** Easting: 397936.39	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538733.90	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, yellow.		VL	2 2 2	11.1	
	2.0									
					BH16 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH17

Project: Country Heights Stage 2	**Position:** Easting: 397982.96	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538508.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.8	
	2.0			SC	Clayey Sand (SC): medium dense, low plasticity, poorly graded, medium grained, brown, moist.	M	MD			
					BH17 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH18

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398196.04
Northing: 6538559.25
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL		17.7	
	2.0				BH18 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH19

Project: Country Heights Stage 2	**Position:** Easting: 398457.38	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538469.86	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		5.7	
	2.0				BH19 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH20

Project: Country Heights Stage 2	**Position:** Easting: 398840.10	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538527.55	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		2.4	
	1.0									
	2.0			SP	Sand (SP): very loose, poorly graded, medium grained, yellow, dry.	D	VL			
					BH20 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH21

Project: Country Heights Stage 2	**Position:** Easting: 399104.69	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538511.75	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		9.8	
	2.0				BH21 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH22

Project: Country Heights Stage 2	**Position:** Easting: 398993.81	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538280.94	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2, 3, 2, 2, 2, 2	2.8	
	2.0									
					BH22 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH23

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398683.95
Northing: 6538328.13
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): medium dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	MD		8.5	
				SC	Clayey Sand (SC): very dense, high plasticity, fine to medium grained sand, red, trace fine gravel.		VSt			
					BH23 Terminated at 2 m					



Depth: 2.0 m

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Borehole Record: BH24

Project: Country Heights Stage 2	**Position:** Easting: 398161.71	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538216.24	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		7.7	
	2.0									
					BH24 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH25

Project: Country Heights Stage 2	**Position:** Easting: 398162.26	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538410.42	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		16.4	
	2.0				BH25 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH26

Project: Country Heights Stage 2	**Position:** Easting: 397926.64	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538319.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 1 2 1 2	0.7	
	1.0			SM	Silty Sand (SM): loose, poorly graded, medium grained, brown, moist.	M	L			
	2.0			SC	Clayey Sand (SC): loose to medium dense, poorly graded, medium grained, medium plasticity clay, brown slightly red, trace fine gravel, moist.	M	L-MD			
					BH26 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH27

Project: Country Heights Stage 2	**Position:** Easting: 397696.87	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6536458.35	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		1.5	
	2.0				BH27 Terminated at 2.5 m					



Depth: 2.5 m

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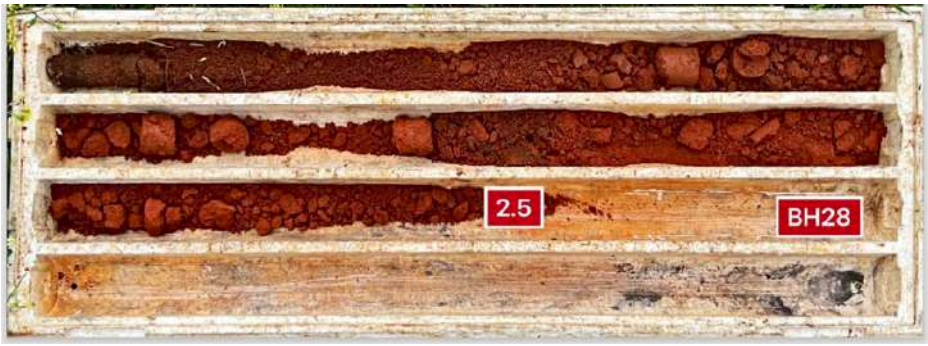
Borehole Record: BH28

Project: Country Heights Stage 2
Location: Cheriton Rd, Ginginup WA 6503, Australia
Loc Comment:
Job No: D3666941 J489094

Position: Easting: 398160.48
Northing: 6538215.91
Elevation: Not Surveyed
Inclination:

Date Drilled: 19/09/2025
Drill Rig SRP - 1HUR
Drill Supplier Structerre Consulting
Logged/Checked: Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, moist.	M	VL		8.5	
	2.0									
					BH28 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH29

Project: Country Heights Stage 2	**Position:** Easting: 398595.97	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538165.21	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
		Natural		SP	Sand (SP): medium dense, poorly graded, medium to coarse grained, brown, trace medium gravel, moist.	M	MD		0.9	
	1.0			OH	Organic Sandy Clay (OH): very stiff, high plasticity, medium grained sand, brown mottled green, trace medium gravel.		VSt			
					BH29 Refusal at 1.6 m (refusal on stiff Clay)					



Depth: 1.6 m

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Borehole Record: BH30

Project: Country Heights Stage 2	**Position:** Easting: 398854.12	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538166.71	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose to loose, poorly graded, medium grained, brown, moist.	M	VL-L	2 2 2 2 2 3	3.6	
	2.0									
					BH30 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH31

Project: Country Heights Stage 2	**Position:** Easting: 398697.24	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538016.07	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SM	Silty Sand (SM): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		4.3	
	2.0				BH31 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH32

Project: Country Heights Stage 2	**Position:** Easting: 398411.77	**Date Drilled:** 19/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538095.78	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.			3		
		Natural		SP	Sand (SP): loose to very dense, poorly graded, medium grained, brown, with medium gravel, moist.	M	L-VD	4, 6, 6, 25	1.2	
	1.0			CH	SandyClay (CH): stiff, high plasticity, medium grained sand, brown & red, trace medium gravel.		St			
				CH	As above, but: brown mottled green.		St			
	2.0				BH32 Refusal at 2.2 m (refusal on stiff Clay)					



Depth: 2.2 m

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Borehole Record: BH33

Project: Country Heights Stage 2	**Position:** Easting: 398208.25	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538028.01	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

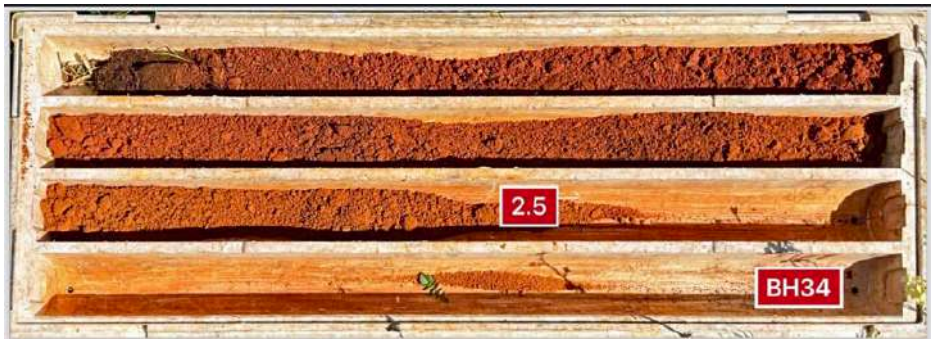
Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L		9.3	
	2.0				BH33 Terminated at 2.5 m					

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Borehole Record: BH34

Project: Country Heights Stage 2	**Position:** Easting: 398159.74	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6538218.09	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown, dry.	D	VL	2 2 2 2	3.8	
	2.0				BH34 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH35

Project: Country Heights Stage 2	**Position:** Easting: 397916.50	**Date Drilled:** 12/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537792.97	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, dry.	D	L		31.6	
	2.0				BH35 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH36

Project: Country Heights Stage 2	**Position:** Easting: 398115.47	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537715.14	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): very loose, poorly graded, medium grained, brown slightly red, moist.	M	VL		13.0	
	2.0				BH36 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH37

Project: Country Heights Stage 2	**Position:** Easting: 398276.71	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537683.69	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown, moist.	M	L		6.3	
	2.0				BH37 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH38

Project: Country Heights Stage 2	**Position:** Easting: 398415.96	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537786.32	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SC	Clayey Sand (SC): loose, low plasticity, poorly graded, medium grained, brown slightly red.		L		19.1	
	2.0				BH38 Terminated at 2.5 m					



Depth: 2.5 m

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Borehole Record: BH39

Project: Country Heights Stage 2	**Position:** Easting: 398585.31	**Date Drilled:** 10/09/2025
Location: Cheriton Rd, Ginginup WA 6503, Australia	Northing: 6537913.28	**Drill Rig** SRP - 1HUR
Loc Comment:	**Elevation:** Not Surveyed	**Drill Supplier** Structerre Consulting
Job No: D3666941 J489094	**Inclination:**	**Logged/Checked:** Ankush Rabadia/Tony Broadway

Water	Depth (m)	Soil Origin	Graphic Log	USCS	Material Description	Moisture	Consistency	PSP (0 5 10 15 20 25 30)	Percolation (m/day)	Samples
		Non-soil		TS	Topsoil.					
	1.0	Natural		SP	Sand (SP): loose, poorly graded, medium grained, brown slightly red, moist.	M	L			
	2.0									
					BH39 Terminated at 2.5 m					



Depth: 2.5 m

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pgv ENVIRONMENTAL

Phone + 61 8 9202 6819
Mob +61 0 427 005 226
Email paul@pgv.net.au

Suite 3, 67 Howe Street
Osborne Park WA 6017

ABN 44 981 725 498
Knightside Nominees Pty Ltd

24 August 2026

Stephanie Ng

Claymont Group
Level 1, 189 St Georges Tce
Perth WA 6000

Dear Stephanie,

RE: Country Heights Estate 2, Gingin – Vegetation and Black Cockatoo Habitat Assessment

Following is our Vegetation and Black Cockatoo Habitat Assessment of Country Heights Estate 2, Gingin. Country Heights Estate 2 (the site) is located on Lot 83 Cheriton Road and is 161.12ha.

Plate 1: Survey area (2026 Aerial Photograph)



1 Site History

The earliest available aerial imagery from 1981 shows that the majority of the vegetation had already been cleared or parkland cleared by this time (Plate 2). A denser block of vegetation is apparent at the central eastern part of the site. That block has thinned out significantly since 1981 as shown on the 2026 aerial photograph (Plate 1).

Plate 2: 1981 Aerial Photography



2 Vegetation Assessment

A vegetation assessment was undertaken by PGV Environmental on 9 July 2026. The assessment found that there is no intact native vegetation on the site. The area of vegetation in the central eastern part of the site that has thinned out over the last 45 years is a stand of Banksia woodland consisting of Slender Banksia *(Banksia attenuata),* Firewood Banksia *(Banksia menziesii)* and Prickly Bark *(Eucalyptus todtiana)* (Plate 3). There is no native understorey, therefore the vegetation condition is rated as Completely Degraded. The vegetation does not meet the criteria to be the Banksia Woodlands of the Swan Coastal Plain Threatened Ecological Community due to its poor condition.

Plate 3: Banksia woodland on the Site



All of the other trees on the site are Marri trees (*Corymbia calophylla)* with a mix of young trees (Plate 4) and more mature trees (Plate 5).

Plate 4: Young Marri Trees on site



Plate 5: Mature Marri Trees on site



3 Black Cockatoo Habitat

3.1 Methodology

A Black Cockatoo Habitat assessment was undertaken by Dr Paul van der Moezel and Neasa Flynn from PGV Environmental on 9 and 27 July 2026. The aim of the assessment was to document any trees that could provide foraging or breeding habitat for Black Cockatoos. The survey measured all Marri trees with a Diameter at Breast Height (DBH) of 50cm or greater. Information recorded for all trees included:

- Species and Common Name
- Height
- DBH
- Co-ordinates (hand-held GPS)
- Tree Health
- Presence of hollows

3.2 Breeding Habitat

The assessment recorded 473 trees with a DBH of 50cm or greater (Attachment 1 and Figure 1). All trees were Marri. Marri trees with a DBH of 50cm or greater are considered under the EPBC Act to be breeding habitat regardless of whether they have suitable hollows or not. The rationale behind this is that a Marri tree of this size may form a suitable hollow for breeding within the next 50 years.

Most of the trees were in healthy condition. No hollows suitable for Black Cockatoos to breed in were observed on any tree.

3.3 Foraging Habitat

Four tree species are present on the site that provide foraging habitat for Black Cockatoos (Table 1). The location of foraging habitat on the site is provided in Figure 2. There was evidence of foraging by Carnaby's Black Cockatoo on Marri nuts (Plate6).

Table 1: Summary of Trees on the Site

Species	Common Name	Native to the Area	Value for Forest Red-tailed Black-Cockatoo	Value for Carnaby's Black-Cockatoo	Value for Baudin's Black-Cockatoo
Corymbia calophylla	Marri	Yes	F, N	F, n, R	F, n
Banksia attenuata	Slender Banksia	Yes		F	
Banksia menziesii	Firewood Banksia	Yes		F	
Eucalyptus todtiana	Pricklybark			F	

*Value for Cockatoo species is indicated by an F = foraging, R = roosting, N or n = nesting (main and less commonly used species, respectively).

Plate 6: Black Cockatoo Foraging on Marri



4 Conclusion

The assessment of Country Heights Estate 2 Gingin found that the site is largely cleared, with a large amount native Marri trees in the paddocks and a small remnant of degraded Banksia woodland in the central-eastern portion of the site.

The Banksia woodland patch does not meet the criteria to be the Banksia Woodlands of the Swan Coastal Plain TEC due to its completely degraded condition.

A total of 473 Marri trees were recorded that are defined as potential breeding habitat for Carnaby's and Forest Red-tailed Black Cockatoos. However, none of the trees currently is used by Black Cockatoos for breeding.

All trees on the site, regardless of age, provide foraging habitat for Black Cockatoos. Evidence of Black Cockatoo foraging was observed beneath several Marri trees, confirming the site's value to Black Cockatoos.

It is recommended that as many mature Marri trees as possible be retained where practical to maintain existing Black Cockatoo habitat.

Any unavoidable impact that requires the clearing of more than 1ha of foraging habitat and any potential breeding habitat trees may require a referral under the Commonwealth EPBC Act to determine if there is a significant impact on Black Cockatoos.

Please contact me if you would like to discuss any aspect of this tree assessment.

Yours sincerely



Paul van der Moezel
Managing Director

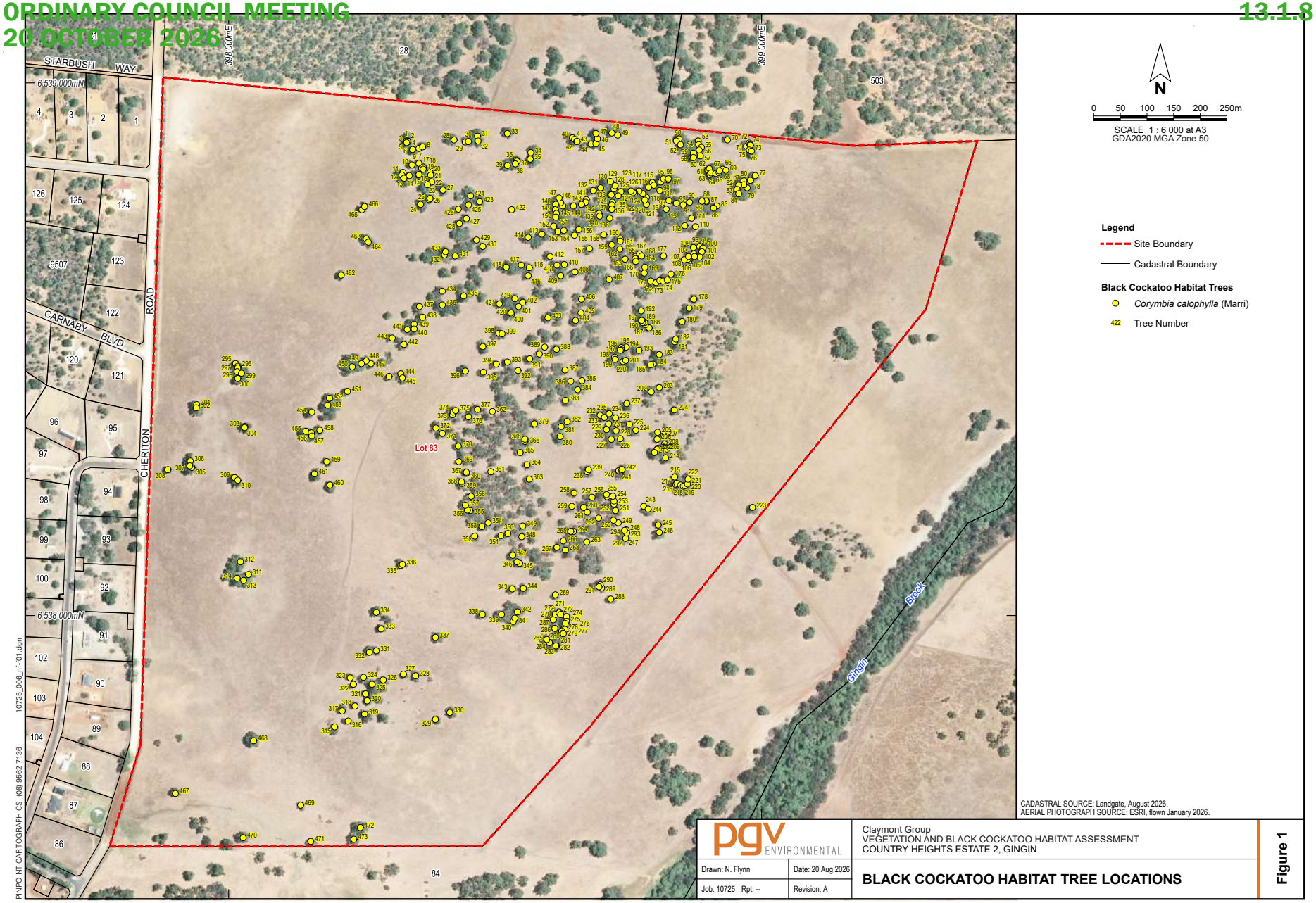
Figures

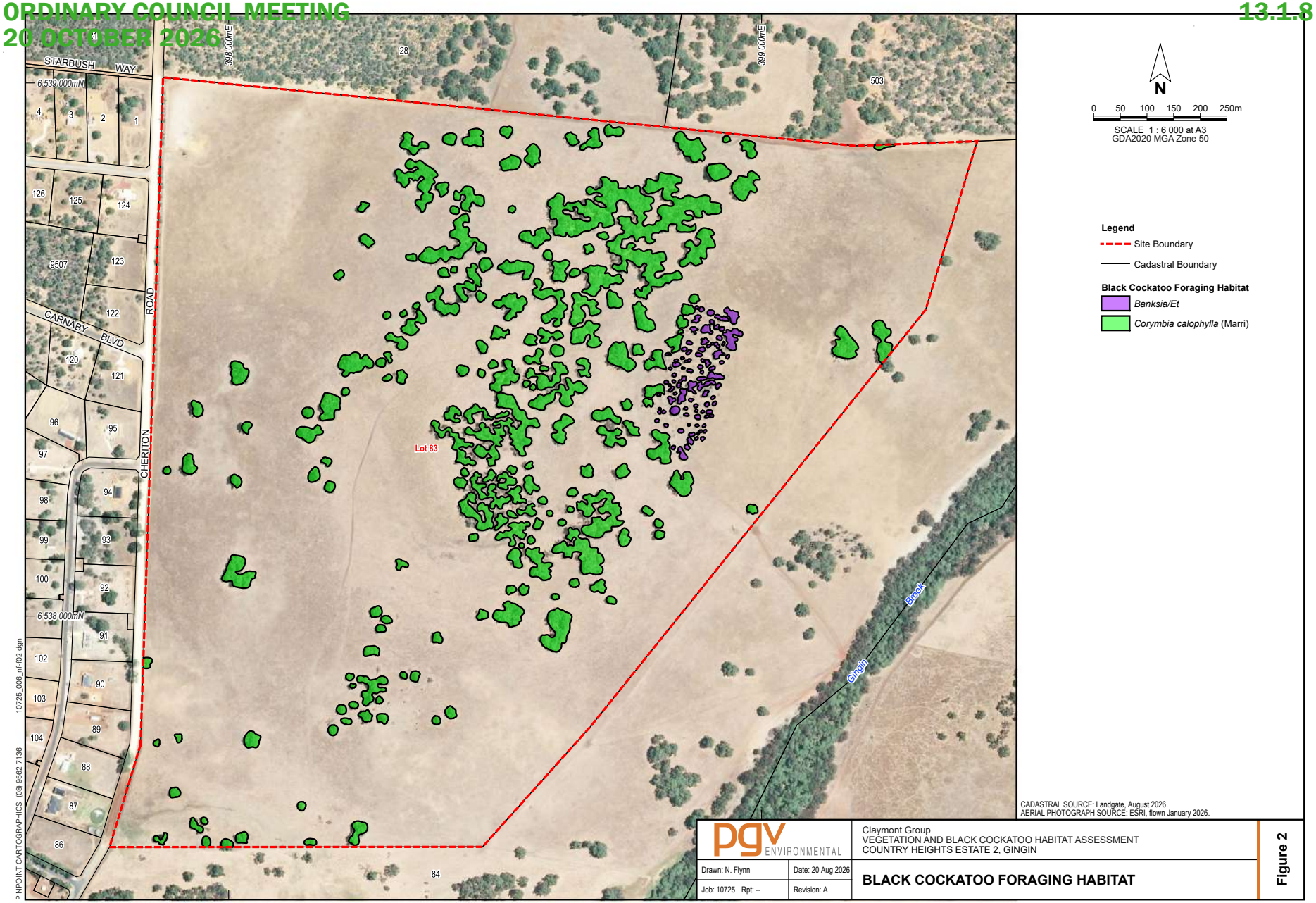
Figure 1: Black Cockatoo Habitat Tree Locations
Figure 2: Black Cockatoo Foraging Habitat

Attachments

Attachment 1: Tree Data

FIGURES


STARBUSH WAY
CARNABY BLVD
CHERITON ROAD
398 000mE
399 000mE
6 539 000mN
6 538 000mN
Lot 83
Gingin Brook
N
0 50 100 150 200 250m
SCALE 1 : 6 000 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Black Cockatoo Habitat Trees
Corymbia calophylla (Marri)
422 Tree Number
CADASTRAL SOURCE: Landgate, August 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown January 2026.
PGV ENVIRONMENTAL
Drawn: N. Flynn
Date: 20 Aug 2026
Job: 10725 Rpt: --
Revision: A
Claymont Group
VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
COUNTRY HEIGHTS ESTATE 2, GINGIN
BLACK COCKATOO HABITAT TREE LOCATIONS
Figure 1
10725_006_rf-f01.dgn
PINPOINT CARTOGRAPHICS (08) 9662 7136


STARBUSH WAY
CARNABY BLVD
CHERITON ROAD
398 000mE
399 000mE
6 539 000mN
6 538 000mN
Lot 83
Gingin Brook
N
0 50 100 150 200 250m
SCALE 1 : 6 000 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Black Cockatoo Foraging Habitat
Banksia/Et
Corymbia calophylla (Marri)
CADASTRAL SOURCE: Landgate, August 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown January 2026.
pgv ENVIRONMENTAL
Claymont Group
VEGETATION AND BLACK COCKATOO HABITAT ASSESSMENT
COUNTRY HEIGHTS ESTATE 2, GINGIN
Drawn: N. Flynn
Date: 20 Aug 2026
Job: 10725 Rpt: --
Revision: A
BLACK COCKATOO FORAGING HABITAT
Figure 2
10725_006_nf-f02.dgn
PINPOINT CARTOGRAPHICS (08) 9662 7136

ATTACHMENT 1

Tree Data

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
1	*Corymbia calophylla*	Marri	398336	6538889		21	90				Healthy, no hollows
2	*Corymbia calophylla*	Marri	398336	6538891		21	50				Healthy, no hollows
3	*Corymbia calophylla*	Marri	398334	6538891		21	75				Healthy, no hollows
4	*Corymbia calophylla*	Marri	398336	6538890		21	50				Healthy, no hollows, foraging
5	*Corymbia calophylla*	Marri	398334	6538888		20	105				Healthy, no hollows
6	*Corymbia calophylla*	Marri	398345	6538875		22	95				Healthy, no hollows
7	*Corymbia calophylla*	Marri	398357	6538877		14	80				Avergage tree, no hollows
8	*Corymbia calophylla*	Marri	398364	6538880		20	120				Healthy, no hollows
9	*Corymbia calophylla*	Marri	398357	6538849		18	110				Healthy, no hollows
10	*Corymbia calophylla*	Marri	398344	6538846		18	130				Healthy, no hollows
11	*Corymbia calophylla*	Marri	398327	6538832		22	115				Healthy, no hollows
12	*Corymbia calophylla*	Marri	398325	6538827		19	70				Healthy, no hollows
13	*Corymbia calophylla*	Marri	398329	6538821		20	90				Healthy, no hollows
14	*Corymbia calophylla*	Marri	398339	6538826		15	60				Healthy, no hollows
15	*Corymbia calophylla*	Marri	398356	6538827		15	75				Avergage tree, no hollows
16	*Corymbia calophylla*	Marri	398357	6538828		17	75				Healthy, no hollows
17	*Corymbia calophylla*	Marri	398362	6538840		22	125				Healthy, no hollows
18	*Corymbia calophylla*	Marri	398365	6538842		19	75				Healthy, no hollows
19	*Corymbia calophylla*	Marri	398365	6538838		14	60				Healthy, no hollows
20	*Corymbia calophylla*	Marri	398378	6538832		14	65				Healthy, no hollows, bees at base
21	*Corymbia calophylla*	Marri	398379	6538827		18	90				Healthy, no hollows
22	*Corymbia calophylla*	Marri	398381	6538814		17	75				Healthy, no hollows
23	*Corymbia calophylla*	Marri	398373	6538809		19	100				Healthy, no hollows
24	*Corymbia calophylla*	Marri	398360	6538772		18	105				Healthy, no hollows
25	*Corymbia calophylla*	Marri	398376	6538781		17	105				Healthy, no hollows
26	*Corymbia calophylla*	Marri	398378	6538783		13	60				Healthy, no hollows, leaning
27	*Corymbia calophylla*	Marri	398402	6538799		20	80	60			Healthy, no hollows
28	*Corymbia calophylla*	Marri	398423	6538893		20	135				Healthy, no hollows
29	*Corymbia calophylla*	Marri	398444	6538889		13	55				Avergage tree, no hollows
30	*Corymbia calophylla*	Marri	398450	6538890		13	70				Healthy, no hollows
31	*Corymbia calophylla*	Marri	398467	6538900		20	105				Healthy, no hollows
32	*Corymbia calophylla*	Marri	398468	6538891		19	110				Healthy, no hollows
33	*Corymbia calophylla*	Marri	398523	6538905		19	95				Healthy, no hollows
34	*Corymbia calophylla*	Marri	398567	6538869		20	115				Healthy, no hollows
35	*Corymbia calophylla*	Marri	398566	6538857		18	175				Healthy, no hollows
36	*Corymbia calophylla*	Marri	398540	6538855		14	80	70			Healthy, no hollows
37	*Corymbia calophylla*	Marri	398541	6538853		19	70				Healthy, no hollows
38	*Corymbia calophylla*	Marri	398538	6538848		13	80				Healthy, no hollows
39	*Corymbia calophylla*	Marri	398523	6538845		12	110				Healthy, no hollows
40	*Corymbia calophylla*	Marri	398645	6538897		12	90				Healthy, no hollows
41	*Corymbia calophylla*	Marri	398649	6538894		15	60				Healthy, no hollows
42	*Corymbia calophylla*	Marri	398653	6538890		15	55				Healthy, no hollows
43	*Corymbia calophylla*	Marri	398654	6538890		16	60				Healthy, no hollows
44	*Corymbia calophylla*	Marri	398680	6538885		10	55				Healthy, smallhollow, Pink & Grey Gallah nesting
45	*Corymbia calophylla*	Marri	398689	6538886		15	95				Healthy, no hollows
46	*Corymbia calophylla*	Marri	398692	6538895		14	50				Healthy, no hollows
47	*Corymbia calophylla*	Marri	398689	6538905		17	110				Healthy, no hollows
48	*Corymbia calophylla*	Marri	398719	6538906		20	120				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
49	*Corymbia calophylla*	Marri	398730	6538902		20	90				Healthy, no hollows
50	*Corymbia calophylla*	Marri	398845	6538895		16	130				Healthy, no hollows
51	*Corymbia calophylla*	Marri	398840	6538891		15	55				Healthy, no hollows
52	*Corymbia calophylla*	Marri	398848	6538884		16	90				Healthy, no hollows
53	*Corymbia calophylla*	Marri	398881	6538891		14	70				Healthy, no hollows
54	*Corymbia calophylla*	Marri	398882	6538884		13	70				Healthy, no hollows
55	*Corymbia calophylla*	Marri	398887	6538879		9	65				Healthy, no hollows
56	*Corymbia calophylla*	Marri	398883	6538874		14	65				Healthy, no hollows
57	*Corymbia calophylla*	Marri	398885	6538863		16	65				Healthy, no hollows
58	*Corymbia calophylla*	Marri	398870	6538860		20	60				Healthy, no hollows
59	*Corymbia calophylla*	Marri	398872	6538868		21	70				Healthy, no hollows
60	*Corymbia calophylla*	Marri	398872	6538860		19	60				Healthy, no hollows
61	*Corymbia calophylla*	Marri	398899	6538836		9	90				Poor health, no hollows
62	*Corymbia calophylla*	Marri	398902	6538839		21	65				Healthy, no hollows
63	*Corymbia calophylla*	Marri	398903	6538828		14	75				Healthy, no hollows
64	*Corymbia calophylla*	Marri	398905	6538831		20	75				Healthy, no hollows
65	*Corymbia calophylla*	Marri	398914	6538830		15	60				Healthy, no hollows
66	*Corymbia calophylla*	Marri	398927	6538838		12	65				Healthy, no hollows
67	*Corymbia calophylla*	Marri	398920	6538832		15	50				Healthy, no hollows
68	*Corymbia calophylla*	Marri	398921	6538835		20	85				Healthy, no hollows
69	*Corymbia calophylla*	Marri	398933	6538836		18	95				Healthy, no hollows
70	*Corymbia calophylla*	Marri	398936	6538893		10	60				Healthy, no hollows
71	*Corymbia calophylla*	Marri	398972	6538881		11	55	30			Healthy, no hollows, leaning
72	*Corymbia calophylla*	Marri	398977	6538887		10	50				Healthy, no hollows, leaning
73	*Corymbia calophylla*	Marri	398978	6538884		15	65				Healthy, no hollows
74	*Corymbia calophylla*	Marri	398979	6538883		14	65				Healthy, no hollows
75	*Corymbia calophylla*	Marri	398977	6538874		10	60				Healthy, no hollows
76	*Corymbia calophylla*	Marri	398981	6538872		11	75				Healthy, no hollows
77	*Corymbia calophylla*	Marri	398988	6538826		13	110				Healthy, no hollows
78	*Corymbia calophylla*	Marri	398979	6538817		11	50				Healthy, no hollows
79	*Corymbia calophylla*	Marri	398973	6538803		13	60				Healthy, no hollows
80	*Corymbia calophylla*	Marri	398967	6538816		11	60				Average tree, no hollows
81	*Corymbia calophylla*	Marri	398967	6538809		12	70				Healthy, no hollows
82	*Corymbia calophylla*	Marri	398957	6538808		12	50				Healthy, no hollows, leaning
83	*Corymbia calophylla*	Marri	398954	6538800		16	100				Healthy, no hollows
84	*Corymbia calophylla*	Marri	398957	6538792		11	50				Average tree, no hollows
85	*Corymbia calophylla*	Marri	398916	6538769		12	95				Healthy, no hollows
86	*Corymbia calophylla*	Marri	398910	6538765		17	90				Healthy, no hollows
87	*Corymbia calophylla*	Marri	398897	6538777		13	55				Healthy, no hollows
88	*Corymbia calophylla*	Marri	398896	6538778		12	65				Healthy, no hollows
89	*Corymbia calophylla*	Marri	398888	6538778		13	50	15			Healthy, no hollows
90	*Corymbia calophylla*	Marri	398865	6538776		12	60				Healthy, no hollows
91	*Corymbia calophylla*	Marri	398853	6538771		12	55	25			Healthy, no hollows
92	*Corymbia calophylla*	Marri	398840	6538774		16	80				Healthy, no hollows
93	*Corymbia calophylla*	Marri	398826	6538779		10	70				Healthy, no hollows
94	*Corymbia calophylla*	Marri	398811	6538814		14	50	40			Healthy, no hollows
95	*Corymbia calophylla*	Marri	398816	6538820		14	55	50			Healthy, no hollows
96	*Corymbia calophylla*	Marri	398824	6538818		15	50				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
97	*Corymbia calophylla*	Marri	398825	6538820		18	75				Healthy, no hollows
98	*Corymbia calophylla*	Marri	398884	6538693		15	55				Healthy, no hollows
99	*Corymbia calophylla*	Marri	398889	6538689		17	65				Healthy, no hollows
100	*Corymbia calophylla*	Marri	398890	6538690		17	55				Healthy, no hollows
101	*Corymbia calophylla*	Marri	398888	6538683		16	65				Healthy, no hollows
102	*Corymbia calophylla*	Marri	398884	6538673		16	75				Healthy, no hollows
103	*Corymbia calophylla*	Marri	398873	6538679		17	80				Healthy, no hollows
104	*Corymbia calophylla*	Marri	398874	6538674		14	50				Healthy, no hollows
105	*Corymbia calophylla*	Marri	398864	6538667		12	50				Healthy, no hollows
106	*Corymbia calophylla*	Marri	398862	6538669		10	50				Healthy, no hollows
107	*Corymbia calophylla*	Marri	398855	6538668		17	60				Healthy, no hollows
108	*Corymbia calophylla*	Marri	398863	6538674		12	50				Healthy, no hollows, leaning
109	*Corymbia calophylla*	Marri	398872	6538691		14	55	50			Healthy, no hollows
110	*Corymbia calophylla*	Marri	398876	6538730		9	60				Healthy, no hollows
111	*Corymbia calophylla*	Marri	398869	6538746		10	60				Healthy, no hollows, leaning
112	*Corymbia calophylla*	Marri	398856	6538732		12	60	45	50+		Healthy, no hollows
113	*Corymbia calophylla*	Marri	398821	6538763		17	80				Healthy, no hollows
114	*Corymbia calophylla*	Marri	398809	6538798		14	60				Healthy, no hollows
115	*Corymbia calophylla*	Marri	398795	6538813		13	90				Healthy, no hollows, leaning
116	*Corymbia calophylla*	Marri	398798	6538808		17	75				Healthy, no hollows
117	*Corymbia calophylla*	Marri	398788	6538804		12	50				Healthy, no hollows
118	*Corymbia calophylla*	Marri	398784	6538785		17	80				Healthy, no hollows
119	*Corymbia calophylla*	Marri	398784	6538772		15	70				Average tree, no hollows
120	*Corymbia calophylla*	Marri	398781	6538780		16	70				Healthy, no hollows
121	*Corymbia calophylla*	Marri	398777	6538792		12	55				Healthy, no hollows
122	*Corymbia calophylla*	Marri	398770	6538797		10	60				Healthy, no hollows, leaning
123	*Corymbia calophylla*	Marri	398762	6538793		15	55				Healthy, no hollows
124	*Corymbia calophylla*	Marri	398759	6538794		16	85				Healthy, no hollows
125	*Corymbia calophylla*	Marri	398755	6538797		16	55				Healthy, no hollows
126	*Corymbia calophylla*	Marri	398736	6538796		12	65				Healthy, no hollows
127	*Corymbia calophylla*	Marri	398731	6538788		20	60				Healthy, no hollows, foraging
128	*Corymbia calophylla*	Marri	398723	6538801		17	50				Healthy, no hollows
129	*Corymbia calophylla*	Marri	398725	6538807		13	55				Healthy, no hollows
130	*Corymbia calophylla*	Marri	398716	6538815		19	85				Healthy, no hollows, foraging
131	*Corymbia calophylla*	Marri	398698	6538803		20	90				Healthy, no hollows
132	*Corymbia calophylla*	Marri	398684	6538798		14	70				Healthy, no hollows
133	*Corymbia calophylla*	Marri	398716	6538790		20	80				Healthy, no hollows
134	*Corymbia calophylla*	Marri	398718	6538790		24	65				Healthy, no hollows
135	*Corymbia calophylla*	Marri	398720	6538776		16	50				Average health, no hollows
136	*Corymbia calophylla*	Marri	398719	6538771		14	50	40			Healthy, no hollows
137	*Corymbia calophylla*	Marri	398719	6538763		17	65				Healthy, no hollows
138	*Corymbia calophylla*	Marri	398715	6538746		10	50				Healthy, no hollows
139	*Corymbia calophylla*	Marri	398695	6538755		19	50				Healthy, no hollows
140	*Corymbia calophylla*	Marri	398696	6538750		11	50				Average health, no hollows, foraging
141	*Corymbia calophylla*	Marri	398671	6538781		15	85				Healthy, no hollows, bees at base
142	*Corymbia calophylla*	Marri	398670	6538776		16	50				Healthy, no hollows
143	*Corymbia calophylla*	Marri	398662	6538772		14	60				Healthy, no hollows
144	*Corymbia calophylla*	Marri	398647	6538769		12	50				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
145	*Corymbia calophylla*	Marri	398627	6538769		11	55				Healthy, no hollows
146	*Corymbia calophylla*	Marri	398623	6538775		13	90				Healthy, no hollows
147	*Corymbia calophylla*	Marri	398620	6538784		12	60				Healthy, no hollows
148	*Corymbia calophylla*	Marri	398614	6538772		15	60	50			Healthy, no hollows, foraging carnabys
149	*Corymbia calophylla*	Marri	398613	6538762		15	55				Healthy, no hollows
150	*Corymbia calophylla*	Marri	398615	6538755		16	50	45	40+		Healthy, no hollows
151	*Corymbia calophylla*	Marri	398614	6538748		11	60				Healthy, no hollows
152	*Corymbia calophylla*	Marri	398610	6538731		14	65				Healthy, no hollows
153	*Corymbia calophylla*	Marri	398618	6538721		20	90				Healthy, no hollows
154	*Corymbia calophylla*	Marri	398629	6538723		11	70				Healthy, no hollows
155	*Corymbia calophylla*	Marri	398649	6538714		12	60				Healthy, no hollows
156	*Corymbia calophylla*	Marri	398657	6538725		11	60				Healthy, no hollows
157	*Corymbia calophylla*	Marri	398677	6538689		9	90				Healthy, no hollows
158	*Corymbia calophylla*	Marri	398704	6538715		7	60				Healthy, no hollows
159	*Corymbia calophylla*	Marri	398719	6538696		12	60				Healthy, no hollows
160	*Corymbia calophylla*	Marri	398735	6538707		16	50				Healthy, no hollows
161	*Corymbia calophylla*	Marri	398735	6538703		16	70				Healthy, no hollows
162	*Corymbia calophylla*	Marri	398734	6538688		14	75				Healthy, no hollows
163	*Corymbia calophylla*	Marri	398744	6538669		11	50				Healthy, no hollows
164	*Corymbia calophylla*	Marri	398763	6538674		12	70				Healthy, no hollows
165	*Corymbia calophylla*	Marri	398763	6538670		10	80				Average tree, no hollows
166	*Corymbia calophylla*	Marri	398764	6538665		16	70				Healthy, no hollows
167	*Corymbia calophylla*	Marri	398771	6538679		17	60	15	14		Healthy, no hollows
168	*Corymbia calophylla*	Marri	398775	6538675		17	55				Healthy, no hollows
169	*Corymbia calophylla*	Marri	398781	6538654		16	55				Healthy, no hollows
170	*Corymbia calophylla*	Marri	398780	6538643		14	80				Healthy, no hollows
171	*Corymbia calophylla*	Marri	398792	6538628		22	80				Healthy, no hollows
172	*Corymbia calophylla*	Marri	398802	6538625		18	75				Healthy, no hollows
173	*Corymbia calophylla*	Marri	398809	6538629		15	50	40			Healthy, no hollows
174	*Corymbia calophylla*	Marri	398815	6538628		12	50				Healthy, no hollows
175	*Corymbia calophylla*	Marri	398823	6538630		20	60	55			Healthy, no hollows
176	*Corymbia calophylla*	Marri	398830	6538641		22	165				Healthy, no hollows
177	*Corymbia calophylla*	Marri	398816	6538675		15	100				Healthy, no hollows
178	*Corymbia calophylla*	Marri	398873	6538594		18	80				Healthy, no hollows, foraging Carnabys
179	*Corymbia calophylla*	Marri	398864	6538577		19	130				Healthy, no hollows
180	*Corymbia calophylla*	Marri	398851	6538552		15	120				Healthy, no hollows
181	*Corymbia calophylla*	Marri	398837	6538514		15	85				Healthy, no hollows
182	*Corymbia calophylla*	Marri	398839	6538519		17	55				Healthy, no hollows
183	*Corymbia calophylla*	Marri	398808	6538490		17	95				Healthy, no hollows
184	*Corymbia calophylla*	Marri	398796	6538472		20	60				Healthy, no hollows
185	*Corymbia calophylla*	Marri	398792	6538471		13	70				Healthy, no hollows, leaning
186	*Corymbia calophylla*	Marri	398789	6538540		15	60				Healthy, no hollows
187	*Corymbia calophylla*	Marri	398782	6538546		21	145				Healthy, no hollows
188	*Corymbia calophylla*	Marri	398781	6538550		20	105				Healthy, no hollows
189	*Corymbia calophylla*	Marri	398777	6538553		12	50				Healthy, no hollows
190	*Corymbia calophylla*	Marri	398777	6538550		13	60	50			Healthy, no hollows
191	*Corymbia calophylla*	Marri	398775	6538554		18	90				Healthy, no hollows
192	*Corymbia calophylla*	Marri	398774	6538572		17	80				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
193	*Corymbia calophylla*	Marri	398770	6538498		16	95	85			Healthy, no hollows
194	*Corymbia calophylla*	Marri	398746	6538504		10	60				Healthy, no hollows, severe lean
195	*Corymbia calophylla*	Marri	398737	6538503		14	70				Healthy, no hollows
196	*Corymbia calophylla*	Marri	398737	6538499		20	50				Healthy, no hollows
197	*Corymbia calophylla*	Marri	398735	6538498		19	55				Healthy, no hollows
198	*Corymbia calophylla*	Marri	398724	6538485		18	65				Healthy, no hollows
199	*Corymbia calophylla*	Marri	398725	6538481		18	55				Healthy, no hollows
200	*Corymbia calophylla*	Marri	398740	6538477		20	120				Healthy, no hollows
201	*Corymbia calophylla*	Marri	398745	6538479		22	130				Healthy, no hollows
202	*Corymbia calophylla*	Marri	398793	6538420		25	110				Healthy, no hollows
203	*Corymbia calophylla*	Marri	398808	6538428		20	60				Healthy, no hollows
204	*Corymbia calophylla*	Marri	398836	6538386		18	80				Healthy, no hollows
205	*Corymbia calophylla*	Marri	398805	6538344		15	75				Healthy, no hollows
206	*Corymbia calophylla*	Marri	398804	6538331		18	80				Healthy, no hollows
207	*Corymbia calophylla*	Marri	398817	6538338		14	65				Healthy, no hollows
208	*Corymbia calophylla*	Marri	398818	6538322		18	80	40			Healthy, no hollows
209	*Corymbia calophylla*	Marri	398821	6538312		22	90				Healthy, no hollows
210	*Corymbia calophylla*	Marri	398807	6538313		20	70				Healthy, no hollows
211	*Corymbia calophylla*	Marri	398805	6538314		22	60				Healthy, no hollows
212	*Corymbia calophylla*	Marri	398804	6538312		10	60				Healthy, no hollows
213	*Corymbia calophylla*	Marri	398799	6538306		16	90				Healthy, no hollows
214	*Corymbia calophylla*	Marri	398820	6538296		14	105				Healthy, no hollows
215	*Corymbia calophylla*	Marri	398837	6538260		20	115				Healthy, no hollows, leaning
216	*Corymbia calophylla*	Marri	398839	6538246		20	70				Healthy, no hollows
217	*Corymbia calophylla*	Marri	398841	6538248		19	100				Healthy, no hollows
218	*Corymbia calophylla*	Marri	398848	6538245		15	60				Healthy, no hollows, leaning
219	*Corymbia calophylla*	Marri	398853	6538243		19	60				Healthy, no hollows
220	*Corymbia calophylla*	Marri	398856	6538244		15	100				Healthy, no hollows
221	*Corymbia calophylla*	Marri	398861	6538247		20	60				Healthy, no hollows
222	*Corymbia calophylla*	Marri	398862	6538256		17	75				Healthy, no hollows
223	*Corymbia calophylla*	Marri	398983	6538203		16	105				Healthy, no hollows
224	*Corymbia calophylla*	Marri	398764	6538348		20	75				Healthy, no hollows
225	*Corymbia calophylla*	Marri	398752	6538359		16	80				Healthy, no hollows
226	*Corymbia calophylla*	Marri	398735	6538332		17	70				Average health, no hollows
227	*Corymbia calophylla*	Marri	398718	6538331		21	120				Healthy, no hollows
228	*Corymbia calophylla*	Marri	398727	6538347		22	115				Healthy, no hollows
229	*Corymbia calophylla*	Marri	398709	6538350		18	80				Healthy, no hollows
230	*Corymbia calophylla*	Marri	398709	6538349		11	65				Healthy, no hollows
231	*Corymbia calophylla*	Marri	398713	6538360		11	70				Healthy, no hollows
232	*Corymbia calophylla*	Marri	398697	6538376		18	95				Healthy, no hollows
233	*Corymbia calophylla*	Marri	398705	6538372		21	90				Healthy, no hollows, foraging
234	*Corymbia calophylla*	Marri	398713	6538379		22	100				Healthy, no hollows
235	*Corymbia calophylla*	Marri	398714	6538379		21	70				Healthy, no hollows
236	*Corymbia calophylla*	Marri	398726	6538371		21	75	50			Healthy, no hollows
237	*Corymbia calophylla*	Marri	398747	6538398		19	105				Healthy, no hollows
238	*Corymbia calophylla*	Marri	398673	6538270		18	65				Healthy, no hollows
239	*Corymbia calophylla*	Marri	398675	6538274		20	90				Healthy, no hollows
240	*Corymbia calophylla*	Marri	398732	6538272		18	60				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
241	*Corymbia calophylla*	Marri	398737	6538272		18	75				Healthy, no hollows
242	*Corymbia calophylla*	Marri	398738	6538274		15	110				Healthy, no hollows
243	*Corymbia calophylla*	Marri	398779	6538205		13	55				Healthy, no hollows
244	*Corymbia calophylla*	Marri	398787	6538200		14	65				Healthy, no hollows
245	*Corymbia calophylla*	Marri	398806	6538170		11	115				Healthy, no hollows
246	*Corymbia calophylla*	Marri	398808	6538156		21	105				Healthy, no hollows
247	*Corymbia calophylla*	Marri	398746	6538146		14	85	50	50+		Healthy, no hollows
248	*Corymbia calophylla*	Marri	398746	6538161		14	60				Healthy, no hollows, foraging
249	*Corymbia calophylla*	Marri	398731	6538174		11	70				Healthy, no hollows
250	*Corymbia calophylla*	Marri	398722	6538179		15	65				Healthy, no hollows
251	*Corymbia calophylla*	Marri	398726	6538197		13	60				Healthy, no hollows
252	*Corymbia calophylla*	Marri	398723	6538209		22	85				Healthy, no hollows
253	*Corymbia calophylla*	Marri	398723	6538215		11	70				Average health, no hollows
254	*Corymbia calophylla*	Marri	398721	6538224		10	55				Healthy, no hollows
255	*Corymbia calophylla*	Marri	398710	6538223		13	55				Healthy, no hollows
256	*Corymbia calophylla*	Marri	398709	6538227		21	80				Healthy, no hollows
257	*Corymbia calophylla*	Marri	398682	6538222		16	100				Healthy, no hollows
258	*Corymbia calophylla*	Marri	398648	6538230		14	120				Healthy, no hollows
259	*Corymbia calophylla*	Marri	398644	6538205		9	110				Average health, small hollows
260	*Corymbia calophylla*	Marri	398666	6538203		17	100				Average health, no hollows
261	*Corymbia calophylla*	Marri	398673	6538194		21	70				Healthy, no hollows
262	*Corymbia calophylla*	Marri	398694	6538183		20	80				Healthy, no hollows
263	*Corymbia calophylla*	Marri	398672	6538138		20	60				Healthy, no hollows
264	*Corymbia calophylla*	Marri	398647	6538158		16	80				Healthy, no hollows
265	*Corymbia calophylla*	Marri	398642	6538158		20	65	45			Healthy, no hollows
266	*Corymbia calophylla*	Marri	398628	6538140		19	80				Healthy, no hollows
267	*Corymbia calophylla*	Marri	398616	6538128		18	100				Healthy, no hollows
268	*Corymbia calophylla*	Marri	398632	6538123		17	70				Healthy, no hollows
269	*Corymbia calophylla*	Marri	398613	6538039		17	75				Healthy, no hollows
270	*Corymbia calophylla*	Marri	398613	6538002		12	55				Healthy, no hollows
271	*Corymbia calophylla*	Marri	398620	6538007		12	55				Healthy, no hollows
272	*Corymbia calophylla*	Marri	398620	6538005		13	55				Healthy, no hollows
273	*Corymbia calophylla*	Marri	398623	6538002		20	55				Healthy, no hollows
274	*Corymbia calophylla*	Marri	398634	6537998		24	70				Healthy, no hollows
275	*Corymbia calophylla*	Marri	398634	6538989		15	50				Healthy, no hollows
276	*Corymbia calophylla*	Marri	398632	6538985		22	65				Healthy, no hollows
277	*Corymbia calophylla*	Marri	398629	6538975		16	120				Healthy, no hollows
278	*Corymbia calophylla*	Marri	398631	6538974		14	50				Healthy, no hollows
279	*Corymbia calophylla*	Marri	398625	6538971		11	55				Healthy, no hollows
280	*Corymbia calophylla*	Marri	398627	6538967		13	50				Termites, no hollows
281	*Corymbia calophylla*	Marri	398628	6537966		19	85				Healthy, no hollows
282	*Corymbia calophylla*	Marri	398615	6537943		14	85				Healthy, no hollows
283	*Corymbia calophylla*	Marri	398614	6537943		16	65				Healthy, no hollows
284	*Corymbia calophylla*	Marri	398602	6537949		14	100				Healthy, no hollows
285	*Corymbia calophylla*	Marri	398597	6537955		20	80				Healthy, no hollows
286	*Corymbia calophylla*	Marri	398612	6537976		10	80				Healthy, no hollows
287	*Corymbia calophylla*	Marri	398609	6537992		22	70				Healthy, no hollows
288	*Corymbia calophylla*	Marri	398717	6538031		18	80	30			Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
289	*Corymbia calophylla*	Marri	398700	6538052		12	80				Healthy, no hollows
290	*Corymbia calophylla*	Marri	398697	6538058		10	65	55			Healthy, no hollows
291	*Corymbia calophylla*	Marri	398695	6538054		12	90				Healthy, no hollows
292	*Corymbia calophylla*	Marri	398745	6538145		20	80	50	45		Healthy, no hollows
293	*Corymbia calophylla*	Marri	398747	6538155		12	50				Healthy, no hollows
294	*Corymbia calophylla*	Marri	398743	6538160		16	55				Healthy, no hollows
295	*Corymbia calophylla*	Marri	398013	6538473		26	85				Healthy, no hollows
296	*Corymbia calophylla*	Marri	398017	6538468		23	56				Healthy, no hollows
297	*Corymbia calophylla*	Marri	398017	6538465		23	72				Healthy, no hollows
298	*Corymbia calophylla*	Marri	398016	6538458		19	68				Healthy, no hollows
299	*Corymbia calophylla*	Marri	398024	6538455		24	72				Healthy, no hollows
300	*Corymbia calophylla*	Marri	398017	6538445		22	78				Healthy, no hollows
301	*Corymbia calophylla*	Marri	397940	6538396		18	105				Healthy, no hollows
302	*Corymbia calophylla*	Marri	397939	6538390		18	101				Healthy, no hollows
303	*Corymbia calophylla*	Marri	398030	6538355		24	104				Healthy, no hollows
304	*Corymbia calophylla*	Marri	398030	6538353		20	79				Average tree, no hollows
305	*Corymbia calophylla*	Marri	397931	6538278		22	73				Healthy, no hollows
306	*Corymbia calophylla*	Marri	397928	6538290		17	86				Healthy, no hollows
307	*Corymbia calophylla*	Marri	397927	6538281		18	63				Healthy, no hollows
308	*Corymbia calophylla*	Marri	397886	6538274		17	84				Healthy, no hollows
309	*Corymbia calophylla*	Marri	398011	6538259		16	100				Healthy, no hollows
310	*Corymbia calophylla*	Marri	398017	6538254		17	107				Healthy, no hollows
311	*Corymbia calophylla*	Marri	398037	6538077		8	72				Leaning, no hollows
312	*Corymbia calophylla*	Marri	398022	6538101	9:47	15	84				Sawfly lvs, no hollows
313	*Corymbia calophylla*	Marri	398028	6538066		17	79				Healthy, no hollows
314	*Corymbia calophylla*	Marri	398016	6538070		18	69				Healthy, no hollows
315	*Corymbia calophylla*	Marri	398199	6537791		10	121				Healthy, no hollows
316	*Corymbia calophylla*	Marri	398224	6538802		13	79				Healthy, no hollows
317	*Corymbia calophylla*	Marri	398213	6538821		15	117				Healthy, no hollows
318	*Corymbia calophylla*	Marri	398237	6538830		14	81				Healthy, no hollows
319	*Corymbia calophylla*	Marri	398255	6538815		22	90	83	78		Healthy, no hollows
320	*Corymbia calophylla*	Marri	398260	6538840		16	68				Healthy, no hollows
321	*Corymbia calophylla*	Marri	398257	6537853		13	58				Healthy, no hollows
322	*Corymbia calophylla*	Marri	398234	6537871		13	76				Healthy, no hollows
323	*Corymbia calophylla*	Marri	398228	6537883		9	76				Healthy, no hollows
324	*Corymbia calophylla*	Marri	398253	6537884		16	74				Healthy, no hollows
325	*Corymbia calophylla*	Marri	398269	6537871		22	98				Healthy, no hollows
326	*Corymbia calophylla*	Marri	398290	6537879		19	69				Healthy, no hollows
327	*Corymbia calophylla*	Marri	398328	6537890		14	60	48			Healthy, no hollows
328	*Corymbia calophylla*	Marri	398351	6537887		17	77				Unhealthy, no hollows
329	*Corymbia calophylla*	Marri	398388	6537805		12	74				Healthy, no hollows
330	*Corymbia calophylla*	Marri	398415	6537818		10	64	61			Healthy, no hollows
331	*Corymbia calophylla*	Marri	398277	6537934		12	67				Healthy, no hollows
332	*Corymbia calophylla*	Marri	398264	6537931		15	97				Healthy, no hollows
333	*Corymbia calophylla*	Marri	398286	6537975		20	92				Healthy, no hollows
334	*Corymbia calophylla*	Marri	398277	6538006		15	118				Healthy, no hollows
335	*Corymbia calophylla*	Marri	398323	6538094		10	76				Healthy, no hollows
336	*Corymbia calophylla*	Marri	398326	6538096		9	79				Stunted, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
337	*Corymbia calophylla*	Marri	398388	6537959		12	122				Healthy, no hollows
338	*Corymbia calophylla*	Marri	398476	6538002		14	99				Healthy, no hollows
339	*Corymbia calophylla*	Marri	398512	6538002		15	75				Healthy, no hollows
340	*Corymbia calophylla*	Marri	398534	6537989		16	78				Healthy, no hollows
341	*Corymbia calophylla*	Marri	398537	6537995		15	66				Healthy, no hollows
342	*Corymbia calophylla*	Marri	398542	6538007		22	116				Healthy, no hollows
343	*Corymbia calophylla*	Marri	398532	6538050		11	98				Healthy, no hollows
344	*Corymbia calophylla*	Marri	398553	6538051		12	92				Healthy, no hollows
345	*Corymbia calophylla*	Marri	398546	6538098		10	57				Healthy, no hollows
346	*Corymbia calophylla*	Marri	398541	6538101		15	83	31			Healthy, no hollows
347	*Corymbia calophylla*	Marri	398533	6538113		14	93				Healthy, no hollows
348	*Corymbia calophylla*	Marri	398550	6538148		13	57				Average tree, no hollows
349	*Corymbia calophylla*	Marri	398552	6538168		14	64				Healthy, no hollows
350	*Corymbia calophylla*	Marri	398524	6538154		12	75				Healthy, no hollows, foraging Carbanys
351	*Corymbia calophylla*	Marri	398511	6538150		11	87				Healthy, no hollows
352	*Corymbia calophylla*	Marri	398462	6538149		10	91				Healthy, no hollows
353	*Corymbia calophylla*	Marri	398475	6538167		14	62				Healthy, no hollows
354	*Corymbia calophylla*	Marri	398487	6538174		16	70				Healthy, no hollows
355	*Corymbia calophylla*	Marri	398453	6538197		20	67				Healthy, no hollows
356	*Corymbia calophylla*	Marri	398448	6538198		2	79				Healthy, no hollows
357	*Corymbia calophylla*	Marri	398444	6538207		11	79				Healthy, no hollows
358	*Corymbia calophylla*	Marri	398455	6538224		14	55	48			Healthy, no hollows
359	*Corymbia calophylla*	Marri	398438	6538248		15	87				Healthy, no hollows
360	*Corymbia calophylla*	Marri	398446	6538267		9	77				Healthy, no hollows
361	*Corymbia calophylla*	Marri	398492	6538270		15	80	45			Healthy, no hollows
362	*Corymbia calophylla*	Marri	398495	6538383		10	70				Healthy, no hollows
363	*Corymbia calophylla*	Marri	398564	6538256		12	69				Healthy, no hollows
364	*Corymbia calophylla*	Marri	398560	6538283		19	108				Resprouting on stems, no hollows
365	*Corymbia calophylla*	Marri	398547	6538306		18	70				Healthy, no hollows
366	*Corymbia calophylla*	Marri	398556	6538327		18	88				Healthy, no hollows
367	*Corymbia calophylla*	Marri	398446	6538269		8	78	35			Healthy, no hollows
368	*Corymbia calophylla*	Marri	398437	6538251		17	82				Healthy, no hollows
369	*Corymbia calophylla*	Marri	398432	6538289		13	66				Healthy, no hollows
370	*Corymbia calophylla*	Marri	398431	6538318		15	57				Healthy, no hollows
371	*Corymbia calophylla*	Marri	398401	6538342		20	88				Healthy, no hollows
372	*Corymbia calophylla*	Marri	398389	6538352		19	94				Healthy, no hollows
373	*Corymbia calophylla*	Marri	398420	6538377		11	68				Healthy, no hollows
374	*Corymbia calophylla*	Marri	398421	6538382		14	59				Healthy, no hollows
375	*Corymbia calophylla*	Marri	398426	6538385		19	92				Healthy, no hollows
376	*Corymbia calophylla*	Marri	398450	6538373		18	63				Healthy, no hollows
377	*Corymbia calophylla*	Marri	398467	6538387		17	80				Healthy, no hollows
378	*Corymbia calophylla*	Marri	398556	6538331		20	79				Healthy, no hollows
379	*Corymbia calophylla*	Marri	398574	6538360		15	74				Healthy, no hollows
380	*Corymbia calophylla*	Marri	398622	6538336		13	99				Healthy, no hollows
381	*Corymbia calophylla*	Marri	398624	6538355		17	102				Healthy, no hollows
382	*Corymbia calophylla*	Marri	398635	6538364		20	113				Healthy, no hollows
383	*Corymbia calophylla*	Marri	398632	6538404		17	75				Healthy, no hollows
384	*Corymbia calophylla*	Marri	398655	6538424		11	85				Healthy, no hollows, termites

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
385	*Corymbia calophylla*	Marri	398663	6538441		10	58				Healthy, no hollows
386	*Corymbia calophylla*	Marri	398642	6538440		12	60				Healthy, no hollows
387	*Corymbia calophylla*	Marri	398631	6538461		14	53				Average tree, no hollows
388	*Corymbia calophylla*	Marri	398615	6538500		17	119				Healthy, no hollows
389	*Corymbia calophylla*	Marri	398593	6538504		15	64				Small hollows
390	*Corymbia calophylla*	Marri	398583	6538491		14	67				Healthy, no hollows
391	*Corymbia calophylla*	Marri	398565	6538482		19	83				Healthy, no hollows
392	*Corymbia calophylla*	Marri	398543	6538460		20	59				Dead main top branch, no hollows
393	*Corymbia calophylla*	Marri	398523	6538476		20	68				Healthy, no hollows
394	*Corymbia calophylla*	Marri	398502	6538472		12	59				Healthy, no hollows
395	*Corymbia calophylla*	Marri	398478	6538457		11	67				Average tree, no hollows
396	*Corymbia calophylla*	Marri	398444	6538459		20	119				Healthy, no hollows
397	*Corymbia calophylla*	Marri	398477	6538505		15	93				Healthy, no hollows
398	*Corymbia calophylla*	Marri	398507	6538530		11	100				Healthy, no hollows
399	*Corymbia calophylla*	Marri	398513	6538529		16	64				Healthy, no hollows
400	*Corymbia calophylla*	Marri	398531	6538566		20	113				Healthy, no hollows
401	*Corymbia calophylla*	Marri	398544	6538580		21	95				Healthy, no hollows
402	*Corymbia calophylla*	Marri	398552	6538588		18	65				Healthy, no hollows
403	*Corymbia calophylla*	Marri	398599	6538559		13	67				Healthy, no hollows
404	*Corymbia calophylla*	Marri	398651	6538554		21	63				Healthy, no hollows
405	*Corymbia calophylla*	Marri	398661	6538568		10	71				Healthy, no hollows
406	*Corymbia calophylla*	Marri	398662	6538594		10	64				Healthy, no hollows
407	*Corymbia calophylla*	Marri	398714	6538631		21	111				Healthy, no hollows
408	*Corymbia calophylla*	Marri	398650	6538645		20	64				Healthy, no hollows
409	*Corymbia calophylla*	Marri	398623	6538638		20	102				Healthy, no hollows
410	*Corymbia calophylla*	Marri	398630	6538659		17	68	24			Healthy, no hollows
411	*Corymbia calophylla*	Marri	398616	6538658		14	64				Healthy, no hollows
412	*Corymbia calophylla*	Marri	398603	6538674		14	78				Healthy, no hollows
413	*Corymbia calophylla*	Marri	398588	6538716		22	101				Healthy, no hollows
414	*Corymbia calophylla*	Marri	398562	6538710		19	97				Healthy, no hollows
415	*Corymbia calophylla*	Marri	398564	6538653		20	77	43			Healthy, no hollows
416	*Corymbia calophylla*	Marri	398562	6538638		21	81				Healthy, no hollows
417	*Corymbia calophylla*	Marri	398549	6538658		19	60				Healthy, no hollows
418	*Corymbia calophylla*	Marri	398521	6538654		19	94				Healthy, no hollows
419	*Corymbia calophylla*	Marri	398537	6538595		20	53	45			Healthy, no hollows
420	*Corymbia calophylla*	Marri	398530	6538568		19	104				Healthy, no hollows
421	*Corymbia calophylla*	Marri	398508	6538585		13	76				Healthy, no hollows
422	*Corymbia calophylla*	Marri	398531	6538762		8	91				Healthy, no hollows
423	*Corymbia calophylla*	Marri	398471	6538777		11	114				Healthy, no hollows
424	*Corymbia calophylla*	Marri	398454	6538788		22	112				Healthy, no hollows
425	*Corymbia calophylla*	Marri	398450	6538771		19	75				Healthy, no hollows
426	*Corymbia calophylla*	Marri	398431	6538763		11	70				Dead branches, no hollows
427	*Corymbia calophylla*	Marri	398446	6538745		19	86				Healthy, no hollows
428	*Corymbia calophylla*	Marri	398433	6538736		15	68				Healthy, no hollows
429	*Corymbia calophylla*	Marri	398465	6538705		17	56				Healthy, no hollows
430	*Corymbia calophylla*	Marri	398477	6538693		20	57	57	56		Healthy, no hollows
431	*Corymbia calophylla*	Marri	398425	6538675		16	63	60			Dead 2nd trunk, no hollows
432	*Corymbia calophylla*	Marri	398405	6538677		23	69				Healthy, no hollows

Tree No.	Species	Common Name	Easting	Northing	Photo Time	Height	DBH	2nd branch	3rd branch	Health	Notes
433	*Corymbia calophylla*	Marri	398407	6538683		10	62	57			Healthy, no hollows
434	*Corymbia calophylla*	Marri	398401	6538609		15	69	60			Healthy, no hollows
435	*Corymbia calophylla*	Marri	398441	6538600		20	71				Healthy, no hollows
436	*Corymbia calophylla*	Marri	398401	6538583		19	88	32			Healthy, no hollows
437	*Corymbia calophylla*	Marri	398358	6538580		11	76				Leaning, no hollows
438	*Corymbia calophylla*	Marri	398364	6538560		21	83				Healthy, no hollows
439	*Corymbia calophylla*	Marri	398348	6538547		19	90				Healthy, no hollows
440	*Corymbia calophylla*	Marri	398348	6538538		12	88	46			Healthy, no hollows
441	*Corymbia calophylla*	Marri	398335	6538537		10	66				Healthy, no hollows
442	*Corymbia calophylla*	Marri	398329	6538509		19	93				Healthy, no hollows
443	*Corymbia calophylla*	Marri	398307	6538521		10	76				Healthy, no hollows
444	*Corymbia calophylla*	Marri	398323	6538454		11	96				Some dead branches, no hollows
445	*Corymbia calophylla*	Marri	398326	6538446		10	64				Healthy, no hollows
446	*Corymbia calophylla*	Marri	398301	6538449		8	76				Healthy, no hollows
447	*Corymbia calophylla*	Marri	398267	6538473		12	66				Healthy, no hollows
448	*Corymbia calophylla*	Marri	398258	6538478		13	75				Healthy, no hollows
449	*Corymbia calophylla*	Marri	398249	6538473		20	67				Healthy, no hollows
450	*Corymbia calophylla*	Marri	398232	6538467		21	67				Healthy, no hollows
451	*Corymbia calophylla*	Marri	398223	6538421		8	81				Healthy, no hollows
452	*Corymbia calophylla*	Marri	398189	6538408		17	62				Healthy, no hollows
453	*Corymbia calophylla*	Marri	398186	6538395		18	86				Healthy, no hollows
454	*Corymbia calophylla*	Marri	398156	6538382		16	111				Healthy, no hollows
455	*Corymbia calophylla*	Marri	398145	6538346		18	80				Healthy, no hollows
456	*Corymbia calophylla*	Marri	398155	6538343		21	61	56			Healthy, no hollows
457	*Corymbia calophylla*	Marri	398156	6538337		18	71				Healthy, no hollows
458	*Corymbia calophylla*	Marri	398171	6538348		17	116				Healthy, no hollows
459	*Corymbia calophylla*	Marri	398184	6538289		11	90				Healthy, no hollows
460	*Corymbia calophylla*	Marri	398190	6538245		18	83				Healthy, no hollows
461	*Corymbia calophylla*	Marri	398161	6538266		18	105				Healthy, no hollows
462	*Corymbia calophylla*	Marri	398211	6538639		10	112	56	30		Healthy, no hollows
463	*Corymbia calophylla*	Marri	398258	6538707		16	76	53			Healthy, no hollows
464	*Corymbia calophylla*	Marri	398262	6538701		12	70				Healthy, no hollows
465	*Corymbia calophylla*	Marri	398250	6538762		15	70				Healthy, no hollows, borers
466	*Corymbia calophylla*	Marri	398255	6538768		15	80				Healthy, no hollows, borers
467	*Corymbia calophylla*	Marri	397900	6537666		15	75				Healthy, no hollows
468	*Corymbia calophylla*	Marri	398047	653776		17	85				Healthy, no hollows
469	*Corymbia calophylla*	Marri	398135	6537644		10	75				Healthy, no hollows
470	*Corymbia calophylla*	Marri	398027	6537583		16	70				Healthy, no hollows
471	*Corymbia calophylla*	Marri	398154	6537576		11	55				Healthy, no hollows
472	*Corymbia calophylla*	Marri	398247	6538642		15	70				Healthy, no hollows
473	*Corymbia calophylla*	Marri	398235	6537580		12	65				Healthy, no hollows

BPP Group Pty Ltd.
ABN: 39 166 551 784
Suite 11, 36 Johnson Street Guildford WA 6055
PO Box 388 Guildford WA 6935
P: 6477 1144 | E: admin@bushfireprone.com.au

BUSHFIRE ADVICE BRIEF

This document is NOT to be submitted to a government authority as part of a building permit or planning application.

It does not contain the required detailed and justified information content for a Bushfire Attack Level Report and/or a Bushfire Management Plan that are to be submitted with building permit or planning applications.

WA - THE ESTABLISHMENT OF REQUIREMENTS TO APPLY BUSHFIRE PROTECTION MEASURES

To assist with mitigating the risks of loss of life, injury, or destroyed or damaged assets resulting from a bushfire event, the WA Government has legislated the application of certain bushfire protection measures in the planning and/or construction phases of specified development.

These requirements are established by the following:

- **For Land Use Planning:** *State Planning Policy 3.7 Bushfire*, November 2024 (SPP 3.7) and the associated Planning for Bushfire Guidelines, November 2024 (Guidelines). The mechanism to require development approval and the application of SPP 3.7 is provided by the deemed provisions of the Local Planning Scheme Regulations 2015, made under the WA Planning and Development Act 2005.
- **For Building Design and Construction:** The Building Code of Australia (BCA) contained in the National Construction Code (NCC) and referenced by the WA Building Regulations 2012, made under the WA Building Act 2011.

PURPOSE OF THE ADVICE BRIEF AND ITS LIMITATIONS

Purpose: Assessments and Advice Regarding Land Use Planning

To conduct an appropriate appraisal of the subject site and the proposed works/ use, for the purpose of:

1. Concisely presenting indicative information to inform proponents regarding the ability of the proposed works/ use to comply with the required bushfire planning protection measures; and
2. Where constraints are identified and potential solutions exist, these are discussed and the required steps to progress are identified.

[Note that the site visit conducted for the Advice Brief does not necessarily remove the requirement for a further site visit to assess and record site data in more detail consequent to the application of the advice provided].

Limitations: Information for Building Design and Construction

The requirement for specific detailed and justified information to inform certain building design and construction, necessitates the provision of this information in separate documents:

1. For Classes 1, 2, 3 and associated 10a buildings, the BCA establishes the bushfire performance requirements. The deemed to satisfy bushfire construction requirements are those corresponding to a determined BAL rating and are detailed in AS 3959:2018 or the NASH Standard 2014 (Class 1 and 10a only). However, the Advice Brief will only provide an indicative BAL rating or indicate the ability to not exceed BAL-29.

   The determined BAL rating and supporting information would be provided in a separate **BAL Assessment Report**.
2. For certain Class 9 buildings where compliance with NCC 2022 is required, relevant design bushfire data is required to inform persons responsible for ensuring that the bushfire performance requirements of the BCA can be met.

   Bushfire Prone Planning would present this information, and justification for its development, in a separate **Design Bushfire Data Statement**.

ASSESSMENT AND PROPOSED DEVELOPMENT/USE DETAILS

ASSESSMENT					
BPP Job Reference No.		16804			
Client Details	Contact	Stephanie Ng	Business	Claymont Developments	
Bushfire Planning Consultant		Selina Hutcheon (BPAD Level 1 No. 63345)			
Appraisal Method:	Site Visit and Desktop			Date	10 July 2026
PROPOSED DEVELOPMENT/USE					
Description	Proposed Subdivision				
Site Location	Lot 83 Cheriton Rd, Ginginup			Lot Size	61.118ha
Is a planning application that addresses the requirements established by State Planning Policy 3.7?					Yes
Applicable National Construction Code (NCC) building classification.		N/A			

SUMMARY STATEMENTS

BPP understand the proposal seeks to expand the existing developed area of Ginginup. The existing subdivision was approved despite the challenges faced by the overlength no-through road. Due to the overlength no through road issue, BPP is of the opinion that additional subdivision works will not be approved unless the proposal is able to provide a secondary access option.

Based on this preliminary assessment, BPP does not consider it is currently in a position to prepare a Bushfire Management Plan (BMP) that can reasonably demonstrate compliance with the intent of State Planning Policy 3.7 for the proposed subdivision, unless positive feedback is received from the Shire of Gingin.

Potential for the proposal to achieve the objectives and policy outcomes of SPP 3.7:

Element 1,2, and 4 can be complied with. Element 3 will not comply and will require an Outcomes Based Approach.

ADVICE / RECOMMENDATIONS

1. A FSAR will be required to be installed on the northern edge of Lots which adjoin Class A forest/Class D Scrub.
2. Strategic tanks may be required. We recommend discussing these with the Shire of Gingin.
3. An Outcomes Based Approach will be required to address the overlength no-through road. More details in this document.

IDENTIFICATION OF BUSHFIRE PRONE VEGETATION

ONSITE VEGETATION
EXPLANATORY INFORMATION Typically, the landowner can potentially manage this vegetation i.e., remove and/or maintain in a minimal fuel, low threat state in perpetuity, as part of an asset protection zone (APZ). The APZ creates separation between the potential bushfire hazard and a building. This can remove the potential for flame contact (from the bushfire itself) and lowers the level of radiant heat that can be transferred to the building (from the bushfire itself). ***IMPORTANT*** ***CERTAIN TYPES AND/OR EXTENTS OF NATIVE VEGETATION CANNOT BE MODIFIED OR REMOVED WITHOUT PERMISSION BEING OBTAINED FROM THE RELEVANT AGENCY/AUTHORITY. SEEK THE ADVICE OF YOUR LOCAL GOVERNMENT FIRST.*** Note that the BAL rating does not consider the building's potential exposure to radiant heat, flames and embers from other vulnerable combustible materials/items/structures that might exist around a building and be ignited by embers from a bushfire that is some distance away. These are consequential fires, and this risk can be the primary risk and must be separately considered and managed by the property owner/manager.

Location Description and Classification	Explanation
Class A - Forest	Dense areas of trees, sparser areas of trees with shrub/scrub understoreys.
Class B - Woodland	Sparser areas of trees with lower foliage cover over grasslands.
Class G - Grassland	Grasslands which are not managed or cannot guarantee to be managed on an ongoing basis.

Assessment Comments:

Due to the large Lot sizes, it is unlikely that the entirety of the subdivision will be managed to a low threat state. Building envelopes should be located such that they have a minimum of the below distances:

Area – Vegetation type and slope (applies to downslope only)	Required separation distance between vegetation and a future building
Area 1 – Forest 5-10 degrees	33m
Area 2 – Forest 0-5 degrees	27m
Area 3 – Woodland 5-10 degrees	17m
Area 4 – Woodland 10-15 degrees	28m
Area 5 – Scrub 5-10 degrees	17m
Area 6 -Grassland – 5-10 degrees	10m
Area 7 - Grassland – 10-15 degrees	12m
Area 8 - Excluded	N/A

OFFSITE VEGETATION
EXPLANATORY INFORMATION In most situations, the owner of the subject site will have no authority to reduce these offsite bushfire hazards by clearing or modifying the vegetation and maintaining the land in a minimal fuel, low threat state in perpetuity. Consequently, the potential bushfire threats from this vegetation will typically remain. This may limit the separation distances that can be achieved (i.e., the size of the APZ that can be established). An exception for relevant parts of the land may exist when: 1. The offsite landowner is subject to a legislated management responsibility e.g., compliance with a fire break/fuel load notice; or 2. A formal agreement for the management of the vegetation on relevant areas of land is established with the offsite landowner (or its responsible manager) e.g., a private landowner or a government agency.

Location Description and Classification	Explanation
Class A Forest	Dense areas of offsite vegetation exceeding 6m in height. Typically contain Eucalypt trees.
Class B Woodland	Clumps of trees on neighbouring properties similar to those onsite.
Class D Scrub	Tall shrubs and low trees 2-6m in height. On neighbouring properties and the adjoining Cheriton Rd verge.
Class G Grassland	Grasslands which are not managed or cannot guarantee to be managed on an ongoing basis.
Exclusion Clauses (e) and (f)	Low threat areas of vegetation such as low threat managed properties and non-vegetated elements such as roads/buildings.

Assessment Comments:

Offsite vegetation cannot be guaranteed to be managed, therefore should be classified as worst case scenario. The vegetation on the verge of Cheriton Rd falls partly within the Lot boundaries and may be able to be removed by the future landowner.



Figure 3.4

Classified Vegetation & Topography (Existing)

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

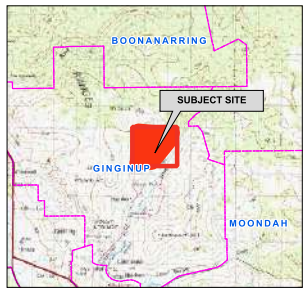
- Subject Site
- Cadastral
- Buildings
- Hydrants
- Vegetation Distance (m)
- 150m Assessment Area
- 100m Assessment Area

Classified Vegetation

- Forest
- Woodland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

0 50 100 150 200
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 09-07-2026
SCALE (A3): 1 : 6000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-4_VEG--Lot 83 Cheriton Road Ginginup.qgz

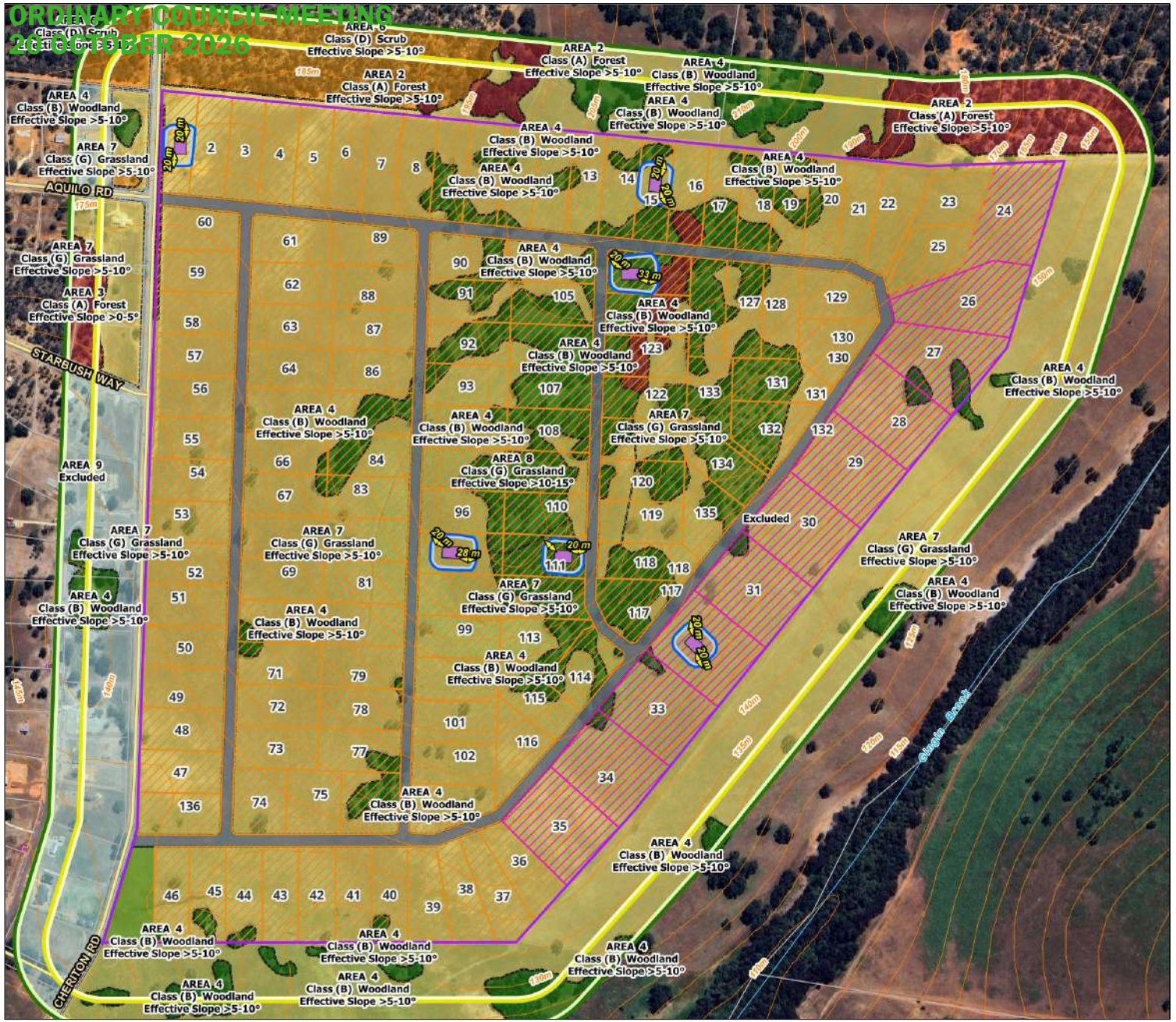


Figure 3.4.1

Classified Vegetation & Topography (Post Dev)

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

- Subject Site
- Cadastral
- Example APZ
- APZ Distance (m)
- 100m Assessment Area
- 150m Assessment Area
- Building Envelope 20x30m

Classified Vegetation

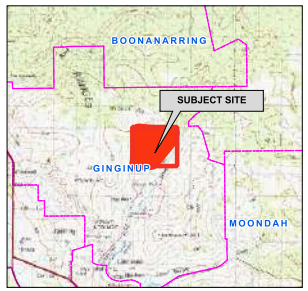
- Forest
- Woodland
- Scrub
- Grassland
- Excluded 2,2,3,2 (f)

Proposed Subdivision

- R1
- R2
- Road
- POS

0 50 100 150 200
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 09-07-2026
SCALE (A3): 1 : 6000

BUSHFIRE PRONE PLANNING

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16804-Fig_3-4-1_POSTVEG-Lot 83 Cheriton Road Ginginup.qgz

POTENTIAL FOR THE PROPOSAL TO ACHIEVE THE OBJECTIVES AND POLICY OUTCOMES OF SPP 3.7

EXPLANATORY INFORMATION

Any development, in a designated bushfire prone area, that is required to have planning approval from the relevant decision maker, must meet the requirements established by SPP 3.7 and the associated Guidelines.

The Guidelines establish the key bushfire protection measures that are considered by the regulatory authorities to result in acceptable levels of the risks associated with a bushfire event.

These protection measures are established within the bushfire protection criteria as Acceptable Solutions and grouped under the four Elements of Location, Siting and Design, Vehicular Access and Water Supply (as relevant to the planning proposal stage). The planning proposal's ability to achieve the applicable acceptable and therefore the policy outcomes of SPP 3.7, is assessed.

When all relevant acceptable solutions cannot be achieved, SPP 3.7 establishes an alternative pathway (the outcomes-based approach) that can be applied to determining if SPP 3.7 Policy Outcomes can be satisfied.

The Applicable Bushfire Protection Criteria (BPC)	BPC 5: Structure Plans & Subdivision Applications

THROUGH APPLICATION OF THE ACCEPTABLE SOLUTION PATHWAY

Element 1: Location	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

THE BROADER LANDSCAPE TYPE (BLT) ASSESSMENT - OUTCOME SUMMARY				
Criteria	Criterion Characteristics and Designated Point Value			Assessed Points [1]
	5 Points	2 Points	1 Point	
Proximity of the planning proposal to a 'suitable destination'.	>10 km	1-10 km	<1 km	**2**
The road pattern from the planning proposal to a suitable destination.	Complex and Indirect	Mixed Road Patterns	Simple and/or Direct	**1**
THE PREDOMINANT VEGETATION PATTERN EXTERNAL	Large Tracts Of Classified Vegetation	Mosaic	Cleared Vegetation	**2**
EXPOSURE TO AREAS OF EXTERNAL BUSHFIRE HAZARDS ASSESSED AS 'LARGE TRACTS OF CLASSIFIED VEGETATION'.	Three or Four Aspects	Two Aspects	One Aspect or None	**1**
Note 1: Refer to assessment supporting information and maps on the following pages.				
DETERMINED BROADER LANDSCAPE TYPE (BLT)				
Broader Landscape Type A ..... Total Assessed Points ≤ 11				
IMPLICATIONS FOR THE SUBJECT PLANNING PROPOSAL AND CONTENT OF THIS BMP				
The determination of the planning proposal's location within a Broader Landscape Type A, demonstrates compliance with BPC Element 1: Location. No further assessments are required.				

The proposal is within Broader Landscape Type A. This achieves compliance with Element 1. The relevant maps are included in Attachment 2.

Element 2: Siting and Design	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

Residential BMPs or BAL assessments will be required to ensure buildings are within BAL-29 or below. APZ will be required to be installed on each Lot. Example building envelopes and APZs have been included in the post development vegetation map to indicate possible building locations which do not rely on the maintenance of neighbouring lots.

If building envelopes are to be included as part of the subdivision, these should consider avoiding native vegetation to allow it to be retained, and form a connecting path between lots to provide additional protection to future buildings.

The POS area will likely require a landscaping plan to ensure the BAL ratings in the BMP are appropriately accounted for.

Element 3: Vehicular Access	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
		✓			

Assessment Comments:

The proposal is not able to comply with the requirements for access routes – public road access should be provided in two different directions to two different suitable destinations, with an all-weather surface.

The no through road (Cheriton Rd) is greater than the maximum length of 200m. The southwest corner of the subdivision is 5.6km by road distance from the point of two-way access at Cheriton Rd/Mchavloe Dr.

The no through road may exceed 200m if it meets the following:

- Alternative access including an emergency access way cannot be provided due to site constraints (met)
- Travels towards a suitable destination (met)
- The balance of the no-through road that is greater than 200m from the subject site is wholly within BAL-LOW, or is within a residential built -out area, or is within Area 1.

The last requirement could be considered partially met as the majority of the road is not within the Bushfire Prone Area, with only a small amount of road within the Bushfire Prone Area.

An alternative approach was prepared in the previous BMP, which under the current Guidelines is considered an "Outcomes Based Approach". See the following page for further assessment.

As there is no perimeter road proposed along the northern boundary, a Fire Service Access Route (FSAR) can be expected to be required next to adjoining forest vegetation. This would be similar to the one travelling along the rear of Lots 1-26 in the Lot 81 subdivision. The relevant Lots in the Lot 83 subdivision are Lots 1-11 and Lots 23/24. The current Guidelines require FSAR to have a minimum of 10m horizontal clearance, 4.5 vertical clearance and 15 tonnes weight capacity. The FSAR should connect with a public road every 500m. This will need to be factored into the design.

Element 4: Water Supply	Compliance Likelihood				
	Almost None	Unlikely	Possibly	Likely	Almost Certain
					✓

Assessment Comments:

Water tanks or hydrants are required as a minimum requirement. Strategic water tanks may be required to be installed by the developer. These are 50KL tanks installed as dedicated firefighting tanks. It is recommended that this be discussed with the Shire of Gingin prior to finalising the subdivision application. Installing hydrants as well as individual tanks or strategic tanks may be required as part of the Outcomes Based Approach to overcome the no-through road issue.

APPLICATION OF THE OUTCOMES-BASED APPROACH (THE ALTERNATIVE PATHWAY)

EXPLANATORY INFORMATION

The methodology and processes to be applied in utilising this approach will be unique to each planning proposal. The approach can vary significantly in approach, complexity of assessment and the amount of detail required.

Significant costs may be incurred to develop and justify the process and the assessment - with no guarantee of success. Nonetheless, it is viable pathway to apply in certain circumstances and potentially straightforward for minor variations from the acceptable solutions.

Using the alternative pathway will require the involvement of a Level 3 (BPAD) accredited bushfire practitioner with appropriate levels of bushfire experience.

Will the planning proposal require the application of the outcomes based approach?	Yes

Assessment Comments:

The proposal cannot comply with Element 3 due to the existing overlength no-through road.

Potential to Satisfy the Objectives and Policy Outcomes of SPP 3.7	Almost None	Limited	Possibly	Probable
	✓			

Assessment Comments:

The proposal is located at the end from the point of two-way access an existing no through road (Cheriton Rd) which is 5.6km from the closest point of two-way access. This is a legacy issue which cannot easily be remedied by the proposal as there are no other roads the proposal could connect to.

The proposal is unlikely to be supported by the Shire/WAPC unless a secondary access route is able to be provided, This may take the form of another road or Emergency Access Way.

If a BMP is to proceed, additional protection measures must be applied to ensure persons are equipped to stay and defend in the event of a bushfire.

Proposed additional protection measures to be applied would include:

Increasing the required APZ to be a minimum of BAL-19 by creating a further setback from offsite vegetation and managing additional grassland on each Lot. This will reduce the maximum kW of radiant heat impacting a home and increase the required managed area creating a safer area and protecting homes from a bushfire.

Additional water supply by installing hydrants and either installing strategic tanks or requiring all purchasers to install a 10,000L tank per habitable building. This will ensure water access is available and sufficient for emergency services.

A possible Outcomes Based Approach will also address:

While the no-through road does not comply with the 200m maximum length, the no through road is largely not considered to be within a Bushfire Prone Area. The road adjoins Class G Grassland paddock areas largely noticed to be <10cm in height at the time of the site visit. Only a small section of road is bushfire prone where trees from the creek to the east extend towards the road. While there is inherent risk with the length of the no-through road, a grass fire is likely to pass quickly through the area and will not leave smouldering logs or branches typical of forest fires, allowing persons sheltering in their homes to evacuate after the fire front has passed.

ATTACHMENT 1 – INFORMATION LINKS AND RELEVANT CONTACTS

INFORMATION LINKS	
DFES – Map of Bushfire Prone Areas	https://maps.slip.wa.gov.au/landgate/bushfireprone/
Department of Planning, Lands and Heritage – all bushfire planning documentation	https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas
AS 3959:2018 Construction of buildings in bushfire prone areas	https://infostore.saiglobal.com/en-au/standards/as-3959-2018-122340_saig_as_as_2685241/
NASH Standard – Steel Framed Construction in Bushfire Area	https://nash.asn.au/nash/publications/nash-standards
Local Government – Firebreak Notice	Firebreak_Orders_2025_-_DIGITAL_VERSION.pdf
Bushfire Practitioner Accreditation (FPA Australia)	http://www.fpaa.com.au/bpad.aspx

ATTACHMENT 2 – BROADER LANDSCAPE ASSESSMENT



Figure 3.1

Broader Landscape Vegetation Aspects

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

Subject Site

Broader Landscape Assessment

2km Assessment Area
Assesment Aspects

Road Access

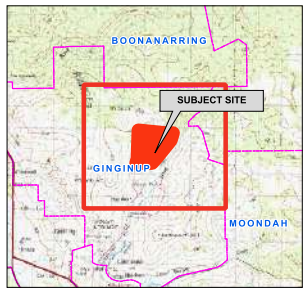
Local Road
Access Track

Vegetation Categories

Other Classified Vegetation
Unmanaged Grassland
Low Threat Vegetation

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
SCALE (A3): 1 : 19000

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16804-Fig_3-1_BLA_VEG--Lot 83 Cheriton Road Gingin.qgz

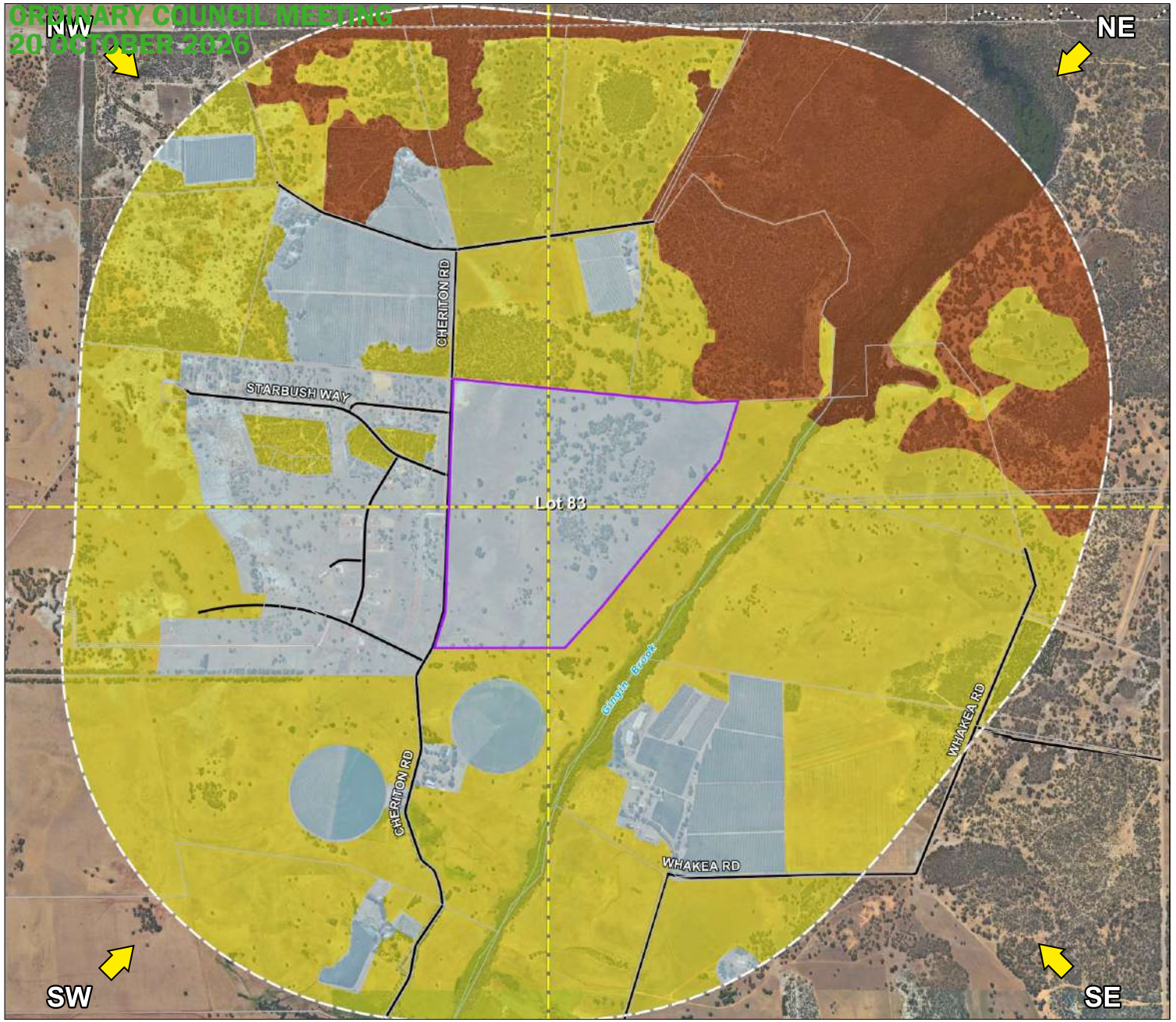


Figure 3.2

Predominant Vegetation Pattern

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

Subject Site

Broader Landscape Assessment

2km Assessment Area
Assesment Aspects

Road Access

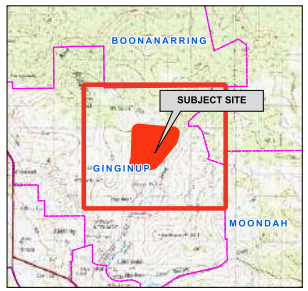
Local Road
Access Track

Vegetation Patterns

Large Tracts of Classified Vegetation
Mosaic Pattern
Low Threat Vegetation

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
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16804-Fig_3-2_BLA_MOS--Lot 83 Cheriton Road Ginginup.qgz

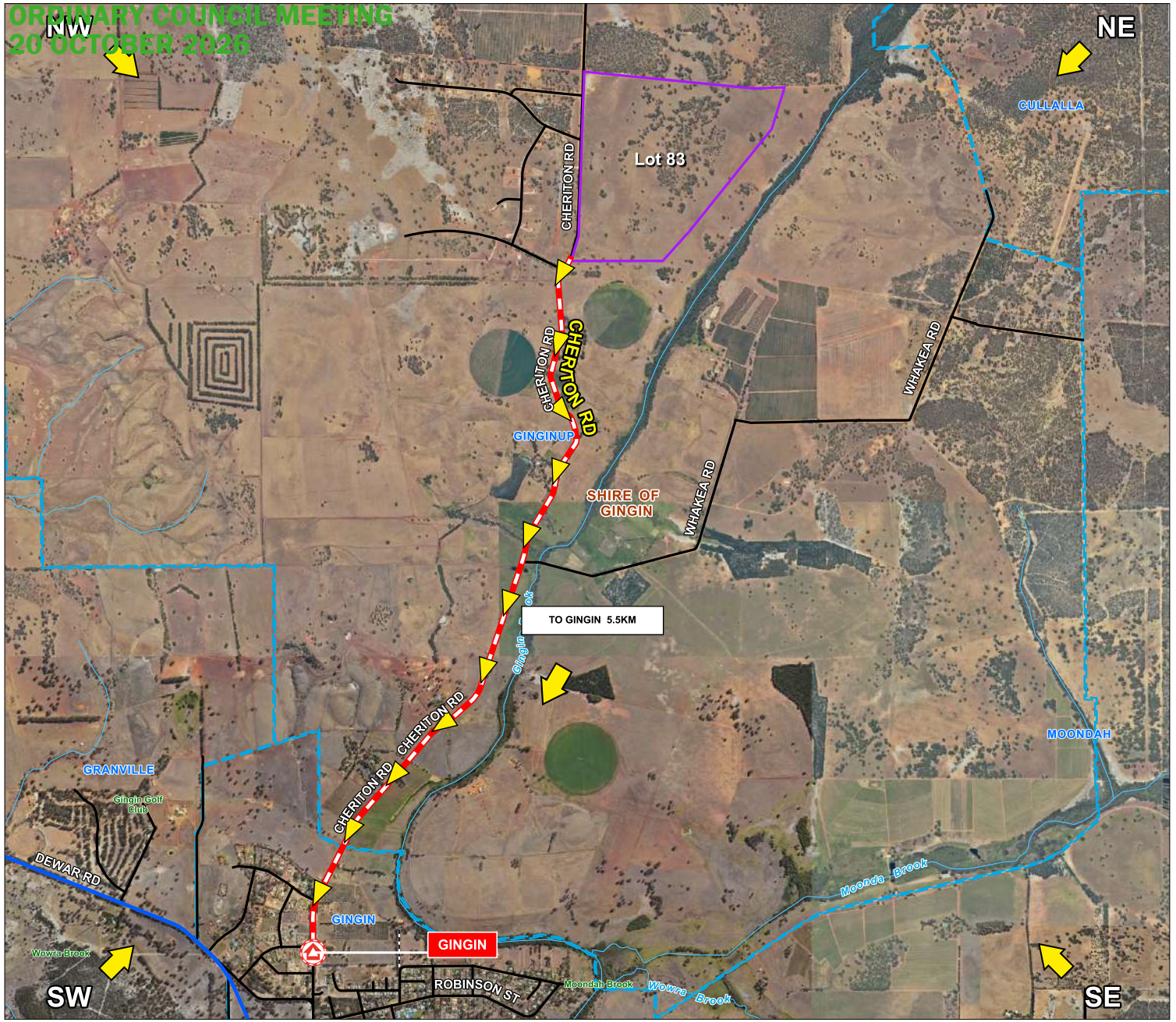


Figure 3.3

Vehicular Access Routes and Suitable Destinations

Lot 83 on Plan 038255, Area : 61.118ha
Cheriton Rd
GINGINUP
SHIRE OF GINGIN

------ LEGEND ------

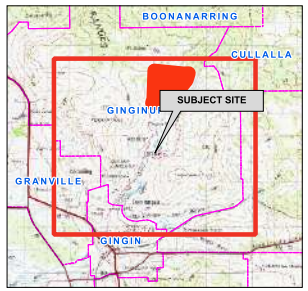
- Subject Site
- Evacuation Location
- Primary Evacuation Route

Road Access

- District Road
- Local Road
- Access Track

0 200 400 600 800
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA94 / MGA zone 50
Projection: Universal Transverse Mercfaor Units: Metre
Map by: Selina Hutcheon 30-06-2026
SCALE (A3): 1 : 27000

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

16804-Fig_3-3_BLA_Road-Lot 83 Cheriton Road Ginginup.qgz

ATTACHMENT 3 – EXPLANATION OF BUSHFIRE ATTACK LEVELS AND REFERENCES FOR CONSTRUCTION REQUIREMENTS

Bushfire Attack Level	Explanation of BAL Levels [1]	References for Construction Requirements	
		AS 3959:2018 Construction of Buildings in Bushfire Prone Areas	**The Nash Standard – Steel Framed Construction in Bushfire Areas**
		Referenced by the Building Code of Australia for Building Classes 1, 2, 3 & 10a	Referenced by the Building Code of Australia for Building Classes 1 & 10a
BAL – LOW	There is insufficient risk to warrant specific construction requirements but there is still some risk. *(Note: DFES recommend that ember attack protection features be incorporated in the design where practicable).*	Section 4. No Requirements	No Requirements
BAL – 12.5	There is a risk of ember attack. Construction elements are expected to be exposed to heat flux not greater than 12.5 kW/m^2	Sections 3 & 5.	All construction requirements for BAL-12.5 to BAL-40 are the same except for windows and external doors, which must comply with AS 3959. The construction requirements are set out as essentially non-combustible construction systems for each of the following building elements: • Section 1.4: General Requirements • Section 2: Roof and Ceiling System • Section 3: External Wall System • Section 4: Floor System • Section 5: Carports Verandahs and Decks.
BAL – 19	There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m^2.	Sections 3 & 6	
BAL – 29	There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 29 kW/m^2.	Sections 3 & 7.	
BAL – 40	There is a much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m^2.	Sections 3 & 8.	
BAL – FZ (Flame Zone)	There is an extremely high risk of ember attack and burning debris ignited by windborne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.	Sections 3 & 9.	The construction requirements are set out in Sections 1-5 and differ from the requirements for all other BAL ratings.

[1] AS 3959:2018 *Construction of buildings in bushfire prone areas,* defines a Bushfire Attack Level (BAL) as a "means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat flux expressed in kW/m^2, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire."

13.2 LANCELIN SOUTH STRUCTURE PLAN (AMENDMENT 2026)

This matter was brought forward for discussion as the second item of business (see pg. 10).

File	LND/0137
Applicant	CLE Town Planning and Design
Location	Part Lot 9000 and Lot 9001 Lancelin Road, and Part Lot 1 Old Ledge Point Road, Lancelin
Owner	VIMG WA Pty Ltd
Zoning	Future Development, Conservation and Landscape Protection (LPS9)
Author	Casimir Penheiro – Manager Development Services
Reporting Officer	Mark Close - Temporary Executive Manager Regulatory and Development Services
Refer	Nil
Appendices	1. Lancelin South SP Amendment - Part 1 & 2 (Final - April 2026) [**13.2.1** - 64 pages] 2. Environmental Assessment [**13.2.2** - 140 pages] 3. Civil Engineering Report [**13.2.3** - 41 pages] 4. Acoustic Report [**13.2.4** - 24 pages] 5. Bushfire Management Plan Lancelin South [**13.2.5** - 34 pages] 6. Local Water Management Strategy [**13.2.6** - 35 pages] 7. Lancelin South Visual Impact Report (D) [**13.2.7** - 19 pages] 8. Landscape Master Plan [**13.2.8** - 5 pages] 9. Traffic Impact Assessment [**13.2.9** - 4 pages] 10. Lancelin South SP - Schedule of Submissions [**13.2.10** - 20 pages]

DISCLOSURES OF INTEREST

Councillor Hyne disclosed a financial interest in relation to Item 13.2 as his real estate business has a contract with the developer of Lancelin South for the sale of developed lots. There may be a future financial benefit to him from the approval of this application.

PURPOSE

For Council to consider:

1. The amendments to the Lancelin South Structure Plan (April 2026), prepared by CLE Town Planning and Design, following completion of the public advertising period in July 2026;

2. The submissions received during the advertising period and the officer responses to those submissions, as attached to this report (**see appendices**); and

3. Adopting a position on the structure plan for referral to the Western Australian Planning Commission (WAPC) for final determination.

BACKGROUND

Site and Location Context

The Lancelin South Structure Plan (LSSP) amendment area is comprised of Part Lot 9000 and Lot 9001 Perth-Lancelin Road, and Part Lot 1 Old Ledge Point Road, Lancelin, totalling approximately 717.9ha. The land is located approximately 2.5km south-east of the existing Lancelin townsite and 3.5km from the Ledge Point townsite.

The site abuts Lancelin Road to the north, Indian Ocean Drive to the east, and Old Ledge Point Road to the west. The land consists of primary coastal dunes with elevation levels ranging from approximately 5 to 10m Australian Height Datum (AHD) in the west to 60–70m AHD on the eastern boundary, near Indian Ocean Drive.

History

- The LSSP and an Outline Development Plan were approved by the Western Australian Planning Commission (WAPC) on 2 October 2007, incorporating 4000 lots.

- A modified version of the LSSP was adopted in 2009 by the WAPC, which formed the basis for the Lancelin South Stage 1 rezoning under Amendment 93 to LPS 8. As per Scheme requirements at the time, a Structure Plan and Outline Development Plan were a precursor to rezoning, rather than a requirement post rezoning.

- Amendment 93, which was gazetted on 12 April 2011, related to the first 1,000 lots (Stage 1) within Lancelin South, and excluded the remaining 3,000 lots of the overall development.

- As part of the preparation of Amendment 3 to LPS9 for the remaining 3,000 lots, a review of the LSSP was undertaken, resulting in an increased total development area, but retaining the primary intentions of the LSSP in terms of overall design and number of lots. The improved urban outcomes were reflected in a revised structure plan for the entire Lancelin South area.

- The Revised Structure Plan was adopted by Council on 18 June 2013 and superseded the original Structure Plan. It was further revised in 2014 to reflect the 70ha to be set aside for vegetation conservation purposes as part of Amendment 3 to LPS9.

- This translated to a Ministerial Statement No. 853 as part of the amendment, and established a 22.49ha conservation zoned area for the LSSP. For the balance of the landholding, Scheme Amendment 3 received a "Scheme Not Assessed" determination from the EPA in 2014, on advice that the amendment could meet the EPA's environmental objectives, providing a further 70ha in the south-western corner was secured as a conservation lot.

It is noted that elements of this amendment have been put to State agencies previously. Main Roads WA's (MRWA) submission notes that a direct connection to Indian Ocean Drive was raised, and not supported, in relation to the Lancelin South Structure Plan Stage 2 in 2016. MRWA has *"consistently required a condition on subdivision to include a covenant on the title advising on the prevention of access"* for recent stages of Lancelin South. This history is relevant to the recommended modification and is noted in the Schedule of Submissions (**see appendices**).

Proposed Amendment

The applicant has expressed the amendment updates the Structure Plan to better manage the 'visual landscape' corridor and to facilitate an increase in the supply of individual residential lots, while retaining some of the previously secured Conservation Areas (22.49ha and 70ha) linked by public open space. Key elements are summarised in Table 1 below:

Land use	Notes
Residential	Ultimate yield target of approximately 7,000 lots, average lot size approx. 407sqm. Previously 4,000 lots.
Local Centres (x4)	Total 2.91ha; two coastal sites include potential for hotel/tourist uses.
Neighbourhood Centres (x2)	Supermarket and specialty shops.
Medical Centre / Retirement Village	0.51ha medical centre; retirement village of approx. 30–40 units.
Community Centre	1ha – library and other Shire civic uses.
Emergency Services HQ	0.5ha – marine rescue, DFES, ambulance.
Schools	Four primary schools and one high school, each with co-located public open space.
Industrial	Approx. 40.45ha north of Lancelin Road, anticipated to yield approximately 122 lots.

Land use	Notes
Conservation	22.49ha (Ministerial Statement 853 requirement) and 70ha (Amendment 3, TPS8 requirement), linked by public open space

Table 1: Key design features of the proposed SP amendment

COMMENT

Stakeholder Consultation

The Lancelin South Structure Plan amendment was advertised for public comment from Thursday 28 May 2026 until Friday 10 July 2026, in accordance with the Deemed Provisions for structure plans and the Shire's Local Planning Policy.

Documents were available on the Shire's website and for inspection at the Shire's Gingin Administration Centre and Lancelin Office.

Six submissions were received from the Department of Education (DoE), the Department of Health (DoH), the Department of Primary Industries and Regional Development (DPIRD), Main Roads Western Australia (MRWA), the Department of Biodiversity, Conservation and Attractions (DBCA), and one ratepayer submission. A full schedule of submissions and officer responses is provided (**see appendices**).

Peer Review

The Shire's assessment has been peer reviewed with respect to the principles and assumptions used to create the development design. The following is a summary of the points raised and findings:

Ecological Linkages LSSP Background

- Lancelin South is connected on all sides to uncleared vegetation which provides an opportunity for fauna movement.
- The fauna movement areas were recognised as high risk and high impact.
- Linkages of public open space (POS) areas orientated north-south and east-west should be encouraged. Further links with POS in Seaview Park should also be considered.
- The dune landforms are distinct natural features of the area and define the character of Lancelin South. The original Lancelin South Structure Plan and subsequent revisions responded to this natural feature to create a sense of place.

- The street layouts are designed to fit the contours and topography with minimal need for retaining, with streets following natural contour lines.

- POS is strategically located to protect key landform features and existing vegetation is retained and enhanced within the central dune-ridge system and within large lots.

- East-west streets extended in straight lines to/from high points are aligned to enhance major view-lines to the ocean and the central ridge. They are designed to increase easy understanding of the road network and emphasise the landform character.

- These basic principles of the original Structure Plan followed through into the revised structure plans adopted by Council and approved by WAPC in 2014.

LSSP Proposal – Ecological Linkages and Landform Responsive Design

- The new Concept Plan and amended structure plan have not demonstrated how these basic principles have been retained or how they respond to the site's features.

- The significant landscape features have been noted in 'PlanE's' (applicant's environmental consultant) 'Visual Impact Report and Visual Impact Assessment' but have only been considered in part in the design response, and only in the landscape protection area.

- The dune landscape features do not consider the design for the rest of the structure plan amendment area.

- The central north-south POS corridor linking the conservation areas has been reduced in width and the design has not demonstrated how the reduced width is still able to retain the central ridge and dune landform.

- Although the Structure Plan amendment refers to the new Concept Masterplan being 'developed through a comprehensive master planning process that has considered contextual analysis, design review, technical inputs and consultation', there is little evidence of this in the supporting documentation.

- It is recommended that evidence is provided to support these statements and demonstrate the design's response to the landform and its setting (not just the landscape protection area).

LSSP Conservation Area

- The conservation areas are zoned as such in LPS9. They are not intended to be scheme reserves or crown reserves and do not form part of the POS network.

As per LPS9, an Environmental Management Plan is required to address use and management of the land at the time of subdivision.

- The conservation zoned land was to be managed by the landowner, however is now proposed as two conservation areas ceded free of cost to the Shire at subdivision stage. This is not consistent with previous agreements and the position of the Shire.

Yield Impact

- The former framework achieved 4,000 lots and a range of densities with lot sizes from 500sqm to 2,250sqm. The current proposed Concept Masterplan and Structure Plan amendment seeks to increase the overall dwelling lot/yield to 6,000 to 7,000 with a base R-Code of R25 and up to R60.

- This represents a significant increase in dwellings and potential population from the 4,000 lots originally proposed, without an assessment being undertaken on the impact of the additional population on the townsite and community needs.

- A community needs assessment was undertaken previously based on 4,000 lots and requires review and update to reflect the increase population potential. Furthermore, the Concept Masterplan has not demonstrated how the predominant lot size of 350sqm to 450sqm (R25) or smaller lots (akin to R40 and R60) can accommodate any of the existing landform, vegetation and character of the area.

Road Upgrade

- There is a reference to Old Ledge Point (OLP) Road being upgraded to a NCA standard or similar and providing access to the western portion of the site. There is no reference to the extent of OLP Road to be upgraded, including the southern extent.

- The Structure Plan and Concept Plan will rely on access to OLP Road to the south, but there is no reference to the timing and responsibility for upgrade/construction of OLP Road along the southern boundary of Lancelin South.

- The extent of upgrade/construction of OLP Road and timing and responsibility for construction should be addressed in the Structure Plan amendment, particularly given the increase in population that the structure plan amendment proposed. The future role of OLP Road in road planning for the district should also be addressed, particularly its future role and function in connecting to Ledge Point (or otherwise) and also for lime sand haulage.

PLANNING FRAMEWORK

Local Planning Scheme No. 9

The amendment area is zoned 'Future Development' under LPS9, with 'Conservation' and 'Landscape Protection' zones applying to areas identified for retention. The Future Development zone makes provision for the creation and implementation of the structure planning process ahead of subdivision. The amendment does not seek to extend the Structure Plan boundary beyond the area previously under former TPS8 Amendments 93 and 3.

The conservation areas are purposely zoned 'Conservation' under LPS9 for protection and should not be considered scheme or crown reserves. These areas are not created as reserves and do not form part of the POS network. Clause 4.8.8 of LPS9 (Conservation Zone) requires an Environmental Management Plan for the Conservation Zone, prepared in consultation with DBCA and approved by the Shire.

This has been raised in DBCA's submission and addressed in detail in this report.

The Conservation zoned land was previously required to be managed by the landowner. At this stage the Shire has not agreed to manage these areas, nor is it resourced to do so, notwithstanding the proponent's proposal to cede at subdivision stage.

Local Planning Strategy

The Shire's Local Planning Strategy identifies the Lancelin South locality as the primary long-term growth area for the Lancelin township, consistent with the amendment's intent to increase residential lot supply within the already-endorsed urban footprint.

Transport Impact Assessment

The Transport Impact Assessment (TIA) was prepared in accordance with the WAPC's Guidelines for Transport Impact Assessment, Volume 2, and assesses the transport network to the 2051 design year. It provides 'Signalised & Un-signalised Intersection Design and Research Aid' (SIDRA) modelling of three key intersections of Indian Ocean Drive, Lancelin Road (future roundabout), Indian Ocean Drive/Site Access Road, and Lancelin Road/Site Access Road.

It also indicates acceptable operation in both peaks, with the Indian Ocean Drive/Lancelin Road roundabout the most heavily loaded location.

The report identifies an existing five-year crash history at the Indian Ocean Drive/Lancelin Road intersection, including a fatal crash, and recommends interim safety treatments ahead of MRWA's planned but unfunded and unscheduled roundabout upgrade. The TIA also identifies the proposed Indian Ocean Drive/Site Access Road connection as providing "an alternative emergency Bushfire Access to/from Lancelin."

MRWA's submission on this amendment (**see appendices**) contradicts two of the TIA's key assumptions:

- First, MRWA "does not support" the proposed direct residential access to Indian Ocean Drive, confirming this location was not included in its adopted Access Strategy and is inconsistent with its Driveway Policy and the general presumption against new access to regional roads (Development Control Policy 5.1).

- Secondly, MRWA does not support use of this connection or an Emergency Access Way in its place for bushfire emergency access to Indian Ocean Drive, for the same road safety reasons. Because the TIA's SIDRA modelling and the amendment's internal road network are both premised on this connection existing, this is a significant matter requiring resolution before the Structure Plan can proceed in its current form.

MRWA further notes that with the addition of traffic from the proposed connection, Lancelin Road could carry in the order of 15,000 vehicles per day (higher in seasonal peaks), and that no funding is presently committed to the Indian Ocean Drive/Lancelin Road roundabout upgrade.

MRWA also raises queries regarding the proposed reduction in the Landscape Protection Zone width along Indian Ocean Drive (Section 6.5) and recommends further investigation of connectivity options via the local road network, including the extension of OLP Road to Ledge Point Road identified in MRWA's own Indian Ocean Drive Planning Study, providing both communities with a second bushfire access/egress option.

A meeting was conducted with the Applicant, Shire and MRWA staff about the intersecting road to Indian Ocean Drive (IOD). The meeting concluded:

- The former adopted structure plan, even though indicating an intersection/ connection to IOD, was not conveyed to MRWA through referral or approved by MRWA.

- A secondary option was discussed (the intersection with IOD at KW Road (potential round-about)) and was considered by MRWA as a better prospect as it removed the risk in the south bound movement. The Applicant did not support this as a viable option due to land required for the roundabout and cost.

- The Shire's officers supported the intersection and roundabout at KW Road as it provided direct east-west access to the Lancelin South development area and potential traffic relief at the intersection of Lancelin Road and IOD.

Environmental Assessment Report

The Environmental Assessment Report (PVG Environmental) assesses past and existing land use, surrounding land use, topography, geomorphology and soils, hydrology, vegetation, flora, fauna and heritage. The report confirms:

"- both Conservation Areas are retained and linked by public open space. The site vegetation is not 'Threatened or Priority Ecological Community' and exceeds the EPA's 30% pre-clearing "threshold level" state-wide.

- Three Priority flora species recorded on site fall within the proposed Conservation Areas that fauna habitat is Very Good, with low-value Carnaby's Black Cockatoo foraging habitat and a small area of high-value habitat present;

- There are no registered Aboriginal heritage sites occur on the site.

- The report concludes the amendment "would have an acceptable environmental outcome."

DBCA's submission (**see appendices**) raises substantive concerns that it is unclear whether comprehensive fauna surveys have been undertaken across the full Structure Plan area since a 2008 Ecoscape survey, that the Environmental Assessment Report does not quantify the black cockatoo foraging habitat present, and that the report does not address the potential presence of the 'Sedgelands in Holocene dune swales of the southern Swan Coastal Plain' threatened ecological community, despite known occurrences nearby.

DBCA also advises that the Conservation Areas lack certainty of long-term protection unless formally reserved (rather than relying on zoning alone), and that the Environmental Management Plan for these areas should be prepared and approved as part of the Structure Plan and not deferred to subdivision, as DBCA previously and consistently advised the Shire since at least 2014.

Officers agree these are matters that should be resolved before the amendment is finalised and address them as recommended modifications.

Coastal Wind Conditions and Soil Type – Dust and Erosion Management Considerations

Lancelin sits on an open, low-relief section of the Central West coast with no significant offshore landform or vegetation buffer and is nationally recognised as a wind and kite sport destination.

Wind observations for Lancelin indicate an average wind speed of approximately 9 knots (around 17km/h) with a predominant south-south-westerly direction, reflecting the strong, persistent afternoon sea breeze that affects this coast, particularly through spring and summer.

The Environmental Assessment Report identifies that the site is predominantly on the Quindalup Dune System, with a smaller area of older Spearwood Dune System soils on the eastern boundary which are unconsolidated, loose calcareous sands, intrinsically mobile under wind loading once stripped of vegetation.

DPIRD's land degradation risk mapping indicates every soil type mapped on the site carries a "high to extreme" wind erosion rating, ranging from 30–50% of the map unit (Quindalup Sands) to greater than 70% (Quindalup Oldest Dune Phase and Spearwood Phase).

DPIRD's submission on this amendment (**see appendices**) confirms this risk, advising that clearing of dune vegetation "will increase the wind and water erosion risk" and recommending staged clearing with immediate soil stabilisation, retention of additional dune crests and vegetation corridors, dust and wind erosion controls during construction, mandated long-term maintenance of biofiltration systems and erosion monitoring triggers with corrective actions.

The scale of the amendment compounds this risk. The Engineering Master Plan Report (Peritas Group) identifies approximately 7.56 million m^3 of cut and 5.29 million m^3 of fill, with a 2.27 million m^3 surplus to be relocated off-site, a very large earthmoving operation over the life of the project. That report commits to dust suppression by water truck and to "temporarily suspend" topsoil stripping / respreading during high winds. Officers consider this a reasonable general commitment, but note it has not, in practice, prevented the documented dust and sand-drift concerns associated with the preceding stages of subdivision.

The existing commitment is not sufficiently specific, not defining a wind-speed trigger, a maximum disturbed area limit, a monitoring protocol, or a compliance mechanism. It is not addressed in the Environmental Assessment Report's treatment of the site's soils.

Ahead of and during the preparation of this amendment, the Shire received a substantial volume of resident complaints regarding dust generated by broadacre vegetation stripping and earthworks undertaken across earlier development stages of the site for the period late part of 2025 and into early 2026. It is recommended that DPIRD's recommendations be considered and included in the Structure Plan as management measures to reduce risk of dust and erosion.

Summary

The amendment operates within the land use and environmental envelope already established through the 2007 and 2013 Structure Plan approvals and the associated EPA assessment processes. Both conservation zoned areas (22.49ha and 70ha) are retained, linked by public open space and edged by a road reserve consistent with the EPA's "hard edge" advice which was the key environmental commitment carried forward from the previous structure plan approvals.

As noted in this report several matters raised by submitters (most significantly MRWA's objection to the proposed Indian Ocean Drive access and DBCA's concerns regarding the currency of fauna surveys and the tenure and security of the conservation areas) require modification of the Structure Plan before it can be supported without qualification. Other matters that require clarification are an updated community needs assessment and clear justification of the increased population size.

It is recommended that the Concept Plan and Amended Structure Plan be substantially amended with better information and clarification on matters raised in this report and via submissions received by statutory agencies.

RISK IMPLICATIONS

There is an existing Structure Plan approved for the subject lots. The amended structure plan proposes additional density providing for a larger population base. The applicant has indicated that there are strict timelines for meeting financial milestones.

Whilst this is a realistic concern for the applicant, it is being forced on to the Shire to respond to the matter with approval of subdivision stages ahead of alignment with the amended structure plan. This is a perceived risk set by the applicant and must be adequately managed by the applicant.

The risk to the Shire can be significant if the quality of the subdivision product is underprovided and fails to meet community needs.

The fill-in technical assessments required can provide a thorough and complete document, which will be tantamount to the planning process and has been expressed in the recommendation.

STATUTORY/LOCAL LAW IMPLICATIONS

Planning and Development Act 2005.
Planning and Development (Local Planning Schemes) Regulations 2015.
Biodiversity Conservation Act 2016 (WA)
Environmental Protection Act 1986.
Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).
Aboriginal Heritage Act 1972.
Main Roads Act 1930 (WA),
Shire of Gingin Local Planning Scheme No. 9 (LPS9).

POLICY IMPLICATIONS

State Planning Strategy 2050.
State Planning Policy 1.1 - Subdivision of Land – General Principles
State Planning Policy 1.7 - General Road Planning.
State Planning Policy 2.0 - Environmental and Natural Resources.

State Planning Policy 2.2 - Residential Subdivision.
State Planning Policy 2.3 - Public Open Space in Residential Areas.
State Planning Policy 2.6 - State Coastal Planning.
State Panning Policy 3.0 - Urban growth and settlement.
State Planning Policy 3.7 - Bushfire.
State Planning Policy 5.4 - Road and Rail Noise.
WAPC Operational Policy 2.4 – Planning for School Sites
Liveable Neighbourhoods
Indian Ocean Drive Planning Guideline (2014) and Indian Ocean Drive Planning Study / Access Strategy.
Shire of Gingin Local Planning Strategy 2012.

BUDGET IMPLICATIONS

The Shire has a deed of agreement with the landowner/developer for the entire subdivision area. The subdivision and development of the land is directly linked to developer contributions and potential community improvements in the Lancelin locale.

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2026-2036

Aspiration	2. Creating Sustainable Economic Growth Opportunities
Strategic Objective	2.2 Planning Strategy to Facilitate Growth and Diversity

VOTING REQUIREMENTS - SIMPLE MAJORITY

MOTION/OFFICER RECOMMENDATION

That Council:

1. Advise the Western Australian Planning Commission that the Amended Lancelin South Structure Plan (April 2026) prepared by CLE Town Planning + Design on behalf of VIMG WA Pty Ltd is not supported in its current form, and request that the Structure Plan be modified prior to further consideration as follows:

    a. Delete or substantially reconfigure the proposed direct residential and emergency access connection to Indian Ocean Drive, consistent with Main Roads WA's submission;

    b. Increase the area of the four primary school sites to 3.75ha, or enlarge the adjoining shared use public open space, and amend the road hierarchy fronting school sites, consistent with the Department of Education's submission;

c. Formally reserve both Conservation Areas and require an Environmental Management Plan for these areas to be prepared and approved as part of the Structure Plan, consistent with the Department of Biodiversity, Conservation and Attractions' submission;

d. Provide an updated current fauna and flora survey addressing Carnaby's Black Cockatoo foraging habitat and the potential threatened ecological community identified by the Department of Biodiversity, Conservation and Attractions;

e. Specify ecological corridor widths and interface treatments within the linear public open space in the Landscape Master Plan;

f. Update the Bushfire Management Plan to reconcile Asset Protection Zone requirements with vegetation retention within the linear public open space areas;

g. Reconcile the proposed reduction to the Landscape Protection Zone along Indian Ocean Drive with the Visual Impact Report's recommended minimum 50m buffer and Main Roads WA's outstanding queries;

h. Include a Structure Plan wide requirement for a Construction, Dust and Erosion Management Plan addressing the matters, responsive to the Department of Primary Industries and Regional Development's submission;

i. Notate the Structure Plan to identify lots adjoining Lancelin Road subject to "Quiet House Design" acoustic treatment requirements; and

j. Confirm groundwater allocation sufficiency and mosquito management buffer provisions, consistent with submissions by the Department of Education and Department of Health submissions.

2. Note the Schedule of Submissions and Officer Responses, and request that the applicant's response to each submission be provided prior to the modified Structure Plan being returned to Council; and

3. Note that no further broadacre clearing or bulk earthworks will be endorsed by the Shire within the Structure Plan area until a Shire approved 'Construction, Dust and Erosion Management Plan' is in place, having regard to the substantiated dust and sand-drift concerns associated with earlier stages of the site and the extreme wind erosion risk profile of the site's soils.

An amended officer recommendation was published prior to the meeting which superseded the recommendation published in the agenda.

COUNCIL RESOLUTION/AMENDED OFFICER RECOMMENDATION

MOVED: Councillor Kestel SECONDED: Councillor Vis

That Council:

1. Advise the Western Australian Planning Commission that the Amended Lancelin South Structure Plan (April 2026) prepared by CLE Town Planning + Design on behalf of VIMG WA Pty Ltd is supported subject to the following modifications:

   a. Delete or substantially reconfigure the proposed direct residential and emergency access connection to Indian Ocean Drive, consistent with Main Roads WA's submission;

   b. Increase the area of the four primary school sites to 3.75ha, or enlarge the adjoining shared use public open space, and amend the road hierarchy fronting school sites, consistent with the Department of Education's submission;

   c. Formally reserve both Conservation Areas and require an Environmental Management Plan for these areas to be prepared and approved as part of the Structure Plan, consistent with the Department of Biodiversity, Conservation and Attractions' submission;

   d. Provide an updated current fauna and flora survey addressing Carnaby's Black Cockatoo foraging habitat and the potential threatened ecological community identified by the Department of Biodiversity, Conservation and Attractions;

   e. Specify ecological corridor widths and interface treatments within the linear public open space in the Landscape Master Plan;

   f. Update the Bushfire Management Plan to reconcile Asset Protection Zone requirements with vegetation retention within the linear public open space areas;

   g. Reconcile the proposed reduction to the Landscape Protection Zone along Indian Ocean Drive with the Visual Impact Report's recommended minimum 50m buffer and Main Roads WA's outstanding queries;

   h. Include a Structure Plan wide requirement for a Construction, Dust and Erosion Management Plan addressing the matters, responsive to the Department of Primary Industries and Regional Development's submission;

   i. Notate the Structure Plan to identify lots adjoining Lancelin Road subject to "Quiet House Design" acoustic treatment requirements; and

j. Confirm groundwater allocation sufficiency and mosquito management buffer provisions, consistent with submissions by the Department of Education and Department of Health submissions.

2. Note the Schedule of Submissions and Officer Responses.

3. Note that no further broadacre clearing or bulk earthworks will be endorsed by the Shire within the Structure Plan area until a Shire approved 'Construction, Dust and Erosion Management Plan' is in place, having regard to the substantiated dust and sand-drift concerns associated with earlier stages of the site and the extreme wind erosion risk profile of the site's soils.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

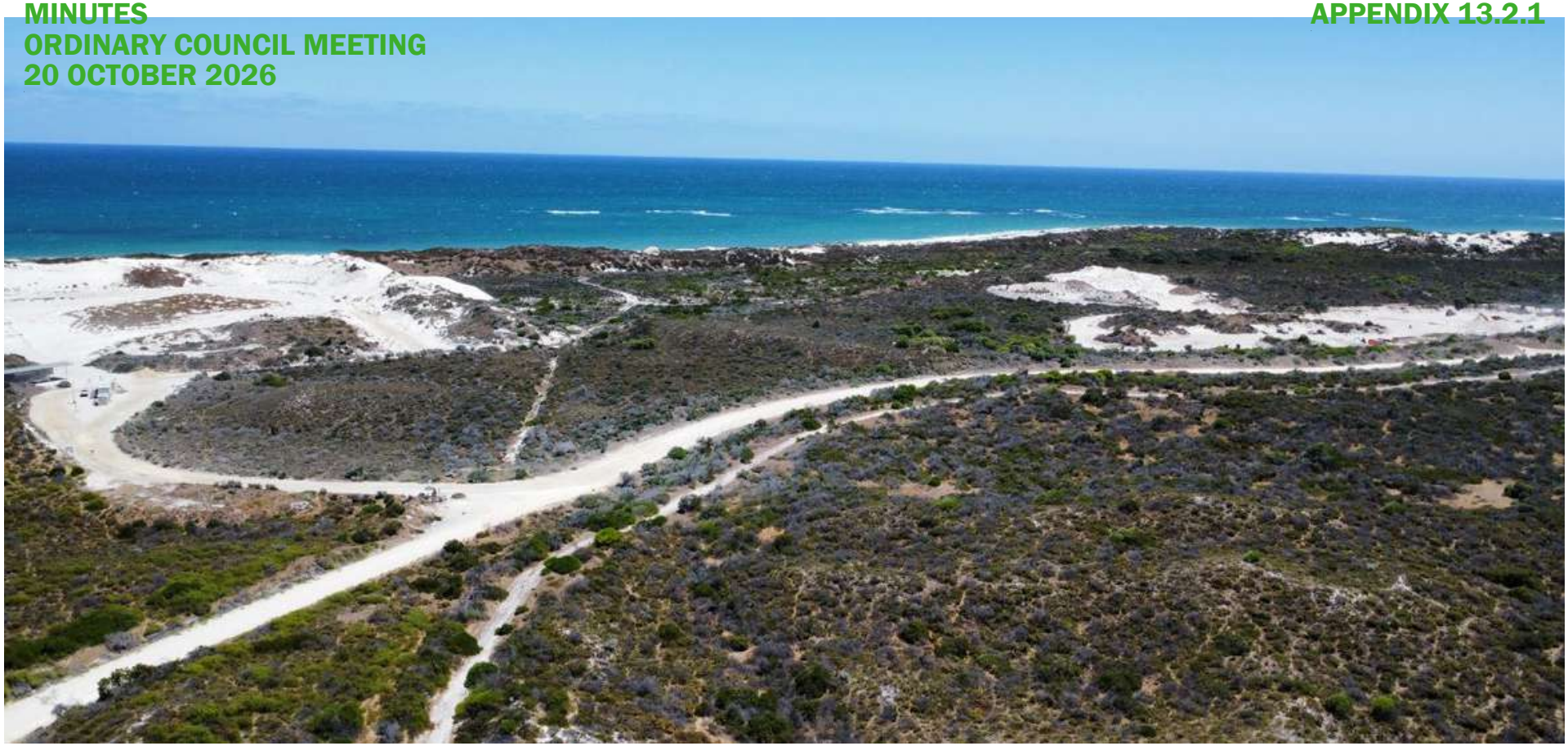
Reason for Amended Officer Recommendation

The Applicant provided a response to the Schedule of Submissions (now attached) that was misplaced during the preparation of the Schedule.

The Structure Plan will therefore proceed directly to the WAPC, under the amended recommendation, with support, subject to the modifications noted under Part 1 of the officer recommendation.

The applicant and the Shire have liaised extensively on the pertinent issues and the modified recommendation is understood for the purposes of progressing to the WAPC.

Councillor Hyne returned to meeting at 3:15 pm. The Presiding Member advised Councillor Hyne of the Council's decisionS.



CLE Town Planning + Design

Lancelin South Structure Plan

Part One - Implementation Report

APRIL 2026

CLE Town Planning + Design

Title	Lancelin South Structure Plan Part One - Implementation Report
Prepared for	VIMG WA Development Pty Ltd
Date	20 April 2026
Status	Final
Prepared by	CLE Town Planning + Design
CLE reference	3818Rep29A

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Approval Page

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

..... Date

Signed for and on behalf of the Western Australian Planning Commission:

.....

an officer of the Commission duly authorised by the Commission pursuant to section 16 of the *Planning and Development Act 2005* for that purpose, in the presence of:

..... Witness

..... Date

..... Date of Expiry

Table of Amendments

Modification No.	Description of Modification	Amendment Type	Date Approved
1.	The Lancelin South Structure Plan (LSSP), dated September 2007, was adopted by the Council on 2 October 2007. The purpose of the Structure Plan was to justify the Council's initiation of a Scheme Amendment to rezone the land to facilitate urban development. Amendment 93 to Town Planning Scheme No. 8 followed the adoption of the LSSP and facilitated the rezoning of a portion of the Structure Plan area from 'Rural' to 'Urban Development'. Amendment 93 initially intended to provide the statutory framework for the entire LSSP area under a single amendment. In accordance with the WAPC's letter of 13 November 2008 a number of changes were requested prior to consent to advertise, including: · Reducing the size of the residential portion of the land subject to Amendment 93, located to the south of Lancelin Road to no more than 1,000 –dwellings and modifying the amendment figures accordingly; · Modifying the scheme text to restrict development from occurring, including both residential and industrial/mixed uses, until a proven source of water is available; · Modifying the amendment document to make reference to potential Water Corporation waste management options; · Ensuring the future provision of any developer contributions was consistent with draft State Planning Policy 3.6. This document was subsequently updated in September 2009 to reflect the above modifications.	N/A	2 October 2007 (Shire of Gingin)
2.	On 18 June 2013, Council considered a report titled 'Lancelin South Balance Rezoning Scheme Amendment Request' which sought to initiate an amendment to rezone the balance of the land subject to the Lancelin South Structure Plan (LSSP) and adjacent land for the purposes of future urban development. The purpose of the report was to supersede the LSSP dated June 2007 with a revised Structure Plan and update the LSSP document accordingly. Changes to the LSSP document as a result of Council's 18 June 2013 resolution include: · Document cover page being updated from September 2009 to September 2013; · Updating the 'Document History and Status' tables; · Inserting the 'Table of Modifications'; · Including the 'revised Structure Plan' and the superseded 'Lancelin South Structure Plan' (Figure 13) at the front of the document for ease of comparison; · Placing a watermark on existing document Figures 13-21 which states "Design superseded by revised Structure Plan adopted by Council 18 June 2013"; and · Inserting the following additional text to clarify the land uses associated with the proposed Neighbourhood Centres: *"The land use zones depicted on the Structure Plan are as per the Scheme. In particular, to avoid any doubt, the local centre and village centre sites will be treated as if zoned 'Town Centre' in TPS 9, with all land use and permissibility as per that zone in the Scheme.* *This reference has been included to confirm that there has been no change to the LSSP in this regard and the land uses and permissibility will be as per the zones referred to in the Scheme and in the LSSP. In accordance with Clause 5.7.6.3 of TPS 9, a Scheme Amendment is required if the zones or reserves in the Structure Plan are inconsistent with the Scheme."* Given this document remains a reference document for future amendments and subdivision – no textual changes within the LSSP have been undertaken, as the broad development intentions as documented remain the same.	N/A	18 June 2013 (Shire of Gingin)
3	The Lancelin South Structure Plan has been amended as follows: · Target residential yield of approximately 7,000 lots; · Modified residential density and inclusion of density ranges; · Modified road, public open space and residential layout; · Modify the location and number of commercial centers; · Refinement of development outcomes and visual landscape buffer within the Landscape Protection Zone; · Modified number of and distribution of primary schools and high school.		

Executive Summary

The Lancelin South Structure Plan (the Structure Plan) is proposed as an amendment to the approved Lancelin South Structure Plan and Outline Development Plan ('LSSP' & 'ODP') and is supported by a new Part 1 – Implementation Section and Part 2 Explanatory Report which is provided as an addendum to the LSSP & ODP.

Part 1 has been prepared to consolidate and modernise the planning framework in accordance with the *Planning and Development (Local Planning Scheme) Regulations 2015*, the WA Planning Manual – Guidance for Structure Plans and current state planning policy framework.

This Part 1 covers and supersedes the collective applicable structure plans as follows:

- The *Lancelin South Structure Plan and Outline Development Plan* - 2007/2013
- Lancelin South (Stage One) Outline Development Plan (Stage 1 ODP) - 2011
- Lancelin South (Stage 2) Structure Plan (Stage 2 Structure Plan) - 2018

The LSSP & ODP was adopted by the Shire of Gingin ('SoG') on 2 October 2007 and by the Western Australian Planning Commission ('WAPC') in August 2009. The LSSP formed the basis for the rezoning of the Stage One area and Amendment 93 to TPS 8,and gave guidance to the development of the balance area.

The WAPC endorsed the Lancelin South (Stage One) Structure Plan on 28 June 2011. The development of Lancelin South Stage One has commenced in accordance with the structure plan and the subdivision approval dated 11 July 2011.

The Stage Two Structure Plan was adopted by the WAPC on 11 January 2018 as a planning framework for the second phase of development. Development is yet to commence in the Stage Two Structure Plan area, and the framework is replaced by this Structure Plan.

The Structure Plan covers Lots 1, portion of Lots 9000, 9001 Lancelin, and the titled residential areas delivered through the implementation of the Stage One ODP to date.

The Structure Plan area encompasses 662 hectares of land and will facilitate the development of approximately 6,000 - 7,000 residential lots, 66ha of public open space, 55ha of industrial land, two neighbourhood centres, three local centres, four primary schools, one high school, civic, community and emergency uses that meet the growing needs of the developing community.

Lancelin South is identified as a Sub Regional Centre in the *Guilderton to Kalbarri Sub-Regional Strategy (2019)*, and the Lancelin South Future Development zone represents a significant opportunity for growth given constraints to the north, east and south of the Lancelin townsite. The Structure Plan maintains consistency with the principles, objectives and outcomes of previous planning, with refinements responsive to current market conditions, planning principles and community needs of a sub-regional centre.

The vision for the structure plan is to deliver on the following key objectives:

- **Connectivity**
- **Community and Economic Development**
- **Integration with Previous Approvals**
- **Affordability and Diversity**
- **Environmental Sustainability**

To support and inform the Structure Plan, the following technical reports have been prepared and are summarised in the Part 2 – Explanatory Report. These reports provide justification for the modifications proposed to the approved suite of structure plans, with complete copies included as technical appendices:

- Bushfire Management Plan
- Engineering Servicing Report
- Environmental Assessment and Management Strategy
- Landscape Masterplan
- Landscape Visual Assessment
- Local Water Management Strategy
- Noise Management Plan
- Transport Impact Assessment

Table 1 provides a land use summary of the Structure Plan area.

***Table 1**: Land Use Summary*

Item	Data	Section Number
Total area covered by the structure plan	717.94ha	Plan A
Area of each land use proposed: Zones: · Residential · Town Centre · Mixed Business · General Industry · Conservation Reserves · Parks & Recreation · Public Purpose (Primary School) · Public Purpose (High School)	 452.21ha 10.65ha 0.81ha 55.03ha 93.97ha 81.15ha 14.02ha 10.06ha	Part 1 - Section 4.1 and **Plan A**
Estimated number of dwellings	6,000 - 7,000	Part 2 - Section 5.3.1
Estimated residential site density *Liveable Neighbourhoods* and *Perth & Peel@3.5 million*	19.6 dwellings per residential site hectare	Part 1 - Section 4.2 Part 2 - Section 5.3.1
Estimated population	19,600 @ 2.8 people per household.	Part 2 - Section 5.3.1
Number of high schools	1	Part 2 – Section 5.8
Number of primary schools	4	Part 2 – Section 5.8
Amount of Public Open Space	66.49ha (12.8% of total LSP area) 56.10ha (unrestricted) 10.39ha (restricted)	Part 1 - Section 4.1.4 Part 2 - Section 5.4





Image: Site photo looking north

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Part One - Implementation Report

1. Structure Plan Area & Operation

1.1 Application Area

This Structure Plan applies to Lots 1, portions of Lots 9000, 9001 Lancelin, and existing residential lots delivered in the northwestern potion of the Structure Plan area, being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan Map (**Plan A**). The Structure Plan is identified as the Lancelin South Structure Plan.

The Structure Plan is in effect from the date stated on the cover and for a period of 10 years.

1.2 Relationship with Statutory Planning Framework

The Structure Plan has been prepared as required for land zoned 'Future Development' under Clause 3.2.9 c) and 4.8.11.1 of Shire of Gingin Town Planning Scheme No.9 (LPS 9) and Part 4 of the *Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 - Deemed provisions for local planning schemes* (Deemed Provisions). The Structure Plan is in accordance with the objectives of *Liveable Neighbourhoods* and supporting state and local planning policies to outline zones, reserves, public open space and supporting infrastructure.

Pursuant to the Deemed Provisions, a decision maker of an application for development or subdivision approval is to have due regard to the provisions of this Structure Plan, including the Structure Plan Map, Implementation Report, Explanatory Report and Technical Appendices.

1.3 Structure Plan Content

The Structure Plan comprises:

- Part One – Implementation Section
- Part Two – Explanatory Report (Addendum)
- Appendices – Technical Reports

Part One of the Structure Plan comprises the Map and supporting planning provisions. Part Two of the Structure Plan is the explanatory report component, which can be used to interpret and implement Part One and proposed amendments.



Image: Site photo of Structure Plan Area

2. Purpose

The purpose of the Structure Plan is to coordinate subdivision and development of land within the South Lancelin 'Future Development' zone and 'Landscape Protection' zone. The Structure Plan will guide subdivision and development in a contextually appropriate manner and provide a modern structure plan that facilitate development of positive community outcomes.

The vision is delivered through the following key objectives:



Connectivity: Supports a legible and accessible walking and cycling opportunities via an integrated network of vehicle and pedestrian connections including green links that facilitate safe linkages through residential areas to schools, commercial centres, areas of open space and natural features, the Lancelin townsite and the coast.



Community and Economic Development: Facilitates a range of commercial and industrial land uses to support local and regional business growth and provide employment opportunities within the Shire of Gingin and to achieve a self-sufficient community.



Integration with Previous Approvals: Supports the modernisation and logical extension of development beyond the existing approved Stage 1 ODP subdivision approvals and maintains the established principles of the collective approved structure plans.



Affordability and Diversity: Offers unique and affordable housing choices via the provision of a range of lot types and sizes that meet the expectation of a regional community, typically providing family sized lifestyle lots and a variety of modern lot sizes for a of the complete range of purchaser groups.



Environmental Sustainability: Embraces established local environmental features, maintains visual sensitivity of the development and Delivers strong north-south / east-west connectivity between key areas of open space, establishing visual sightlines to the coast and localised amenities.

3. Staging

For the residential area south of Lancelin Road, development has commenced in the north-west corner of the estate and will continue to the southern extent of the structure plan area in the western portion of the site.

A secondary staging front will commence in the eastern portion of the site adjacent to Lancelin Road to enable the early delivery of commercial land uses, civic facilities and district open space.

Staging is currently progressing in approximately 250 lot increments responsive to market demands and. Primary school, high school, commercial centres and community infrastructure will be provided as required through the progression of the development stages and in accordance with agreements with the Shire of Gingin.

For the industrial area north of Lancelin Road area, staging will progress from either access point to Lancelin Road to allow for the delivery of industrial land, or the community services site when needed.

Staged development will require clearing of vegetation, and bulk earthworks to access fill located elsewhere on site to facilitate the development. Clearing beyond the development frontage will also be required for bushfire compliance in accordance with the principles of an approved Bushfire Management Plan.

4. Subdivision & Development Requirements

4.1 Land Use Zones & Reserves

4.1.1 Structure Plan Zones

Plan A is the Structure Plan Map which designates the proposed zones and reserves applicable to land within the Structure Plan.

Subdivision and development of land is to be generally in accordance with the Structure Plan Map. Refinements to the zones and reserves is permitted at subdivision stage subject to submission of an appropriate level of supporting technical justification.

The Structure Plan proposes the following zones as set out in **Table 2**, which accord with the Shire's LPS 9. Land use permissibility for land within the Structure Plan area shall be in accordance with the corresponding zone.

***Table 2**: Zone Objectives*

Zone	Objectives
Residential	a. Provide for a range of housing types and encourage a high standard of residential development; b. Maintain and enhance the residential character and amenity of the zone; c. Limit non-residential activities to those of which the predominant function is to service the local residential neighbourhood and for self-employment or creative activities, provided such activities have no detrimental effect on the residential amenity; and d. Ensure that the density of development takes cognisance of the availability of reticulated sewerage.
Town Centre Zone	a. Promote, facilitate and strengthen the town centre zone as the principal focus of the district in terms of shopping, professional, administrative, cultural, entertainment and other business activities; b. Accommodate a diversity of commercial, cultural and residential facilities; c. Encourage the integration of existing and proposed facilities within the zone so as to promote ease of pedestrian movement and the sharing of infrastructure, as well as to retain the opportunity for any future expansion of the area; d. Provide for the efficient and safe movement and parking of vehicles; and ensure that buildings, ancillary structures and advertising are of high quality and contribute to the uniqueness of the townscape.
Industry Zone	a. Accommodate commercial activities which, because of the nature of the business, require good vehicular access and/or large sites; b. Provide for a wide range of light and service industries, wholesale sales, showrooms, trade and services which, by reason of their scale, character, operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in, the central area, shops and offices or industrial zones; c. Allow for commercial and light industrial uses that are compatible with nearby uses; d. Provide for the efficient and safe movement and parking of vehicles; e. Encourage new development that will enable future adaptation and re-use, and will enhance the visual amenity of the area; and f. Ensure that where any development adjoins zoned or developed residential properties, such development is suitably set back, screened or otherwise treated so as not to detract from the residential amenity
Mixed Business Zone	a. Accommodate commercial activities which, because of the nature of the business, require good vehicular access and/or large sites; b. Provide for a wide range of light and service industries, wholesale sales, showrooms, trade and services which, by reason of their scale, character, operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in, the central area, shops and offices or industrial zones; c. Allow for commercial and light industrial uses that are compatible with nearby uses; d. Provide for the efficient and safe movement and parking of vehicles; e. Encourage new development that will enable future adaptation and re-use, and will enhance the visual amenity of the area; and f. Ensure that where any development adjoins zoned or developed residential properties, such development is suitably set back, screened or otherwise treated so as not to detract from the residential amenity.
Landscape Protection Zone	a. Preserve visual landscape quality; b. Protect and enhance landscape and scenic values through location and siting of land uses and development, and control over design and building materials; c. Maintain the integrity of the landscape which is visible from identified travel routes and recreation areas, consistent with visual management objectives identified within a landscape and visual impact study; and d. Provide for limited development, where the built form is consistent with zone objectives.
Conservation Zone	a. adequately protect areas considered high environmental value from urban development and environmental degradation.

4.1.2 Movement Network

The Structure Plan is subject to the following key movement network considerations:

- The street network should be developed generally in accordance with the road hierarchy shown on the **Plan A** Structure Plan Map, which identifies higher order roads and key connections external to the Structure Plan.
- Road reserves and the supporting cross sections should be developed generally in accordance with the Transport Impact Assessment ('TIA') (**Appendix 1)** or *Livable Neighbourhoods*.
- Intersection treatments should be generally in accordance with the Transport Impact Assessment ('TIA') (**Appendix 1**), with final intersection design to be determined at subdivision stage through the clearance of conditions.
- Pedestrian linkages will be in accordance with the recommendations of the TIA and standards of the Shire of Gingin.

4.1.3 Other Reserves

Conservation

The **Plan A** Structure Plan Map identifies two areas of 'Conservation' reserve as per LPS 9.

Schools

The **Plan A** Structure Plan Map identifies four 3.5ha public primary school sites and one 10ha public high school as Public Use: School Site

Public Open Space

The **Plan A** Structure Plan Map identifies Public Open Space is identified as 'Parks and Recreation' reserve.

4.1.4 Conservation Zone

The two area of 'Conservation Zone' identified on Plan A Structure Plan Map will be ceded to the Shire of Gingin free of cost at subdivision stage.

4.1.5 Public Open Space

The provision of public open space will be provided generally in accordance with the Structure Plan Map and **Table 2** of this Structure Plan and will be ceded to the Shire of Gingin free of cost at subdivision stage.

Plan A and **Table 3 & 4** below identify a total of 12.7% public open space which exceeds the minimum quantity of public open space required. Areas of public open space may be refined or relocated subject to design preferences or drainage requirements at subdivision stage. Subdivision applications will be supported by a public open schedule to demonstrate compliance with the minimum 10% requirement.

Table 3: Public Open Space Schedule (all areas in hectares)

Masterplan Area South of Lancelin Road (excluding western triangle on Lancelin Road)		**662.09**
Existing Deductions		
Conservation Areas (x2)	93.97	
Primary School (x4)	14.02	
High School (x1)	10.06	
Neighbourhood Centre (x2)	5.51	
Local Centre (x2)	1.00	
Service Station Site	0.30	
Tourism / Retail	1.62	
Medical Centre	0.51	
Community Centre	1.15	
Restricted POS no included in POS contribution (greater than 2%)	10.34	
Drainage 1:1yr event (Total as per Hyd2o Advice)	4.28	
Total existing deductions	**142.79**	
Net Site Area		519.30
POS requirement @ 10%		51.93
Public Open Space Requirement		
May Comprise:		
Min 8% Unrestricted POS	41.54	
Max 2% Restricted POS	10.39	
TOTAL POS REQUIRED		**51.93**
Public Open Space Provided	Unrestricted POS Area	Restricted POS Area
For individual POS Land Areas see Table 4		
TOTAL (ha)	**56.10**	**20.75**
Additional Deductions		
Restricted Open Space Surplus		10.37
Revised Public Open Space Contribution		
Unrestricted POS provided	56.10	10.80%
Restricted POS provided	10.39	2.00%
Total Creditable POS Provided	**66.49**	**12.80%**

Notes:

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrance interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrance interval up to the five year recurrance interval is restricted open space up to 20%,the area greater than 20% is a deduction (LN R26 & Table 11); areas for the dentention of stormwater for a greater than five year average recurrance interval is within unrestricted open space (LN R25).

2. This Schedule is for plan CLE Ref. 3818-42B and uses the drainage calculations prepared by Hyd20 - 04/03/2026.

3. Public Open Space Areas are indicative only and subject to detailed design and survey.

***Table 4**: Public Open Space Land Areas (all areas in hectares)*

POS Provided	Gross POS Area	Unrestricted POS Area	Restricted POS Area
POS E1 - Existing POS NW Triangle	1.10	1.10	0.00
POS E2 - Existing NW Rectangle	0.72	0.72	0.00
POS U1	0.52	0.52	0.00
POS U2	0.22	0.22	0.00
POS U3	1.66	1.66	0.00
POS U4a	2.27	2.27	0.00
POS U4b	0.55	0.55	0.00
POS 1a	2.17	1.78	0.20
POS 1b	0.59	0.23	0.21
POS 2a	0.52	0.52	0.00
POS 2b	1.19	0.94	0.12
POS 3	2.03	1.84	0.09
POS 4a	0.30	0.30	0.00
POS 4b	0.40	0.15	0.12
POS 5	1.59	1.28	0.16
POS 6	3.45	3.16	0.16
POS 7a	2.17	2.16	0.29
POS 7b	0.99	0.99	0.00
POS 8	0.44	0.38	0.03
POS 9a-1	9.41	8.84	0.29
POS 9a-2	0.73	0.73	0.00
POS 9b	0.52	0.22	0.14
POS 10	0.66	0.51	0.06
POS 11a	0.52	0.52	0.00
POS 11b	2.69	2.32	0.20
POS 12a-1	0.61	0.33	0.13
POS 12a-2	0.39	0.39	0.00
POS 12b-1	2.55	2.55	0.00
POS 12b-3	0.18	0.18	0.00
POS 12b-1	0.87	0.40	0.24
POS 13a	0.72	0.34	0.18
POS 13b	0.65	0.31	0.17
POS 14	1.75	1.68	0.02
POS 15a	2.00	2.00	0.00
POS 15b	1.00	0.64	0.19
POS 16a	4.77	3.93	0.49
POS 16b	0.36	0.36	0.00
POS 16c	0.06	0.06	0.00
POS17	1.18	0.86	0.15
POS 18	1.00	0.25	0.38
POS 19a	0.49	0.34	0.08
POS 19b	0.71	0.71	0.00
POS 20a	0.38	0.18	0.11
POS 20b	2.20	2.20	0.00
POS 21	0.45	0.38	0.03
POS 22	0.44	0.27	0.08
POS 23a	0.30	0.18	0.07
POS 23b	0.10	0.10	0.00
POS 24	0.39	0.36	0.01
POS 25	2.02	1.89	0.05
POS 26a	0.62	0.56	0.03
POS 26b	0.75	0.75	0.00
POS 27	16.25	0.00	16.25
Total Creditable POS Provided	**81.14**	**56.10**	**20.75**

Notes:

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrance interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrance interval up to the five year recurrance interval is restricted open space up to 20%, the area greater than 20% is a deduction (LN R26 & Table 11); areas for the dentention of stormwate for a greater than five year average recurrance interval is within unrestricted open space (LN R25).

2. This Schedule is for plan CLE Ref. 3818-42B and uses the drainage calculations prepared by Hyd20 - 04/03/2026.

3. Public Open Space Areas are indicative only and subject to detailed design and survey.

4.2 Density & Development

Plan A designates the R-Code ranges applicable to the subdivision and development of the Structure Plan. Subdivision and development targets 19 dwellings per residential site hectare. Lot sizes are responsive to the regional lifestyle location, with diversity in lot offerings provided to ensure that the structure plan aligns with the Sub Regional Centre status of Lancelin.

4.2.1 Density & R-Codes

This Structure Plan adopts the following density code ranges:

- R5-R40
- R20
- R25 – R60

An R-Code Plan is to be submitted at the time of subdivision to allocate a specific R-Code for the proposed lots for approval by the WAPC. The R-Code Plan:

a. Shall be consistent with the density ranges and locational criteria set out in this Structure Plan;

b. Is to include a summary of the proposed lot yield of the subdivision application to which it relates; and

c. May be varied subject to the further approval of the WAPC. A varied R-Code Plan will replace (entirely or partially) the previously approved R-Code Plan.

Once approved by the WAPC, the R-Code Plan forms part of this Structure Plan.

An R-Code Plan may not be required if the WAPC considers that the subdivision application is for one or more of the following:

- Amalgamation of lots, including for land assembly;
- Provision of access, services or infrastructure;
- Non-residential use, with reference to the zone or reserve indicated on this structure plan; or
- In accordance with an already-approved R-Code Plan.

4.2.2 Locational Criteria

The allocation of residential densities shall be in accordance with the following criteria:

R5 - R40

The R5 - R40 density range covers the area which has is subject to subdivision approvals to the date of the preparation of this structure plan, previously subject to the Lancelin south ODP 1, and reflects the requirements of the now superseded ODP 1.

Low density development (R5 - R20) will generally be provided for Area A, with R5 – R10 density development generally within and adjacent to areas where natural vegetation and/or landform are to be retained. R15 - R20 will generally apply elsewhere, with pockets of medium density (up to R40) in proximity to local centres, in areas of high amenity and other suitable locations to promote alternative housing forms.

R20

All development will be in accordance with the R20 density coding.

R25-R60

The base density code is R25 applicable to provide lots that will facilitate diversity of housing and lifestyle choice.

Lots may be developed at the higher density coding as follows:

- R40 – where the lot is located within a 100m walkable catchment of a commercial, centre civic uses, a public school or public open space, or is located on a cell end.
- R60 – where the lot is located adjacent to a commercial centre, civic uses, public school, or public open space.

4.2.3 Local Development Plans

The preparation of a Local Development Plan may be required by the WAPC as a condition of subdivision approval where deemed necessary for land comprising, but not limited to:

i. Lots abutting areas of public open space to address:
   - Built form orientation and passive surveillance.
   - Building setbacks.
   - Uniform visually permeable fencing.

ii. Lots within the 'Landscape Protection' zone or abutting the vegetation screen including
   - Building heights.
   - Roof pitch, materials, colours.

4.3 Other Requirements

4.3.1 Bushfire Management

The Structure Plan is supported by a Bushfire Management Plan (**Appendix 2**). Regardless of whether the land has been formally designated as bushfire prone, any building to be erected on land identified within 100 metres of a bushfire hazard is designated as bushfire-prone and shall comply with the requirements of Australian Standard 3959 under the National Construction Code.

Subdivision within the Structure Plan area is required to demonstrate the ability to achieve a maximum post development Bushfire Attack Level (BAL) rating of BAL-29 for all proposed lots and a minimum of two vehicle access and egress points in two different directions, in accordance with the WAPC's Guidelines for Planning in Bushfire Prone Areas.

4.3.2 Notifications on Title

In respect of applications for the subdivision of land the Shire shall recommend to the WAPC that a condition be imposed as part of a subdivision approval for a notification to be placed on the Certificate(s) of Title(s) to advise of the following:

i. Lots subject to bushfire risk as identified by a Bushfire Management Plan provided with an application for subdivision.

ii. Lots subject to road noise as identified by an Acoustic Assessment (or similar) provided with an application for subdivision.

4.3.3 Developer Contributions

The Structure Plan area is not subject to a developer contribution area under LPS 9. The landowner has entered into an agreement with the Shire of Gingin for the delivery of community infrastructure.

The agreement sets out the obligations for the delivery and cost contribution to various community infrastructure items which will be delivered by either the landowner or the Shire of Gingin. A developer contribution plan is not required to facilitate this Structure Plan.

4.3.4 Landscape Protection Zone

This Structure Plan identifies the 'Landscape Protection' zone covering the eastern portion of Lot 9001 Lancelin Road in accordance with LPS 9. This structure plan aligns with the objectives of the Landscape Protection zone, which allows for the delivery of residential development, and provides a framework for the establishment of homes within the Landscape Protection zone.

Development in the 'Landscape Protection' zone is informed by the Landscape Visual Assessment prepared by Plan E and included as **Appendix 3.** Development in the Landscape Protection zone will be informed by the following:

- Retention of an area of public open space abutting Indian Ocean Drive and Lancelin Road as Parks and Recreation reserve to provide separation and visual screening of development as seen from Indian Ocean Drive.
- Landscape screening in locations identified under the Visual landscape Assessment. These areas are identified on **Plan A** Structure Plan.
- Filling of low points and revegetation with native species in accordance with the Visual Landscape Assessment. Areas of fill are subsequently identified on the bulk earthworks strategy, included as **Appendix 3**. These areas are identified on **Plan A** Structure Plan.
- Management of development within the Landscape protection zone via the control of building height, roof pitch, materials, and colours which will be implemented via a local development plan prepared in response to a condition of subdivision.
- A water tank is indicatively identified on **Plan A** within the Parks and Recreation Reserve of the Landscape Protection Zone at the high point of the structure plan area. The final location of the water tank, tenure, access and landscape response will be determined at subdivision stage.

Clause 4.8.11.3 of LPS 9 confirms that an amendment to the Landscape Protection zone could be progressed as a basic amendment to LPS 9 where supported by a landscape visual assessment, which may be a future consideration to avoid the need for planning approval for each dwelling under 4.8.11.1 of LPS 9, based on the principles of this Structure Plan, the supporting Landscape Visual Assessment and the implementation of Local Development Plan provisions as required by this Structure Plan.

5. Additional Details

5.1 Information to be Submitted with a Subdivision Application

The following technical reports/strategies are to be prepared in support of any future subdivision application:

***Table 5**: Information to be submitted with a Subdivision Application*

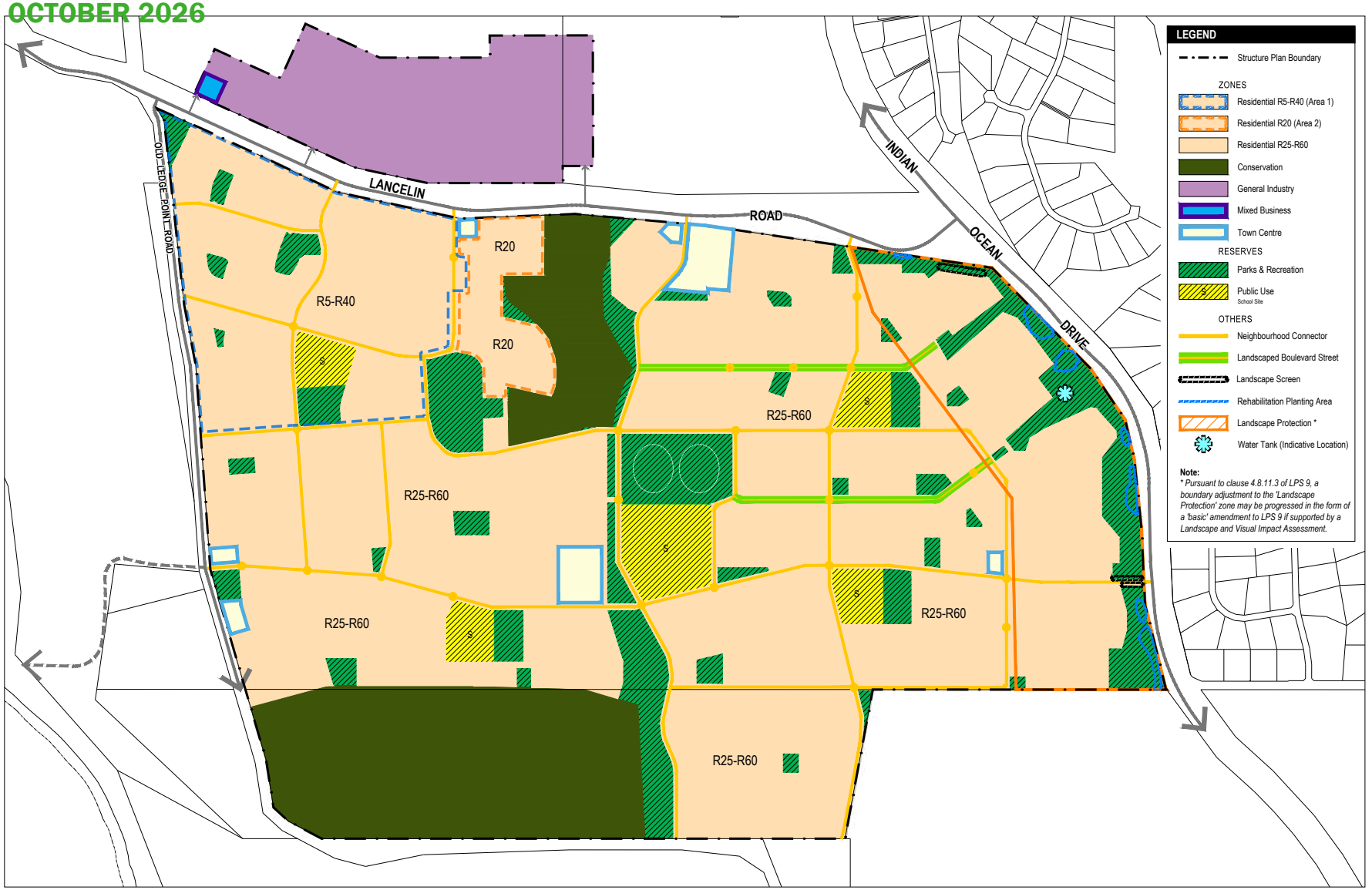
Additional Information	Reason / Purpose	Responsible Agency
R-Code Plan	To depict final R-Codes for individual lots in accordance with the locational criteria set out in Part 1.	WAPC
Bushfire Management Plan / Addendum	To demonstrate post development that subdivision will satisfy the WAPC's Guidelines for Planning in Bushfire Prone Areas and outline any works to be implemented during subdivision to achieve an acceptable BAL rating for all proposed lots.	WAPC
Transport Impact Assessment / Addendum	Where major modifications to the road network or internal traffic generation is proposed.	WAPC
Acoustic Assessment / Addendum	In accordance with the requirements of SPP 5.4 Road and Rail Noise.	WAPC

5.2 Studies to be Required Under a Condition of Subdivision Approval

The following technical reports/strategies are to be prepared in accordance with a future subdivision approval (as applicable):

***Table 6**: Studies to be Required Under a Condition of Subdivision Approval*

Additional Information	Reason / Purpose	Responsible Agency
Bushfire Management Plan / Addendum	To demonstrate the requirements set out in any Bushfire Management Plan provided in support of the applicable subdivision have been met.	Shire of Gingin
Urban Water Management Plan	To detail the management of stormwater both on and off site in accordance with the WAPC's Better Urban Water Management Guidelines.	Shire of Gingin
Environmental Management Plan	In accordance with clause 4.8.8.2 and Environmental Condition 2, Schedule 7 of the LPS 9, an Environmental Management Plan (EMP) will need to be prepared and implemented as a condition of subdivision for land adjacent to the 'Conservation' zoned land. The Framework contained in Appendix G outlines the content for the future requirement of preparing an EMP. The preparation of the EMP in consultation with the Department of Biodiversity, Conservation and Attractions is reflected in Table 3 in section 8.	Shire of Gingin
Landscape Plan	To be provided where a subdivision within the Landscape protection zone and includes land identified for a vegetation screen including: · Reticulation · Management requirements · Management timeframe of two summers · Layout and staggering of trees · Native species as per the Visual Landscape Assessment · Screening of essential servicing	Shire of Gingin



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LOCAL STRUCTURE PLAN MAP - PLAN A

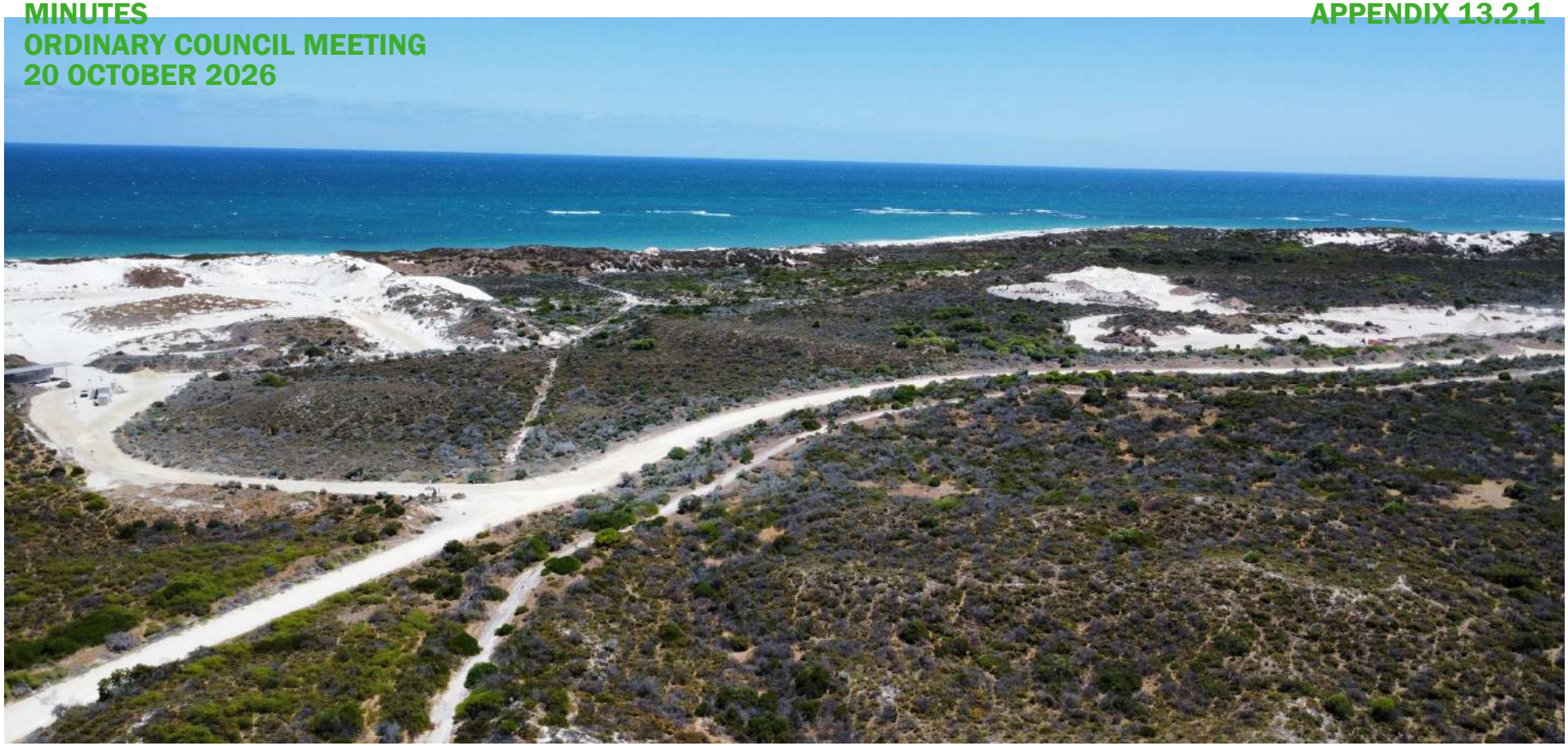
Lancelin South

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plan no: 3818-46E-01
date: 15 April 2026
scale: 1:12,000 @A3, 1:6,000 @A1

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Lancelin South Structure Plan

Part Two - Explanatory Report (Addendum)

APRIL 2026

CLE Town Planning + Design

Title	Lancelin South Structure Plan Part Two - Explanatory Report (Addendum)
Prepared for	VIMG WA Development Pty Ltd
Date	1 April 2026
Status	Final
Prepared by	CLE Town Planning + Design
CLE reference	3818Rep30A

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Part Two - Explanatory Report

1. Purpose of Amendment

The purpose of this amendment (Amendment 2) to the approved Lancelin South Structure Plan and Outline Development Plan ('the Structure Plan') is to consolidate and modernise the planning framework in accordance with the *Planning and Development (Local Planning Scheme) Regulations 2015*, the *WA Planning Manual – Guidance for Structure Plans* and current state planning policy framework.

This Amendment (Amendment 2) applies to Lots 1 and portions of Lots 9000, 9001 Lancelin ('the amendment area').

As the existing planning documents applicable to the South Lancelin development area are no longer fit for purpose in the context of WA's current planning frameworks, they require updates to align with the current *WA Planning Manual – Guidance for Structure Plans*. To do so, a new Part 1 – Implementation Report and Part 2 - Explanatory Report (Addendum) has been prepared to consolidate the existing planning instruments below:

- Lancelin South Structure Plan and Outline Development Plan - 2007/2013
- Lancelin South (Stage One) Outline Development Plan (Stage 1 ODP) - 2011
- Lancelin South (Stage 2) Structure Plan (Stage 2 Structure Plan) - 2018

In doing so, this amendment has taken the opportunity to undertake a broader review of the planning for the site to reflect current market demands and the strategic objectives set by *Perth and Peel @ 3.5 million*. Specifically, this amendment proposes the following:

- **Residential Density –** to respond to housing supply shortages and increased housing demand in the Lancelin locality, the amendment proposes a range of residential density changes across the site. The introduction of residential density range, with specific locational criteria requirements will provide flexibility and ensure density is located in the most appropriate locations. It is expected that these changes will result in up to an additional 3,000 residential lots (approximately) which will see the creation of 6,000 - 7,000 lots across the site (previously 4,000).
- **Landscape / Public Open Space –** the distribution of public open space has been updated to provide for a more equitable distribution across the site, including changes to the Visual Landscape Protection zone to minimize the impact of urban development as viewed from Indian Ocean Drive and to better respond to the natural form of the dunes within this section of the site. The Structure Plan well exceeds the open space requirements of *Liveable Neighbourhoods*, in providing 12.7% of public open space over the area.
- **Activity Centres –** two Neighbourhood Centres, one along Lancelin Road in the north and the other centrally located to service the broader community are proposed. Three Local Centres are also proposed; one located at Lancelin South entry along Lancelin Road in the north, one in the south-east portion of the site and one located as a possible tourist / retail node in the south western portion of the site adjacent to the coastal access track.
- **Schools –** four primary schools and a centralised high school, all co-located with areas of public open space to more accurately reflect land use and density changes and accommodate expected demand from the increased residential population.
- **Community –** the inclusion of a new community centre opposite the Neighbourhood Centre along Lancelin Road will provide a range of community-based uses including aged care/retirement village uses. An emergency services headquarters is also proposed on the north side of Lancelin Road, which is expected to provide facilities for DFES, St John Ambulance and the Marine Rescue.
- **Movement Network –** The road layout has been updated from a predominantly curvilinear configuration to provide for a modified grid network. The amendment maintains five road connections to Lancelin Road (including Ledge Point Road) and maintains an additional connection to Indian Ocean Drive to the east previously established through the Lancelin South Structure Plan and ODP. The proposed road network responds to the topography of the site and acknowledges key desire lines through the site to maintain its coastal character. Two new "Landscaped Boulevards" will assist to provide east-west connectivity from Indian Ocean Drive to the coast and to encourage active modes of transport within a highly landscaped boulevard. A coastal access track will provide opportunity for parking and access to the beach.
- **Industrial –** there are no changes proposed to the industrial precinct located to the north of Lancelin Road.

These changes will ultimately facilitate the creation of 6,000 – 7,000 residential lots, two neighbourhood centres, three local centres, four primary schools, one high school and a range of community and civic uses.

The Structure Plan will ensure that subdivision and development remain consistent with current best practice, is responsive to market demands and satisfies the growing needs of the South Lancelin locality.

2. Background

2.1 Area & Land Use

The amendment area covers Lots 1, and portions of Lots 9000 and 9001 Lancelin, which spans a total area of approximately 717.9ha.

The majority of the amendment area comprises remnant vegetation and is not currently used for any specific purpose. A portion of Lot 1 has already been developed, with subdivision having progressed in accordance with the Stage 1 ODP with approvals issued for the majority of the Stage 1 ODP area.

A site plan identifying the site and its surrounds are shown on **Figure 1**.

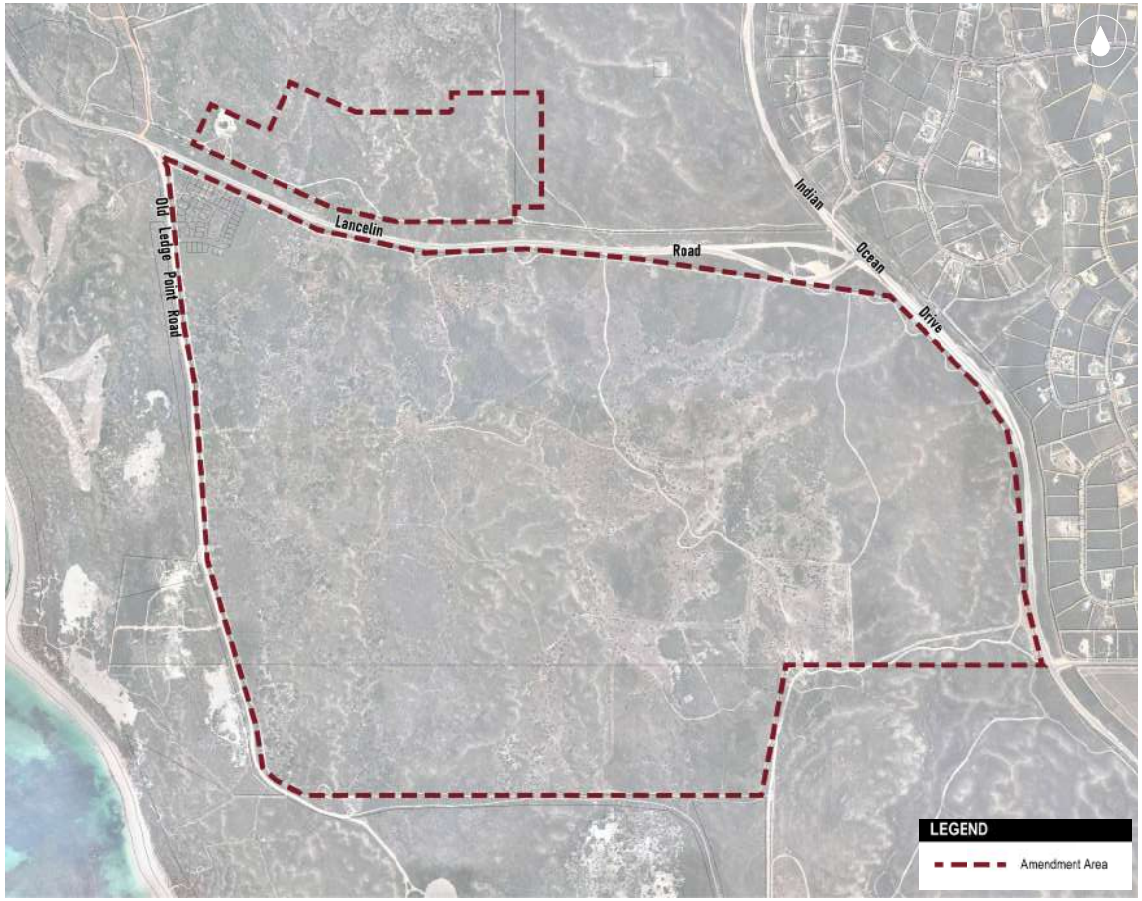


Figure 1: *Site Plan (Source: Nearmap)*

2.2 Ownership & Title Details

The landholdings subject to this amendment are owned by Victorian Investment Management Group (VIMG).

The land is under single ownership, allowing for development to proceed in a coordinated and certain manner.

2.3 Location & Surrounding Context

The amendment area is located in Lancelin within the Shire of Gingin and approximately 3km south of the Lancelin townsite and 58km north of Yanchep. The Lancelin locality is largely defined by Indian Ocean Drive to the east, Old Ledge Point Road to the south, Indian Ocean to the west and the Nilgen Nature Reserve to the north.

The following provides a brief summary of the local context and site's key characteristics:

- The amendment area forms part of Lancelin South, where development has already progressed within the north-west section of Lancelin South (Stage 1).
- To the east, the site is bound by Indian Ocean Drive which runs north-south adjacent the site. A dunal landform is located along the eastern boundary of the site, providing a visual and physical buffer to the balance of the site.
- To the south, the site is bound by a 'Conservation' zone (Lot 2) also under ownership of VIMG, and a 'Parks and Recreation' reserve (Lot 8616).
- To the west, the site is bound by Old Ledge Point Road which runs north-south along the western boundary of the site providing connection to Lancelin Road to the north. A controlled vehicle access point will provide access to the beach, located approximately 1km to the west of the Structure Plan area. The Lancelin Community Sports Centre and the Lancelin Golf Club are located to the west and are accessed from Lancelin Road to the north.

Further discussion regarding the proposed interface and planning response to these key site characteristics is provided in section 4 below.



Image: Site photo of dunal landforms

3. Planning Framework

3.1 Strategic Planning Framework

3.1.1 Guilderton to Kalbarri Sub-regional Strategy

The *Guilderton to Kalbarri Sub-regional Strategy (2019)* ('the Strategy') is the Western Australian Planning Commission's ('WAPC's') overarching planning document that guides the long-term future planning and development of the coastal lands between Guilderton and Kalbarri. The Strategy provides strategic direction for local governments to implement State strategic issues in a sub-regional context by balancing urban growth in the region, whilst ensuring areas of high biodiversity significance are protected and demand and competition in coastal areas for recreation, industry and tourism are promoted.

The Strategy identifies Lancelin as a "Proposed sub-regional centre" which is envisaged to provide a range of administrative functions and social infrastructure and services, including health services, secondary education and recreation uses.

Relevant to this Amendment, the Strategy promotes urban growth consolidation in and adjacent to established settlements, like Lancelin. This is supported by the progressed nature of the planning framework and the development currently underway in South Lancelin which will address a significant existing housing shortage in Lancelin and the Gingin coastal region. This Structure Plan Amendment is consistent with the intent of the Strategy.

3.1.2 Shire of Gingin Local Planning Strategy

The Shire of Gingin's Local Planning Strategy ('the Strategy') was adopted by the Shire of Gingin in February 2012. The Strategy identifies the western portion of the site as 'Urban Development and the eastern portion 'Future Urban'. The Strategy acknowledges the preparation of the *"Lancelin South Structure Plan for future development"*. Since approval of the Strategy substantial planning has been progressed over the Structure Plan area for which this amendment maintains consistency.

3.1.3 Lancelin South Structure Plan & Outline Development Plan

The Structure Plan which covers the entirety of Lancelin South, was approved by the WAPC in September 2009.

The Structure Plan was initially prepared to support the rezoning of the subject area from 'Rural' to 'Development' under Local Planning Scheme No.8 (applicable at the time) and to serve as a high-level guide for the lodgment of Outline Development Plans (now referred to as Local Structure Plans). The Structure Plan also includes the first stage Outline Development Plan within its provisions.

In June 2013, an amendment to the Structure Plan was approved to incorporate a revised Structure Plan design to cover the balance of the site and refine the development layout and land use to better respond to existing landform, vegetation and servicing constraints.

In August 2025, the WAPC approved a 10-year extension to the approval period of the existing Structure Plan in accordance with Schedule 2, Clause 28(2) of the Regulations ensuring a valid framework remains in place for Lancelin South to provide an overarching framework for structure planning and subdivision and to allow sufficient time for future amendments to be considered, as part of a review process. The approval timeframe has been extended to 19 October 2035.



Figure 2: *Lancelin South Structure Plan & Outline Development Plan (Source: TBB Planning)*

3.1.4 Lancelin South (Stage 1) Outline Development Plan (Stage 1 ODP)

The Lancelin South (Stage One) Outline Development Plan ('ODP 1') was approved by the WAPC on 28 June 2011 under the overarching framework of the Lancelin South Structure Plan. ODP1 applies to the first stage of development within the north-west portion of Lancelin South, at the corner of Lancelin and Old Ledge Point roads. Subdivision and development is well progressed with the first 51 lots already titled and site works underway for another 438 lots.



Figure 3: *Lancelin South (Stage 1) Outline Development Plan (Source: TBB Planning)*

3.1.5 Lancelin South (Stage 2) Structure Plan (Stage 2 Structure Plan)

The Lancelin South (Stage 2) Structure Plan ('LSP 2') was approved by the WAPC on 11 January 2018 to provide for a planning framework for the next phase of development within the north-east portion of Lancelin South.

LSP 2 was guided by the key principles of the overarching LSP 1, however included changes to dwelling targets, road layout, conservation and visual landscape interface controls and staging. LSP 2 included relatively low densities driven by the landowner at the time in response to envisioned market demand for large lifestyle lots. A more consolidated urban form is now proposed as part of this structure plan in accordance with current market demands and housing shortfalls. It is noted that development has yet to proceed within the LSP 2 area.

LSP 2 will be replaced by this structure plan amendment once approved.

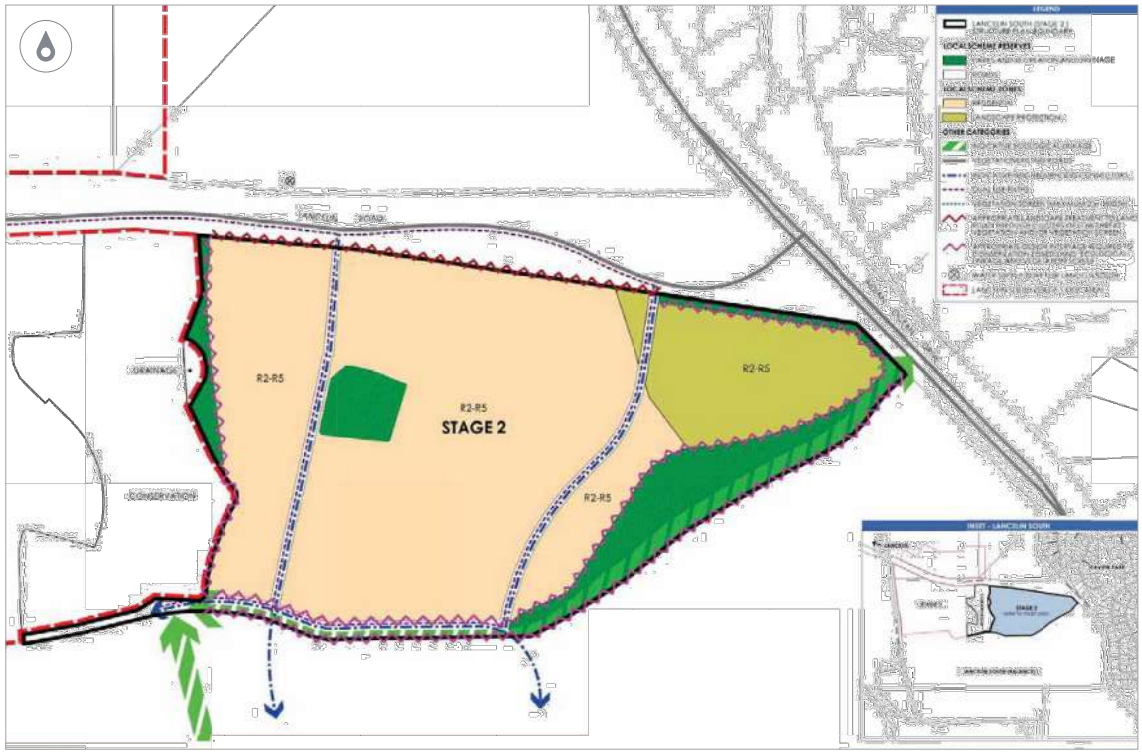


Figure 4: *Lancelin South (Stage 2) Structure Plan (Stage 2 Structure Plan) (Source: TBB Planning)*

3.2 Statutory Planning Framework

3.2.1 Shire of Gingin Local Planning Scheme No. 9 (LPS 9)

The Shire of Gingin Local Planning Scheme No.9 ('LPS 9') was gazetted on 27 September 2012.

The majority of the is zoned 'Future Development', with a portion zoned 'Conservation' and the eastern portion zoned 'Landscape Protection' adjacent to Indian Ocean Drive as shown in **Figure 5**.

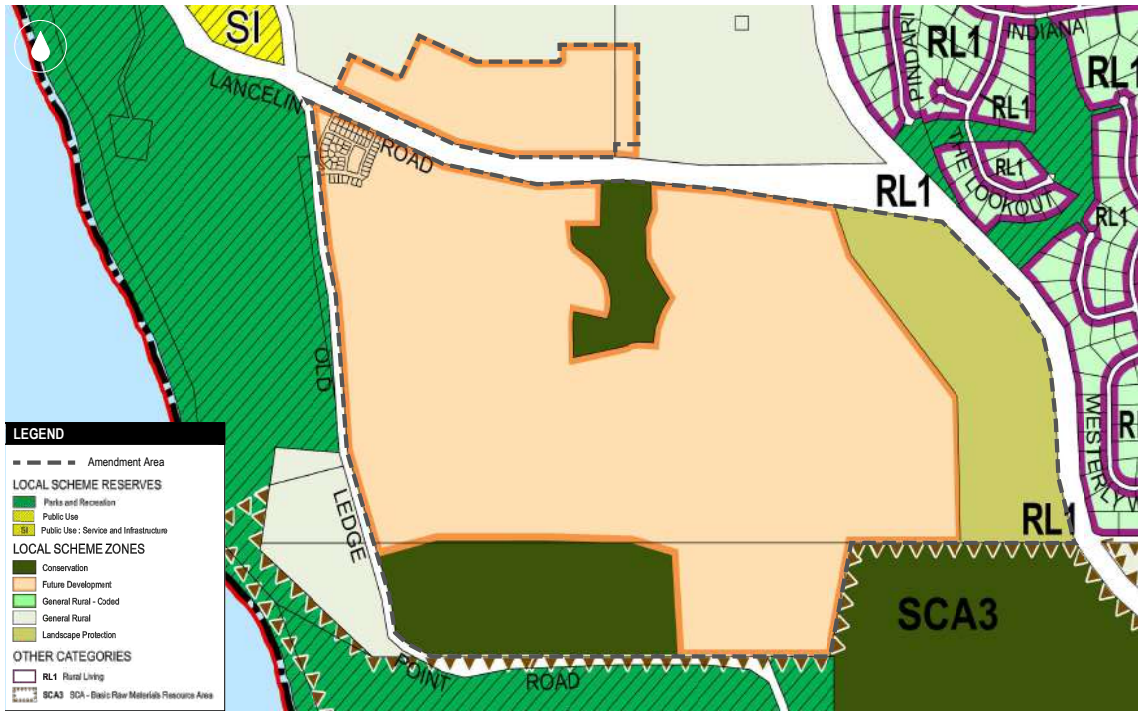


Figure 5: *Shire of Gingin Local Planning Scheme No.9 Map (Source: DPLH)*

Future Development Zone

The majority of the site is zoned 'Future Development' under LPS 9, with subdivision and development already progressed within the north-west portion (Stage 1) of the site. The remainder of the site is subject to existing local structure plans (as outlined previously).

The objectives of the 'Future Development' zone are to:

a. *Designate land considered to be generally suitable for future development and to prevent such land being used or developed in a manner which could prejudice its possible future use for planned development;*

b. *Provide for the sustainable development of land in an orderly manner with appropriate levels of physical infrastructure and human services; and*

c. *Ensure the orderly development of the land, through a requirement for the preparation and endorsement of a Structure Plan in accordance with the provisions of Part 4 of the deemed provisions, as a pre-requisite to subdivision or development of the land.*

Schedule 9 of LPS 9 requires a local structure plan to be prepared prior to development, including additional requirements that are to be considered as part of structure planning for the site. These requirements have been considered during the preparation of this amendment to inform subdivision and development outside of the Stage 1 area, as set out in **Table 1**.

Table 1: *Schedule 9 - Future Development Zones*

Schedule 9 - Future Development Zones	LSP Response
1) When structure planning is undertaken for Lancelin South Stage 2 and beyond, the following is required:	
i. Details of proposed staging;	No changes to the existing Stage 1 boundary are proposed as part of this amendment, refer LSP map (as amended). A secondary staging front will commence in the eastern portion of the site adjacent to Lancelin Road to enable the early delivery of commercial land uses, civic facilities and district open space. The second development front will continue in a southerly direction. Refer section 3 of the Part 1 – Implementation Section for further detail on the intended staging strategy.
ii. Preparation of a site level Landscape and Visual Impact Assessment, incorporating viewshed analysis, that informs the structure plan and guides subdivision and development;	A Visual Impact Assessment has been prepared by Plan E to support this amendment (refer **Appendix 3**). Further discussion is provided in section 4.4 of this report.
iii. Identification and protection of north-south and west-east ecological corridors, addressing corridor width, function and management requirements and the interface with adjoining development; and	North-south ecological corridors are proposed centrally connecting the Conservation zones with public open space and some landform retention, and within the eastern periphery of the site in response to landscape visual objectives. East west connections are delivered through landform retention within the Landscape Protection zone, and through landscaped boulevard streets to provide clearly delineated vegetation and amenity routes within and across the Structure Plan area.
iv. Preparation of an Environmental Management Plan where structure planning is adjacent to the Conservation zone.	An Environmental Assessment Report has been provided as **Appendix 4** and an Environmental Management Plan will be required as a condition of subdivision to ensure that any development adjacent to Conservation zones will be managed, consistent with the approved approach of LSP 2.
2) No subdivision is to occur outside of the Lancelin South Stage 1 structure plan area unless:	
i. 75% of Lancelin South Stage 1 has been subdivided and developed; or	Stage 1 is currently under construction and will be progressed ahead of the titling of land external to the Stage 1 Subdivision area. Subdivision applications and construction will commence prior to 75% of the Stage 1 area being titled.
ii. Subdivision is provided for in an approved structure plan at a residential density of less than R5; or	
iii. Subdivision is provided for in an approved structure plan at a residential density equal to or greater than R5 on land that is at or above 35m AHD	

Ultimately, this amendment will provide a comprehensive and consolidated planning framework and will ensure that subdivision and development progress in a well-integrated and coordinated manner across Lancelin South.

Landscape Protection Zone

The eastern portion of the site is zoned 'Landscape Protection' under LPS 9. The objectives of the 'Landscape Protection' zone are to:

a. *Preserve visual landscape quality;*
b. *Protect and enhance landscape and scenic values through location and siting of land uses and development, and control over design and building materials;*
c. *Maintain the integrity of the landscape which is visible from identified travel routes and recreation areas, consistent with visual management objectives identified within a landscape and visual impact study; and*
d. *Provide for limited development, where the built form is consistent with zone objectives.*

Clause 4.8.11 of LPS 9 also provides for a range of subdivision and development controls applicable to the 'Landscape Protection' zone, including the requirement for a site level Landscape and Visual Impact Assessment to be prepared during the structure planning stage.

The objectives, subdivision and development requirements outlined in LPS 9 have informed the preparation of the amended Structure Plan design to ensure the landscape and scenic values of the site are respected and maintained.

Further discussion regarding the proposed strategy for managing visual landscape impacts is provided within section 4.4 of this report and the Visual Landscape Analysis prepared by Plan E (refer **Appendix 3**).

Conservation Zone

A 22.49ha portion of the site is zoned 'Conservation' under LPS 9, located immediately east of the Stage 1 area. This area was introduced following the approval of Amendment 93 to LPS 8 in April 2011 to set aside the area for vegetation conservation purposes given its high environmental value.

A 70ha portion of 'Conservation' zoned land is also located in the south-west portion of the Structure Plan, which was rezoned following the approval of Amendment 3 to LPS 9 in September 2015. This formed part of the broader amendment to rezone the remaining portion of the site from 'Rural' to 'Future Development'.

The objective of the 'Conservation' zone is to

a. *'Adequately protect areas considered high environmental value from urban development and environmental degradation.'*

Schedule 7 of LPS 9 requires the preparation of an Environmental Management Plan to address the use and management of the land set aside for conservation purposes. The amended Part 1 – Implementation Section mandates this to be provided at subdivision stage consistent with the approved outcomes of LSP 2.

3.3 Planning Policies

The Shire of Gingin has a number of local planning policies relating to residential and commercial development that do not apply at structure plan stage but may be relevant to subsequent stages of regulatory approvals. These are listed below and will be addressed as needed as subdivision and development progresses over the South Lancelin site.

- Policy Statement 1.1 - Structure Plans
- Policy Statement 1.2 - Foreshore Protection Areas
- Policy Statement 1.3 - Commercial Development
- Policy Statement 1.5 - Transportable Dwellings
- Policy Statement 1.7 - Ancillary Accommodation
- Policy Statement 1.8 - Landscaping Plan
- Policy Statement 2.1 - Residential Outbuildings

4. Proposal

A Concept Masterplan (**Figure 6**) has been prepared in support of the amendment, demonstrating how the site can be developed in accordance with the Structure Plan (as amended). The design has been developed through a comprehensive master planning process that has considered contextual analysis, design review, technical inputs and consultation. It is underpinned by a series of design principles, which aim to maximise the opportunities presented by the site's proximity to the coast and its significant natural landforms.

A suite of technical work has been undertaken to support this amendment, demonstrating that there are no impediments to subdivision and development occurring over Lots 1, 9000 and 9001.

The following sections provide analysis and justification for the amendment relating to the key planning considerations.



Figure 6: *Concept Masterplan (Source: Nearmap)*

4.1 Land Use

This amendment provides an updated and contemporary framework for the progression of urban development that responds to the needs of the Lancelin community and recognises the site's significant landscape values.

The key features of the Concept Masterplan and the amended Structure Plan are set out below:

- A total of approximately 6,000 – 7,000 dwellings with residential densities ranging from R20 to R60 and densities of R5-R40 maintained within the area of Stage 1 that has been subject to subdivision approvals at the date of preparation of this amendment. Higher residential densities are to be focused around key areas of open space and activity centres, while the balance of the site shall comprise more traditional urban scale single house lot product.
- Approximately 66.5ha of public open space for active and passive recreation and delivering key drainage objective to meet the minimum 10% public open space requirement outlined in *Liveable Neighbourhoods*.
- A 16.25ha vegetated visual protection screen along the Indian Ocean Drive interface to maintain the integrity and scenic values of the dunal landscape in the area.
- A permeable movement network that connects into existing road networks and provides for pedestrian and cycling infrastructure. A number of key 'Landscaped Boulevards' will be delivered to provide greater connectivity between Indian Ocean Drive and the coast.
- A centrally located 10ha high school, co-located with a 10ha area of district open space to provide a range of formal recreational activities to meet the current and future needs of the Lancelin community.
- Four 3.5ha primary school sites to support the educational needs of the emerging Lancelin community.
- Community uses adjacent to the centre on Lancelin Road.
- An emergency services headquarters on the north side of Lancelin Road to be accommodated within the 'Mixed Business' zone under LPS 9. It is expected to provide facilities for Department of Fire and Emergency Services, St John Ambulance and the Marine Rescue.

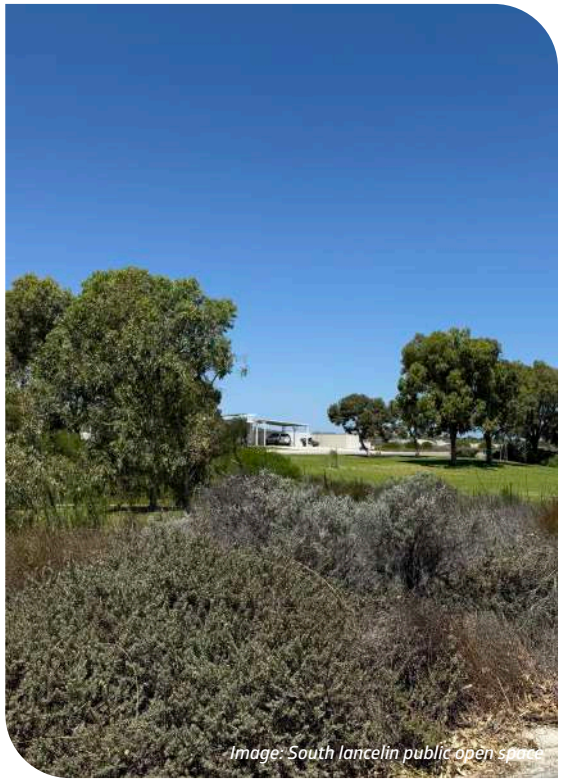


Image: South lancelin public open space

4.2 Residential & Density

This amendment will establish a framework to deliver housing typologies that respond to the site's locational and demographic context whilst achieving residential yields that align with State density targets.

4.2.1 Dwelling Yields & Density Targets

The amendment is expected to facilitate between 6,000-7,000 dwellings across the Structure Plan area, having the potential to deliver a residential site density of 19.6 dwellings per residential site hectare (assuming a minimum of 6,000 dwellings are delivered), consistent with the site's regional lifestyle location.

The amendment will provide for a range of residential densities to enable housing diversity and a range of lot types, consistent with market demand and lifestyle envisaged for Lancelin South.

In doing so, this amendment proposes to introduce density ranges from R25 to R60 for all land which is not subject to a proposed subdivision application or approval, based on the following principles:

- A base coding of R25 applies across the structure plan to provide opportunities for traditional lot sizes to satisfy the prevailing market demand for this product, which will apply to lots typically ranging in size from 350m² to 450m².
- Medium density R40 areas will be typically located within a 100m walkable catchment to public open space, the primary school and commercial or civic uses (where a higher level of amenity exists), ranging in size between 180m² to 300m². This density coding provides the opportunity to deliver cottage style housing (single or double storey, front loaded) and for contemporary 'compact' lots that typically book end street blocks.
- R60 coded lots will provide opportunity for smaller, rear loaded product or grouped housing sites where adjacent commercial centres, civic uses or public open space.

The allocation of a density range from R25 to R60 applied to the Structure Plan provides flexibility for density allocation at subdivision with a clear set of criteria to ensure densities are sited appropriately, particularly in the context of the site's unique landscape. Allocating specific densities across the plan could result in unnecessary and time-consuming structure plan modifications to simply make minor modifications to an R-Code boundary. Flexibility in the R-Code range is required given the size of the site, lifecycle of the development and need for housing and density to adapt to market needs at the time.

For areas that have been subject to a subdivision application or approval within the previously applicable Stage 1 ODP area, the established applicable density coding and locational criteria. For the R20 area directly west of the central Conservation zone, the density coding reflects a lodged subdivision application that aligns with the upper end of the density range of ODP 1 and preferred lot sizing. A density range is no longer needed for this location.

4.2.2 Local Development Plans

Local Development Plans ('LDPs') will be required in limited circumstances to mandate appropriate noise mitigation measures and appropriate respond to subdivision design and built form outcomes within the 'Landscape Protection' zone. As set out at clause 4.2.3 of the Part 1 – Implementation Section, LDPs may be required in the following circumstances:

- Lots that directly abut areas of public open space or Conservation reserves to address built form orientation, setbacks, passive surveillance and uniform fencing.
- Lots within the Landscape Protection Zone or abutting the vegetation screen to manage building heights, roof pitch and, materials.

4.3 Movement Network

In accordance with the WAPC's Transport Impact Assessment Guidelines, the project traffic engineers, PJA, have prepared a Transport Impact Assessment ('TIA') based on the amended Concept Masterplan.

The TIA forecasts updated traffic volumes and sets out a recommended road network hierarchy for the amended Structure Plan, confirming that the proposed amendment does not compromise the function of the existing movement network.

In doing so, the TIA provides for a comprehensive update to the original traffic reports (*Riley Consulting - 2006, Bruce Aulabaugh Traffic Engineering & Transport Design - 2010 and Porter and Associates - 2010*), that were prepared as part of the Structure Plan, ODP 1 and LSP 2 to ensure a road network that is consistent with contemporary transport planning.

The findings and recommendations set out in the updated TIA build on the previous traffic studies prepared for the site, in ensuring a highly connected and legible road network and facilitating direct and safe access onto key arterial routes such as Lancelin Road and Indian Ocean Drive.

The following provides a summary of the key elements of the TIA including details of the existing and proposed road networks, the road hierarchy and traffic generation. Further consideration is also given to public transport, cyclist and pedestrian network provision.

4.3.1 Existing Road Network

The site is supported by an existing regional road network comprising Lancelin Road to the north and Indian Ocean Drive to the east that will provide access to services and the wider strategic road network.

The key characteristics of the roads adjoining the site are described as below:

- Indian Ocean Drive - is located along the eastern boundary of the site providing a key regional north-south connection. It is a single carriageway road adjacent the site and is identified as a 'Primary Distributor' under Main Roads Western Australia's (MRWA's) Regional Functional Road Hierarchy. Importantly, MRWA's 'Control of Access' restriction does not apply to Indian Ocean Drive. Further discussion is provided below regarding the future connection point to Indian Ocean Drive.
- Lancelin Road - is located along the northern boundary and provides an important link to the Lancelin townsite from the broader regional network via Indian Ocean Drive. It is a single carriageway road and is classified as a 'Local Distributor' under MRWA's Regional Functional Road Hierarchy.
- Old Ledge Point Road - is located along the western boundary of the site and is identified as an 'Access Road' under the MRWA Regional Functional Road Hierarchy. It provides access to coastal areas via unmade coastal roads and is only sealed along sections abutting the developed stages of Lancelin South. As development progresses across the site, it will provide a key access route for those accessing the coast and the western portion of the structure plan area.

4.3.2 Proposed Road Network

The findings of the TIA are based on detailed traffic modelling developed by PJA to inform the updated road planning for the amended Structure Plan.

The proposed road network follows a logical and orderly hierarchy which provides legible and useable networks for all modes of transport for travel, to, from and within the site. The network has been defined by predicted traffic volumes, road function and design characteristics and forms a modified grid network of local roads. The amended Structure Plan provides for both strong and direct north-south and east-west linkages to surrounding higher order roads, the coast as well as future school sites and key activity centres.

Assessment of Traffic Impact

The traffic modelling for the proposed movement network demonstrates that the network and associated reserve widths have the capacity to accommodate expected traffic volumes. The modelling undertaken has incorporated forecast volumes up to the year 2051, which is the year that full development of the wider locality is assumed to be complete, ensuring a transparent and robust model.

The modelling undertaken has been used to understand the distribution the traffic on the network of internal roads, with road hierarchies assigned based on the forecast traffic volumes in accordance with *Liveable Neighbourhoods*. The TIA has considered and informed the intersections of these internal roads with the external road network, specifically Lancelin Road along the northern boundary and Indian Ocean Drive on the eastern boundary.

Road Network

Informed by the traffic modelling and anticipated traffic volumes, the TIA assigns an appropriate road hierarchy consistent with *Liveable Neighbourhoods* road classifications. In accordance with standard practice, the Structure Plan Map identifies the general alignment of higher-order roads, being neighbourhood connector roads and above.

The proposed road hierarchy for the Structure Plan is shown at **Figure 7**, with the location of local roads (access streets) to be confirmed as subdivision progresses for the site, as informed by the road hierarchy depicted on the Structure Plan Map.

The key aspects of the planning road network are as follows:

- **Lancelin Road** - is to be upgraded to a 26m wide Integrator Arterial B standard, consistent with the *Bruce Aulabaugh Traffic Engineering & Transport Design Report (2010)* prepared to inform the Lancelin South ODP 1.
- **Old Ledge Point Road** - is to be upgraded to a Neighbourhood Connector A standard or similar, providing for traffic volumes up to 3,000vpd. Its upgrade will enable access to the western portion of the site, via three new proposed access points.
- **Neighbourhood Connectors** - a network of Neighbourhood Connectors creates the basis for an interconnected network providing a high level of internal connectivity and safe, legible external linkages. These connectors will provide an opportunity for bus routes and cycle routes to support the accessibility of centres and schools, enabling physical and visual links to amenities such as the conservation reserves and the coast.
- **Neighbourhood Connectors (Landscaped Boulevard Streets)** - two key east west pedestrian focused linkages are proposed through the site, providing connectivity from the public open space buffer along Indian Ocean Drive to the future high school site and district open space. The two boulevards are intended to connect areas of natural amenity, as shown in **Figure 7**.
- **Access Streets** - the majority of the site comprises a modified grid network of access streets, with widths ranging between 15m and 18m.

All road reserves and street cross sections will be determined at subdivision stage and shall have regard for *Liveable Neighbourhoods*.



Image: Road network

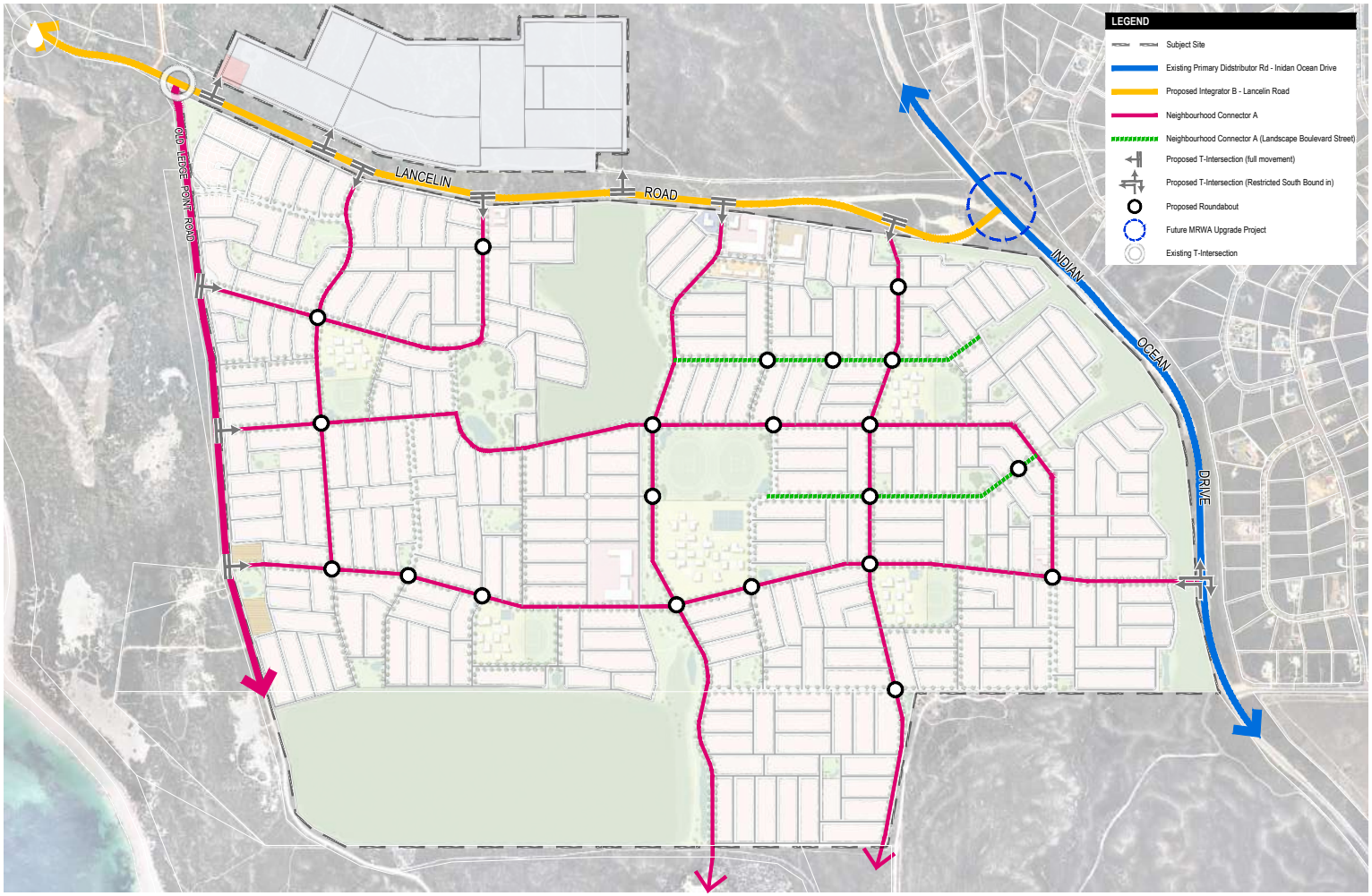


Figure 7: *Proposed Road Hierarchy (Source: Nearmap)*

Intersection Analysis

The amended Structure Plan provides for strong and direct north-south and east-west linkages to surrounding higher order roads such as Lancelin Road and Indian Ocean Drive as envisaged by the existing Structure Plan. This amendment proposes minor modifications to these external connections to reflect the findings of updated traffic modelling and to ensure excellent connections both into and out of the site.

These are shown in **Figure 7** and are summarised below:

- **Indian Ocean Drive –** a priority-controlled T-intersection onto Indian Ocean Drive from a future Neighbourhood Connector Road is proposed as previously contemplated in the original Lancelin South Structure Plan to ensure east-west connectivity through the site. The intersection will be constructed as priority-controlled T-intersection, with Channelised Right Turn Lane / Auxiliary Left Turn Lane or Channelised Left Turn Lane treatments. The TIA recommends restricting south bound right turns into the Structure Plan area, a permanent reduction to 70km/h along Indian Ocean Drive on approach to the intersection and separated right and left turn lanes within the Structure Plan on approach.

  The SIDRA intersection analysis found that the intersection will operate satisfactorily during both AM and PM peak hour period at ultimate development (to the year 2051). It is noted that Indian Ocean Drive in this location is not subject to 'Control of Access' under MRWA's statutory planning instruments and as such does not prevent direct vehicle access from the Structure Plan area. This is further supported by access being contemplated in Main Roads WA's Indian Ocean Drive Planning Study where *"appropriate levels of lot and network access"* are required.

- **Lancelin Road –** four priority-controlled T-intersections are proposed from the south side of Lancelin Road, with three provided to the Industrial land on the north side. These are expected to be designed to provide for Channelised Right Turn Lane / Channelised Left Turn Lane treatments to ensure clear lines of sight when entering / exiting the site. Given the expected upgrades to Lancelin Road and the provision of a central median, right-turn movements into an out of the Structure Plan area at these intersections will be 'two-stage' across a central median of at least 6m wide.
- **Old Ledge Point Road –** three priority-controlled T-intersections will be constructed, facilitating external access to the coast to the west, as well as the Lancelin town site to the north via Lancelin Road.

4.3.3 Pedestrians, Cyclists & Public Transport

The amended Structure Plan facilitates a safe and convenient pedestrian and cyclist movement network set in a landscaped environment that expands upon the existing connections being delivered within the initial stages of Lancelin South.

Figure 8 depicts an internal road network that is highly permeable, providing multiple route options for pedestrians and cyclists within and across the site. Safe and secure movement for cyclists and pedestrians will be provided through wider road reserves on key routes that can accommodate shared paths, including along proposed school sites.

The key principles for the planned pedestrian, cycling and public transport facilities within the Structure Plan are:

- Provision of a separated, off-road Dual Use Path along Lancelin Road and Old Ledge Road Point (Primary Route) to facilitate east-west and north-south connectivity connecting the site towards the broader Lancelin township.
- Provision of two key east-west "Landscaped Boulevard" streets that will provide a high amenity route for pedestrian and cyclists. This will comprise a 13m wide median set within a 30m wide boulevard, comprising a shared path as well as high quality landscaping and tree planting to provide canopy coverage for users.
- All Neighbourhood Connector roads (Local Routes) will include a Dual Use Path on at least one side with a minimum width of 2.5m to provide direct and safe access to schools, local centres and public open space to promote everyday active travel.
- Internal roads will be designed to be capable of supporting buses (where relevant), with routes to be located on roads greater than 20m in width, with 3.5m wide lanes in each as required by the Public Transport Authority ('PTA').
- Footpaths on at least one side of all Access Streets.

The final details and locations of footpaths and shared paths will be determined in consultation with the Shire of Gingin as part of the detailed design and engineering stages of the planning process.

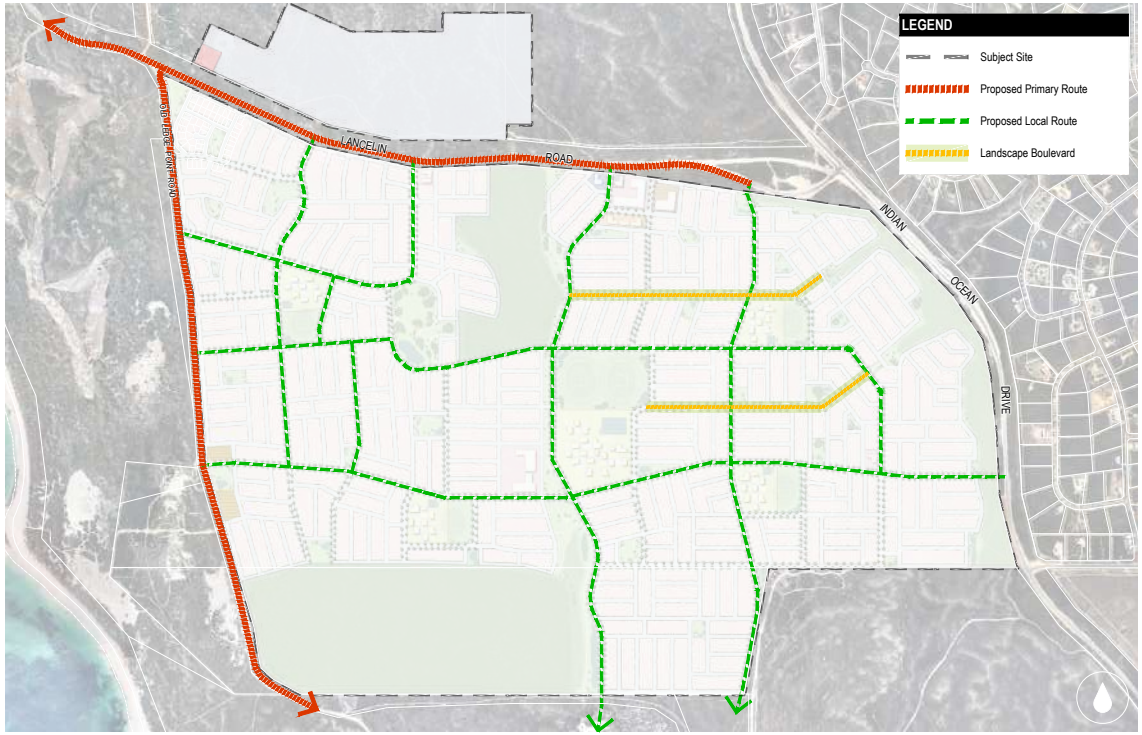


Figure 8: *Cycle and Pedestrian Network (Source: Nearmap)*

4.4 Landscape Protection

The Visual Landscape Analysis ('VLA') and Visual Impact Assessment ('VIA') prepared by Plan E assesses the visual landscape values of the site and sets out a range of measures to manage the potential visual impact of urban development from Indian Ocean Drive.

The principles and overarching visual management objectives set out in the *Indian Ocean Drive Planning Guideline (WAPC, 2014)* and the 'Landscape Protection' zone have underpinned the analysis and assessment prepared to inform this amendment.

The analysis provides a range of various 3D visualisations which demonstrate the sites' current landform, topography and vegetation in the context of future development, to highlight areas of future development that may be visible from Indian Ocean Drive to inform how it can be managed.

To manage view lines and reduce the visual impact on passing traffic, the assessment sets out how, in addition to the retention of key natural landforms along Indian Ocean Drive, minor modifications to site levels and the provision of additional landscape planting to screen future development areas from the Indian Ocean Drive tourist route, can be implemented.

Specifically, the analysis recommends the following visual management measures:

- The retention of existing landforms and enhancing vegetation within the Landscape Protection zone adjacent to Indian Ocean Drive. The existing dunal peaks will be also enhanced through the addition of fill between existing dunal hollows to a depth of 1m to 4m in specific locations. This will assist in naturally blocking views of adjacent development as seen from Indian Ocean Drive, as shown in **Figures 9 - 10**.
- Integrating additional new planting (screen shrubs or trees) within the Landscape Protection Zone with species that complement the retained vegetation.
- Consolidating areas of public open space adjacent to the Landscape Protection zone to emphasise the *"green screen"* between future development and Indian Ocean Drive. Planting of native trees and species with the public open space adjacent to the Landscape Protection zone which will assist to screen development from passing traffic.
- Managing built form within and adjacent to the 'Landscape Protection' zone by mandating landscape sensitive dwelling designs to minimise potential visual amenity impacts. Building heights, building siting, roof pitch, construction materials and colours will be managed via the preparation of Local Development Plans as required by the amended Structure Plan.
- A small portion of widening of the landscape visual zone also recommended centrally which can be addressed at subdivision stage.

Together these measures will ensure the visual impact of development within the landscape protection zone is minimised, and in doing so will maintain Indian Ocean Drive's scenic, coastal and tourist values as envisaged by LPS 9 and the Indian Ocean Drive Planning Guideline (WAPC, 2014).



Image: *Planting screen - proposed vegetation species (Source: Plan E)*

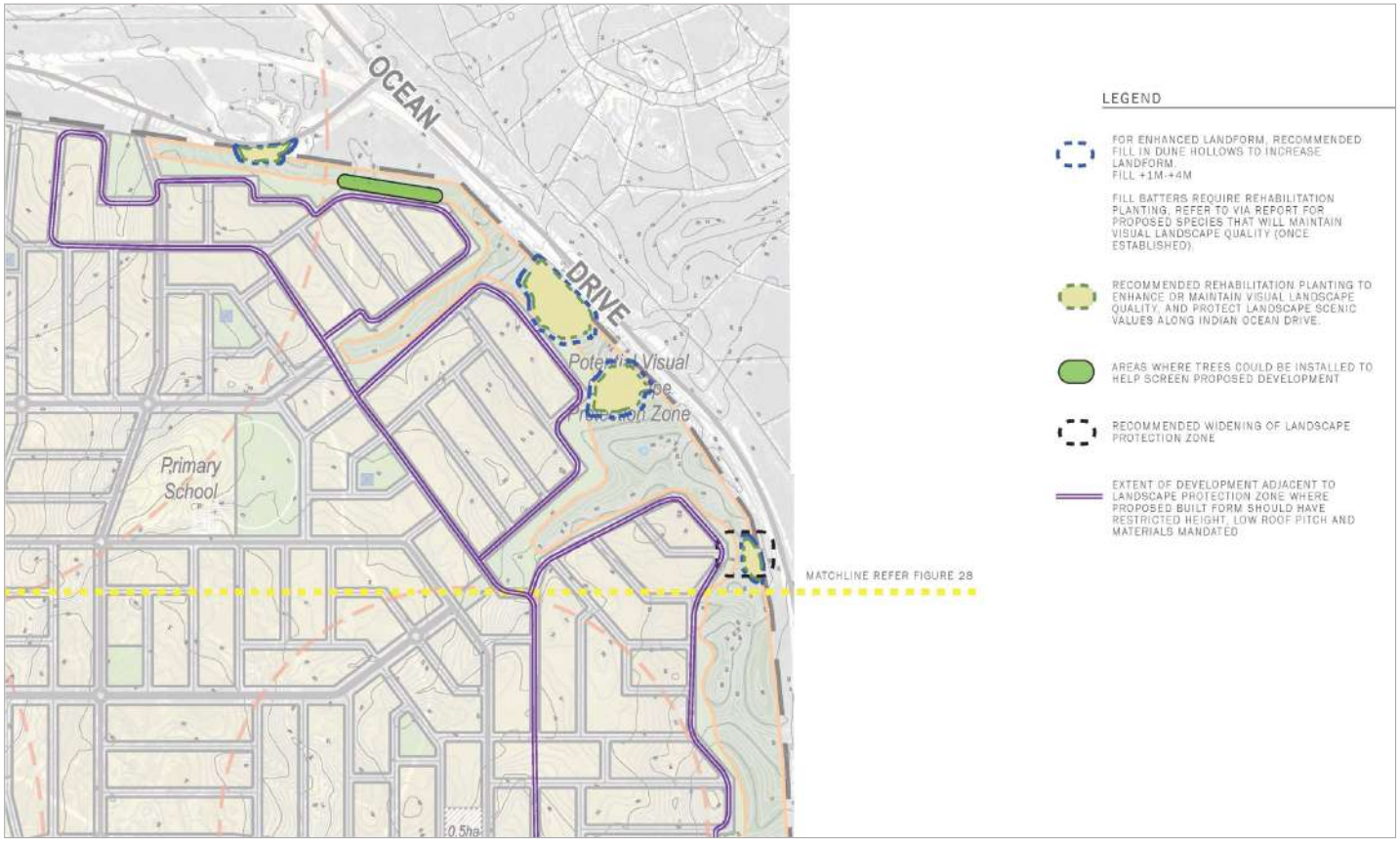


Figure 9: *Visual impact mitigation measures (Source: Plan E)*

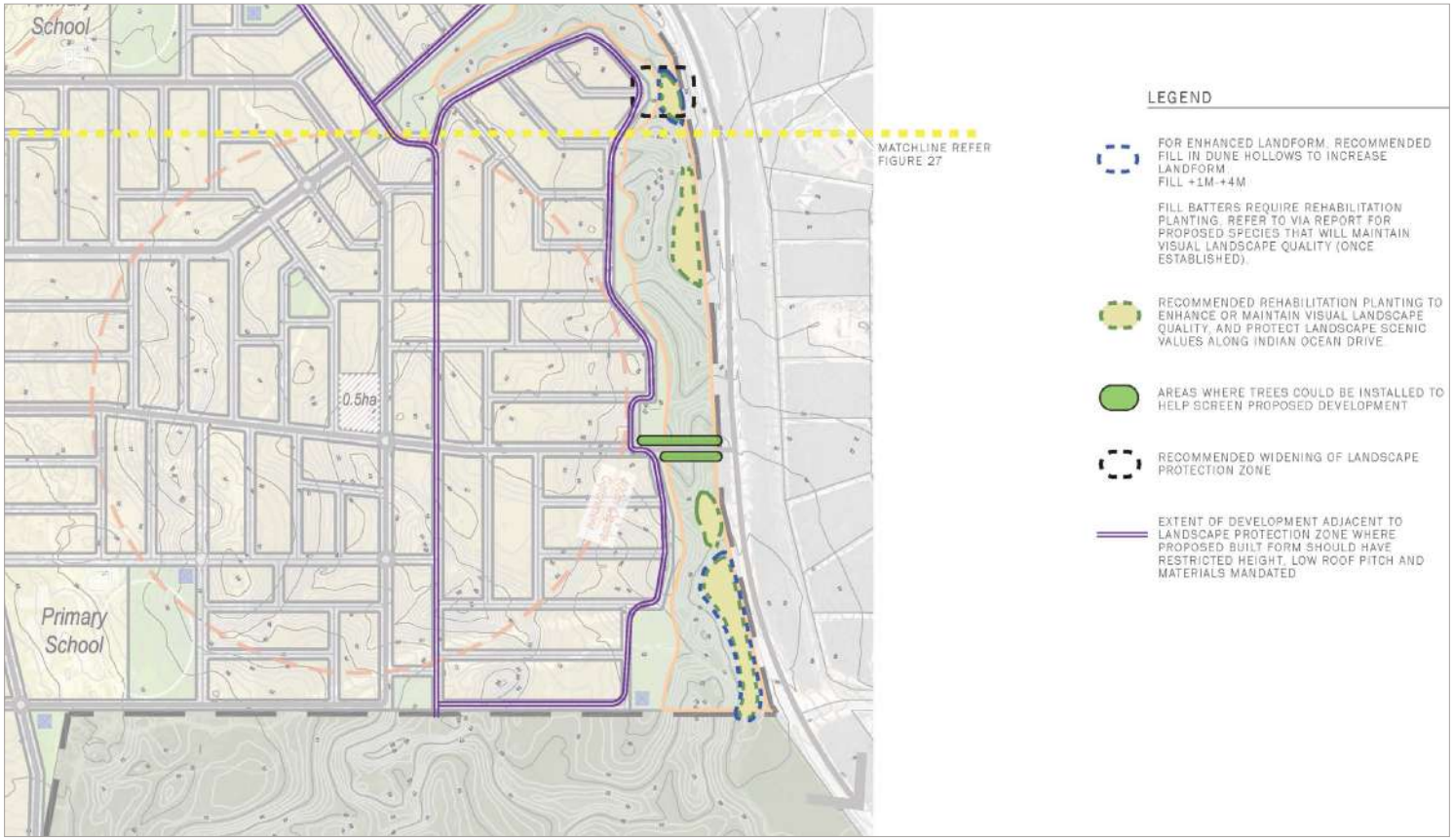


Figure 10: *Visual impact mitigation measures (Source: Plan E)*

4.5 Environment

The site is predominantly covered with remnant vegetation. Parts of the site were used for the training and keeping of horses with some small established paddocks. There are also old four wheel drive tracks, as well as fence lines, reflecting the previous use of the site for sheep grazing.

An Environmental Assessment Report ('EAR') has been prepared by PGV Environmental, which follows on from a number of previous environmental investigations undertaken across the site.

The EAR includes a review of previous studies and details the site's key environmental features, previous environmental approvals as well as management measures and land use responses to support the proposed amendment. It concludes that all relevant environmental factors can be adequately addressed through the planning approval process via the application of appropriate land use responses and management practices.

The following section summarises the key findings of the EAR.

4.5.1 Topography, Landform & Soils

The site is undulating with elevations ranging from 5 to 10m AHD in the west to 70m AHD in the east. The site contains three parallel north-south sand dunes and minor ridges throughout the site, with the tallest ridge located on the eastern boundary adjacent Indian Ocean Drive.

Given the elevation in the northern portions of the site along Lancelin Road, and the land immediately west of the ridgeline along Indian Ocean Drive, these areas are not only afforded significant sea views but will also ensure assist to minimise the visual impact of future urban development across the broader area as viewed from the east.

The site is predominately located on the Quindalup Dune System. The Quindalup dunes are composed of unconsolidated sand (quartz grains) and shell fragments, with a small area of the eastern boundary of the site mapped in the Spearwood Dune System.

4.5.2 Flora & Vegetation

The site does not contain any Threatened Ecological Communities ('TECs'), Priority Ecological Communities ('PECs'), Declared Rare or Bush Forever sites.

A total of three Priority species have been identified on the site, with these all occurring in the 70ha Conservation area in the south-west of the Structure Plan area. There are two priority species that have not been identified on the site but may possibly be present. No Declared Rare Flora were identified on the site or are likely to be on the site.

This is consistent with the findings undertaken as part of the previous studies for the initial structure planning for the site.

4.5.3 Fauna

The fauna habitat on site is relatively uniform comprising mainly of heath and shrublands with localised areas of disturbance, however, is generally in Very Good condition.

Given the presence of low quality Parrot Bush and only a very small area (0.06ha) of Banksia attenuata, the assessment concludes that the site contains very little suitable habitat for Carnaby's Black Cockatoo.

The Graceful Sun-moth, which is listed as a Priority 4 species has been identified within the eastern portion of the site, generally located along the dunal ridges. As these areas will be contained within public open space or Conservation, the impact on existing populations is unlikely to be significant.

Whilst a large portion of the site will be cleared as development progresses, the amended Structure Plan has been intentionally designed to retain areas which contain environmentally significant values (e.g. habitat retention, priority flora species, significant dunal forms) through consolidation within the 'Conservation' zone and the retention and enhancement of the ridgeline within the Landscape Protection zone along the western boundary of the site.

Together, the amendment will ensure the retention of two areas of 22.49ha and 70ha of vegetation within the Conservation zone to ensure there are no adverse environmental impacts.

4.5.4 Heritage

European Heritage

A desktop assessment undertaken by the project environmental consultant as part of the EAR did not identify any State listed European cultural heritage places within or adjacent the Structure Plan area.

It is noted however that the 'de Burgh's Well' (Place Number ID 17716) which is located in the north-western portion of the site, is identified in the Shire of Gingin's Municipal Heritage Inventory. The site is classified as Class 'C' which is defined as:

A place of some cultural heritage significance to the Shire of Gingin. No constraints. Recommend: Encourage retention of the place, and document the place if retention is not possible.

De Burgh's Well will be retained within the area of public open space west of the Conservation area, consistent with the existing Structure Plan.

Aboriginal Heritage

A desktop assessment undertaken by the project environmental consultant as part of the EAR did not identify any registered Aboriginal Heritage sites or other heritage places within the Structure Plan area. Urban development as proposed is therefore unlikely to impact on matters of Aboriginal heritage significance.

4.6 Public Open Space

This amendment facilitates a framework for the delivery of public open space that can serve a variety of functions, balancing active and passive recreational pursuits and delivering key drainage objectives.

The amended public open space (network addresses the requirements of Schedule 9 of LPS 9 by protecting north-south and west-east ecological corridors as outlined in further detail below.

4.6.1 Public Open Space Provision & Schedule

The Structure Plan establishes a public open space network to serve a variety of functions, balancing tree retention where possible, provision of passive and active parklands and supporting best practice urban water management based on *Liveable Neighbourhoods* guidelines.

The key aspects of the public open space network include:

- The Structure Plan provides for approximately 66.5ha of public open space, with open spaces offering for a mix of passive and active recreational uses, integrated drainage function and/or conservation purposes. The integration of drainage within the various parklands has been a key consideration to maximise amenity and water management for the Structure Plan.
- *Liveable Neighbourhoods* allows up to 2% of the 10% requirement to comprise of restricted use open space. Based on these requirements a maximum 10.41ha can be credited as restricted use open space within the Structure Plan, with the balance of restricted use open space becoming a deduction from the overall site area as per *Liveable Neighbourhoods*.
- All other areas of public open space are unrestricted and provide for a range of passive and active recreational functions and local amenity for residents. The total amount of unrestricted open space is 56.1ha.
- The two 'Conservation' areas are retained consistent with the previous approvals. A 22.49ha area in the northern portion of the site abutting Lancelin Road and a 70ha area in the south-western portion site abutting Old Ledge Point Road. Both have been treated as a deduction from the public open space schedule.

Tables 2 & 3 (Public Open Space Schedule) outline the provision of public open space for the Structure Plan in accordance with *Liveable Neighbourhood*. It demonstrates that the amended Structure Plan provides for approximately 66.5ha of public open space which (once *Liveable Neighbourhood* credits are applied) represents around 12.7% public open space, well exceeding the requirements of *Liveable Neighbourhood*.

Table 2: Public Open Space ('POS') Schedule (all areas in hectares)

Masterplan Area South of Lancelin Road (excluding western triangle on Lancelin Road)		**662.09**
Existing Deductions		
Conservation Areas (x2)	93.97	
Primary School (x4)	14.02	
High School (x1)	10.06	
Neighbourhood Centre (x2)	5.51	
Local Centre (x2)	1.00	
Service Station Site	0.30	
Tourism / Retail	1.62	
Medical Centre	0.51	
Restricted POS no included in POS contribution (greater than 2%)	10.34	
Drainage 1:1yr event (Total as per Hyd2o Advice)	4.28	
Total existing deductions	141.62	
Net Site Area		520.47
POS requirement @ 10%		52.05
Public Open Space Requirement		
May Comprise:		
Min 8% Unrestricted POS	41.64	
Max 2% Restricted POS	10.41	
TOTAL POS REQUIRED		**52.05**
Public Open Space Provided	Unrestricted POS Area	Restricted POS Area
For individual POS Land Areas see Table 4		
TOTAL (ha)	**56.10**	**20.75**
Additional Deductions		
Restricted Open Space Surplus		10.34
Revised Public Open Space Contribution		
Unrestricted POS provided	56.10	10.78%
Restricted POS provided	10.41	2.00%
Total Creditable POS Provided	**66.51**	**12.78%**

Notes:

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrance interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrance interval up to the five year recurrance interval is restricted open space up to 20%,the area greater than 20% is a deduction (LN R26 & Table 11); areas for the dentention of stormwater for a greater than five year average recurrance interval is within unrestricted open space (LN R25).

2. This Schedule is for plan CLE Ref. 3818-42B and uses the drainage calculations prepared by Hyd2o - 04/03/2026.

3. Public Open Space Areas are indicative only and subject to detailed design and survey.

***Table 3**: Public Open Space ('POS') Land Areas (all areas in hectares)*

POS Provided	Gross POS Area	Unrestricted POS Area	Restricted POS Area
POS E1 - Existing POS NW Triangle	1.10	1.10	0.00
POS E2 - Existing NW Rectangle	0.72	0.72	0.00
POS U1	0.52	0.52	0.00
POS U2	0.22	0.22	0.00
POS U3	1.66	1.66	0.00
POS U4a	2.27	2.27	0.00
POS U4b	0.55	0.55	0.00
POS 1a	2.17	1.78	0.20
POS 1b	0.59	0.23	0.21
POS 2a	0.52	0.52	0.00
POS 2b	1.19	0.94	0.12
POS 3	2.03	1.84	0.09
POS 4a	0.30	0.30	0.00
POS 4b	0.40	0.15	0.12
POS 5	1.59	1.28	0.16
POS 6	3.45	3.16	0.16
POS 7a	2.17	2.16	0.29
POS 7b	0.99	0.99	0.00
POS 8	0.44	0.38	0.03
POS 9a-1	9.41	8.84	0.29
POS 9a-2	0.73	0.73	0.00
POS 9b	0.52	0.22	0.14
POS 10	0.66	0.51	0.06
POS 11a	0.52	0.52	0.00
POS 11b	2.69	2.32	0.20
POS 12a-1	0.61	0.33	0.13
POS 12a-2	0.39	0.39	0.00
POS 12b-1	2.55	2.55	0.00
POS 12b-3	0.18	0.18	0.00
POS 12b-1	0.87	0.40	0.24
POS 13a	0.72	0.34	0.18
POS 13b	0.65	0.31	0.17
POS 14	1.75	1.68	0.02
POS 15a	2.00	2.00	0.00
POS 15b	1.00	0.64	0.19
POS 16a	4.77	3.93	0.49
POS 16b	0.36	0.36	0.00
POS 16c	0.06	0.06	0.00
POS17	1.18	0.86	0.15
POS 18	1.00	0.25	0.38
POS 19a	0.49	0.34	0.08
POS 19b	0.71	0.71	0.00
POS 20a	0.38	0.18	0.11
POS 20b	2.20	2.20	0.00
POS 21	0.45	0.38	0.03
POS 22	0.44	0.27	0.08
POS 23a	0.30	0.18	0.07
POS 23b	0.10	0.10	0.00
POS 24	0.39	0.36	0.01
POS 25	2.02	1.89	0.05
POS 26a	0.62	0.56	0.03
POS 26b	0.75	0.75	0.00
POS 27	16.25	0.00	16.25
Total Creditable POS Provided	**81.14**	**56.10**	**20.75**

Notes:

1. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrance interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrance interval up to the five year recurrance interval is restricted open space up to 20%, the area greater than 20% is a deduction (LN R26 & Table 11); areas for the dentention of stormwate for a greater than five year average recurrance interval is within unrestricted open space (LN R25).

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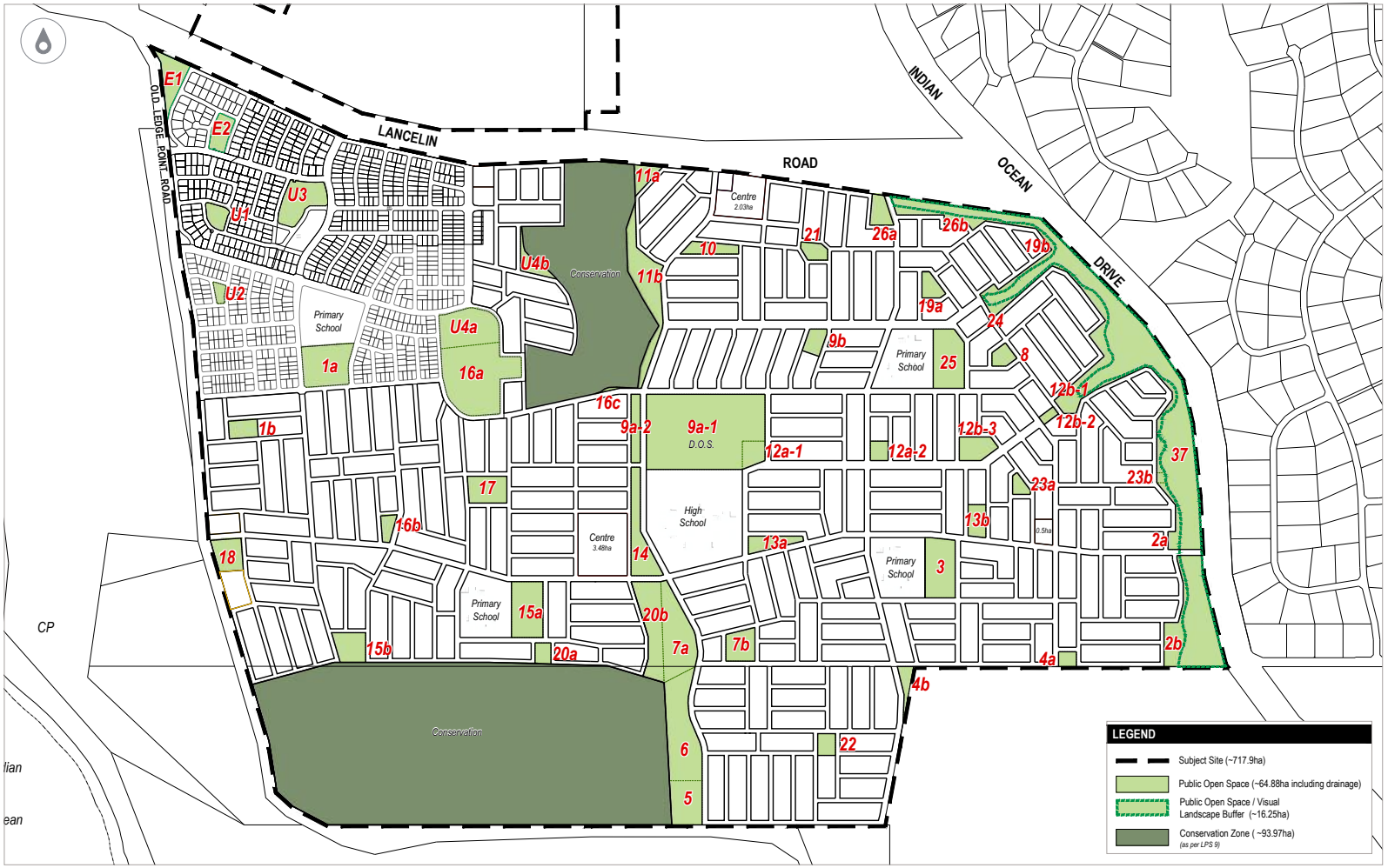


Figure 11: *Public Open Space Masterplan*

4.6.2 Description of Public Open Space

The Structure Plan creates a broad road network of distinct areas of open space which are shown in the Landscape Masterplan prepared by LD Total as shown in **Figure 12**. It illustrates how these different spaces will integrate community needs with active and passive recreational spaces, tree retention and drainage requirements.

The following headings provide discussion on the local reserves and other open space areas identified on the Structure Plan map, noting that detailed landscaping designs will be refined as part of subsequent stages of planning and in consultation with the Shire of Gingin.

District Open Space

The Structure Plan identifies a 10ha area of District Open Space ('DOS') to service the active sporting and recreational needs of the community. The DOS is intended to provide for organised and formal sporting activities for the Lancelin South area and has been co-located with a high school to allow for joint use of the open space and playing fields.

This will assist to strengthen the role of DOS as a role as a community focal point and maximise opportunities for its ongoing use. It will also assist to minimise turfed areas and by effect, the amount of water required to irrigate playing fields and allow for the more efficient management of infrastructure between the Shire of Gingin and the Department of Education.

Local / Neighbourhood Parks

The majority of public open space within the Structure Plan will be provided within neighbourhood and local parks across the site offering a diverse range of recreational experiences, as well as providing for an integrated drainage function.

Neighbourhood parks have been sited to maximise the retention of vegetation and mature trees as well as provide opportunities for small playground, seating and shade structure for residents. All four of the primary school sites have been co-located with areas of open space to provide opportunity for formal active recreational uses. Passive uses may include paths, seating areas and possibly play facilities.

Local parks have been sited to provide localised amenity for residents in addition to important drainage functions.

Visual Landscape Buffer

A 16.2ha landscape buffer along Indian Ocean Road within the existing 'Landscape Protection' zone is proposed. As detailed in section 4.4, the amendment proposes to reconfigure the previously depicted buffer to provide a more considered landscape screen to maintain the site's visual landscape amenity by ensuring greater retention and enhancement of key dunal landforms.

The landscape buffer not only will ensure the retention of existing landform but will also enhance dunal peaks through the addition of fill between existing dunal hollows to a depth of 1m to 4m in specific locations. This will assist to naturally blocking views of adjacent development as seen from Indian Ocean Drive.

Planting of native trees and species within the public open space adjacent to the 'Landscape Protection' zone will assist to screen development from passing traffic.

The visual landscape buffer will be contained with a future 'Parks and Recreation' reserve as shown on the Structure Plan map.

Linear Public Open Space Corridor

A centrally located north-south ecological corridor connecting the two Conservation areas with other areas of public open space is proposed through the centre of the site. The linear corridor will provide opportunity for the retention of existing landforms, tree canopy coverage and pedestrian connectivity as required by Schedule 9 of LPS 9.

The corridor will incorporate remnant vegetation that will be preserved to maintain its natural attributes, as well as topographical features that will not only contribute to the sites' coastal sense of place but also provide for high amenity views over the surrounding area, including to the ocean.

Pedestrian and cycling trails will be provided within the corridor, incorporating logical and legible connections to the surrounding street network and adjacent areas of public open space. Connections will provide opportunity for passive recreation and enable residents to experience and appreciate the site's unique natural values.

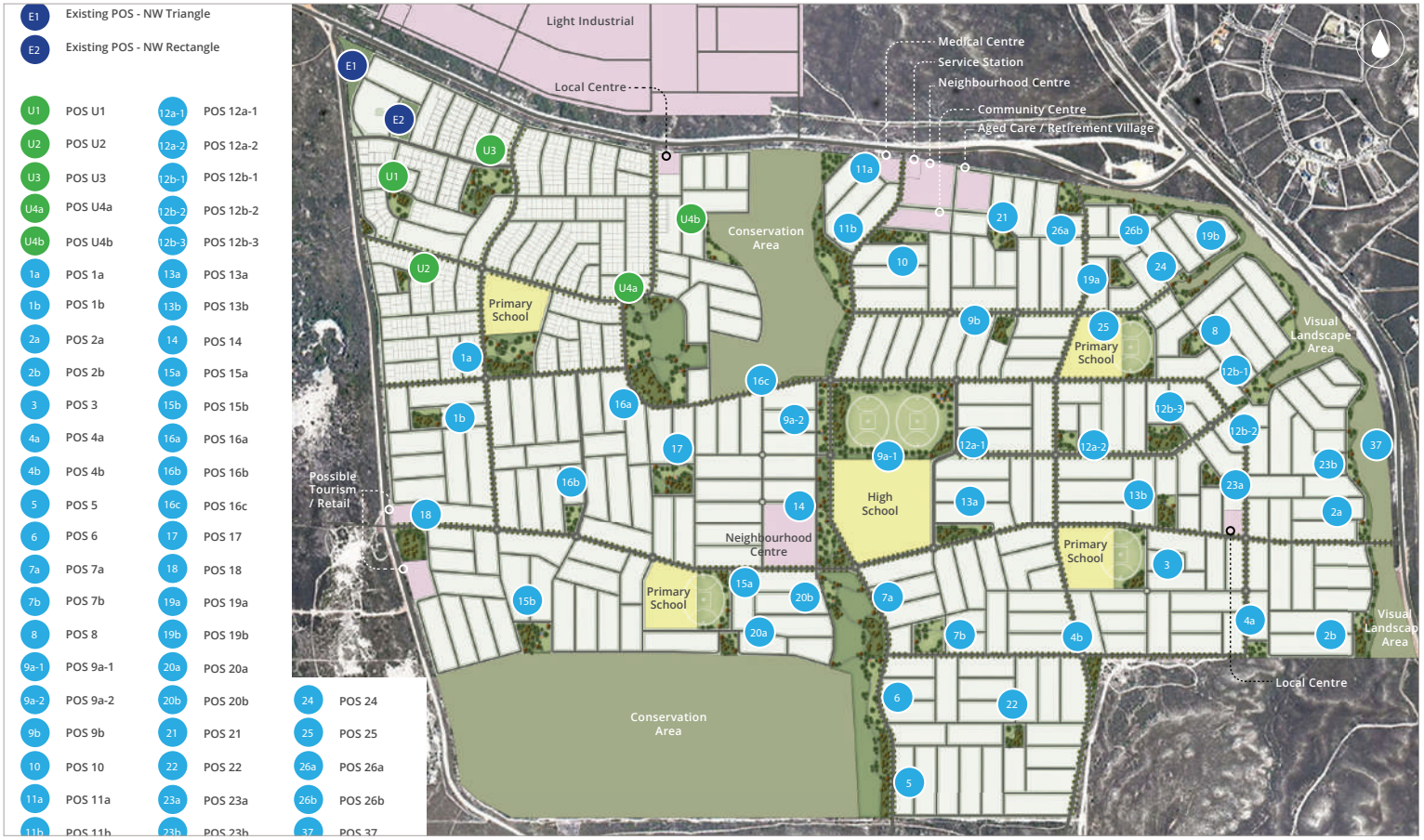


Figure 12: *Landscape Masterplan (Source: LD Total)*

4.6.3 Streetscape

While not usually acknowledged as traditional public open space pursuant to *Liveable Neighbourhoods*, streetscapes make up an important component of the public realm, and the quality of landscaping within these key streets assists to deliver a true sense of place within new residential areas.

The amendment provides the opportunity for a higher standard of landscaping along the two east-west boulevards (Neighbourhood Connectors) to provide added shade and comfort for pedestrians and cyclists, improving pedestrian experience and encouraging activation of the precinct. These roads will provide for wider shared paths and provide generous areas for tree growth and canopy cover. Whilst the final design and planting of the entire road network will be determined in consultation with the Shire of Gingin at the subdivision stage, the cross-sections provide guidance on the possible landscaping outcomes for these boulevards.



Figure 13: *Landscaped Boulevard Streets cross section*

4.7 Urban Water Management

This amendment has been designed to accommodate best practice urban water management principles and has been supported by an addendum to the existing Local Water Management Strategy ('LWMS') prepared by Hy20 (**Appendix 5**).

The addendum has been prepared in accordance with the principles and objectives of WAPC's Better Urban Water Management Guidelines and builds on the previous approved LWMS (RPS, 2010).

4.7.1 Stormwater Management

The stormwater management strategy will be undertaken in accordance with water sensitive urban design practices and will consist of soakwells, piped road drainage, underground storage cells and bioretention and ephemeral storage areas within the public open space and drainage reserve.

The stormwater modelling has been updated to reflect the amended Structure Plan, which has resulted in changes to catchment boundaries and areas to maximise distributed infiltration and stormwater management at source consistent with water sensitive urban design principles.

The Structure Plan is now delineated into 30 catchment areas, with stormwater storage to be managed as follows to achieve the objectives of the LWMS.

- All catchments will provide water quality treatment and infiltration of all stormwater from a 15mm event via biofiltration areas, which will be located within overall flood storage areas sized to retain large flood events up to 1% Annual Exceedance Probability ('AEP') event within public open space areas.
- Side slopes of 1:6 for the public open space flood storage infiltration areas and 1:0 for biofiltration, with a maximum storage depth of 1.2m.
- Runoff from minor events will travel overland via a system of piped drains, landscaped drainage paths and swale feature before re-entering the pipe drainage network as part of biofiltration treatment systems;
- Runoff from major events will be conveyed via the local street network to dedicated flood storage areas.

4.7.2 Groundwater Management

Adequate separation between finished surface levels and groundwater will be achieved through the use of clean, free draining fill (where required).

An earthworks strategy has been prepared by Peritas (refer **Appendix 6**) for the site which shows adequate separation from maximum ground water levels, with minimum clearance of 0.5m above the regional 1:100-year flood level achieved.

4.7.3 Monitoring & Implementation

Establishing key principles for the management of stormwater runoff and groundwater quality, implementation of the LWMS will be through the development of subsequent Urban Water Management Plans ('UWMP') which will be prepared at the time of subdivision.

This will consolidate the recommendations of the LWMS Addendum and guide detailed design and subsequent construction of drainage infrastructure and implementation of management programs and initiatives.

It is noted that the preliminary drainage catchments plan contained with the LWMS Addendum (**Appendix 5**) contains a subdivision design that is indicative only and is subject to change.

4.8 Activity Centres

The Structure Plan proposes a range of commercial and industrial land uses to support local and regional business growth and provide employment opportunities within the Shire of Gingin to achieve a self-sufficient community.

The site is in proximity to the Lancelin town site (3km) which provides for a range of retail and commercial offerings, accessible via Lancelin Road. Despite this, there is a lack of local commercial offerings within a walkable catchment of the Structure Plan area.

Whilst this was acknowledged in the original Lancelin South Structure Plan (2013), which included a 3.6ha Neighbourhood Centre and five smaller local centres, this amendment seeks to refine the location and distribution of retail floorspace to more appropriately reflect the current and future needs of the emerging South Lancelin community and to ensure greater exposure to key roads.

The only changes to the existing activity centre network proposed by this amendment relate to the inclusion of a new Neighbourhood Centre along Lancelin Road and the redistribution of existing centres.

Specifically, this amendment proposes the following:

- Two (2) Neighbourhood Centres, one along Lancelin Road and the other centrally within the site.
  - A new 2ha Neighbourhood Centre will be located on Lancelin Road to leverage passing traffic and has been sited in proximity to a possible retirement village and community centre. A major supermarket and specialty stores are expected for this centre.
  - A 3.5ha Neighbourhood Centre will be retained centrally within the site (as envisaged by the Lancelin South Structure Plan), however, has been sited to leverage its proximity to the public open space corridor and the high school site to avoid any impact on the planned centre along Lancelin Road.
- Three (3) Local Centres comprising a combined total area of 2.61ha, have been designed and sited to serve the daily needs of residents within their own walkable catchments.
  - A 1.16ha coastal tourism-based centre located on Old Ledge Point Road will benefit from its proximity to the coast, lending itself well to a range of tourism-based uses such as restaurants, cafes and other specialty retail offerings (as envisaged by the Lancelin South Structure Plan). The centre is afforded access from Lancelin Road to the north, via Old Ledge Point Road and Indian Ocean drive to the east via the proposed neighbourhood connector road.
  - A 0.5ha local centre located at Lancelin South entry along Lancelin Road in the north-west. The centre will support the initial stages of Lancelin Southand provide an amenity offering for existing residents.
  - A 0.5ha local centre within the eastern portion of Lancelin South has been sited within its catchment, in proximity to one of the primary school sites providing a convenient retail facility.

The size and location of these centres have been informed by expected supply and demand for retail floor space within the Lancelin locality to support local and regional business growth and provide employment opportunities within the Shire of Gingin.

The proposed floor space is commensurate with a projected population of 19,000 for South Lancelin and will ensure the establishment of a self-sufficient community at South Lancelin.



Image: Activity Centre

State Planning Policy 4.2 Activity Centres (SPP4.2) provides a framework for decision makers when considering the distribution, function and land use considerations for activity centres within the Perth, Peel and Greater Bunbury Region Scheme areas. Whilst not applicable to the site, the objectives of SPP4.2 have been used as a guide to inform the distribution of centres as part of this amendment, as detailed below:

- Lancelin South is identified as a 'Sub Regional Centre' in the *Guilderton to Kalbarri Sub-Regional Strategy (2019)* and is therefore in keeping with the established activity centre hierarchy for the region.
- The distribution of floor space will not impact upon existing, committed and planning of public and private investment in the existing Lancelin townsite. The proposed uses will co-exist with existing floorspace and will service the needs of the existing and future South Lancelin population (19,000) to ensure a self-sufficient community.
- The introduction of the proposed retail floorspace will not have an unreasonable nor detrimental impact on the existing and planned uses within Lancelin and will not impact any planned public / private investment.
- The retail offerings it will deliver a net benefit to the Lancelin community and not reduce the level of access to services.

Overall, the amended Structure Plan is well-positioned to help meet the needs for commercial uses and will complement existing commercial / retail uses within Lancelin and planned industrial uses within the broader locality.

4.9 Schools

To support the emerging Lancelin community, this amendment proposes an additional primary school to reflect updated dwelling yields for the Structure Plan area, resulting in a total of four primary schools and one high school site. It is noted that the existing Structure Plan already contemplates three primary schools and a high school site, with this amendment only seeking to improve the siting and design of the sites.

The anticipated dwelling yield of 6,000 – 7,000 dwellings correlates to approximately four primary schools when calculated against the Department of Education's preferred ratio, which is 1,500 dwellings per primary school as expressed in *Operational Policy 2.4: Planning for School Sites ('OP 2.4').*

Consistent with the OP 2.4 and the existing Structure Plan, each primary school site covers an area of 3.5ha and has been co-located with areas of public open space along a Neighbourhood Connector road. Each primary school has been spaced with reference to a 400m walkable catchment to optimise pedestrian accessibility for each.

The 10ha high school site has been retained centrally within the site, co-located with shared use district open space, consistent with the existing Structure Plan.

The location and number of schools have been determined following discussion with the Department of Education, with the amended Structure Plan layout reflecting its current locational preferences. Ongoing liaison will continue with the Department of Education to determine the appropriate timing for creation of the school sites, which will occur through future subdivision of the Structure Plan area.





Image: Public open space

4.10 Bushfire Management

The site is identified as being 'bushfire-prone' in accordance with the Department of Fire and Emergency Services State Bushfire Mapping, which triggers the bushfire planning requirements under State Planning Policy 3.7 - Bushfire.

A Bushfire Management Plan ('BMP') has been prepared by Surefire Environmental as part of this amendment and confirms that the bushfire risk will not be an impediment to development and that any hazard affecting the amendment area can be managed appropriately.

The BMP identifies the primary post-development bushfire hazards affecting habitable development as 'Class D Scrub'. This vegetation occurs within the two 'Conservation' areas and the future landscape buffer along Indian Ocean Drive. All other areas of public open space will be managed to a 'low threat vegetation' status as development across the site progresses and landscaping occurs within those public open space areas. To manage the bushfire impacts associated with the 'Class D Scrub', areas of landscaped vegetation (low threat vegetation) around the perimeter of the two 'Conservation' areas and the future landscape buffer along Indian Ocean Drive will also be created.

The preparation of future BMPs is to accompany future stages of planning (including subdivision) to refine the recommendations and provide detailed BAL contour assessment reflective of detailed lot layout and expected post-development site conditions.

Staged construction at the subdivision stage will also consider the BAL impacts until the hazard has been removed to ensure lots are not impacted by an unacceptable bushfire risk.

In summary, the BMP demonstrates the majority of lots will only be subject to a rating of BAL-LOW, with no lot proposed to be greater than BAL-12.5 and that residential development can meet bushfire requirements of SPP3.7 and the Guidelines through the application of routine requirements, management and design detail.

A copy of the Bushfire Management Plan is enclosed (**Appendix 2**).

4.11 Noise Management

A Noise Management Plan has been prepared by Herring Storer Acoustics to support the Structure Plan and to address potential road traffic noise impacts from Lancelin Road and Indian Ocean Drive against the requirements of *State Planning Policy 5.4 – Road and Rail Noise (SPP5.4).*

The assessment concludes that future traffic noise impacts can be managed through the implementation of Quiet House Design packages for affected lots.

Final details regarding applicable house design packages will be confirmed as subdivision progresses for the site.

4.12 Servicing

An Engineering Services Report has been prepared by Peritas (**Appendix 6**) to demonstrate that the Structure Plan area can accommodate residential development and be serviced by all required utilities via logical extensions from existing infrastructure.

The following summarises the key considerations relevant to the site:

Earthworks

The earthworks strategy for the site will set out to minimise the extent of site grading across the site, acknowledging works will be required to facilitate development. This will be undertaken under the following parameters:

- Retention of existing vegetation and landforms, where possible, and working to existing levels where the site abuts existing Conservation areas.
- Provide adequate separation to groundwater with consideration of expected post development groundwater rise.
- Provide for isolated areas of additional fill within the Landscape Protection zone to protect the visual amenity of the area to and from Indian Ocean Drive.
- Provide minimum levels required for gravity-reliant drainage and sewer serviceability.

- Allow roads and earthworks levels to follow the existing topography and reflect the natural landscape wherever possible.
- Match into the ground levels at the periphery of the Structure Plan area and existing stages.
- Contouring of earthworks levels to deliver drainage catchment areas consistent with the LWMS.

Final siteworks requirements and finished lot levels will be determined at subdivision stage through the provision of detailed engineering drawings in accordance with standard conditions of subdivision approval.

Sewer

The existing development within the Structure Plan is currently serviced by a private Type 10 Wastewater Pump Station ('WWPS') (provided by the developer), located outside of the Structure Plan area.

The intent is for future development to either be serviced by a future Type 40 WWPS or the ultimate Type 180 WWPS. Both will be located within the site and will include an internal gravity sewer network ensuring there are with no impediments to the provision of sewerage infrastructure. Wastewater will eventually be pumped from this existing station into one of these stations.

Water Supply

Water and wastewater services are managed by the Lancelin South Water Pty Ltd, a licensed water utility. Potable and non-potable water is currently sourced from a production bore tapping into the Leederville aquifer, located roughly 1 km east of the site.

The existing license allocation is intended to only service the initial stages of the Structure Plan area, with additional demand to be met through staged upgrades including the provision of a new Water Treatment Plan ('WTP'). The future WTP will need to be constructed by the Lancelin South Water Pty Ltd, with its location proposed within the future 'Parks and Recreation' reserve abutting Indian Ocean Drive at a ground elevation of RL 68m. This has been identified as the most appropriate location due to the elevation required to generate the necessary pressure for it to operate. The timing, location and siting of the WTP will be defined as part of detailed engineering designs and will subject to a detailed landscape screening response to minimise any perceived visual impact.

Additional modular storage tanks and a new production bore will also provide further capacity and offset increases to demand as development progresses.

Water supply will be provided via the existing DN250mm water main located in the Lancelin Road reserve with the infrastructure to extend logically at future stages of subdivision.

Power Supply

The Structure Plan can be connected to power via the existing high voltage network located on the north side of Lancelin Road. This infrastructure has sufficient capacity to service future development at Lancelin South and already serves the first stages of development within the Structure Plan area.

An external power provider, such as UPD, will be engaged to design and construct the underground power network. All power infrastructure within the Structure Plan will be underground and fed from a series of strategically located transformers distributed across the site.

Telecommunications

Existing telecommunications infrastructure runs along the north side of Lancelin Road, currently servicing the Lancelin townsite and the first stages of the Structure plan.

It is expected that telecommunication services will be provided to all lots through extension of the existing network, with pit and pipe infrastructure designed and installed to the satisfaction of the nominated service provider.

5. Summary

The amendment to the South Lancelin Structure Plan will consolidate and simplify the planning framework applicable to South Lancelin, to facilitate future subdivision and development in manner that aligns with WA's current planning framework.

The amendment establishes a framework that better responds to contemporary planning practice and market preferences to facilitate the delivery of up to 7,000 lots, 66.5ha of public open space, and a range of community, commercial and retail uses, supporting the establishment of South Lancelin as a thriving and self-sufficient community.



Image: Site photo looking out to the South - West

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Appendix 1: Traffic Impact Assessment (PJA)

Appendix 2: Bushfire Management Plan (Surefire Environmental)

Appendix 3: Visual Landscape Analysis and Visual Impact Assessment Report (Plan E)

Appendix 4: Environmental Assessment Report (PGV Environmental)

Appendix 5: Local Water Management Strategy – Addendum Report (Hyd2o)

Appendix 6: Engineering Services Report (Peritas)

Appendix 7: Landscape Masterplan (LD Total)

Appendix 8: Noise Management Plan (Herring Storer)

CLE Town Planning + Design

LANCELIN SOUTH

STRUCTURE PLAN AMENDMENT

ENVIRONMENTAL ASSESSMENT REPORT

Prepared for:	VIMG Pty Ltd
Report Date:	16 March 2026
Version:	1
Report No.	2026-958



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Appendix 8: DBCA Fauna Database Search

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1 INTRODUCTION

1.1 Site Location

The Lancelin South Structure Plan Amendment area is on Part Lot 9000 and Lot 9001 Perth-Lancelin Road and Part Lot 1 Old Ledge Point Road, Lancelin ('the site'). The site is approximately 717.9ha in size and is located in the Shire of Gingin approximately 140km north of the Perth Central Business District and 2.2km south of the existing Lancelin townsite (Figure 1). The site is generally bounded by Lancelin Road to the north, with an area proposed of Industrial development to the north of Lancelin Road, Indian Ocean Drive to the east, Old Ledge point Road to the west and undeveloped land to the south (Figure 2). The current initial stages of the Lancelin South development are on the north-western corner of the site (Figure 2).

The area beyond the currently developed area is subject to an amendment to the Lancelin South Structure Plan (Figure 2; Appendix 1)

1.2 Background

Planning for development in Lancelin South has been ongoing since local strategic planning initiatives by the Shire, and subsequent state recognition, through the Central Coast Regional Strategy in 1996. In March 2007 the Western Australian Planning Committee (WAPC) made the decision to support the urban development of Lancelin South. The decision was made subject to an overall structure plan being prepared for the Lancelin South and Ledge Point area which was prepared in 2009.

State environmental approval was given for development through the EPA's assessment of the Shire of Gingin Local Planning Scheme (LPS) No 8 Amendment 93 and subsequent Ministerial Statement No. 853 (Appendix 2). The Ministerial Statement for Amendment 93 applies to the initial stages of development, a 22.49ha Conservation Area and an industrial precinct located north of Lancelin Road.

Development in Lancelin South initially commenced in 2011 within the northwestern corner of the overall landholding. Development is progressing in the Amendment 93 areas that have current subdivision approval.

At the time that development commenced, the zoning of the balance of the land remained as 'Rural'. To facilitate a future change in land use to residential development across the remaining landholding, the Lancelin South Masterplan was prepared to guide long-term development outcomes outside the Amendment 93 area.

The Masterplan formed part of the documentation referred to the Environmental Protection Authority (EPA) in support of LPS No. 9 (LPS 9) Amendment 3, which sought to rezone the land from 'Rural' to 'Residential' and associated urban uses. The Masterplan indicated that the majority of the land would ultimately be cleared to accommodate residential development, retail/commercial uses, school sites and areas of public open space (Appendix 3). The Masterplan also identified approximately 70ha in the south-western portion of the site to be set aside for conservation purposes, along with a strip along the eastern boundary designated for Landscape Protection.

The portion of the Masterplan Area not currently subject to subdivision approval (Figure 2) is undergoing review to address contemporary expectations for visual landscape management and to facilitate an increase in the supply of individual residential lots (Appendix 1). The revised Amended Lancelin South Structure Plan retains the 70ha Conservation Area in the south-west corner identified in Amendment 3 and a 22.49ha Conservation Area on the eastern boundary. The plan maintains ecological linkages through the development area. These linkages are intended to preserve habitat connectivity and support the long-term ecological function of the retained conservation estate.

PGV Environmental was commissioned by VIMG to prepare an Environmental Assessment Report to review the environmental outcomes of the proposed amendment to the Lancelin South Structure Plan (Appendix 1).

1.3 Scope of Works

The Environmental Assessment Report includes:

- A description of the recent and present land use including:
  - Surrounding land uses;
  - Assessment of current and historical activities on the site and surrounding areas; and
  - A search of the Department of Water and Environmental Regulation Contaminated Sites and Water Information; and
  - Heritage features.
- A description of the physical characteristics including:
  - Geology and Soils;
  - Hydrology;
  - Acid Sulphate Soil Risk Mapping.
- A Reconnaissance Flora and Vegetation Survey in accordance with the EPA Technical Guidance: *Flora and Vegetation Surveys* (EPA, 2016) including:
  - Review of previous studies undertaken on the site and in surrounding areas;
  - Desktop search and review of the Department of Biodiversity, Conservation and Attractions (DBCA) Threatened and Priority flora database;
  - A search of Atlas of Living Australia for records pf Threatened or Priority species;
  - A search of the Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
  - Examination of historic and recent aerial photography and contour and soil maps to provisionally identify vegetation types and condition; and
  - Description and mapping of vegetation types and vegetation condition.
- A Basic Fauna Survey in accordance with *EPA Technical Guidance: Fauna Surveys* (EPA, 2020) including:
  - A search of the DBCA Databases for the general area for Threatened and Priority Fauna Species;
  - Desktop review of the Atlas of Living Australia;
  - A search of the Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the

Environment Protection and Biodiversity Conservation (EPBC) Act 1999 or international migratory bird agreements (JAMBA/CAMBA); and
  - A description of the fauna habitats present on the site based on a site inspection; and
  - An assessment of the site for conservation significant species in a local and regional context: and
- Implications, if any, under Western Australian policies and legislation such as the *Environmental Protection Act 1986* and *Biodiversity Conservation Act 2016* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

2 LEGISLATION, POLICY AND GUIDELINES

The environmental assessment of this site has taken into consideration the following legislation, policy and guidelines and these will guide the required and expected management outcomes from the Commonwealth, State and Local government agencies.

2.1 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important heritage places, ecological communities, flora and fauna that are defined in the Act as Matters of National Environmental Significance (MNES).

The Environmental Assessment identifies any MNES that may be impacted by development on the site. There is some limited habitat for listed species of Black Cockatoos in the Structure Plan Area.

2.2 State Legislation

2.2.1 *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is administered by the Department of Water and Environment Regulation (DWER). The Act provides for conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with it. The Act establishes head powers to provide mechanisms for the development of Environmental Protection Policies (EPP), the referral and assessment of proposals, the control of pollution and enforcement.

The Act also provides for an Environmental Protection Authority (EPA) that is a statutory authority and is the primary provider of independent environmental advice to Government (Environmental Protection Authority, 2024). The EPA is assisted by the Office of the EPA that forms part of DWER. There are two main parts of the act that apply to the amendment to the Lancelin South Structure Plan.

2.2.2 Scheme Amendments

Under Section 48A of the EP Act, a Scheme Amendment is required to be referred to the EPA for determination as to whether formal environmental impact assessment is warranted.

State environmental approval for residential and industrial development was obtained following the EPA's assessment of the LPS 8 Amendment 93, which applied to the initial Structure Plan area. The EPA's assessment culminated in the issue of Ministerial Statement No. 853 (Appendix 2), which defines the 22.49ha Conservation Area within the Amendment Area. The Ministerial Statement also prescribes text to be included in the LPS to define the requirements of environmental management of a new Conservation Zone to be applied to the Conservation Area. Importantly the Ministerial Statement states:

> *Subject to the following conditions, there is no known environmental reason why the town planning Scheme Amendment to which the above report of the Environmental Protection Authority relates should not be implemented.*

Ministerial Statement No. 853 remains the extant environmental approval for the Amendment 93 area and provides the statutory framework under which the current subdivision and development are being undertaken. The Ministerial Statement also applies to the Industrial Area to the north of Lancelin Road that is included in the amendment to the Lancelin South Structure Plan.

The Masterplan for the remaining part of Lancelin South was submitted to the EPA as part of the proposed Scheme Amendment to change the zoning of the remainder of the proposed Lancelin South development from the site from 'Rural' to 'Future Development' (Amendment 3 to LPS9).

In 2014, the EPA determined the level of assessment for the Scheme Amendment as 'Scheme Not Assessed', with public advice given (Appendix 4), which provides approval for the development of the land in accordance with the scheme amendment. The public advice stated that Amendment 3 can meet EPA's environmental objectives subject to the key environmental values being retained within the 70 ha Conservation Zone, that is maintained as a consolidated Conservation Lot. The advice also stipulates that the development around the Conservation Lot is to be separated from the vegetation by a hard edge.

The amendment to the Lancelin South Structure Plan includes areas subject to both of the scheme amendments.

2.2.3 Clearing Permit

The EP Act regulates the clearing of native vegetation under Part V, Division 2 (sections 51A–51T). Under the EP Act, clearing of native vegetation requires a permit from DWER unless there is an exemption under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Proposals that have approval by means of a subdivision are exempt from requiring a clearing permit to clear native vegetation if implementing the subdivision in accordance with the subdivision conditions requires the clearing of native vegetation.

2.2.4 *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) protects all native species and threatened ecological communities The BC Act recognises that activities involving the taking of flora or fauna (other than threatened species) and the disturbing of fauna (including threatened species) that are approved under the EP Act do not require further approval under the BC Act, if they are undertaken in accordance with any biodiversity conservation conditions that are applied to an authorisation. These activities include clearing of native vegetation done in accordance with an implementation decision under Part IV of the EP Act.

The clearing of vegetation that forms part of a Threatened Ecological Community or a Threatened Flora species requires authorisation under the BC Act.

2.2.5 *Aboriginal Heritage Act 1972*

The *Aboriginal Heritage Act 1972* (AH Act) protects all Aboriginal sites whether or not they are known and registered under the AH Act.

If any artefacts or other heritage values are discovered during preliminary searches consultation, clearing or construction works they will be required to be managed according to the AH Act.

2.3 State Policy/Guidance

2.3.1 Environmental Guidance for Planning and Development

The purpose of Environmental Protection Authority (EPA) Guidance Statement No. 33 *Environmental Guidance for Planning and Development* (EPA, 2008) is to outline the significance of environmental factors and to provide the key definitions associated with the environmental factors. Ensuring that environmental factors are considered in line with the EPA's principals and objectives and within the planning framework is what this EAR is primarily targeted at. In particular, EPA Guidance Statement No. 33 aims to:

- Provide an overview to environmental protection processes and information;
- Describe the referral and environmental impact assessment process under Part IV of the EP Act; and
- Provide the EPA's position and advice on a range of environmental factors, outlining how to protect, conserve and enhance the environmental values.

2.3.2 Indian Ocean Drive Planning Guideline

The Indian Ocean Drive Planning Guideline (WAPC, 2013) guides the location, siting and design of various land uses and development in the locality of Indian Ocean Drive. The Guideline objective is to manage land use, siting, and design for development along the 270km scenic route from Yanchep to Dongara. It aims to preserve the rural/natural landscape, enhance tourist facilities, and support safe, efficient traffic movement across the five separate Local Government

The guideline outlines issues to be address during scheme amendment and development stages of planning (WAPC 2013) such as protecting the primarily natural landscape character, while restoring and enhancing character and environmental outcomes where needed.

2.4 Shire of Gingin

2.4.1 Local Planning Scheme

As per the requirements under Ministerial 863 the Shire of Gingin Local Planning Scheme was updated to include a Conservation Zone. The requirements were included in the LPS and are in the subsequent LPS 9. Specifically the LPS states:

> ***4.8.8 Conservation Zone***
>
> *4.8.8.1 Development within the Conservation Zone is to be in accordance with the zone objectives and/or site specific environmental conditions outlined in Schedule 7 of the Scheme.*
>
> *4.8.8.2 Where development is proposed that would affect a Conservation zone, at the time of structure planning, the proponent is to prepare an Environmental Management Plan, in consultation with the Department of Parks and Wildlife. The plan is to be approved by the local government with arrangements made for the implementation of the approved plan. The management plan is to address the following:*
>
> *(i) protection and management of the environmental values of the zone;*
>
> *(ii) location of building envelope(s) and access arrangements, taking into account environmental and visual landscape impacts;*

(iii) fencing, fire management, weed control, rehabilitation and control of domestic pets; and

(iv) other matters relevant to the site, as recommended by the Department of Parks and Wildlife or local government.

An Environmental Management Plan framework for an Environmental Management Plan for the 22.49ha of land zoned 'Conservation' in the Lancelin South Stage 2 Local Structure Plan (LSP) was prepared for the Conservation Area in 2022. The Framework was prepared with consideration of comments from then Department of Parks and Wildlife (DPaW) (now DBCA), then Department of Planning (DoP) (now Department of Planning, Lands and Heritage (DPLH)) and the Shire of Gingin.

2.4.2 Local Planning Policies

The Shire of Gingin has a number of Local Planning Policies (LPPs) that detail the Shire's expectations with regard to managing the environment during planning and development as well as the factors that need to be considered throughout the planning process. Key LPPs and other guidelines that are applicable to the site and the environmental values within the site are outlined below:

- Shire of Gingin LPP1.1 *Structure Plans* (Shire of Gingin, 2013a); and
- Shire of Gingin LPP1.3 *Commercial Development* (Shire of Gingin, 2013a).

3 EXISTING ENVIRONMENT

3.1 Land Use

3.1.1 Past and Existing Land Use

The site is predominantly covered with native vegetation. An area in the southeastern part of the site was used for the training and keeping of horses with some small established paddocks. There are also some old four wheel drive tracks throughout the site and fence lines that were previously used when the entire site was used for sheep grazing. Firebreaks occur on the boundaries. Historical aerial photographs are only available from 1999 and this is of poor quality. The aerial photograph from 2000 shows no other development on the site (Landgate, 2026a; Plate 1). Note the Lot boundary of Lot 9001 is only shown for reference and parts of Lot 9000 to the north and Lot 1 to the south are also included in the amended Structure Plan area.

Plate 1: Aerial Photograph from 2000



Development in Stage one is evident in the photograph from 2012 and there are tracks evident throughout the site (Landgate, 2026a; Plate 2). There is also some localised clearing in the south-east and along dune areas that are evidence of stock grazing.

The photograph from 2023 (Landgate, 2026a; Plate 3) shows the expansion of development to the north-west. Tracks and localised disturbance to the vegetation remain unchanged.

Plate 2: Aerial Photograph from 2012



Plate 3: Aerial Photograph from 2023



Examination of the latest available imagery from October 2024 shows further expansion of the developed area while the remainder of the site remains unchanged (Landgate, 2026a; Plate 4).

Plate 3: Aerial Photograph from 2024



3.1.2 Surrounding Land Use

To the north-west of the site Stage 1 of Lancelin South is currently under development. To the north of the site is Lancelin Road. The boundary to the east is partially abutting Indian Ocean Drive. Further to the east is a special rural living development – the Seaview Park Estate. The majority of the surrounding land is undeveloped and contains native vegetation. Sand mining activities were planned for dunes south and west of the site in mining tenements but have since been categorised as 'Dead':

- M70/1140; and
- M70/57 (Landgate, 2026b).

Mining Lease M70/697 is located to the south-west of the site (Landgate, 2026b). This mining activity is separated from the proposed urban development area in the Lancelin South Structure Plan largely by the Conservation Lot. There is a small area in the central southern part of the Lancelin South Structure Plan area that lies just inside the 300m separation distance of the part of the tenement that has previously been mined. It is not known if mining is complete in this area and as such there is a slight potential to cause conflict with sensitive land uses such as residential developments (Figure 3).

There is a Wastewater Treatment Plant approximately 1.7km to the north of the site aligned with the western boundary (Figure 3). The proposed industrial area is within the buffers to this area. The residential development is outside of these buffers.

3.2 Topography

The site is undulating and contains three parallel north-south sand dunes and swales with minor ridges throughout the site (Figure 2). Plate 5 shows the dune ridges and is taken facing east.

Plate 5: Dune ridges on the site



The elevation over the site ranges from 5 to 10 mAHD in the west to 70 mAHD in the east. The tallest ridge is on the eastern boundary and the central portion contains the steepest slopes.

3.3 Geomorphology and Soils

3.3.1 Geology

The site is predominately located on the Quindalup Dune System. The Quindalup dunes are composed of unconsolidated sand (quartz grains) and shell fragments (Bolland, 1998). Sometimes organic matter darkens the surface layers. The shell fragments are mostly calcium carbonate, so the sands are alkaline. There is a small area on the eastern boundary of the site that is mapped in the Spearwood Dune System which are soils that are older than the Quindalup Dune System and made up of red/brown, yellow and pale yellow/grey sands (Bolland, 1998).

3.3.2 Soils

The land sub-zones have been mapped by the Department of Primary Industries and Regional Development (DPIRD, 2026) and the site contains 3 soil phases of the Quindalup Dune system that are described below (Figure 4):

- Quindalup Oldest Dune Phase (211Qu_Q1) which occurs as a wall of sand with low relief, a smooth outline and a symmetrical cross-section. The soil profile is calcareous throughout, has organic matter to at least 30 cm, and white sand below, which shows cementation at about a metre below the surface. This land unit typically has organic matter to 10 cm with minimal cementation.
- Quindalup Third Dune Phase (211Qu_Q3) which has steeper slopes and greater relief. This land unit typically has organic matter to 10 cm with minimal cementation.
- Quindalup Sands (211Qu_Qs) are undulating landscapes with shallow calcareous sands and can have rock outcrops.

The Spearwood soil on the site is mapped as:

- Spearwood Sh Phase (211Sp_Sh) which are weakly clayey yellow to yellowish brown sands over limestone at 1-2m (DPIRD, 2026).

3.3.3 Land Degradation Risks

The Land Degradation Risk Categories of the soil phases mapped on the site are outlined in Table 1.

Table 1: Land Degradation Risk Categories

Soil Type	Water Erosion	Wind Erosion	Waterlogging	Flooding	Salinity risk
Quindalup Oldest Dune Phase	30-50% of map unit has a high to extreme water erosion risk	>70% of map unit has a high to extreme wind erosion risk	<3% of map unit has a moderate to very high risk	<3% of the map unit has a moderate to high hazard	<3% of the map unit has a moderate to high hazard
Quindalup Third Dune Phase	10% of map unit has a high to extreme water erosion risk	50-70% of map unit has a high to extreme wind erosion risk	<3% of map unit has a moderate to very high risk	<3% of the map unit has a moderate to high hazard	<3% of the map unit has a moderate to high hazard
Quindalup Sands	50-70% of map unit has a high to extreme water erosion risk	30-50% of map unit has a high to extreme wind erosion risk	<3% of map unit has a moderate to very high risk	<3% of the map unit has a moderate to high hazard	<3% of the map unit has a moderate to high hazard
Spearwood Sh Phase	<3% of map unit has a high to extreme water erosion risk	>70% of map unit has a high to extreme wind erosion risk	<3% of map unit has a moderate to very high risk	<3% of the map unit has a moderate to high hazard	<3% of the map unit has a moderate to high hazard

In summary, all of the soils on the site have a risk of wind erosion and the Quindalup Oldest Dune Phase and Quindalup Sands have a risk associated with the soils of water erosion.

3.4 Hydrology

3.4.1 Surface Hydrology

There are no surface expressions of water on the site and no wetlands within the site. The soils are highly permeable so there are very little surface water flows with stormwater being infiltrated very quickly into the soil profile.

3.4.2 Groundwater

The groundwater under the site has geological formations that have been grouped into three distinct aquifers:

- Superficial Aquifer (unconfined);
- Leederville Aquifer (confined); and
- Yarragadee north (confined) (DoW, 2012)

The depth to groundwater over the site varies with the topography from approximately 1m in the west to about 55m to the east of the site (Ecoscape, 2008a). The thickness of the superficial formations in the Lancelin area is about 25m with the regional direction of groundwater flow to the south-west.

The Lancelin town water supply is drawn from the superficial formations and the Lancelin Water Reserve was gazetted under the *Country Areas Water Supply Act (1947)* in July 1999 and is located approximately 3km to the north of the site (Figure 3). The Water Reserve at Lancelin was classified as a Priority 1 source protection area:

> *Priority 1 (P1) classification areas are defined to ensure that there is no degradation of the water source. P1 areas are declared over land where the provision of the highest quality public drinking water is the prime beneficial land use. P1 areas would typically include land under public ownership, ie. Crown land. P1 areas are managed in accordance with the principle of risk avoidance therefore land development is generally not permitted* (DoW, 2012).

This classification was based on the following criteria:

- *The area is primarily Crown Land or other reserves;*
- *The well-field forms a critical water source for the town of Lancelin;*
- *The area forms a key recharge zone for the well-field;*
- *The transmissive limestone soils in the area and shallow depth to groundwater are such that more intensive development would lead to degradation of the groundwater quality* (Ecoscape, 2008a).

3.5 Flora and Vegetation

3.5.1 Methodology

A Detailed (then Level 2) Flora and Vegetation survey as outlined by EPA's Guidance Statement No 51 *Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in WA* (EPA, 2004a) was undertaken by Ecoscape in 2006. This survey was reviewed in 2014 by PGV Environmental (2014) and again in part in 2022 (PGV Environmental, 2022).

A review of the survey and searches of the following databases were undertaken in 2026 for this EAR:

- Atlas of Living Australia (ALA, 2026) (Appendix 5) which shows all species that have been recorded within a 10km radius of the site.
- The EPBC Act Protected Matters Search Tool (DCCEEW, 2026) (Appendix 4) which identifies species that are listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that could potentially have habitat within a 5km radius of the site.
- DBCA Threatened and Priority Ecological Community Database.

3.5.2 Flora Database Search Results

The results of the database searches and their likelihood to occur on the site is outlined in Table 2.

Conservation codes are in Appendix 7.

Table 2: Identified Significant Flora Species and Likelihood of Occurring on the Site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Isopogon uncinatus	Hook-leaf Isopogon	Critically Endangered	Endangered	Hook-leaf Isopogon occurs in loam or sand on granite, peaty sand on swampy depressions, hillslopes.	Highly Unlikely – no swamp habitat
Chorizema varium	Limestone Pea, Bush Flame Pea	Endangered	Endangered	The Limestone Pea grows in sand on coastal limestone hills and outcrops.	Highly Unlikely – only known from south of Ledge Point and was not identified in any of the current database searches
Lechenaultia laricina	Scarlet Leschenaultia	Endangered	Endangered	Scarlet Leschenaultia grows in sand, gravelly loam.	No – record in error – occurs east of Perth
Macarthuria keigheryi	Keighery's Macarthuria	Endangered	Endangered	Keighery's Macarthuria prefers white or grey sand on low-lying winter-wet damp sands growing among heathland, Jarrah and Sheoak/Banksia woodland and Banksia/Eucalypt Woodland (DEC, 2008).	Highly Unlikely – not suitable habitat
Marianthus paralius		Endangered	Endangered	*Marianthus paralius* occurs in white sand and brown loam amongst heath on coastal limestone cliffs (DEC, 2009).	Highly Unlikely – only known from south of Ledge Point and was not identified in any of the current database searches

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Andersonia gracilis	Slender Andersonia	Vulnerable	Endangered	Slender Andersonia occurs in white/grey sand, sandy clay, gravelly loam in winter-wet areas, near swamps. Vegetation type is low open heath with shrubs over sedges (DEC, 2006).	Highly Unlikely – not suitable habitat
Banksia mimica	Summer Honeypot	Vulnerable	Endangered	Summer Honeypot prefers white or grey sand over laterite, sandy loam.	Highly Unlikely – not suitable habitat
Eucalyptus argutifolia	Yanchep Mallee, Wabling Hill Mallee	Vulnerable	Vulnerable	The Yanchep Mallee occurs in shallow soils over limestone on slopes or gullies of limestone ridges, outcrops.	Highly Unlikely – not recorded in the region
Paracaleana dixonii	Sandplain Duck Orchid	Vulnerable	Endangered	Sandplain Duck Orchid occurs in grey sand over granite.	Highly Unlikely – not suitable habitat
Grevillea evanescens		Priority 1		*Grevillea evanescens* occurs amongst medium trees, or low trees; in sand, or loam, or clay; occupying winter wet flats.	Highly Unlikely – not suitable habitat
Leucopogon ozothamnoides		Priority 1		*Leucopogon ozothamnoides* occurs in gravelly soils, sandy clay loam.	Highly Unlikely – not suitable habitat
Levenhookia preissii	Preiss's Stylewort	Priority 1		Preiss's Stylewort occurs in grey or black peaty sands in swamps.	Highly Unlikely – not suitable habitat
Amanita marinae		Priority 2		*Amanita marinae* occurs singly or gregariously in sand over limestone or over loamy soil in Kwongan vegetation (Davison and Giustiniano, 2023).	Highly Unlikely – not suitable sandplain habitat
Scholtzia laciniata	Ragged-leaved Scholtzia	Priority 2		Ragged-leaved Scholtzia grows near Lancelin south to near Seabird and inland to Moore River National Park in shallow sand over limestone near the coast and in deep yellow sand further inland (Rye, 2019).	Possible – habitat may occur on the site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Acacia cummingiana		Priority 3		*Acacia cummingiana* grows in grey or yellow sand, lateritic gravel on sandplains, lateritic breakaways.	Highly Unlikely – not suitable habitat
Babingtonia urbana	Coastal Plain Babingtonia	Priority 3		Coastal Plain Babingtonia occurs in orange sand, brown loam, white sandy clay on low flats, winter-wet swamps.	Highly Unlikely – not suitable habitat
Conostylis bracteata		Priority 3		Conostylis bracteata occurs in sand, limestone on consolidated sand dunes.	Possible – habitat may occur on the site
Hibbertia leptotheca		Priority 3		*Hibbertia leptotheca* grows near-coastal limestone ridges, outcrops and cliffs in coastal heaths and thickets usually dominated by species of Melaleuca and Acacia (Thiele, 2019).	Possible – habitat may occur on the site
Platysace ramosissima		Priority 3		*Platysace ramosissima* occurs in Banksia and Eucalypt woodlands over myrtaceous heath species, on whiteyellow sand.	Unlikely – not typical habitat
Sarcozona bicarinata	Ridged Noon-flower	Priority 3		Ridged Noon-flower is found in white sand.	Possible – habitat may occur on the site
Stylidium maritimum		Priority 3		*Stylidium maritimum* occurs in sand over limestone on dune slopes and flats in coastal heath and shrubland, open Banksia woodland.	Yes – recorded on the site
Styphelia porcata		Priority 3		*Styphelia porcata* occurs on yellow sand, often over limestone, in low woodland or heath associated with *Banksia attenuata*, *B. menziesii*, *B. prionotes*, *B. sessilis*, *Eucalyptus todtiana*, *Acacia lasiocarpa*, *Jacksonia calcicola* and *Hakea costata* (Hislop, 2024).	Unlikely – not typical habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Thryptomene butleri		Priority 3		*Thryptomene butleri* grows on sand dunes and limestone in low, exposed coastal heath, and with taller shrubs in more sheltered sites (Rye, 2024).	Yes – recorded on the site
Conostylis pauciflora subsp. *euryrhipis*		Priority 4		*Conostylis pauciflora* subsp. *euryrhipis* occurs in white, grey or yellow sand on consolidated dunes in coastal areas.	Yes – recorded on the site
Dodonaea hackettiana	Hackett's Hopbush	Priority 4		Hackett's Hopbush occurs in sand with outcropping limestone.	Possible – habitat may occur on the site
Lepidosperma rupestre	Kalbarri Lepidosperma	Priority 4		Kalbarri Lepidosperma occurs in river beds, sandstone.	No – record in error – occurs near Kalbarri
Trithuria australis		Priority 4		Trithuria australis occurs in granite, clay in shallow pools, seasonal swamps.	No – no suitable habitat on the site

* sourced from Florabase as well as the DBCA database searches unless otherwise denoted

In summary, no Threatened species have been recorded or are likely to occur on the site. Three Priority species have been recorded on the site:

- *Stylidium maritimum*, Priority 3;
- *Thryptomene butleri*, Priority 3; and
- *Conostylis pauciflora* subsp. *euryrhipis*, Priority 4.

The site may have habitat for additional Priority species, however none of these have been recorded on the site:

- *Scholtzia laciniata* (Ragged-leaved Scholtzia), Priority 2;
- *Conostylis bracteata*, Priority 3;
- *Hibbertia leptotheca*, Priority 3;
- *Sarcozona bicarinata* (Ridged Noon-flower), Priority 3; and
- *Dodonaea hackettiana* (Hackett's Hopbush), Priority 4.

3.5.3 TEC/PEC Database Search Results

Table 4 outlines the State and Commonwealth listed TECs and PECs that have been recorded in the vicinity of the site (Appendix 5).

Table 3: TEC and PECs Identified in Database Searches

Number	Description	Conservation Status in Western Australia	Status under the EPBC Act
Banksia WL SCP	Banksia Woodlands of the Swan Coastal Plain ecological community	Priority 3	Endangered
Tuart woodlands	Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	Priority 3	Critically Endangered
Honey Myrtle Shrubland	Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered*	Critically Endangered

* Honey Myrtle Shrubland is listed under the *Biodiversity Conservation Act 2016* in Western Australia as Floristic Community Type (FCT) 26a - *Melaleuca huegelii - M. systena* shrublands of limestone ridges (Gibson *et al*., 1994).

There have been no occurrences of TECs or PECs recorded on the site. The site contains a small area of Banksia woodland. For Banksia Woodland to be considered as part of the TEC the area must meet size and condition criteria. The Banksia woodland TEC needs to meet a minimum 'patch' size depending on its condition to qualify as the TEC, as follows:

- 'Pristine' – no minimum patch size
- 'Excellent' – 0.5ha
- 'Very Good' – 1ha
- 'Good' – 2ha

The area of Banksia Woodland on the site is 0.06ha and is too small to be the Banksia Woodland TEC, therefore this TEC does not occur on the site.

The site does not contain any significant areas (0.5ha) of Tuarts other than two Tuarts associated with the well on the site, so the Tuart Woodland TEC does not occur on the site.

Lancelin is outside, and to the north, of the surveys undertaken by Gibson *et al.* (1994) to describe Floristic Community Types on the Southern Swan Coastal Plain. Studies undertaken by Griffin and Trudgen (1994) indicate the flora of the northern Swan Coastal Plain is very different from the southern Swan Coastal Plain. Therefore, the extrapolation of FCTs from the Gibson *et al.* (1994) work is not appropriate at Lancelin and should not be used to determine the conservation significance of vegetation. As a result, FCT 26a is not likely to occur on the site. The Federal listing of Honeymyrtle Shrublands is broader and has an expanded area in which the TEC could occur. There was no vegetation on the site described as being dominated by *Melaleuca huegelii* (Honey Myrtle). Therefore, Honeymyrtle Shrublands TEC is not likely to occur on the site.

3.5.4 Vegetation Complex

The vegetation on the site was mapped at a broad scale by Shepherd (2009) and is classified as belonging to Association 1007 which is described as:

> Mosaic Shrublands; *Acacia lasiocarpa* and *Melaleuca systena* heath / Shrublands *Acacia rostellifera* and *Acacia cyclops* thicket (Shepherd, 2009).

According to Heddle *et. al*. (1980), the site occurs entirely within the Quindalup Vegetation Complex (which is a complex restricted to coastal dunes). Heddle *et al.* (1980) divided the Quindalup Vegetation Complex into two main alliances with the mobile and stable dune alliance (slightly inland) being located on the site.

3.5.5 Vegetation Types

This survey described the vegetation units in more detail than the Shepherd (2009) mapping (Figure 5). The vegetation was described by Ecoscape (2008a) as shown in Table 4.

Table 4: Vegetation Types

Vegetation Type	Associated Landform
Acacia xanthina / *Anthocercis littorea* / *Melaleuca cardiophylla*	Slopes
Acacia xanthina / *Anthocercis littorea* / *Scaevola crassifolia*	Swales, slopes and crests
Acacia xanthina / *Spyridium globulosum*	Swales
Allocasuarina lehmanniana / *Scaevola crassifolia*	Limestone Outcrops
Allocasuarina lehmanniana / *Spyridium globulosum*	Swales
Banksia attenuata / *Xanthorrhoea preissii*	Inland sand over limestone
Mainly Weeds	Swales
Melaleuca systena / *Scaevola thesioides* / *Acacia lasiocarpa*	Swales, slopes and crests
Melaleuca systena / *Scaevola thesioides* / *Acacia lasiocarpa* - *Calothamnus quadrifidus* or *Dryandra* (now *Banksia*) *sessilis*	Shallow sand over limestone
Melaleuca systena / *Scaevola thesioides* / *Anthocercis littorea*	Swales
Melaleuca systena / *Spyridium globulosum*	Swales

Vegetation Type	Associated Landform
Olearia axillaris / Scaevola crassifolia	Crest and Slopes
Olearia axillaris / Spyridium globulosum	Swales
Spyridium globulosum mosaic	Variable landforms near coast

Sourced from Ecoscape, 2008a

3.5.6 Vegetation Condition

According to the studies completed by Ecoscape (2008a) the majority of the site is in Very Good to Excellent Condition (Figure 6). The scale used to rate the Condition on Lancelin South was the Kaesehagen Condition Scale which is outlined in Table 5.

Table 5: Vegetation Condition Classes

Vegetation Condition Class	Description
Very Good-Excellent	80 – 100% Native Flora Composition Vegetation structure intact or nearly so Cover/abundance of weeds less than 5% Minor signs of disturbance
Fair-Good	50 — 80% Native Flora composition Vegetation structure modified or nearly so Cover/abundance of weeds 5 — 20% Disturbance influence moderate
Poor	20 — 50% Native Flora composition Vegetation structure completely modified Cover/abundance of weeds 20 — 60% Disturbance incidence high
Very Poor	0 — 20% Native Flora composition Vegetation structure disappeared Cover/abundance of weeds 60 — 100% Disturbance incidence very high

Source: Kaesehagen 1995 from Ecoscape 2008a.

3.5.7 Conservation Significance of Flora and Vegetation

3.5.7.1 Flora

A total of three Priority species have been identified on the site and an additional species that is at the edge of its range (Appendix 9).

- *Thryptomene* sp. Lancelin (Priority 2);
- *Stylidium maritimum* (Priority 3); and
- *Conostylis pauciflora* subsp. *euryrhipis* (Priority 4).

No Declared Rare Flora were identified on the site or are likely to be on the site.

3.5.7.2 Vegetation Association

Approximately 21,036ha of the original 30,110ha extent of the Association 1007 remains on the Swan Coastal Plain, representing 69.86% (DEC, 2014). The EPA considers that vegetation complexes with less than 30% remaining are regionally significant and that for these complexes there is a presumption

that all areas of remnant native vegetation where less than 10% remains will be retained and conserved. The 69.86% retention amount is above the 30% target. Additionally there is 8.32% protected in reserves which will increase when the Conservation Areas are included into the conservation estate.

3.5.7.3 Threatened and Priority Ecological Communities

There is no vegetation that is representative of a Threatened or Priority Ecological Community as listed in Western Australia.

3.6 Fauna

3.6.1 Methodology

A Basic Fauna Survey was undertaken in accordance with EPA Technical Guidance *Fauna Surveys for Environmental Impact Assessment* (EPA, 2020). Desktop studies were undertaken to identify habitats and potential threatened species that may occur on the site.

Searches of the following databases were undertaken:

- DBCA Threatened and Priority Fauna Database (Appendix 8) for a radius of 10 km that provides a list of Threatened and Priority species recorded in the area (Reference 4197);
- Atlas of Living Australia (ALA, 2026) which shows all species that have been recorded within a 10km radius of the site (Appendix 5).
- The EPBC Act Protected Matters Search Tool (DCCEEW, 2026) (Appendix 6) which identifies species that are listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that could potentially have habitat within a 5km radius of the site.

The results of previous Fauna Surveys including a Shorebird Survey (Bamford, 2005-2008; Ecoscape, 2008b) were also reviewed.

3.6.2 Fauna Habitats

The fauna habitat is largely vegetated with native species over most of the site. There are three fauna habits on the site including:

- Heath Habitat (Plate 6);
- Shrubland Habitat (Plate 7); and
- Cleared Habitat(Plate 8); and

Plate 6: Heath Habitat



Plate 7: Shrubland Habitat



Plate 8: Cleared Habitat



Fauna habitat can be assessed using a number of factors including, the size of the habitat, the level of habitat connectivity, availability of specific resources (e.g., tree hollows) and overall vegetation quality. The habitat was assessed according to the categories in Table 6.

Table 6: Fauna Habitat Value

Habitat Value	Description
High Quality Fauna Habitat	These areas closely approximate the vegetation mix and quality that would have been in the area prior to any disturbance. The habitat has connectivity with other habitats and is likely to contain the most natural vertebrate fauna assemblage.
Very Good Fauna Habitat	These areas show minimal signs of disturbance (e.g., grazing, clearing, fragmentation, weeds) and generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be minimally affected by disturbance.
Good Fauna Habitat	These areas showed signs of disturbance (e.g., grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be affected by disturbance.
Disturbed Fauna Habitat	These areas showed signs of significant disturbance. Many of the trees, shrubs and undergrowth are cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, contain weeds or have been damaged by vehicle or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred.
Highly Degraded Fauna Habitat	These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Faunal assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance.

From: Coffey Environments, 2009

The habitat is in Very Good to Excellent with localised patches of degraded vegetation with connectivity to surrounding habitats and therefore is considered to be Very Good Fauna Habitat.

3.6.3 Database Searches for Conservation Significant Fauna Species

The database searches for the previous fauna survey have been utilised and an updated database search has been undertaken to determine the likelihood of Conservation Significant fauna species occurring on the site. The updated searches include the updating of nomenclature, listing of new species and updated rankings of species previously identified. The results of the database searches and the likelihood of the species occurring on the site are outlined in Table 8.

Table 7: Fauna Database Search Results

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Critically Endangered	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms.	Highly Unlikely – not suitable habitat
Numenius madagascariensis	Eastern Curlew	Critically Endangered	Critically Endangered	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets.	Highly Unlikely – not suitable habitat
Anous tenuirostris melanops	Australian Lesser Noddy	Endangered	Vulnerable/ Marine	The Australian Lesser Noddy usually occupies coral-limestone islands that are densely fringed with White Mangrove (*Avicennia marina*).	Highly Unlikely – not suitable habitat
Calidris canutus	Red Knot	Endangered	Vulnerable/ Marine/ Migratory	In Australasia the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	Highly Unlikely – not suitable habitat
Zanda baudinii	Baudin's Black Cockatoo	Endangered	Endangered	Baudin's Black-Cockatoo mainly occurs in eucalypt forests, especially Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*), also Karri (*Eucalyptus diversicolor*) forest, often feeding in the understorey on proteaceous trees and shrubs, especially banksias (DAWE, 2022).	Highly Unlikely – Outside of species range which is generally no further north than Yanchep (DAWE, 2022)

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Zanda latirostris	Carnaby's Black Cockatoo	Endangered	Endangered	Carnaby's Cockatoo is found in the south-west of Australia from Kalbarri through to Ravensthorpe. It has a preference for feeding on the seeds of Banksia, Hakea, Eucalyptus, Grevillea, Pinus and Allocasuarina spp. It is nomadic often moving toward the coast after breeding. It breeds in tree hollows that are 2.5 - 12m above the ground and have an entrance 23-30cm with a depth of 1-2.5m. Nesting mostly occurs in smooth-barked trees (e.g. Salmon Gum, Wandoo, Red Morrell) (DAWE, 2022).	Possible – may have habitat on the site
Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater	Vulnerable	Marine/ Migratory	The Flesh-footed Shearwater mainly occurs in the subtropics over continental shelves and slopes and occasionally inshore waters. Burrows are situated in areas that provide a clear flight-path for birds to enter and exit their colonies.	Highly Unlikely – not suitable habitat
Charadrius leschenaultii	Greater Sand Plover	Vulnerable	Vulnerable/ Marine/ Migratory	In Australasia, the Greater Sand Plover is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons.	Highly Unlikely – not suitable habitat
Ctenotus lancelini	Lancelin Island Ctenotus	Vulnerable	Endangered	The Lancelin Island Ctenotus is predominately located on Lancelin Island with one population discovered on the mainland of Australia directly to the east of the island. The Ctenotus prefers substrates that are sand and shallow soil over limestone with rocky outcrops.	Unlikely –deeper soils than the preferred habitat and not recorded during targeted surveys
Dasyurus geoffroii	Chuditch, Western Quoll	Vulnerable	Vulnerable	The Chuditch have been known to occupy a wide range of habitats including woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. They are opportunistic feeders, and forage on the ground at night, feeding on invertebrates, small mammals, birds and reptiles.	Possible – habitat may occur on the site as part of a larger ranges

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	Vulnerable	The Fairy Tern (Australian) nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation.	Highly Unlikely – not suitable habitat
Westralunio carteri	Carter's Freshwater Mussel	Vulnerable	Vulnerable	Carter's Feshwater Mussel is South-West Western Australia's only freshwater mussel (Murdoch University & SERCUL, 2012). Carter's Freshwater Mussel occurs in freshwater streams, rivers, reservoirs and lakes (ICUN, 2015b) and is intolerant to dehydration for more than three days and salinity (Murdoch University & SERCUL, 2012).	No – not suitable habitat
Actitis hypoleucos	Common Sandpiper	Migratory	Marine/ Migratory	The Common Sandpiper is mostly found around muddy margins or rocky shores. Generally the species forages in shallow water and on bare soft mud at the edges of wetlands.	Highly Unlikely – not suitable habitat
Anous stolidus	Common Noddy	Migratory	Marine/ Migratory	The Common Noddy feeds on small fish, squid, pelagic molluscs, insects and even Pandanus fruit. Most items are skimmed from the surface of the ocean by dipping and breeds on islands (Birdlife Australia, 2014a).	Highly Unlikely – not suitable habitat
Apus pacificus	Fork-tailed Swift	Migratory	Marine/Migratory	The Fork-tailed Swift is almost exclusively aerial and is not known to breed in Australia. They are seen in inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. Apus pacificus subsp. pacificus is the only subspecies to migrate to Australia.	Highly Unlikely – may fly overhead but unlikely to land
Arenaria interpres	Ruddy Turnstone	Migratory	Vulnerable/ Marine/ Migratory	The Ruddy Turnstone is mainly found on coastal regions with exposed rock coast lines or coral reefs. It also lives near platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches.	Highly Unlikely – not suitable habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Calidris acuminata	Sharp-tailed Sandpiper	Migratory	Vulnerable/ Marine/ Migratory	The Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Highly Unlikely – not suitable habitat
Calidris melanotos	Pectoral Sandpiper	Migratory	Marine/ Migratory	The Pectoral Sandpiper prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Highly Unlikely – not suitable habitat
Hydroprogne caspia (Listed as Marine under the EPBC Act as *Sterna caspia*)	Caspian Tern	Migratory	Marine/ Migratory	The Caspian Tern is mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred.	Highly Unlikely – not suitable habitat
Limosa lapponica	Bar-tailed Godwit	Migratory	Marine/ Migratory	The Bar-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays.	Highly Unlikely – not suitable habitat
Motacilla cinerea	Grey Wagtail	Migratory	Migratory/ Marine	The Grey Wagtail is mostly recorded in coastal areas in Western Australia (ALA, 2015) however is widespread. There is non-breeding habitat only in Australia and the species has a strong association with water, particularly rocky substrates along water courses but also lakes and marshes.	Highly Unlikely – not suitable habitat
Onychoprion anaethetus	Bridled Tern	Migratory	Marine/ Migratory	Bridled Terns are only rarely found in inshore continental waters and along mainland coastlines.	Highly Unlikely – not suitable habitat
Pandion haliaetus	Osprey	Migratory	Marine/ Migratory	Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They feed on fish, especially mullet where available, and rarely take molluscs, crustaceans, insects, reptiles, birds and mammals.	Highly Unlikely – not suitable habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Plegadis falcinellus	Glossy Ibis	Migratory	Marine/Migratory	The Glossy Ibis is the smallest ibis known in Australia. This species preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation but do not breed in South-west Western Australia.	Highly Unlikely – not suitable habitat
Pluvialis fulva	Pacific Golden Plover	Migratory	Marine/ Migratory	Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in salt works.	Highly Unlikely – not suitable habitat
Pluvialis squatarola	Grey Plover	Migratory	Vulnerable/ Marine/ Migratory	Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons.	Highly Unlikely – not suitable habitat
Sterna dougallii	Roseate Tern	Migratory	Marine/ Migratory	The Roseate Tern is a migratory coastal seabird that feeds by plunge diving. This species breeds in sites surrounded by walls and rocks or in the shelter of vegetation (in temperate regions) (Birdlife International, 2014a).	Highly Unlikely – not suitable habitat
Sternula albifrons (Listed marine under the EPBC Act as Sterna albifrons)	Little Tern	Migratory	Vulnerable/ Marine/ Migratory	In Australia, Little Terns inhabit sheltered coastal environments, including lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets, especially those with exposed sandbanks or sand-spits, and also on exposed ocean beaches .	Highly Unlikely – not suitable habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Xenus cinereus	Terek Sandpiper	Migratory	Vulnerable/ Marine/ Migratory	The Terek Sandpiper mostly forages in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. The species has also been recorded on islets, mudbanks, sandbanks and spits, and near mangroves and occasionally in samphire (Halosarcia spp.).	Highly Unlikely – not suitable habitat
Falco peregrinus	Peregrine Falcon	Other Specially Protected Species	Marine/ Migratory	The Peregrine Falcon is found in a variety of habitats but nests on high cliff ledges or artificial structures. It feeds primarily on small-medium sized birds, but occasionally taking insects, such as moths, cicadas and locusts (Birdlife Australia, 2012).	Highly Unlikely – not suitable habitat
Ardea alba	Great Egret, White Egret		Marine	The Eastern Great Egret has been reported in a wide range of wetland habitats and usually frequents shallow waters. This species feeds on fish, insects, crustaceans, molluscs, frogs, lizards, snakes and small birds and mammals.	Highly Unlikely – not suitable habitat
Bubulcus ibis (listed as *Ardea alba* under the EPBC Act)	Cattle Egret		Marine	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands with breeding in Western Australia recorded in the far north in Wyndham in colonies in wooded swamps such as mangrove forest. This species forages away from water on low lying grasslands, improved pastures and croplands generally in areas that have livestock eating insects, frog, lizards and small mammals.	Unlikely – not typical habitat
Egretta sacra	Eastern Reef Egret, Eastern Reef Heron		Marine	The Eastern Reef Egret nests in trees in island woodlands, or on the ground under shrubs or rock ledges and feeds on small fish, crustaceans and insects (Birdlife Australia, 2014b).	Highly Unlikely – not suitable habitat
Haliaeetus leucogaster	White-bellied Sea-eagle		Marine	The White-bellied Sea-Eagle is found in coastal habitats with large areas of open water, especially those close to the sea-shore. This species feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans, and on carrion and offal.	Highly Unlikely – not suitable habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Himantopus himantopus	Black-winged Stilt		Marine	The Black-winged Stilt is found near coastal lagoons and shallow freshwater or brackish pools with extensive areas of mudflats, salt meadows, saltpans, coastal marshes and swamps (Birdlife International, 2014b).	Highly Unlikely – not suitable habitat
Larus pacificus	Pacific Gull		Marine	Australia's largest gull, the Pacific Gull occurs only along the coasts of southern Australia. Despite its name, the species is seldom seen on the Pacific coastline, and is far more common on the beaches bordering the Southern and Indian Oceans. They breed in colonies on islands, extending from the Furneaux Group in eastern Bass Strait, west to Shark Bay. Their nests may consist of either a scrape in the ground, sometimes lined with gravel, or a neat nest made from grass, sticks or seaweed (Birdlife Australia, 2015).	Highly Unlikely – not suitable habitat
Merops ornatus	Rainbow Bee-eater		Marine	Populations of the Rainbow Bee-eater that breed in northern Australia are considered to be resident, and in many northern localities the Rainbow Bee-eater is present throughout the year. The Rainbow Bee-eater nests in a burrow dug in the ground. It is found across the better-watered parts of WA including islands preferring lightly wooded, sandy country near water.	Possible – may be an intermittent visitor to the but unlikely to rely on it for survival
Pachyptila turtur	Fairy Prion		Marine	The Fairy Prion occurs over oceans and coastal breeding islands (ALA, 2015).	Highly Unlikely – not suitable habitat
Thalasseus bengalensis	Lesser Crested Tern		Marine/ Migratory	The Lesser Crested Tern inhabits tropical and subtropical sandy and coral coasts and estuaries breeding on low-lying offshore islands, coral flats, sandbanks and flat sandy beaches foraging in the surf and over offshore waters (Birdlife International, 2014c).	Highly Unlikely – not suitable habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Idiosoma sigillatum	Swan Coastal Plain shield-backed trapdoor spider	Priority 3		The Swan Coastal Plain Shield-backed Trapdoor Spider arranges fallen twigs from the sheoak tree around the rim of its burrow entrance, enabling it to feel the vibrations of unsuspecting prey that wander by (Curtin, 2018).	No – record from 1967 contains an error in co-ordinates and not suitable habitat
Neelaps calonotos	Black-striped Snake	Priority 3		The Black-striped snake has a limited distribution, inhabiting areas with sandy soils that support heathlands and Banksia/Eucalypt Woodlands (Nevill, 2005) on the Swan Coastal Plain generally in the lower west coast from Lancelin to Mandurah (Storr *et al*, 1999).	Possible – habitat may occur on the site
Notamacropus irma	Western Brush Wallaby	Priority 4		The Western Brush Wallaby is a medium sized marsupial and its optimum habitat is open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets (DEC, 2012).	Possible – habitat may occur on the site
Synemon gratiosa	Graceful Sun-moth	Priority 4		The Graceful Sun-moth is a diurnal moth with dull coloured brown to black forewings and brightly coloured orange hind wings. The larvae burrow into the rhizomes of Lomandra maritima and Lomandra hermaphrodita exclusively and therefore require the presence of one or both of these species to be present in an area (Bishop *et al*., 2011).	Yes – has previously been recorded on the site
Charadrius cucullatus (Listed under the EPBC Act as *Thinornis rubricollis*)	Hooded Plover	Priority 4	Marine	The Hooded Plover primarily inhabits sandy, ocean beaches, with the highest densities on beaches with large amounts of beach-washed seaweed that are backed by extensive open dunes. In Western Australia the species also inhabits inland and coastal salt lakes (Birdlife International 2014d).	Highly Unlikely – not suitable habitat

*Habitat from SPRAT Database unless otherwise denoted (DCCEEW, 2018)

3.6.4 Conservation Significant Fauna

The following Threatened and Priority species may occur on the site:

- *Zanda latirostris* (Carnaby's Black Cockatoo), Endangered;
- *Dasyurus geoffroii* (Chuditch, Western Quoll), Vulnerable; and
- *Notamacropus irma* (Western Brush Wallaby), Priority 4,

Neelaps calonotos (Black-striped Snake), Priority 3 and *Synemon gratiosa* (Graceful Sun-moth), Priority 4 have been recorded on the site (Plate 9).

Plate 9: Graceful Sun-moth Recorded on the Site



Merops ornatus (Rainbow Bee-eater), listed as marine under the EPBC Act may intermittently occur on the site

Carnaby's Black Cockatoo

Foraging habitat for Carnaby's Black Cockatoo occurs in the balance Structure Plan area due to the presence of Parrot Bush (*Banksia sessilis,* previously called *Dryandra sessilis*). A very small area (0.06ha) of *Banksia attenuata* woodland occurs in the south-east corner of the Structure Plan area.

The Parrot Bush vegetation is mapped as being widespread and occurs commonly south of Lancelin Road and less frequently north of the road. Bamford Consulting Ecologists' (2011) estimated that the amount of Parrot Bush vegetation mapped by Ecoscape was 322ha, however they found that on inspection not all of the areas mapped contained Parrot Bush. Therefore, the total extent of Parrot Bush on the site cannot be accurately estimated. Bamford Consulting Ecologists did not find any evidence of Carnaby's Black Cockatoo foraging on Parrot Bush vegetation in the Structure Plan area. Only one location showing evidence of foraging on Parrot Bush was observed to the east of the Structure Plan area.

The value of the Parrot Bush to Carnaby's Black Cockatoo is questionable since no evidence of foraging was found by Bamford Consulting Ecologists in the Structure Plan area. Using the 2020 scoring tool for Carnaby's Black Cockatoo foraging habitat, developed by Bamford Consulting Ecologists, the Parrot Bush vegetation scores 2 out of 10 and is rated as Low Foraging Value.

Chuditch

The habitat requirements for the Chuditch include woodlands and forests. As none of these vegetation types occur on the site it is concluded that the site is not likely to have significant habitat value for this species.

Western Brush Wallaby

The Western Brush Wallaby also has large ranges, and the site is not likely to be a significant habitat for this species.

3.6.5 Pest Fauna

There are several pest species that are likely to be present on the site outlined in Table 9.

Table 9: Pest Species Likely to Occur on the Site

Taxa	Family	Species Name	Common Name
Mammalia	Canidae	*Vulpes vulpes*	Red fox
	Felidae	*Felis catus*	Feral cat
	Leporidae	*Oryctolagus cuniculus*	European Rabbit
	Muridae	*Mus musculus*	House Mouse
		Rattus rattus	Black Rat

A fox (*Vulpes vulpes*) has been recorded on the site (Plate 10).

Plate 10: Fox Recorded on the Site



3.7 Heritage

3.7.1 European Heritage

Heritage sites can be listed under the following lists/registers:

- World Heritage Sites;
- National Heritage Sites;
- Commonwealth Heritage Sites;
- Sites on the register of the National Estate;
- Sites on the Western Australian Heritage Council Register; and
- Sites listed in the City of Swan Municipal Heritage Inventory List.

There are no listed Heritage Sites or Interim Heritage Sites on the site (National Map, 2026; Heritage Council of Western Australia, 2026; DCCEEW, 2026).

There is one Municipal Site, de Burgh's Well (Place Number ID 17716) mapped in the north-western part of the amendment area (Figure 7). The site is classified as Class 'C' which is defined as:

> *A place of some cultural heritage significance to the Shire of Gingin. No constraints. Recommend: Encourage retention of the place, and document the place if retention is not possible.*

3.7.2 Aboriginal Cultural Heritage

There are no listed Aboriginal Cultural Heritage Sites that are located on the site. There is a Lodged Heritage site to the south of the Lancelin South Structure Plan area, but non within it. Lodged sites are those that have not been assessed under the *Aboriginal Heritage Act, 1972* (Appendix 9) (DPLH, 2026).

There is one listed 'Historic' site located on the site and the site ID is 3237 (Appendix 9). This is listed as Ledge Point which is described as a Camp and Water Source. Historic Sites have been assess as not meeting criteria under Section 5 of the *Aboriginal Heritage Act, 1972* to qualify as a 'Site' (Appendix 8) (DPLH, 2026).

4 ENVIRONMENTAL ASSESSMENT

4.1 Environmental Approvals

The development of Lancelin South has been referred to the EPA for approval under the EP Act in two separate parcels.

Amendment 93 was approved with conditions under Ministerial Statement 853. The Statement requires the establishment of a 22.49-hectare Conservation Area. The conditions also set out specific provisions to be incorporated into the Shire of Gingin Local Planning Scheme No. 8. These requirements have been included within the Scheme and are reflected in LPS No. 9 (LPP No. 9).

The referral of Scheme Amendment 3, which relates to the balance of the Lancelin South area, received a "Scheme Not Assessed" decision from the EPA. Advice accompanying this decision indicated that, provided 70 ha of land in the southwestern corner of the Amendment area is secured for conservation, Amendment 3 would be capable of meeting its environmental objectives.

4.2 Proposed Amended Lancelin South Structure Plan

The proposed Amended Lancelin South Structure Plan (Appendix 1) incorporates the following key elements:

- Residential development across the majority of the site;
- Provision of an industrial area to the north of Lancelin Road;
- Areas designated for schools;
- Public Open Space (POS); and
- An integrated road network servicing the development.

Importantly, the Amended Lancelin South Structure Plan retains both Conservation Areas required through the environmental assessment process:

- The 22.49ha Conservation Area established pursuant to Ministerial Statement 853 (Amendment 93); and
- The 70ha Conservation Area identified in the EPA's "Scheme Not Assessed" advice for Amendment 3.

Consistent with the advice provided in relation to Amendment 3, the two Conservation Areas are linked by Public Open Space, thereby maintaining ecological connectivity.

Additional vegetation will be retained in visual landscape buffers and potentially in some areas of POS.

The perimeter of both Conservation Areas is generally protected by a road reserve, providing a defined "hard edge" interface between development and conservation land, in accordance with EPA advice for Amendment 3. In locations where a Conservation Area adjoins planned Public Open Space, the road reserve is located on the outer edge of the POS, maintaining separation between urban development and the conservation land.

4.3 Past and Existing Land Use

The site has been used for grazing and aside from the horse yard and paddocks in the south eastern corner there is no evidence of development on the site other than fences and tracks. Aerial photography from 2000 indicates the site has contained good quality native vegetation for at least 10 years. Therefore, it is highly unlikely that any contamination exists on the site. The site also does not provide significant grazing land and therefore is not essential to the agricultural industry in the region.

Therefore, the past and existing land use does not impede development.

4.4 Surrounding Land Use

The EPA preferred method for determining buffers to sensitive land uses involves site-specific technical studies however EPA Guidance Statement No. 3 *Separation Distances Between Industrial and Sensitive Land Uses* (EPA, 2005) does provide generic separation distances. Site specific studies are only required if a reduction of the buffer is required.

The generic distance is:

> *Not intended to be absolute separation distances, rather they are a default distance for the purposes of:*
>
> - *Identifying the need for specific separation distance or buffer definition studies; and*
> - *Providing general guidance on separation distances in the absence of site specific technical studies* (EPA, 2005).

The Waste Water Treatment Plant is approximately 1.7km away from the development and will not impact on the residential development. The generic buffer distances for limestone quarries and sand mining operations is 300 to 500m. The sand mines and proposed sand mines are within the generic buffer distance to the site (Figure 3). Further studies may be required to determine noise and dust levels that result from the sand mining activity to confirm this.

Therefore, the surrounding land use does not impede the development in the context of the amended Structure Plan.

4.5 Geomorphology and Soils

The Quindalup Dune system does have some unique characteristics that could be incorporated into development to maintain significant topographical features such as parts of the large dune ridges. The site has calcareous soils and therefore there is no risk of Acid Sulphate Soils existing on the site.

The soils and geomorphology are not an impediment to development.

4.6 Surface Water

Development of the site in accordance with the amended Structure Plan will not impact on wetlands or surface water features on the site as these are not present. Surface water management will be outlined in the District Water Management Strategy and will be detailed in the Local Water

Management Strategies. This will be further described in Urban Water Management Plans that will be prepared for each stage of development.

4.7 Groundwater

The general flow of groundwater to the south west and the distance from the P1 Lancelin Town-site area ensures that the development of the site will not impact on this resource. The impact of the development of the site will be managed within the framework and process detailed in the WAPC's urban water management planning guideline document *Better Urban Water Management* (WAPC, 2008). As for surface water management, groundwater management will be outlined in the District Water Management Strategy and detailed in the Local Water Management Strategies. Management will be further described in Urban Water Management Plans that will be prepared for each stage of development.

Groundwater can be managed and does not impede development of the site.

4.8 Vegetation

The development of the site will result in clearing the majority of the vegetation on the site which is mostly in Very Good to Excellent condition.

The vegetation is not representative of a TEC or PEC and the only Vegetation Association present within the site is Association 1007. EPA Position Statement No. 2 (EPA, 1999) states that the "threshold level" below which species loss appears to accelerate exponentially at the ecosystem level is regarded as being at a level of 30% of the pre clearing extent of vegetation. The pre-clearing extent of Vegetation Association 1007 remaining in Western Australia is 69.86% (being 18,764 ha) and 6.9% is within DEC managed land (EPA, 2010). Therefore, the pre-clearing extent of Association 1007 is above the "threshold level" of 30% but there are minimal land areas reserved for conservation.

The proposed amended Structure Plan includes several areas of vegetation that will be retained within the development. One area, comprising a total land area of 70ha is proposed to be Zoned Conservation under the LPS9. The objective of the Conservation Zone is to:

> *Adequately protect areas considered high environmental value from urban development and environmental degradation.*

This area is in Very Good to Excellent condition with areas of Fair to Good. The 70ha Conservation area contains vegetation types *Melaleuca systena/Scaevola thesioides/Acacia lasiocarpa – Calothamnus quadrifidus* or *Dryandra* (now *Banksia*) *sessilis* and *Acacia xanthina/Spyridium globulosum*. Therefore, two of the dominant vegetation types on the site are represented in the Conservation Area.

The vegetation present on the site is not considered to be regionally significant. However, it does possess local significance, as it is representative of good-quality vegetation characteristic of the Lancelin area. The zoning of land for Conservation purposes will increase the extent of land secured within Conservation Reserves that represent Beard Vegetation Association 1007. In particular, the two primary vegetation types identified on the site will be incorporated within the proposed Conservation areas.

Accordingly, the clearing of vegetation required to implement the amended Structure Plan is not considered to be an impediment to the orderly and proper development of the site, given that representative and locally significant vegetation will be retained and protected within the designated Conservation areas.

4.9 Flora

No Declared Rare Flora were identified on the site or are likely to be on the site.

A total of three Priority species have been identified on the site and an additional species that is at the edge of its range. There are three priority species that have not been identified on the site but may possibly be present. The priority species identified on the site were:

- *Thryptomene* sp. Lancelin (Priority 2);
- *Stylidium maritimum* (Priority 3); and
- *Conostylis pauciflora* subsp. *euryrhipis* (Priority 4).

All Priority flora species recorded on the site are located within the proposed Conservation Areas. While some individual plants and/or localised populations may be removed as part of the development footprint, viable populations of each Priority species will be retained and protected within the designated Conservation Areas.

Accordingly, the proposed clearing of vegetation is not considered to present a significant constraint or impediment to the development of the site, as long-term conservation of Priority species will be achieved through their retention within secured Conservation land.

4.10 Fauna

4.10.1 Fauna Habitat

The fauna habitat on the site is relatively uniform comprising of heath and shrublands with localised area of disturbance and is Very Good Fauna Habitat. There are also a number of feral species that occur on the site that would impact on the native fauna assemblage.

4.10.2 Significant Fauna

Foraging habitat for Carnaby's Black Cockatoo occurs in the balance Structure Plan area due to the presence of Parrot Bush (*Banksia sessilis,* previously called *Dryandra sessilis*) which has Low foraging value and a very small area (0.06ha) of *Banksia attenuata* woodland occurs in the south-east corner of the Structure Plan area which is high foraging value.

The development will impact on Low quality potential foraging habitat for Carnaby's Black Cockatoo through the clearing of vegetation containing Parrot Bush and a very small area of high quality foraging habitat. The Referral guideline for 3 WA threatened black cockatoo species indicate that the clearing of more than 1ha of quality foraging habitat or one potential breeding habitat tree may have a significant impact. This is a guideline only and only projects that are likely to have a significant impact should be referred under the EPBC Act.

To determine if there is a significant impact the Department of Climate Change, Energy, the Environment and Water (DCCEEW) require proponents to utilise the *Significant Impact Guidelines 1.1*

- *Matters of National Environmental Significance* (Significant Impact Guidelines) to undertake a self-assessment of the impact.

The first step is to determine if referral is required for an 'Action' under the EPBC Act. In this case, the Action would be any clearing of foraging habitat for development. To determine if there is a significant impact the Department of Climate Change, Energy, the Environment and Water (DCCEEW) the Significant Impact Guidelines provide a number of items that should be considered when determining a significant impact. .

The criteria for a significant impact on Endangered species (in this case Carnaby's Black Cockatoos) are if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of a population
- Reduce the area of occupancy of the species
- Fragment an existing population into two or more populations
- Adversely affect habitat critical to the survival of a species
- Disrupt the breeding cycle of a population
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
- Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
- Introduce disease that may cause the species to decline, or
- Interfere with the recovery of the species.

Avoidance and mitigation measures such as such as retaining habitat within the Conservation Areas will decrease the impact on the habitat for Carnaby's Black Cockatoos. Additionally, the large amount of surrounding reserves means that the clearing of the site is not likely to have a significant impact.

Given the low value assessment of the Parrot Bush foraging value by Bamford, it is unlikely that a referral would be required, however this is subject to the detailed self-assessment.

The Graceful Sun-moth is listed as Priority 4. The Graceful Sun-moths in the Lancelin Area are generally located along the dunal ridges. The clearing of vegetation in accordance with the amended Structure Plan will impact on the population of Graceful Sun-moths, however there is existing populations in surrounding areas and is likely to occur in the Conservation Area required under Ministerial Statement 853. Therefore, the impact is not likely to be significant.

The Black Striped Snake and Brush-tailed Wallaby could be relocated as there are habitats on the site that are expected to be represented on nearby reserves including:

- Nilgen Nature Reserve,
- Lancelin Defence Training Area,
- Wanagarren Nature Reserve;
- Nambung National Park and
- Reserve 31285 and Reserve 36447, 42956, 36447, 24408 to the south of the site.

Therefore, the impact on these species can be mitigated during development.

4.11 Heritage

No Aboriginal Cultural Heritage Sites are mapped on the site, however the identification of materials that may constitute an archaeological site, if identified during earthworks, would be required to comply with the *Aboriginal Heritage Act, 1972* regarding such sites.

The historic site de Burgh's Well is identified within a future POS under the Lancelin South Structure Plan Amendment. The site will be retained within the POS as shown in Figure 7.

5 SUMMARY AND CONCLUSIONS

This assessment of 717.9ha of Part Lot 9505 Perth-Lancelin Road and Part Lot 1 Old Ledge Point Road, Lancelin has reviewed the environmental characteristics of the site and assessed the proposed amended Structure Plan against these factors. The amended Structure Plan retains the significant environmental values identified in the previous Structure Plan. The 70ha area that will be zoned Conservation is in the south-west of the site and the 22.49ha in the northern central part of the site.

This assessment was undertaken in the context of the proposed updated amended Structure Plan being prepared for the area. The Environmental Factors that were studied in this assessment were:

- Past and Existing Land Use;
- Surrounding Land Use;
- Topography;
- Geomorphology and Soils;
- Surface and Groundwater;
- Vegetation;
- Flora;
- Fauna; and
- Heritage.

Past land uses indicate that it is highly unlikely that the site is contaminated. The surrounding land use of mines may require some buffer and or acoustic studies to determine the impact of these activities on future residents. Impacts can be mitigated with engineering solutions and therefore it is most appropriate to address these issues at subdivision to ensure the latest information and technology is available.

The topography on the site is unique and should be preserved where possible. The proposed areas for zoning as Conservation contains examples of the dune ridges and swales. The soils have no risk of being Acid Sulphate Soils and therefore the site is not constrained by soil type.

Surface water and groundwater will be managed under the hierarchy outlined in Better Urban Water Management (WAPC, 2008). The site has no wetlands and is not in a priority surface or groundwater area. Therefore, these factors do not constrain development on the site.

The development of the site will result in clearing the majority of the vegetation on the site which is mostly in Very Good to Excellent condition. The vegetation is not representative of a TEC or PEC. The Vegetation Association present within the site is Association 1007. The pre-clearing extent of Association 1007 is above the “threshold level” of 30% but there are minimal land areas reserved for conservation.

The Structure Plan amendment includes two areas, previously identifies for Conservation I the approved Structure Plan of 22.49ha and 70ha of vegetation that will be retained within the development and zoned as Conservation. This contains two of the dominant vegetation types on the site and is in Very Good to Excellent condition with some areas of Fair to Good condition. Additional vegetation will be retained in visual buffers, forming a link between areas of native vegetation and potentially in POS.

A total of three Priority species have been identified on the site and an additional species that is at the edge of its range. All three of these species occur in the 70ha Conservation area in the south-west of the amended Structure Plan area. There are two priority species that have not been identified on the site but may possibly be present. No Declared Rare Flora were identified on the site or are likely to be on the site.

Priority species are not protected under the *Biodiversity Conservation Act 2016* however may be considered regionally significant and therefore are proposed to be protected in the Conservation area.

The management of fauna by relocating species prior to development will mitigate the impact on the Black Striped Snake and Brush-tail Wallaby. There have been Graceful Sun-moths recorded in the proposed Conservation Area. Low value Carnaby's Black Cockatoo foraging habitat is present on the site with the Parrot Bush vegetation however no evidence of foraging has been observed. Given the low value assessment of the Parrot Bush foraging, it is unlikely that a referral would be required, however this is subject to a detailed self-assessment at structure plan or subdivision stage.

The surrounding area has been listed as an Aboriginal Cultural Historic Heritage Place as a camp and water source, which does not meet the criteria to be listed as a Site under the AH Act. The historic watering site at de Burgh's Well is situated in POS and will be retained.

The assessment concludes that development in accordance with the proposed amended Structure Plan would have an acceptable environmental outcome.

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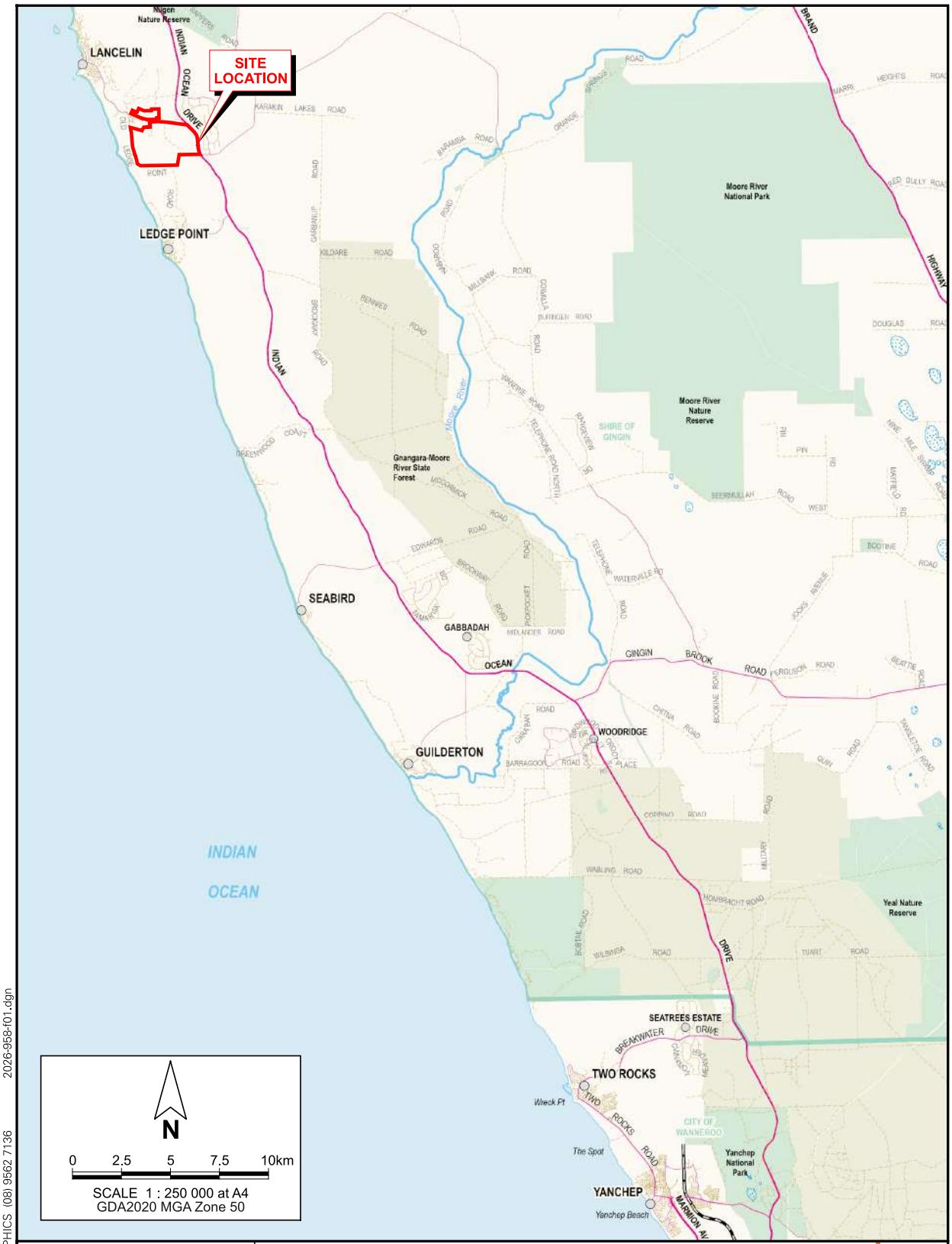
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FIGURES



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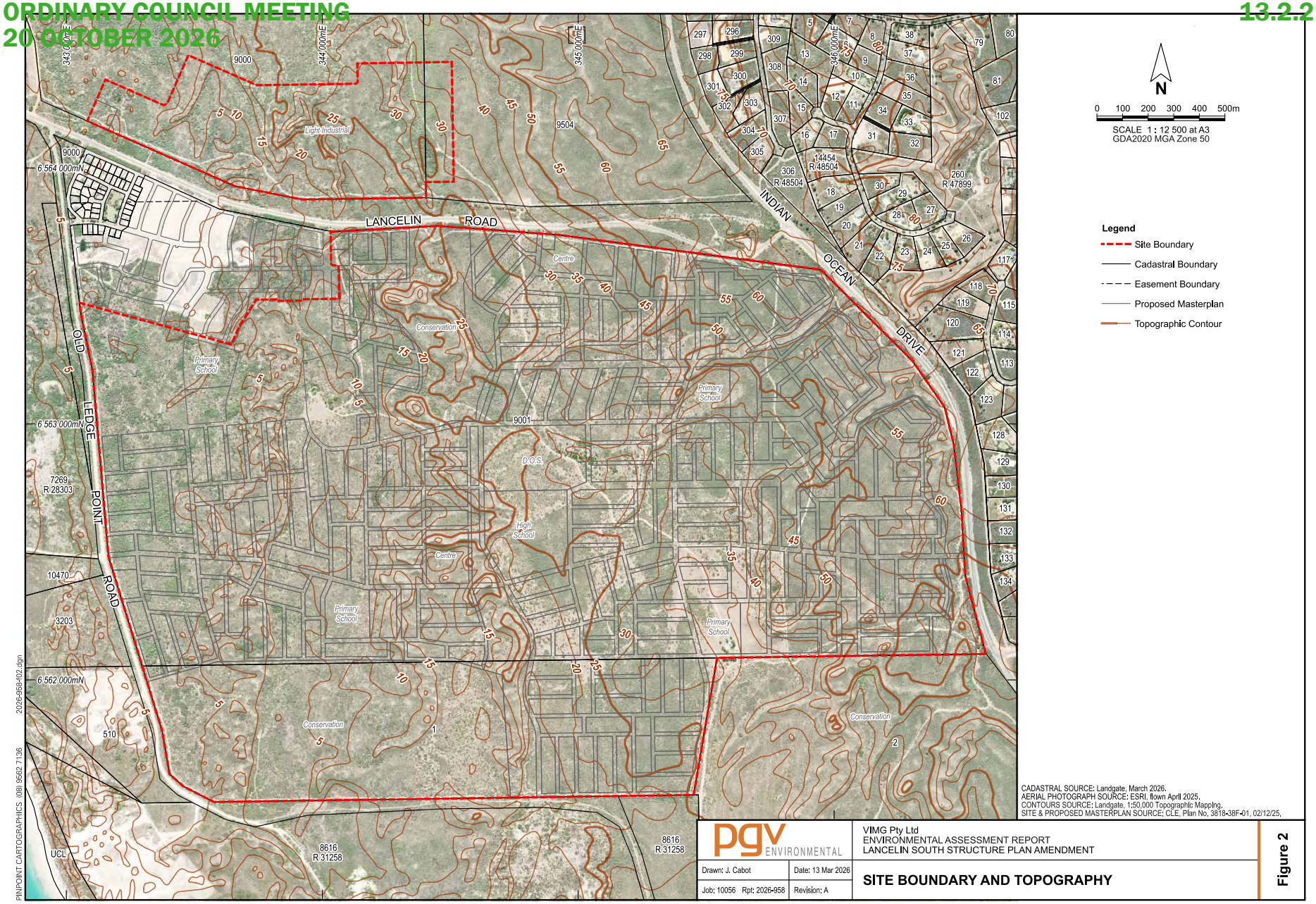
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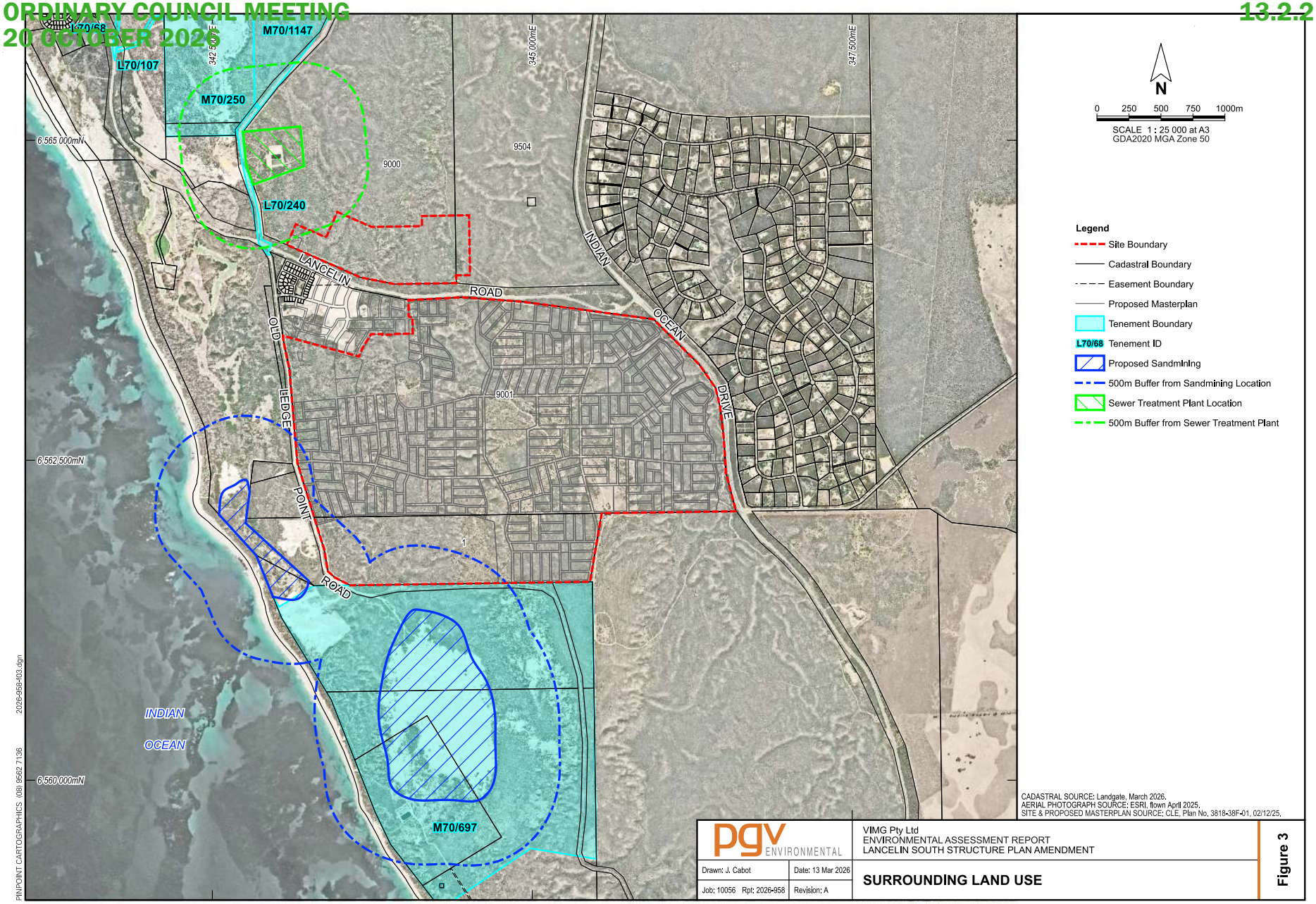
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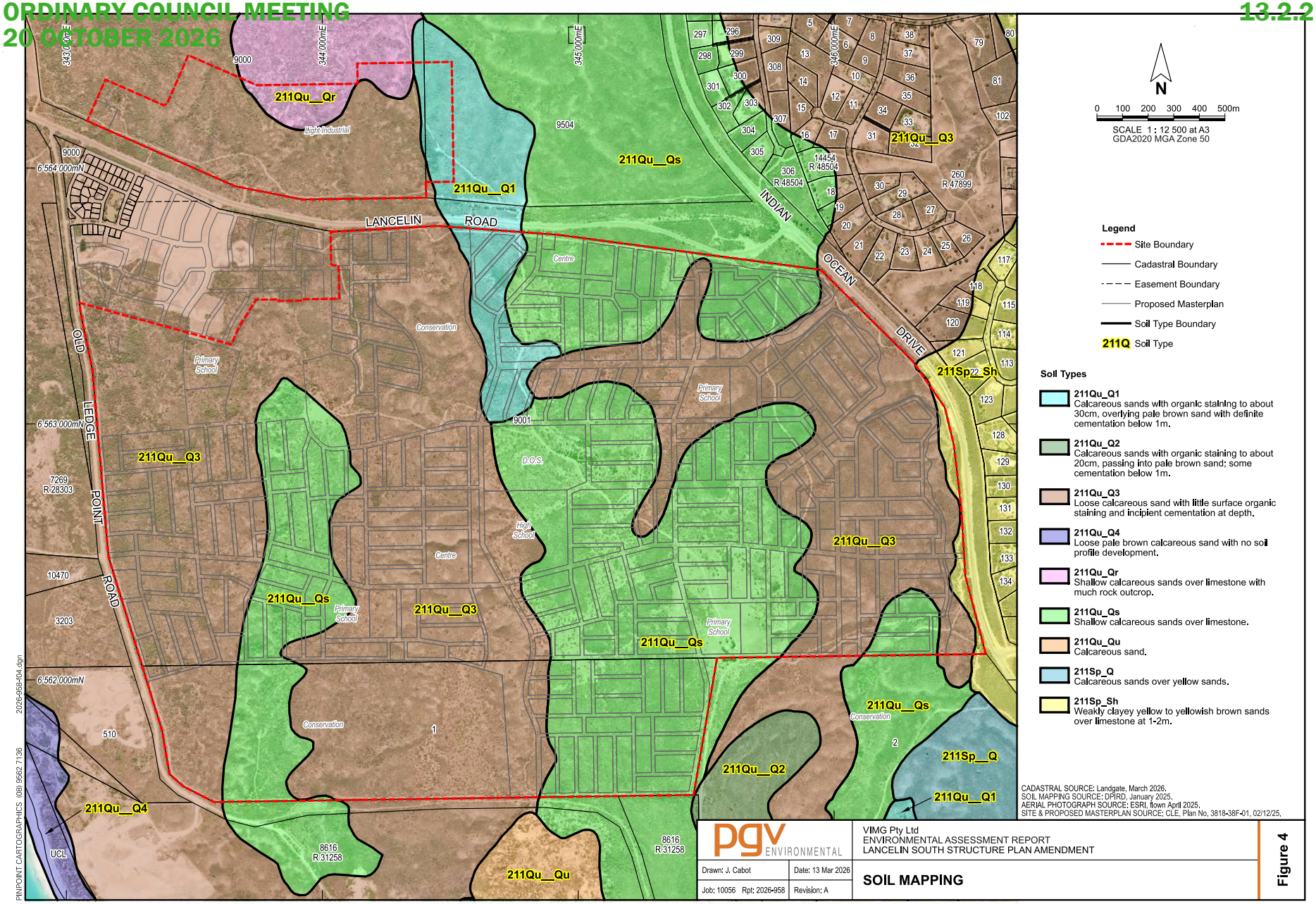
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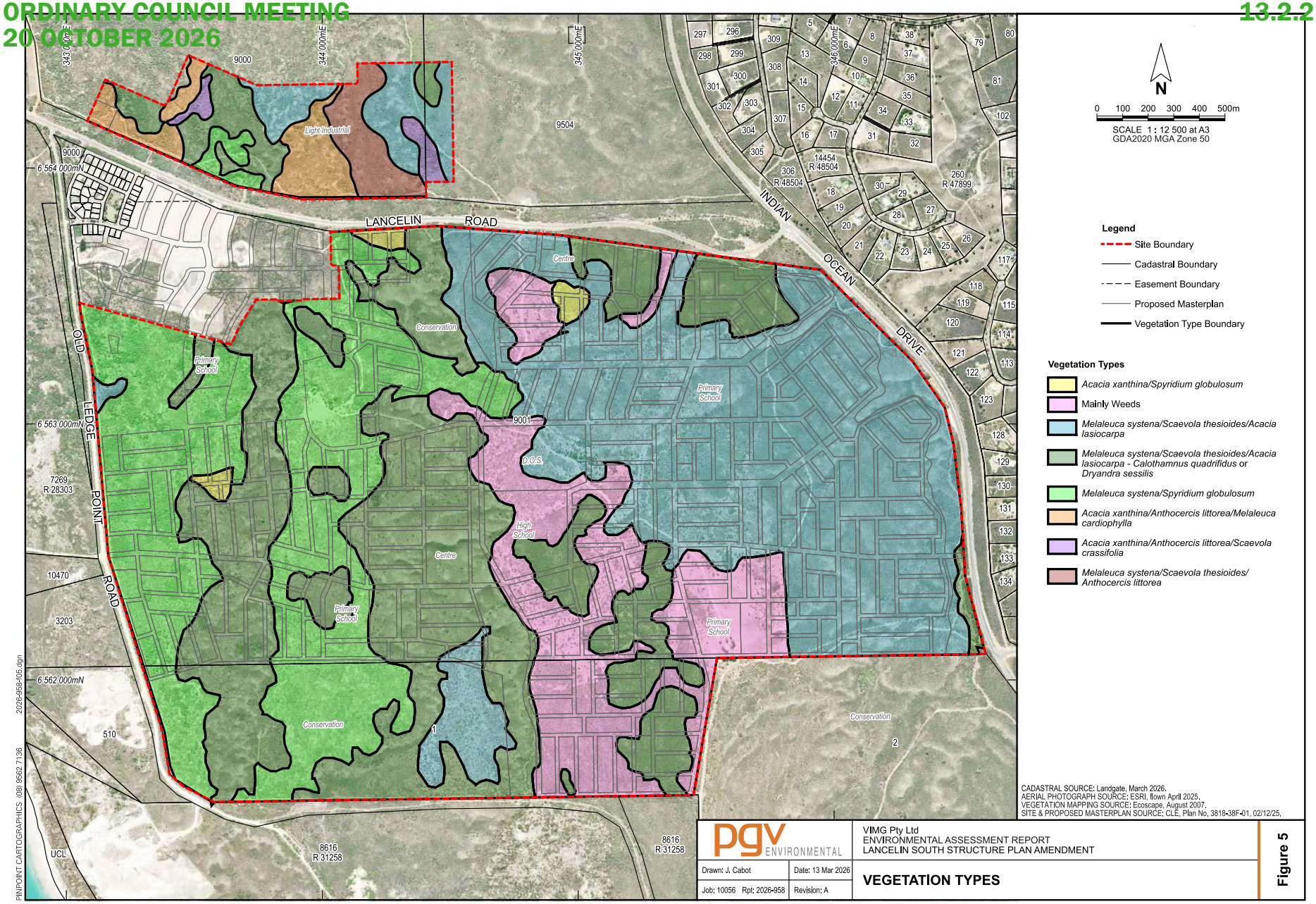
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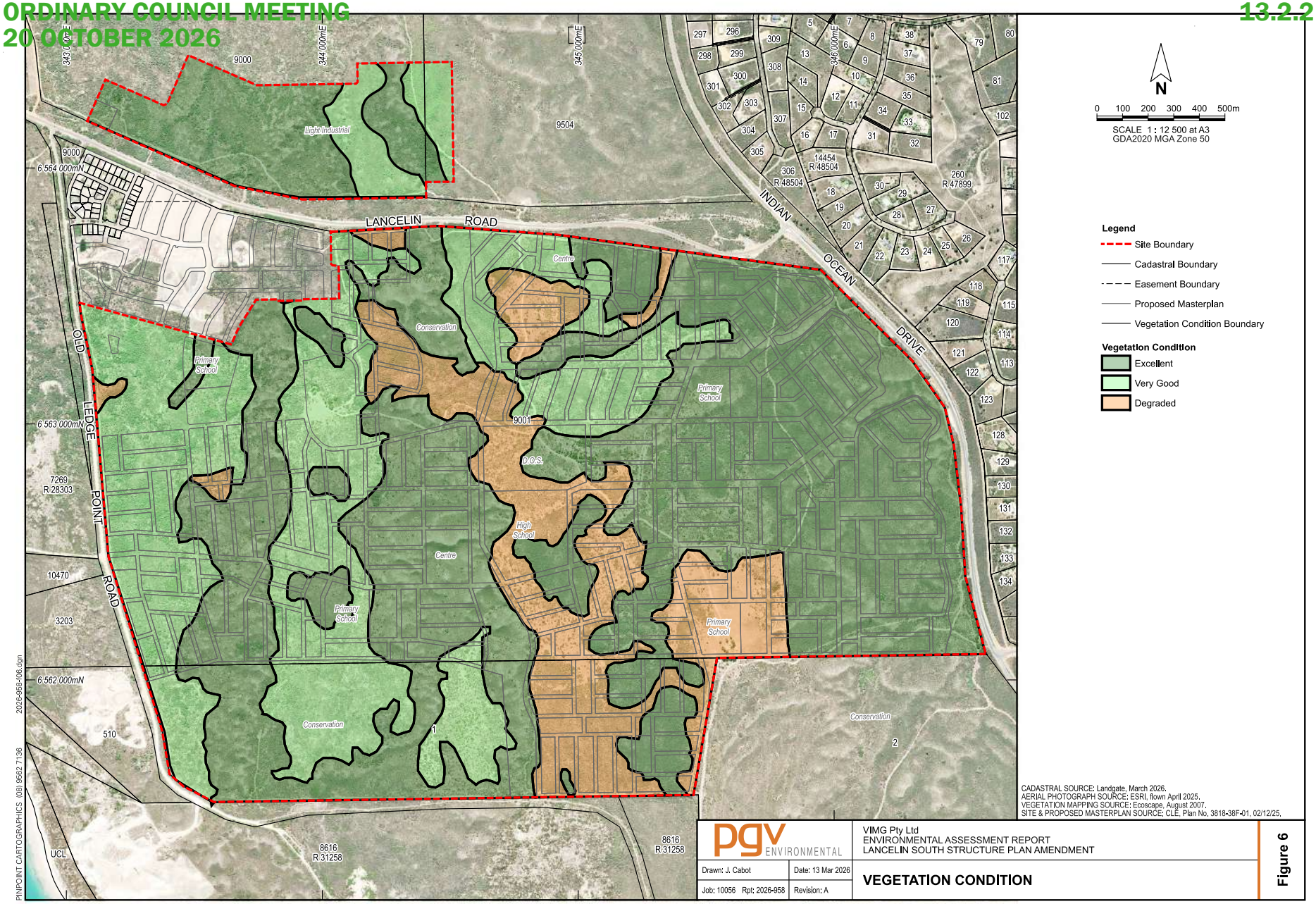
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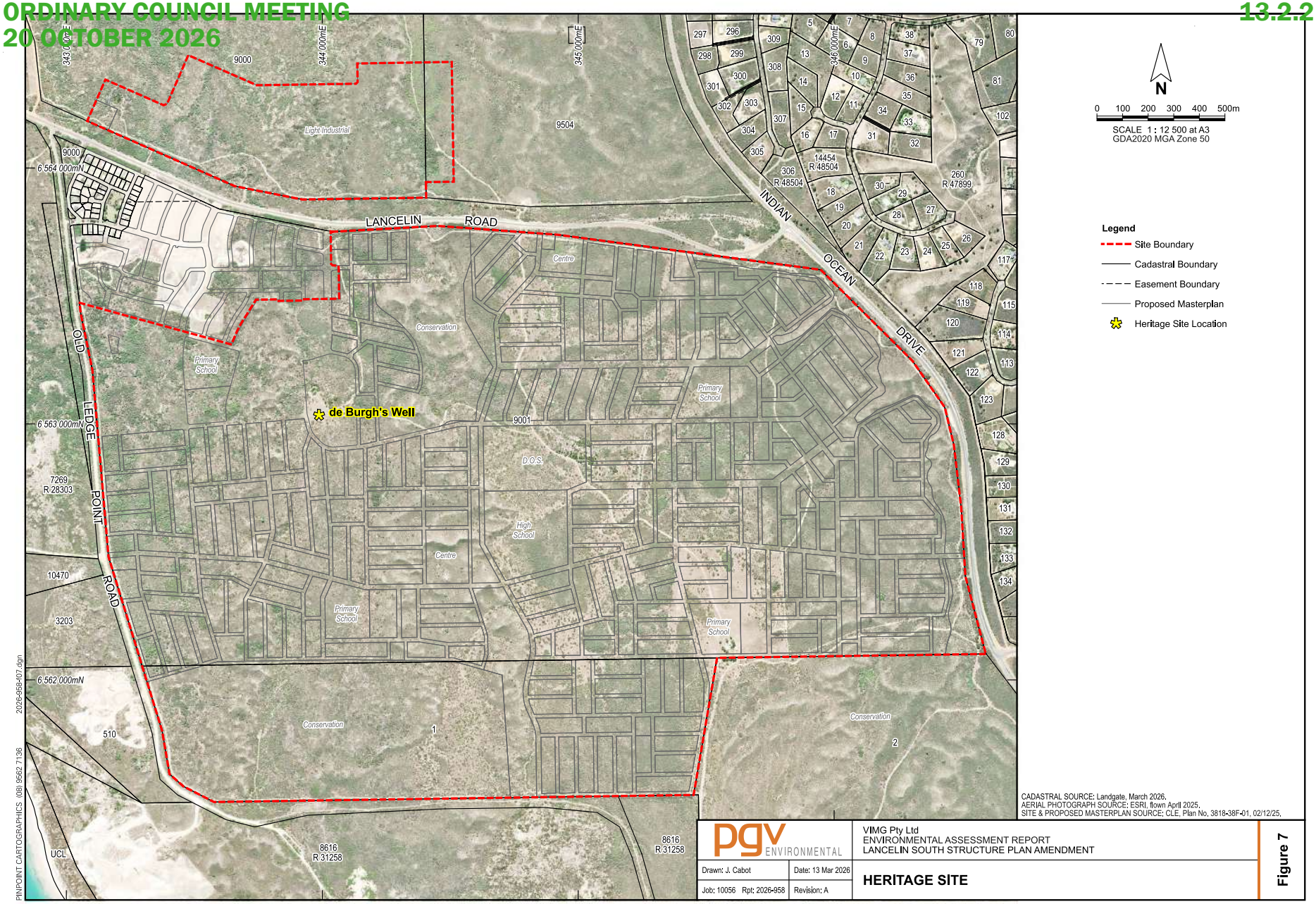

N
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SCALE 1 : 12 500 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Topographic Contour
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
Light Industrial
Primary School
High School
Centre
Conservation
D.O.S.
343 000mE
344 000mE
345 000mE
346 000mE
6 564 000mN
6 563 000mN
6 562 000mN
9000
9001
9504
14454 R 48504
306 R 48504
260 R 47899
7269 R 28303
10470
3203
510
8616 R 31258
CADASTRAL SOURCE: Landgate, March 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
CONTOURS SOURCE: Landgate, 1:50,000 Topographic Mapping.
SITE & PROPOSED MASTERPLAN SOURCE: CLE, Plan No. 3818-38F-01, 02/12/25.
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ENVIRONMENTAL ASSESSMENT REPORT
LANCELIN SOUTH STRUCTURE PLAN AMENDMENT
Drawn: J. Cabot
Date: 13 Mar 2026
Job: 10056 Rpt: 2026-958
Revision: A
SITE BOUNDARY AND TOPOGRAPHY
Figure 2
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M70/1147
L70/68
L70/107
M70/250
L70/240
342 500mE
345 000mE
347 500mE
6 565 000mN
6 562 500mN
6 560 000mN
9000
9504
9001
1
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
INDIAN
OCEAN
M70/697
N
0 250 500 750 1000m
SCALE 1 : 25 000 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Tenement Boundary
L70/68 Tenement ID
Proposed Sandmining
500m Buffer from Sandmining Location
Sewer Treatment Plant Location
500m Buffer from Sewer Treatment Plant
CADASTRAL SOURCE: Landgate, March 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
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Job: 10056 Rpt: 2026-958
Revision: A
SURROUNDING LAND USE
Figure 3


343 000mE
344 000mE
345 000mE
346 000mE
6 564 000mN
6 563 000mN
6 562 000mN
211Qu__Qr
211Qu__Q1
211Qu__Qs
211Qu__Q3
211Qu__Q4
211Qu__Qu
211Sp22_Sh
211Sp__Q
LANCELIN ROAD
INDIAN OCEAN DRIVE
OLD LEDGE POINT ROAD
Light Industrial
Primary School
High School
Centre
Conservation
D.O.S.
UCL
9000
9001
9504
7269 R 28303
10470
3203
510
1
2
8616 R 31258
14454 R 48504
260 R 47899
N
0 100 200 300 400 500m
SCALE 1 : 12 500 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Soil Type Boundary
211Q Soil Type
Soil Types
211Qu_Q1 Calcareous sands with organic staining to about 30cm, overlying pale brown sand with definite cementation below 1m.
211Qu_Q2 Calcareous sands with organic staining to about 20cm, passing into pale brown sand; some cementation below 1m.
211Qu_Q3 Loose calcareous sand with little surface organic staining and incipient cementation at depth.
211Qu_Q4 Loose pale brown calcareous sand with no soil profile development.
211Qu_Qr Shallow calcareous sands over limestone with much rock outcrop.
211Qu_Qs Shallow calcareous sands over limestone.
211Qu_Qu Calcareous sand.
211Sp_Q Calcareous sands over yellow sands.
211Sp_Sh Weakly clayey yellow to yellowish brown sands over limestone at 1-2m.
CADASTRAL SOURCE: Landgate, March 2026.
SOIL MAPPING SOURCE: DPIRD, January 2025.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
SITE & PROPOSED MASTERPLAN SOURCE: CLE, Plan No, 3818-38F-01, 02/12/25.
PINPOINT CARTOGRAPHICS (08) 9562 7136
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VIMG Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LANCELIN SOUTH STRUCTURE PLAN AMENDMENT
Drawn: J. Cabot
Date: 13 Mar 2026
Job: 10056 Rpt: 2026-958
Revision: A
SOIL MAPPING
Figure 4

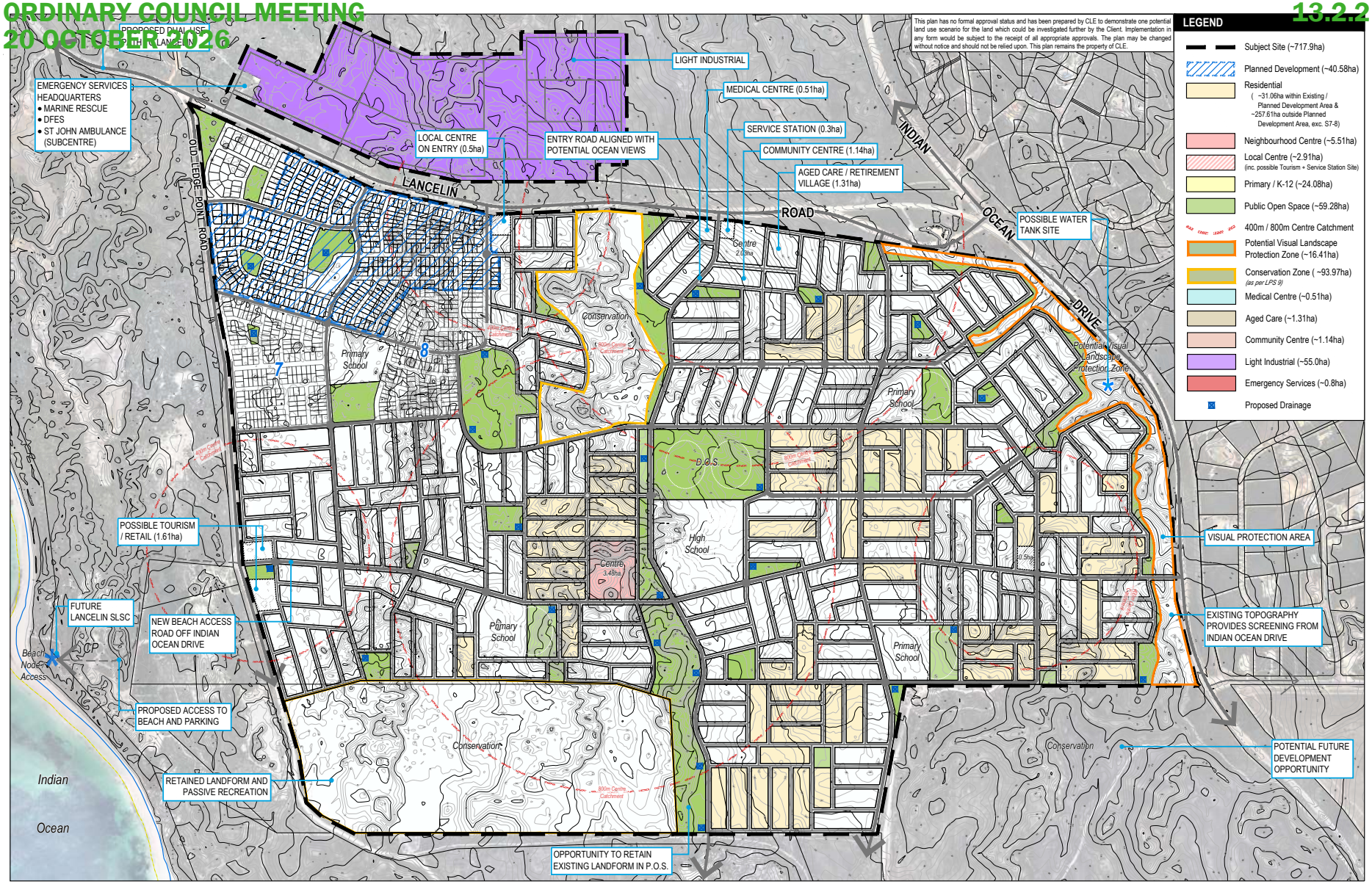

N
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SCALE 1 : 12 500 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Vegetation Type Boundary
Vegetation Types
Acacia xanthina/Spyridium globulosum
Mainly Weeds
Melaleuca systena/Scaevola thesioides/Acacia lasiocarpa
Melaleuca systena/Scaevola thesioides/Acacia lasiocarpa - Calothamnus quadrifidus or Dryandra sessilis
Melaleuca systena/Spyridium globulosum
Acacia xanthina/Anthocercis littorea/Melaleuca cardiophylla
Acacia xanthina/Anthocercis littorea/Scaevola crassifolia
Melaleuca systena/Scaevola thesioides/ Anthocercis littorea
LANCELIN ROAD
INDIAN OCEAN DRIVE
OLD LEDGE POINT ROAD
Light Industrial
Centre
Conservation
Primary School
High School
D.O.S.
9000
9001
9504
7269 R 28303
10470
3203
510
8616 R 31258
14454 R 48504
306 R 48504
260 R 47899
343 000mE
344 000mE
345 000mE
346 000mE
6 564 000mN
6 563 000mN
6 562 000mN
CADASTRAL SOURCE: Landgate, March 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
VEGETATION MAPPING SOURCE: Ecoscape, August 2007.
SITE & PROPOSED MASTERPLAN SOURCE: CLE, Plan No. 3818-38F-01, 02/12/25.
pgv ENVIRONMENTAL
VIMG Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LANCELIN SOUTH STRUCTURE PLAN AMENDMENT
Drawn: J. Cabot
Date: 13 Mar 2026
Job: 10056 Rpt: 2026-958
Revision: A
VEGETATION TYPES
Figure 5
2026-958-f05.dgn
PINPOINT CARTOGRAPHICS (08) 9562 7136


343 000mE
344 000mE
345 000mE
346 000mE
6 564 000mN
6 563 000mN
6 562 000mN
LANCELIN ROAD
INDIAN OCEAN DRIVE
OLD LEDGE POINT ROAD
Light Industrial
Centre
Conservation
Primary School
High School
D.O.S.
9000
9001
9504
14454 R 48504
306 R 48504
260 R 47899
7269 R 28303
10470
3203
510
1
2
8616 R 31258
UCL
N
0 100 200 300 400 500m
SCALE 1 : 12 500 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Vegetation Condition Boundary
Vegetation Condition
Excellent
Very Good
Degraded
CADASTRAL SOURCE: Landgate, March 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
VEGETATION MAPPING SOURCE: Ecoscape, August 2007.
SITE & PROPOSED MASTERPLAN SOURCE: CLE, Plan No. 3818-38F-01, 02/12/25.
PINPOINT CARTOGRAPHICS (08) 9562 7136
2026-958-106.dgn
pgv ENVIRONMENTAL
VIMG Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LANCELIN SOUTH STRUCTURE PLAN AMENDMENT
Drawn: J. Cabot
Date: 13 Mar 2026
Job: 10056 Rpt: 2026-958
Revision: A
VEGETATION CONDITION
Figure 6


343 000mE
344 000mE
345 000mE
346 000mE
6 564 000mN
6 563 000mN
6 562 000mN
LANCELIN ROAD
INDIAN OCEAN DRIVE
OLD LEDGE POINT ROAD
de Burgh's Well
Light Industrial
Conservation
Primary School
High School
Centre
D.O.S.
9000
9001
9504
7269 R 28303
10470
3203
510
UCL
8616 R 31258
14454 R 48504
306 R 48504
260 R 47899
N
0 100 200 300 400 500m
SCALE 1 : 12 500 at A3
GDA2020 MGA Zone 50
Legend
Site Boundary
Cadastral Boundary
Easement Boundary
Proposed Masterplan
Heritage Site Location
CADASTRAL SOURCE: Landgate, March 2026.
AERIAL PHOTOGRAPH SOURCE: ESRI, flown April 2025.
SITE & PROPOSED MASTERPLAN SOURCE: CLE, Plan No. 3818-38F-01, 02/12/25.
PINPOINT CARTOGRAPHICS (08) 9562 7136
2026-958-I07.dgn
pgv ENVIRONMENTAL
VIMG Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LANCELIN SOUTH STRUCTURE PLAN AMENDMENT
Drawn: J. Cabot
Date: 13 Mar 2026
Job: 10056 Rpt: 2026-958
Revision: A
HERITAGE SITE
Figure 7

APPENDIX 1

Proposed Amended Structure Plan for Lancelin South



CLE Town Planning + Design

CONCEPT MASTERPLAN

Lancelin South

DRAFT

0 200 400 600 800 1000m

plan no: 3818-38F-01
date: 2 December 2025
scale: 1:12,000 @A3, 1:6,000 @A1

N

APPENDIX 2

Ministerial Statement 853

STATUS OF THIS DOCUMENT
This document has been produced by the Office of the Appeals Convenor as an electronic version of the original Statement for the proposal listed below as signed by the Minister and held by this Office. Whilst every effort is made to ensure its accuracy, no warranty is given as to the accuracy or completeness of this document.
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Published on: 31 January 2011 Statement No. 853

STATEMENT THAT A SCHEME MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF DIVISION 3 OF PART IV OF THE ENVIRONMENTAL PROTECTION ACT 1986)

SHIRE OF GINGIN TOWN PLANNING SCHEME NO. 8 AMENDMENT 93
LOTS 5243, 9504 AND 9505 PERTH-LANCELIN ROAD, LANCELIN

Scheme Purpose: The Shire of Gingin Town Planning Scheme (TPS) No. 8 Amendment 93 – rezone portions of Lots 5243, 9504 and 9505 Perth-Lancelin Road, Lancelin from 'Rural' to 'Urban Development' zone

Responsible Authority: Shire of Gingin

Responsible Authority Address: 7 Brockman Street Gingin WA 6503

Assessment Number: 1712

Report of the Environmental Protection Authority: Report 1353

Appeal Numbers: 52 to 53 of 2010

Subject to the following conditions, there is no known environmental reason why the town planning Scheme Amendment to which the above report of the Environmental Protection Authority relates should not be implemented:

Town Planning Scheme Zone for Conservation

1-1 A new zone for 'Conservation' shall be inserted into the Shire of Gingin Town Planning Scheme No.8 by:

i) Inserting 'Conservation' into Clause 3.1.1;
ii) Adding an additional column to Table 1 – Zoning Table to include a column for the 'Conservation' zone; and
iii) Adding a 'Conservation' zone to the Scheme Map Legend.

1-2 The purpose and intent of the 'Conservation' zone shall be described under Clause 3.1.3 of Shire of Gingin Town Planning Scheme No.8 as follows:

'Conservation Zone – The purpose of the conservation zone is to adequately protect areas considered of high environmental value from urban development and environmental degradation'

Town Planning Scheme Appendix – Environmental Conditions

2-1 Insert an additional Appendix in the Shire of Gingin Town Planning Scheme No.8 text titled 'Environmental Conditions' and insert the following Table and Figure:

Scheme or amendment number	Gazettal Date	Environmental Conditions
Scheme Amendment 93 – Portions of Lots 5243, 9504 and 9505 commonly known as 'Lancelin South', Old Ledge Point Road and Lancelin Road		i) A minimum of 22.49 hectares (in accordance with Figure 1 of this Appendix) shall be set aside for vegetation conservation purposes and delineated in the Lancelin South Outline Development Plan as 'Conservation' zone; ii) At the time of subdivision, the subdivider shall prepare and implement an 'Environmental Management Plan' to address the use and management of the land set aside for conservation purposes; iii) The 'Environmental Management Plan' shall make provision for fencing, weed control, fire response and suppression, revegetation, and design and maintenance of pathways and public viewing areas (restricted access).

[Signed 28 January 2011]

HON BILL MARMION MLA
MINISTER FOR ENVIRONMENT; WATER

Figure 1 Scheme Amendment 93 – Conservation zone



APPENDIX 3

Previous Masterplan


LEGEND
NEIGHBOURHOOD CENTRE
LOCAL WALKABLE AMENITY
POTENTIAL THIRD PRIMARY SCHOOL LOCATION
PRIMARY SCHOOL / DISTRICT SCHOOL (K-10)
500 - 750m² RESIDENTIAL LOTS
750 - 1250m² RESIDENTIAL LOTS
1250 - 1750m² RESIDENTIAL LOTS
1750 - 2250m² RESIDENTIAL LOTS
2250m+ RESIDENTIAL LOTS
MIXED BUSINESS - COMPOSITE INDUSTRIAL
MIXED BUSINESS - SERVICE COMMERCIAL
MIXED BUSINESS - LIGHT INDUSTRIAL
NOTES
1 PRIMARY NEIGHBOURHOOD CONNECTOR (BOULEVARD)
2 SECONDARY NEIGHBOURHOOD CONNECTOR
3 CONSERVATION AREA
4 PRIMARY NORTH-SOUTH RIDGE LINE RETAINED WITHIN OPEN SPACE
5 COMMUNITY FOCAL POINT SUPPORTED BY NEIGHBOURHOOD CENTRE AND DISTRICT HIGH SCHOOL (K-10)
6 SECONDARY RIDGE LINE RETAINED WITHIN OPEN SPACE
7 PUBLIC OPEN SPACE LINK ACCOMMODATING SECONDARY RIDGE LINE
8 OPEN SPACE BUFFER TO INDIAN OCEAN DRIVE
LANCELIN ROAD
INDIAN OCEAN DRIVE
OLD LEDGE POINT ROAD
LANCELIN ROAD
REVISED STRUCTURE PLAN
Lancelin South (Balance Rezoning) Amendment Report

APPENDIX 4

EPA 'Scheme Not Assessed' Advice

GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

Chief Executive Officer
Shire of Gingin
7 Brockman Street
GINGIN WA 6503

Our Ref 13-493570
Enquiries Gerard O'Brien
Phone 6145 0814

Attn: Lisa Edwards

Dear Sir/Madam

DECISION UNDER SECTION 48A(1)(a)
Environmental Protection Act 1986

SCHEME AMENDMENT TITLE:	**Shire of Gingin Local Planning Scheme 9 Amendment 3 - Rezoning from General Rural to Future Development and Conservation**
LOCATION:	**Lot 1 Old Ledge Point Road and Lot 9001 Lancelin Road, Lancelin**
RESPONSIBLE AUTHORITY:	**Shire of Gingin**
DECISION:	**Scheme Amendment Not Assessed – Advice Given (no appeals)**

Thank you for referring the above scheme amendment to the Environmental Protection Authority (EPA).

After consideration of the information provided by you, the Environmental Protection Authority (EPA) considers that the proposed scheme amendment should not be assessed under Part IV Division 3 of the *Environmental Protection Act 1986* (EP Act) but nevertheless provides the following advice and recommendations.

ADVICE AND RECOMMENDATIONS

1. Environmental Issues

- Flora and vegetation
- Terrestrial Fauna

2. Advice and recommendations regarding Environmental Issues

- Flora and vegetation and Terrestrial Fauna

Level 4, The Atrium, 168 St Georges Terrace, Perth, Western Australia 6000
Telephone 08 6145 0800 Facsimile 08 6145 0895 Email info@epa.wa.gov.au
Locked Bag 10, East Perth WA 6892
www.epa.wa.gov.au

The EPA is of the view that Amendment 3 can meet its environmental objectives subject to the key environmental values being retained within the 70 hectare (ha) Conservation Zone. The EPA notes that a total of three Priority species have been identified in the amendment area, and that all three of these species occur within the Conservation Zone.

In accordance with EPA Environmental Protection Bulletin No. 20 *Protection of naturally vegetated areas through planning and development* (EPB 20) the EPA does not support further subdivision of the 70 ha conservation lot, as naturally vegetated area should be protected in a large consolidated area. Clearing for development on the Conservation lot should also be located to minimise impacts on vegetation, preferably on cleared land close to road access

The EPA also expects that future subdivision around this area follows the design guidelines set out in EPB 20. Specifically, the requirement for hard edges to buffer the conservation lot rather than locating housing lots immediately adjacent to the vegetation should be addressed.

In addition, to ensure clear and ongoing management responsibilities of the Conservation Zone, the EPA expects that the scheme text requiring the subdivider to prepare and implement an Environmental Management Plan should specify that it should be prepared and implemented to the requirements of the Shire of Gingin. The EPA is of the view that the Shire could then decide whether to have the plan reviewed by relevant agencies once it has been submitted.

3. General Advice

- For the purposes of Part IV of the EP Act, the scheme amendment is defined as an assessed scheme amendment. In relation to the implementation of the scheme amendment, please note the requirements of Part IV Division 4 of the EP Act.
- There is no appeal right in respect of the EPA's decision on the level of assessment of scheme amendments.
- A copy of this advice will be sent to relevant authorities and made available to the public on request.

Yours faithfully

Darren Foster
Director
Strategic Policy and Planning Division

15 September 2014

APPENDIX 5

Atlas of Living Australia Database Search

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/e2070aa5-7ab4-41a8-9b41-b3f0c2e26390	Chroicocephalus novaehollan	(Stephens, 1826)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Silver Gull	447
https://biodiversity.org.au/afd/taxa/1441c509-faf3-405e-a534-c51cccc4d720	Thalasseus bergii	(Lichtenstein, 1823)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Crested Tern	343
https://biodiversity.org.au/afd/taxa/1c4dce12-16f6-49ab-b578-0673551214fd	Rhipidura (Sauloprocta) leuco	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Rhipiduridae	Willie Wagtail	332
https://biodiversity.org.au/afd/taxa/4e118c73-06a7-4131-bd67-5da5d2d61fd7	Hirundo (Hirundo) neoxena	Gould, 1843	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Welcome Swallow	324
https://biodiversity.org.au/afd/taxa/55994a9e-8ba7-4ff9-89a2-e22586ab25d1	Phalacrocorax (Phalacrocorax	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Pied Cormorant	320
https://biodiversity.org.au/afd/taxa/6ccdb357-d666-4097-b0f6-88bb1a392112	Gavicalis virescens	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Singing Honeyeater	270
https://biodiversity.org.au/afd/taxa/ec2c76c7-0cd9-4f26-935e-4d90762590fa	Haematopus longirostris	Vieillot, 1817	species	Animalia	Chordata	Aves	Charadriiformes	Haematopodidae	Australian Pied Oystercatcher	257
https://biodiversity.org.au/afd/taxa/06d1981c-58a7-4370-9e9a-158dfb89d600	Larus pacificus	Latham, 1801	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Pacific Gull	217
https://biodiversity.org.au/afd/taxa/bf8abc11-ebe1-4f1a-9950-805e5bfcf90a	Columba (Columba) livia	Gmelin, 1789	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Rock Dove	192
https://biodiversity.org.au/afd/taxa/0974b5aa-f5bf-47cc-9cf3-337dcc113c19	Onychoprion anaethetus	(Scopoli, 1786)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Bridled Tern	180
https://biodiversity.org.au/afd/taxa/0b7c528a-4104-4a96-853e-05a37c327067	Microcarbo melanoleucos	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Little Pied Cormorant	156
https://biodiversity.org.au/afd/taxa/9b4ad548-8bb3-486a-ab0a-905506c463ea	Eolophus roseicapilla	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Galah	149
https://biodiversity.org.au/afd/taxa/ce17b284-d607-496a-992f-f3129bfd3997	Grallina cyanoleuca	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Monarchidae	Magpie-lark	149
https://biodiversity.org.au/afd/taxa/da1e1bf2-3684-4eea-b579-1d83507c020d	Hydroprogne caspia	(Pallas, 1770)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Caspian Tern	148
https://biodiversity.org.au/afd/taxa/2fa47871-3637-4b3a-bfd8-89750d53e8fa	Arenaria interpres	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Ruddy Turnstone	135
https://biodiversity.org.au/afd/taxa/8117f68b-5460-4626-8400-e171464e08ad	Corvus coronoides	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Passeriformes	Corvidae	Australian Raven	133
https://biodiversity.org.au/afd/taxa/09843a8d-0a78-4680-8bf4-bd95dc93ef0e	Spilopelia senegalensis	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Laughing Turtle-dove	127
https://biodiversity.org.au/afd/taxa/00cf9ec9-1cd2-4389-a1fc-a080ee3c81d6	Anous stolidus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Common Noddy	118
https://biodiversity.org.au/afd/taxa/8204979f-5302-41ea-943f-01d3c420f7bb	Anthochaera (Anthochaera) c	(Shaw, 1790)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Red Wattlebird	113
https://biodiversity.org.au/afd/taxa/9cc11ab9-ab7a-43d6-a04f-3ae4c7a1a42a	Charadrius (Charadrius) rufica	Temminck, 1821	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Red-capped Plover	111
https://biodiversity.org.au/afd/taxa/fe0d4e5e-6bd5-4e46-a77c-00e8cec73410	Zosterops lateralis	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Zosteropidae	Silvereye	111
https://biodiversity.org.au/afd/taxa/8f6b91ae-4019-490c-a133-73acb05d25e8	Falco (Tinnunculus) cenchroid	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Nankeen Kestrel	105
https://biodiversity.org.au/afd/taxa/bf6dd419-28b3-49cd-b208-716c01a6fa68	Pandion cristatus	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Eastern Osprey	101
https://biodiversity.org.au/afd/taxa/031b2b69-e9fc-44c6-9df9-03c1470d5ec3	Sericornis (Sericornis) frontali	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	White-browed Scrubwren	96
https://biodiversity.org.au/afd/taxa/ada6105e-c2de-4b93-9687-8e64d10863a7	Lichmera (Lichmera) indistinc	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Brown Honeyeater	92
https://biodiversity.org.au/afd/taxa/3b05d614-aca5-4d6e-b4b9-8bd7ac7f7ee6	Calidris (Crocethia) alba	(Pallas, 1764)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Sanderling	82
https://biodiversity.org.au/afd/taxa/ca3c9112-78dc-434f-9668-f13c4cfc94d4	Pandion haliaetus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Osprey	81
https://biodiversity.org.au/afd/taxa/3d2396a0-b532-410a-87e7-d1fe3ab497f6	Calidris (Ereunetes) ruficollis	(Pallas, 1776)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Red-necked Stint	70
https://biodiversity.org.au/afd/taxa/5610f949-7a69-4a0c-bf6b-b05d2c0d894e	Malurus (Musciparus) leucopt	Dumont, 1824	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	White-winged Fairy-wren	69
https://biodiversity.org.au/afd/taxa/5291343e-fdeb-4a65-8ba5-928f5b96acf5	Gymnorhina tibicen	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Australian Magpie	68
https://biodiversity.org.au/afd/taxa/148208ff-e6ea-40bd-9999-9f1a6b8acc1e	Phylidonyris (Meliornis) niger	(Bechstein, 1811)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	White-cheeked Honeyeater	66
https://biodiversity.org.au/afd/taxa/4072e7ce-7ca4-4112-a9fa-c49a0f0ddd4d	Zanda latirostris	Carnaby, 1948	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Short-billed Black-cockatoo	66
https://biodiversity.org.au/afd/taxa/c96b19fd-2a54-4361-a5cf-baecf741310e	Phalacrocorax (Phalacrocorax	(Brandt, 1837)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Little Black Cormorant	66
https://biodiversity.org.au/afd/taxa/ab455a0c-4545-4c5d-b2e8-1d8f112e413f	Sternula nereis	(Gould, 1843)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Fairy Tern	64
https://biodiversity.org.au/afd/taxa/dc420306-4746-4663-9c2d-cf367587f728	Haliaeetus (Pontoaetus) leucc	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	White-bellied Sea-eagle	62
https://biodiversity.org.au/afd/taxa/095c20f5-7bc6-4b63-a7ae-9254aa5242e2	Neophema (Neonanodes) pet	(Gould, 1841)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Rock Parrot	61
https://biodiversity.org.au/afd/taxa/43abe3ea-7ccc-41cc-920f-d9cfa107207e	Pelecanus conspicillatus	Temminck, 1824	species	Animalia	Chordata	Aves	Pelecaniformes	Pelecanidae	Australian Pelican	58
https://biodiversity.org.au/afd/taxa/93852469-f5e8-432e-ad53-fbd871afa035	Sterna (Sterna) dougallii	Montagu, 1813	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Roseate Tern	58
https://biodiversity.org.au/afd/taxa/a7b00ef0-108f-44d9-bf89-a062c8674335	Ocyphaps lophotes	(Temminck, 1822)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Crested Pigeon	56
https://biodiversity.org.au/afd/taxa/69c22b10-ff42-4bef-bb0f-88dc01a8f96c	Coracina (Coracina) novaeholl	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Campephagidae	Black-faced Cuckoo-shrike	55
https://biodiversity.org.au/afd/taxa/da002998-b551-4328-ac4e-5e04fc72708b	Phylidonyris (Meliornis) nova	(Latham, 1790)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	New Holland Honeyeater	46
https://biodiversity.org.au/afd/taxa/692effa3-b719-495f-a86f-ce89e2981652	Oryctolagus cuniculus	(Linnaeus, 1758)	species	Animalia	Chordata	Mammalia	Lagomorpha	Leporidae	Rabbit	41
https://biodiversity.org.au/afd/taxa/0068714f-cc38-49e8-9541-7ff0e796b5f9	Limosa lapponica	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Bar-tailed Godwit	40
https://biodiversity.org.au/afd/taxa/7d38efed-12ce-4aa3-b51a-67f89b109ded	Petrochelidon (Hylochelidon)	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Tree Martin	39
https://biodiversity.org.au/afd/taxa/05b0f88f-2b75-4885-97e1-e83872f82738	Haematopus fuliginosus	Gould, 1845	species	Animalia	Chordata	Aves	Charadriiformes	Haematopodidae	Sooty Oystercatcher	38
https://biodiversity.org.au/afd/taxa/5c372f0e-d257-4cdb-b558-f1383c53c3ee	Ardenna pacifica	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Wedge-tailed Shearwater	36
https://biodiversity.org.au/afd/taxa/e382a431-801d-4a24-9a5a-03a262be9279	Elanus axillaris	(Latham, 1801)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Black-shouldered Kite	35
https://biodiversity.org.au/afd/taxa/8f2d4aeb-50eb-438f-a145-5f12e356ffd8	Dicaeum (Dicaeum) hirundina	(Shaw, 1792)	species	Animalia	Chordata	Aves	Passeriformes	Dicaeidae	Mistletoebird	33
https://biodiversity.org.au/afd/taxa/2a4e373b-913a-4e2a-a53f-74828f6dae7e	Dromaius novaehollandiae	(Latham, 1790)	species	Animalia	Chordata	Aves	Struthioniformes	Casuariidae	Emu	31
https://biodiversity.org.au/afd/taxa/cf17c9bb-09d1-47ce-adfe-dc060ba0b04c	Morus serrator	(G.R. Gray, 1843)	species	Animalia	Chordata	Aves	Pelecaniformes	Sulidae	Australasian Gannet	31
https://biodiversity.org.au/afd/taxa/e75f846e-944e-431e-8c43-b376ac1e2b87	Malurus (Malurus) splendens	(Quoy & Gaimard, 1830)	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Splendid Fairy-wren	31
https://biodiversity.org.au/afd/taxa/853662a7-5a01-4a5f-8f17-347f9166f7bb	Malurus (Leggeornis) assimili	North, 1901	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Purple-backed Fairy-wren	29
https://biodiversity.org.au/afd/taxa/1ebf8ec6-9aee-4b58-8789-0be73eb97b2f	Thinornis cucullatus	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Hooded Plover	28
https://biodiversity.org.au/afd/taxa/a83a1861-ff90-420d-bcb5-d8f60abbeb3c	Castiarina cupreoflava	(Saunders, 1869)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae		28
https://biodiversity.org.au/afd/taxa/c1d3308d-b6d6-496c-81b0-97c689259d3a	Anhinga novaehollandiae	(Gould, 1847)	species	Animalia	Chordata	Aves	Pelecaniformes	Anhingidae	Australasian Darter	28
https://biodiversity.org.au/afd/taxa/040a46e2-135a-4993-8d50-73d3023add2b	Pelagodroma marina	(Latham, 1790)	species	Animalia	Chordata	Aves	Procellariiformes	Oceanitidae	White-faced Storm-petrel	27
https://biodiversity.org.au/afd/taxa/e53a981f-22da-4f2f-a489-85c3ee79473e	Anthus (Anthus) novaeseelan	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Motacillidae	Australian Pipit	27
https://biodiversity.org.au/afd/taxa/70a29d57-3aea-43e3-b675-98c01960979d	Falco (Falco) longipennis	Swainson, 1838	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Australian Hobby	26
https://biodiversity.org.au/afd/taxa/97a59c84-af21-4cdc-bac7-a97c5201db42	Rhipidura (Rhipidura) albiscap	Gould, 1840	species	Animalia	Chordata	Aves	Passeriformes	Rhipiduridae	Grey Fantail	26
https://biodiversity.org.au/afd/taxa/fd928615-5613-47eb-9cd4-7eb8e30a4993	Pluvialis squatarola	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Grey Plover	26
https://biodiversity.org.au/afd/taxa/13a31834-0f30-4a9c-a68f-a22dd3d3158b	Onychoprion fuscatus	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Sooty Tern	25
https://biodiversity.org.au/afd/taxa/5851a3f8-4962-477f-bd38-4f86473472f5	Cheramoeca leucosterna	(Gould, 1841)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	White-backed Swallow	25
https://biodiversity.org.au/afd/taxa/c650dca9-69e3-4051-ace8-86444b0ee972	Egretta sacra	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Eastern Reef Egret	25
https://biodiversity.org.au/afd/taxa/34bf2741-129f-4365-851d-0ea320b4de0b	Cyclodomorphus celatus	Shea & Miller, 1995	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Western Slender Blue-tongue	24
https://id.biodiversity.org.au/node/apni/2905696	Banksia leptophylla	A.S.George	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		23

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/23e2ccef-06b0-4749-abc6-d8a710b94f69	Aquila (Uroaetus) audax	(Latham, 1801)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Wedge-tailed Eagle	22
https://biodiversity.org.au/afd/taxa/681ea214-3788-4cc6-8b97-0b325d6bba6b	Cracticus torquatus	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Grey Butcherbird	22
https://biodiversity.org.au/afd/taxa/e8d7b862-1d56-4d27-84a1-937f7915a0de	Vanellus (Lobivanellus) tricolc	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Banded Lapwing	22
https://biodiversity.org.au/afd/taxa/135cc880-f84e-4470-a1c1-fbce3a0ed534	Todiramphus (Todiramphus) s	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Coraciiformes	Alcedinidae	Sacred Kingfisher	21
https://biodiversity.org.au/afd/taxa/6c3c2da2-508b-43c4-b0df-c69a99c0aae0	Artamus (Angroyan) cinereus	Vieillot, 1817	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Black-faced Woodswallow	21
https://biodiversity.org.au/afd/taxa/a18b8bb9-4620-4539-b392-35ed6438b563	Poecilasma dubium	Hoek, 1907	species	Animalia	Arthropoda	Thecostraca	Lepadiformes	Poecilasmatidae		20
https://biodiversity.org.au/afd/taxa/c319dbaf-a363-4853-b333-75f14c47fc82	Threskiornis spinicollis	(Jameson, 1835)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Straw-necked Ibis	20
https://biodiversity.org.au/afd/taxa/52c2f1ee-a5d1-47da-b59c-c155f148b750	Strophurus spinigerus	(Gray, 1842)	species	Animalia	Chordata	Reptilia	Squamata	Diplodactylidae	South-western Spiny-tailed Gecko	19
https://biodiversity.org.au/afd/taxa/f9ec0b95-4a25-45db-a663-c4047c7f28d7	Ctenotus lancelini	Ford, 1969	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Lancelin Island Ctenotus	19
https://biodiversity.org.au/afd/taxa/0628244e-287b-4001-946e-5a41ef056f41	Falco (Ieracidea) berigora	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Brown Falcon	18
https://biodiversity.org.au/afd/taxa/577fbb9f-d9f9-4387-9d0f-e329fac2c9f3	Agrotis munda	Walker, 1857	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Brown Cutworm Moth	18
https://biodiversity.org.au/afd/taxa/9058a7d7-fe21-4ff8-8eaa-86459e5a5d24	Coccinella transversalis	Fabricius, 1781	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Transverse Ladybird	18
https://biodiversity.org.au/afd/taxa/e3103245-2da1-4cc5-952d-49153f466bbf	Pardalotus (Pardalotinus) stri	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Pardalotidae	Striated Pardalote	18
https://id.biodiversity.org.au/name/algae/20007734	Carpopeltis elata	(Harv.) De Toni	species	Plantae	Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae		18
https://biodiversity.org.au/afd/taxa/046dd167-e59a-4b0f-b573-fc72de406e85	Tadorna (Casarca) tadornoide	(Jardine & Selby, 1828)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Australian Shelduck	17
https://biodiversity.org.au/afd/taxa/500e1350-1d00-4f1c-b9d3-d02b949cdd47	Acanthiza (Acanthiza) apicalis	Gould, 1847	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Red-rumped Tit	17
https://biodiversity.org.au/afd/taxa/7af45089-4a0f-4303-a417-1708623809af	Colluricincla (Colluricincla) ha	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Grey Shrike-thrush	17
https://biodiversity.org.au/afd/taxa/083b413f-8746-4788-8dc1-3da495d78a79	Falco (Hierofalco) peregrinus	Tunstall, 1771	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Peregrine Falcon	16
https://biodiversity.org.au/afd/taxa/7b7a290d-ca89-494f-8f2e-7f05311240f2	Stipiturus malachurus	(Shaw, 1798)	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Southern Emu-wren	16
https://biodiversity.org.au/afd/taxa/a4f5cc51-9bde-4a64-93b1-836424e3c6fe	Dichromodes poecilotis	Meyrick, 1890	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		16
https://biodiversity.org.au/afd/taxa/aa581ac7-f29a-4e72-be0d-48a5e0a64de3	Acanthiza (Geobasileus) chrys	(Quoy & Gaimard, 1830)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Yellow-rumped Thornbill	16
https://biodiversity.org.au/afd/taxa/378bdcd1-f52a-4907-9f71-0541b05437da	Pachycephala (Alisterornis) ru	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Rufous Whistler	15
https://biodiversity.org.au/afd/taxa/3e9c17c9-270f-4a74-9ed8-7ccabd575be9	Calidris (Calidris) tenuirostris	(Horsfield, 1821)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Great Knot	15
https://biodiversity.org.au/afd/taxa/9f9ddea7-8c74-46df-8ed9-3233d681e354	Merops (Merops) ornatus	Latham, 1801	species	Animalia	Chordata	Aves	Coraciiformes	Meropidae	Rainbow Bee-eater	15
https://biodiversity.org.au/afd/taxa/abeb5bf8-d03e-4b33-a1ea-bcfc0695102c	Actitis hypoleucos	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Common Sandpiper	15
https://biodiversity.org.au/afd/taxa/146f01aa-333f-4744-a8a2-f90a8e9c6050	Hellula hydralis	GuenÃ©e, 1854	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Grass Moth	14
https://biodiversity.org.au/afd/taxa/1988c921-43bd-4390-b441-8abc4b26b477	Hypotaenidia philippensis	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Buff-banded Rail	14
https://biodiversity.org.au/afd/taxa/2869ce8a-8212-46c2-8327-dfb7fabb8296	Vulpes vulpes	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Carnivora	Canidae	Fox	14
https://biodiversity.org.au/afd/taxa/984bf7f3-3089-4e55-b494-a285eda21b1d	Motacilla (Budytes) tschutsch	Gmelin, 1789	species	Animalia	Chordata	Aves	Passeriformes	Motacillidae	Eastern Yellow Wagtail	14
https://biodiversity.org.au/afd/taxa/c7708066-26fa-4e15-bfbf-edc2daa74311	Onthophagus ferox	Harold, 1867	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	Western Dung Beetle	14
https://biodiversity.org.au/afd/taxa/241dd5c6-1235-4eb9-b3d5-a44af6b0d444	Anas (Anas) superciliosa	Gmelin, 1789	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Pacific Black Duck	13
https://biodiversity.org.au/afd/taxa/5fed5ecf-2199-4f64-a9f7-90b39f88a90a	Barnardius zonarius	(Shaw, 1805)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Australian Ringneck	13
https://biodiversity.org.au/afd/taxa/776d2191-cb80-4f57-bf13-6c7cedaf393c	Ctenotus fallens	Storr, 1974	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	West-coast Laterite Ctenotus	13
https://biodiversity.org.au/afd/taxa/8fd1977b-9edf-4ddf-b6cf-24a09db4d18c	Egretta novaehollandiae	(Latham, 1790)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	White-faced Heron	13
https://biodiversity.org.au/afd/taxa/ae8ff359-0981-4618-86a8-e64fb63b7adc	Himantopus himantopus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Recurvirostridae	Black-winged Stilt	13
https://biodiversity.org.au/afd/taxa/e848916c-5f2d-43ef-8cba-8e32a9034377	Cygnus atratus	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Black Swan	13
https://id.biodiversity.org.au/node/apni/2913234	Banksia attenuata	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Coast Banksia	13
https://biodiversity.org.au/afd/taxa/6b28c275-9642-4741-a910-5463b5159f0a	Malurus (Leggeornis) lambert	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Variegated Fairy-wren	12
https://biodiversity.org.au/afd/taxa/e6ea1087-ce34-4cf8-be85-546a9d732965	Calidris (Erolia) ferruginea	(Pontoppidan, 1763)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Curlew Sandpiper	12
https://biodiversity.org.au/afd/taxa/f4143ec3-f075-4993-b381-c51ba4a5261d	Tiliqua rugosa	(Gray, 1825)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Bobtail	12
https://id.biodiversity.org.au/taxon/apni/51302262	Calothamnus quadrifidus	R.Br.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Common Net Bush	12
https://biodiversity.org.au/afd/taxa/29472c00-22e3-42c3-b562-107bd28d1bdc	Phalacrocorax (Phalacrocorax	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Great Cormorant	11
https://biodiversity.org.au/afd/taxa/7da6fd6f-c180-4e68-b9e7-70d02e6f8448	Phaps (Phaps) chalcoptera	(Latham, 1790)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Common Bronzewing	11
https://biodiversity.org.au/afd/taxa/96db6160-ca14-4e1f-9236-e2baaca553da	Anas (Nettion) gracilis	Buller, 1869	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Grey Teal	11
https://biodiversity.org.au/afd/taxa/c568921e-f800-4a6e-b88c-6d409def1e20	Circus approximans	Peale, 1848	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Swamp Harrier	11
https://biodiversity.org.au/afd/taxa/fa5b6a0d-4d1a-451f-abfe-a8729f4a63bb	Onthophagus flavoapicalis	Lea, 1923	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae		11
https://biodiversity.org.au/afd/taxa/75e90438-cf36-403e-9223-a7d4737b1fd1	Gerygone fusca	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Western Gerygone	10
https://biodiversity.org.au/afd/taxa/860b09d7-4a10-4c38-9680-414ce6a4d7c9	Dasypodia selenophora	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Granny Moth	10
https://biodiversity.org.au/afd/taxa/ae73762e-4e62-447a-b719-351fbed443b4	Pseudonaja affinis	GÃ¼nther, 1872	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Dugite	10
https://biodiversity.org.au/afd/taxa/f5f5ddd8-ae6a-431b-9e08-3e992b12fa64	Threskiornis moluccus	(Cuvier, 1829)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Australian White Ibis	10
https://id.biodiversity.org.au/name/algae/20006603	Carpopeltis phyllophora	(Hook.f. & Harv.) F.Schmit	species	Plantae	Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae		10
https://id.biodiversity.org.au/node/apni/2914068	Leucopogon polymorphus	Sond.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		10
https://biodiversity.org.au/afd/taxa/0242155c-714e-4f53-b973-333aab1343fb	Acanthorhynchus superciliosu	Gould, 1837	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Western Spinebill	9
https://biodiversity.org.au/afd/taxa/31113d80-ed4f-4bb0-9a65-48080e4c6dd1	Haliastur sphenurus	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Whistling Kite	9
https://biodiversity.org.au/afd/taxa/37931a91-5737-4b9a-a225-d231c2b3b8ad	Hippotion celerio	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Sphingidae	Grapevine Hawk Moth	9
https://biodiversity.org.au/afd/taxa/cb748125-0c06-4649-8ed8-e379e81e53c1	Tachybaptus novaehollandiae	(Stephens, 1826)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Australasian Grebe	9
https://biodiversity.org.au/afd/taxa/eea30fa3-4f1d-4c20-97da-261d0ba22388	Stigmodera roei	Saunders, 1868	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae		9
https://biodiversity.org.au/afd/taxa/f452242f-5a35-4d5d-a141-7e2dfb9f176b	Calidris (Erolia) acuminata	(Horsfield, 1821)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Sharp-tailed Sandpiper	9
https://id.biodiversity.org.au/node/apni/2897960	Banksia menziesii	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Firewood Banksia	9
https://id.biodiversity.org.au/node/apni/2908333	Pelargonium capitatum	(L.) L'HÃ©r.	species	Plantae	Charophyta	Equisetopsida	Geraniales	Geraniaceae	Rose-scented Pelargonium	9
https://biodiversity.org.au/afd/taxa/0ae10404-5252-4f3f-8e7d-8365118762fc	Hippotion scrofa	(Boisduval, 1832)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Sphingidae	Scrofa Hawk Moth	8
https://biodiversity.org.au/afd/taxa/2309b703-d925-400d-8d5b-7e42087bb519	Polistes (Polistes) dominulus	(Christ, 1791)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae		8
https://biodiversity.org.au/afd/taxa/41eceed5-d2c1-4fab-a77b-6893fbeac172	Liopholis multiscutata	(Mitchell & Behrndt, 1949	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Southern Sand-skink	8
https://biodiversity.org.au/afd/taxa/b4c2ec8d-918d-4fb4-8ef9-f6d5d3bbceda	Poodytes gramineus	(Gould, 1845)	species	Animalia	Chordata	Aves	Passeriformes	Locustellidae	Little Grassbird	8
https://id.biodiversity.org.au/node/apni/2888637	Malva preissiana	Miq.	species	Plantae	Charophyta	Equisetopsida	Malvales	Malvaceae	Australian Hollyhock	8

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2893109	Acacia lasiocarpa	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		8
https://id.biodiversity.org.au/node/apni/2909574	Spinifex longifolius	R.Br.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Spinifex	8
https://id.biodiversity.org.au/node/apni/2915917	Melaleuca systena	Craven	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Coastal Honeymyrtle	8
https://id.biodiversity.org.au/taxon/apni/51782500	Scholtzia laciniata	Rye	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Ragged-leaved Scholtzia	8
https://biodiversity.org.au/afd/taxa/136f317c-6e44-41d6-95b7-5b9615d9fa48	Puffinus (Puffinus) huttoni	Mathews, 1912	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Hutton's Shearwater	7
https://biodiversity.org.au/afd/taxa/408ee81c-6558-4ddf-b732-f9ad7d09f1ae	Cacomantis (Vidgenia) flabelli	(Latham, 1801)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Fan-tailed Cuckoo	7
https://biodiversity.org.au/afd/taxa/41866e61-2ad2-4126-ad4f-09e49d5d7c98	Spirula spirula	(Linnaeus, 1758)	species	Animalia	Mollusca	Cephalopoda	Spirulida	Spirulidae	Ram's Horn Squid	7
https://biodiversity.org.au/afd/taxa/4437371b-3040-47a3-bbe7-21b2811df894	Heleioporus eyrei	(Gray, 1845)	species	Animalia	Chordata	Amphibia	Anura	Limnodynastidae	Moaning Frog	7
https://biodiversity.org.au/afd/taxa/557a6fbb-a074-49e3-aa45-75d2214ec686	Eublemma cochylioides	(GuenÃ©e, 1852)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Eublemma Moth	7
https://biodiversity.org.au/afd/taxa/9b2b68b4-3c09-4a15-ab0b-8258609d2802	Helicoverpa punctigera	(Wallengren, 1860)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Native Budworm	7
https://biodiversity.org.au/afd/taxa/c3b8c63a-ec41-4159-bbf5-2e1478bdedbf	Eudesmeola lawsoni	(R. Felder & Rogenhofer, 1	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Owlet Moth	7
https://biodiversity.org.au/afd/taxa/c95af018-43ab-43b8-8e14-037604db64f6	Epthianura (Epthianura) albifr	(Jardine & Selby, 1828)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	White-fronted Chat	7
https://biodiversity.org.au/afd/taxa/d3bf2b8a-e178-4adb-9c5e-bef63c34e032	Spilopelia chinensis	(Scopoli, 1786)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Spotted Turtle-dove	7
https://biodiversity.org.au/afd/taxa/db8a3a39-1d47-4840-a77c-4ced27a2ad26	Ardenna carneipes	(Gould, 1844)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Flesh-footed Shearwater	7
https://biodiversity.org.au/afd/taxa/f0a6a2c3-adad-4c57-9cae-17956131ecf0	Gliciphila melanops	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Tawny-crowned Honeyeater	7
https://id.biodiversity.org.au/name/algae/20007906	Cryptonemia kallymenioides	(Harv.) Kraft	species	Plantae	Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae		7
https://id.biodiversity.org.au/node/apni/2893977	Scaevola crassifolia	Labill.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Cushion Fanflower	7
https://biodiversity.org.au/afd/taxa/1fc76c4d-4830-4129-9b86-1c7e944c3c50	Dacelo (Dacelo) novaeguineae	(Hermann, 1783)	species	Animalia	Chordata	Aves	Coraciiformes	Alcedinidae	Laughing Kookaburra	6
https://biodiversity.org.au/afd/taxa/2a11ad06-7fdc-475b-b2f2-b97d4cb03b12	Cincloramphus (Maclennania)	Iredale, 1911	species	Animalia	Chordata	Aves	Passeriformes	Locustellidae	Rufous Songlark	6
https://biodiversity.org.au/afd/taxa/4d1a1c82-624c-4ee9-bea2-b46592ba67e2	Pieris rapae	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pieridae	Cabbage White Butterfly	6
https://biodiversity.org.au/afd/taxa/6e3fec97-1557-422e-873b-6108bc887363	Asterodiscides culcitulus	Rowe, 1977	species	Animalia	Echinodermata	Asteroidea	Valvatida	Asterodiscididae		6
https://biodiversity.org.au/afd/taxa/7e3049e3-994e-43cd-901d-19a72f580da7	Pygopus lepidopodus	(LacÃ©pÃ¨de, 1804)	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Common Scaly-foot	6
https://biodiversity.org.au/afd/taxa/923371a0-ebcc-40b4-88a8-ccc3611d6058	Ctenophorus adelaidensis	(Gray, 1841)	species	Animalia	Chordata	Reptilia	Squamata	Agamidae	Western Heath Dragon	6
https://biodiversity.org.au/afd/taxa/a24015eb-20be-4457-aa1e-a5f037399520	Menetia greyii	Gray, 1845	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Common Dwarf Skink	6
https://biodiversity.org.au/afd/taxa/ab8a8b97-90dc-4c83-be78-b0af065685a1	Coryphistes ruricola	(Burmeister, 1838)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Bark-mimicking Grasshopper	6
https://biodiversity.org.au/afd/taxa/d3c64768-84a0-47c1-bc6a-244b25160b4e	Hiatula biradiata	(Wood, 1815)	species	Animalia	Mollusca	Bivalvia	Cardiida	Psammobiidae	Double-rayed Sunset Clam	6
https://biodiversity.org.au/afd/taxa/d6156ed3-bda2-42d6-a948-07d94c7e6559	Chalcites basalis	(Horsfield, 1821)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Horsfield's Bronze-cuckoo	6
https://biodiversity.org.au/afd/taxa/dedad286-f71b-4ec6-9a36-5a409fd8bdd9	Cheilodactylus gibbosus	Richardson, 1841	species	Animalia	Chordata	Actinopterygii	Perciformes	Cheilodactylidae	Magpie Morwong	6
https://id.biodiversity.org.au/name/algae/20006855	Echinothamnion hystrix	(Hook.f. & Harv.) Kylin	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		6
https://id.biodiversity.org.au/node/apni/2891077	Hakea trifurcata	(Sm.) R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Two-leaf Hakea	6
https://id.biodiversity.org.au/node/apni/2900921	Anigozanthos manglesii	D.Don	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae	Red And Green Kangaroo Paw	6
https://id.biodiversity.org.au/node/apni/2900959	Eucalyptus todtiana	F.Muell.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Blackbutt	6
https://id.biodiversity.org.au/node/apni/2904465	Corynotheca micrantha	(Lindl.) Druce	species	Plantae	Charophyta	Equisetopsida	Asparagales	Hemerocallidaceae	Sand Lily	6
https://id.biodiversity.org.au/node/apni/2905615	Thryptomene sp. Lancelin (M.	WA Herbarium	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		6
https://id.biodiversity.org.au/node/apni/6285445	Conostylis candicans	Endl.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae	Grey Cottonhead	6
https://id.biodiversity.org.au/taxon/apni/51290390	Eucalyptus decipiens	Endl.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Redheart	6
https://id.biodiversity.org.au/taxon/apni/51435902	Daviesia divaricata	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Marno	6
https://id.biodiversity.org.au/taxon/apni/51445303	Banksia sessilis	(Knight) A.R.Mast & K.R.Th	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		6
https://biodiversity.org.au/afd/taxa/19ffae5f-7932-4e2d-a5da-64cec277a986	Campanile symbolicum	Iredale, 1917	species	Animalia	Mollusca	Gastropoda	Cerithimorpha	Campanilidae	Lighthouse Tower	5
https://biodiversity.org.au/afd/taxa/27776ea5-caf8-431d-94ba-3f1cf47dbbc4	Cochlicella acuta	(MÃ¼ller, 1774)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Hygromiidae	Pointed Snail	5
https://biodiversity.org.au/afd/taxa/34b31e86-7ade-4cba-960f-82a6ae586206	Cacatua (Licmetis) sanguinea	Gould, 1843	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Little Corella	5
https://biodiversity.org.au/afd/taxa/3dd39f84-1293-4c04-ac87-2474f5c887b0	Platalea (Platibis) flavipes	Gould, 1838	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Yellow-billed Spoonbill	5
https://biodiversity.org.au/afd/taxa/43adf129-76b1-4e81-9593-cd4f5ac7c829	Spoladea recurvalis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae		5
https://biodiversity.org.au/afd/taxa/47d95364-b88a-4c96-ab12-9a6156dff253	Pachydissus boops	Blackburn, 1890	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae		5
https://biodiversity.org.au/afd/taxa/4a09f770-d091-44f9-a0bd-024c57ff3410	Septifer bilocularis	(Linnaeus, 1758)	species	Animalia	Mollusca	Bivalvia	Mytilida	Mytilidae	Deck Mussel	5
https://biodiversity.org.au/afd/taxa/4dfe64e2-a213-45c3-b585-cfcd690451ec	Trichoglossus moluccanus	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Rainbow Lorikeet	5
https://biodiversity.org.au/afd/taxa/4e6ad5a8-407a-4ea5-a1f2-2dc86718772d	Hermerius prionoides	(Thomson, 1864)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae		5
https://biodiversity.org.au/afd/taxa/51fc7dd2-6f30-46a3-b770-3d62febba1e4	Ardices glatignyi	(Le Guillou, 1841)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae		5
https://biodiversity.org.au/afd/taxa/59fbdf78-251a-48f0-ae86-45e8f19fe03f	Lialis burtonis	Gray, 1835	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Burton's Snake-lizard	5
https://biodiversity.org.au/afd/taxa/5c8d40fc-8a8e-493f-9a45-e35170ec2a29	Donuca spectabilis	Walker, 1865	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	White-spotted Owl Moth	5
https://biodiversity.org.au/afd/taxa/66cf9e86-f1f3-4716-a4d3-cd4650ff087a	Tringa (Heteroscelus) brevipe	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Grey-tailed Tattler	5
https://biodiversity.org.au/afd/taxa/750ecb26-0f50-42da-803e-869438a58986	Calamanthus campestris	(Gould, 1841)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Rufous Fieldwren	5
https://biodiversity.org.au/afd/taxa/7fe94085-6f8f-4e5e-a11a-5a346f2ef215	Velella velella	(Linnaeus, 1758)	species	Animalia	Cnidaria	Hydrozoa	Anthoathecata	Porpitidae	By-the-wind Sailor	5
https://biodiversity.org.au/afd/taxa/8f5648f5-7bb2-4c36-affb-88087b88b47d	Trichonephila edulis	(LabillardiÃ¨re, 1799)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Australian Golden Orb-weaving Sp	5
https://biodiversity.org.au/afd/taxa/9aeef589-2845-4876-a57b-b62fcbc49275	Charadrius (Charadrius) lesch	Lesson, 1826	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Greater Sand Plover	5
https://biodiversity.org.au/afd/taxa/b47a4ecd-416b-458c-886a-1dc3490e8175	Hieraaetus (Hieraaetus) morp	(Gould, 1841)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Little Eagle	5
https://biodiversity.org.au/afd/taxa/b703adb3-b9f4-42d8-b122-640d794fa1b4	Montipora mollis	Bernard, 1897	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Acroporidae		5
https://biodiversity.org.au/afd/taxa/bdf18035-665d-47a1-bb8b-789aaf62223e	Spatula rhynchotis	Latham, 1801	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Australasian Shoveler	5
https://biodiversity.org.au/afd/taxa/cf8e02dd-2a6e-41dc-b14b-0e446444250a	Ardea pacifica	Latham, 1801	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	White-necked Heron	5
https://biodiversity.org.au/afd/taxa/dc2918a1-3d48-4628-b156-cf38c14c6c97	Faveria tritalis	(Walker, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Couchgrass Webworm Moth	5
https://biodiversity.org.au/afd/taxa/f8c17219-cc6e-4527-8252-38f6319e49df	Paragoniastrea australensis	(Milne Edwards, 1857)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae		5
https://biodiversity.org.au/afd/taxa/fbb5820c-a1de-4ca0-8a20-149e5346089c	Junonia villida	(Fabricius, 1787)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Meadow Argus	5
https://biodiversity.org.au/afd/taxa/fe772d84-8028-44b8-8530-c30a9112157e	Charadrius (Charadrius) mong	Pallas, 1776	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Lesser Sand Plover	5
https://id.biodiversity.org.au/node/apni/2895330	Diplolaena obovata	Paul G.Wilson	species	Plantae	Charophyta	Equisetopsida	Sapindales	Rutaceae		5
https://id.biodiversity.org.au/node/apni/2899137	Crassula glomerata	P.J.Bergius	species	Plantae	Charophyta	Equisetopsida	Saxifragales	Crassulaceae	Clustered Crassula	5

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2900107	Thinopyrum distichum	(Thunb.) Ã¤LÃ¶ve	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Sea Wheatgrass	5
https://id.biodiversity.org.au/node/apni/2901148	Clematis linearifolia	Steud.	species	Plantae	Charophyta	Equisetopsida	Ranunculales	Ranunculaceae	Slender Clematis	5
https://id.biodiversity.org.au/node/apni/2909307	Acacia truncata	(Burm.f.) Hoffmanns.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		5
https://id.biodiversity.org.au/node/apni/2911746	Tetragonia decumbens	Mill.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Aizoaceae	Sea Spinach	5
https://id.biodiversity.org.au/node/apni/2915386	Bossiaea eriocarpa	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Common Brown Pea	5
https://id.biodiversity.org.au/taxon/apni/51267241	Arctotheca calendula	(L.) K.Lewin	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Cape Weed	5
https://id.biodiversity.org.au/taxon/apni/51298304	Hibbertia hypericoides	(DC.) Benth.	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae	Yellow Buttercups	5
https://biodiversity.org.au/afd/taxa/0463bccc-1d30-4a55-a123-2ad999488207	Pogona minor	(Sternfeld, 1919)	species	Animalia	Chordata	Reptilia	Squamata	Agamidae	Dwarf Bearded Dragon	4
https://biodiversity.org.au/afd/taxa/0fe747fc-ef6f-4f30-bace-35a6c3dbc480	Lepas (Anatifa) anatifera	Linnaeus, 1758	species	Animalia	Arthropoda	Thecostraca	Lepadiformes	Lepadidae		4
https://biodiversity.org.au/afd/taxa/18d4c48a-5500-4c6f-b3ac-997231a7ad86	Cnidoglanis macrocephalus	(Valenciennes, 1840)	species	Animalia	Chordata	Actinopterygii	Siluriformes	Plotosidae	Estuary Cobbler	4
https://biodiversity.org.au/afd/taxa/1bbdac96-e49a-433e-8408-babd0097106e	Taylorilygus apicalis	(Fieber, 1861)	species	Animalia	Arthropoda	Insecta	Hemiptera	Miridae	Brokenbacked Bug	4
https://biodiversity.org.au/afd/taxa/2c1d4325-4919-4d58-a34c-bb5591ee136e	Chrysodeixis argentifera	(GuenÃ©e, 1852)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Tobacco Looper Moth	4
https://biodiversity.org.au/afd/taxa/344640c6-459d-4ef9-9fc2-5bc36742aea0	Limnodynastes dorsalis	(Gray, 1841)	species	Animalia	Chordata	Amphibia	Anura	Limnodynastidae	Western Banjo Frog	4
https://biodiversity.org.au/afd/taxa/47aa4970-ce03-49b4-9828-8aa4c100c234	Lepas (Anatifa) pectinata	Spengler, 1793	species	Animalia	Arthropoda	Thecostraca	Lepadiformes	Lepadidae		4
https://biodiversity.org.au/afd/taxa/4e988e93-69fe-4a42-98b7-146bfc68fa9d	Austracantha minax	(Thorell, 1859)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Jewel Spider	4
https://biodiversity.org.au/afd/taxa/53e2d734-5e33-44c2-92f7-edf444377380	Biziura lobata	(Shaw, 1796)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Musk Duck	4
https://biodiversity.org.au/afd/taxa/57f6f8e6-6dce-40cc-86d5-92cb34f4ea47	Orthodera ministralis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Mantodea	Mantidae	Green Mantid	4
https://biodiversity.org.au/afd/taxa/5d034eb8-9c3d-40d3-9104-ea2709202666d	Anilios australis	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Typhlopidae	Southern Blind Snake	4
https://biodiversity.org.au/afd/taxa/5f44995b-559b-4dea-a30d-e3f2adf17f8c	Chlidonias (Pelodes) hybrida	(Pallas, 1811)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Whiskered Tern	4
https://biodiversity.org.au/afd/taxa/66d78b1b-0f02-4f34-9e8b-89393ebef3a8	Epinephelides armatus	(Castelnau, 1875)	species	Animalia	Chordata	Actinopterygii	Perciformes	Serranidae	Breaksea Cod	4
https://biodiversity.org.au/afd/taxa/67c79028-2915-45d1-aa6a-6fddd299675f	Physalia physalis	(Linnaeus, 1758)	species	Animalia	Cnidaria	Hydrozoa	Siphonophorae	Physaliidae		4
https://biodiversity.org.au/afd/taxa/6ce6319d-dede-470b-ad47-fcd6bd4693bf	Coris auricularis	(Valenciennes, 1839)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Western King Wrasse	4
https://biodiversity.org.au/afd/taxa/712da1d8-b090-442e-9b88-232d0af8817c	Morelia imbricata	(Smith, 1981)	species	Animalia	Chordata	Reptilia	Squamata	Pythonidae		4
https://biodiversity.org.au/afd/taxa/8e0ed4ec-db4e-4533-bd50-82c01165248d	Delma fraseri	Gray, 1831	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Fraser's Delma	4
https://biodiversity.org.au/afd/taxa/99e4518d-7877-46c8-a809-7e4e4d5bad81	Chalcites lucidus	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Shining Bronze-cuckoo	4
https://biodiversity.org.au/afd/taxa/a0089279-59da-4b0d-8fbb-c2f829eee715	Danaus plexippus	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Monarch	4
https://biodiversity.org.au/afd/taxa/a244509e-6a8c-4011-a26a-cbfecb625e7e	Seriola hippos	GÃ¼nther, 1876	species	Animalia	Chordata	Actinopterygii	Perciformes	Carangidae	Samsonfishes	4
https://biodiversity.org.au/afd/taxa/a3ca5b05-cece-483b-a3a8-e90b019aed77	Nacaduba biocellata	(C. & R. Felder, 1865)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Two-spotted Line-blue	4
https://biodiversity.org.au/afd/taxa/a45e2c01-7ebb-478f-8c03-ae0ee0306876	Cassythaphaga macarta	(Turner, 1919)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	4
https://biodiversity.org.au/afd/taxa/b0017049-e751-4a36-af4c-652fb6334891	Aythya (Nyroca) australis	(Eyton, 1838)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Hardhead	4
https://biodiversity.org.au/afd/taxa/b08066a5-f8e0-4882-bdb7-e010ced49a91	Ochrogaster lunifer	Herrich-SchÃ¤ffer, [1855]	species	Animalia	Arthropoda	Insecta	Lepidoptera	Notodontidae	Processionary Caterpillar	4
https://biodiversity.org.au/afd/taxa/bb65efb8-6c82-4c63-aafa-854308f4a158	Calamanthus montanellus	Milligan, 1903	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Western Fieldwren	4
https://biodiversity.org.au/afd/taxa/bbd6c97b-3ed8-4d6b-931f-ab6344b295f3	Sceliodes cordalis	(Doubleday, 1843)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Eggfruit Caterpillar	4
https://biodiversity.org.au/afd/taxa/bc165f53-184b-4531-8754-f82328676445	Cormocephalus aurantiipes	(Newport, 1844)	species	Animalia	Arthropoda	Chilopoda	Scolopendromorpha	Scolopendridae	Orange-footed Centipede	4
https://biodiversity.org.au/afd/taxa/d470af0d-c131-48f7-961d-a55686e6a185	Accipiter (Leucospiza) fasciatu	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Brown Goshawk	4
https://biodiversity.org.au/afd/taxa/d792ddc0-bdc2-4764-ab9c-ea9e43cd586e	Tringa (Glottis) nebularia	(Gunnerus, 1767)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Common Greenshank	4
https://biodiversity.org.au/afd/taxa/da100481-e4a7-4d6e-8535-89a748cf52ad	Plegadis falcinellus	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Glossy Ibis	4
https://biodiversity.org.au/afd/taxa/e13810dd-42ad-4be1-9712-f86b98e2753d	Alpheus parasocialis	Banner & Banner, 1982	species	Animalia	Arthropoda	Malacostraca	Decapoda	Alpheidae		4
https://biodiversity.org.au/afd/taxa/e2b8086f-fb5a-41ac-9003-d9aed827dfe3	Calidris (Calidris) canutus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Red Knot	4
https://biodiversity.org.au/afd/taxa/e7c413a8-7310-4f8f-be7c-69dc558f224f	Agrotis infusa	(Boisduval, 1832)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Bogong Moth	4
https://biodiversity.org.au/afd/taxa/ed0f66c5-c2b3-4a41-a5fe-f0d4a8e2073b	Lerista lineopunctulata	(DumÃ©ril & Bibron, 183	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Dotted-line Robust Slider	4
https://biodiversity.org.au/afd/taxa/ee11c40d-c084-4b8a-95bb-1bdd98729526	Neelaps calonotos	(DumÃ©ril, Bibron & Dum	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Western Black-striped Snake	4
https://biodiversity.org.au/afd/taxa/f12a0b8b-8ea2-4b85-b1cf-436a7d7b5308	Tetralycosa oraria	(L. Koch, 1876)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Wolf Spider	4
https://biodiversity.org.au/afd/taxa/f29f01e6-0bfe-4621-b068-42dac6c758dc	Petrochelidon (Petrochelidon	(Gould, 1842)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Fairy Martin	4
https://biodiversity.org.au/afd/taxa/fb435306-1f8a-4eb1-bb0e-d8d45d06c326	Aracana aurita	(Shaw, 1798)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Aracanidae	Shaw's Cowfish	4
https://biodiversity.org.au/afd/taxa/fc6053da-0825-4ba6-ac56-40997ffa6c30	Theba pisana	(MÃ¼ller, 1774)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Helicidae	White Italian Snail	4
https://id.biodiversity.org.au/name/algae/20006540	Macrothamnion pellucidum	(Harv.) E.M.Woll.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Ceramiaceae		4
https://id.biodiversity.org.au/name/algae/20009447	Carpopeltis decipiens	(Harv.) De Toni	species	Plantae	Rhodophyta	Florideophyceae	Halymeniales	Halymeniaceae		4
https://id.biodiversity.org.au/name/algae/20012216	Mychodea carnosa	Hook.f. & Harv.	species	Plantae	Rhodophyta	Florideophyceae	Gigartinales	Mychodeaceae		4
https://id.biodiversity.org.au/node/apni/2886989	Eucalyptus petrensis	Brooker & Hopper	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Limestone Mallee	4
https://id.biodiversity.org.au/node/apni/2898093	Tersonia cyathiflora	(Fenzl) A.S.George ex J.W.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Gyrostemonaceae	Button Creeper	4
https://id.biodiversity.org.au/node/apni/2900424	Oenothera drummondii	Hook.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Onagraceae	Beach Evening Primrose	4
https://id.biodiversity.org.au/node/apni/2900587	Spyridium globulosum	(Labill.) Benth.	species	Plantae	Charophyta	Equisetopsida	Rosales	Rhamnaceae	Basket Bush	4
https://id.biodiversity.org.au/node/apni/2900904	Leucopogon sp. Yanchep (M.I	WA Herbarium	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		4
https://id.biodiversity.org.au/node/apni/2917276	Isotoma hypocrateriformis	(R.Br.) Druce	species	Plantae	Charophyta	Equisetopsida	Asterales	Campanulaceae	Woodbridge Poison	4
https://id.biodiversity.org.au/node/apni/2918736	Hybanthus calycinus	(DC.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Malpighiales	Violaceae	Wild Violet	4
https://id.biodiversity.org.au/node/apni/6291414	Conostylis pauciflora	Hopper	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae		4
https://id.biodiversity.org.au/taxon/apni/51439731	Eremaea asterocarpa	Hnatiuk	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		4
https://id.biodiversity.org.au/taxon/apni/51737849	Trachyandra divaricata	(Jacq.) Kunth	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asphodelaceae	Dune Onion Weed	4
NZOR-6-109022	Puccinia graminis	Pers.	species	Fungi	Basidiomycota	Pucciniomycetes	Pucciniales	Pucciniaceae		3
https://biodiversity.org.au/afd/taxa/0b9e5469-97a1-4029-8b58-a3ac55d35ee9	Raveniella cirrata	Rix & Harvey, 2010	species	Animalia	Arthropoda	Arachnida	Araneae	Anapidae		3
https://biodiversity.org.au/afd/taxa/14788511-79d1-4d4b-8ed9-8d4e7e3aa193	Pataeta carbo	(GuenÃ©e, 1852)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Euteliidae	Owlet Moth	3
https://biodiversity.org.au/afd/taxa/181526f5-0da4-4234-8423-db3e04502026	Sillago bassensis	Cuvier, 1829	species	Animalia	Chordata	Actinopterygii	Perciformes	Sillaginidae	School Whitings	3
https://biodiversity.org.au/afd/taxa/1ccb4588-587b-4e14-aad9-3a64c4246b4f	Cleora displicata	(Walker, 1860)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		3
https://biodiversity.org.au/afd/taxa/26906cbf-4a07-49ba-8152-0554428d3ae5	Castiarina laena	(Thomson, 1879)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae		3

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/275a159d-b467-46fa-a09e-82e989a95ef2	Egernia kingii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	King's Skink	3
https://biodiversity.org.au/afd/taxa/32560de5-2ed6-4d52-ab2e-55d534a727d5	Othos dentex	(Cuvier, 1828)	species	Animalia	Chordata	Actinopterygii	Perciformes	Serranidae	Harlequin Fish	3
https://biodiversity.org.au/afd/taxa/33b4eadf-6abf-4e46-a960-2989775e3739	Meuschenia hippocrepis	(Quoy & Gaimard, 1824)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Horseshoe Leatherjacket	3
https://biodiversity.org.au/afd/taxa/379707ff-f88a-4814-bef7-df412f3bd731	Apricia jovialis	(L. Koch, 1879)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Jovial Jumping Spider	3
https://biodiversity.org.au/afd/taxa/4b7b9c4a-1b60-4a43-ab70-b57bfc790138	Acanthiza (Geobasileus) inorn	Gould, 1841	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Western Thornbill	3
https://biodiversity.org.au/afd/taxa/5526c312-451f-4c90-a69e-088b55be6956	Pluvialis fulva	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Pacific Golden Plover	3
https://biodiversity.org.au/afd/taxa/562a5c6b-51e8-457e-9b5d-c921af5e18ed	Tarsipes rostratus	Gervais & Verreaux, 1842	species	Animalia	Chordata	Mammalia	Diprotodontia	Tarsipedidae	Honey Possum	3
https://biodiversity.org.au/afd/taxa/59b7c7f5-1d07-4ab0-90ef-9be0885de1dd	Anthochaera (Anellobia) lunu	Gould, 1838	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Western Wattlebird	3
https://biodiversity.org.au/afd/taxa/5d5e23a5-83f7-4d55-9972-3b86629f39e4	Utetheisa pulchelloides	Hampson, 1907	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Crimson Spotted Moth	3
https://biodiversity.org.au/afd/taxa/67ecbf3c-43c3-4b9c-b23c-bd6d4a0419c6	Synoicus ypsilophora	(Bosc, 1792)	species	Animalia	Chordata	Aves	Galliformes	Phasianidae	Brown Quail	3
https://biodiversity.org.au/afd/taxa/692cec3b-c558-487e-a59a-eb10be0e4dc6	Maratus pavonis	(Dunn, 1947)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Species Of Peacock Spider	3
https://biodiversity.org.au/afd/taxa/6c33bbf4-9f47-4d92-a4f3-4a485ba1ccae	Uresiphita ornithopteralis	(GuenÃ©e, 1854)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Tree Lucerne Moth	3
https://biodiversity.org.au/afd/taxa/6fba36f1-8b08-4b8f-a347-23fff8acac0a	Acanthistius serratus	(Cuvier, 1828)	species	Animalia	Chordata	Actinopterygii	Perciformes	Serranidae	Western Wirrah	3
https://biodiversity.org.au/afd/taxa/73f0f49f-1f1a-4249-8875-4f55c2d33dd1	Crypsiphona ocultaria	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Redlined Geometrid Moth	3
https://biodiversity.org.au/afd/taxa/7523ac41-fa17-493c-a4e1-8480cedce3c0	Mesoplodon grayi	Von Haast, 1876	species	Animalia	Chordata	Mammalia	Artiodactyla	Ziphiidae	Gray's Beaked Whale	3
https://biodiversity.org.au/afd/taxa/761341b9-d920-4304-98f6-60f7aab335a2	Hippodamia variegata	(Goeze, 1777)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Spotted Amber Ladybird	3
https://biodiversity.org.au/afd/taxa/76a62ae3-13c5-4a83-b8e0-a20903aacc8a	Pseudocaranx dentex	(Bloch & Schneider, 1801)	species	Animalia	Chordata	Actinopterygii	Perciformes	Carangidae	Silver Trevally	3
https://biodiversity.org.au/afd/taxa/808f7f5b-f6cd-4677-848a-49315e7babe3	Calyptorhynchus (Calyptorhyr	(Latham, 1790)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Red-tailed Black Cockatoo	3
https://biodiversity.org.au/afd/taxa/81222560-da0b-4040-b15a-daf934eb6abb	Leucania diatrecta	Butler, 1886	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Dark-barred Wainscot	3
https://biodiversity.org.au/afd/taxa/86fb93fd-4551-4b38-9a12-62b6b433729b	Tyto javanica	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Strigiformes	Tytonidae	Eastern Barn Owl	3
https://biodiversity.org.au/afd/taxa/8926de83-7932-40a5-b69c-85ae18784c21	Morethia obscura	Storr, 1972	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Shrubland Morethia Skink	3
https://biodiversity.org.au/afd/taxa/8b3d0b87-0d08-4de7-8312-d7d63de6ca43	Hecatesia thyridion	Feisthamel, 1839	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Southern Whistling Moth	3
https://biodiversity.org.au/afd/taxa/8ea37b6c-eab4-4044-8db9-92f8a14ba87a	Haliotis elegans	Koch in Philippi, 1844	species	Animalia	Mollusca	Gastropoda		Haliotidae	Elegant Ear Shell	3
https://biodiversity.org.au/afd/taxa/8ee701f5-8f09-4b90-afcb-83bdb7c7b259	Distoleon bistrigatus	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Neuroptera	Myrmeleontidae	Antlion Lacewing	3
https://biodiversity.org.au/afd/taxa/937321bc-e7fd-42bc-9e9f-9ec609ab0a7c	Janthina janthina	(Linnaeus, 1758)	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Epitoniidae	Common Violet Sea Snail	3
https://biodiversity.org.au/afd/taxa/96ae9d55-7039-41e3-9382-c7b5891c1767	Maroga melanostigma	(Wallengren, 1861)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Yloryctidae	Fruit Stem Borer Moth	3
https://biodiversity.org.au/afd/taxa/99457e79-e27a-4c16-95fa-29070d3de4fb	Certhionyx (Certhionyx) varie	Lesson, 1830	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Pied Honeyeater	3
https://biodiversity.org.au/afd/taxa/9abc114a-60d6-45a5-bf6c-9bebcfda6680	Helea perforata	(Latreille, 1817)	species	Animalia	Arthropoda	Insecta	Coleoptera	Tenebrionidae		3
https://biodiversity.org.au/afd/taxa/a028012b-0ac0-49bc-9e34-e01f07a0ff2c	Hippocampus tuberculatus	Castelnau, 1875	species	Animalia	Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	Knobby Seahorse	3
https://biodiversity.org.au/afd/taxa/a4b6d29e-5c29-4a4e-a2a1-7018e60b1a1a	Pholcus phalangioides	(Fuesslin, 1775)	species	Animalia	Arthropoda	Arachnida	Araneae	Pholcidae	Cellar Spider	3
https://biodiversity.org.au/afd/taxa/a4ecf6b8-f2c3-48f5-a998-5c1021d63efd	Vanessa kershawi	(McCoy, 1868)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Australian Painted Lady	3
https://biodiversity.org.au/afd/taxa/a5b1896e-ef50-4571-ac94-7c1f1c031049	Calidris (Erolia) melanotos	(Vieillot, 1819)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Pectoral Sandpiper	3
https://biodiversity.org.au/afd/taxa/ab8816d0-2599-4813-a4c7-00d45d0c7ed0	Cacatua (Licmetis) pastinator	(Gould, 1841)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Western Corella	3
https://biodiversity.org.au/afd/taxa/b32a2ec6-315c-48cf-84b3-4898e39f4b57	Sugomel niger	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Black Honeyeater	3
https://biodiversity.org.au/afd/taxa/b3629a6d-7a14-4c4e-8abc-6a3d4909bb29	Monacanthus chinensis	(Osbeck, 1765)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Fanbelly Leatherjacket	3
https://biodiversity.org.au/afd/taxa/bed26c2b-f392-4db5-900e-4fada33f81e7	Maratus speciosus	(O.P.-Cambridge, 1874)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae		3
https://biodiversity.org.au/afd/taxa/c150b8ec-e812-4486-948b-fd5d5a961388	Meranoplus puryi	Forel, 1902	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	3
https://biodiversity.org.au/afd/taxa/c21b2a38-f95b-4d4d-9fa2-4b8cb6aab36d	Sminthopsis crassicaudata	(Gould, 1844)	species	Animalia	Chordata	Mammalia	Dasyuromorphia	Dasyuridae	Fat-tailed Dunnart	3
https://biodiversity.org.au/afd/taxa/c5164995-466b-43e9-9d49-d1fea776df0d	Epinephelus rivulatus	(Valenciennes, 1830)	species	Animalia	Chordata	Actinopterygii	Perciformes	Serranidae	Chinaman Rockcod	3
https://biodiversity.org.au/afd/taxa/d3013f91-5766-45b9-a1fe-ae7d66cc9a44	Ostorhinchus victoriae	(GÃ¼nther, 1859)	species	Animalia	Chordata	Actinopterygii	Perciformes	Apogonidae	Western Striped Cardinalfish	3
https://biodiversity.org.au/afd/taxa/dafe3da9-828c-42cc-a8fe-8d2c6ec6ae72	Panulirus cygnus	George, 1962	species	Animalia	Arthropoda	Malacostraca	Decapoda	Palinuridae	Western Rock Lobster	3
https://biodiversity.org.au/afd/taxa/dd2b4378-045a-473e-8861-b33a80324ffc	Sminthopsis dolichura	Kitchener, Stoddart & Hen	species	Animalia	Chordata	Mammalia	Dasyuromorphia	Dasyuridae	Little Long-tailed Dunnart	3
https://biodiversity.org.au/afd/taxa/df5e00e2-c5cd-4804-a159-55869fe852e7	Turbinaria reniformis	Bernard, 1896	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae		3
https://biodiversity.org.au/afd/taxa/e244f9fc-7a5c-4e6d-8380-7e0797f14afb	Nectria ocellifera	(Lamarck, 1816)	species	Animalia	Echinodermata	Asteroidea	Valvatida	Goniasteridae		3
https://biodiversity.org.au/afd/taxa/e3371fb0-3398-4f59-b71d-e0442f1b11d4	Paraoxypilus tasmaniensis	Saussure, 1870	species	Animalia	Arthropoda	Insecta	Mantodea	Nanaomantidae		3
https://biodiversity.org.au/afd/taxa/e948fd99-7550-4d1b-866a-75666cc61f96	Heteroscenes pallidus	(Latham, 1801)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Pallid Cuckoo	3
https://biodiversity.org.au/afd/taxa/efd4d1dc-9885-44d3-beb1-60ec20e6bda2	Christinus marmoratus	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Gekkonidae	Marbled Gecko	3
https://biodiversity.org.au/afd/taxa/f582a6af-08e0-4b68-9ca2-9b1b48142efa	Neatypus obliquus	Waite, 1905	species	Animalia	Chordata	Actinopterygii	Perciformes	Microcanthidae	Footballer Sweep	3
https://biodiversity.org.au/afd/taxa/f933497e-60d2-4f80-bc5e-08d8b1349c2c	Smicrornis brevirostris	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Weebill	3
https://id.biodiversity.org.au/name/algae/20007569	Plocamium mertensii	(Grev.) Harv.	species	Plantae	Rhodophyta	Florideophyceae	Plocamiales	Plocamiaceae		3
https://id.biodiversity.org.au/name/algae/20008617	Codium harveyi	P.C.Silva	species	Plantae	Chlorophyta	Ulvophyceae	Bryopsidales	Codiaceae	Green Algae	3
https://id.biodiversity.org.au/name/algae/20008647	Dictyomenia sonderi	Harv.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		3
https://id.biodiversity.org.au/name/algae/20008659	Caulerpa obscura	Sond.	species	Plantae	Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	Green Algae	3
https://id.biodiversity.org.au/name/algae/20008675	Cladophora laetevirens	(Dillwyn) KÃ¼tz.	species	Plantae	Chlorophyta	Ulvophyceae	Cladophorales	Cladophoraceae	Green Algae	3
https://id.biodiversity.org.au/name/algae/20008700	Caulerpa cliftonii	Harv.	species	Plantae	Chlorophyta	Ulvophyceae	Bryopsidales	Caulerpaceae	Green Algae	3
https://id.biodiversity.org.au/name/algae/20009097	Codium spinescens	P.C.Silva & Womersley	species	Plantae	Chlorophyta	Ulvophyceae	Bryopsidales	Codiaceae		3
https://id.biodiversity.org.au/name/algae/20009500	Platythalia angustifolia	Sond.	species	Chromista	Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	Brown Algae	3
https://id.biodiversity.org.au/name/algae/20009939	Sporochnus radiciformis	(Turner) C.Agardh	species	Chromista	Ochrophyta	Phaeophyceae	Sporochnales	Sporochnaceae		3
https://id.biodiversity.org.au/name/apni/51731116	Lysimachia loeflingii	F.J.JimÃ©nez & M.Talaver	species	Plantae	Charophyta	Equisetopsida	Ericales	Primulaceae		3
https://id.biodiversity.org.au/node/apni/2888654	Stylidium crossocephalum	F.Muell.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Posy Triggerplant	3
https://id.biodiversity.org.au/node/apni/2889195	Jacksonia sternbergiana	HÃ¼gel ex Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Stinkwood	3
https://id.biodiversity.org.au/node/apni/2889348	Jacksonia calcicola	Chappill	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		3
https://id.biodiversity.org.au/node/apni/2889663	Nuytsia floribunda	(Labill.) R.Br. ex G.Don	species	Plantae	Charophyta	Equisetopsida	Santalales	Loranthaceae	Western Australian Christmas Tree	3
https://id.biodiversity.org.au/node/apni/2890671	Hakea costata	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Ribbed Hakea	3
https://id.biodiversity.org.au/node/apni/2891782	Lechenaultia linarioides	DC.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Yellow Leschenaultia	3

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2891835	Bromus diandrus	Roth	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Great Brome	3
https://id.biodiversity.org.au/node/apni/2896155	Threlkeldia diffusa	R.Br.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Coast Bonefruit	3
https://id.biodiversity.org.au/node/apni/2896447	Tripterococcus brunonis	Endl.	species	Plantae	Charophyta	Equisetopsida	Celastrales	Celastraceae	Winged Stackhousia	3
https://id.biodiversity.org.au/node/apni/2896829	Diplopeltis huegelii	Endl.	species	Plantae	Charophyta	Equisetopsida	Sapindales	Sapindaceae		3
https://id.biodiversity.org.au/node/apni/2896832	Petrophile linearis	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Pixie Mops	3
https://id.biodiversity.org.au/node/apni/2898181	Helianthus annuus	L.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Sunflower	3
https://id.biodiversity.org.au/node/apni/2898676	Exocarpos sparteus	R.Br.	species	Plantae	Charophyta	Equisetopsida	Santalales	Santalaceae	Broombush	3
https://id.biodiversity.org.au/node/apni/2900575	Mesomelaena pseudostygia	(KÃ¼k.) K.L.Wilson	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Semaphore Sedge	3
https://id.biodiversity.org.au/node/apni/2903772	Andersonia lehmanniana	Sond.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		3
https://id.biodiversity.org.au/node/apni/2903932	Atriplex cinerea	Poir.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Coast Saltbush	3
https://id.biodiversity.org.au/node/apni/2904712	Scaevola thesioides	Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Gibbous-fruited Scaevola	3
https://id.biodiversity.org.au/node/apni/2904766	Hemiandra pungens	R.Br.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Lamiaceae	Snakebush	3
https://id.biodiversity.org.au/node/apni/2904981	Myoporum insulare	R.Br.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Scrophulariaceae	Common Boobialla	3
https://id.biodiversity.org.au/node/apni/2905809	Allocasuarina lehmanniana	(Miq.) L.A.S.Johnson	species	Plantae	Charophyta	Equisetopsida	Fagales	Casuarinaceae	Dune Sheoak	3
https://id.biodiversity.org.au/node/apni/2905888	Xanthorrhoea preissii	Endl.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Xanthorrhoeaceae	Grasstree	3
https://id.biodiversity.org.au/node/apni/2910388	Ehrharta villosa	Schult.f.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Pyp Grass	3
https://id.biodiversity.org.au/node/apni/2912157	Brassica tournefortii	Gouan	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Wild Turnip	3
https://id.biodiversity.org.au/node/apni/2912734	Agonis flexuosa	(Willd.) Sweet	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Willow Myrtle	3
https://id.biodiversity.org.au/node/apni/2913364	Melaleuca ciliosa	Turcz.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		3
https://id.biodiversity.org.au/node/apni/2914375	Cryptandra pungens	Steud.	species	Plantae	Charophyta	Equisetopsida	Rosales	Rhamnaceae		3
https://id.biodiversity.org.au/node/apni/2914702	Chamelaucium uncinatum	Schauer	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Geraldton Wax	3
https://id.biodiversity.org.au/node/apni/2914919	Cryptandra mutila	Nees ex Reissek	species	Plantae	Charophyta	Equisetopsida	Rosales	Rhamnaceae		3
https://id.biodiversity.org.au/node/apni/2917792	Senecio pinnatifolius	A.Rich.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Variable Groundsel	3
https://id.biodiversity.org.au/node/apni/2919041	Cakile maritima	Scop.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Sea Rocket	3
https://id.biodiversity.org.au/node/apni/2919582	Hypocalymma xanthopetalum	F.Muell.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Yellow Myrtle	3
https://id.biodiversity.org.au/node/apni/2921305	Synaphea spinulosa	(Burm.f.) Merr.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		3
https://id.biodiversity.org.au/node/apni/5040372	Banksia dallanneyi	A.R.Mast & K.R.Thiele	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		3
https://id.biodiversity.org.au/taxon/apni/51269054	Ursinia anthemoides	(L.) Poir.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Ursinia	3
https://id.biodiversity.org.au/taxon/apni/51287044	Acacia pulchella	R.Br.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Prickly Moses	3
https://id.biodiversity.org.au/taxon/apni/51300007	Cotula cotuloides	(Steetz) Druce	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Smooth Cotula	3
https://id.biodiversity.org.au/taxon/apni/51746034	Olearia rudis	(Benth.) F.Muell. ex Benth	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Azure Daisy-bush	3
https://id.biodiversity.org.au/taxon/apni/51767464	Leucopogon parviflorus	(Andrews) Lindl.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae	Coast Beard-heath	3
https://id.biodiversity.org.au/taxon/apni/51767809	Styphelia propinqua	(R.Br.) Spreng.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		3
https://id.biodiversity.org.au/taxon/apni/51773688	Anigozanthos humilis	Lindl.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae	Common Catspaw	3
https://id.biodiversity.org.au/taxon/apni/51788521	Dianella revoluta	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Hemerocallidaceae	Blueberry Lily	3
ALA_DR31252_1014	Cochlicella barbara		species	Animalia	Mollusca	Gastropoda	Stylommatophora	Hygromiidae	White Snail	2
NZOR-6-134003	Glomus macrocarpum	Tul. & C. Tul.	species	Fungi	Glomeromycota	Glomeromycetes	Glomerales	Glomeraceae		2
https://biodiversity.org.au/afd/taxa/0073ddc0-834d-4f76-bd2f-23d16e9faa26	Leptatherina presbyteroides	(Richardson, 1843)	species	Animalia	Chordata	Actinopterygii	Atheriniformes	Atherinidae	Silver Fish	2
https://biodiversity.org.au/afd/taxa/0213b048-c2da-42b4-af8f-2de602098edc	Demansia reticulata	(Gray, 1842)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Yellow-faced Whipsnake	2
https://biodiversity.org.au/afd/taxa/0218a77b-77c4-4c3e-ac84-c1f2ddb26753	Lissopimpla excelsa	(Costa, 1864)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Ichneumonidae	Dusky Winged Ichneumonid (orchi	2
https://biodiversity.org.au/afd/taxa/0a444981-cf13-484c-81b5-9313d5851c4e	Mus musculus	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Rodentia	Muridae	House Mouse	2
https://biodiversity.org.au/afd/taxa/0ac76f40-ec67-461a-aac7-2e68eb12f2e0	Cristiceps aurantiacus	Castelnau, 1879	species	Animalia	Chordata	Actinopterygii	Perciformes	Clinidae	Yellow Crested Weedfish	2
https://biodiversity.org.au/afd/taxa/0bfe24f2-463c-44a1-bd80-2b2615b9a74d	Spodoptera mauritia	(Boisduval, 1833)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae		2
https://biodiversity.org.au/afd/taxa/0c1745cb-b0eb-4915-91ce-25333b6278cf	Poecilasthena pulchraria	(Doubleday, 1843)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	2
https://biodiversity.org.au/afd/taxa/1104f29f-1149-4da1-8ab7-a57fdc719484	Upeneichthys lineatus	(Bloch & Schneider, 1801)	species	Animalia	Chordata	Actinopterygii	Perciformes	Mullidae	Bluestriped Goatfish	2
https://biodiversity.org.au/afd/taxa/15b485b9-e327-40d6-b250-a7c05c1e4276	Armadillidium vulgare	(Latreille, 1804)	species	Animalia	Arthropoda	Malacostraca	Isopoda	Armadillidiidae		2
https://biodiversity.org.au/afd/taxa/172b3a36-0ec0-4eb4-8c7d-dbde27b20609	Sutorectus tentaculatus	(Peters, 1864)	species	Animalia	Chordata	Chondrichthyes	Orectolobiformes	Orectolobidae	Cobbler Wobbegong	2
https://biodiversity.org.au/afd/taxa/191b6654-8a45-49b1-a76c-a061ddee7dc9	Archimantis sobrina	Saussure, 1872	species	Animalia	Arthropoda	Insecta	Mantodea	Mantidae	Large Brown Mantid	2
https://biodiversity.org.au/afd/taxa/1943c465-865a-4bd4-90c2-6ea0b49c7f55	Myllita (Myllita) deshayesi	d'Orbigny & RÃ©cluz, 185	species	Animalia	Mollusca	Bivalvia	Cardiida	Lasaeidae	Deshayes' Myllita	2
https://biodiversity.org.au/afd/taxa/1b140f17-8854-4d8b-a131-6fcd431da1ca	Turbinaria frondens	(Dana, 1846)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae		2
https://biodiversity.org.au/afd/taxa/1d8bf3e4-db4a-4e77-b7b8-81fd6ef1a914	Amblychilepas oblonga	(Menke, 1843)	species	Animalia	Mollusca	Gastropoda		Fissurellidae	Oblong Keyhole Limpet	2
https://biodiversity.org.au/afd/taxa/1ed13857-196a-4c6e-9ed3-73c14e17f4a0	Physeema quadricincta	(Walker, 1850)	species	Animalia	Arthropoda	Insecta	Hemiptera	Cicadidae	Tick-tock	2
https://biodiversity.org.au/afd/taxa/1ef94fc5-562e-4e6d-a484-ef98712d838d	Cosmodes elegans	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Green Blotched Moth	2
https://biodiversity.org.au/afd/taxa/20095763-3ab3-4033-9ef9-b9c0cb7a245d	Turbinaria mesenterina	(Lamarck, 1816)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Dendrophylliidae		2
https://biodiversity.org.au/afd/taxa/20bd5a4a-a16c-4108-8f12-55640096b87b	Cirrhimuraena calamus	(GÃ¼nther, 1870)	species	Animalia	Chordata	Actinopterygii	Anguilliformes	Ophichthidae	Fringelip Snake Eel	2
https://biodiversity.org.au/afd/taxa/210e030b-1de3-42e2-96b1-4655a7fa9493	Rhopalorhynchus sibogae	Stock, 1958	species	Animalia	Arthropoda	Pycnogonida	Pantopoda	Colossendeidae		2
https://biodiversity.org.au/afd/taxa/215a0f85-7fb4-422a-950d-82a6daafaeb1	Plectorhinchus flavomaculatu	(Ehrenberg, 1830)	species	Animalia	Chordata	Actinopterygii	Perciformes	Haemulidae	Goldspotted Sweetlips	2
https://biodiversity.org.au/afd/taxa/26fbd164-899c-4e9f-9f7e-40bc1f32233d	Agrotis radians	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Owlet Moth	2
https://biodiversity.org.au/afd/taxa/278785ca-ffc1-41c4-96bb-10a4e65e5955	Rhytidoponera violacea	(Forel, 1907)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		2
https://biodiversity.org.au/afd/taxa/2934fea4-952e-4ebe-bf2b-e47df24bc667	Lerista elegans	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Elegant Slider	2
https://biodiversity.org.au/afd/taxa/29cbe213-85a4-46b7-b373-4c503231f299	Elseyornis melanops	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Black-fronted Dotterel	2
https://biodiversity.org.au/afd/taxa/3084c6ae-1622-4a36-a641-e74832a8a6fd	Eucyclodes buprestaria	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Bordered Emerald	2
https://biodiversity.org.au/afd/taxa/31944e98-202b-4c14-b480-6508740dde58	Chenonetta jubata	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Australian Wood Duck	2
https://biodiversity.org.au/afd/taxa/320aeab1-aead-4b82-a580-8cd3ae99fdef	Artamus (Angroyan) cyanopte	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Dusky Woodswallow	2
https://biodiversity.org.au/afd/taxa/32b587ca-bc16-4e9f-9c25-27d55b2c36bb	Scobinichthys granulatus	(White, 1790)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Rough Leatherjacket	2

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/383daf29-74b1-40b1-9014-51bbf3af8898	Chlidonias (Chlidonias) leucop	(Temminck, 1815)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	White-winged Black Tern	2
https://biodiversity.org.au/afd/taxa/3abc0856-7bd2-4f45-be57-9acef5f8e135	Synalpheus echinus	Banner & Banner, 1975	species	Animalia	Arthropoda	Malacostraca	Decapoda	Alpheidae		2
https://biodiversity.org.au/afd/taxa/46b0789b-9609-4424-8e7f-96b6b39f3b86	Tursiops aduncus	(Ehrenberg, 1832)	species	Animalia	Chordata	Mammalia	Artiodactyla	Delphinidae	Long-beaked Bottle-nosed Dolphin	2
https://biodiversity.org.au/afd/taxa/4769c422-4a86-4c97-b828-4cd8fb3ac969	Apis (Apis) mellifera	Linnaeus, 1758	species	Animalia	Arthropoda	Insecta	Hymenoptera	Apidae	European Honey Bee	2
https://biodiversity.org.au/afd/taxa/49a4c125-3932-49b2-b38c-d2d572ec895f	Tetramorium impressum	(Viehmeyer, 1925)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		2
https://biodiversity.org.au/afd/taxa/4afda0eb-f515-48f7-baf9-75186fbb8b90	Ischnura aurora	(Brauer, 1865)	species	Animalia	Arthropoda	Insecta	Odonata	Coenagrionidae	Aurora Bluetail	2
https://biodiversity.org.au/afd/taxa/4baf8df4-cd92-4246-be95-f1df0f8f3c35	Brachyponera lutea	(Mayr, 1862)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	2
https://biodiversity.org.au/afd/taxa/4edccf45-a069-4269-898e-aa74b2d9b7b1	Chironemus maculosus	(Richardson, 1850)	species	Animalia	Chordata	Actinopterygii	Perciformes	Chironemidae	Silver Spot	2
https://biodiversity.org.au/afd/taxa/4fbd4b05-2035-46d9-b4a3-2a177b1d4f44	Macronectes giganteus	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Southern Giant-petrel	2
https://biodiversity.org.au/afd/taxa/50698a76-7dcd-44e5-92cf-e23cbd2c2590	Hypsidia grisea	Scoble & E.D. Edwards, 19	species	Animalia	Arthropoda	Insecta	Lepidoptera	Drepanidae		2
https://biodiversity.org.au/afd/taxa/516ecacd-ac0e-4ccc-86d7-719cad6e9744	Oenochroma pallida	Warren, 1898	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	2
https://biodiversity.org.au/afd/taxa/5295f399-684a-47b9-95b8-ebc35119e338	Megaptera novaeangliae	(Borowski, 1781)	species	Animalia	Chordata	Mammalia	Artiodactyla	Balaenopteridae	Humpback Whale	2
https://biodiversity.org.au/afd/taxa/56fb1ee1-cbae-4942-9b40-38762c6ccf86	Glaucosoma hebraicum	Richardson, 1845	species	Animalia	Chordata	Actinopterygii	Perciformes	Glaucosomatidae	West Australian Dhufish	2
https://biodiversity.org.au/afd/taxa/584fa6c8-b251-49b8-9948-512a74845e20	Melanozosteria obscura	(Tepper, 1893)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae	Cockroach	2
https://biodiversity.org.au/afd/taxa/59bcb0d8-4caf-4055-831c-b319b12870f5	Acrida conica	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Giant Green Slant-face	2
https://biodiversity.org.au/afd/taxa/5c0d591a-0a98-48c6-8a4b-f925d43521cd	Manorina (Myzantha) flavigul	(Gould, 1840)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Yellow-throated Miner	2
https://biodiversity.org.au/afd/taxa/5ce2f044-8021-44fe-b248-60c5e5289b60	Crocidosema plebejana	Zeller, 1847	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tortricidae	Cotton Tipworm Moth	2
https://biodiversity.org.au/afd/taxa/60b6cd18-3a33-4e28-8615-d4ba1305ca79	Olisthops cyanomelas	Richardson, 1850	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Herring Cale	2
https://biodiversity.org.au/afd/taxa/60fac843-5884-4670-ba20-dd1a4d15e256	Lipaphis pseudobrassicae	(Davis, 1914)	species	Animalia	Arthropoda	Insecta	Hemiptera	Aphididae	Aphid	2
https://biodiversity.org.au/afd/taxa/61af35ee-c6cd-4231-82c8-62c17ab2659b	Pseudorhombus jenynsii	(Bleeker, 1855)	species	Animalia	Chordata	Actinopterygii	Pleuronectiformes	Paralichthyidae	Smalltooth Flounder	2
https://biodiversity.org.au/afd/taxa/62701c63-7e04-40dd-ba91-ccd7f3e7cc44	Austrocypraea reevei	(Sowerby, 1832)	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Cypraeidae	Reeve's Cowry	2
https://biodiversity.org.au/afd/taxa/64671ea8-8e25-455a-8f72-9302877abfc7	Lunella (Ninella) torquata	(Gmelin, 1791)	species	Animalia	Mollusca	Gastropoda		Turbinidae	Rough Turban Shell	2
https://biodiversity.org.au/afd/taxa/658f5d9b-cbf7-4c09-9aec-a87c537ebf95	Pocillopora damicornis	(Linnaeus, 1758)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Pocilloporidae	Cauliflower Coral	2
https://biodiversity.org.au/afd/taxa/68942162-d312-4934-b633-aee95c166e00	Neophoca cinerea	(PÃ©ron, 1816)	species	Animalia	Chordata	Mammalia	Carnivora	Otariidae	Australian Sea-lion	2
https://biodiversity.org.au/afd/taxa/694a8fde-c6b1-4947-bae1-801541614999	Circus assimilis	Jardine & Selby, 1828	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Spotted Harrier	2
https://biodiversity.org.au/afd/taxa/6995f7a1-f7ba-4a9a-8293-b72d85328f6c	Malurus (Leggeornis) pulcher	Gould, 1844	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Blue-breasted Fairy-wren	2
https://biodiversity.org.au/afd/taxa/69f1f2fb-b050-4084-bfce-f79d64e9bf2c	Anoplocapros lenticularis	(Richardson, 1841)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Aracanidae	Whitebarred Boxfish	2
https://biodiversity.org.au/afd/taxa/6a6b2ada-1597-48d8-a4c5-8d8746e3df29	Arripis georgianus	(Valenciennes, 1831)	species	Animalia	Chordata	Actinopterygii	Perciformes	Arripidae	Australian Herring	2
https://biodiversity.org.au/afd/taxa/6bb5723b-54b4-4973-ac74-987c162db7a6	Polyrhachis (Hagiomyrma) ar	Roger, 1863	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		2
https://biodiversity.org.au/afd/taxa/6c11f441-7574-43d8-bd11-d0610436b597	Tiliqua occipitalis	(Peters, 1863)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Western Blue-tongue	2
https://biodiversity.org.au/afd/taxa/6d4276e9-f21d-4944-a2e1-dbe60f24e8fc	Brachyurophis fasciolatus	(GÃ¼nther, 1872)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Narrow-banded Snake	2
https://biodiversity.org.au/afd/taxa/6f0f0293-b957-487b-b367-3faa3d24c0fa	Cincloramphus (Cincloramph	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Locustellidae	Brown Songlark	2
https://biodiversity.org.au/afd/taxa/6f1435ae-6fe0-443f-af2a-6fafaf5896b5	Enoplosus armatus	(White, 1790)	species	Animalia	Chordata	Actinopterygii	Perciformes	Enoplosidae	Old Wife	2
https://biodiversity.org.au/afd/taxa/6fb72e4d-5edb-48a0-888d-242d573aa5ee	Artoriopsis expolita	(L. Koch, 1877)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Wolf Spider	2
https://biodiversity.org.au/afd/taxa/6feb903c-afc2-4ca9-b074-3a11bc17a385	Orcus australasiae	(Boisduval, 1835)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae		2
https://biodiversity.org.au/afd/taxa/72b23d0a-7050-413f-9100-3562d383888e	Gelochelidon nilotica	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Gull-billed Tern	2
https://biodiversity.org.au/afd/taxa/783a9ff6-266d-4b6f-af8f-5f3105c5186d	Echiopsis curta	(Schlegel, 1837)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Bardick	2
https://biodiversity.org.au/afd/taxa/79087de4-ca92-4e44-9fb7-797931d03d74	Granata imbricata	(Lamarck, 1816)	species	Animalia	Mollusca	Gastropoda		Chilodontidae	Wide-mouthed Trochus	2
https://biodiversity.org.au/afd/taxa/7a9c1125-0def-4e2b-8c02-bdd01774769f	Amblyomma triguttatum	Koch, 1844	species	Animalia	Arthropoda	Arachnida	Ixodida	Ixodidae		2
https://biodiversity.org.au/afd/taxa/7de6b16a-f854-4b4b-88cf-81868ce74ad8	Felis catus	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Carnivora	Felidae	Cat	2
https://biodiversity.org.au/afd/taxa/829fffb6-2d2c-4aad-bde5-a886785418e5	Barbatia (Barbatia) pistachia	(Lamarck, 1819)	species	Animalia	Mollusca	Bivalvia	Arcida	Arcidae	Banded Ark	2
https://biodiversity.org.au/afd/taxa/830cb563-ac6c-421f-ae0d-29f38ac460a6	Anachloris uncinata	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	2
https://biodiversity.org.au/afd/taxa/84cc5e15-ae86-4070-bd5b-0765a3140923	Plesanemma fucata	(R. Felder & Rogenhofer, 1	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Lemon Gum Moth	2
https://biodiversity.org.au/afd/taxa/856ed4e8-dbcf-487f-80c8-9c78591d2ff6	Ninox (Ninox) novaeseelandia	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Strigiformes	Strigidae	Southern Boobook	2
https://biodiversity.org.au/afd/taxa/866ba3e1-f853-4643-a97c-3a3f0fe9cf22	Polistes (Polistella) humilis	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Common Paper Wasp	2
https://biodiversity.org.au/afd/taxa/88363a52-63b9-4b2a-81e0-b670cbd4edfc	Rachycentron canadum	(Linnaeus, 1766)	species	Animalia	Chordata	Actinopterygii	Perciformes	Rachycentridae	Cobia	2
https://biodiversity.org.au/afd/taxa/8bf4b8b0-f432-4e9d-8ea6-08fc20c8090c	Daphoenositta (Neositta) chry	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Neosittidae	Varied Sittella	2
https://biodiversity.org.au/afd/taxa/8ce669b4-fb53-4be0-9203-b02444eca02a	Strepera (Neostrepera) versic	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Grey Currawong	2
https://biodiversity.org.au/afd/taxa/8d2570fe-e078-47cb-84d7-a20408785e9c	Pempheris klunzingeri	McCulloch, 1911	species	Animalia	Chordata	Actinopterygii	Perciformes	Pempheridae	Rough Bullseye	2
https://biodiversity.org.au/afd/taxa/8db18894-6024-4b40-bedc-bf42f0322a8b	Torquigener pleurogramma	(Regan, 1903)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Tetraodontidae	Weeping Toadfish	2
https://biodiversity.org.au/afd/taxa/8e989a9c-8b4d-4107-a53a-ee6bcc1b3b4d	Diodon nicthemerus	Cuvier, 1818	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Diodontidae	Globefish	2
https://biodiversity.org.au/afd/taxa/9824ad43-a8bf-4693-8f06-0ae2a99592bf	Calosoma (Australodrepa) sch	Erichson, 1842	species	Animalia	Arthropoda	Insecta	Coleoptera	Carabidae	Green Carab Beetle	2
https://biodiversity.org.au/afd/taxa/9a386f42-e1a0-4109-b295-969d6a6639b8	Hednota bivittella	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae		2
https://biodiversity.org.au/afd/taxa/a3e5376b-f9e6-4bdf-adae-1e7add9f5c29	Petroica (Petroica) boodang	(Lesson, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Petroicidae	Scarlet Robin	2
https://biodiversity.org.au/afd/taxa/a5f6c29d-d361-4447-bcb4-c353597f04ec	Delma grayii	Smith, 1849	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Side-barred Delma	2
https://biodiversity.org.au/afd/taxa/a93dc728-4875-4d3a-9e90-45f1a216004f	Scopula orthoscia	(Meyrick, 1888)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		2
https://biodiversity.org.au/afd/taxa/a996f64b-a02a-4978-a519-d82b6f7ef74c	Trapezites argenteoornatus	(Hewitson, 1868)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hesperiidae	Silver-spotted Skipper	2
https://biodiversity.org.au/afd/taxa/ac1b0a68-5401-4b6c-8324-99726a751eb7	Halichoeres brownfieldi	(Whitley, 1945)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Brownfield's Wrasse	2
https://biodiversity.org.au/afd/taxa/ac48e985-2adb-4c1e-bce9-39906cf6761d	Podalonia tydei	(Le Guillou, 1841)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Sphecidae	Wasp	2
https://biodiversity.org.au/afd/taxa/adbc1c62-faba-453c-9ba9-2183ceb65a5d	Scolia (Discolia) verticalis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Scoliidae	Parasitoid Wasp	2
https://biodiversity.org.au/afd/taxa/af4aa046-93bb-40b9-9114-71bbe1225eb5	Stercorarius parasiticus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Stercorariidae	Arctic Skua	2
https://biodiversity.org.au/afd/taxa/b2139d85-ff99-49b5-bc46-12213eed4701	Agrius convolvuli	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Sphingidae	Convolvulus Hawk Moth	2
https://biodiversity.org.au/afd/taxa/b3b62fd7-cc8c-4e0e-a839-9c9ebfa766fc	Cyphastrea serailia	(ForsskÃ¥l, 1775)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae		2
https://biodiversity.org.au/afd/taxa/b5452e9c-df1c-4b7e-9457-de0b9347f11c	Schuettea woodwardi	(Waite, 1905)	species	Animalia	Chordata	Actinopterygii	Perciformes	Monodactylidae	Western Pomfred	2
https://biodiversity.org.au/afd/taxa/b9185e16-3ebf-469c-bc48-f3a505a21191	Pterois volitans	(Linnaeus, 1758)	species	Animalia	Chordata	Actinopterygii	Scorpaeniformes	Scorpaenidae	Common Lionfish	2

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/b97cb235-4a5c-4033-9922-06837b194de7	Diomedea epomophora	Lesson, 1825	species	Animalia	Chordata	Aves	Procellariiformes	Diomedeidae	Southern Royal Albatross	2
https://biodiversity.org.au/afd/taxa/b9e8f887-d030-4d29-b2b8-d34238b86bc7	Praxis marmarinopa	Meyrick, 1897	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Owlet Moth	2
https://biodiversity.org.au/afd/taxa/bb53b420-0a1f-4a49-9d1e-2a6154c685a8	Fulica atra	Linnaeus, 1758	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Eurasian Coot	2
https://biodiversity.org.au/afd/taxa/bbee3211-df2a-4528-bf51-22f3c2e140dc	Radumeris tasmaniensis	(Saussure, 1854)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Scoliidae	Parasitoid Wasp	2
https://biodiversity.org.au/afd/taxa/bc660aeb-63b2-4bab-9635-badfebca0cba	Phrissogonus laticostata	(Walker, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	2
https://biodiversity.org.au/afd/taxa/bed3678c-fa5d-4c1b-a1b9-06dba9e1a8df	Sabia australis	(Lamarck, 1819)	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Hipponicidae		2
https://biodiversity.org.au/afd/taxa/bee71788-0df3-472e-a692-07823d70ab99	Paraplesiops meleagris	(Peters, 1869)	species	Animalia	Chordata	Actinopterygii	Perciformes	Plesiopidae	Southern Blue Devil	2
https://biodiversity.org.au/afd/taxa/c306e3f1-03aa-435d-bac7-551c9c7d1e46	Delena cancerides	Walckenaer, 1837	species	Animalia	Arthropoda	Arachnida	Araneae	Sparassidae	Flat Huntsman Spider	2
https://biodiversity.org.au/afd/taxa/c4a3996d-ff4e-4fd9-a553-0004947845d3	Aphis (Aphis) craccivora	Koch, 1854	species	Animalia	Arthropoda	Insecta	Hemiptera	Aphididae	Cowpea Aphid	2
https://biodiversity.org.au/afd/taxa/c58044c9-a6e2-4065-ba08-3384f545fb21	Microcerotermes distinctus	Silvestri, 1909	species	Animalia	Arthropoda	Insecta	Blattodea	Termitidae	Termite	2
https://biodiversity.org.au/afd/taxa/c6356c0c-b68f-4fe7-874f-2ab234477dfb	Nyctophilus geoffroyi	Leach, 1821	species	Animalia	Chordata	Mammalia	Chiroptera	Vespertilionidae	Lesser Long-eared Bat	2
https://biodiversity.org.au/afd/taxa/c98b99d9-10d1-4380-8523-88636581f72b	Cleora injectaria	(Walker, 1860)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		2
https://biodiversity.org.au/afd/taxa/cba04911-f257-4d78-bf6a-b86283b3da6a	Favites pentagonus	(Esper, 1794)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae		2
https://biodiversity.org.au/afd/taxa/cbef5be9-829a-4691-9de4-125356441b1f	Calidris (Ereunetes) subminut	(Middendorff, 1851)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Long-toed Stint	2
https://biodiversity.org.au/afd/taxa/cd0c9315-063c-4a3d-b907-5499c92d2aec	Lotella rhacina	(Forster, 1801)	species	Animalia	Chordata	Actinopterygii	Gadiformes	Moridae	Largetooth Beardie	2
https://biodiversity.org.au/afd/taxa/cf768a7f-5d89-4632-947b-76013a6b5a38	Allenichthys glauerti	(Whitley, 1944)	species	Animalia	Chordata	Actinopterygii	Lophiiformes	Antennariidae	Glauert's Anglerfish	2
https://biodiversity.org.au/afd/taxa/d45bcfd6-4e07-4357-98fb-f37ab8142b53	Venator immansueta	(Simon, 1909)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae		2
https://biodiversity.org.au/afd/taxa/d93419c5-0a6c-4415-8d21-5bd4da5d7e07	Notolabrus parilus	(Richardson, 1850)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Brownspotted Wrasse	2
https://biodiversity.org.au/afd/taxa/dab59918-20dc-4f1d-8083-2862114704b0	Cryptocheilus australis	(GuÃ©rin-MÃ©neville, 18	species	Animalia	Arthropoda	Insecta	Hymenoptera	Pompilidae		2
https://biodiversity.org.au/afd/taxa/dadb5f0f-b010-4894-ae2a-2ead57a6cef9	Porpita porpita	(Linnaeus, 1758)	species	Animalia	Cnidaria	Hydrozoa	Anthoathecata	Porpitidae	Blue Button	2
https://biodiversity.org.au/afd/taxa/de9dfa24-4a97-49bf-bbeb-8c39c38e56e5	Rhantus suturalis	(W.S. Macleay, 1825)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dytiscidae	Diving Beetle	2
https://biodiversity.org.au/afd/taxa/dec8c88f-7f20-4f30-b2af-c75d09fb066c	Nycticorax caledonicus	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Nankeen Night-heron	2
https://biodiversity.org.au/afd/taxa/e2b6aed6-2f82-4b7c-9966-5ef2f9190bee	Apus (Apus) pacificus	(Latham, 1801)	species	Animalia	Chordata	Aves	Apodiformes	Apodidae	Fork-tailed Swift	2
https://biodiversity.org.au/afd/taxa/e3a7e793-3724-4f8e-b785-a250983e93d9	Scaevius milii	(Bory de Saint-Vincent, 18	species	Animalia	Chordata	Actinopterygii	Perciformes	Nemipteridae	Coral Monocle Bream	2
https://biodiversity.org.au/afd/taxa/e427115f-dc9d-4c32-bd07-131b9ab64300	Oreoica gutturalis	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Oreoicidae	Crested Bellbird	2
https://biodiversity.org.au/afd/taxa/e743bccc-258c-424f-b019-f9255803efe4	Pelsartia humeralis	(Ogilby, 1899)	species	Animalia	Chordata	Actinopterygii	Perciformes	Terapontidae	Sea Trumpeter	2
https://biodiversity.org.au/afd/taxa/ed591036-06d9-46a3-840f-414b993a4a04	Malacorhynchus membranace	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Pink-eared Duck	2
https://biodiversity.org.au/afd/taxa/f07022ba-4ae5-459f-8ecd-3189bbbf899d	Lepas (Anatifa) anserifera	Linnaeus, 1767	species	Animalia	Arthropoda	Thecostraca	Lepadiformes	Lepadidae		2
https://biodiversity.org.au/afd/taxa/f0e4af08-d082-475a-93ff-e3f06d5a87e4	Myrsellus unicolor	(Hope, 1842)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae		2
https://biodiversity.org.au/afd/taxa/f33e7d4a-f872-4f6a-98d3-8e6a043f5974	Dichromodes anelictis	Meyrick, 1890	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	2
https://biodiversity.org.au/afd/taxa/f702c1be-b5db-4ae2-abd1-b07e014f6bcc	Centroberyx gerrardi	(GÃ¼nther, 1887)	species	Animalia	Chordata	Actinopterygii	Beryciformes	Berycidae	Bight Redfish	2
https://biodiversity.org.au/afd/taxa/fb49f62e-bd4f-4731-9a22-e5460896096c	Myzus (Nectarosiphon) persic	(Sulzer, 1776)	species	Animalia	Arthropoda	Insecta	Hemiptera	Aphididae	Green Peach Aphid	2
https://biodiversity.org.au/afd/taxa/fc178034-76bc-42af-8568-85829390e039	Myrmecia urens	Lowne, 1865	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Baby Bull Ant	2
https://biodiversity.org.au/afd/taxa/fc316c82-9b14-43c6-8c6b-37f83a7dadc7	Plesiastrea versipora	(Lamarck, 1816)	species	Animalia	Cnidaria	Anthozoa	Scleractinia		Small Knob Coral	2
https://biodiversity.org.au/afd/taxa/fd574753-16ef-45e3-8131-25e899239a80	Parma mcculloch	Whitley, 1929	species	Animalia	Chordata	Actinopterygii	Perciformes	Pomacentridae	Mcculloch's Scalyfin	2
https://biodiversity.org.au/afd/taxa/ff1ea01a-0cf2-4acf-935c-d322ecd6c4b9	Physalia utriculus	(La MartiniÃ©rÃ©, 1787)	species	Animalia	Cnidaria	Hydrozoa	Siphonophorae	Physaliidae		2
https://id.biodiversity.org.au/name/algae/20006574	Dasyclonium flaccidum	(Harv.) Kylin	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		2
https://id.biodiversity.org.au/name/algae/20008323	Heterosiphonia muelleri	(Sond.) De Toni	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Delesseriaceae		2
https://id.biodiversity.org.au/name/algae/20008560	Osmundaria prolifera	J.V.Lamour.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		2
https://id.biodiversity.org.au/name/algae/20008898	Protokuetzingia australasica	(Mont.) Falkenb.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		2
https://id.biodiversity.org.au/name/algae/20008993	Lobospira bicuspidata	Aresch.	species	Chromista	Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae	Brown Algae	2
https://id.biodiversity.org.au/name/algae/20009552	Dictyota paniculata	J.Agardh	species	Chromista	Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae		2
https://id.biodiversity.org.au/name/algae/20009711	Cystophora grevillei	(Sond.) J.Agardh	species	Chromista	Ochrophyta	Phaeophyceae	Fucales	Sargassaceae	Brown Algae	2
https://id.biodiversity.org.au/name/lichen/30016710	Buellia georgei	Trinkaus, H.Mayrhofer & E	species	Fungi	Ascomycota	Lecanoromycetes	Teloschistales	Physciaceae		2
https://id.biodiversity.org.au/node/apni/2886251	Petrophile axillaris	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		2
https://id.biodiversity.org.au/node/apni/2886690	Acacia rostellifera	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Summer-scented Wattle	2
https://id.biodiversity.org.au/node/apni/2887657	Stylidium maritimum	Lowrie, D.J.Coates & Kenn	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Coastal Triggerplant	2
https://id.biodiversity.org.au/node/apni/2888190	Acacia cyclops	A.Cunn. ex G.Don	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Western Coastal Wattle	2
https://id.biodiversity.org.au/node/apni/2888982	Conostephium preissii	Sond.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		2
https://id.biodiversity.org.au/node/apni/2889040	Wahlenbergia capensis	(L.) A.DC.	species	Plantae	Charophyta	Equisetopsida	Asterales	Campanulaceae	Cape Bluebell	2
https://id.biodiversity.org.au/node/apni/2889330	Podotheca gnaphalioides	Graham	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Golden Long-heads	2
https://id.biodiversity.org.au/node/apni/2891336	Triglochin trichophora	Nees	species	Plantae	Charophyta	Equisetopsida	Alismatales	Juncaginaceae	Torpedo Arrowgrass	2
https://id.biodiversity.org.au/node/apni/2891374	Melaleuca lanceolata	Otto	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Dryland Tea-tree	2
https://id.biodiversity.org.au/node/apni/2891611	Ptilotus stirlingii	(Lindl.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Amaranthaceae		2
https://id.biodiversity.org.au/node/apni/2891615	Haemodorum laxum	R.Br.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae	Bloodroot	2
https://id.biodiversity.org.au/node/apni/2891726	Desmocladus asper	(Nees) B.G.Briggs & L.A.S.	species	Plantae	Charophyta	Equisetopsida	Poales	Restionaceae		2
https://id.biodiversity.org.au/node/apni/2892855	Rytidosperma occidentale	(Vickery) Connor & Edgar	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Western Wallaby Grass	2
https://id.biodiversity.org.au/node/apni/2893218	Allocasuarina humilis	(Otto & A.Dietr.) L.A.S.Joh	species	Plantae	Charophyta	Equisetopsida	Fagales	Casuarinaceae	Dwarf Sheoak	2
https://id.biodiversity.org.au/node/apni/2893288	Phyllanthus calycinus	Labill.	species	Plantae	Charophyta	Equisetopsida	Malpighiales	Phyllanthaceae	False Boronia	2
https://id.biodiversity.org.au/node/apni/2893312	Conospermum stoechadis	Endl.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Common Smokebush	2
https://id.biodiversity.org.au/node/apni/2893781	Triglochin striata	Ruiz & Pav.	species	Plantae	Charophyta	Equisetopsida	Alismatales	Juncaginaceae	Streaked Arrowgrass	2
https://id.biodiversity.org.au/node/apni/2895364	Scaevola repens	de Vriese	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae		2
https://id.biodiversity.org.au/node/apni/2895772	Sonchus oleraceus	L.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Common Sow-thistle	2
https://id.biodiversity.org.au/node/apni/2896043	Banksia grandis	Willd.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Giant Banksia	2
https://id.biodiversity.org.au/node/apni/2896053	Atriplex isatidea	Moq.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Coastal Saltbush	2

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2896952	Templetonia retusa	(Vent.) R.Br.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Cockies Tongue	2
https://id.biodiversity.org.au/node/apni/2897215	Conostylis bracteata	Lindl.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae		2
https://id.biodiversity.org.au/node/apni/2898371	Calytrix strigosa	A.Cunn.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		2
https://id.biodiversity.org.au/node/apni/2898563	Petrophile serruriae	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		2
https://id.biodiversity.org.au/node/apni/2900679	Thysanotus triandrus	(Labill.) R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Three-stamened Fringe Lily	2
https://id.biodiversity.org.au/node/apni/2900733	Hakea ruscifolia	Labill.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Candle Hakea	2
https://id.biodiversity.org.au/node/apni/2903083	Orobanche minor	Sm.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Orobanchaceae	Lesser Broomrape	2
https://id.biodiversity.org.au/node/apni/2903998	Halophila ovalis	(R.Br.) Hook.f.	species	Plantae	Charophyta	Equisetopsida	Alismatales	Hydrocharitaceae	Halophila	2
https://id.biodiversity.org.au/node/apni/2904684	Anthocercis ilicifolia	Hook.	species	Plantae	Charophyta	Equisetopsida	Solanales	Solanaceae	Holly-leaf Tailflower	2
https://id.biodiversity.org.au/node/apni/2906911	Euphorbia paralias	L.	species	Plantae	Charophyta	Equisetopsida	Malpighiales	Euphorbiaceae	Sea Spurge	2
https://id.biodiversity.org.au/node/apni/2908367	Lepidobolus chaetocephalus	F.Muell. ex Benth.	species	Plantae	Charophyta	Equisetopsida	Poales	Restionaceae		2
https://id.biodiversity.org.au/node/apni/2908453	Lepidium foliosum	Desv.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Leafy Peppercress	2
https://id.biodiversity.org.au/node/apni/2909747	Ficinia nodosa	(Rottb.) Goetgh., Muasya	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Knobby Club-rush	2
https://id.biodiversity.org.au/node/apni/2911349	Brachyscome bellidioides	Steetz	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae		2
https://id.biodiversity.org.au/node/apni/2912118	Thysanotus arenarius	Brittan	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Sand-dune Fringed Lily	2
https://id.biodiversity.org.au/node/apni/2912367	Hardenbergia comptoniana	(Andrews) Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Western Australian Coral-pea	2
https://id.biodiversity.org.au/node/apni/2913238	Gompholobium shuttleworthi	Meisn.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		2
https://id.biodiversity.org.au/node/apni/2913396	Rhagodia baccata	(Labill.) Moq.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Berry Saltbush	2
https://id.biodiversity.org.au/node/apni/2914410	Dischisma arenarium	E.Mey.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Scrophulariaceae	Sand Dichisma	2
https://id.biodiversity.org.au/node/apni/2915741	Stylidium adpressum	Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Trigger-on-stilits	2
https://id.biodiversity.org.au/node/apni/2915842	Leptospermum spinescens	Endl.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		2
https://id.biodiversity.org.au/node/apni/2917124	Stylidium cygnorum	W.Fitzg.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae		2
https://id.biodiversity.org.au/node/apni/2917995	Lagurus ovatus	L.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Hare's Tail Grass	2
https://id.biodiversity.org.au/node/apni/2918187	Asteridea pulverulenta	Lindl.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Common Bristle Daisy	2
https://id.biodiversity.org.au/node/apni/2920067	Sporobolus virginicus	(L.) Kunth	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Salt Couch	2
https://id.biodiversity.org.au/taxon/apni/51288787	Babingtonia urbana	Rye	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Coastal Plain Babingtonia	2
https://id.biodiversity.org.au/taxon/apni/51289286	Calothamnus sanguineus	Labill.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Silky-leaved Bloodflower	2
https://id.biodiversity.org.au/taxon/apni/51294367	Stylidium hesperium	Wege	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Western Reed Triggerplant	2
https://id.biodiversity.org.au/taxon/apni/51294849	Petrophile macrostachya	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		2
https://id.biodiversity.org.au/taxon/apni/51299833	Anthocercis littorea	Labill.	species	Plantae	Charophyta	Equisetopsida	Solanales	Solanaceae	Yellow Tailflower	2
https://id.biodiversity.org.au/taxon/apni/51302276	Eremaea pauciflora	(Endl.) Druce	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		2
https://id.biodiversity.org.au/taxon/apni/51311443	Roepera fruticulosa	(DC.) G.Don	species	Plantae	Charophyta	Equisetopsida	Zygophyllales	Zygophyllaceae		2
https://id.biodiversity.org.au/taxon/apni/51434933	Hibbertia huegelii	(Endl.) F.Muell.	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae		2
https://id.biodiversity.org.au/taxon/apni/51434961	Hibbertia striata	(Steud.) K.R.Thiele	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae		2
https://id.biodiversity.org.au/taxon/apni/51440932	Caladenia flava	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Orchidaceae	Cowslip Orchid	2
https://id.biodiversity.org.au/taxon/apni/51445553	Petrophile brevifolia	Lindl.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		2
https://id.biodiversity.org.au/taxon/apni/51763770	Hibbertia leptotheca	(J.R.Wheeler) K.R.Thiele	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae		2
https://id.biodiversity.org.au/taxon/apni/51767591	Styphelia conostephioides	(DC.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		2
https://id.biodiversity.org.au/taxon/apni/51767928	Styphelia tortifolia	Hislop, Crayn & Puente-Le	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		2
NZOR-6-130500	Alternaria dauci	(J.G. KÃ¼hn) J.W. Groves	species	Fungi	Ascomycota	Dothideomycetes	Pleosporales	Pleosporaceae		1
https://biodiversity.org.au/afd/taxa/00fadc7a-ad3e-403c-86c0-06cf3ac98dc0	Oxycanus occidentalis	Tindale, 1935	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hepialidae	Ghost Moth	1
https://biodiversity.org.au/afd/taxa/01ae1229-c9cc-4b7c-aa97-91145f91d23d	Egernia napoleonis	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	South-western Crevice-skink	1
https://biodiversity.org.au/afd/taxa/022c9bd5-af27-4c47-a16f-918d497c1a3b	Physalia megalista	PÃ©ron & Lesueur, 1807	species	Animalia	Cnidaria	Hydrozoa	Siphonophorae	Physaliidae		1
https://biodiversity.org.au/afd/taxa/02725816-5d59-41e1-aa00-f7cc41cd66dc	Accipiter (Paraspizias) cirroce	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Collared Sparrowhawk	1
https://biodiversity.org.au/afd/taxa/028a2e58-5ade-4486-bc95-273b4ad3f943	Latrodectus hasseltii	Thorell, 1870	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Redback Spider	1
https://biodiversity.org.au/afd/taxa/03282ece-e33d-4147-a841-dd9f0896e319	Sidymella trapezia	(L. Koch, 1874)	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Trapezium Crab Spider	1
https://biodiversity.org.au/afd/taxa/0399af32-436a-4e8b-aa51-88bb2d71b362	Sphyraena obtusata	Cuvier, 1829	species	Animalia	Chordata	Actinopterygii	Perciformes	Sphyraenidae	Striped Barracuda	1
https://biodiversity.org.au/afd/taxa/057e154b-1a6a-440e-b5ca-efa92224a7b7	Pseudonaja mengdeni	Wells & Wellington, 1985	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Gwardar	1
https://biodiversity.org.au/afd/taxa/05afc6f0-6cf3-43d9-ba2e-ef66e9b232cc	Kyphosus sydneyanus	(GÃ¼nther, 1886)	species	Animalia	Chordata	Actinopterygii	Perciformes	Kyphosidae	Silver Drummer	1
https://biodiversity.org.au/afd/taxa/0720761f-f848-4254-8695-b37405bc5228	Creontiades dilutus	(StÃ¥l, 1859)	species	Animalia	Arthropoda	Insecta	Hemiptera	Miridae	Green Mirid	1
https://biodiversity.org.au/afd/taxa/08cbafe5-0033-4aed-947a-37b5df238578	Eupetrichthys angustipes	Ramsay & Ogilby, 1888	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Snakeskin Wrasse	1
https://biodiversity.org.au/afd/taxa/0912cc30-3cf9-4272-8f80-ff3aef31d94c	Dichromodes orthotis	Meyrick, 1890	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		1
https://biodiversity.org.au/afd/taxa/09d59f0a-e8fe-465c-9db3-13efc6a8e31c	Numenius (Phaeopus) phaeo	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Whimbrel	1
https://biodiversity.org.au/afd/taxa/0aa9653f-00c7-42b9-896b-f399103703b8	Siganus fuscescens	(Houttuyn, 1782)	species	Animalia	Chordata	Actinopterygii	Perciformes	Siganidae	Black Rabbitfish	1
https://biodiversity.org.au/afd/taxa/0cf341b5-95b6-4064-90c2-63e345fd366c	Trichonyssus praedo	(Domrow, 1971)	species	Animalia	Arthropoda	Arachnida	Mesostigmata	Macronyssidae		1
https://biodiversity.org.au/afd/taxa/0d4c9c0c-51d3-44e0-a365-fe0f8b791c66	Tachyglossus aculeatus	(Shaw, 1792)	species	Animalia	Chordata	Mammalia	Monotremata	Tachyglossidae	Short-beaked Echidna	1
https://biodiversity.org.au/afd/taxa/0f5df411-17dd-4719-91de-158fb1a77b27	Cracticus nigrogularis	(Gould, 1837)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Pied Butcherbird	1
https://biodiversity.org.au/afd/taxa/0fa7937f-8452-4c0d-bb08-b9308f97680b	Ocirrhoe unimaculata	(Westwood, 1837)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Shield Bug	1
https://biodiversity.org.au/afd/taxa/10225969-809f-475b-b89b-7300f29a202d	Metaballus frontalis	(Walker, 1869)	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae		1
https://biodiversity.org.au/afd/taxa/107f39b8-0ecf-4c58-b908-7b818e639a91	Kawanaphila nartee	Rentz, 1993	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae		1
https://biodiversity.org.au/afd/taxa/10dbd908-00f3-4ec2-9a9c-a2fd4782eaf1	Petroica (Petroica) goodenovi	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Petroicidae	Red-capped Robin	1
https://biodiversity.org.au/afd/taxa/1288a458-1631-40e5-837d-fd286679f866	Cladorhynchus leucocephalus	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Charadriiformes	Recurvirostridae	Banded Stilt	1
https://biodiversity.org.au/afd/taxa/136094fe-ee95-439a-8695-da0b5a26fa1f	Hypothalassia acerba	Koh & Ng, 2000	species	Animalia	Arthropoda	Malacostraca	Decapoda	Hypothalassidae	Champagne Crab	1
https://biodiversity.org.au/afd/taxa/140080d1-cb9c-4e80-9b8c-8e084ed413e2	Epthianura (Parepthianura) tr	Gould, 1841	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Crimson Chat	1
https://biodiversity.org.au/afd/taxa/143cc9f0-bc3c-45b7-8e1c-21fbe9319bba	Ardea alba	Linnaeus, 1758	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Great Egret	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/148ef74e-aec8-4327-9f3a-a2ea819fb957	Pilacmonotus sabulosus	(Walker, 1853)	species	Animalia	Arthropoda	Insecta	Neuroptera	Ascalaphidae		1
https://biodiversity.org.au/afd/taxa/14ce2af6-42fb-4daa-9b06-61fb8a1016bd	Thyreus waroonensis	(Cockerell, 1913)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Apidae	Cuckoo Bee	1
https://biodiversity.org.au/afd/taxa/15e4bd4f-ea76-45fb-b9a3-ae7eec1486ac	Platycoris brunneus	(McDonald, 1995)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae		1
https://biodiversity.org.au/afd/taxa/164e6c84-309c-493d-b0cb-95d769114579	Phyllacanthus irregularis	Mortensen, 1928	species	Animalia	Echinodermata	Echinoidea	Cidaroida	Cidaridae	Sea Urchin	1
https://biodiversity.org.au/afd/taxa/168bdf56-c117-45e0-84d3-d0615e3ef1fb	Pristipomoides sieboldii	(Bleeker, 1857)	species	Animalia	Chordata	Actinopterygii	Perciformes	Lutjanidae	Lavender Snapper	1
https://biodiversity.org.au/afd/taxa/177fbe63-4e52-4dd1-9f05-cf64ab8c48c8	Calidris pugnax	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Ruff	1
https://biodiversity.org.au/afd/taxa/184b6687-2d58-4ff2-b0fd-93f462f65333	Syllitus grammicus	(Newman, 1840)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae	Slenderlined Longicorn	1
https://biodiversity.org.au/afd/taxa/18ce1fc8-3045-4136-8a45-f5c94d2ef96f	Acanthopagrus butcheri	(Munro, 1949)	species	Animalia	Chordata	Actinopterygii	Perciformes	Sparidae	Black Bream	1
https://biodiversity.org.au/afd/taxa/1a111a77-6c03-4360-a647-989630e23748	Orectolobus hutchinsi	Last, Chidlow & Compagn	species	Animalia	Chordata	Chondrichthyes	Orectolobiformes	Orectolobidae	Western Wobbegong	1
https://biodiversity.org.au/afd/taxa/1a937eed-9df9-40c1-8216-5e471d31769a	Strahlaxius waroona	(Poore & Griffin, 1979)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Strahlaxiidae		1
https://biodiversity.org.au/afd/taxa/1c18163b-6331-455d-b4bc-871d96fbed1b	Austrohoplochaetella imparic	(Michaelsen, 1907)	species	Animalia	Annelida	Clitellata	Crassiclitellata	Megascolecidae		1
https://biodiversity.org.au/afd/taxa/1c2d7a95-2a1d-4d07-85db-2830568b76f1	Ogyris otanes	(C. & R. Felder, 1865)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Small Bronze Azure	1
https://biodiversity.org.au/afd/taxa/1c7b0d74-7be5-48fd-9761-d6b48b44a439	Suta nigriceps	(GÃ¼nther, 1863)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Mitchell's Short-tailed Snake	1
https://biodiversity.org.au/afd/taxa/1ccfe664-6ef9-4e3d-8036-fabca77fdb9b	Myrmecia swalei	Crawley, 1922	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/1d6ad2ac-5383-4748-9037-ff765ae2d4e0	Belenois java	(Linnaeus, 1768)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pieridae	Caper White	1
https://biodiversity.org.au/afd/taxa/1d9586b2-7f45-4f88-82c9-b5b87723647a	Meuschenia flavolineata	Hutchins, 1977	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Yellowstriped Leatherjacket	1
https://biodiversity.org.au/afd/taxa/1f34628c-fe64-46b1-87d9-404aefc07ee8	Lagocephalus sceleratus	(Gmelin, 1789)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Tetraodontidae	Silver Toadfish	1
https://biodiversity.org.au/afd/taxa/203f63d3-7518-4477-93fc-3f7d7dce2fcc	Delma concinna	Kluge, 1974	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Javelin Lizard	1
https://biodiversity.org.au/afd/taxa/213224c9-aac5-49aa-9e2c-f794837ac2dc	Argyrodes antipodianus	O.P.-Cambridge, 1880	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Dew Drop Spider	1
https://biodiversity.org.au/afd/taxa/21a14417-0c31-47b6-aa6e-13d97689a561	Choerodon rubescens	(GÃ¼nther, 1862)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Baldchin Groper	1
https://biodiversity.org.au/afd/taxa/23b6a220-5ce4-472d-949a-54e2d64f3d5c	Steatoda grossa	(C.L. Koch, 1838)	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Tangle-web Spider	1
https://biodiversity.org.au/afd/taxa/24720777-9533-49d3-928e-7894f8a5329a	Gymnothorax woodwardi	McCulloch, 1912	species	Animalia	Chordata	Actinopterygii	Anguilliformes	Muraenidae	Woodward's Moray	1
https://biodiversity.org.au/afd/taxa/2563d4b5-b692-48c6-8dc1-1d4ea37049a4	Heteronychus arator	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	African Black Beetle	1
https://biodiversity.org.au/afd/taxa/258b9425-4ba3-49ef-8baf-1c64fb382a63	Antennatus nummifer	(Cuvier, 1817)	species	Animalia	Chordata	Actinopterygii	Lophiiformes	Antennariidae	Spotfin Anglerfish	1
https://biodiversity.org.au/afd/taxa/26c234cf-9d6c-4be6-8ef3-8f5b055addb2	Hemisaga denticulata	(White, 1841)	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae		1
https://biodiversity.org.au/afd/taxa/27e6f86e-849b-4b65-954c-174b2d8e2b6b	Hypoplectrodes nigroruber	(Cuvier, 1828)	species	Animalia	Chordata	Actinopterygii	Perciformes	Serranidae	Banded Seaperch	1
https://biodiversity.org.au/afd/taxa/281b78ed-41dc-4838-80e5-b53037044b52	Haptosquilla stoliura	(MÃ¼ller, 1887)	species	Animalia	Arthropoda	Malacostraca	Stomatopoda	Protosquillidae		1
https://biodiversity.org.au/afd/taxa/281f7ba5-be51-4f08-abe3-8c3f6f8656ba	Pantydia sparsa	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/28def46c-e324-47e3-a078-50759b6c8b9b	Nesidiocoris tenuis	(Reuter, 1895)	species	Animalia	Arthropoda	Insecta	Hemiptera	Miridae	Tomato Mirid	1
https://biodiversity.org.au/afd/taxa/28e33a26-e252-4564-834a-5eecd269c23b	Cotesia glomerata	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Braconidae		1
https://biodiversity.org.au/afd/taxa/291b6fdf-81a5-4e57-98e7-c617fbb36e48	Agrotis porphyricollis	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/298af102-3390-4c24-afff-41cbdbbdabc2	Tasmanicosa godeffroyi	(L. Koch, 1865)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Garden Wolf Spider	1
https://biodiversity.org.au/afd/taxa/29c3647e-1457-4fb1-b0a3-e31a78e538d1	Eurostopodus (Eurostopodus)	(Hartert, 1892)	species	Animalia	Chordata	Aves	Caprimulgiformes	Caprimulgidae	Spotted Nightjar	1
https://biodiversity.org.au/afd/taxa/2a9e3b87-7cc1-43fb-b236-bcc112da1dca	Stiltia isabella	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Charadriiformes	Glareolidae	Australian Pratincole	1
https://biodiversity.org.au/afd/taxa/2bd5aa7f-787c-45ac-9b8f-05e3edbbcb3b	Vanessa itea	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Yellow Admiral	1
https://biodiversity.org.au/afd/taxa/2d39b86e-18ce-42e3-aaa7-95c48b8e3a24	Meuschenia galii	(Waite, 1905)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Bluelined Leatherjacket	1
https://biodiversity.org.au/afd/taxa/2f34e183-2260-4d8c-84bb-ef57c66dde1f	Conocephalus (Chloroxiphidic	(Karny, 1907)	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae		1
https://biodiversity.org.au/afd/taxa/30edbd1a-6367-4d84-87f1-3566e6cc54d6	Pachycephala (Pachycephala)	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Golden Whistler	1
https://biodiversity.org.au/afd/taxa/30f1ad79-0651-489a-83a0-6a3e8fca8be4	Iridomyrmex discors	Forel, 1902	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	1
https://biodiversity.org.au/afd/taxa/3191705d-10db-47a8-bbbf-1e232203bd22	Thalassarche carteri	(Rothschild, 1903)	species	Animalia	Chordata	Aves	Procellariiformes	Diomedeidae	Indian Yellow-nosed Albatross	1
https://biodiversity.org.au/afd/taxa/31a2b02d-a9d6-4379-befc-4940d6a1d1a7	Heteroclinus heptaeolus	(Ogilby, 1885)	species	Animalia	Chordata	Actinopterygii	Perciformes	Clinidae	Ogilby's Weedfish	1
https://biodiversity.org.au/afd/taxa/31f1be53-cbd0-4e3c-91c1-3ee9e66893a9	Notagonum submetallicum	(White, 1846)	species	Animalia	Arthropoda	Insecta	Coleoptera	Carabidae	Submetallic Ground Beetle	1
https://biodiversity.org.au/afd/taxa/31f37401-664a-4ec0-beb6-3ee7dcc2cd8b	Zapornia tabuensis	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Spotless Crake	1
https://biodiversity.org.au/afd/taxa/32388b13-1761-441c-8dda-85b6766779da	Helpis minitabunda	(L. Koch, 1880)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Bronze Aussie Jumping Spider	1
https://biodiversity.org.au/afd/taxa/351ef0f8-f560-43d6-b784-f393edb97df9	Corvus bennetti	North, 1901	species	Animalia	Chordata	Aves	Passeriformes	Corvidae	Little Crow	1
https://biodiversity.org.au/afd/taxa/362aa4fe-a449-4560-90b3-67dbff0c97d7	Austrolabrus maculatus	(Macleay, 1881)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Blackspotted Wrasse	1
https://biodiversity.org.au/afd/taxa/36701046-44d1-4c65-b35a-dd2319a33a29	Sillago schomburgkii	Peters, 1864	species	Animalia	Chordata	Actinopterygii	Perciformes	Sillaginidae	Yellowfin Whiting	1
https://biodiversity.org.au/afd/taxa/3690bb31-eab1-4f92-9da6-145aeb0afc39	Hemiergis quadrilineata	(DumÃ©ril & Bibron, 183	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Two-toed Earless Skink	1
https://biodiversity.org.au/afd/taxa/36d53805-cb40-4528-8a48-a5f9d73dbf44	Destolmia lineata	Walker, 1855	species	Animalia	Arthropoda	Insecta	Lepidoptera	Notodontidae	Moth	1
https://biodiversity.org.au/afd/taxa/381ae55e-0847-47f9-9094-1c042024fbbd	Planes major	(MacLeay, 1838)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Grapsidae		1
https://biodiversity.org.au/afd/taxa/392c556c-b042-4e31-9c05-d148294f2d79	Petricia vernicina	(Lamarck, 1816)	species	Animalia	Echinodermata	Asteroidea	Valvatida	Asteropseidae	Velvet Seastar	1
https://biodiversity.org.au/afd/taxa/39ef13d3-e602-4455-b493-fbe607e3d2b1	Epopella simplex	(Darwin, 1854)	species	Animalia	Arthropoda	Thecostraca	Sessilia	Tetraclitidae		1
https://biodiversity.org.au/afd/taxa/3af244a5-2205-48b9-b4b1-2b51721a20b2	Larus dominicanus	Lichtenstein, 1823	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Kelp Gull	1
https://biodiversity.org.au/afd/taxa/3bfb74af-a537-41c5-b658-73a21c094b8b	Delta philantes	(Saussure, 1852)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae		1
https://biodiversity.org.au/afd/taxa/3cd6e525-c7bd-43d9-b576-ae3e3034d172	Amitermes conformis	Gay, 1968	species	Animalia	Arthropoda	Insecta	Blattodea	Termitidae		1
https://biodiversity.org.au/afd/taxa/3ec052a7-43dd-4c2a-999d-a5e2dcc407fc	Atys cylindricus	(Helbling, 1779)	species	Animalia	Mollusca	Gastropoda	Cephalaspidea	Haminoeidae		1
https://biodiversity.org.au/afd/taxa/3f4f3162-5080-4d54-9a78-a548e17fb476	Cymbastela marshae	Hooper & Bergquist, 1992	species	Animalia	Porifera	Demospongiae	Axinellida	Axinellidae		1
https://biodiversity.org.au/afd/taxa/3f577852-cd1f-40a2-9a4b-a331d595588f	Glycyphana (Glycyphaniola) st	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae		1
https://biodiversity.org.au/afd/taxa/3f6d8e2c-1626-4362-a757-8baaf1ba548e	Pasiphilodes testulata	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	1
https://biodiversity.org.au/afd/taxa/3fbab4c8-8577-463d-8f2b-29f495655c67	Parma microlepis	GÃ¼nther, 1862	species	Animalia	Chordata	Actinopterygii	Perciformes	Pomacentridae	White-ear	1
https://biodiversity.org.au/afd/taxa/4090ad27-9c69-454d-aa47-23860b9ee50b	Xenus cinereus	(GÃ¼ldenstÃ¤dt, 1775)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Terek Sandpiper	1
https://biodiversity.org.au/afd/taxa/40cab58e-5d7d-41d6-862a-4f094ec2fca4	Danaus petilia	(Stoll, 1790)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Lesser Wanderer	1
https://biodiversity.org.au/afd/taxa/4135b459-80ab-40e3-88ac-1e9670403bea	Stigmatopora argus	(Richardson, 1840)	species	Animalia	Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	Spotted Pipefish	1
https://biodiversity.org.au/afd/taxa/42d4af08-b467-4ced-8220-5103bdc03916	Haliotis scalaris	(Leach, 1814)	species	Animalia	Mollusca	Gastropoda		Haliotidae	Staircase Abalone	1
https://biodiversity.org.au/afd/taxa/43be75d9-5bc5-4b51-916c-c6a7dc14974c	Varanus gouldii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Varanidae	Gould's Goanna	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/43bf7296-d378-4c2d-84da-47d9bd965ec4	Temognatha reichei	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae		1
https://biodiversity.org.au/afd/taxa/43c52a4e-58b8-472c-91fc-b38075715bb4	Metacymia marmorea	Pascoe, 1870	species	Animalia	Arthropoda	Insecta	Coleoptera	Curculionidae		1
https://biodiversity.org.au/afd/taxa/442667d9-1488-4819-91ce-ff55be120c30	Synalpheus tumidomanus	(Paul'son, 1875)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Alpheidae		1
https://biodiversity.org.au/afd/taxa/44e5623f-3f9a-4a6e-8d3e-f5bd8c78938e	Homoeosoma vagella	Zeller, 1848	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae		1
https://biodiversity.org.au/afd/taxa/4511fc2b-9acb-43c1-b7e4-c8c527326c0d	Chlorocoma cadmaria	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	1
https://biodiversity.org.au/afd/taxa/478992d0-4ee7-44e4-926a-c82323c75c44	Catamola funerea	(Walker, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae		1
https://biodiversity.org.au/afd/taxa/47d354b0-ca78-4321-99ec-6624aa91e461	Chiloscyllium punctatum	MÃ¼ller & Henle, 1838	species	Animalia	Chordata	Chondrichthyes	Orectolobiformes	Hemiscylliidae	Grey Carpetshark	1
https://biodiversity.org.au/afd/taxa/4879e221-7361-44c7-bc71-1c16a4fc3125	Tursiops truncatus	(Montagu, 1821)	species	Animalia	Chordata	Mammalia	Artiodactyla	Delphinidae	Bottlenose Dolphin	1
https://biodiversity.org.au/afd/taxa/48e09a45-e2af-4b68-a012-92fc13a4d09f	Blackbolbus frontalis	(GuÃ©rin-MÃ©neville, 18	species	Animalia	Arthropoda	Insecta	Coleoptera	Bolboceratidae		1
https://biodiversity.org.au/afd/taxa/48fa1cda-c47d-4ca0-baba-b23915e627cf	Xylochomitermes occidualis	(Gay, 1971)	species	Animalia	Arthropoda	Insecta	Blattodea	Termitidae		1
https://biodiversity.org.au/afd/taxa/494fd597-995f-4bf7-9c5b-94e7a4068869	Diomus notescens	(Blackburn, 1889)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Minute Two-spotted Ladybird	1
https://biodiversity.org.au/afd/taxa/4b3c4c78-d866-41ee-bd25-1d601739b588	Trachinocephalus trachinus	(Temminck & Schlegel, 18	species	Animalia	Chordata	Actinopterygii	Aulopiformes	Synodontidae	Painted Grinner	1
https://biodiversity.org.au/afd/taxa/4c19eab1-0953-448d-a314-ca8f8a797a13	Aleochara (Xenochara) puberu	Klug, 1834	species	Animalia	Arthropoda	Insecta	Coleoptera	Staphylinidae		1
https://biodiversity.org.au/afd/taxa/4d22e598-5bf3-44e2-ab02-6151a79a216c	Atherinomorus endrachtensis	(Quoy & Gaimard, 1825)	species	Animalia	Chordata	Actinopterygii	Atheriniformes	Atherinidae	Endracht Hardyhead	1
https://biodiversity.org.au/afd/taxa/4f15df3f-d5dc-4173-b4e6-1ccf71651f14	Myrmecia gratiosa	Clark, 1951	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/4fb8e2b5-5bdf-48b5-add4-1477db2e07a3	Chlorocoma dichloraria	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Guenee's Emerald Moth	1
https://biodiversity.org.au/afd/taxa/5254fe03-630b-44b2-9233-df51a7b8f25f	Pardalotus (Pardalotus) punct	(Shaw, 1792)	species	Animalia	Chordata	Aves	Passeriformes	Pardalotidae	Spotted Pardalote	1
https://biodiversity.org.au/afd/taxa/52ae65e4-918e-45a1-b0b1-e3153390b960	Anamesia frenchii	Tepper, 1893	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae		1
https://biodiversity.org.au/afd/taxa/52f22ad4-7948-493b-9ea0-b20f90070dbc	Austrolestes analis	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Odonata	Lestidae	Slender Ringtail	1
https://biodiversity.org.au/afd/taxa/5469bdce-fdf4-4949-82d7-093132f0ce5c	Bodianus vulpinus	(Richardson, 1850)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Western Pigfish	1
https://biodiversity.org.au/afd/taxa/5569586c-24aa-486c-9784-e38e92dadef9	Dichromodes partitaria	(Walker, 1866)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae		1
https://biodiversity.org.au/afd/taxa/566fa247-c252-4bf5-895b-39b0f5bab32c	Antichiropus whistleri	Attems, 1911	species	Animalia	Arthropoda	Diplopoda	Polydesmida	Paradoxosomatidae		1
https://biodiversity.org.au/afd/taxa/574a554c-9693-4f8c-8653-e93d4a2e2a63	Psammoperca datnioides	Richardson, 1848	species	Animalia	Chordata	Actinopterygii	Perciformes	Latidae	Black Sand Bass	1
https://biodiversity.org.au/afd/taxa/5a264c77-a7d1-43ca-ae1f-233f59b175aa	Ptilotula ornata	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Yellow-plumed Honeyeater	1
https://biodiversity.org.au/afd/taxa/5ac1cf3f-ff43-490d-ac23-ea3ca00005e3	Hygraula nitens	(Butler, 1880)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Pond Moth	1
https://biodiversity.org.au/afd/taxa/5ba0c269-e370-4051-8f8b-7d2b011a085b	Phasianella australis	(Gmelin, 1788)	species	Animalia	Mollusca	Gastropoda		Turbinidae	Australian Pheasant Or Painted La	1
https://biodiversity.org.au/afd/taxa/5ba85a24-db9f-4960-9f84-eeec08253e1a	Bathyllus albicinctus	(Erichson, 1842)	species	Animalia	Arthropoda	Insecta	Hemiptera	Cercopidae	Froghopper	1
https://biodiversity.org.au/afd/taxa/5c02985a-3eb0-46cf-b228-07d9049fc05e	Ceroplastes rubens	Maskell, 1893	species	Animalia	Arthropoda	Insecta	Hemiptera	Coccidae	Pink Wax Scale	1
https://biodiversity.org.au/afd/taxa/5de2441d-1951-4e93-bebd-08275345ad1f	Agriopocoris froggatti	Miller, 1954	species	Animalia	Arthropoda	Insecta	Hemiptera	Coreidae	Leaf-footed Bug	1
https://biodiversity.org.au/afd/taxa/5e43e5d8-2b6f-4d8e-bd66-09340850f327	Acmonotus incusifer	McLachlan, 1871	species	Animalia	Arthropoda	Insecta	Neuroptera	Ascalaphidae		1
https://biodiversity.org.au/afd/taxa/5f3e970f-91ac-4e34-85f0-d7f8733643af	Stigmacros reticulata	Clark, 1930	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/6032dd0f-bfb3-419d-8a45-26e15079eb49	Parupeneus spilurus	(Bleeker, 1854)	species	Animalia	Chordata	Actinopterygii	Perciformes	Mullidae	Blacksaddle Goatfish	1
https://biodiversity.org.au/afd/taxa/61843f5b-e039-411f-bedc-33c66bd5cdb2	Scorpis aequipinnis	Richardson, 1848	species	Animalia	Chordata	Actinopterygii	Perciformes	Scorpididae	Sea Sweep	1
https://biodiversity.org.au/afd/taxa/618a2c4c-ddf2-4042-a6a7-34a3e893c219	Anthochaera (Anellobia) chry	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Little Wattlebird	1
https://biodiversity.org.au/afd/taxa/61e50ce1-1e1d-46a6-ae4b-f653478954e4	Lemidia obliquefasciata	Gorham, 1877	species	Animalia	Arthropoda	Insecta	Coleoptera	Cleridae		1
https://biodiversity.org.au/afd/taxa/61eb4c31-7816-41e0-a8d6-4d05dd0b5d84	Iridomyrmex suchieri	Forel, 1907	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	1
https://biodiversity.org.au/afd/taxa/6388c877-2bde-4fd9-8fb0-067ae333e79b	Nacoleia rhoeoalis	(Walker, 1859)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Grass Moth	1
https://biodiversity.org.au/afd/taxa/63f90170-118f-4b12-8330-63d61ca6ae53	Herpetogramma licarsisalis	(Walker, 1859)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Sod Webworm	1
https://biodiversity.org.au/afd/taxa/6408cb74-4719-4fa4-8f51-e592d31c6df9	Rhytidoponera metallica	(Smith, 1858)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Metallic Pony Ants	1
https://biodiversity.org.au/afd/taxa/64a63130-12c0-4147-aafa-43f372888f0a	Phyllopteryx taeniolatus	(LacÃ©pÃ¨de, 1804)	species	Animalia	Chordata	Actinopterygii	Syngnathiformes	Syngnathidae	Common Seadragon	1
https://biodiversity.org.au/afd/taxa/66e59a19-0837-472b-b801-43c2888d6e08	Venatrix pullastra	(Simon, 1909)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae		1
https://biodiversity.org.au/afd/taxa/66f82bb4-ae71-4543-a99e-35452536c4c8	Purpureicephalus spurius	(Kuhl, 1820)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Red-capped Parrot	1
https://biodiversity.org.au/afd/taxa/671d0824-74ec-48c3-9055-39d93f7f0c60	Stigmacros aemula	(Forel, 1907)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	1
https://biodiversity.org.au/afd/taxa/67ae9c55-f9e2-4c3e-971e-ceaab5c01e98	Uloborus barbipes	L. Koch, 1872	species	Animalia	Arthropoda	Arachnida	Araneae	Uloboridae		1
https://biodiversity.org.au/afd/taxa/68774c58-3a21-4f84-b619-d37ee0193812	Gomeza bicornis	Gray, 1831	species	Animalia	Arthropoda	Malacostraca	Decapoda	Corystidae	Masked Burrowing Crab	1
https://biodiversity.org.au/afd/taxa/68b813ac-1c60-4758-8b7e-866e8237ed43	Rhycherus gloveri	Pietsch, 1984	species	Animalia	Chordata	Actinopterygii	Lophiiformes	Antennariidae	Glover's Anglerfish	1
https://biodiversity.org.au/afd/taxa/6af95c4a-42b2-4150-ba03-6f70ccfd8407	Thalassoma septemfasciatum	Scott, 1959	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Sevenband Wrasse	1
https://biodiversity.org.au/afd/taxa/6bbf7230-aa44-43e7-806a-8e01c296feff	Glycymeris (Glycymeris) striat	(Lamarck, 1819)	species	Animalia	Mollusca	Bivalvia	Arcida	Glycymerididae	Striate Bittersweet Clam	1
https://biodiversity.org.au/afd/taxa/6cae95ac-c1be-48d9-beb4-db25e1c8314b	Scorpaena sumptuosa	Castelnau, 1875	species	Animalia	Chordata	Actinopterygii	Scorpaeniformes	Scorpaenidae	Western Red Scorpionfish	1
https://biodiversity.org.au/afd/taxa/6dee412f-2c4d-4bda-8496-483d84e56f38	Maratus griseus	(Keyserling, 1882)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae		1
https://biodiversity.org.au/afd/taxa/6e61b4ab-a84f-42e7-ad78-d2f84c02d3bb	Ommatoiulus moreleti	(Lucas, 1860)	species	Animalia	Arthropoda	Diplopoda	Julida	Julidae	Portuguese Millipede	1
https://biodiversity.org.au/afd/taxa/70b173fb-a9cc-4b73-a9ee-598d1b5289a6	Limosa limosa	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Black-tailed Godwit	1
https://biodiversity.org.au/afd/taxa/715a2874-1942-4762-866c-1194990e7a91	Lophoictinia isura	(Gould, 1838)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Square-tailed Kite	1
https://biodiversity.org.au/afd/taxa/7179852c-29cb-48f5-a966-bc6451f15069	Heliocidaris erythrogramma	(Valenciennes, 1846)	species	Animalia	Echinodermata	Echinoidea	Camarodonta	Echinometridae	Shortspined Sea Urchin	1
https://biodiversity.org.au/afd/taxa/72943b56-d0a0-4edd-a4fc-f9e12d808b22	Trachichthys australis	Shaw, 1799	species	Animalia	Chordata	Actinopterygii	Beryciformes	Trachichthyidae	Southern Roughy	1
https://biodiversity.org.au/afd/taxa/738aa3c5-b8b4-4f12-8954-af8cb85df8d7	Callistoctopus ornatus	(Gould, 1852)	species	Animalia	Mollusca	Cephalopoda	Octopoda	Octopodidae	White-striped Octopus	1
https://biodiversity.org.au/afd/taxa/743cc7d8-b198-4c40-9421-6c66ef173db0	Rhabdosargus sarba	(ForsskÃ¥l, 1775)	species	Animalia	Chordata	Actinopterygii	Perciformes	Sparidae	Tarwhine	1
https://biodiversity.org.au/afd/taxa/746fd143-7368-4e34-90f4-bdc281120896	Chelaner brachythrix	(Heterick, 2001)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/7683da37-7de4-4825-b6a5-ef62377eb529	Pyura australis	(Quoy & Gaimard, 1834)	species	Animalia	Chordata	Ascidiacea	Stolidobranchia	Pyuridae	Sea Tulips	1
https://biodiversity.org.au/afd/taxa/76b87a56-b1ab-4851-aa40-22d0f2437b7e	Pelates octolineatus	(Jenyns, 1840)	species	Animalia	Chordata	Actinopterygii	Perciformes	Terapontidae	Western Striped Grunter	1
https://biodiversity.org.au/afd/taxa/78aa4243-7c03-4d35-b5ed-7a54902c9077	Oceanites oceanicus	(Kuhl, 1820)	species	Animalia	Chordata	Aves	Procellariiformes	Oceanitidae	Wilson's Storm-petrel	1
https://biodiversity.org.au/afd/taxa/7a39c977-3c87-4d6d-842f-9844d0c9ccd7	Monopis meliorella	(Walker, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tineidae		1
https://biodiversity.org.au/afd/taxa/7a75041a-62e6-4cac-88d9-c7c933ce941d	Phlyctinus callosus	(Schoenherr, 1826)	species	Animalia	Arthropoda	Insecta	Coleoptera	Curculionidae	Garden Weevil	1
https://biodiversity.org.au/afd/taxa/7b258065-2693-41f4-aba5-f723949d50df	Ogyris idmo	(Hewitson, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Large Brown Azure	1
https://biodiversity.org.au/afd/taxa/7b2a5348-dc34-4dee-9959-d519972f9934	Ochetellus glaber	(Mayr, 1862)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Black House Ant	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/7bc805ba-97fc-49e9-88f3-da8959c65b08	Scorpis georgiana	Valenciennes, 1832	species	Animalia	Chordata	Actinopterygii	Perciformes	Scorpididae	Banded Sweep	1
https://biodiversity.org.au/afd/taxa/7c979b5e-a6eb-4328-b9be-28822816df9c	Saprinus (Saprinus) laetus	Erichson, 1834	species	Animalia	Arthropoda	Insecta	Coleoptera	Histeridae		1
https://biodiversity.org.au/afd/taxa/7e4def79-80b0-4997-992f-5dd2fe770942	Iridomyrmex purpureus	(Smith, 1858)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Meat Ant	1
https://biodiversity.org.au/afd/taxa/7f6ff7d7-be3c-45c5-90bd-fd95b8815af3	Gygis alba	(Sparrman, 1786)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	White Tern	1
https://biodiversity.org.au/afd/taxa/7f89466a-6116-49b3-a42f-e1b022f35974	Myrascia subductella	(Walker, 1864)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Oecophoridae		1
https://biodiversity.org.au/afd/taxa/7fb2ac59-9cbe-43b2-aff8-dc71ed97257a	Anestia ombrophanes	Meyrick, 1886	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Moth	1
https://biodiversity.org.au/afd/taxa/801ceae3-bfc4-4602-895f-5d74b923ff05	Parma occidentalis	Allen & Hoese, 1975	species	Animalia	Chordata	Actinopterygii	Perciformes	Pomacentridae	Western Scalyfin	1
https://biodiversity.org.au/afd/taxa/80a4d55c-6feb-48e9-9789-c04d8ebabfae	Edosa hypocritica	(Meyrick, 1893)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tineidae	Fungus Moth	1
https://biodiversity.org.au/afd/taxa/80bf3b57-16da-4aad-b179-ea861e9536c5	Anterhynchium (Epiodynerus)	(Saussure, 1853)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae		1
https://biodiversity.org.au/afd/taxa/816054f7-2f47-456c-9464-387126e94e7a	Synanceia verrucosa	Bloch & Schneider, 1801	species	Animalia	Chordata	Actinopterygii	Scorpaeniformes	Synanceiidae	Reef Stonefish	1
https://biodiversity.org.au/afd/taxa/8168f991-6c85-4886-8cfd-0bc67440c199	Dardanus australis	Forest & Morgan, 1991	species	Animalia	Arthropoda	Malacostraca	Decapoda	Diogenidae		1
https://biodiversity.org.au/afd/taxa/8218661c-b629-4bf4-a371-7514ff421643	Achoerodus gouldii	(Richardson, 1843)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Western Blue Groper	1
https://biodiversity.org.au/afd/taxa/82631c7a-1218-41a1-9853-4984c9972054	Sepia chirotrema	Berry, 1918	species	Animalia	Mollusca	Cephalopoda	Sepiida	Sepiidae		1
https://biodiversity.org.au/afd/taxa/83672d75-48f9-4d93-8c1c-b5a9d25ec640	Idiosoma sigillatum	(O.P.-Cambridge, 1870)	species	Animalia	Arthropoda	Arachnida	Araneae	Idiopidae	Swan Coastal Plain Shield-backed T	1
https://biodiversity.org.au/afd/taxa/83da2178-f734-4dc2-9057-00a983da6f6f	Gymnothorax prasinus	(Richardson, 1848)	species	Animalia	Chordata	Actinopterygii	Anguilliformes	Muraenidae	Green Moray	1
https://biodiversity.org.au/afd/taxa/853ad760-f501-4e9f-8afb-4db6f2103bf4	Seriola dumerili	(Risso, 1810)	species	Animalia	Chordata	Actinopterygii	Perciformes	Carangidae	Samsonfishes	1
https://biodiversity.org.au/afd/taxa/8551dc19-2568-4715-aebe-75889d78ed07	Buddelundia cinerascens	(Budde-Lund, 1912)	species	Animalia	Arthropoda	Malacostraca	Isopoda	Armadillidae		1
https://biodiversity.org.au/afd/taxa/85aed38a-9c34-4a51-952d-48f5fa55a717	Iridomyrmex dromus	Clark, 1938	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	1
https://biodiversity.org.au/afd/taxa/8698c1d0-2079-477f-832a-0771c8df7cad	Acanthagenys rufogularis	Gould, 1838	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Spiny-cheeked Honeyeater	1
https://biodiversity.org.au/afd/taxa/874d31d2-38df-4497-aa68-a41b98e2c0e5	Hypoperigea tonsa	(GuenÃ©e, 1852)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/87d9866d-6df6-481b-aa61-721fdfd09879	Artamus (Campbellornis) pers	(Gould, 1841)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Masked Woodswallow	1
https://biodiversity.org.au/afd/taxa/88e61aa3-20f2-4ad7-a4a3-9a103bc3bf02	Thysanoplusia orichalcea	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Soybean Looper Moth	1
https://biodiversity.org.au/afd/taxa/8917f49d-b386-4814-9fb9-25a72622113c	Pusia voluta	Marrow, 2017	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Costellariidae		1
https://biodiversity.org.au/afd/taxa/89d06b21-9cdf-4e89-8d1a-2d914c303c12	Janthina pallida	(Thompson, 1840)	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Epitoniidae		1
https://biodiversity.org.au/afd/taxa/8a638632-2ab6-40c1-8889-121fa7f5afce	Oenosandra boisduvalii	Newman, 1856	species	Animalia	Arthropoda	Insecta	Lepidoptera	Oenosandridae	Boisduval S Autumn Moth	1
https://biodiversity.org.au/afd/taxa/8a981792-0498-4137-aba0-bbce748c8fbd	Aldrichetta forsteri	(Valenciennes, 1836)	species	Animalia	Chordata	Actinopterygii	Mugiliformes	Mugilidae	Yelloweye Mullet	1
https://biodiversity.org.au/afd/taxa/8a9a53c2-cd0a-4d83-905f-a5cd2c12edbd	Delias aganippe	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pieridae	Red-spotted Jezebel	1
https://biodiversity.org.au/afd/taxa/8bec5cc6-ac31-4d23-9df3-856034968af9	Podargus strigoides	(Latham, 1801)	species	Animalia	Chordata	Aves	Caprimulgiformes	Podargidae	Tawny Frogmouth	1
https://biodiversity.org.au/afd/taxa/8c2389a6-45bf-4ce6-8259-df6a04e568d9	Monomorium laeve	Mayr, 1876	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Yellow Mono Ant	1
https://biodiversity.org.au/afd/taxa/8c4d0a5c-d012-4ae3-9fad-399ce32276fa	Pempheris multiradiata	Klunzinger, 1879	species	Animalia	Chordata	Actinopterygii	Perciformes	Pempheridae	Bigscale Bullseye	1
https://biodiversity.org.au/afd/taxa/8d5a1e2f-9d7f-4013-898b-945817c924bb	Pseudomantis chlorophana	(Tindale, 1923)	species	Animalia	Arthropoda	Insecta	Mantodea	Mantidae		1
https://biodiversity.org.au/afd/taxa/8d6600ec-a32b-462c-84a6-0ef8bb93401c	Dactylopus dactylopus	(Valenciennes, 1837)	species	Animalia	Chordata	Actinopterygii	Perciformes	Callionymidae	Finger Dragonet	1
https://biodiversity.org.au/afd/taxa/8de28b31-050d-415a-95fc-cb561d2fb4cb	Hednota longipalpella	(Meyrick, 1879)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Grass Moth	1
https://biodiversity.org.au/afd/taxa/8eaa3f91-cde8-4281-8d7e-8b088d0c9923	Cristiceps australis	Valenciennes, 1836	species	Animalia	Chordata	Actinopterygii	Perciformes	Clinidae	Southern Crested Weedfish	1
https://biodiversity.org.au/afd/taxa/904b1a86-2387-41b7-b8ea-15ccca874a73	Puffinus (Puffinus) assimilis	Gould, 1838	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Little Shearwater	1
https://biodiversity.org.au/afd/taxa/9096851d-ae4b-4da1-b1a9-b0396783b28c	Pseudechis australis	(Gray, 1842)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Mulga Snake	1
https://biodiversity.org.au/afd/taxa/916b3419-1241-4e2f-b532-f9606ad349bb	Upogebia bowerbankii	(Miers, 1884)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Upogebiidae	Sponge Shrimp	1
https://biodiversity.org.au/afd/taxa/91f0535a-f513-417d-9826-8294ae640785	Podiceps cristatus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Great Crested Grebe	1
https://biodiversity.org.au/afd/taxa/92358f59-80ae-482f-8979-5679b23e92cc	Lalage (Lalage) tricolor	(Swainson, 1825)	species	Animalia	Chordata	Aves	Passeriformes	Campephagidae	White-winged Triller	1
https://biodiversity.org.au/afd/taxa/92508d05-d6c9-4a43-8cdd-cd6c219666c7	Danaus chrysippus	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Lesser Wanderer	1
https://biodiversity.org.au/afd/taxa/933ec8c1-fda9-4916-91d7-092e77439675	Haletta semifasciata	(Valenciennes, 1840)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Blue Weed-whiting	1
https://biodiversity.org.au/afd/taxa/947595db-244f-4160-b30d-0473b37d857b	Poliocephalus poliocephalus	(Jardine & Selby, 1827)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Hoary-headed Grebe	1
https://biodiversity.org.au/afd/taxa/951b7d29-a92a-4fa8-ad3a-85d4fdb3e2ae	Pantydia capistrata	T.P. Lucas, 1894	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae		1
https://biodiversity.org.au/afd/taxa/9538a7be-acfa-4053-b182-75ca907b993e	Leptocneria reducta	(Walker, 1855)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Moth	1
https://biodiversity.org.au/afd/taxa/96618754-52d6-4014-b6f2-1ab05b93dcd0	Eubalichthys mosaicus	(Ramsay & Ogilby, 1886)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Mosaic Leatherjacket	1
https://biodiversity.org.au/afd/taxa/97539cb8-6ea6-480c-8fb5-968743641f8d	Chromodoris westraliensis	(O'Donoghue, 1924)	species	Animalia	Mollusca	Gastropoda	Nudibranchia	Chromodorididae	Sea Slug	1
https://biodiversity.org.au/afd/taxa/9798a347-8733-4e22-be1f-f568038b4ad0	Zonioploca bicolor	Shaw, 1925	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae		1
https://biodiversity.org.au/afd/taxa/98bbf703-c8b7-451c-bfb5-31afc42dfef2	Heteroscarus acroptilus	(Richardson, 1846)	species	Animalia	Chordata	Actinopterygii	Perciformes	Labridae	Rainbow Cale	1
https://biodiversity.org.au/afd/taxa/98def99d-eceb-40ee-b5c3-10841df5e63a	Platycephalus speculator	Klunzinger, 1872	species	Animalia	Chordata	Actinopterygii	Scorpaeniformes	Platycephalidae	Southern Bluespotted Flathead	1
https://biodiversity.org.au/afd/taxa/99de38d7-cbe5-4309-874f-99dcaa0ec140	Hypochrysops ignitus	(Leach, 1814)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Fiery Jewel	1
https://biodiversity.org.au/afd/taxa/9d137712-8748-4601-a698-1c8731a63646	Mygalopsis marki	Bailey, 1980	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae		1
https://biodiversity.org.au/afd/taxa/a1496645-d1fd-4349-88b3-c45c05c7fffc	Pseudorhiza haeckelii	Haacke, 1884	species	Animalia	Cnidaria	Scyphozoa	Rhizostomeae	Lychnorhizidae		1
https://biodiversity.org.au/afd/taxa/a2c259b1-77d4-42a2-a207-bdea360618a0	Tymbophora peltastis	Meyrick, 1890	species	Animalia	Arthropoda	Insecta	Lepidoptera	Yloryctidae	Concealer Moth	1
https://biodiversity.org.au/afd/taxa/a4990f06-580e-479d-ba57-7afa1daf1b16	Neopataecus waterhousii	(Castelnau, 1872)	species	Animalia	Chordata	Actinopterygii	Scorpaeniformes	Pataecidae	Whiskered Prowfish	1
https://biodiversity.org.au/afd/taxa/a504ac65-1c1a-4cba-82f5-925185518c1c	Argiope protensa	L. Koch, 1872	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Orb-weaver Spider	1
https://biodiversity.org.au/afd/taxa/a6c57646-3cf0-44c3-8ddd-1004006994fc	Ophiusa parcemacula	(T.P. Lucas, 1891)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/a774d07d-3a7c-441d-bf93-6130d27a7707	Isturgia penthearia	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	1
https://biodiversity.org.au/afd/taxa/a82a6581-a07c-4484-85f7-a7483ba8ef61	Etiella behrii	(Zeller, 1848)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Lucerne Seed Web Moth	1
https://biodiversity.org.au/afd/taxa/a88fb5e7-c92b-40c8-8e03-7d4ad013bd99	Cermatulus nasalis	(Westwood, 1837)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Predatory Shield Bug	1
https://biodiversity.org.au/afd/taxa/a9413b86-571c-4be0-9765-19de97c587f8	Brachidontes sculptus	(Iredale, 1939)	species	Animalia	Mollusca	Bivalvia	Mytilida	Mytilidae		1
https://biodiversity.org.au/afd/taxa/aa021905-0645-477d-a64c-e416ace907de	Callanthias australis	Ogilby, 1899	species	Animalia	Chordata	Actinopterygii	Perciformes	Callanthiidae	Splendid Perch	1
https://biodiversity.org.au/afd/taxa/aa1406de-e7c5-4eb6-be0f-718d559edc44	Ellipsidion humerale	(Tepper, 1893)	species	Animalia	Arthropoda	Insecta	Blattodea	Pseudophyllodromiidae	Bush Cockroach	1
https://biodiversity.org.au/afd/taxa/ab254f0c-c4ec-4aed-bf28-1257022c4e2c	Hypnos monopterygius	(Shaw & Nodder, 1795)	species	Animalia	Chordata	Chondrichthyes	Torpediniformes	Hypnidae	Coffin Ray	1
https://biodiversity.org.au/afd/taxa/ad08d093-4195-4b57-bd07-60a422daeaa4	Pimelopus nothus	Burmeister, 1847	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae		1
https://biodiversity.org.au/afd/taxa/adb62f4f-6456-44a7-82aa-40f819fd5c38	Celaenia excavata	(L. Koch, 1867)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Bird Dropping Spider	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/add27614-cf58-4a88-8497-5b0868cbac85	Ectopatria horologa	(Meyrick, 1897)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/b023c4ac-e691-4dd4-8991-8089a00fe691	Thoracolopha verecunda	(Walker, 1858)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae		1
https://biodiversity.org.au/afd/taxa/b0a2d115-a179-4bb4-9146-0a6286d54aa9	Megalaspis cordyla	(Linnaeus, 1758)	species	Animalia	Chordata	Actinopterygii	Perciformes	Carangidae	Finny Scad	1
https://biodiversity.org.au/afd/taxa/b200510f-c3f7-4a51-a22e-ed0b58d9bd15	Spectrotrota fimbrialis	Warren, 1891	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Grass Moth	1
https://biodiversity.org.au/afd/taxa/b2087120-447e-4ffa-84d3-77a3b32f44c3	Alpheus novaezealandiae	Miers, 1876	species	Animalia	Arthropoda	Malacostraca	Decapoda	Alpheidae	New Zealand Snapping-prawn	1
https://biodiversity.org.au/afd/taxa/b2510821-6dde-4c08-819e-71e9221c3673	Sandava scitisignata	(Walker, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/b4df77e2-d859-4648-b67d-0008d8bae638	Eucanthus felschei	Boucomont, 1911	species	Animalia	Arthropoda	Insecta	Coleoptera	Bolboceratidae		1
https://biodiversity.org.au/afd/taxa/b5e44fea-a0a2-412b-a1f7-476b3c1e8e03	Gallinula (Gallinula) tenebrosa	Gould, 1846	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Dusky Moorhen	1
https://biodiversity.org.au/afd/taxa/b7013071-0a6a-4fd7-a084-0b0d3f473828	Porzana (Porzana) fluminea	Gould, 1843	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Australian Spotted Crake	1
https://biodiversity.org.au/afd/taxa/bbe25e01-12fe-4c5e-bcc6-3bf5ac406d3b	Lancetes lanceolatus	(Clark, 1863)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dytiscidae	Diving Beetle	1
https://biodiversity.org.au/afd/taxa/bd058cad-e107-405d-bdb6-3454d51e0d20	Chelmonops curiosus	Kuiter, 1986	species	Animalia	Chordata	Actinopterygii	Perciformes	Chaetodontidae	Western Talma	1
https://biodiversity.org.au/afd/taxa/bd62cae7-18cc-4955-a7b3-80ef42760c61	Ocypode convexa	Quoy & Gaimard, 1824	species	Animalia	Arthropoda	Malacostraca	Decapoda	Ocypodidae		1
https://biodiversity.org.au/afd/taxa/be2b6abf-ee25-45fa-ac1e-3776c24b1774	Polyzosteria mitchelli	(Angas, 1847)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae		1
https://biodiversity.org.au/afd/taxa/be7b4939-3381-4e9f-9aa0-87aa05844ce3	Chloroclystis insigillata	(Walker, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Geometer Moth	1
https://biodiversity.org.au/afd/taxa/c0ee549d-1f87-41ea-a7c4-6e8bd5a0731a	Cryptocheilus bicolor	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Pompilidae	Orange Spider Wasp	1
https://biodiversity.org.au/afd/taxa/c10fd828-c8c6-475d-ab4d-41df9381b5bc	Panulirus versicolor	(Latreille, 1804)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Palinuridae	Painted Rock Lobster	1
https://biodiversity.org.au/afd/taxa/c15c1ca5-9326-45c4-b638-3212579eca89	Crompus opacus	Scudder, 1958	species	Animalia	Arthropoda	Insecta	Hemiptera	Lygaeidae	Bug	1
https://biodiversity.org.au/afd/taxa/c17ce997-8812-4725-bf7e-3cc60e272299	Batrachomoeus rubricephalus	Hutchins, 1976	species	Animalia	Chordata	Actinopterygii	Batrachoidiformes	Batrachoididae	Pinkhead Frogfish	1
https://biodiversity.org.au/afd/taxa/c1b96432-7668-448e-9afb-b04c73daa0f4	Melanozosteria subinclusa	(Princis, 1966)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae		1
https://biodiversity.org.au/afd/taxa/c2cf0a9e-7cac-4dd5-a5f1-650ad1f13d0b	Iridomyrmex bicknelli	Emery, 1898	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Black Trail Ant	1
https://biodiversity.org.au/afd/taxa/c3512511-0f42-421c-95ed-1da218fadac0	Proteuxoa florescens	(Walker, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Owlet Moth	1
https://biodiversity.org.au/afd/taxa/c394821d-ac42-4f3d-b410-31434b0634fb	Histrio histrio	(Linnaeus, 1758)	species	Animalia	Chordata	Actinopterygii	Lophiiformes	Antennariidae	Sargassum Fish	1
https://biodiversity.org.au/afd/taxa/c4bc70af-3e1a-47e0-a1cc-befcdb728280	Endoxyla punctifimbria	(Walker, 1865)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Cossidae		1
https://biodiversity.org.au/afd/taxa/c52810f8-a863-4c7b-90ca-cacc62f11119	Earias paralella	T.P. Lucas, 1898	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nolidae	Tuft Moth	1
https://biodiversity.org.au/afd/taxa/c5ea0bf0-77b2-4e28-a9f8-145fa8142bdf	Iridomyrmex longisoma	Heterick & Shattuck, 2011	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/c65c6d0d-1873-464f-99ce-65b52932a660	Litoria moorei	(Copland, 1957)	species	Animalia	Chordata	Amphibia	Anura	Pelodryadidae	Motorbike Frog	1
https://biodiversity.org.au/afd/taxa/c7959d3a-423c-4294-a4c1-7bd0201b33b7	Holopneustes porosissimus	L. Agassiz, 1846	species	Animalia	Echinodermata	Echinoidea	Camarodonta	Temnopleuridae		1
https://biodiversity.org.au/afd/taxa/c7c35768-c198-4b79-ab73-fa58dad95f51	Cryptoblepharus buchananii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Buchananâ€™s Snake-eyed Skink	1
https://biodiversity.org.au/afd/taxa/c8ebe0f4-773e-4e8b-bfec-39e2cbc00918	Astrapometis saburalis	(Walker, 1859)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae		1
https://biodiversity.org.au/afd/taxa/c9a2d48b-7db0-4455-a47c-9b68949d4ad4	Microfragum erugatum	(Tate, 1889)	species	Animalia	Mollusca	Bivalvia	Cardiida	Cardiidae	Whole Strawberry Cockle	1
https://biodiversity.org.au/afd/taxa/c9a35a58-7c80-446d-814c-d3f1dc3f338a	Polistes (Polistella) stigma	(Fabricius, 1793)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Wasp	1
https://biodiversity.org.au/afd/taxa/ca56f9a2-35eb-4b5b-9c0a-da59372f68f4	Camponotus terebrans	(Lowne, 1865)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Brown Bearded Sugar Ant	1
https://biodiversity.org.au/afd/taxa/cc7aa9fc-3d0f-4be2-9642-a377f545dd2d	Lampona cylindrata	(L. Koch, 1866)	species	Animalia	Arthropoda	Arachnida	Araneae	Lamponidae	White-tailed Spider	1
https://biodiversity.org.au/afd/taxa/cd47196d-d606-4a0a-b25f-d145e9a6ef87	Thudaca haplonota	Meyrick, 1893	species	Animalia	Arthropoda	Insecta	Lepidoptera	Depressariidae		1
https://biodiversity.org.au/afd/taxa/ce37a5d4-a1ed-4495-8162-36a49e92d44a	Aprasia repens	(Fry, 1914)	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Sedgelands Worm-lizard	1
https://biodiversity.org.au/afd/taxa/cff21565-2bc4-4a67-8c0c-600ae7c10fd8	Zanda baudinii	Lear, 1832	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Long-billed Black-cockatoo	1
https://biodiversity.org.au/afd/taxa/d057765c-a936-4673-8518-2131e76bf335	Scoparia exhibitalis	Walker, 1866	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae		1
https://biodiversity.org.au/afd/taxa/d09faef2-dfc5-4a6d-b164-f2c5d7f6ccd3	Trigonoplax spathulifera	Lucas, 1980	species	Animalia	Arthropoda	Malacostraca	Decapoda	Hymenosomatidae		1
https://biodiversity.org.au/afd/taxa/d14b575e-a605-41ed-85fb-cb9c2cbe6690	Erina acasta	(Cox, 1873)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Blotched Blue	1
https://biodiversity.org.au/afd/taxa/d1a8b2cc-ec44-41e4-8b63-d50f3de5a517	Pheidole bos	Forel, 1893	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/d2e28293-00a5-49b9-9a46-536213287d36	Ametalla stenodera	Lacordaire, 1845	species	Animalia	Arthropoda	Insecta	Coleoptera	Chrysomelidae		1
https://biodiversity.org.au/afd/taxa/d3d47129-093c-42a4-b0e5-15d38d8ddc89	Pseudocaranx georgianus	(Cuvier, 1833)	species	Animalia	Chordata	Actinopterygii	Perciformes	Carangidae	Silver Trevallies	1
https://biodiversity.org.au/afd/taxa/d5772ed3-382e-48fd-8742-d88cd0afb26c	Chimsunchartella schwartzi	ChÃ©rot & Pauwels, 2000	species	Animalia	Arthropoda	Insecta	Hemiptera	Miridae		1
https://biodiversity.org.au/afd/taxa/d5b6c816-b979-4b95-84d8-739d4de6104c	Falco (Hierofalco) subniger	G.R. Gray, 1843	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Black Falcon	1
https://biodiversity.org.au/afd/taxa/d6137d98-16d3-4034-ba6e-a3c685763624	Microcanthus strigatus	(Cuvier, 1831)	species	Animalia	Chordata	Actinopterygii	Perciformes	Microcanthidae	Stripey	1
https://biodiversity.org.au/afd/taxa/d67c7921-b0ea-4c58-b9a5-d2ba6ad3c426	Patelloida insignis	(Menke, 1843)	species	Animalia	Mollusca	Gastropoda		Lottiidae	Maltese Cross Limpet	1
https://biodiversity.org.au/afd/taxa/d7241957-d720-435a-907c-64c42d9c7bb4	Anthrenus (Nathrenus) verbas	(Linnaeus, 1767)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dermestidae	Varied Carpet Beetle	1
https://biodiversity.org.au/afd/taxa/d8037488-480d-4446-924f-7366b09b3d31	Lychas marmoreus	(C.L. Koch, 1845)	species	Animalia	Arthropoda	Arachnida	Scorpiones	Buthidae	Marbled Scorpion	1
https://biodiversity.org.au/afd/taxa/d842730f-e99f-4622-a5e7-c900abe08ff0	Dipsastraea favus	(ForsskÃ¥l, 1775)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae		1
https://biodiversity.org.au/afd/taxa/dabb4f23-822f-44b5-8dac-bf754d2f662e	Narophis bimaculatus	(DumÃ©ril, Bibron & Dum	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Black-naped Snake	1
https://biodiversity.org.au/afd/taxa/db0316ad-2e66-4bb7-a85c-25b4234adeea	Heteroclinus roseus	(GÃ¼nther, 1861)	species	Animalia	Chordata	Actinopterygii	Perciformes	Clinidae	Rosy Weedfish	1
https://biodiversity.org.au/afd/taxa/db2ed9d0-4d1a-47e2-9c03-013a25cf4276	Chaetodermis penicilligerus	(Cuvier, 1816)	species	Animalia	Chordata	Actinopterygii	Tetraodontiformes	Monacanthidae	Tasselled Leatherjacket	1
https://biodiversity.org.au/afd/taxa/db992cdf-27b9-4097-b4a2-36bb01022621	Schedorhinotermes reticulatu	(Froggatt, 1897)	species	Animalia	Arthropoda	Insecta	Blattodea	Rhinotermitidae	Termite	1
https://biodiversity.org.au/afd/taxa/dc6cf25d-443c-4eaf-a627-d16ad42f69fb	Malurus (Leggeornis) elegans	Gould, 1837	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Red-winged Fairy-wren	1
https://biodiversity.org.au/afd/taxa/dd2d7fa7-6c4b-4e46-944d-bf855192735d	Thunnus maccoyii	(Castelnau, 1872)	species	Animalia	Chordata	Actinopterygii	Perciformes	Scombridae	Southern Bluefin Tuna	1
https://biodiversity.org.au/afd/taxa/dd93f3ef-9e84-4589-8d7a-27d46ee6e09d	Syrinx aruanus	(Linnaeus, 1758)	species	Animalia	Mollusca	Gastropoda	Hypsogastropoda	Turbinellidae	False Trumpet Shell	1
https://biodiversity.org.au/afd/taxa/e01d2215-16d9-40a3-bb12-b726afd6782d	Pomatomus saltatrix	(Linnaeus, 1766)	species	Animalia	Chordata	Actinopterygii	Perciformes	Pomatomidae	Tailor	1
https://biodiversity.org.au/afd/taxa/e1169673-d220-40e8-a2e3-541a9d633b0c	Crenadactylus ocellatus	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Diplodactylidae	South-western Clawless Gecko	1
https://biodiversity.org.au/afd/taxa/e2671c3e-5a1a-4f5e-8217-47b2f684f2dc	Chlorobapta frontalis	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae		1
https://biodiversity.org.au/afd/taxa/e3a9fdc3-92ec-45fb-afae-2586f0876d2c	Carcharhinus falciformis	(MÃ¼ller & Henle, 1839)	species	Animalia	Chordata	Chondrichthyes	Carcharhiniformes	Carcharhinidae	Silky Shark	1
https://biodiversity.org.au/afd/taxa/e44c8d46-d943-4325-a3ed-b09b78cefdb0	Antigona elimatula	(Darragh, 2010)	species	Animalia	Mollusca	Bivalvia	Cardiida	Veneridae		1
https://biodiversity.org.au/afd/taxa/e8734472-e068-46ab-9340-023eac3d5519	Heoclisis fundata	(Walker, 1853)	species	Animalia	Arthropoda	Insecta	Neuroptera	Myrmeleontidae	Antlion	1
https://biodiversity.org.au/afd/taxa/e9b26cd1-67a4-4664-95ec-073dfc3a56ad	Hydrophis platurus	(Linnaeus, 1766)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Yellow-bellied Sea Snake	1
https://biodiversity.org.au/afd/taxa/ea2d172e-284b-400c-bc3c-b1677cac348e	Phoracantha semipunctata	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae	Common Eucalypt Longicorn	1
https://biodiversity.org.au/afd/taxa/ed29f0c6-2ee1-4ea7-bc71-cab289f57d98	Phallaria ophiusaria	GuenÃ©e, 1857	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Brown Leaf Moth	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://biodiversity.org.au/afd/taxa/ee206348-0c9d-4eff-acb0-c18e1d086b6c	Meranoplus rugosus	Crawley, 1922	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Ant	1
https://biodiversity.org.au/afd/taxa/ee26cc24-24bb-463c-b4d1-e8d0404a3b13	Trichiocercus sparshalli	(Curtis, 1830)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Notodontidae	Moth	1
https://biodiversity.org.au/afd/taxa/ef0cafdf-01d1-4a42-b6d1-996dcaedefa0	Australostichopus mollis	(Hutton, 1872)	species	Animalia	Echinodermata	Holothuroidea	Synallactida	Stichopodidae	Brownmottled Sea Cucumber	1
https://biodiversity.org.au/afd/taxa/efaba2c1-066d-435e-9b62-2c2a727689af	Notopogon xenosoma	Regan, 1914	species	Animalia	Chordata	Actinopterygii	Syngnathiformes	Centriscidae	Orange Bellowsfish	1
https://biodiversity.org.au/afd/taxa/f050e997-29cd-46c9-b703-9059b70c5b09	Lesueurina platycephala	Fowler, 1908	species	Animalia	Chordata	Actinopterygii	Perciformes	Leptoscopidae	Flathead Sandfish	1
https://biodiversity.org.au/afd/taxa/f0abe56a-d920-4b02-b880-ac1300f22d52	Melophorus wheeleri	Forel, 1910	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae		1
https://biodiversity.org.au/afd/taxa/f150c050-f3e4-4988-b1c0-e7d0329e84d9	Lycosa australicola	(Strand, 1913)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Wolf Spider	1
https://biodiversity.org.au/afd/taxa/f5513cb3-95dd-418a-af07-d80722f77ebb	Chrysomya megacephala	(Fabricius, 1794)	species	Animalia	Arthropoda	Insecta	Diptera	Calliphoridae		1
https://biodiversity.org.au/afd/taxa/f615b0eb-e1de-4c20-92af-9c16e2417278	Maratus speculifer	(Simon, 1909)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae		1
https://biodiversity.org.au/afd/taxa/f62d6d5e-7975-4a26-9429-7b7f8eda9a3d	Ogyris arcana	Williams & Hay, 2001	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Dark Bronze Azure	1
https://biodiversity.org.au/afd/taxa/f699f670-5614-4658-b1f3-09dc8c8d996f	Proteuxoa callimera	(Lower, 1897)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae		1
https://biodiversity.org.au/afd/taxa/f6f6d149-b76d-4e58-aa3c-7f9406175b45	Monopis icterogastra	(Zeller, 1852)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tineidae	Wool Moth	1
https://biodiversity.org.au/afd/taxa/f762e36b-5152-45ac-be27-e225ef49722c	Platyzosteria fallax	(Walker, 1868)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae		1
https://biodiversity.org.au/afd/taxa/f7d04002-cd1a-40f1-bd25-e42f74cdd98f	Donax (Latona) columbella	Lamarck, 1818	species	Animalia	Mollusca	Bivalvia	Cardiida	Donacidae		1
https://biodiversity.org.au/afd/taxa/fe0a5d95-a5df-43aa-937f-b6dacf0214ed	Petroscirtes breviceps	(Valenciennes, 1836)	species	Animalia	Chordata	Actinopterygii	Perciformes	Blenniidae	Shorthead Sabretooth Blenny	1
https://biodiversity.org.au/afd/taxa/ffd5e948-989e-411b-8883-cc0bc05efa42	Oxycarenus (Oxycarenus) luct	(Montrouzier, 1861)	species	Animalia	Arthropoda	Insecta	Hemiptera	Oxycarenidae	Cottonseed Bug	1
https://id.biodiversity.org.au/name/algae/20006494	Melobesia membranacea	(Esper) J.V.Lamour.	species	Plantae	Rhodophyta	Florideophyceae	Corallinales	Hapalidiaceae		1
https://id.biodiversity.org.au/name/algae/20006506	Rhabdonia coccinea	(Harv.) Hook.f. & Harv.	species	Plantae	Rhodophyta	Florideophyceae	Gigartinales	Areschougiaceae		1
https://id.biodiversity.org.au/name/algae/20006904	Metamastophora flabellata	(Sond.) Setch.	species	Plantae	Rhodophyta	Florideophyceae	Corallinales	Corallinaceae		1
https://id.biodiversity.org.au/name/algae/20006995	Gracilaria secundata	Harv.	species	Plantae	Rhodophyta	Florideophyceae	Gracilariales	Gracilariaceae		1
https://id.biodiversity.org.au/name/algae/20007383	Laurencia brongniartii	J.Agardh	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		1
https://id.biodiversity.org.au/name/algae/20007880	Claviclonium ovatum	(J.V.Lamour.) Kraft & Min-	species	Plantae	Rhodophyta	Florideophyceae	Gigartinales	Acrotylaceae		1
https://id.biodiversity.org.au/name/algae/20008179	Dictyomenia harveyana	Sond.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		1
https://id.biodiversity.org.au/name/algae/20008579	Padina sanctaecrucis	BÃ¸rgesen	species	Chromista	Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae		1
https://id.biodiversity.org.au/name/algae/20008627	Glioiosaccion brownii	Harv.	species	Plantae	Rhodophyta	Florideophyceae	Rhodymeniales	Rhodymeniaceae		1
https://id.biodiversity.org.au/name/algae/20008777	Gracilaria flagelliformis	(Sond.) Womersley	species	Plantae	Rhodophyta	Florideophyceae	Gracilariales	Gracilariaceae		1
https://id.biodiversity.org.au/name/algae/20008879	Scinaia tsinglanensis	C.K.Tseng	species	Plantae	Rhodophyta	Florideophyceae	Nemaliales	Scinaiaceae		1
https://id.biodiversity.org.au/name/algae/20009082	Codium laminarioides	Harv.	species	Plantae	Chlorophyta	Ulvophyceae	Bryopsidales	Codiaceae		1
https://id.biodiversity.org.au/name/algae/20009854	Ecklonia radiata	(C.Agardh) J.Agardh	species	Chromista	Ochrophyta	Phaeophyceae	Laminariales	Lessoniaceae	Golden Kelp	1
https://id.biodiversity.org.au/name/algae/20010462	Heterosiphonia crassipes	(Harv.) Falkenb.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Delesseriaceae		1
https://id.biodiversity.org.au/name/algae/20010519	Lophocladia kuetzingii	(Kuntze) P.C.Silva	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		1
https://id.biodiversity.org.au/name/algae/20012123	Herposiphonia versicolor	(Hook.f. & Harv.) Falkenb.	species	Plantae	Rhodophyta	Florideophyceae	Ceramiales	Rhodomelaceae		1
https://id.biodiversity.org.au/name/algae/20012433	Dictyopteris secundispiralis	J.A.Phillips	species	Chromista	Ochrophyta	Phaeophyceae	Dictyotales	Dictyotaceae		1
https://id.biodiversity.org.au/name/apni/101728	Senecio lautus	G.Forst. ex Willd.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Variable Groundsel	1
https://id.biodiversity.org.au/name/apni/189137	Elymus farctus	(Viv.) Runemark ex Melde	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae		1
https://id.biodiversity.org.au/name/fungi/60123144	Amanita marinae	E.M.Davison & Giustinianc	species	Fungi	Basidiomycota	Agaricomycetes	Agaricales	Amanitaceae		1
https://id.biodiversity.org.au/node/apni/2886194	Lechenaultia laricina	Lindl.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Scarlet Leschenaultia	1
https://id.biodiversity.org.au/node/apni/2886346	Trachymene coerulea	Graham	species	Plantae	Charophyta	Equisetopsida	Apiales	Araliaceae	Rottnest Island Daisy	1
https://id.biodiversity.org.au/node/apni/2886637	Podotheca chrysantha	(Steetz) Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Yellow Podotheca	1
https://id.biodiversity.org.au/node/apni/2886731	Matthiola incana	(L.) W.T.Aiton	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Common Stock	1
https://id.biodiversity.org.au/node/apni/2886794	Hemiandra leiantha	Benth.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Lamiaceae		1
https://id.biodiversity.org.au/node/apni/2887795	Urtica urens	L.	species	Plantae	Charophyta	Equisetopsida	Rosales	Urticaceae	Dwarf Nettle	1
https://id.biodiversity.org.au/node/apni/2887949	Malva parviflora	L.	species	Plantae	Charophyta	Equisetopsida	Malvales	Malvaceae	Small-flower Mallow	1
https://id.biodiversity.org.au/node/apni/2888270	Oenothera indecora	Cambess.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Onagraceae	Oenothera	1
https://id.biodiversity.org.au/node/apni/2888613	Daviesia angulata	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2888724	Parietaria debilis	G.Forst.	species	Plantae	Charophyta	Equisetopsida	Rosales	Urticaceae	Shade Pellitory	1
https://id.biodiversity.org.au/node/apni/2888871	Caustis dioica	R.Br.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae		1
https://id.biodiversity.org.au/node/apni/2889387	Drosera pallida	Lindl.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Droseraceae	Pale Rainbow	1
https://id.biodiversity.org.au/node/apni/2889451	Echium plantagineum	L.	species	Plantae	Charophyta	Equisetopsida		Boraginaceae	Paterson's Curse	1
https://id.biodiversity.org.au/node/apni/2890288	Cupaniopsis anacardioides	(A.Rich.) Radlk.	species	Plantae	Charophyta	Equisetopsida	Sapindales	Sapindaceae	Tuckeroo	1
https://id.biodiversity.org.au/node/apni/2891017	Bossiaea spinescens	Meisn.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2891572	Lissanthe powelliae	Crayn & E.A.Br.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		1
https://id.biodiversity.org.au/node/apni/2891670	Eucalyptus rudis	Endl.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Flooded Gum	1
https://id.biodiversity.org.au/node/apni/2891757	Thysanotus dichotomus	(Labill.) R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Branching Fringe Lily	1
https://id.biodiversity.org.au/node/apni/2892177	Stypandra glauca	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Hemerocallidaceae	Nodding Grass-lily	1
https://id.biodiversity.org.au/node/apni/2892858	Lolium perenne	L.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Perennial Ryegrass	1
https://id.biodiversity.org.au/node/apni/2892938	Conostylis teretifolia	J.W.Green	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae		1
https://id.biodiversity.org.au/node/apni/2893281	Guichenotia ledifolia	J.Gay	species	Plantae	Charophyta	Equisetopsida	Malvales	Malvaceae		1
https://id.biodiversity.org.au/node/apni/2893374	Tricoryne elatior	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Hemerocallidaceae	Yellow Rush Lily	1
https://id.biodiversity.org.au/node/apni/2893570	Kunzea glabrescens	Toelken	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Spearwood	1
https://id.biodiversity.org.au/node/apni/2893649	Opercularia vaginata	Labill. ex Juss.	species	Plantae	Charophyta	Equisetopsida	Gentianales	Rubiaceae	Dog Weed	1
https://id.biodiversity.org.au/node/apni/2893815	Eucalyptus pleurocarpa	Schauer	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Tallerack	1
https://id.biodiversity.org.au/node/apni/2894254	Lomandra preissii	(Endl.) Ewart	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Preiss' Mat Rush	1
https://id.biodiversity.org.au/node/apni/2894606	Pimelea floribunda	Meisn.	species	Plantae	Charophyta	Equisetopsida	Malvales	Thymelaeaceae		1
https://id.biodiversity.org.au/node/apni/2894669	Moraea flaccida	(Sweet) Steud.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Iridaceae	One-leaf Cape Tulip	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2894708	Allocasuarina microstachya	(Miq.) L.A.S.Johnson	species	Plantae	Charophyta	Equisetopsida	Fagales	Casuarinaceae		1
https://id.biodiversity.org.au/node/apni/2895312	Drosera zonaria	Planch.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Droseraceae	Painted Sundew	1
https://id.biodiversity.org.au/node/apni/2895373	Acacia sessilis	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2895436	Lyginia barbata	R.Br.	species	Plantae	Charophyta	Equisetopsida	Poales	Anarthriaceae		1
https://id.biodiversity.org.au/node/apni/2895649	Halophila australis	Doty & B.C.Stone	species	Plantae	Charophyta	Equisetopsida	Alismatales	Hydrocharitaceae	Paddle Weed	1
https://id.biodiversity.org.au/node/apni/2896012	Acanthocarpus preissii	Lehm.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae		1
https://id.biodiversity.org.au/node/apni/2896141	Hibbertia racemosa	(Endl.) Gilg	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae	Stalked Guinea Flower	1
https://id.biodiversity.org.au/node/apni/2896726	Lepidosperma gladiatum	Labill.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Coast Sword-sedge	1
https://id.biodiversity.org.au/node/apni/2897244	Oxalis pes-caprae	L.	species	Plantae	Charophyta	Equisetopsida	Oxalidales	Oxalidaceae	Soursob	1
https://id.biodiversity.org.au/node/apni/2897935	Ipomoea cairica	(L.) Sweet	species	Plantae	Charophyta	Equisetopsida	Solanales	Convolvulaceae	Mile-a-minute	1
https://id.biodiversity.org.au/node/apni/2898204	Arctotheca populifolia	(P.J.Bergius) Norl.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Beach Daisy	1
https://id.biodiversity.org.au/node/apni/2898215	Thysanotus manglesianus	Kunth	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Fringed Lily	1
https://id.biodiversity.org.au/node/apni/2898446	Mirbelia spinosa	(Benth.) Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2898995	Isolepis marginata	(Thunb.) A.Dietr.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Little Club-rush	1
https://id.biodiversity.org.au/node/apni/2899088	Cassytha flava	Nees	species	Plantae	Charophyta	Equisetopsida	Laurales	Lauraceae	Dodder Laurel	1
https://id.biodiversity.org.au/node/apni/2899357	Ehrharta longiflora	Sm.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Annual Veldt-grass	1
https://id.biodiversity.org.au/node/apni/2899402	Leucopogon oldfieldii	Benth.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		1
https://id.biodiversity.org.au/node/apni/2899648	Schoenus lanatus	Labill.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Woolly Bog-rush	1
https://id.biodiversity.org.au/node/apni/2900247	Frankenia pauciflora	DC.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Frankeniaceae	Southern Sea-heath	1
https://id.biodiversity.org.au/node/apni/2900642	Petrorhagia dubia	(Raf.) G.Lopez & Romo	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Caryophyllaceae	Velvet Pink	1
https://id.biodiversity.org.au/node/apni/2900814	Rytidosperma caespitosum	(Gaudich.) Connor & Edga	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Common Wallaby-grass	1
https://id.biodiversity.org.au/node/apni/2900900	Juncus kraussii	Hochst.	species	Plantae	Charophyta	Equisetopsida	Poales	Juncaceae	Sea Rush	1
https://id.biodiversity.org.au/node/apni/2902063	Poa poiformis	(Labill.) Druce	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Coast Tussock-grass	1
https://id.biodiversity.org.au/node/apni/2902734	Acacia idiomorpha	A.Cunn. ex Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2902747	Lysinema pentapetalum	R.Br.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae	Curry Flower	1
https://id.biodiversity.org.au/node/apni/2902944	Dodonaea hackettiana	W.Fitzg.	species	Plantae	Charophyta	Equisetopsida	Sapindales	Sapindaceae	Hackett's Hopbush	1
https://id.biodiversity.org.au/node/apni/2902954	Austrostipa flavescens	(Labill.) S.W.L.Jacobs & J.E	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Coast Spear-grass	1
https://id.biodiversity.org.au/node/apni/2903084	Persoonia comata	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		1
https://id.biodiversity.org.au/node/apni/2903217	Phlebocarya ciliata	R.Br.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae		1
https://id.biodiversity.org.au/node/apni/2903256	Mesomelaena tetragona	(R.Br.) Benth.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Semaphore Sedge	1
https://id.biodiversity.org.au/node/apni/2903399	Lupinus cosentinii	Guss.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Sandplain Lupin	1
https://id.biodiversity.org.au/node/apni/2903464	Lobelia heterophylla	Labill.	species	Plantae	Charophyta	Equisetopsida	Asterales	Campanulaceae	Lobelia	1
https://id.biodiversity.org.au/node/apni/2904201	Lysinema ciliatum	R.Br.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae	Curry Flower	1
https://id.biodiversity.org.au/node/apni/2904675	Vellereophyton dealbatum	(Thunb.) Hilliard & B.L.Bur	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	White Cudweed	1
https://id.biodiversity.org.au/node/apni/2904827	Stenanthemum notiale	Rye	species	Plantae	Charophyta	Equisetopsida	Rosales	Rhamnaceae		1
https://id.biodiversity.org.au/node/apni/2905038	Stylidium rigidulum	Sond.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Flagon Triggerplant	1
https://id.biodiversity.org.au/node/apni/2905345	Banksia prionotes	Lindl.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Acorn Banksia	1
https://id.biodiversity.org.au/node/apni/2905601	Cuscuta planiflora	Ten.	species	Plantae	Charophyta	Equisetopsida	Solanales	Convolvulaceae	Small-seed Alfalfa-dodder	1
https://id.biodiversity.org.au/node/apni/2905735	Banksia ilicifolia	R.Br.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Holly Leaved Banksia	1
https://id.biodiversity.org.au/node/apni/2905806	Gyrostemon subnudus	(Nees) Baill.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Gyrostemonaceae		1
https://id.biodiversity.org.au/node/apni/2905839	Leptospermum laevigatum	(Gaertn.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Coast Tea-tree	1
https://id.biodiversity.org.au/node/apni/2905928	Poranthera microphylla	Brongn.	species	Plantae	Charophyta	Equisetopsida	Malpighiales	Phyllanthaceae	Small Poranthera	1
https://id.biodiversity.org.au/node/apni/2906546	Avena barbata	Pott ex Link	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Bearded Oats	1
https://id.biodiversity.org.au/node/apni/2906561	Grevillea obtusifolia	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		1
https://id.biodiversity.org.au/node/apni/2906779	Hibbertia aurea	Steud.	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae		1
https://id.biodiversity.org.au/node/apni/2907010	Stylidium diuroides	Lindl.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Donkey Triggerplant	1
https://id.biodiversity.org.au/node/apni/2907149	Pelargonium littorale	HÃ¼gel ex Endl.	species	Plantae	Charophyta	Equisetopsida	Geraniales	Geraniaceae	Native Pelargonium	1
https://id.biodiversity.org.au/node/apni/2907160	Gastrolobium nervosum	(Meisn.) G.Chandler & Cris	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2907449	Acacia cupularis	Domin	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Cup Wattle	1
https://id.biodiversity.org.au/node/apni/2907668	Cassytha glabella	R.Br.	species	Plantae	Charophyta	Equisetopsida	Laurales	Lauraceae	Slender Dodder-laurel	1
https://id.biodiversity.org.au/node/apni/2908009	Acacia congesta	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2908469	Stylidium brunonianum	Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Pink Fountain Triggerplant	1
https://id.biodiversity.org.au/node/apni/2908483	Melaleuca scabra	R.Br.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Rough Honeymyrtle	1
https://id.biodiversity.org.au/node/apni/2908855	Hakea anadenia	Haegi	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		1
https://id.biodiversity.org.au/node/apni/2908908	Pileanthus filifolius	Meisn.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		1
https://id.biodiversity.org.au/node/apni/2909343	Thysanotus sparteus	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Leafless Fringed Lily	1
https://id.biodiversity.org.au/node/apni/2909360	Logania litoralis	B.J.Conn	species	Plantae	Charophyta	Equisetopsida	Gentianales	Loganiaceae		1
https://id.biodiversity.org.au/node/apni/2909633	Conospermum canaliculatum	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		1
https://id.biodiversity.org.au/node/apni/2910012	Olax benthamiana	Miq.	species	Plantae	Charophyta	Equisetopsida	Santalales	Olacaceae		1
https://id.biodiversity.org.au/node/apni/2910364	Labichea cassioides	Gaudich. ex DC.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2910499	Phyllangium paradoxum	(R.Br.) Dunlop	species	Plantae	Charophyta	Equisetopsida	Gentianales	Loganiaceae	Wiry Mitrewort	1
https://id.biodiversity.org.au/node/apni/2911170	Chordifex microcodon	B.G.Briggs & L.A.S.Johnson	species	Plantae	Charophyta	Equisetopsida	Poales	Restionaceae		1
https://id.biodiversity.org.au/node/apni/2912261	Acrotriche cordata	(Labill.) R.Br.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae	Blunt-leaf Ground-berry	1
https://id.biodiversity.org.au/node/apni/2912583	Bromus arenarius	Labill.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Sand Brome	1
https://id.biodiversity.org.au/node/apni/2912741	Solanum nigrum	L.	species	Plantae	Charophyta	Equisetopsida	Solanales	Solanaceae	Black Nightshade	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/node/apni/2913511	Rhodanthe citrina	(Benth.) Paul G.Wilson	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Pale Immortelle	1
https://id.biodiversity.org.au/node/apni/2913565	Hovea stricta	Meisn.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2913902	Calytrix flavescens	A.Cunn.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Summer Starflower	1
https://id.biodiversity.org.au/node/apni/2913966	Melaleuca cardiophylla	F.Muell.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Tangling Melaleuca	1
https://id.biodiversity.org.au/node/apni/2914117	Leucophyta brownii	Cass.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Coast Cushion Bush	1
https://id.biodiversity.org.au/node/apni/2914184	Allocasuarina thuyoides	(Miq.) L.A.S.Johnson	species	Plantae	Charophyta	Equisetopsida	Fagales	Casuarinaceae	Horned Sheoak	1
https://id.biodiversity.org.au/node/apni/2914252	Austrostipa compressa	(R.Br.) S.W.L.Jacobs & J.Ev	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae		1
https://id.biodiversity.org.au/node/apni/2914299	Phyllangium divergens	(Hook.f.) Dunlop	species	Plantae	Charophyta	Equisetopsida	Gentianales	Loganiaceae	Wiry Mitrewort	1
https://id.biodiversity.org.au/node/apni/2914727	Triglochin isingiana	(J.M.Black) Aston	species	Plantae	Charophyta	Equisetopsida	Alismatales	Juncaginaceae	Spurred Arrowgrass	1
https://id.biodiversity.org.au/node/apni/2914921	Acacia latipes	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/node/apni/2915173	Poa porphyroclados	Nees	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae		1
https://id.biodiversity.org.au/node/apni/2915205	Melaleuca huegelii	Endl.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Chenille Honeymyrtle	1
https://id.biodiversity.org.au/node/apni/2915301	Rhagodia preissii	Moq.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae		1
https://id.biodiversity.org.au/node/apni/2915937	Macrozamia riedlei	(Fisch. ex Gaudich.) C.A.G	species	Plantae	Charophyta	Equisetopsida	Cycadales	Zamiaceae	Zamia Palm	1
https://id.biodiversity.org.au/node/apni/2916273	Trachymene pilosa	Sm.	species	Plantae	Charophyta	Equisetopsida	Apiales	Araliaceae	Dwarf Trachymene	1
https://id.biodiversity.org.au/node/apni/2916418	Grevillea vestita	(Endl.) Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae		1
https://id.biodiversity.org.au/node/apni/2916792	Clematis vitalba	L.	species	Plantae	Charophyta	Equisetopsida	Ranunculales	Ranunculaceae	Traveller's Joy	1
https://id.biodiversity.org.au/node/apni/2916912	Scaevola nitida	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Shining Fanflower	1
https://id.biodiversity.org.au/node/apni/2917235	Pterochaeta paniculata	Steetz	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae		1
https://id.biodiversity.org.au/node/apni/2917399	Melaleuca carrii	Craven	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae		1
https://id.biodiversity.org.au/node/apni/2917905	Acacia xanthina	Benth.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	White-stemmed Wattle	1
https://id.biodiversity.org.au/node/apni/2918220	Calectasia narragara	R.L.Barrett & K.W.Dixon	species	Plantae	Charophyta	Equisetopsida	Dasypogonales	Dasypogonaceae	Star Of Bethlehem	1
https://id.biodiversity.org.au/node/apni/2918338	Heliophila pusilla	L.f.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Fine Sunflax	1
https://id.biodiversity.org.au/node/apni/2918409	Levenhookia preissii	(Sond.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Preiss's Stylewort	1
https://id.biodiversity.org.au/node/apni/2918542	Euphorbia terracina	L.	species	Plantae	Charophyta	Equisetopsida	Malpighiales	Euphorbiaceae	False Caper	1
https://id.biodiversity.org.au/node/apni/2918921	Schoenus brevisetis	(R.Br.) Poir.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae		1
https://id.biodiversity.org.au/node/apni/2918970	Leucopogon ozothamnoides	Benth.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		1
https://id.biodiversity.org.au/node/apni/2918977	Haemodorum venosum	T.D.Macfarl.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae		1
https://id.biodiversity.org.au/node/apni/2919175	Lolium rigidum	Gaudin	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Wimmera Ryegrass	1
https://id.biodiversity.org.au/node/apni/2919207	Conostephium pendulum	Benth.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae	Pearl Flower	1
https://id.biodiversity.org.au/node/apni/2919321	Schoenus nanus	(Nees ex Lehm.) Benth.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Little Bog-rush	1
https://id.biodiversity.org.au/node/apni/2919365	Sarcozona bicarinata	S.T.Blake	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Aizoaceae	Ridged Noon-flower	1
https://id.biodiversity.org.au/node/apni/2919433	Sisymbrium orientale	L.	species	Plantae	Charophyta	Equisetopsida	Brassicales	Brassicaceae	Indian Hedge Mustard	1
https://id.biodiversity.org.au/node/apni/2919436	Lepidosperma squamatum	Labill.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Kerbeiny	1
https://id.biodiversity.org.au/node/apni/2919646	Leptomeria preissiana	(Miq.) A.DC.	species	Plantae	Charophyta	Equisetopsida	Santalales	Santalaceae		1
https://id.biodiversity.org.au/node/apni/2919872	Trifolium arvense	L.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Haresfoot Clover	1
https://id.biodiversity.org.au/node/apni/2919990	Parapholis incurva	(L.) C.E.Hubb.	species	Plantae	Charophyta	Equisetopsida	Poales	Poaceae	Curly Ryegrass	1
https://id.biodiversity.org.au/node/apni/2920050	Ptilotus drummondii	(Moq.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Amaranthaceae	Narrowleaf Mulla Mulla	1
https://id.biodiversity.org.au/node/apni/2920110	Wahlenbergia preissii	de Vriese	species	Plantae	Charophyta	Equisetopsida	Asterales	Campanulaceae		1
https://id.biodiversity.org.au/node/apni/2920210	Stirlingia latifolia	(R.Br.) Steud.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Blueboy	1
https://id.biodiversity.org.au/node/apni/2920474	Centrolepis drummondiana	(Nees) Walp.	species	Plantae	Charophyta	Equisetopsida	Poales	Centrolepidaceae	Drummond's Centrolepis	1
https://id.biodiversity.org.au/node/apni/2921212	Eucalyptus utilis	Brooker & Hopper	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Coastal Moort	1
https://id.biodiversity.org.au/node/apni/7056827	Pithocarpa cordata	(DC.) Schmidt-Leb. & R.L.B	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Tangle Daisy	1
https://id.biodiversity.org.au/node/apni/7392107	Scaevola canescens	Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae	Grey Scaevola	1
https://id.biodiversity.org.au/node/apni/7722602	Eucalyptus platypus	Hook.	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Moort	1
https://id.biodiversity.org.au/node/apni/7724539	Nitraria billardierei	DC.	species	Plantae	Charophyta	Equisetopsida	Sapindales	Nitrariaceae	Nitraria	1
https://id.biodiversity.org.au/node/apni/8694676	Eremophila glabra	(R.Br.) Ostenf.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Scrophulariaceae	Black Fuchsia	1
https://id.biodiversity.org.au/taxon/apni/51251009	Daviesia nudiflora	Meisn.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae		1
https://id.biodiversity.org.au/taxon/apni/51283539	Drosera drummondii	Planch.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Droseraceae		1
https://id.biodiversity.org.au/taxon/apni/51290326	Scholtzia involucrata	(Endl.) Druce	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Spiked Scholtzia	1
https://id.biodiversity.org.au/taxon/apni/51294410	Stylidium striatum	Lindl.	species	Plantae	Charophyta	Equisetopsida	Asterales	Stylidiaceae	Fan-leaved Triggerplant	1
https://id.biodiversity.org.au/taxon/apni/51399117	Caladenia latifolia	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Orchidaceae	Pink Fairies	1
https://id.biodiversity.org.au/taxon/apni/51430932	Daucus glochidiatus	(Labill.) Fisch., C.A.Mey. &	species	Plantae	Charophyta	Equisetopsida	Apiales	Apiaceae	Native Carrot	1
https://id.biodiversity.org.au/taxon/apni/51431584	Thysanotus patersonii	R.Br.	species	Plantae	Charophyta	Equisetopsida	Asparagales	Asparagaceae	Twining Fringe-lily	1
https://id.biodiversity.org.au/taxon/apni/51433217	Salicornia blackiana	Ulbr.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Thick-head Samphire	1
https://id.biodiversity.org.au/taxon/apni/51434579	Machaerina juncea	(R.Br.) T.Koyama	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Bare Twig-rush	1
https://id.biodiversity.org.au/taxon/apni/51434969	Hibbertia verrucosa	(Turcz.) Benth.	species	Plantae	Charophyta	Equisetopsida		Dilleniaceae		1
https://id.biodiversity.org.au/taxon/apni/51436514	Acacia cochlearis	(Labill.) H.L.Wendl.	species	Plantae	Charophyta	Equisetopsida	Fabales	Fabaceae	Rigid Wattle	1
https://id.biodiversity.org.au/taxon/apni/51437546	Haemodorum discolor	T.D.Macfarl.	species	Plantae	Charophyta	Equisetopsida	Commelinales	Haemodoraceae	Bloodroot	1
https://id.biodiversity.org.au/taxon/apni/51613009	Salicornia quinqueflora	Bunge ex Ung.-Sternb.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Beaded Glasswort	1
https://id.biodiversity.org.au/taxon/apni/51633006	Eucalyptus foecunda	Schauer	species	Plantae	Charophyta	Equisetopsida	Myrtales	Myrtaceae	Narrow-leaved Red Mallee	1
https://id.biodiversity.org.au/taxon/apni/51696571	Vitex trifolia	L.	species	Plantae	Charophyta	Equisetopsida	Lamiales	Lamiaceae	Beach Vitex	1
https://id.biodiversity.org.au/taxon/apni/51726301	Grevillea preissii	Meisn.	species	Plantae	Charophyta	Equisetopsida	Proteales	Proteaceae	Spider Net Grevillea	1
https://id.biodiversity.org.au/taxon/apni/51737006	Hydrocotyle intertexta	R.Br. ex A.Rich.	species	Plantae	Charophyta	Equisetopsida	Apiales	Araliaceae	Buttercup Pennywort	1
https://id.biodiversity.org.au/taxon/apni/51741659	Brachyscome iberidifolia	Benth.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Brachyscome	1

Species	Species Name	Scientific Name Authorshi	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Vernacular Name	Number of records
https://id.biodiversity.org.au/taxon/apni/51746079	Onopordum acaulon	L.	species	Plantae	Charophyta	Equisetopsida	Asterales	Asteraceae	Horse Thistle	1
https://id.biodiversity.org.au/taxon/apni/51761022	Salsola australis	R.Br.	species	Plantae	Charophyta	Equisetopsida	Caryophyllales	Chenopodiaceae	Buckbush	1
https://id.biodiversity.org.au/taxon/apni/51763367	Schoenus subflavus	KÃ¼k.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae	Yellow Bog-rush	1
https://id.biodiversity.org.au/taxon/apni/51763454	Chaetospora curvifolia	R.Br.	species	Plantae	Charophyta	Equisetopsida	Poales	Cyperaceae		1
https://id.biodiversity.org.au/taxon/apni/51767759	Styphelia microdonta	(Benth.) F.Muell.	species	Plantae	Charophyta	Equisetopsida	Ericales	Ericaceae		1
https://id.biodiversity.org.au/taxon/apni/51772374	Goodenia reinwardtii	(de Vriese) K.A.Sheph.	species	Plantae	Charophyta	Equisetopsida	Asterales	Goodeniaceae		1

APPENDIX 6

Protected Matters Search Tool Report

Australian Government
Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 11-Feb-2026

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	46
Listed Migratory Species:	48

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	73
Whales and Other Cetaceans:	11
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	12
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area	In feature area
Honeymyrtle shrubland on limestone ridges of the Swan Coastal Plain Bioregion	Critically Endangered	Community may occur within area	In feature area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Zanda latirostris listed as Calyptorhynchus latirostris			
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus geoffroii			
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat known to occur within area	In feature area
PLANT			
Andersonia gracilis			
Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area	In feature area
Banksia mimica			
Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In buffer area only
Caleana dixonii listed as Paracaleana dixonii			
Sandplain Duck Orchid [87944]	Endangered	Species or species habitat may occur within area	In buffer area only
Eucalyptus argutifolia			
Yanchep Mallee, Wabling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macarthuria keigheryi			
Keighery's Macarthuria [64930]	Endangered	Species or species habitat may occur within area	In buffer area only
REPTILE			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Ctenotus lancelini Lancelin Island Skink [1482]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
SHARK			
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In feature area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In feature area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica			
Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Breeding known to occur within area	In feature area
Thalasseus bergii			
Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Anous tenuirostris melanops			
Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area	In feature area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Fish			
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In feature area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area	In feature area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area	In feature area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area	In feature area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In feature area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area	In feature area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area	In feature area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In feature area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In feature area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat known to occur within area	In feature area
Reptile			
Aipysurus pooleorum Shark Bay Sea Snake [66061]		Species or species habitat may occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hydrophis kingii as Disteira kingii			
Spectacled Sea Snake [93511]		Species or species habitat may occur within area	In feature area
Hydrophis platura as Pelamis platurus			
Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area	In feature area
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata			
Minke Whale [33]		Species or species habitat may occur within area	In feature area
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Delphinus delphis			
Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
Grampus griseus			
Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae			
Humpback Whale [38]		Species or species habitat known to occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In feature area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Lancelin And Edwards Islands	Nature Reserve	WA	In buffer area only
Nilgen	Nature Reserve	WA	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Indian Ocean Drive Passing Lane and Widening 52-258 SLK	2017/7884	Not Controlled Action	Completed	In feature area
INDIGO West Submarine Telecommunications Cable, WA	2017/8126	Not Controlled Action	Completed	In buffer area only
Lancelin Caravan Park Project, Hopkins Dve & Casserley Way, Lancelin	2015/7546	Not Controlled Action	Completed	In buffer area only

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			

Scientific Name	Behaviour	Presence	Buffer Status
Ardenna pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur	In feature area
Hydroprogne caspia Caspian Tern [808]	Foraging (provisioning young)	Known to occur	In feature area
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Former Range	In buffer area only
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Known to occur	In feature area
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur	In buffer area only
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In feature area
Sterna dougallii Roseate Tern [817]	Foraging	Known to occur	In feature area
Sternula nereis Fairy Tern [82949]	Foraging (in high numbers)	Known to occur	In feature area
Seals			
Neophoca cinerea Australian Sea Lion [22]	Foraging (male)	Likely to occur	In buffer area only
Neophoca cinerea Australian Sea Lion [22]	Foraging (male and female)	Known to occur	In feature area
Whales			
Eubalaena australis Southern Right Whale [40]	Migration		In feature area
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

© Commonwealth of Australia
Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX 7

Conservation Codes

Conservation Codes for Western Australian Flora and Fauna

Threatened, Extinct and Specially Protected fauna or flora are species which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The lists of Threatened, Extinct and Specially Protected species are listed under Part 2 of the Biodiversity Conservation Act 2016.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened species

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

> ***Threatened fauna*** is the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.
>
> ***Threatened flora*** is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline (Number 1) and Ministerial Guideline (Number 2) that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria 4, and is based on the national distribution of the species.

CR Critically endangered species

> Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".
>
> Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

EN Endangered species

> Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".
>
> Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

VU Vulnerable species

> Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Extinct Species

EX Presumed extinct species

Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

EW Extinct in the wild species

Species that "*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Currently only fauna are listed as species of special conservation interest.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Currently only fauna are listed as species otherwise in need of special protection.

P Priority species

Priority is not a listing category under the BC Act.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of priority status is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

Priority 3: Poorly-known species

Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.

Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.

Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

Western Australian Ecological Communities

Threatened Ecological Communities

The BC Act provides for the statutory listing of threatened ecological communities (TECs) by the Minister.

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally

destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

Critically Endangered (CR)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

Endangered (EN)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

Vulnerable (VU)

An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

Priority Ecological Communities

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha).

Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:

(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or;

(iii) munities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.

(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.

(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category.

(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Commonwealth of Australia Conservation Codes

Threatened Flora and Fauna

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following six categories:

Extinct

A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

Extinct in the wild

A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:

a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

Critically endangered

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered

A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable

A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.

Conservation dependent

A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
b) the following subparagraphs are satisfied:
    i. the species is a species of fish;

ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory;
iv. cessation of the plan of management would adversely affect the conservation status of the species.

The EPBC Act does not provide for listing in a data deficient category. Where sufficient data (evidence) is unavailable to allow assessment by the Threatened Species Scientific Committee against the criteria for listing, the species are found to be ineligible. A recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be data deficient. As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

Threatened Ecological Communities

Threatened Ecological communities under the EPBC Act are listed in three categories.

Critically endangered

If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).

Endangered

If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).

Vulnerable

If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium–term future (indicative timeframe being the next 50 years).

APPENDIX 8

DBCA Fauna Database Search

FaunaSearch_PGV_Hams4197.xlsx

NAME	SOURCE_CODE	SOURCE_ID	NAME_ID	FAMILY	GENUS	SPECIES	INFRARANK	INFRANAME	AUTHOR	VERNACULAR	KINGDOM	CONS_CODE	CLASS	SITE_NAME	DAY	MONTH	YEAR	LOCALITY_NAME
Calyptorhynchus latirostris	TFAUNA	12216	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	near Lancelin	04	07	2003	LANCELIN
Calyptorhynchus latirostris	TFAUNA	10252	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Just south of Moore River	06	07	1983	RED GULLY
Calyptorhynchus latirostris	BIRDATLAS2	40563|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	24	10	1999	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	47695|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	28	11	1999	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	135533|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	22	02	2001	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	93509|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	22	08	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	122761|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	29	11	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	124852|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	22	12	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	122758|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	23	10	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	93506|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	02	08	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	105377|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	26	09	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	93510|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	22	08	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	122757|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	24	10	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	53301|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	26	08	1999	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	122760|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	29	11	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	40564|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	25	10	1999	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	40562|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Guilderton	05	10	1999	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	127715|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	01	02	2001	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	127714|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	31	01	2001	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	124853|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Moore River, Guilderton	22	12	2000	CARABAN
Calyptorhynchus latirostris	BIRDATLAS2	60024|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Gingin	08	12	1999	GINGIN
Calyptorhynchus latirostris	BIRDATLAS2	160827|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Gingin	11	04	2001	GINGIN
Calyptorhynchus latirostris	BIRDATLAS2	104065|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Gingin	22	09	2000	GINGIN
Calyptorhynchus latirostris	BIRDATLAS2	60023|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Gingin	03	02	2000	GINGIN
Calyptorhynchus latirostris	BIRDATLAS2	122250|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Gingin	11	12	2000	GINGIN
Calyptorhynchus latirostris	BIRDATLAS2	5052264|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Betts Swamp Area N.R.	15	11	2009	CULLALLA
Calyptorhynchus latirostris	WAMSPECIMENS	A25926|24734|04/09/1992	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD		04	09	1992	CULLALLA
Calyptorhynchus latirostris	BIRDATLAS2	5000288|794	24734	Psittacidae	Calyptorhynchus	latirostris			Carnaby	Carnaby's Cockatoo	Animalia	T	BIRD	Reagans Ford, Brand Hwy	25	08	2005	ORANGE SPRINGS
Ctenotus lancelini	WAMSPECIMENS	R121883|25051|00/00/1994	25051	Scincidae	Ctenotus	lancelini			Ford	Lancelin Island Ctenotus	Animalia	T	REPTILE	LANCELIN			1994	LANCELIN
Ctenotus lancelini	TFAUNA	14849	25051	Scincidae	Ctenotus	lancelini			Ford	Lancelin Island Ctenotus	Animalia	T	REPTILE	Lancelin, Lot 75 Hinchcliff Road. Mainland adjacent to Lancelin Island.	03	10	1994	LANCELIN
Dasyurus geoffroii	TFAUNA	821	24092	Dasyuridae	Dasyurus	geoffroii			Gould	Chuditch	Animalia	T	MAMMAL	"Asby" farm, approx 5km S of Gingin, just N of Lennards Brook	01	01	1969	GINGIN
Galaxiella munda	TFAUNA	7289	34026	Galaxiidae	Galaxiella	munda				Western Mud Minnow	Animalia	T	FISH	Whakea Rd, Gingin	01	11	2003	GINGINUP
Macronectes giganteus	TFAUNA	7224	24690	Procellariidae	Macronectes	giganteus			(Gmelin)	Southern Giant Petrel	Animalia	T	BIRD	Beach at Guilderton (Mouth of the Moore River)	09	07	2003	GUILDERTON
Macrotis lagotis	WAMSPECIMENS	M610|24168|//	24168	Thylacomyidae	Macrotis	lagotis			(Reid)	Bilby	Animalia	T	MAMMAL					GINGIN
Synemon gratiosa	FAUNASURVEY	99655	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99654	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99680	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	22	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99653	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99656	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99657	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99662	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99681	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	22	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99659	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99661	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99658	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99660	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	Nilgen NR	18	03	2010	NILGEN
Synemon gratiosa	FAUNASURVEY	99150	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99147	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99161	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99156	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99146	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99166	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	24	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99160	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99148	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99163	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99158	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99151	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99153	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99144	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99145	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99149	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	11	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99152	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99154	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99162	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99167	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	29	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99159	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99157	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99155	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	99164	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN

FaunaSearch_Karakin + 5km

FaunaSearch_PGV_Hams4197.xlsx

NAME	SOURCE_CODE	SOURCE_ID	NAME_ID	FAMILY	GENUS	SPECIES	INFRARANK	INFRANAME	AUTHOR	VERNACULAR	KINGDOM	CONS_CODE	CLASS	SITE_NAME	DAY	MONTH	YEAR	LOCALITY_NAME
Synemon gratiosa	FAUNASURVEY	99165	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	MOORE RIVER SOUTH	16	03	2010	CARABAN
Synemon gratiosa	FAUNASURVEY	366526	33992	Castniidae	Synemon	gratiosa				Graceful Sunmoth	Animalia	T	INVERT	D_Ledge	18	02	2011	LEDGE POINT
Falco peregrinus	BIRDATLAS2	78375|237	25624	Falconidae	Falco	peregrinus			Tunstall	Peregrine Falcon	Animalia	S	BIRD	Moore River, Guilderton	24	05	2000	CARABAN
Falco peregrinus subsp. macropus	WAMSPECIMENS	A10382|24475|09/04/1970	24475	Falconidae	Falco	peregrinus	subsp.	macropus	Swainson		Animalia	S	BIRD		09	04	1970	LANCELIN
Falco peregrinus subsp. macropus	TFAUNA	9806	24475	Falconidae	Falco	peregrinus	subsp.	macropus	Swainson		Animalia	S	BIRD	Guilderton	01	01	1975	GABBADAH
Bothriembryon perobesus	TFAUNA	6105	34057	Bulimulidae	Bothriembryon	perobesus					Animalia	1	INVERT	Mouth of Moore River	01	01	1939	GUILDERTON
Neelaps calonotos	WAMSPECIMENS	R32011|25249|//	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	LANCELIN.				LANCELIN
Neelaps calonotos	WAMSPECIMENS	R12605|25249|//	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	LANCELIN				LANCELIN
Neelaps calonotos	TFAUNA	15176	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	Lancelin				LANCELIN
Neelaps calonotos	TFAUNA	15142	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	Mouth of Moore River, Guilderton	30	01	1972	GUILDERTON
Neelaps calonotos	WAMSPECIMENS	R41791|25249|30/01/1972	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	MOUTH OF MOORE RIVER	30	01	1972	GUILDERTON
Neelaps calonotos	TFAUNA	15150	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	4km SW of Gingin	02	09	1984	COONABIDGEE
Neelaps calonotos	WAMSPECIMENS	R88097|25249|02/09/1984	25249	Elapidae	Neelaps	calonotos			(A.M.C. DumØril, Bibron & A. DumØril)	Black-striped Snake	Animalia	3	REPTILE	4 KM SW GINGIN	02	09	1984	COONABIDGEE
Charadrius rubricollis	TFAUNA	3233	24376	Charadriidae	Charadrius	rubricollis			(Gmelin)	Hooded Plover	Animalia	4	BIRD	"Graveyard Swamp", Gingin	29	08	1987	GINGIN
Charadrius rubricollis	TFAUNA	3231	24376	Charadriidae	Charadrius	rubricollis			(Gmelin)	Hooded Plover	Animalia	4	BIRD	Football Lake, Shire of Gingin	18	04	1987	MINDARRA
Charadrius rubricollis	TFAUNA	3247	24376	Charadriidae	Charadrius	rubricollis			(Gmelin)	Hooded Plover	Animalia	4	BIRD	"Bodney's Swamp", Wannamal	20	01	1989	CULLALLA
Macropus irma	WAMSPECIMENS	M5003|24133|00/06/1959	24133	Macropodidae	Macropus	irma			(Jourdan)	Western Brush Wallaby	Animalia	4	MAMMAL			06	1959	GINGIN
Macropus irma	TFAUNA	3972	24133	Macropodidae	Macropus	irma			(Jourdan)	Western Brush Wallaby	Animalia	4	MAMMAL	Gingin area	15	09	1954	GINGIN
Macropus irma	WAMSPECIMENS	M4014|24133|00/08/1959	24133	Macropodidae	Macropus	irma			(Jourdan)	Western Brush Wallaby	Animalia	4	MAMMAL			08	1959	GINGIN
Macropus irma	WAMSPECIMENS	M3984|24133|//	24133	Macropodidae	Macropus	irma			(Jourdan)	Western Brush Wallaby	Animalia	4	MAMMAL					GINGIN
Westralunio carteri	FAUNASURVEY	138691	34113	Hyriidae	Westralunio	carteri					Animalia	4	INVERT	Lennard Brook	15	12	2009	LENNARD BROOK
Westralunio carteri	FAUNASURVEY	138692	34113	Hyriidae	Westralunio	carteri					Animalia	4	INVERT	Lennard Brook	15	04	2010	BAMBUN
Westralunio carteri	FAUNASURVEY	138687	34113	Hyriidae	Westralunio	carteri					Animalia	4	INVERT	Gingin Brook	15	04	2010	GINGINUP

FaunaSearch_Karakin + 5km

APPENDIX 9

Aboriginal Cultural Heritage Inquiry System Reports

Department of Planning, Lands and Heritage

GOVERNMENT OF WESTERN AUSTRALIA

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

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Search Criteria

No Aboriginal Cultural Heritage (ACH) Register in Custom search area - Polygon - 115.349752981171°E, 31.0725061668342°S (GDA94) : 115.349752981171°E, 31.0425807495254°S (GDA94) : 115.39661653708°E, 31.0425807495254°S (GDA94) : 115.39661653708°E, 31.0725061668342°S (GDA94) : 115.349752981171°E, 31.0725061668342°S (GDA94)

Disclaimer

Aboriginal heritage holds significant value to Aboriginal people for their social, spiritual, historical, scientific, or aesthetic importance within Aboriginal traditions, and provides an essential link for Aboriginal people to their past, present and future. In Western Australia Aboriginal heritage is protected under the *Aboriginal Heritage Act 1972*.

All Aboriginal cultural heritage in Western Australia is protected, whether or not the ACH has been reported or exists on the Register.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you provide the details to the Department via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land **within or adjacent to** the following Indigenous Land Use Agreement(s): Yued Indigenous Land Use Agreement.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DEMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/south-west-native-title-settlement.

Further advice can also be sought from the Department of Planning, Lands and Heritage via https://achknowledge.dplh.wa.gov.au/ach-enquiry-form.

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Department of Planning, Lands and Heritage

Aboriginal Cultural Heritage Inquiry System

List of Aboriginal Cultural Heritage (ACH) Register

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Legend

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- Search Area
- Aboriginal Community
  - *Permanent*
  - *Seasonal*
  - *Town Based*
- Town
- Road
- River
- Local Government Authority

1.69 kilometres

Map Scale 1 : 51,300

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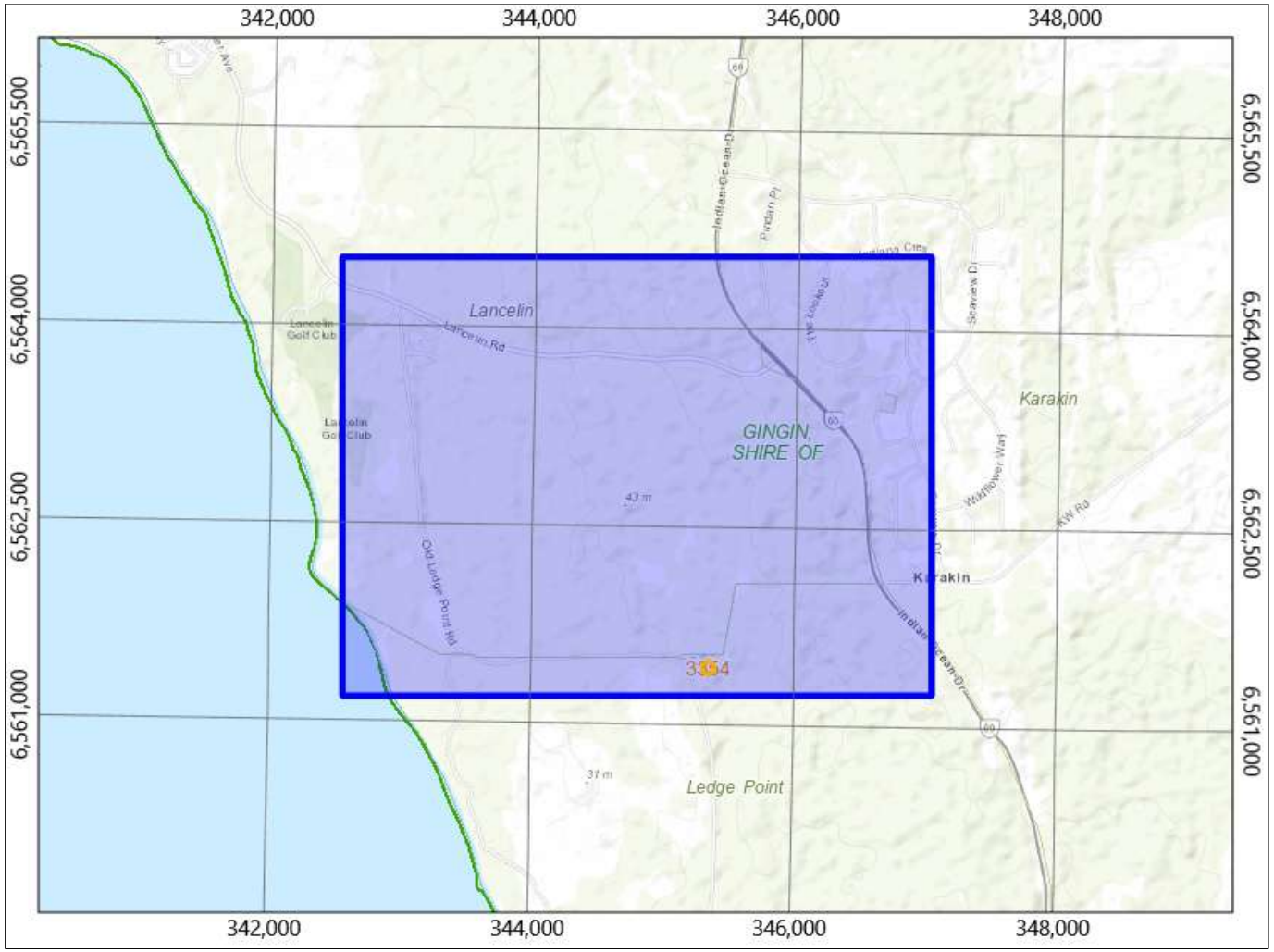
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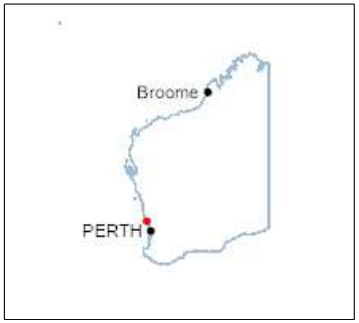
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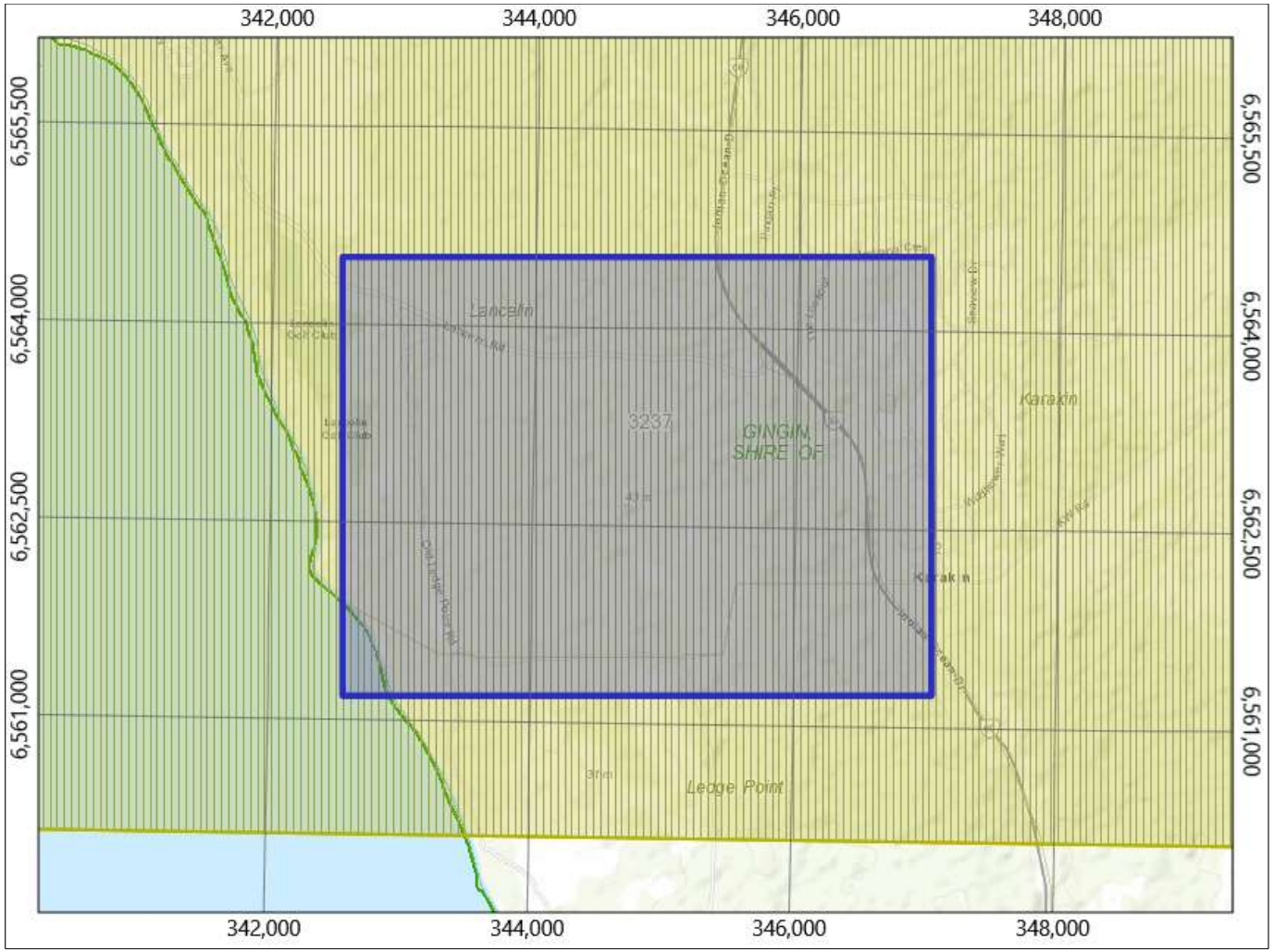
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3237	LEDGE POINT.	No	No	No	No Gender / Initiation Restrictions	Historic	Camp; Water Source	*Registered Knowledge Holder names available from DPLH	S00542

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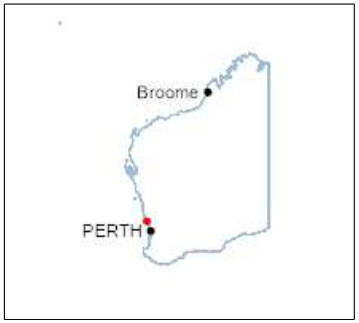
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CIVIL ENGINEERING REPORT

PC24278 - LANCELIN RESIDENTIAL DEVELOPMENT, WA

Reference No: PC24278
16 March 2026

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74 Goodwood Parade, Burswood WA 6100
MELBOURNE +61 3 8657 9292
Suite 307, 697 Collins St, Docklands VIC 3008
peritas.au enquiries@peritas.au

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1	Final Issue	AS	FMT	EBF	16/03/2026

DOCUMENT STATUS

Prepared by	Aaron Smith
Position	Senior Civil Engineer
Signed	
Date	16/03/2026

Approved by	Enzo Biagioni-Froudist
Position	Principal Engineer
Signed	
Date	16/03/2026

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1. INTRODUCTION

Peritas Group was commissioned by VIMG to provide civil engineering input into to support the new concept master plan for the Lancelin South Residential Land Development and Local Structure Plan amendment.

The subject land comprises approximately 717.9 hectares and is located within the Shire of Gingin. It is bounded by Old Ledge Point Road to the west, Lancelin Road to the north, and Indian Ocean Drive to the east as shown in Figure 1 below. The Area distribution is as follows:

- Subject Site: ~717.9 ha
- Planned Development Area: ~40.58 ha
- Residential:
    - ~31.06 ha within the Planned Development Area
    - ~257.61 ha outside the Planned Development Area
- Town Centre Zone – Neighbourhood Centres: ~5.51 ha
- Town Centre Zone – Local Centre: ~2.91 ha
- Primary / High School Sites: ~24.08 ha
- Public Open Space: ~63.06 ha
- Potential Visual Landscape Protection Zone: ~16.41 ha
- Conservation Zone (as per LPS 9): ~93.97 ha
- Hospital / Health Centre: ~0.51 ha
- Aged Care: ~1.31 ha
- Community Centre: ~1.14 ha
- General Industrial: ~55 ha
- Emergency Services: ~0.8 ha

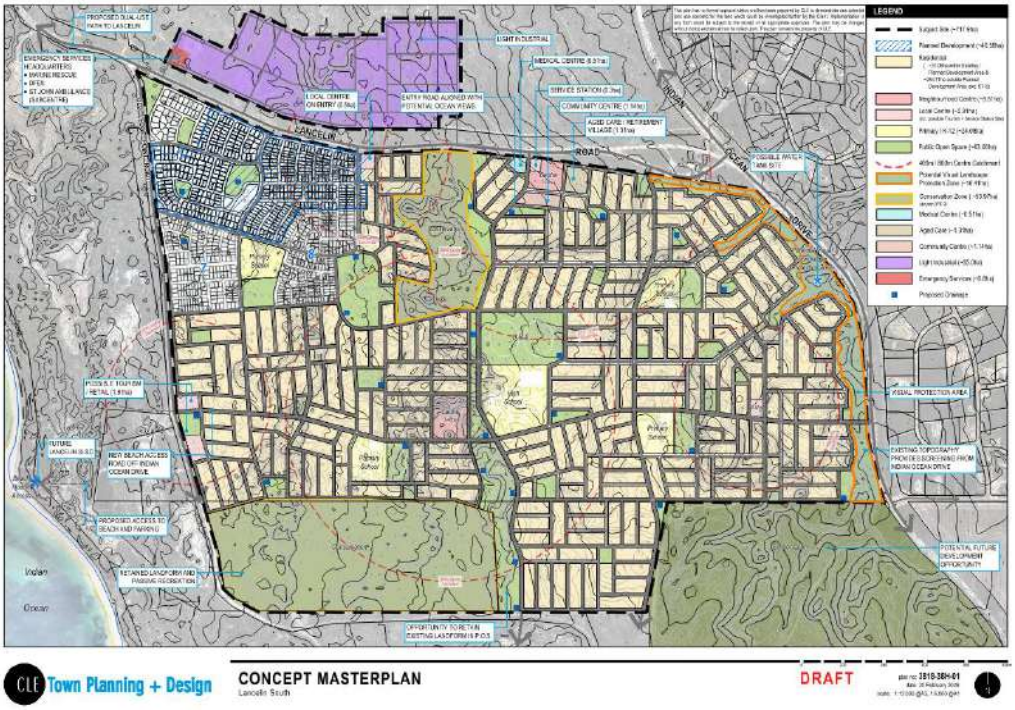


Figure 1: Concept Master Plan

2. GENERAL SITE EVALUATION

The subject land generally slopes downwards from east to west, following the natural topography towards the coastal side. Refer to the topography illustrated in Figure 2 below for further detail and in **Appendix A**.

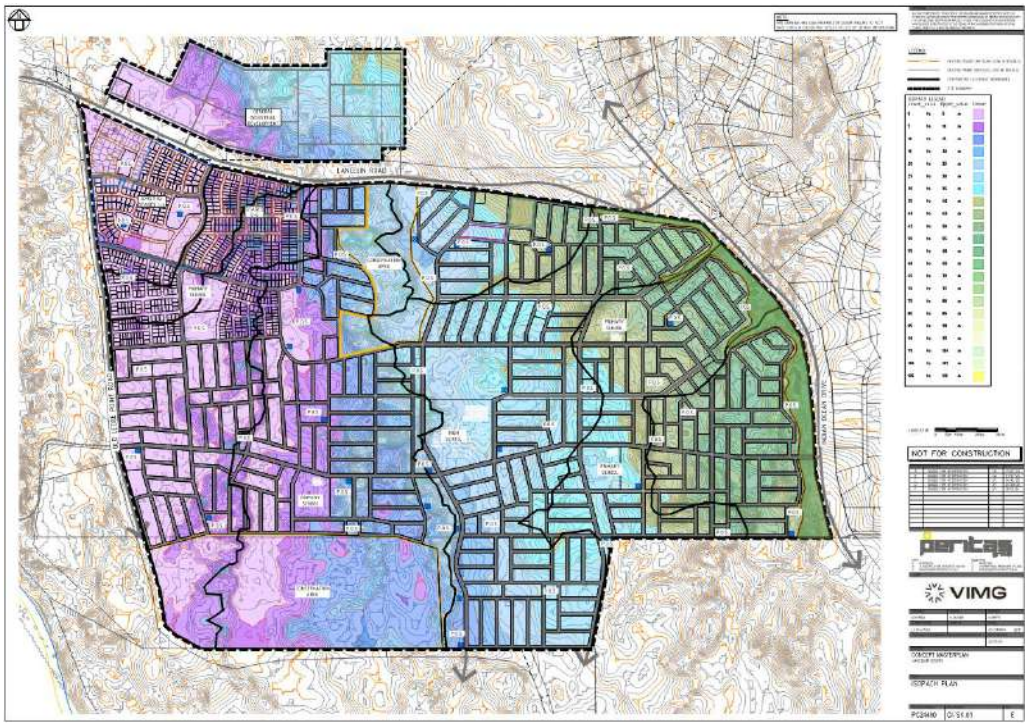


Figure 2: Isopach Plan

The site exhibits an average gradient below 5% (1 in 20). Along Old Ledge Point Road, on the western boundary, ground levels typically range between RL 0 and RL 5. Near Indian Ocean Drive on the eastern side, elevations rise significantly, reaching approximately RL 55 to RL 60. Along the northern boundary, the site falls from around RL 60 down to RL 5, indicating a significant East-to-west slope. From north to south, however, the levels remain generally consistent.

According to the Western Australian Flood Planning Mapping prepared by the Department of Water and Environmental Regulation, the subject land is generally unaffected by flooding. The majority of the of the site is comprised of native bushland. Vegetation across the site is comprised of short grass, small trees, and medium to large-sized shrubs and bushes. The site was accessible via some sand tracks. Where significant trees and vegetation are present, development strategies should aim to retain these vegetated areas and integrate them into the overall landscaping and theme of the Lancelin site.

It is also noted that the subject land is located within a designated bushfire-prone area as shown in Figure 3. Additional planning and building requirements will apply to the development as per bushfire management standards.



Figure 3: Map of Bushfire Prone Area

3. BULK EARTHWORKS AND SITEWORKS

3.1 General Principles & Approach

The 1:250,000 scale geological mapping by the Geological Survey of Western Australia indicates that the shallow subsurface beneath the site is primarily composed of Safety Bay Sand. A geotechnical investigation conducted for a proposed residential development within Stage 2 of the site identified limestone at depths ranging from approximately 1.2 to 2.2 metres below the ground surface. The limestone surface was found to occur at elevations between AHD 1.0 m and 2.7 m. The general site should also follow this trend.

It is recommended the following preparatory works are undertaken as part of the works:

- Removal of dumped debris, waste or perimeter fencing, as necessary.
- Retaining as many existing and significant trees and vegetation as possible.
- Stripping and grubbing of areas to be earthworks with due regard to vegetation preservation in selected areas.
- Strip and stockpiling topsoil. Implementation of erosion, soil, and sediment control measures during construction.
- Implementation of dust control measures during construction.
- Proof roll the existing soil matrix.
- Fill to depths required for geotechnical and flood protection requirements.
- Replace topsoil where required.
- Blend topsoil in accordance with the Geotechnical Engineers requirements.
- Stabilise the finished surface levels for long term soil stability.

Site grading and remodelling will be kept to minimum limits wherever possible but will be required to form roadworks, building pads for future development and associated works within the following parameters:-

- Creation of residential building sites.
- Shaping of site to create interesting features and focal points at each development node, keeping within the urban and residential estate theme provided by the Client.
- Contouring of land to suit the servicing requirements of the development's sewerage, and stormwater drainage.
- Creation of sufficient variation in the grading to allow the contouring of public areas with swales and landscaped open spaces along existing natural drainage outfalls wherever possible.
- Ensure sustainable as well as economic development of the infrastructure.

Site grading will generally be determined by the servicing requirements and environmental constraints of the site.

The natural landform will be reshaped within accepted guidelines and in accordance with the requirements for site servicing and building pad creation; however, natural drainage flow paths will be maintained wherever possible.

Preparatory works prior to earthwork should include, but not limited to:

- Removal of fencing and other improvements, as necessary.
- Identify all vegetated areas to be protected with appropriate protection plans to be included in Contractors Construction and Environmental Management Plan.
- Stripping and grubbing of areas to be earthwork.
- Strip and stockpiling topsoil.
- Cut to fill operations to selected areas to improve geotechnical parameters for development.
- Stabilisation of any areas to be landscaped or where topsoil has not been respread on verges and embankments.

Site levels shall be set to satisfy: -

- Geotechnical requirements for Class ‘A” Certification for residential purposes.
- Rock will be an ongoing issue within the site and will need to be managed.
- Minimum required clearance to groundwater (AAMGL and as prescribe by authority approvals).
- A minimum of 0.5m clearance between building pad levels to the regional 1:100 year flood levels.

Upon completion of bulk earthworks, any disturbed areas shall be stabilised. Refer to the figure below and **Appendix B** for a copy of the Bulk Earthworks plan.

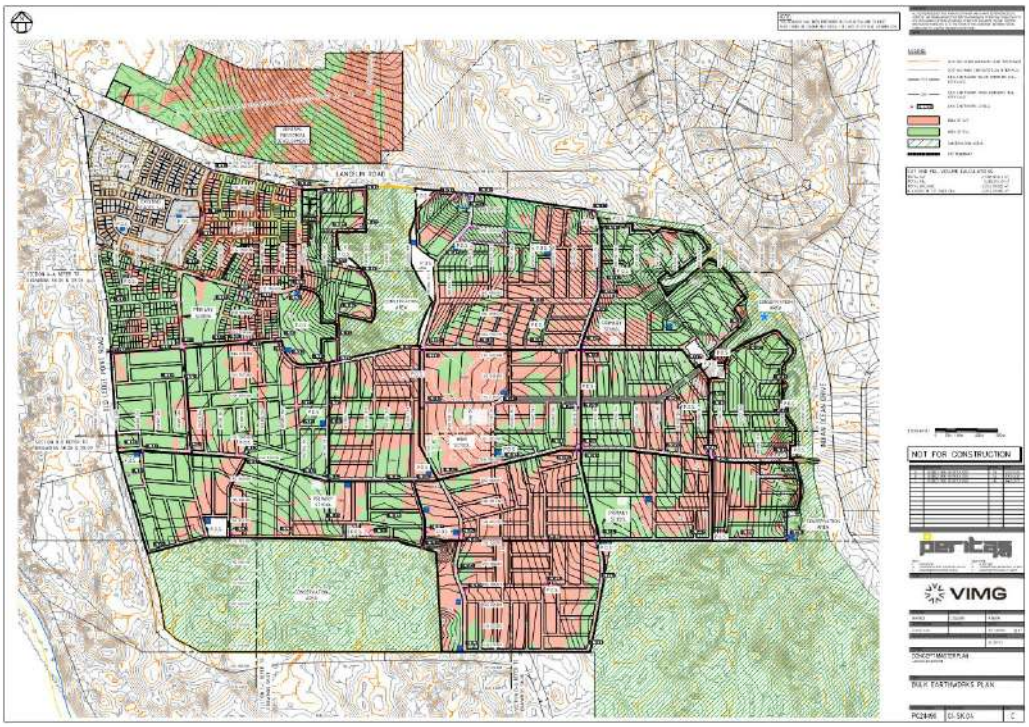


Figure 4: Bulk Earthworks plan

The Lancelin development will involve a total cut volume of 7,558,923 m³ and a total fill volume of 5,285,545 m³. This results in an excess of 2,273,378 m³. Some design adjustments will be made to the earthworks design to utilise any suitable material on site with any surplus materials removed to areas outside of the development front but within the client's landholdings.

3.2 Clearing and Disposal

Wherever possible, cleared vegetative material will be collected and used in soil and land stabilisation, either as 'brush matting' or chipped and used as a mulch. Debris from clearing which cannot be re-used, will be in disposed of in approved landfill sites in accordance with Local Authority policy.

Following clearing, the topsoil will be stripped and stockpiled on site for re-use.

3.3 Land Stabilisation & Dust Suppression

Prior to construction taking place, a construction water supply will be established to provide water for dust suppression, temporary sand stabilisation and irrigation during the construction phases. Water trucks and spray equipment will be on site throughout the construction programme to damp down exposed sand surfaces until the surface is physically stabilised. In the event that adjacent occupied homes or trafficked roads are affected by sand drift, a sand-trapping fence will be constructed fronting the affected section of the development.

In the event of strong winds blowing towards adjacent properties that cause blown sand to reach those properties, earthworks, including the stripping or respreading of topsoil, will be temporarily suspended, and dust suppression measures immediately implemented.

Stabilisation of the soil surface will be carried out, as required, immediately following topsoil re-spreading and minor regrading.

Soil stabilisation will generally comprise reuse of stockpiled topsoil respreading (other than on lots) ; however, Hydromulch without seed will also be used with Council approval. Hydromulch with seed, or dry seeding, may also be employed in select locations with due care to utilise wherever possible local and native species.

Soil stabilisation will be maintained until such time as the vegetation cover is sufficient to prevent erosion.

4. ROADWORKS & TRAFFIC CONSIDERATIONS

4.1 Overview

Proposed roads generally consist of asphalted pavements. Minimum recommended carriageway widths will be selected with due reference to the local authority (Shire of Gingin) and the provisions of Liveable Neighbourhoods.

The design of the road hierarchy and network associated with the proposed Structure Plan has considered the policy document "Liveable Neighbourhoods - Community Design Code, Element 2, and Movement Network."

In planning the internal road network for the subject land, the following considerations were taken into account:

- Topographic conditions and existing road networks.
- Retention of the existing trees to comply with Shire of Gingin's Tree Retention Policy.
- Nature of existing vehicle movements and their major on/off site destinations especially in relation to major regional destinations.
- Compatibility with the proposed land use.
- Relationship with the existing road network and consideration of future potential development and expansion into adjacent areas.
- Separation of through traffic from local traffic.
- Balance accessibility for all the residents to the major proposed public facilities.
- Residential streets/minor roads will be designed to remain passable in the 5-year ARI event and defined major arterial roads will be designed to remain passable in the 100-year ARI event.

In residential areas, road truncations may be reduced from 6mx6m to 3mx3m in the following situations (although they will be subject to more detailed design at the subdivision stage):

- On roads that intersect with a 20m road reserve and wider (i.e. 15m road onto a 20m road reserve or wider). 15m roads onto a 15m road will not work and for anything below this other than at laneways (see below).
- On road bends (and for reserve widths greater than 12m) where the angle is greater than 120 degrees in deviation. 90-degree bends will not work other than as noted above and as noted for laneways below.
- On laneways (6m reserve width) that intersect at right angles to roads that have a reserve width 12m and greater (i.e. 6m laneway onto a 12m, 15m etc. road reserve).
- In some odd intersection situations where the roads come in at differing angles (see examples below).



Figure 5: Examples of truncations 3mx3m in particular, intersection situations

The focus of traffic management and road network design within the development is to create a legible, functional road hierarchy which will be safe for all road users with a self-enforcing speed environment achieved through the use of:

- A hierarchy compatible with land use.
- Appropriate road construction widths and depths standards.
- Appropriate intersection control treatments and midblock traffic management.
- Property access control (where appropriate).
- Optimized intersection location, spacing and interaction.

Some key characteristics of relevant road classifications have been summarised below:

i) Neighborhood Connectors

Neighborhood connectors link neighborhoods and towns are carefully designed to calm traffic and facilitate pedestrian use and have frequent local street connections. The neighborhood connector should not attract substantial long distance through traffic but provide for safe and convenient local travel to and from arterial routes.

The number of median breaks will need to be controlled to ensure reasonable levels of traffic speed and flow, limiting delays and potential traffic conflict points.

Neighborhood connectors spread local traffic loads and reduce intersection loadings, act as bus routes and support the location and viability of neighborhood centers.

ii) Access Streets

The access street is the most common street in residential subdivisions designed under Livable Neighborhoods. The environment of the abutting land use dominates, traffic speed and volumes are low, and pedestrian and bike movements are facilitated by the streetscape and traffic behavior. Vehicle speeds will be constrained by street length, on-street parking intensity, variation in width and alignment of the road, the presence of street trees, and type of road construction.

All roads would be provided to residential street standards, providing local access between properties and the distribution network in a low speed, low volume environment pavement widths to accommodate on-street parking help control vehicle speeds without the need for restrictive traffic control devices. In this way, street environments can be created where shared vehicle-pedestrian areas can exist and in corporate/enterprise areas to optimize the use of available road space for parking and service vehicles.

Potential intersection upgrades at Old Ledge Point Road and Lancelin will be explored in consultation with the Shire of Gingin.

4.2 Traffic Management

Appropriate intersection control is key to regulating traffic speeds and creating a self-enforcing road environment.

Significant levels of internal and external traffic are expected to be generated by the improved connectivity to the major regional road network. The standard of road treatments and hierarchy has been specifically addressed to cater not only for internally generated traffic, but to recognize the importance of the subject land road system within the context of a wider regional network.

5. STORMWATER DRAINAGE

Drainage system design and management is to be undertaken in accordance with best management practices and to mitigate any degradation of land or water resources, and measures are to be put in place to prevent litter from entering drainage systems. All the design and management techniques would incorporate principles of water of Water Sensitive Urban Design to the satisfaction of the Shire of Gingin. The current natural gradient divides the development area into nine distinct catchments.

The drainage design philosophy for the site aims to ensure that post-development stormwater discharges do not exceed pre-development flow rates. To manage any additional runoff generated by the development, on-site compensation measures will be implemented wherever feasible.

To achieve this, compensation basins and nutrient stripping systems will be incorporated before any stormwater is discharged into nearby waterways or regional outfalls. The exact location of these features, which form part of a broader "treatment train" approach to stormwater management, will depend on site-specific factors such as soil types, topography, and available space. Refer to the existing stormwater catchment plan below and in **Appendix C**.

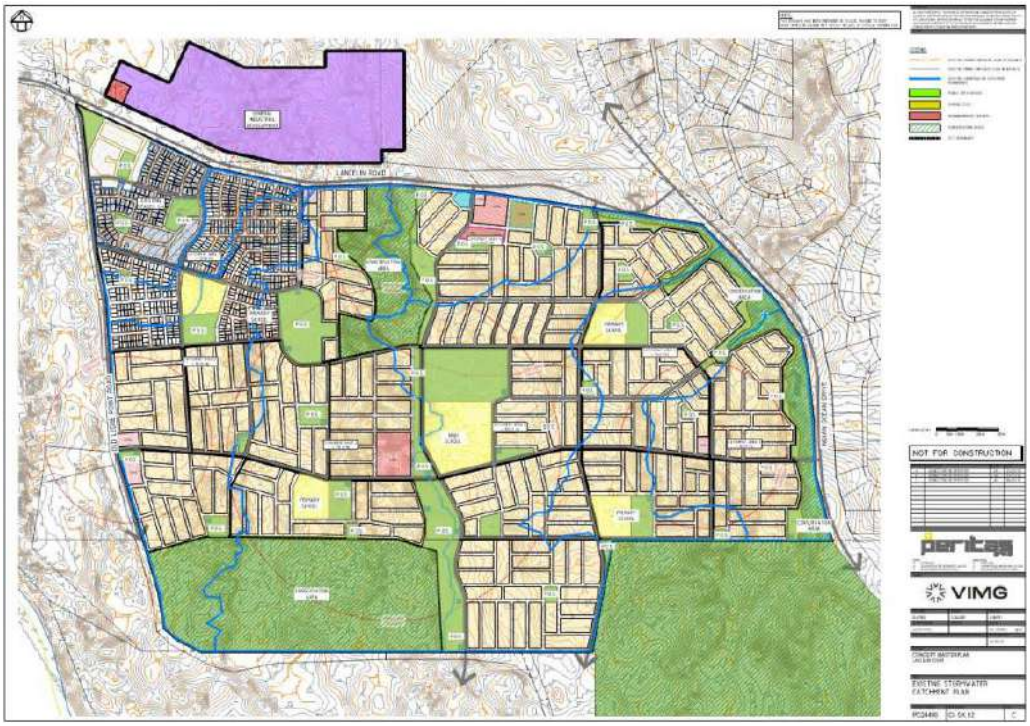


Figure 6: Existing Stormwater Catchment Plan

The Urban Water Management Strategy (UWMS) for the Lancelin development site is guided by the following key principles:

- Stormwater treatment will comply with Best Practice Guidelines set by relevant regulatory authorities.
- Integration of sustainable drainage systems that serve environmental, aesthetic, and hydraulic functions.

- The stormwater system will be designed for ease of maintenance, with attention to long-term cost-effectiveness and sustainability.
- Adoption of Water Sensitive Urban Design (WSUD) and Best Management Practices (BMP) as core elements of the urban design framework.
- Street drainage will meet the requirements of the Shire of Gingin.
- Adequate drainage and flow paths will be provided to safely convey stormwater through the site, ensuring that buildings and lots are not subject to inundation.
- Maintenance, lifecycle costs, and safety considerations will be factored into the stormwater system design.
- The flood storage outlet structure will be engineered to ensure that post-development discharge rates do not exceed pre-development conditions.

5.1 Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design is a cornerstone to all modern estate developments that aspire to meet best practice water management and environmental conservation principles.

Design outcomes include retention of natural waterways and riparian vegetation, incorporation of detention basins for flood control, wetlands and bioretention zones to ensure national water quality objectives are met in the completed development, as well as providing significant habitat for endemic species of fauna.

Refer to **Figure 7** below for a typical road verge swale incorporating WSUD principles.



Figure 7: Drainage Swale and Biofiltration system

Refer to **Figure 8** below for a typical treatment basin located in Public land which incorporates WSUD principals.

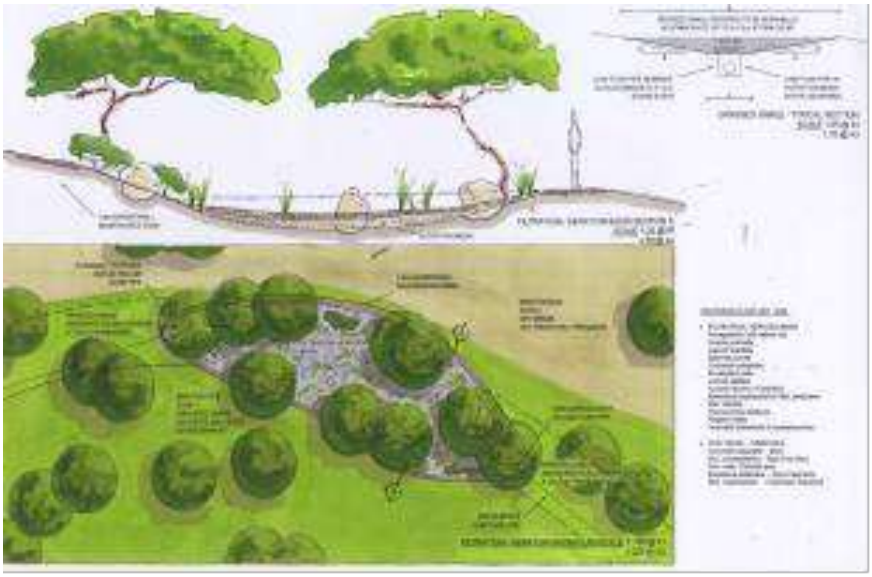


Figure 8: Filtration/Aeration Basin detail & interconnecting low flow pipe system

Best management practice will be based on the Australian Water Quality Guidelines: Argue et al. The enhanced natural areas produced provide a focal point for the community and assists in maintaining a connection between residents and their natural environment.

A feature of WSUD is to minimize the area of hard paving to minimize radiant heat and runoff. Road widths can be discussed with the team to ensure minimum widths are designed and to provide special allowance for street arbours for shading and amenity.

Design roadways and impervious areas such that runoff is sheet flow rather than concentrated to reduce erosion, and to maintain the hydrological regime and to provide opportunities for vegetation watering and support for flora and fauna communities.

5.2 Stormwater Strategy Objectives

The objectives of the stormwater strategy are to:

- Align the drainage with any prevailing LWMS.
- Prepare a strategic approach to the management of surface and groundwater in the subject area;
- To minimise impacts on the conservation protection areas;
- To appropriately manage surface water quantity and quality; and
- To adopt the principles advocated by the Regional and local regulatory authorities in the delivery and management of stormwater from the site.
- Protect receiving waters;
- Integrate the stormwater system into the urban and landscape design; and
- Provide a sustainable stormwater and water feature system

The drainage system upstream of the stormwater treatment train will consist of conventional urban drainage infrastructure and overland drainage paths, compromising:

- Minor system piped drains. Drainage pipes and pits will be designed and constructed in accordance with Local authority standards (typically to contain 1 to 5 year ARI flows);
- Minor system landscaped drainage paths. The piped drains will discharge into the kerbside swales or reserve areas, which contain a series of swale features. Runoff will travel overland before re-entering the pipe drainage network as part of biofiltration treatment systems; and
- Overland flow paths for major flows during severe storms. These flows will generally travel along roads, dedicated open drainage landscaped features and reserves and will convey peak flows up to 100 ARI storm events.

6. SEWER RETICULATION

The subject site will be serviced primarily through a gravity sewer system. The development is divided into nine wastewater catchment zones, each of which will be serviced by gravity sewer pipes into a main sewer network. These sewers will ultimately discharge either into a Type 40 wastewater pumping station or into the ultimate wastewater pumping station, depending on location and staging.

The Type 40 wastewater pumping station is designed to service a net catchment area of 88 hectares. It can receive a maximum inflow of 18.2 litres per second, with a minimum design pumping flow rate of 24.3 litres per second. Wastewater collected in this station will be pumped to the ultimate pumping station, forming part of the broader conveyance strategy.

The ultimate wastewater pumping station Type 180 (2 x Type 90), is planned to service a significantly larger net catchment area of 385 hectares. It is designed for a maximum inflow of 84.8 litres per second, with a minimum pumping flow rate of 113.0 litres per second. As part of the overall master plan, two such ultimate pumping stations locations are proposed to manage the full development.

Both the Type 40 and ultimate pumping stations are designed to provide six hours of storage time within the sewerage system, measured between the high-level alarm and the invert of the emergency overflow pipe. The Type 10 station includes a dedicated storage tank volume of 393 m3, while the ultimate pumping station includes 1,831 m3 of tank storage capacity. An odour buffer of 30 metres from the centre of the wet well applies to both station types.

Stages 1 of the development is currently serviced by an existing Private Type 10 wastewater pumping station. All lots in this stage are connected to this station via gravity sewer pipes. Wastewater will eventually be pumped from this existing station into one of the proposed ultimate stations. The proposed sewer catchment plan is as shown below in the figure below and in **Appendix D**.



Figure 9: Sewer Catchment plan

The internal sewer reticulation network for the proposed subdivision must be designed in accordance with Western Power and Water Corporation (WC) policies and the standards outlined in their development manuals. The sewer works will be under the control of Lancelin South Water.

7. WATER RETICULATION

The existing water supply for Lancelin South Water (LSW) is sourced from a single production bore drilled into the Leederville Aquifer. This bore is currently equipped with a 50 m³/h pump. LSW holds a 'Licence to Take Water' issued by the Department of Water and Environmental Regulation (DWER), which permits the abstraction of up to 470,000 m³ per annum.

Presently, the average water demand for Lancelin South is approximately 500 L/lot/day. However, for planning purposes, a design demand of 600 L/lot/day is adopted. Accounting for water losses, including treatment plant waste, leaks, and unaccounted-for usage, a 30% increase is applied, resulting in a total design demand of 780 L/lot/day. Based on this design rate, the existing licence allocation can support approximately 1,650 residential lots. Additional water requirement will be met by Lancelin South Water installing another water treatment plant (WTP). The future WTP will replicate the current process design and include multiple parallel treatment trains, to be delivered in stages in line with demand. Additional water storage will be provided via a series of modular storage tanks, the number and size of which will be confirmed during detailed design.

Furthermore, a new production bore will be required to be installed by Lancelin South Water in the near future. This will both supplement the available water source and provide redundancy in the event of failure or contamination of the existing bore.

Currently the master plan identifies two primary water service catchments, each supported by dedicated storage and trunk infrastructure.

Catchment 1 is designed to service approximately 4,900 residential lots. A new water storage tank is proposed at RL 40 m, providing a static head of 15 m. The base residential demand for this catchment is calculated at 1,000 L/lot/day, resulting in a flow requirement of approximately 153.1 L/s. When allowing for additional non-residential demands including three primary schools, a high school, retail and commercial centres, light industrial uses, and public open spaces, the total design demand for Catchment 1 increases to 190.6 L/s.

Catchment 2 is planned to service approximately 1,650 residential lots, also at a demand rate of 1,000 L/lot/day. A proposed water storage tank will be located within a designated conservation area at a ground elevation of RL 68 m, providing the same 15 m static head. This results in a base flow requirement of 51.5 L/s, which increases to 61.1 L/s when accounting for non-residential uses similar to Catchment 1. A future water treatment plant will need to be constructed by Lancelin South Water for servicing this catchment once development reaches this area.

Each catchment is proposed to be serviced by a DN250 trunk main. In Catchment 1, the trunk main will run north–south, while in Catchment 2, it will run east–west. From these mains, a network of DN150 water reticulation mains will be constructed within road reserves, with further branching DN100 service lines extending to individual lots. Refer to the water reticulation concept plan as shown below and in **Appendix E**.

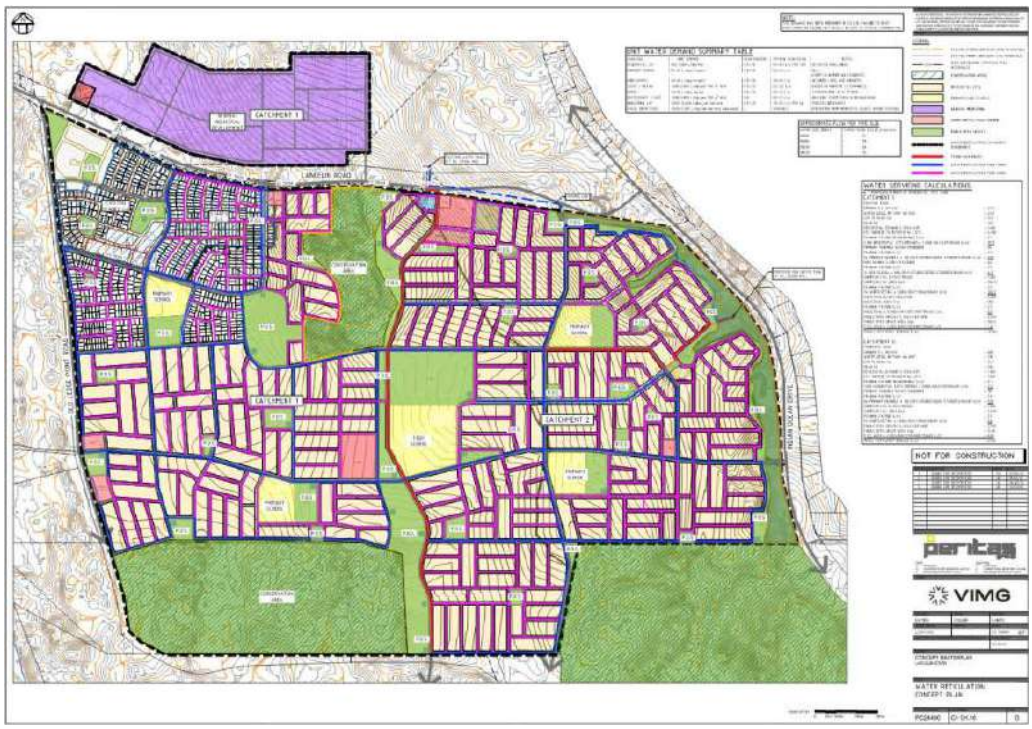


Figure 10: Water Reticulation concept Plan

8. POWER, TELECOMMUNICATION AND GAS

8.1 Western Power

The Lancelin development will be fully serviced with underground power infrastructure, which will be installed within the road reserves. An external power provider, such as UPD, will be engaged to design and construct the underground power network.

This system will connect to the existing overhead and underground network established in the Stage 1 and in Lancelin Road. All associated costs for the design and construction of the power infrastructure will be the responsibility of the developer.

Standard WP conditions will apply, along with any applicable standard servicing charges and system improvement fees relevant to the development.

8.2 Telecommunication

There are currently no existing telecommunication services within the Lancelin development area, aside from those provided in Stage 1. It is anticipated that all lots within the proposed development will be provided with telecommunication services.

The development is expected to be serviced through an extension of the existing network established in Stage 1. A service provider, such as Telstra or NBN, will be engaged to design the network and provide specifications for the installation of a pit and pipe system. All associated costs for design and installation will be borne by the developer.

Where feasible, service providers may utilise existing Western Power underground trenches for cable installation, reducing the need for additional trenching by the developer.

Telecommunication cabling to individual lots will typically occur once housing construction has commenced and service applications are made by individual lot owners. Headworks charges for the extension of telecommunication services are expected to apply.

8.3 Gas Supply

Not required.

9. SUMMARY AND RECOMMENDATIONS

9.1 Summary

The site is predominantly underlain by Safety Bay Sand, with limestone anticipated at shallow depths across the site, consistent with regional geological mapping and previous geotechnical investigations. The bulk earthworks strategy has been developed to minimise disturbance to the natural landform while achieving the required levels for residential building pads, roadworks, and servicing infrastructure, in accordance with geotechnical, flood protection, groundwater separation, and environmental constraints. Works will include clearing, stripping and stockpiling of topsoil, proof rolling, cut-to-fill operations, and stabilisation of disturbed areas. The development will involve an estimated 7,558,923 m³ of cut and 5,285,545 m³ of fill, resulting in an excess of approximately 2,273,378 m³ of material, with appropriate dust suppression, erosion control, and land stabilisation measures implemented throughout construction.

The proposed roadworks and traffic management framework for the subdivision, which has been developed in accordance with the Shire of Gingin requirements and the Liveable Neighbourhoods – Community Design Code. The internal road network and hierarchy have been designed to respond to site topography, existing road connections, anticipated traffic movements, and future development potential, while prioritising safety, legibility, and accessibility for all road users. The road layout seeks to balance local access with traffic calming through a self-enforcing speed environment, incorporating appropriate carriageway widths, intersection treatments, and access controls. Residential streets and neighbourhood connectors have been designed to accommodate flooding criteria, retain existing trees where practicable, separate through traffic from local traffic, and support pedestrian, cyclist, and public transport movements, while integrating effectively with the surrounding regional road network.

The proposed stormwater drainage strategy for the Lancelin development, which has been developed in accordance with best management practices, Water Sensitive Urban Design (WSUD) principles, and the requirements of the Shire of Gingin. The site naturally drains across nine distinct catchments, with the drainage philosophy focused on ensuring post-development stormwater discharge rates do not exceed pre-development conditions. Stormwater management will incorporate a treatment train approach, including compensation basins, swales, biofiltration systems, and nutrient stripping measures, prior to discharge to downstream waterways or regional outfalls. The system integrates conventional urban drainage infrastructure with landscaped drainage elements to manage both minor and major storm events, while protecting receiving waters, minimising impacts on conservation areas, and delivering a sustainable, low-maintenance drainage solution that enhances urban amenity and environmental outcomes.

Lancelin South will be serviced by a predominantly gravity-based sewerage system divided into nine wastewater catchment zones, each discharging via gravity sewers to a main network that connects to either a Type 40 wastewater pumping station or an ultimate pumping station, depending on development staging and location. The Type 40 pumping station is designed to service a net catchment area of 88 hectares, while the ultimate Type 180 pumping stations (2 x Type 90) will service a total net catchment area of 385 hectares, forming part of the broader long-term wastewater conveyance strategy. Both pumping station types provide a minimum of six hours emergency storage and incorporate odour buffer requirements. Stage 1 of the development is currently serviced by an existing Private Type 10 pumping station, which will ultimately discharge to one of the proposed ultimate pumping stations. The internal sewer reticulation network will be designed in accordance with Water Corporation standards and policies, with sewer infrastructure managed under the control of Lancelin South Water.

Lancelin South Water, sourced from the Leederville Aquifer under an existing DWER Licence to Take Water permitting up to 470,000 m³ per annum. Based on an adopted design demand of 780 L/lot/day, including allowances for system losses, the current licence allocation can support approximately 1,650

residential lots, with additional demand to be met through staged upgrades including a new water treatment plant, additional modular storage tanks, and the installation of a new production bore to provide both capacity and operational redundancy. The master plan identifies two primary water service catchments, each supported by dedicated storage and trunk infrastructure, designed to service approximately 4,900 lots in Catchment 1 and 1,650 lots in Catchment 2, while also accommodating non-residential demands. Water will be distributed via DN250 trunk mains within each catchment, with DN150 reticulation mains and DN100 service connections supplying individual lots in accordance with the proposed water reticulation concept.

9.2 Recommendations

Based on the assessment undertaken, the following recommendations are made:

1. **Bulk Earthworks Implementation**
   Bulk earthworks should be carried out generally in accordance with the Bulk Earthworks Plan provided in Appendix B, with site levels set to achieve Class “A” residential building conditions, minimum groundwater separation requirements, and a minimum 0.5 m clearance above the regional 1:100-year flood level.

2. **Geotechnical Management**
   Limestone is expected to be encountered during earthworks and should be managed in accordance with the geotechnical engineer’s recommendations. Proof rolling and verification of prepared surfaces should be undertaken prior to construction of building pads and pavements.

3. **Topsoil and Vegetation Management**
   Existing significant vegetation should be retained where practicable. Topsoil should be stripped, stockpiled, and reused on site to support landscaping and land stabilisation works. Cleared vegetation should be reused for stabilisation where possible, with surplus material disposed of at approved facilities.

4. **Traffic Impact Assessment**
   A Traffic Impact Assessment should be prepared in accordance with the WAPC Transport Assessment Guidelines, with particular consideration given to external impacts and potential intersection upgrades at Old Ledge Point Road and Lancelin, in consultation with the Shire of Gingin.
5. **Detailed Design and Approvals**
   All roadworks and traffic management measures should be subject to detailed design, further traffic analysis where required, and approval by the relevant authorities prior to construction.
6. **Stormwater Design Standards**
   The stormwater drainage system should be designed in accordance with applicable Australian guidelines, WSUD best practice, any relevant Local Water Management Strategy (LWMS), and the engineering requirements of the Shire of Gingin.

7. **Water Sensitive Urban Design**
   WSUD elements, including swales, bioretention systems, treatment basins, and landscaped overland flow paths, should be integrated throughout the development to manage stormwater quality, reduce runoff, and enhance environmental and visual amenity.

8. **Minor and Major Drainage Systems**
   Minor drainage infrastructure (pipes and pits) should be designed to accommodate 1-to-5-year ARI events in accordance with local authority standards, while overland flow paths and major drainage systems should safely convey flows up to the 100-year ARI event without adverse impacts to lots or buildings.

9. **Detailed Design and Approvals**
   Detailed stormwater modelling, system sizing, and final layouts should be completed at the subdivision design stage and submitted for review and approval by the Shire of Gingin and relevant regulatory authorities prior to construction.

10. **Sewer Network Design**
    The internal sewer reticulation system should be designed as a gravity system where practicable, in accordance with Water Corporation standards, policies, and relevant development manuals.

11. **Pumping Station Provision**
    The Type 40 and ultimate Type 180 WWPS should be delivered in accordance with the approved master plan and staged to align with development demand and servicing requirements.

12. **Odour Management**
    A minimum odour buffer distance of 30 metres from the centre of the WWPS wet well should be maintained for all pumping stations, with land use planning and lot layout designed to respect this constraint.

13. **Approvals and Asset Ownership**
    Detailed sewer design, pump station specifications, and staging arrangements should be subject to review and approval by Water Corporation and Lancelin South Water prior to construction.

14. **Water Supply Capacity**
    Water servicing should be delivered in accordance with the adopted design demand criteria, with staged upgrades to water treatment, storage, and source infrastructure implemented to align with development progression.

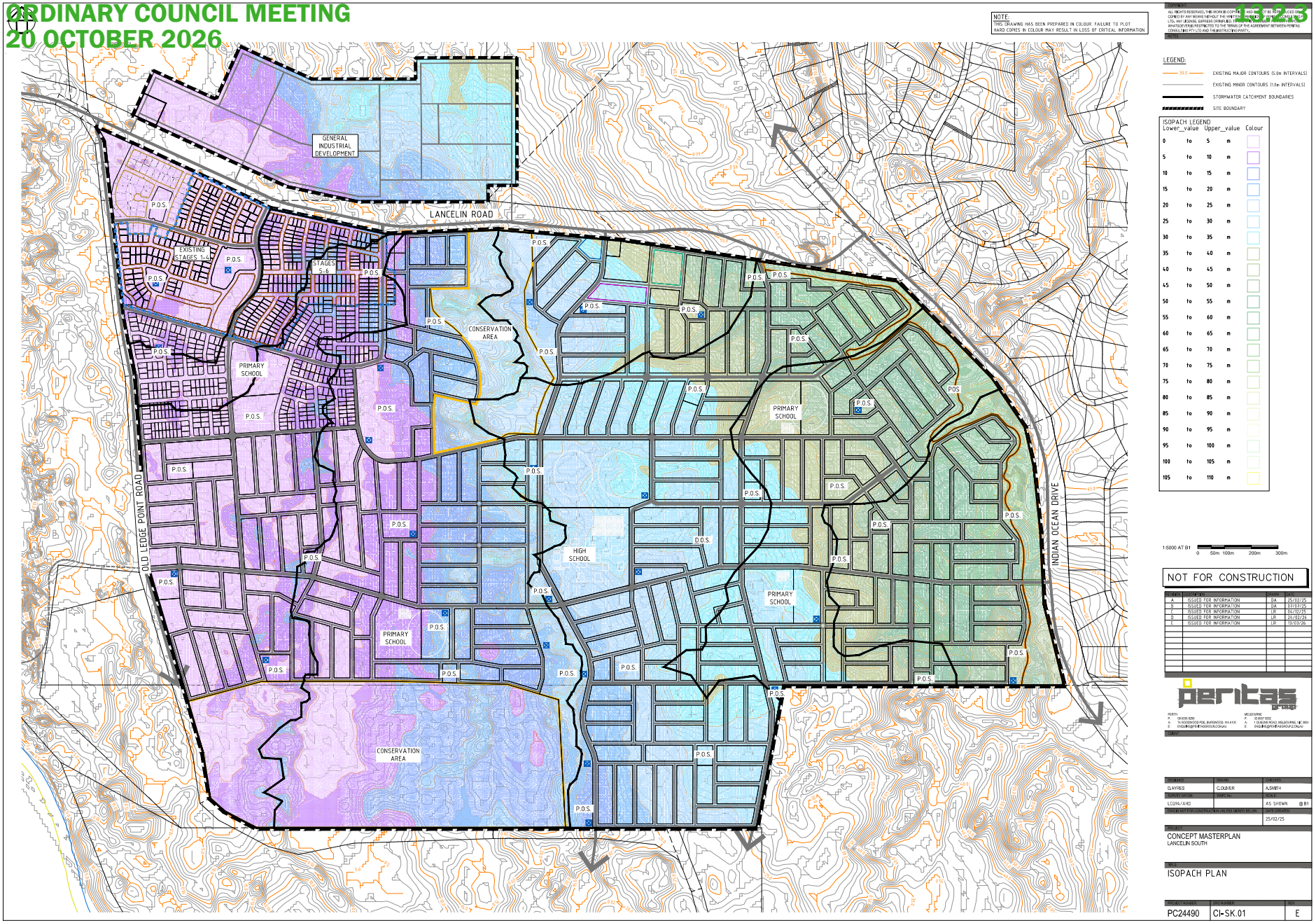
15. **Water Treatment and Storage**
    Lancelin South Water should construct the future water treatment plant and associated modular storage tanks as required to service demand beyond the capacity of the existing licence allocation, with final sizing confirmed during detailed design.
16. **Production Bore Provision**
    A new production bore should be installed to supplement the existing source and provide redundancy in the event of bore failure or contamination, subject to DWER approval.
17. **Catchment Servicing Strategy**
    The two primary water service catchments should be maintained as identified in the master plan, with storage tank locations and static head requirements incorporated into detailed design and land use planning.
18. **Underground Power Provision**
    Underground power infrastructure should be designed and constructed within road reserves by an accredited service provider in accordance with Western Power standards and requirements.

19. **Telecommunication Servicing**
    Telecommunication services should be provided to all lots through extension of the existing network, with pit and pipe infrastructure designed and installed to the satisfaction of the nominated service provider.

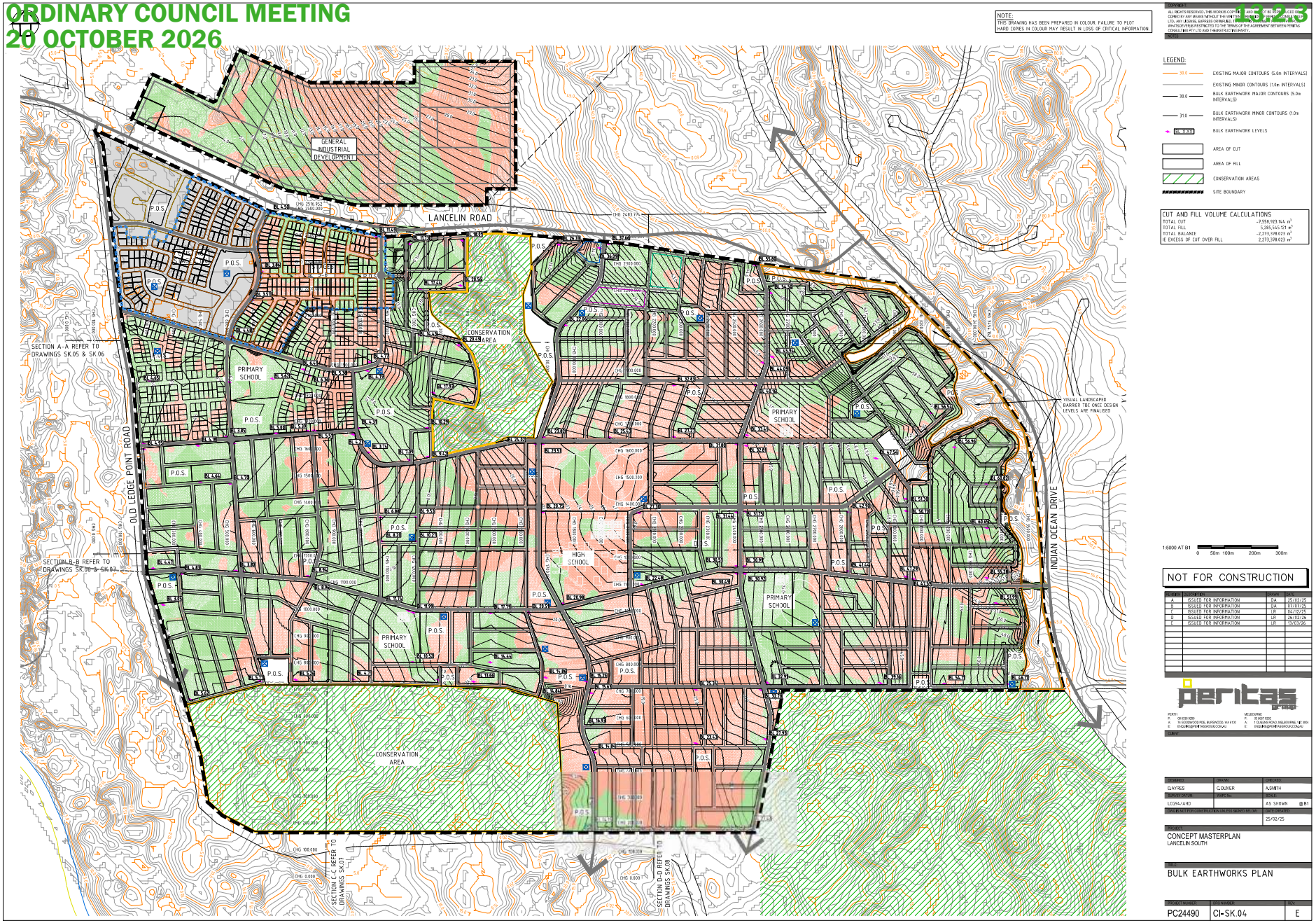
20. **Gas Services**
    No gas infrastructure is required or proposed for the development.

Subject to the implementation of the above recommendations, the proposed bulk earthworks and siteworks are considered suitable to support the staged development of the Lancelin subdivision.

Appendix A – Iso Patch Plan

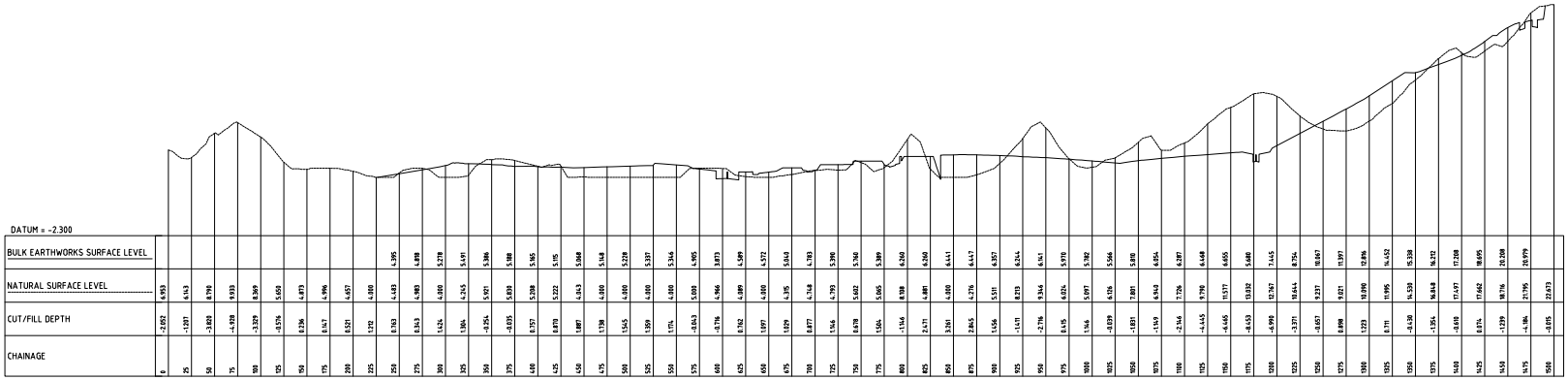

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EXISTING MINOR CONTOURS (1.0m INTERVALS)
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ISOPACH PLAN
PC24490 CI-SK.01 E
GENERAL INDUSTRIAL DEVELOPMENT
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
EXISTING STAGES 1-4
STAGES 5-6
PRIMARY SCHOOL
HIGH SCHOOL
CONSERVATION AREA
P.O.S.

Appendix B – Bulk Earthworks Plan

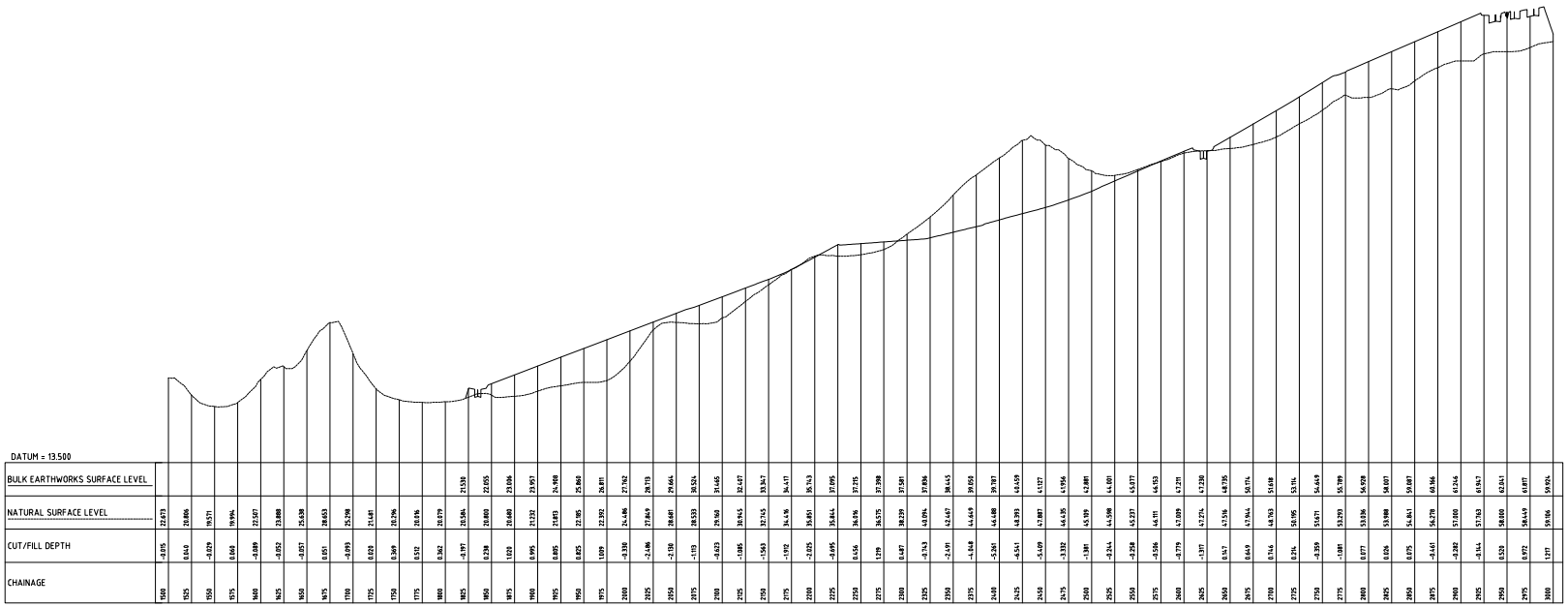

NOTE:
THIS DRAWING HAS BEEN PREPARED IN COLOUR. FAILURE TO PLOT HARD COPIES IN COLOUR MAY RESULT IN LOSS OF CRITICAL INFORMATION.
LEGEND:
EXISTING MAJOR CONTOURS (5.0m INTERVALS)
EXISTING MINOR CONTOURS (1.0m INTERVALS)
BULK EARTHWORK MAJOR CONTOURS (5.0m INTERVALS)
BULK EARTHWORK MINOR CONTOURS (1.0m INTERVALS)
BULK EARTHWORK LEVELS
AREA OF CUT
AREA OF FILL
CONSERVATION AREAS
SITE BOUNDARY
CUT AND FILL VOLUME CALCULATIONS
TOTAL CUT -7,558,923.144 m³
TOTAL FILL 5,285,545.121 m³
TOTAL BALANCE -2,273,378.023 m³
IE EXCESS OF CUT OVER FILL 2,273,378.023 m³
1:5000 AT B1
0 50m 100m 200m 300m
NOT FOR CONSTRUCTION
A ISSUED FOR INFORMATION DA 25/02/25
B ISSUED FOR INFORMATION DA 07/07/25
C ISSUED FOR INFORMATION LR 04/12/25
D ISSUED FOR INFORMATION LR 26/02/26
E ISSUED FOR INFORMATION LR 13/03/26
peritas
CLAYRES C.OLIVIER A.SMITH
LCG94/AHD AS SHOWN @ B1
25/02/25
CONCEPT MASTERPLAN
LANCELIN SOUTH
BULK EARTHWORKS PLAN
PC24490 CI-SK.04 E
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
GENERAL INDUSTRIAL DEVELOPMENT
CONSERVATION AREA
PRIMARY SCHOOL
HIGH SCHOOL
P.O.S.
SECTION A-A REFER TO DRAWINGS SK.05 & SK.06
SECTION B-B REFER TO DRAWINGS SK.06 & SK.07
SECTION C-C REFER TO DRAWINGS SK.07
SECTION D-D REFER TO DRAWINGS SK.08
VISUAL LANDSCAPED BARRIER TBC ONCE DESIGN LEVELS ARE FINALISED

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NOTES
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING PC24490-01-SK-04.



BULK EARTHWORK CROSS SECTION A-A
A1 SCALE: H 1:2000, V 1:200



BULK EARTHWORK CROSS SECTION A-A
A1 SCALE: H 1:2000, V 1:200

1:200 AT B1
0 2m 4m 8m 12m

1:2000 AT B1
0 20m 40m 80m 120m

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DRAWN	DATE
A	ISSUED FOR INFORMATION	DA	25/02/25
B	ISSUED FOR INFORMATION	LR	04/12/25

peritas group

PERTH
P: 08 9330 9200
A: 74 BOORDWOOD PDE, BURSWOOD, WA 6100
E: ENQUIRY@PERITASGROUP.COM.AU

MELBOURNE
P: 03 8507 9202
A: 1 QUEENS ROAD, MELBOURNE, VIC 3004
E: ENQUIRY@PERITASGROUP.COM.AU

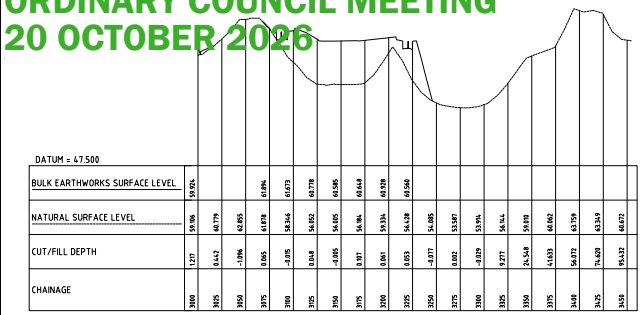
CLIENT
VIMG

DESIGNED	DRAWN	APPROVED
CLAYRES	C.OLIVER	A.SMITH
SURVEY DATUM	DATUM	SCALE @
LCG94/AHD		AS SHOWN @ B1
DRAWING NOTTO BE CONSTRUCTED UNLESS SIGNED BELOW		DATE CREATED
		25/02/25

PROJECT
CONCEPT MASTERPLAN
LANCELIN SOUTH

TITLE
BULK EARTHWORKS CROSS SECTIONS SHEET 1

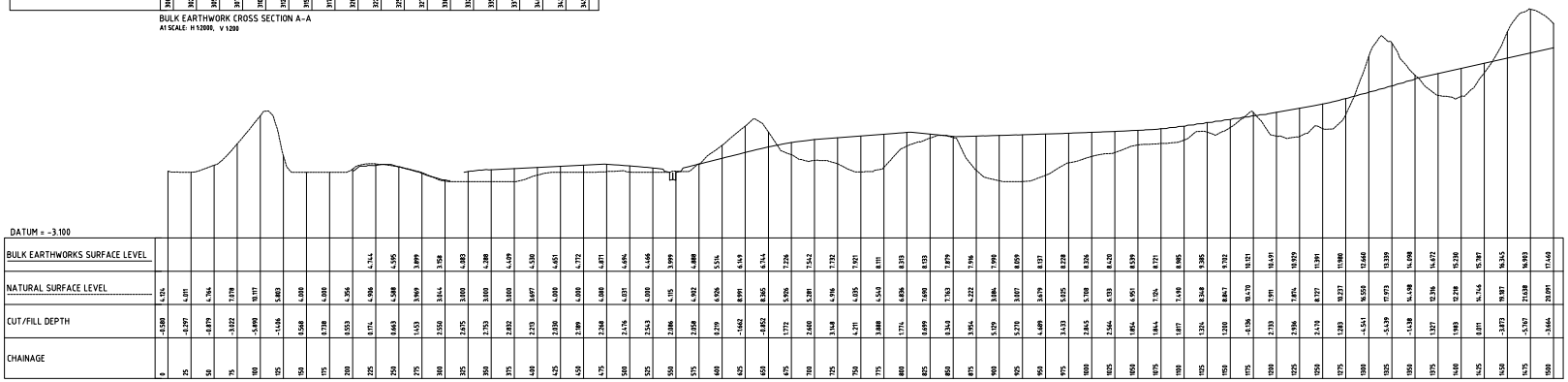
PROJECT NUMBER	DRG NUMBER	REV
PC24490	CI-SK.05	B



DATUM = 47.500

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
3300	1.217	59.196	59.926
3325	0.442	60.779	
3350	-1.996	62.865	
3375	0.065	61.878	61.894
3400	-0.015	58.264	58.673
3425	0.048	56.652	60.778
3450	-0.035	56.605	60.585
3475	0.107	56.184	60.644
3500	0.061	59.334	60.928
3525	0.053	56.428	60.560
3550	-0.077	54.485	
3575	0.012	53.587	
3600	-0.029	53.994	
3625	0.277	56.144	
3650	21.548	59.198	
3675	14.033	60.062	
3700	56.772	63.759	
3725	74.420	83.243	
3750	95.432	60.672	

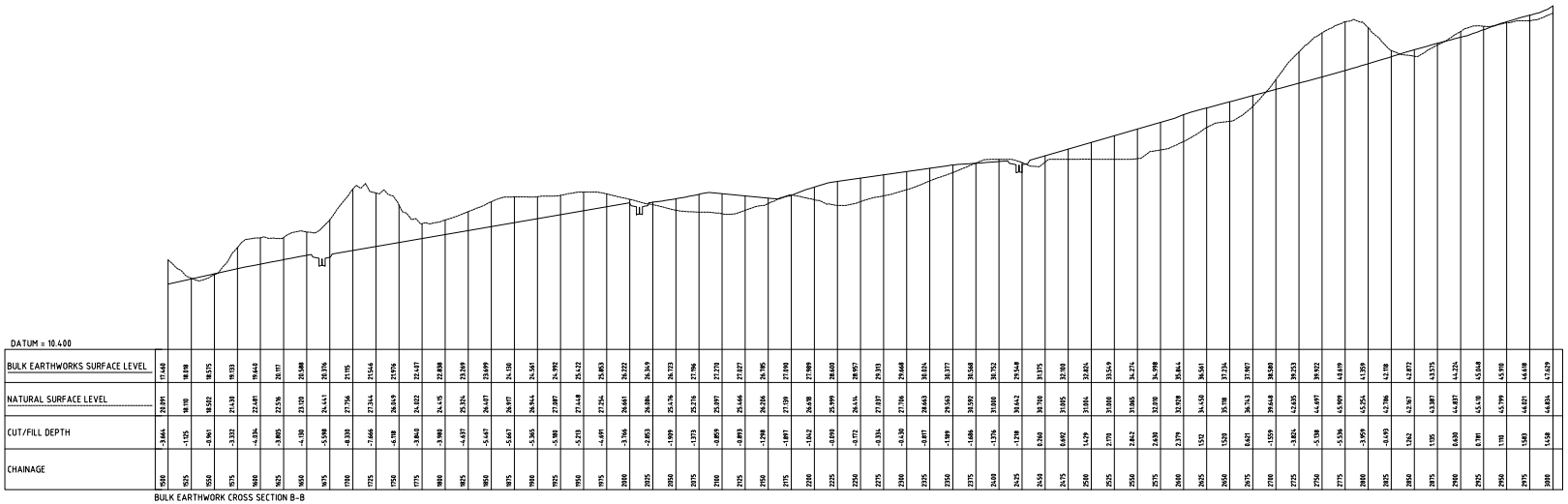
BULK EARTHWORK CROSS SECTION A-A
A1 SCALE: H 1:2000, V 1:200



DATUM = -3.100

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
0	-4.580	4.124	
25	-4.297	4.011	
50	-4.879	4.784	
75	-3.822	7.178	
100	-5.490	10.117	
125	-1.146	5.603	
150	0.568	4.080	
175	0.728	4.080	
200	0.553	4.256	
225	0.176	4.196	4.744
250	0.663	4.588	4.595
275	1.453	3.969	3.899
300	2.598	3.944	3.758
325	2.675	3.880	4.083
350	2.753	3.803	4.288
375	2.882	3.803	4.409
400	2.720	3.697	4.538
425	2.830	4.080	4.651
450	2.389	4.080	4.772
475	2.268	4.080	4.671
500	2.476	4.031	4.696
525	2.543	4.080	4.446
550	2.286	4.115	3.999
575	2.258	4.102	4.888
600	8.219	6.926	5.514
625	-1.662	8.991	6.149
650	-2.652	8.345	6.744
675	1.772	5.906	7.226
700	2.460	5.281	7.542
725	3.148	4.196	7.732
750	4.711	4.035	7.921
775	3.880	4.543	8.111
800	1.774	6.656	8.313
825	0.699	7.690	8.513
850	0.343	7.763	7.879
875	3.954	4.222	7.196
900	5.129	3.084	7.990
925	5.271	3.807	8.059
950	4.689	3.679	8.137
975	3.433	5.025	8.228
1000	2.845	5.188	8.326
1025	2.546	6.133	8.420
1050	1.854	6.951	8.539
1075	1.864	7.124	8.721
1100	1.877	7.140	8.985
1125	1.324	8.368	9.385
1150	1.200	8.847	9.702
1175	-4.136	10.470	10.151
1200	2.733	7.591	10.491
1225	2.396	7.894	10.959
1250	2.410	8.727	11.391
1275	1.283	10.237	11.980
1300	-4.541	16.558	12.660
1325	-4.539	17.973	13.339
1350	-4.138	14.498	14.098
1375	1.327	12.316	14.472
1400	1.993	12.278	14.280
1425	8.011	14.744	15.387
1450	-3.873	19.187	16.345
1475	-5.107	21.638	16.953
1500	3.664	20.091	17.160

BULK EARTHWORK CROSS SECTION B-B
A1 SCALE: H 1:2000, V 1:200



DATUM = 10.400

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
1650	-3.644	20.891	17.148
1675	-1.125	18.118	16.898
1700	-0.961	18.502	16.515
1725	-3.332	21.438	18.133
1750	-4.034	22.481	19.446
1775	-3.805	22.536	20.177
1800	-4.130	23.130	20.980
1825	-5.598	24.441	20.376
1850	-4.838	27.756	21.195
1875	-7.466	27.344	21.544
1900	-4.118	26.869	21.976
1925	-3.840	24.622	22.437
1950	-3.900	24.415	22.800
1975	-4.437	25.324	23.369
2000	-5.447	26.497	23.899
2025	-5.667	26.897	24.130
2050	-5.595	26.864	24.561
2075	-5.580	27.387	24.992
2100	-5.513	27.448	25.422
2125	-4.491	27.256	25.803
2150	-3.766	26.661	26.222
2175	-2.853	26.886	26.869
2200	-1.909	25.674	26.723
2225	-1.353	25.276	27.196
2250	-0.859	25.597	27.270
2275	-0.893	25.466	27.027
2300	-1.298	26.206	26.795
2325	-1.897	27.139	27.690
2350	-1.042	26.628	27.989
2375	-0.899	25.999	28.600
2400	-0.972	26.414	28.957
2425	-0.334	27.207	29.311
2450	-0.430	27.706	29.668
2475	-0.611	28.663	30.024
2500	-1.189	29.563	30.377
2525	-1.686	30.592	30.568
2550	-1.376	31.080	30.752
2575	-1.218	30.442	29.564
2600	0.260	30.760	31.315
2625	0.692	31.905	32.180
2650	1.429	31.884	32.824
2675	1.170	31.880	33.564
2700	2.842	31.965	34.274
2725	2.630	32.310	34.998
2750	2.379	33.928	35.844
2775	1.512	34.458	36.561
2800	1.520	35.198	37.234
2825	0.621	36.763	37.907
2850	-1.559	39.668	38.580
2875	-3.824	42.605	39.253
2900	-5.138	44.497	39.922
2925	-5.536	45.909	40.619
2950	-3.959	45.254	41.959
2975	-0.693	42.786	42.178
3000	1.262	42.267	42.872
3025	1.155	43.387	43.575
3050	0.830	44.687	44.224
3075	0.781	45.418	45.564
3100	1.118	45.799	45.918
3125	1.580	46.681	46.618
3150	1.458	46.836	47.629
3175	1.217	47.500	

BULK EARTHWORK CROSS SECTION B-B
A1 SCALE: H 1:2000, V 1:200

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NOTE

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING PC24490-CI-SK.04.

1:200 AT B1
0 2m 4m 8m 12m

1:2000 AT B1
0 20m 40m 80m 120m

NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	DRAWN	DATE
A	ISSUED FOR INFORMATION	DA	25/02/25
B	ISSUED FOR INFORMATION	LR	04/12/25

peritas group
PERTH
P: 08 9250 9200
A: 74 BOORDWOOD PDE, BURSWOOD, WA 6100
E: ENQUIRIES@PERITASGROUP.COM.AU
MELBOURNE
P: 03 8507 9202
A: 1 QUEENS ROAD, MELBOURNE, VIC 3004
E: ENQUIRIES@PERITASGROUP.COM.AU

CLIENT: VIMG

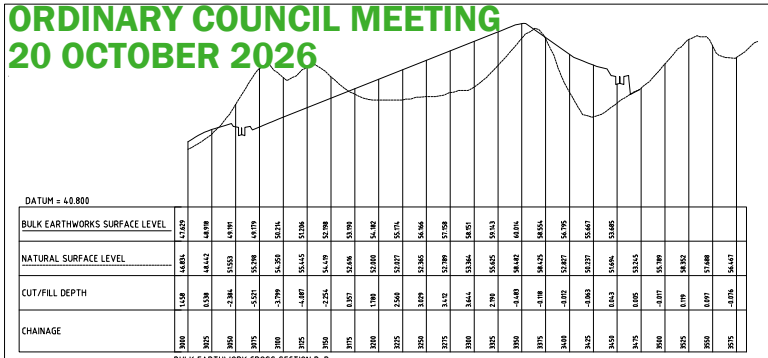
DESIGN	DRAWN	CHECKED
CLAYRES	C.OLIVER	A.SMITH
SURVEY DATUM	SURVEY	SCALE
LC094/AHD		AS SHOWN @ B1

DRAWN WITHIN CONSTRUCTION UNLESS SIGNED BELOW — DATE CHECKED: 25/02/25

PROJECT: CONCEPT MASTERPLAN
LANCELIN SOUTH

TITLE: BULK EARTHWORKS CROSS SECTIONS SHEET 2

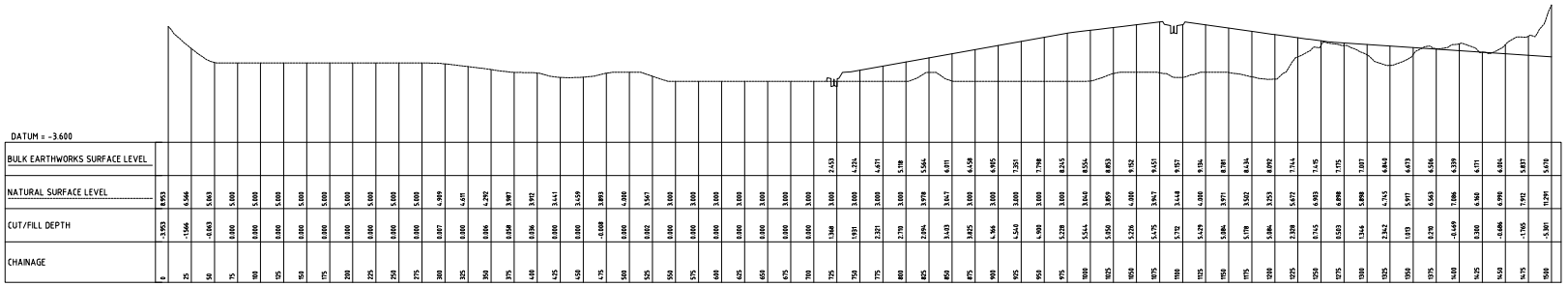
PROJECT NUMBER	DRAWING NUMBER	REV
PC24490	CI-SK.06	B



DATUM = 40.800

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
3000	1.438	46.804	47.629
3025	0.538	48.442	48.918
3050	-2.344	51.653	49.991
3075	-5.021	54.398	49.719
3100	-3.799	54.258	50.314
3125	-4.387	54.445	50.196
3150	-2.254	54.419	52.198
3175	0.957	52.696	53.799
3200	1.780	52.680	54.582
3225	2.568	52.877	55.574
3250	3.029	52.965	56.166
3275	3.412	53.789	57.158
3300	3.644	53.364	58.151
3325	2.998	55.625	59.543
3350	-1.469	58.482	60.074
3375	-3.118	59.425	58.554
3400	-3.072	57.827	56.795
3425	-4.963	58.237	55.667
3450	0.563	53.684	53.685
3475	0.005	53.245	
3500	-4.077	55.789	
3525	0.119	58.952	
3550	0.097	57.488	
3575	-4.078	54.447	

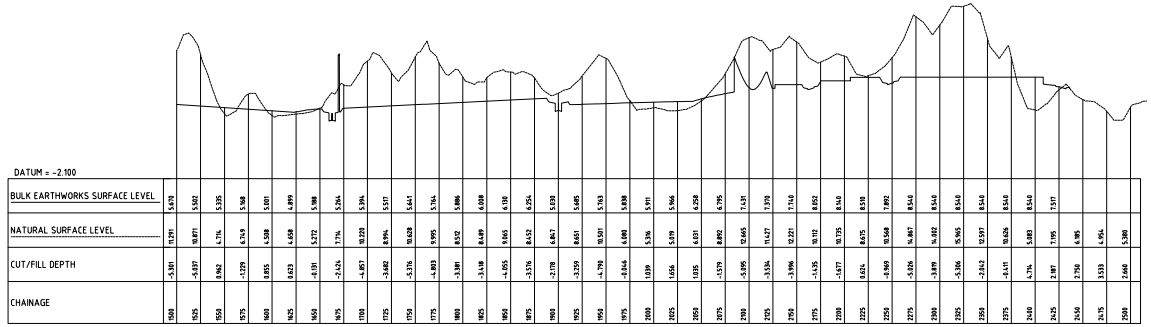
BULK EARTHWORK CROSS SECTION B-B
A1 SCALE: H 1:2000, V 1:200



DATUM = -3.600

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
0	-3.953	8.953	
25	-1.566	6.566	
50	-0.063	5.063	
75	0.000	5.000	
100	0.000	5.000	
125	0.000	5.000	
150	0.000	5.000	
175	0.000	5.000	
200	0.000	5.000	
225	0.000	5.000	
250	0.000	5.000	
275	0.000	5.000	
300	0.087	4.999	
325	0.080	4.611	
350	0.026	4.292	
375	0.050	3.987	
400	0.036	3.972	
425	0.000	3.641	
450	0.000	3.459	
475	-0.008	3.893	
500	0.000	4.000	
525	0.002	3.567	
550	0.000	3.000	
575	0.000	3.000	
600	0.000	3.000	
625	0.000	3.000	
650	0.000	3.000	
675	0.000	3.000	
700	0.000	3.000	
725	1.360	3.000	7.453
750	1.931	3.000	8.224
775	2.221	3.000	8.471
800	2.270	3.000	8.518
825	2.094	3.978	9.564
850	3.443	3.667	9.611
875	3.825	3.000	9.450
900	4.166	3.000	9.495
925	4.540	3.000	9.291
950	4.901	3.000	9.798
975	5.228	3.000	9.845
1000	5.544	3.644	9.554
1025	5.850	3.859	9.853
1050	5.226	4.086	9.952
1075	5.475	3.967	9.451
1100	5.712	3.668	9.957
1125	5.429	4.080	9.134
1150	5.084	3.971	8.781
1175	5.178	3.502	8.434
1200	5.084	3.253	8.092
1225	2.838	5.472	7.744
1250	0.765	6.993	7.495
1275	0.583	6.898	7.115
1300	1.346	5.898	7.007
1325	2.342	4.745	6.844
1350	1.813	5.911	6.473
1375	0.270	6.563	6.586
1400	-0.649	7.086	6.339
1425	0.380	6.160	6.471
1450	-0.686	6.996	6.084
1475	-1.795	7.912	5.837
1500	-5.301	11.291	5.670

BULK EARTHWORK CROSS SECTION C-C
A1 SCALE: H 1:2000, V 1:200



DATUM = -2.100

CHAINAGE	CUT/FILL DEPTH	NATURAL SURFACE LEVEL	BULK EARTHWORKS SURFACE LEVEL
3500	-5.991	11.291	5.670
3525	-5.977	10.971	5.502
3550	-5.962	10.706	5.335
3575	-1.229	6.769	5.568
3600	0.855	4.369	5.101
3625	0.623	4.458	4.899
3650	-0.131	5.272	5.188
3675	-2.424	7.774	5.264
3700	-4.857	10.220	5.284
3725	-3.482	8.994	5.517
3750	-5.376	10.628	5.641
3775	-4.893	9.995	5.764
3800	-3.381	8.512	5.886
3825	-3.148	8.449	6.008
3850	-4.055	9.865	6.118
3875	-3.576	8.452	6.254
3900	-2.178	6.867	5.838
3925	-3.259	8.651	5.685
3950	-4.798	10.501	5.763
3975	-4.844	6.680	5.898
4000	-1.039	5.336	5.911
4025	-1.656	5.599	5.966
4050	-1.035	6.631	6.258
4075	-1.579	8.892	6.795
4100	-5.995	12.665	7.131
4125	-3.534	11.427	7.378
4150	-3.990	12.221	7.740
4175	-1.435	10.112	8.652
4200	-1.477	10.735	8.166
4225	0.624	8.675	8.510
4250	-0.960	10.568	7.892
4275	-3.026	14.667	8.540
4300	-3.889	14.402	8.540
4325	-5.306	15.965	8.540
4350	-2.842	12.597	8.540
4375	-4.111	13.626	8.540
4400	4.714	5.083	8.540
4425	2.187	7.195	7.511
4450	2.736	4.985	
4475	3.533	4.954	
4500	2.660	5.380	

BULK EARTHWORK CROSS SECTION C-C
A1 SCALE: H 1:2000, V 1:200

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NOTES
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING PC24490-01-SK-04.

1:200 AT B1
0 2m 4m 8m 12m

1:2000 AT B1
0 20m 40m 80m 120m

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DRAWN	DATE
A	ISSUED FOR INFORMATION	DA	25/02/25
B	ISSUED FOR INFORMATION	LR	04/12/25

PERITAS
PERTH
P 08 9330 3200
A 74 BOORDWOOD PDE, BURSWOOD, WA 6100
E ENQUIRIES@PERITASGROUP.COM.AU
MELBOURNE
P 03 8507 8702
A 1 QUEENS ROAD, MELBOURNE, VIC 3004
E ENQUIRIES@PERITASGROUP.COM.AU

CLIENT
VIMG

DESIGNED	DRAWN	CHECKED
CLAYRES	C.OLIVER	A.SMITH
PROJECT DATUM	PROJECTION	SCALE
LCG94/AHD		AS SHOWN @ B1
DRAWER NOTATION CONSTRUCTION UNLESS SIGNED BELOW		DATE CREATED
		25/02/25

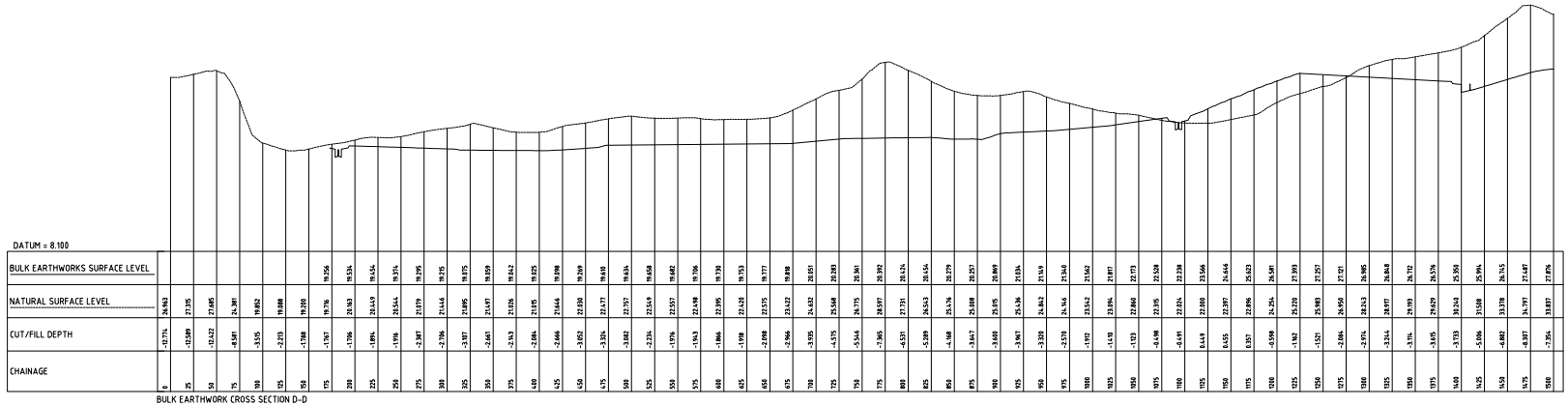
PROJECT
CONCEPT MASTERPLAN
LANCELIN SOUTH

TITLE
BULK EARTHWORKS CROSS SECTIONS SHEET 3

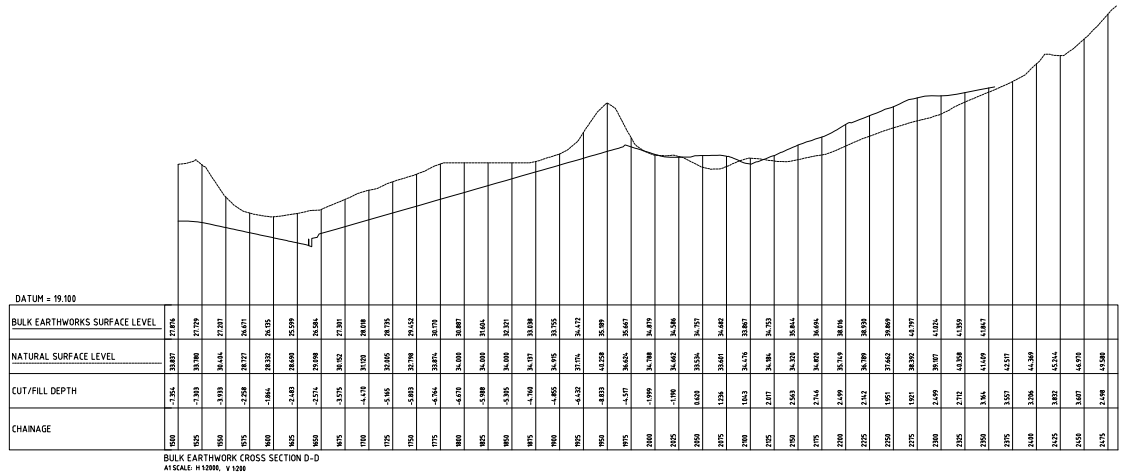
PROJECT NUMBER	DRAWING NUMBER	REV
PC24490	CI-SK.07	B

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NOTES
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING PC24490-01-SK-04.



BULK EARTHWORK CROSS SECTION D-D
A1 SCALE: H 1:2000, V 1:200



BULK EARTHWORK CROSS SECTION D-D
A1 SCALE: H 1:2000, V 1:200

1:200 AT B1
0 2m 4m 8m 12m

1:2000 AT B1
0 20m 40m 80m 120m

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DRAWN	DATE
A	ISSUED FOR INFORMATION	DA	25/02/25
B	ISSUED FOR INFORMATION	LR	04/12/25

peritas

PERTH
P 08 9330 3200
A 76 ROCKINGHAM RD, BURSWOOD, WA 6100
E ENQUIRIES@PERITASGROUP.COM.AU

MELBOURNE
P 03 8657 5700
A 1 QUEENS ROAD, MELBOURNE, VIC 3004
E ENQUIRIES@PERITASGROUP.COM.AU

CLIENT
VIMG

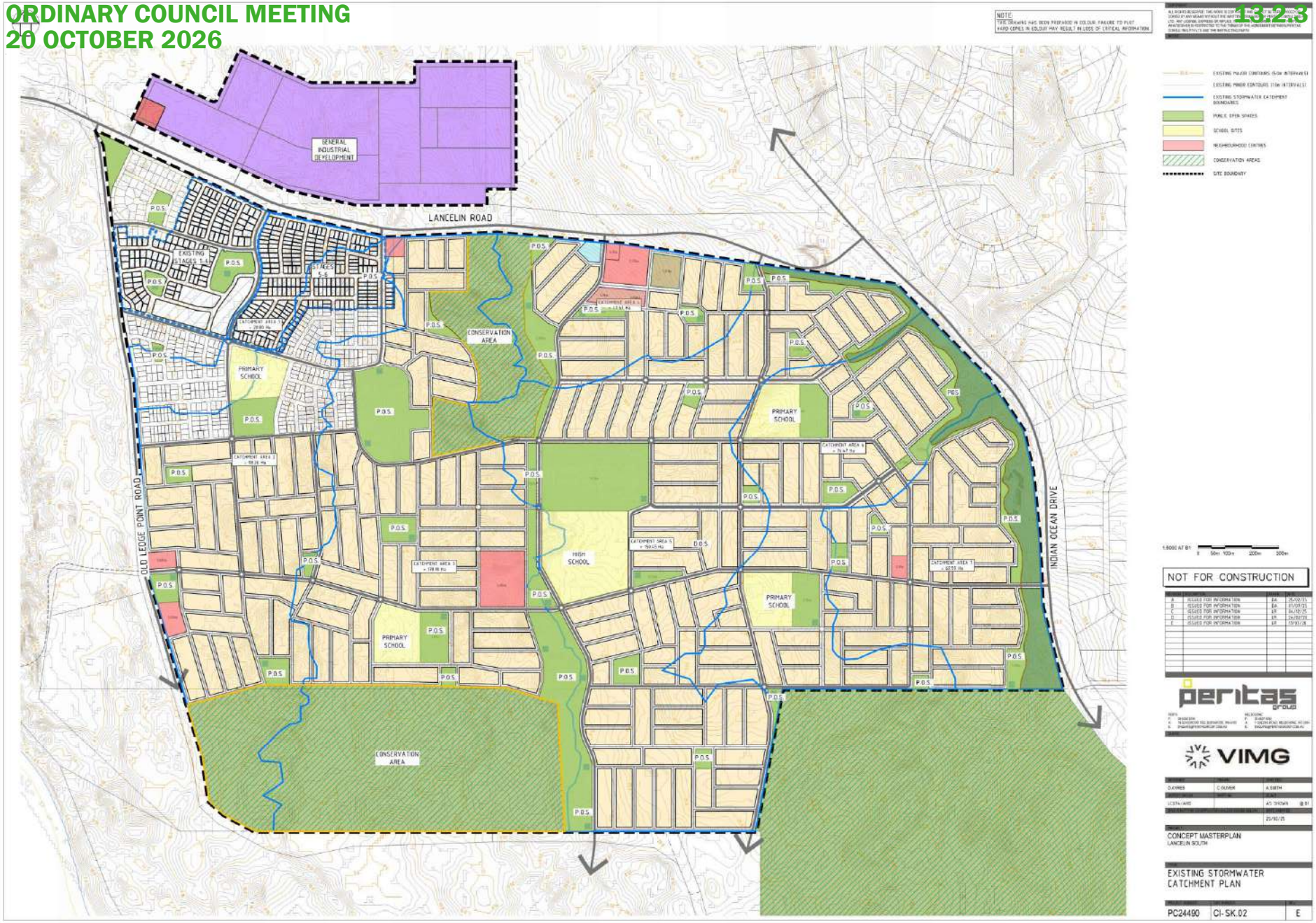
DESIGNED	DRAWN	CHECKED
CLAYRES	C.OLIVER	A.SMITH
PROJECT DATUM	SURVEY	SCALE
LCG94/AHD		AS SHOWN @ B1
DRAWN NOT FOR CONSTRUCTION UNLESS SIGNED BELOW		DATE CREATED
		25/02/25

PROJECT
CONCEPT MASTERPLAN
LANCELIN SOUTH

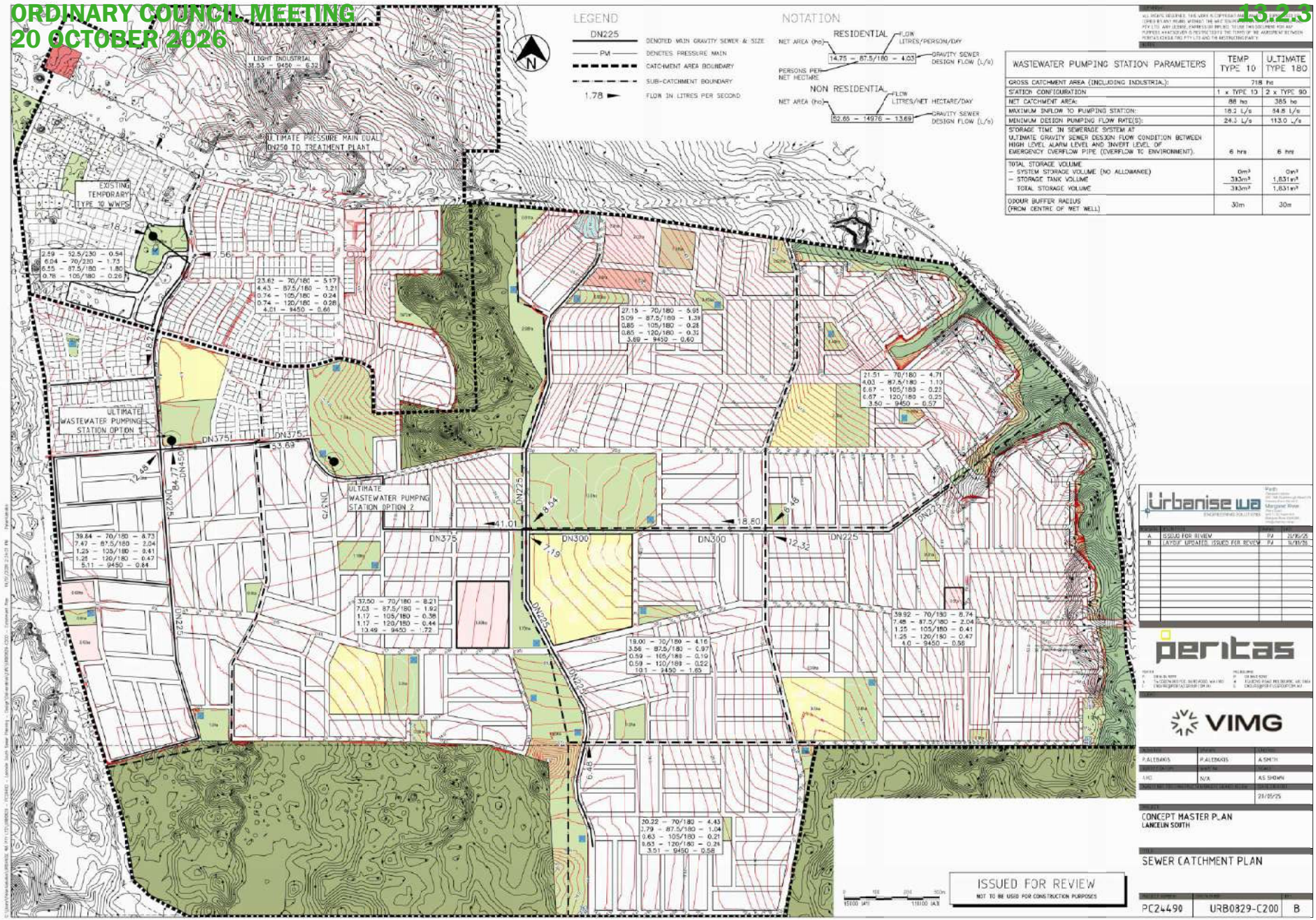
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BULK EARTHWORKS CROSS SECTIONS SHEET 4

PROJECT NUMBER	DRG NUMBER	REV
PC24490	CI-SK.08	B

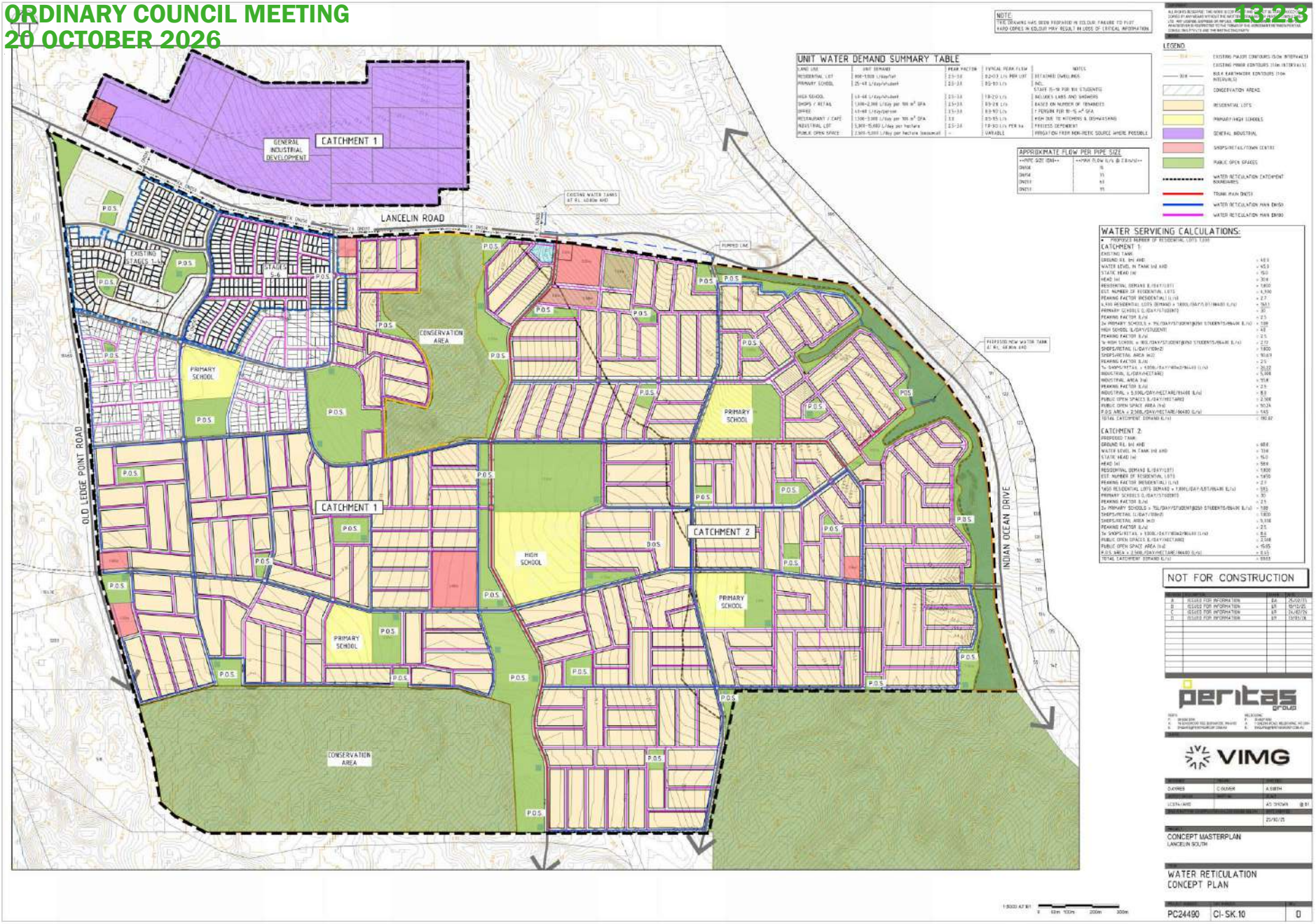
Appendix C – Existing stormwater Catchment Plan


GENERAL INDUSTRIAL DEVELOPMENT
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
CONSERVATION AREA
CONSERVATION AREA
PRIMARY SCHOOL
PRIMARY SCHOOL
PRIMARY SCHOOL
HIGH SCHOOL
EXISTING STAGES 1-4
STAGES 5-6
P.O.S
NOT FOR CONSTRUCTION
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VIMG
CONCEPT MASTERPLAN
LANCELIN SOUTH
EXISTING STORMWATER CATCHMENT PLAN
PC24490
CI-SK.02
E

Appendix D – Sewer Catchment Plan


LEGEND
DN225 DENOTED MAIN GRAVITY SEWER & SIZE
PM DENOTES PRESSURE MAIN
CATCHMENT AREA BOUNDARY
SUB-CATCHMENT BOUNDARY
1.78 FLOW IN LITRES PER SECOND
NOTATION
RESIDENTIAL
NET AREA (ha)
FLOW LITRES/PERSON/DAY
14.75 – 87.5/180 – 4.03
GRAVITY SEWER DESIGN FLOW (L/s)
PERSONS PER NET HECTARE
NON RESIDENTIAL
NET AREA (ha)
FLOW LITRES/NET HECTARE/DAY
52.65 – 14976 – 13.69
GRAVITY SEWER DESIGN FLOW (L/s)
WASTEWATER PUMPING STATION PARAMETERS
TEMP TYPE 10
ULTIMATE TYPE 180
GROSS CATCHMENT AREA (INCLUDING INDUSTRIAL): 718 ha
STATION CONFIGURATION: 1 x TYPE 10 | 2 x TYPE 90
NET CATCHMENT AREA: 88 ha | 385 ha
MAXIMUM INFLOW TO PUMPING STATION: 18.2 L/s | 84.8 L/s
MINIMUM DESIGN PUMPING FLOW RATE(S): 24.1 L/s | 113.0 L/s
STORAGE TIME IN SEWERAGE SYSTEM AT ULTIMATE GRAVITY SEWER DESIGN FLOW CONDITION BETWEEN HIGH LEVEL ALARM LEVEL AND INVERT LEVEL OF EMERGENCY OVERFLOW PIPE (OVERFLOW TO ENVIRONMENT): 6 hrs | 6 hrs
TOTAL STORAGE VOLUME
– SYSTEM STORAGE VOLUME (NO ALLOWANCE) 0m³ | 0m³
– STORAGE TANK VOLUME 383m³ | 1,631m³
TOTAL STORAGE VOLUME 383m³ | 1,631m³
ODOUR BUFFER RADIUS (FROM CENTRE OF WET WELL) 30m | 30m
LIGHT INDUSTRIAL
ULTIMATE PRESSURE MAIN DUAL DN250 TO TREATMENT PLANT
EXISTING TEMPORARY TYPE 10 WWPS
ULTIMATE WASTEWATER PUMPING STATION OPTION 1
ULTIMATE WASTEWATER PUMPING STATION OPTION 2
DN375
DN450
DN300
DN225
ISSUED FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Urbanise wa
peritas
VIMG
CONCEPT MASTER PLAN
LANCELIN SOUTH
SEWER CATCHMENT PLAN
PC24490
URB0829-C200
B

Appendix E – Water Reticulation Concept Plan


CATCHMENT 1
GENERAL INDUSTRIAL DEVELOPMENT
LANCELIN ROAD
EXISTING STAGES 1-4
STAGES 5-6
CONSERVATION AREA
PRIMARY SCHOOL
OLD LEDGE POINT ROAD
CATCHMENT 1
HIGH SCHOOL
PRIMARY SCHOOL
CATCHMENT 2
INDIAN OCEAN DRIVE
CONSERVATION AREA
P.O.S.
UNIT WATER DEMAND SUMMARY TABLE
WATER SERVICING CALCULATIONS:
CATCHMENT 1:
CATCHMENT 2:
NOT FOR CONSTRUCTION
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CONCEPT MASTERPLAN
LANCELIN SOUTH
WATER RETICULATION
CONCEPT PLAN
PC24490
CI-SK.10
0


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CLE TOWN PLANNING + DESIGN

LANCELIN SOUTH STRUCTURE PLAN
LANCELIN

SPP 5.4 NOISE MANAGEMENT PLAN

JUNE 2025

OUR REFERENCE: 34783-2-25182

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
(08) 9367 6200
hsa@hsacoustics.com.au

DOCUMENT CONTROL PAGE

NOISE MANAGEMENT PLAN

LANCELIN SOUTH STRUCTURE PLAN

Job No: 25182

Document Reference: 34783-2-25182

FOR

CLE TOWN PLANNING + DESIGN

DOCUMENT INFORMATION			
Author:	Aidan Strumpher	**Checked By:**	Paul Daly
Date of Issue:	17 June 2025		

REVISION HISTORY

Revision	Description	Date	Author	Checked
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DOCUMENT DISTRIBUTION

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1	1	CLE Town Planning Attn: Sophie Moscardini Email: sophiem@cleplan.com.au		✓

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A	Subdivision Plan
B	Noise Contour Plots
C	Quiet House Design Guidelines
D	Noise Monitoring Data
E	Traffic Data

1. INTRODUCTION

Herring Storer Acoustics was commissioned to undertake an assessment of road traffic noise for the proposed Lancelin South structure plan.

The purpose of this assessment was to assess noise received within the development from road vehicles for future traffic volumes. The traffic noise assessment has been carried out in accordance with the WAPC State Planning Policy 5.4 *"Road and Rail Noise"*.

For information, the development plan is attached in Appendix A.

2. SUMMARY

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 *"Road and Rail Noise"* (SPP5.4), the appropriate criteria for assessment for this development are as listed below for "Noise Limits".

EXTERNAL

$L_{Aeq(Day)}$ of 55 dB(A); and
$L_{Aeq(Night)}$ of 50 dB(A).

INTERNAL

$L_{Aeq(Day)}$ of 40 dB(A) in living and work areas; and
$L_{Aeq(Night)}$ of 35 dB(A) in bedrooms.

Noise received at an outdoor area should also be reduced as far as practicable, with an aim of achieving an L_{Aeq} (night) of 50 dB(A).

Noise received at lots located adjacent to the transport corridors in and around the development exceed the criteria. Quiet House Design requirements are listed in section 6.

3. ACOUSTIC CRITERIA

3.1 ROAD TRAFFIC NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 *"Road and Rail Noise"*. The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

*a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;*

*b) New or major upgrades of roads as specified in **Table 1** and maps **(Schedule 1,2 and 3);** or*

*c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3);** or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.*

Policy trigger distances (Section 4.1.2)

Table 1 *identifies the State's transport corridors and the trigger distances to which the policy applies.*

The designation of land within the trigger distances outlined in ***Table 1*** *should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.*

*Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/ mitigation required. An initial screening assessment (****guidelines: Table 2: noise exposure forecast****) will determine if the lot is affected and to what extent."*

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	***Trigger distance***	***Distance measured from***
Roads		
Strategic freight and major traffic routes *Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume*	*300 metres*	*Road carriageway edge*
Other significant freight/traffic routes *These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)*	*200 metres*	*Road carriageway edge*
Passenger railways		
	100 metres	*Centreline of the closest track*
Freight railways		
	200 metres	*Centreline of the closest track*

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

Table 2 *sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.*

In the application of the noise targets the objective is to achieve:

- *indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and*
- *a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.*

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	***New/Upgrade***	***Noise Targets***		
		Outdoor		***Indoor***
		Day (L_{Aeq}(Day) dB) (6 am-10 pm)	***Night (L_{Aeq}(Night) dB) (10 pm-6 am)***	***(L_{Aeq} dB)***
Noise-sensitive land-use and/or development	*New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor*	*55*	*50*	*L_{Aeq} (Day) 40(Living and work areas)* *L_{Aeq} (Night) 35 (bedrooms)*
Roads	*New*	*55*	*50*	*N/A*
	Upgrade	*60*	*55*	*N/A*
Railways	*New*	*55*	*50*	*N/A*
	Upgrade	*60*	*55*	*N/A*

Notes:

- *The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.*
- *For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.*
- *The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.*
- *Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.*

Noise Exposure Forecast (Section 6.2)

*When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using **Table 2**: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/ or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:*

- *no further measures is required;*
- *noise-sensitive land-use and/or development is acceptable subject to deemed-to- comply mitigation measures; or*
- *noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/ or development is subject to mitigation measures outlined in a noise management plan."*

4. NOISE MONITORING

Road traffic noise monitoring was undertaken on Indian Ocean Drive and Lancelin Road in order to calibrate the noise model. Two Svan SV307A noise monitors were deployed for a period of two weeks beginning Tuesday 20th of May. Monitoring results are summarised in Table 4.1 and illustrated in Appendix D.

TABLE 4.1: SUMMARY OF MEASURED TRAFFIC NOISE LEVELS

Road	Weekday Average Noise Levels (dB(A))		
	$L_{A10(18hour)}$	$L_{Aeq,day}$ (6am to 10pm)	$L_{Aeq,night}$ (10pm to 6am)
Indian Ocean Drive	61.9	62.7	52.7
Lancelin Rd	59.4	60.6	51.9

For information, the results of the monitoring are shown graphically in Appendix D Figures 4.1 and 4.2 illustrate the locations of the monitors.

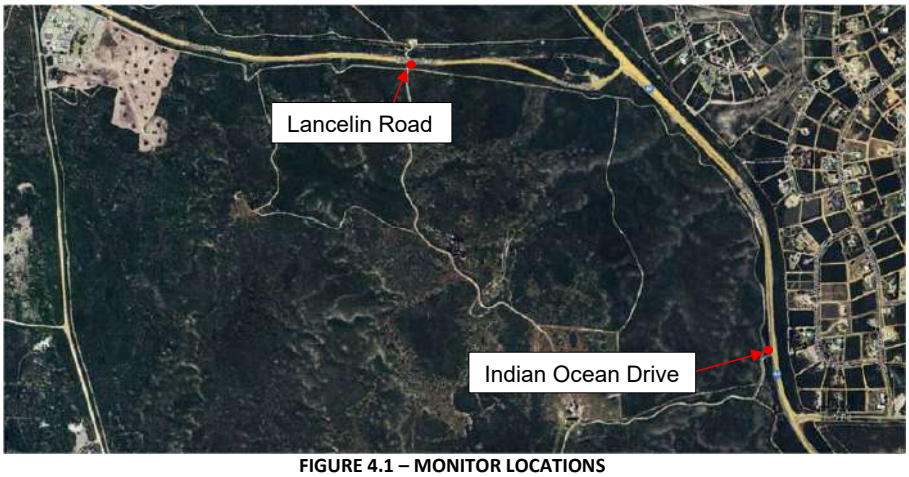


FIGURE 4.1 – MONITOR LOCATIONS



FIGURE 4.2 – NOISE MONITORS IN SITU

5. MODELLING

5.1 ROAD TRAFFIC NOISE

Modelling of noise received within the development from Indian Ocean Drive and Lancelin Road was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN) algorithms. The input data for the model included the parameters detailed in Table 5.1.

Mainroads modelling predicts 0% growth for these roads, however for a conservative assessment future road traffic volumes were based on an increase of 1% per year from the most recent traffic counts.

TABLE 5.1 - SUMMARY OF TRAFFIC DATA

Parameter	Lancelin Road		Indian Ocean Drive	
	Current (2022)	Future (2043)	Current (2022)	Future (2043)
Traffic flows VPD Lancelin Road	2630	3200	2980	3710
Heavy Vehicles (%)	18%	18%	25%	25%
Traffic Speed km/hr	90 kmh^{-1}	90 kmh^{-1}	110 kmh^{-1}	110 kmh^{-1}
Road Surface	Chip Seal	Chip Seal	Chip Seal	Chip Seal

Other input data for the model included:

- Traffic data from MRWA (https://mrapps.mainroads.wa.gov.au/TrafficMap/)
- Traffic as provided by the MRWA ROM Department, as attached in Appendix E.
- Noise source heights for the three road source strings (Passenger Vehicles, Heavy Vehicles Engine and Heavy Vehicle Exhausts) are +0.5, +1.5 and +3.6m, with a noise correction of -0.8 and -8.0 applied to the heavy vehicle's engine and exhaust noise sources.
- Topographical data, with the ground level within the development based on natural ground levels as per surveys conducted.
- A +2.5 dB adjustment to allow for façade reflection.
- A -1.2 dB conversion from L_{10} to $L_{eq(Day)}$.
- Development receiver heights at 1.4m above ground level.
- Future heavy vehicle percentage assumed to be the same as current.
- Calculations based on CoRTN algorithms.
- Other parameter listed in SPP 5.4 as to guidance for modelling road traffic noise / assessment.

6. ASSESSMENT

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development from future road and rail traffic volumes has been undertaken.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

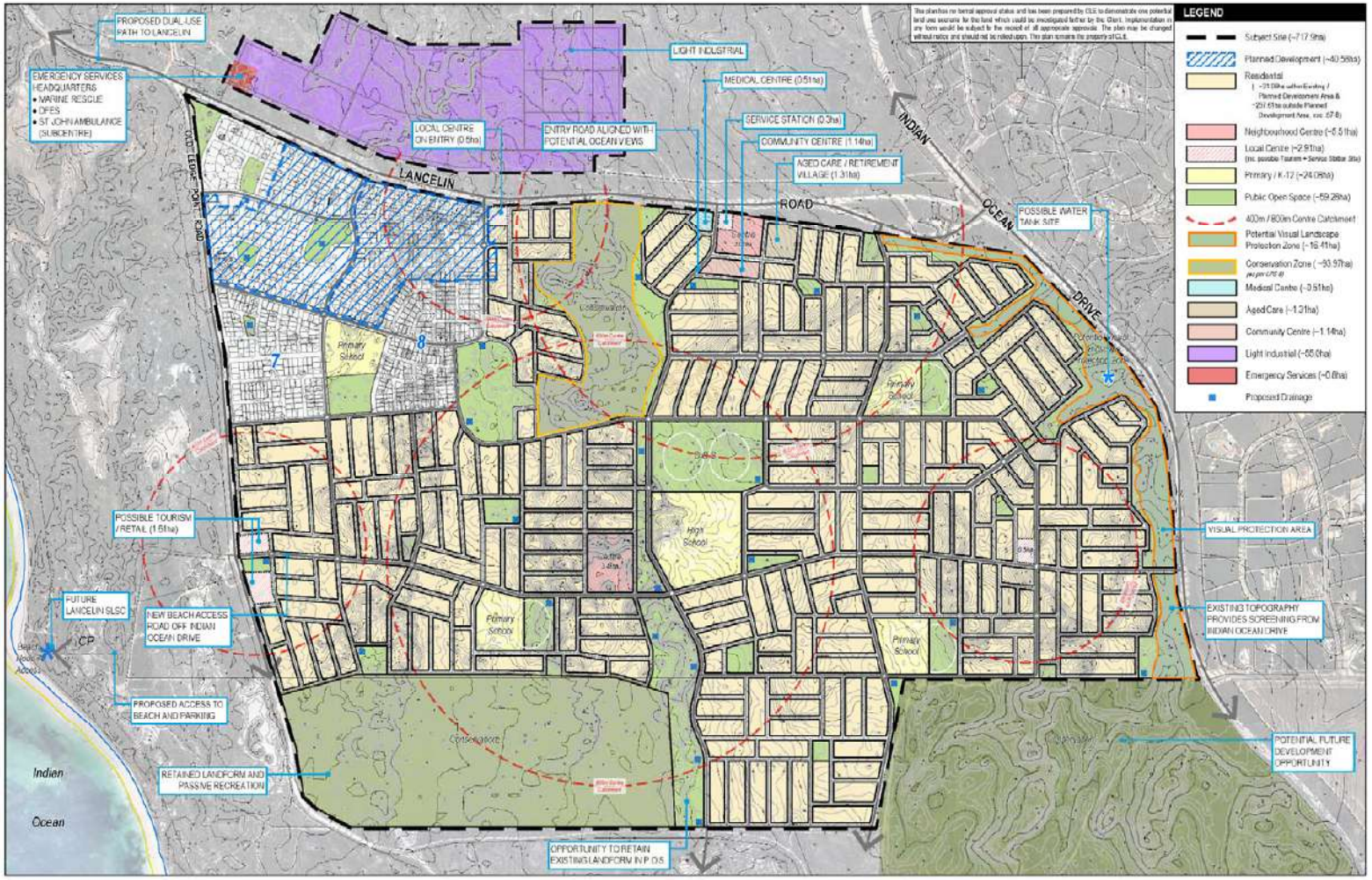
External	
Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}
Outdoor Living Areas (Night)	Maximum of 50 dB(A) L_{Aeq}
Internal	
Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

Noise received at an outdoor area should also be reduced as far as practicable with an aim of achieving an $L_{Aeq\ (night)}$ of 50 dB(A).

From the modelling undertaken, noise received at residential lots adjacent to Lancelin Road would exceed the criteria. These lots would require Quiet House Design in the form of Package A. Requirements for individual lots should be assessed at the subdivision stage once lot boundaries are known.

APPENDIX A

DEVELOPMENT PLAN



CLE Town Planning + Design

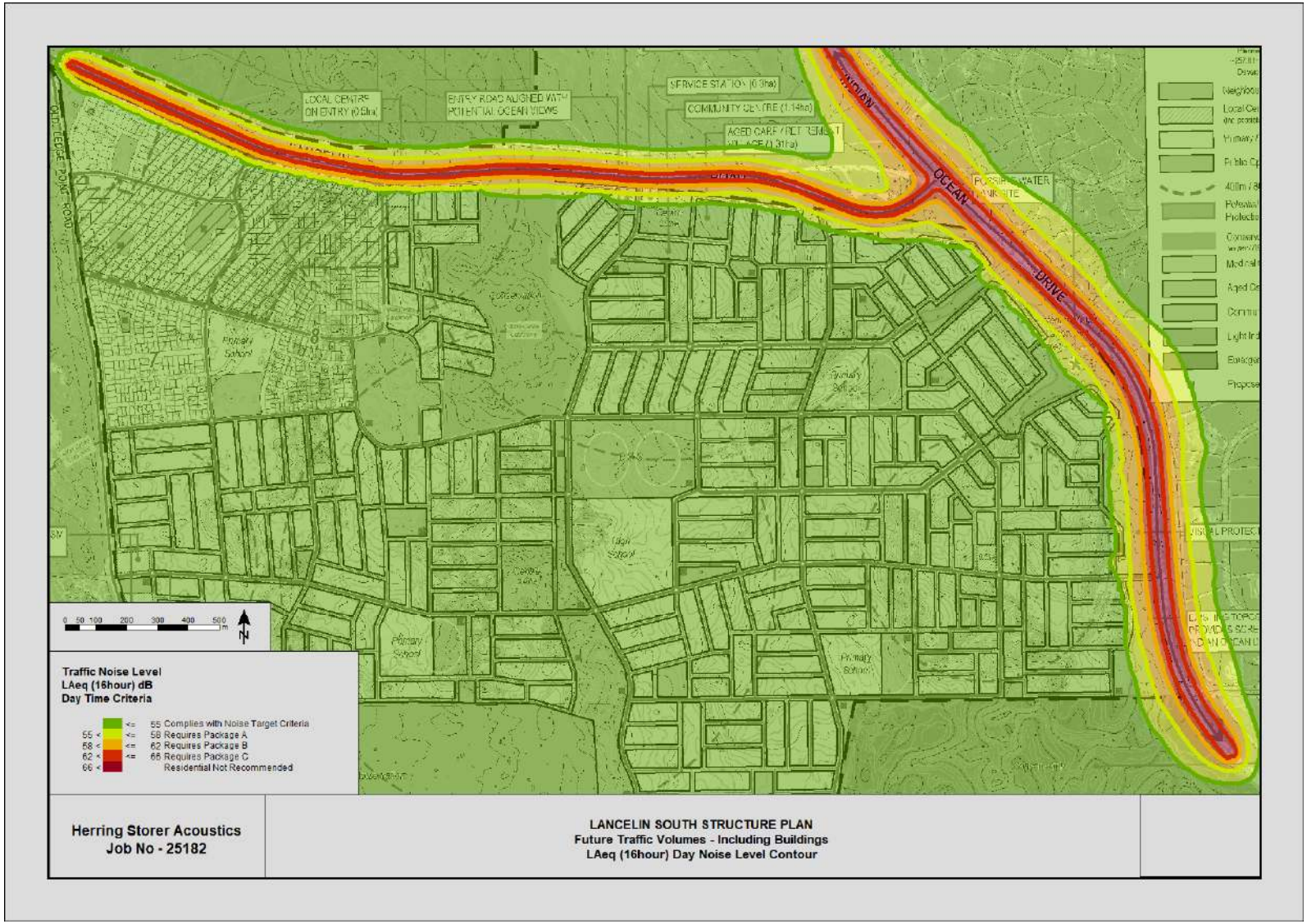
CONCEPT MASTERPLAN
Lancelin South

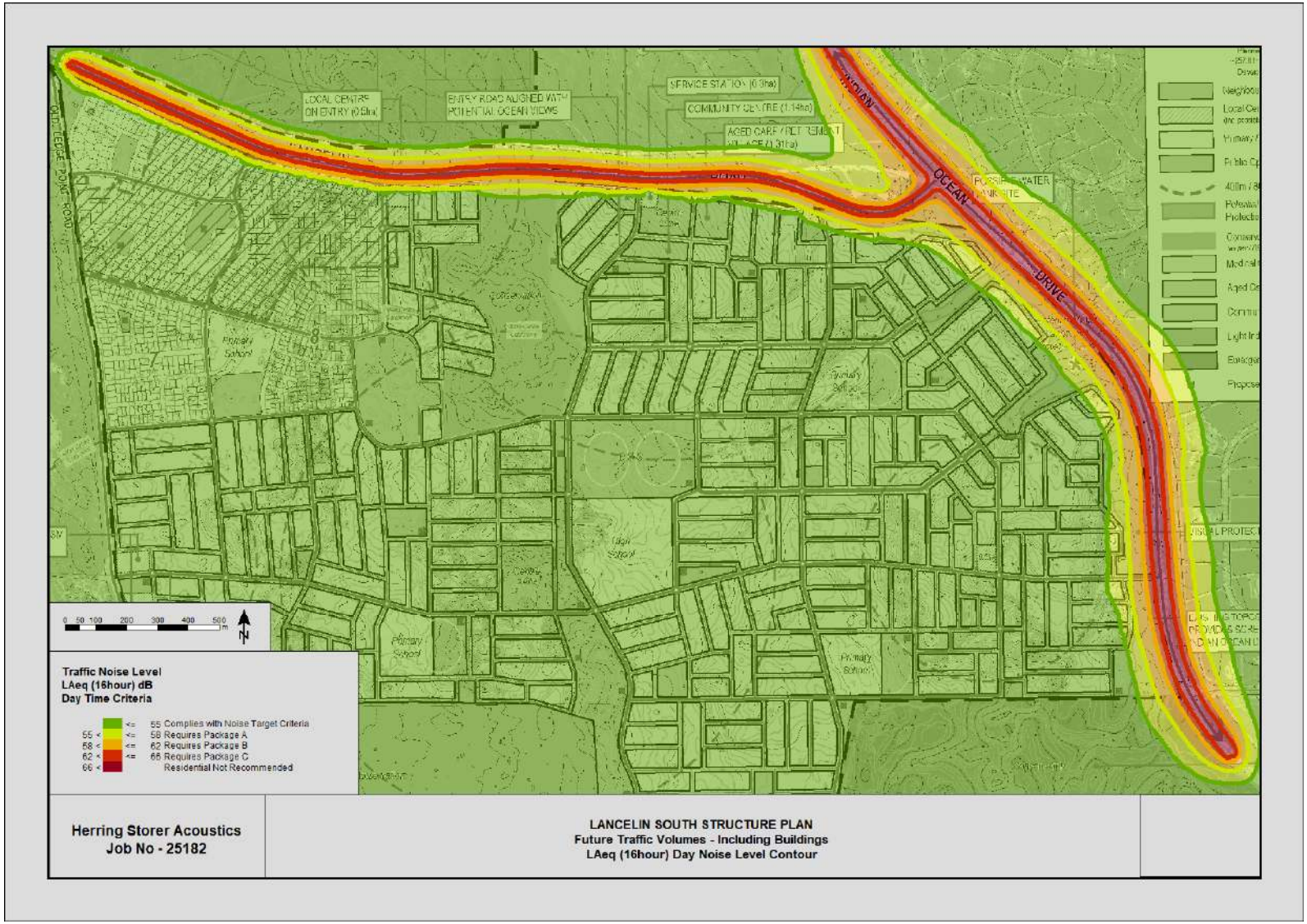
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plan no: 3818-38F-01
date: 2 December 2025
scale: 1:12,000 @A3, 1:6,000 @A1

APPENDIX B

NOISE CONTOUR PLOTS


LOCAL CENTRE ON ENTRY (0.6ha)
ENTRY ROAD ALIGNED WITH POTENTIAL OCEAN VIEWS
SERVICE STATION (0.3ha)
COMMUNITY CENTRE (1.14ha)
AGED CARE / RETIREMENT VILLAGE (1.31ha)
OCEAN DRIVE
OLD BEDE POINT ROAD
Primary School
0 50 100 200 300 400 500 m
N
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
Herring Storer Acoustics
Job No - 25182
LANCELIN SOUTH STRUCTURE PLAN
Future Traffic Volumes - Including Buildings
LAeq (16hour) Day Noise Level Contour


LOCAL CENTRE ON ENTRY (0.6ha)
ENTRY ROAD ALIGNED WITH POTENTIAL OCEAN VIEWS
SERVICE STATION (0.3ha)
COMMUNITY CENTRE (1.14ha)
AGED CARE / RETIREMENT VILLAGE (1.31ha)
OCEAN
DRIVE
OLD LEDGE POINT ROAD
Primary School
0 50 100 200 300 400 500 m
N
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
Herring Storer Acoustics
Job No - 25182
LANCELIN SOUTH STRUCTURE PLAN
Future Traffic Volumes - Including Buildings
LAeq (16hour) Day Noise Level Contour

APPENDIX C

QUIET HOUSE DESIGN GUIDELINES
Excerpt from *State Planning Policy 5.4 – Road and Rail Noise Guidelines* (2019)

Table 3: *Quiet house requirements*

Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation /air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor living areas	
A **Quiet House A**	Facing	**Bedroom and indoor living and work areas to Rw+Ctr 45dB** • One row of 92mm studs at 600mm centres with: – Resilient steel channels fixed to the outside of the studs; and – 9.5mm hardboard or 9mm fibre cement sheeting or 11mm fibre cement weatherboards or one layer of 19mm board cladding fixed to the outside of the channels; and – 75mm glass wool (11kg/m3) or 75mm polyester (14kg/m3) insulation, positioned between the studs; and – Two layers of 16mm fire-protective grade plasterboard fixed to the inside face of the studs. – Single leaf of 150mm brick masonry with 13mm cement render on each face. – Double brick: two leaves of 90mm clay brick masonry with a 20mm cavity between leaves.	**Bedrooms:** • Fully glazed hinged door with certified Rw+Ctr 28dB rated door and frame including seals and 6mm glass Other external doors to Rw+Ctr 25dB, e.g. • 35mm solid core timber hinged door and frame system certified to Rw 28dB including seals • Glazed sliding door with 10mm glass and weather seals	**Bedrooms:** • Total external door and window system area up to 40% of room floor area: Sliding or double hung with minimum 10mm single or 6mm-12mm-10mm double insulated glazing (Rw+Ctr 28 dB). Sealed awning or casement windows may use 6 mm glazing instead. • Up to 60% floor area: as per above but must be sealed awning or casement type windows (Rw+Ctr 31dB). **Indoor living and work areas** • Up to 40% floor area: Sliding, awning, casement or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (Rw+Ctr 25dB). • Up to 60% floor area: As per Bedrooms at up to 40% area (Rw+Ctr 28 dB). • Up to 80% floor area: As per Bedrooms at up to 60% area (Rw+Ctr 31dB).	**To Rw+Ctr 35dB** • Concrete or terracotta tile or metal sheet roof with sarking and at least 10mm plasterboard ceiling	At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2 metres height above ground level.	• Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces • Evaporative systems require attenuated ceiling air vents to allow closed windows • Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements • Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side on						
	Opposite		As per 'Facing' above, except Rw+Ctr values may be 3dB less, e.g. glazed sliding door with 10mm glass and weather seals for bedrooms.	As above, except Rw+Ctr values may be 3dB less, or max % area increased by 20%			
			No specific requirements				
A **Quiet House A+**	All	As per Quiet House A, except double leaf masonry / brick construction only.	As per Quiet House A.	As per Quiet House A, except that • 'Side-on' requirements same as 'Facing'. • All windows comprise minimum 6 mm thick laminated or toughened glass in sealed awning or casement frames. Polymer (e.g. uPVC) window framing should be used. Evaporative air conditioning systems are not recommended. • No external doors for bedrooms with entry 'Facing' transport corridor	No specific requirements		
B **Quiet House B**	Facing	**Bedroom and indoor living and work areas to Rw+Ctr 50dB** • Single leaf of 90mm clay brick masonry with: – A row of 70mm x 35mm timber studs or 64mm steel studs at 600mm centres; – A cavity of 25mm between leaves; – 50mm glass wool or polyester cavity insulation (R2.0+) insulation between studs; and – One layer of 10mm plasterboard fixed to the inside face • Single leaf of 220mm brick masonry with 13mm cement render on each face	**Bedrooms** • Fully glazed hinged door with certified Rw+Ctr 31dB rated door and frame including seals and 10mm glass • Other external doors to Rw+Ctr 28dB, e.g. • As per Quiet House A Bedrooms.	**Bedrooms:** • Total external door and window system area up to 40% of room floor area: Fixed sash, awning or casement with minimum 6mm single or 6mm-12mm-6mm double insulated glazing (Rw+Ctr 31 dB). • Up to 60% floor area: as per above but must be minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (Rw+Ctr 34dB). **Indoor living and work areas** • Up to 40% floor area: Sliding or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (Rw+Ctr 28dB). Sealed awning or casement windows may use 6 mm glazing instead. • Up to 60% floor area: As per Bedrooms at up to 40% area (Rw+Ctr 31 dB). • Up to 80% floor area: As per Bedrooms at up to 60% area (Rw+Ctr 34dB).	**To Rw+Ctr 35dB** • Concrete or terracotta tile or metal sheet roof, sarking and at least 10mm plasterboard ceiling, R3.0+ insulation	At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum 2.4 metres height above ground level	
	Side-on	• 150mm thick unlined concrete panel or 200mm thick concrete panel with one layer of 13mm plasterboard or 13mm cement render on each face					
	Opposite	• Double brick: two leaves of 90mm clay brick masonry with: – A 50mm cavity between leaves – 50mm glass wool or polyester cavity insulation (R2.0+) – resilient ties where required to connect leaves • Double brick: two leaves of 110mm clay brick masonry with a 50mm cavity between leaves and R2.0+ cavity insulation	As per Quiet House A 'Facing' above (Rw+Ctr values may be 3dB less, or max % area increased by 20%).				
			As per Quiet House A 'Side-on' above.				
B **Quiet House B+**	All	As per Quiet House B example above, except use double leaf masonry construction only.	As per Quiet House B, except • No external doors for bedrooms with entry 'Facing' or 'Side-on' to transport corridor	As per Quiet House B, except that • 'Side-on' requirements become the same as Quiet House B 'Facing'. • All windows comprise minimum 6 mm thick laminated or toughened glass in sealed awning or casement frames. Polymer (e.g. uPVC) window framing should be used. • Evaporative air conditioning systems are not recommended.	As per Quiet House C (to Rw+Ctr 40dB).		

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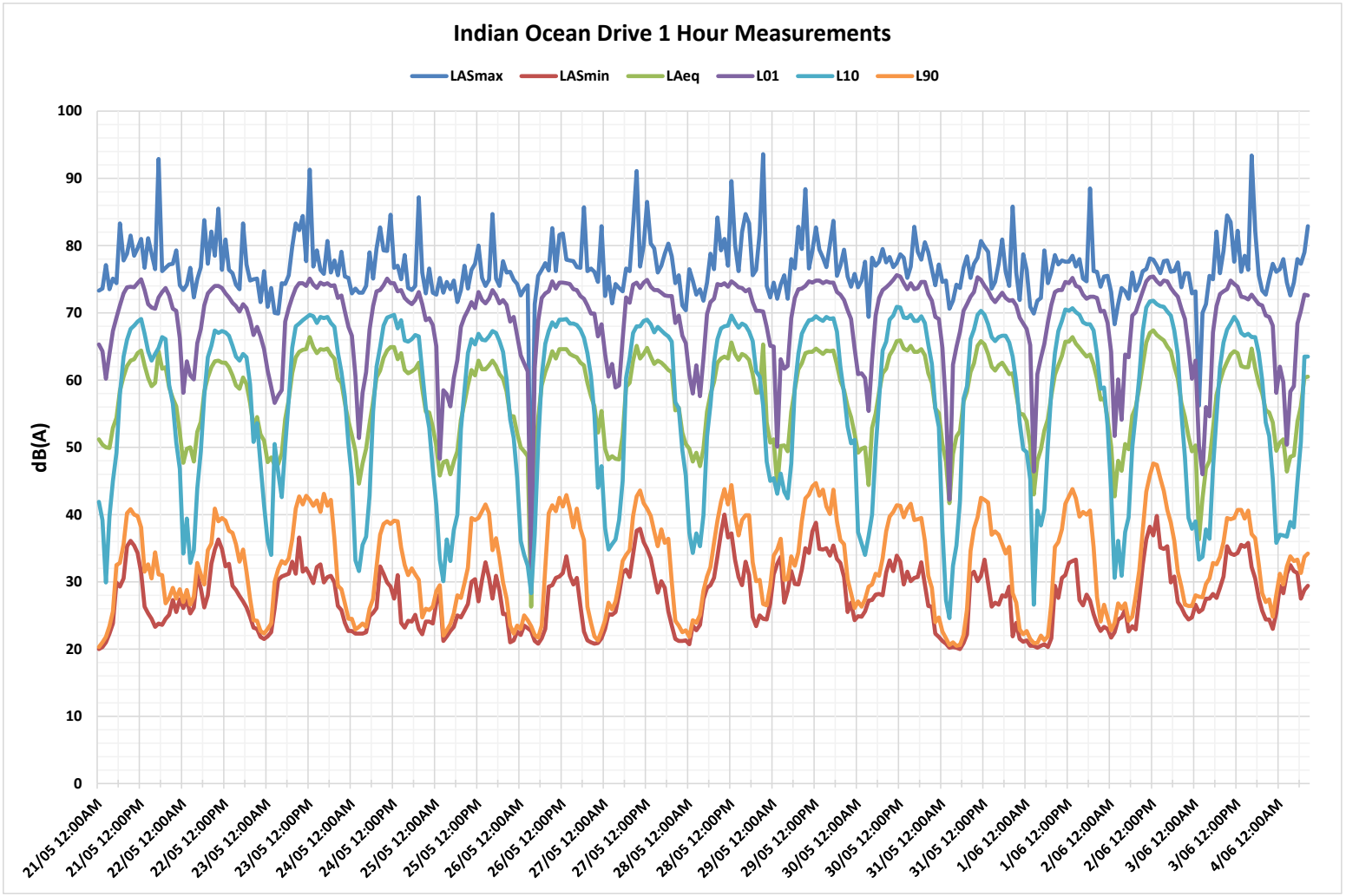
Exposure Category	Orientation to corridor	Acoustic rating and example constructions					Mechanical ventilation / air conditioning considerations
		Walls	External doors	Windows	Roofs and ceilings of highest floors	Outdoor living areas	
C **Quiet House C**	Facing	**Bedroom and indoor living and work areas to Rw+Ctr 50dB** • As per Quiet House B example above.	**Bedrooms** • External doors to bedrooms facing the corridor are not recommended. Other external doors to Rw+Ctr 30dB, e.g. • Fully glazed hinged door with certified Rw+Ctr 31dB rated door and frame including seals and 10mm glass. • 40mm solid core timber frame and door (without glass or with glass inserts not less than 6mm), side hinged with certified Rw 32dB acoustically rated door and frame system including seals	**Bedrooms:** • Total external door and window system area up to 20% of room floor area: Fixed sash, awning or casement with minimum 6mm single or 6mm-12mm-6mm double insulated glazing (Rw+Ctr 31 dB). • Up to 40% floor area: as per above but must be minimum 10 mm single or 6mm-12mm-10mm double insulated glazing (Rw+Ctr 34dB). **Indoor living and work areas** • Up to 40% floor area: Sliding or double hung with minimum 6mm single pane or 6mm-12mm-6mm double insulated glazing (Rw+Ctr 31dB). Sealed awning or casement windows may use 6 mm glazing instead. • Up to 60% floor area: As per Bedrooms at up to 40% area (Rw+Ctr 34 dB).	**To Rw+Ctr 40dB** • To all bedrooms, 2 layers of 10mm plasterboard, or one layer 13 mm high density sealed plasterboard (minimum surface density of 12.5 kg/m2), affixed using steel furring channels beneath ceiling rafters / supports. • R3.0+ insulation batts laid in cavity. • Concrete or terracotta tile roof with sarking, or metal sheet roof with foil backed R2.0+ fibre insulation between steel sheeting and roof battens.	As per Quiet House B	• Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces • Evaporative systems require attenuated ceiling air vents to allow closed windows • Refrigerant-based systems need to be designed to achieve National Construction Code fresh air ventilation requirements • Openings such as eaves, vents and air inlets must be acoustically treated, closed or relocated to building sides facing away from the corridor where practicable
	Side-on		As per Quiet House B 'Facing' above (Rw+Ctr values may be 3dB less, or max % area increased by 20%).				
	Opposite		As per Quiet House A 'Facing' above.				
C **Quiet House C+**	All	As per Quiet House B example above, except using double leaf masonry construction only. • Double brick: two leaves of 90mm clay brick masonry with: – A 50mm cavity between leaves – R2.0+ cavity insulation – resilient ties where required to connect • Double brick: two leaves of 110mm clay brick masonry with a 50mm cavity between leaves and R2.0+ cavity insulation	As per Quiet House C, except • No external doors for bedrooms with entry 'Facing' or 'Side-on' to transport corridor.	As per Quiet House C, except that • 'Side-on' requirements same as Quiet House C 'Facing'. • All windows into habitable areas comprise minimum 6 mm thick glazing in sealed awning or casement frames. Polymer (e.g. uPVC) window framing and hardware which cannot rattle loose should be used throughout. • Evaporative air conditioning systems are not recommended.	To Rw+Ctr 45dB As per Quiet House C, except • the roof must be concrete or terracotta tile construction with sarking (i.e. no steel sheet roof option). • Ceilings to bedrooms must be constructed from at least 2 overlapping layers of flush plasterboard.		

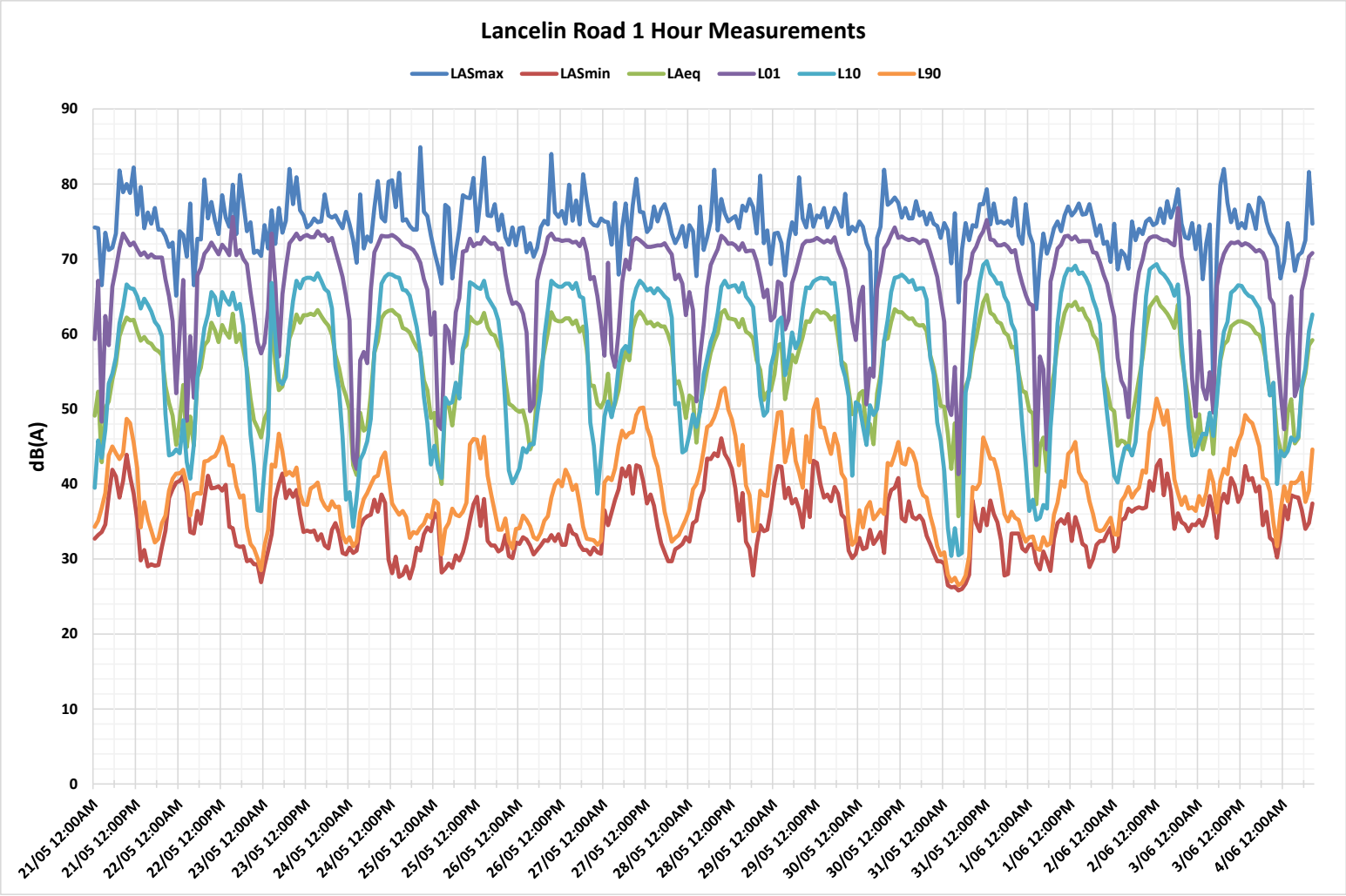
Footnotes:

- The airborne weighted sound reduction index (Rw) and traffic correction term (Ctr) are published by manufacturers/suppliers, can be determined by acoustical consultants or measured in accordance with AS ISO 717.1. Higher Rw+Ctr values infer greater sound insulation. All values are minimum Rw+Ctr (dB)
- Example construction for different external wall ratings of Rw+Ctr 45dB and 50dB are provided and are listed within Specification F5.2 in Volume 1 Part F of the National Construction Code. These values are based on the installation and sealing of joints and penetrations in accordance with Specification F5.2.
- Window and external door sound reduction values provided are based on the provision of suitable acoustic seals to prevent sound leakage. To comply with the above ratings, all external glass windows and doors specified under requirements A, B and C must have the following:
  - Operable windows and external doors must have a seal to restrict air infiltration fitted to each edge and doors must have a drop seal to provide an airtight seal when closed
  - Within doors or fixed framing, glazing must be set and sealed using an airtight arrangement of non-hardening sealant, soft rubber (elastomer) gasket and/or glazing tape, or be verified by manufacturer or approved person that the construction system as to be installed achieves the relevant Rw+Ctr value
  - In this context, a seal is foam or silicon based rubber compressible strip, fibrous seal with vinyl fin interleaf or the like. Brush / pile type seals without this seal included are not allowed.
  - Glazing referenced can be monolithic, laminated or toughened safety glass
- Any penetrations in a part of the building envelope must be acoustically treated so as not to degrade the performance of the building elements affected. Most penetrations in external walls such as pipes, cables or ducts can be sealed through caulking gaps with non-hardening mastic or suitable mortar

APPENDIX D

NOISE MONITORING DATA


Indian Ocean Drive 1 Hour Measurements
LASmax
LASmin
LAeq
L01
L10
L90
dB(A)
100
90
80
70
60
50
40
30
20
10
0
21/05 12:00AM
21/05 12:00PM
22/05 12:00AM
22/05 12:00PM
23/05 12:00AM
23/05 12:00PM
24/05 12:00AM
24/05 12:00PM
25/05 12:00AM
25/05 12:00PM
26/05 12:00AM
26/05 12:00PM
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27/05 12:00PM
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29/05 12:00AM
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30/05 12:00AM
30/05 12:00PM
31/05 12:00AM
31/05 12:00PM
1/06 12:00AM
1/06 12:00PM
2/06 12:00AM
2/06 12:00PM
3/06 12:00AM
3/06 12:00PM
4/06 12:00AM


Lancelin Road 1 Hour Measurements
LASmax
LASmin
LAeq
L01
L10
L90
dB(A)
90
80
70
60
50
40
30
20
10
0
21/05 12:00AM
21/05 12:00PM
22/05 12:00AM
22/05 12:00PM
23/05 12:00AM
23/05 12:00PM
24/05 12:00AM
24/05 12:00PM
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3/06 12:00PM
4/06 12:00AM

APPENDIX E

TRAFFIC DATA

mainroads WESTERN AUSTRALIA

SITE 50711

Hourly Volume

Indian Ocean Dr (M045)

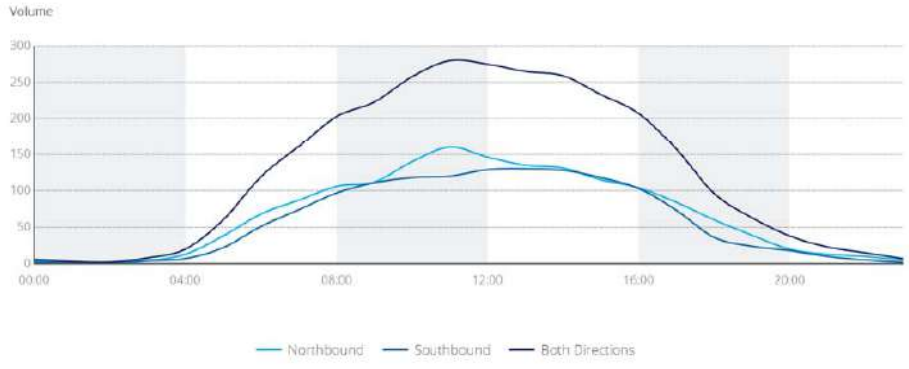
South of Lancelin Rd (SLK 67.40)

2022/23
Monday to Friday

	All Vehicles			Heavy Vehicles			
	NB	SB	Both	NB	SB	Both	%
00:00	4	2	6	2	0	2	33.3
01:00	1	2	3	0	0	0	0.0
02:00	0	2	2	0	0	0	0.0
03:00	4	4	8	2	0	2	25.0
04:00	13	7	20	5	1	6	30.0
05:00	38	22	60	16	5	21	35.0
06:00	68	51	119	29	18	47	39.5
07:00	87	74	161	30	27	57	35.4
08:00	106	97	203	37	24	61	30.0
09:00	112	111	223	33	29	62	27.8
10:00	140	118	258	40	27	67	26.0
11:00	160	120	280	41	25	66	23.6
12:00	146	129	275	32	26	58	21.1
13:00	135	130	265	36	25	61	23.0
14:00	131	128	259	35	24	59	22.8
15:00	115	118	233	33	24	57	24.5
16:00	104	103	207	25	22	47	22.7
17:00	84	73	157	20	15	35	22.3
18:00	60	36	96	11	6	17	17.7
19:00	39	24	63	9	3	12	19.0
20:00	20	18	38	5	1	6	15.8
21:00	13	10	23	4	3	7	30.4
22:00	10	5	15	4	1	5	33.3
23:00	5	2	7	2	0	2	28.6
TOTAL	1595	1386	2981	451	306	757	25.4

Peak Statistics

AM	TIME	11:15	10:45	10:45	11:15	08:45	10:45
	VOL	165	125	285	43	29	70
PM	TIME	12:00	12:45	12:00	14:30	13:45	14:30
	VOL	146	132	275	38	26	63



mainroads WESTERN AUSTRALIA

SITE 52643

Hourly Volume

Lancelin Rd (5070417)

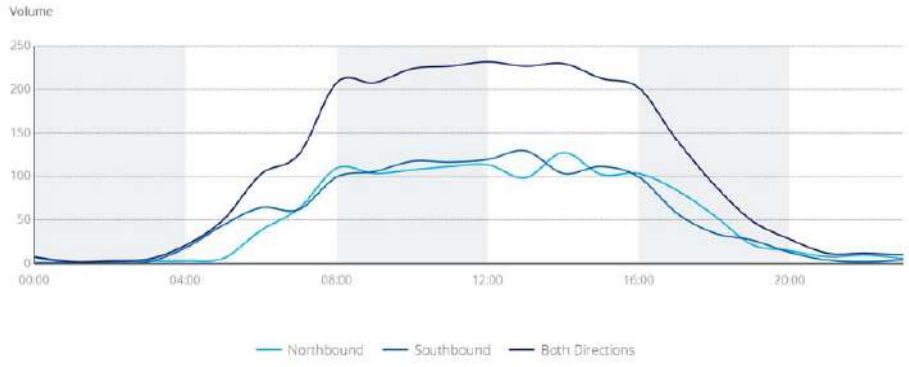
North of Old Ledge Point Rd (SLK 3.56)

2024/25
Monday to Friday

	All Vehicles			Heavy Vehicles			
	NB	SB	Both	NB	SB	Both	%
00:00	7	1	8	0	0	0	0.0
01:00	1	1	2	0	0	0	0.0
02:00	2	1	3	0	0	0	0.0
03:00	3	2	5	0	0	0	0.0
04:00	3	18	21	1	0	1	4.8
05:00	6	44	50	2	4	6	12.0
06:00	38	64	102	11	17	28	27.5
07:00	63	62	125	14	10	24	19.2
08:00	109	99	208	25	11	36	17.3
09:00	103	105	208	26	17	43	20.7
10:00	107	117	224	25	19	44	19.6
11:00	111	116	227	21	20	41	18.1
12:00	113	119	232	21	16	37	15.9
13:00	98	129	227	22	14	36	15.9
14:00	127	103	230	25	15	40	17.4
15:00	102	111	213	22	18	40	18.8
16:00	103	99	202	28	18	46	22.8
17:00	84	58	142	15	6	21	14.8
18:00	55	35	90	8	3	11	12.2
19:00	22	27	49	3	3	6	12.2
20:00	15	13	28	1	2	3	10.7
21:00	8	4	12	1	0	1	8.3
22:00	10	2	12	1	0	1	8.3
23:00	6	4	10	0	0	0	0.0
TOTAL	1296	1334	2630	272	193	465	17.7

Peak Statistics

AM	TIME	11:30	10:30	11:45	09:30	09:45	09:45
	VOL	117	125	236	28	21	49
PM	TIME	14:15	13:00	14:15	16:00	14:30	16:00
	VOL	133	129	247	28	21	46



Aidan Strumpher

From: Suk Ling Chang <sukling.chang@mainroads.wa.gov.au>
Sent: Monday, 9 June 2025 2:08 PM
To: Hunter Daly
Cc: Paul Daly (Herring Storer Acoustics); Wesley Soet; Clare Yu
Subject: #43329: Noise Assessment for Indian Ocean Drive, Lancelin
Attachments: Surface Detail.Indian Ocean Dr.pdf

OFFICIAL

OFFICIAL

Hi Hunter,

Analysis of our State Wide Model and observed counts from Trafficmap suggest that there is no projected growth (i.e. 0% per annum) for Indian Ocean Drive, Lancelin. Please refer to the observed counts from https://trafficmap.mainroads.wa.gov.au/map for more information.

Current road surface information is attached for your reference. Please let me know if you have any other questions.

Thank you.

Kind regards,

Suk Ling Chang (she/her/hers)
Transport Modelling Analyst
Asset and Geospatial Information
Planning and Technical Services Directorate
Tel: +61 8 9323 4667



Main Roads acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures; and to Elders both past and present.

From: Hunter Daly <hunter@hsacoustics.com.au>
Sent: Tuesday, 20 May 2025 10:35 AM
To: Suk Ling Chang <sukling.chang@mainroads.wa.gov.au>

1

Bushfire Management Plan
Lancelin South
Structure Plan Amendment



Prepared for:
VIMG
31 March 2026

Prepared by:

Surefire Environmental Pty Ltd
sue@surefireenvironmental.com
0439 435 110

Surefire Environmental Pty Ltd

Lancelin South
Bushfire Management Plan

Distribution List

Client	Contact name	Date
VIMG Pty Ltd	Cameron Lee	31 March 2026

Version

Version	Prepared and Authorised by	Accreditation	Date
Version 1	Sue Brand	Level 2 BPAD 36638	31 March 2026

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This Document may be:

- used by:
  - the **VIMG Pty Ltd** along with their consultants and contractors
  - the Shire of Gingin
  - purchasers of Lots in designated bushfire prone areas within the Site
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1. Background Information

VIMG Pty Ltd (VIMG) commissioned Surefire Environmental Pty Ltd (Surefire Environmental) to prepare a Bushfire Management Plan (BMP) to progress an update to the Structure Plan (SP) for the Lancelin South development area (the Site), within the Shire of Gingin (Figure 1). The original Structure Plan (SP) and Outline Development Plan (ODP) was prepared in September 2013 (Taylor Burrell Barnett (TBB)) (2013) to progress the rezoning of the Site to 'Urban Development'.

1.1 Location

The Site is (Figure 1, Figure 2) is:

- approximately 4 km southeast of the Lancelin township
- is approximately 718 ha, with development planned north and south of Lancelin Road
- is surrounded by vegetation to the north, and south, Indian Ocean Drive to the east, and Old Ledge Point Rd to the west; note that the Lancelin Golf Glub and lime sand operations are present to the west across Old Lancelin Road and rural residential Lots are present to the east across Indian Ocean Drive
- will create a range of land uses, including residential Lots, three primary schools, a high school, commercial and light industrial Lots, areas of public open space (POS), conservation areas, as well as roads and other associated infrastructure that will support the development of the Site.

1.2 Bushfire Prone Status

The Site is an Area 2 bushfire prone location as designated by the Fire and Emergency Services Commissioner, Office of Bushfire Risk Management (OBRM), within the Department of Fire and Emergency Services (DFES, 2025, Figure 3). Accordingly, there is a requirement for landowners to undertake an assessment to determine the risks and identify appropriate management strategies such that the development does not increase the inherent bushfire risk.

Portions of the site that are located within 100 m of vegetation designated as being bushfire prone necessitate the need for a bushfire attack level assessment (BAL-assessment) and where possible, assigning a BAL-rating, that will determine appropriate construction standards as per *AS 3959:2018 Construction of Buildings in Bushfire Prone Areas* (*AS 3959:2018)*. The BAL-assessment component of this document considers current and projected site conditions (i.e. vegetation classification pre- and post-development), along with the provisions of *State Planning Policy 3.7 Bushfire (SPP3.7)* (Department of Planning, Lands and Heritage (DPLH)), and the Western Australian Planning Commission (WAPC) (2024b) and *Planning for Bushfire Guidelines for the Implementation of State Planning Policy 3.7 Bushfire* (*the Guidelines*) (Department of Planning, Lands and Heritage and the Western Australian Planning Commission, 2024a). Note that as a detailed Lot design is not available, BAL-contours only are provided, with further detailed assessment to occur at later project phases.



CLE Town Planning + Design

CONCEPT MASTERPLAN

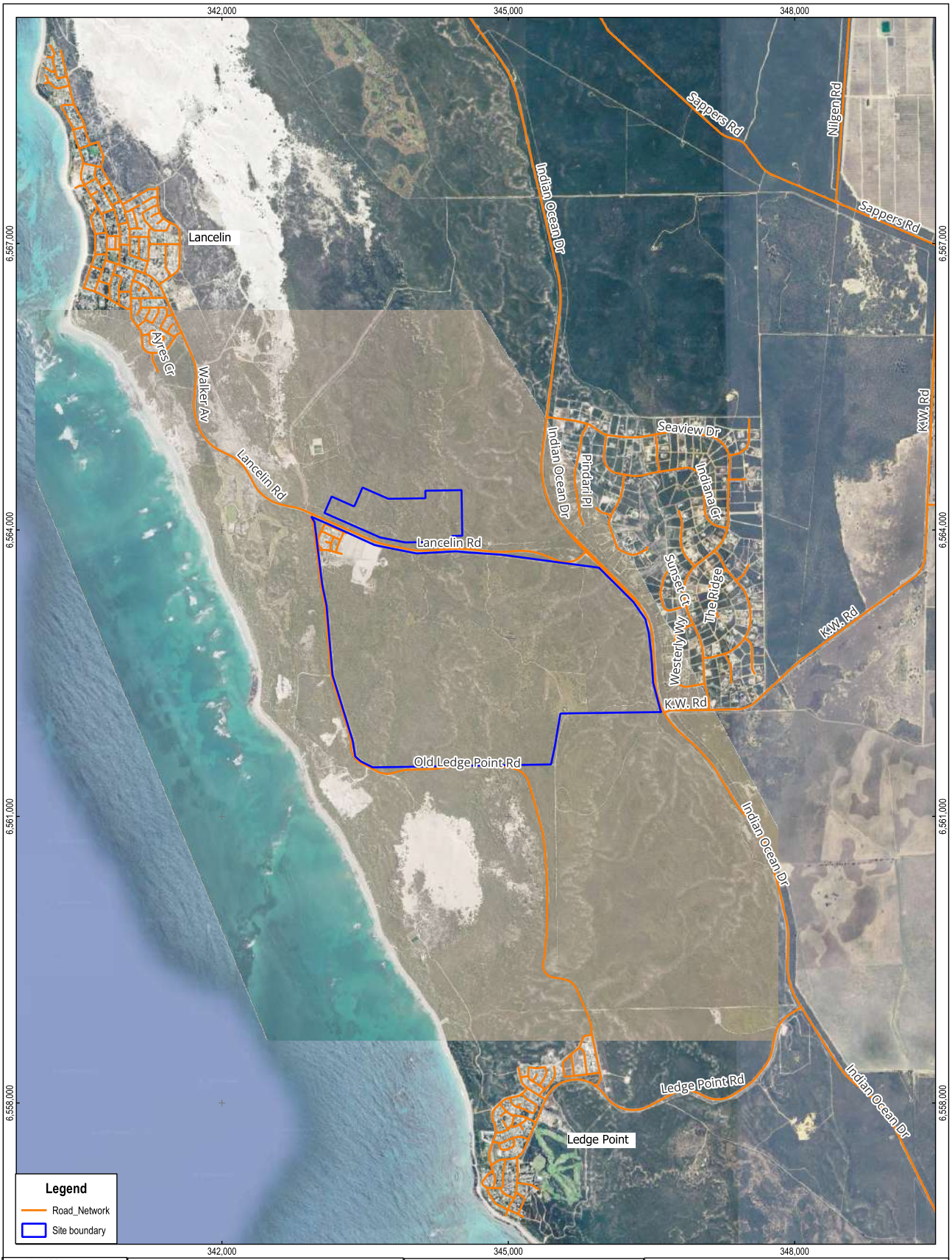
Lancelin South

DRAFT

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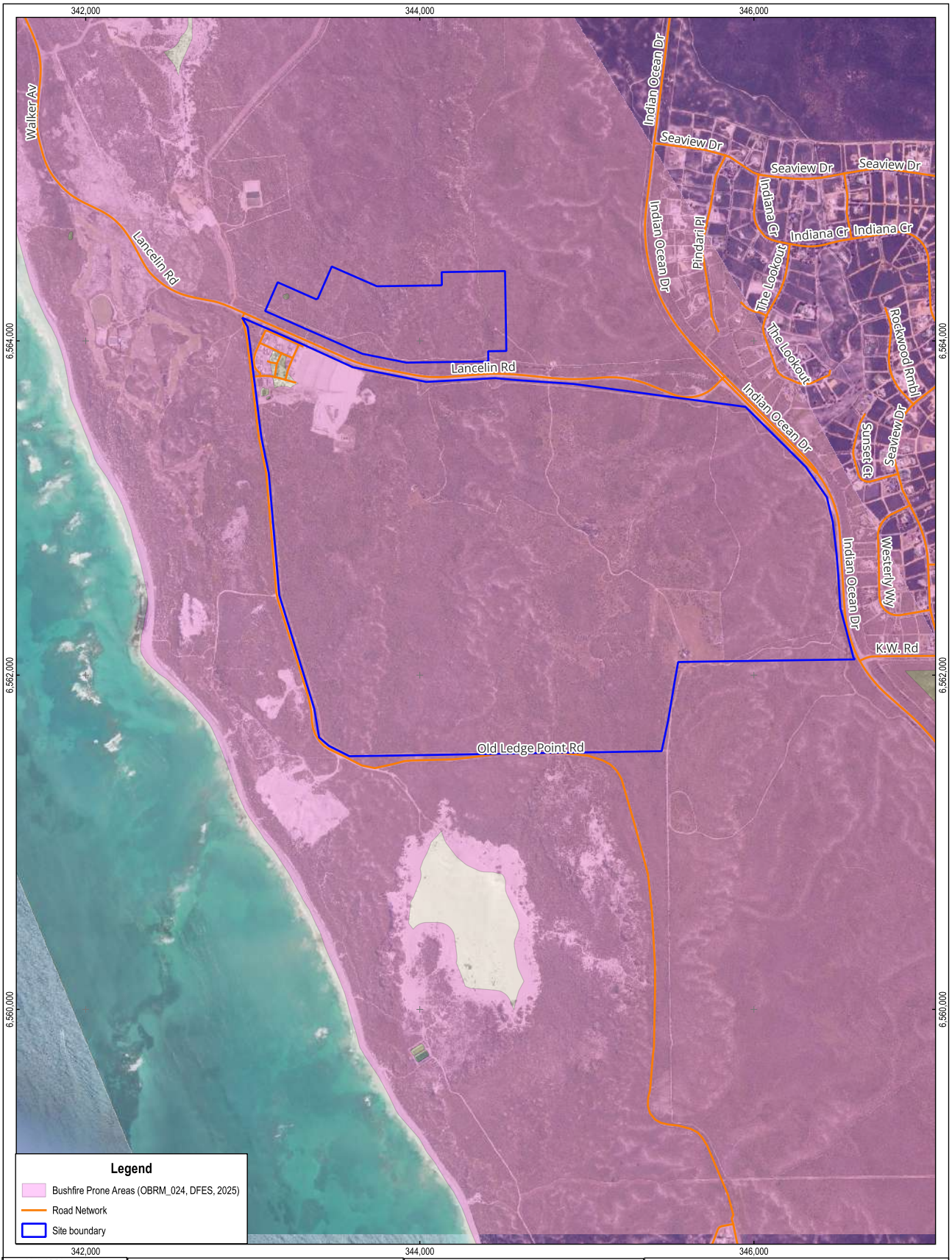
plan no: 3818-56-01
date: 6 March 2026
scale: 1:12,000 @A3, 1:6,000 @A1

N



Surefire ENVIRONMENTAL	**Figure 2** **Location**	Structure Plan Amendment Lancelin South VIMG Pty Ltd	Scale: 1: 35,000 Original Size: A3 Aerial Imagery: Landgate, October 2024; Google Satellite, undated Grid: GDA94 / MGA zone 50 (EPSG:28350) 0 750 1,500 m N

C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\VIMG\Lancelin South\GIS\Lancelin South.qgz 30/03/2026 F2 Location



Surefire ENVIRONMENTAL	**Figure 3** **Bushfire Prone Status**	Structure Plan Amendment Lancelin South VIMG Pty Ltd	Scale: 1: 20,000 Original Size: A3 Aerial Imagery: Landgate, October 2024; Google Satellite, undated Grid: GDA94 / MGA zone 50 (EPSG:28350)

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1.3 Aims and Objectives

The aim of this BMP is to outline the bushfire management methods and requirements that will be implemented within the proposed subdivision. Accordingly, broad aims include:

- confirm that bushfire hazards can be effectively managed as the development proceeds
- minimise the impact of bushfire to the life and property of future residents
- allow easy access for firefighters if a bushfire does occur
- protect the landscape within the Site as far as is possible
- document bushfire prevention requirements of the area to which it relates.

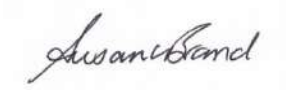
The objectives of this Bushfire Management Plan are to:

- define land use areas and values within and in proximity to the Site
- define and assess the bushfire hazard according to the various vegetation classifications present
- outline the roles and responsibilities of individuals and organisations in relation to bushfire management as it relates to the Site
- document bushfire management strategies for the subdivision, taking into consideration:
  - vegetation to be retained within the broader Lancelin South development in the longer term (Figure 1, Figure 2)
  - the need for building construction standards where vegetated patches interface with the urban development
  - document the performance criteria and acceptable solutions adopted for the Site.

1.4 Document Preparation

Sue Brand (Surefire Environmental), an accredited Level 2 Bushfire Planning and Design (BPAD) practitioner with the Fire Protection Association Australia, has prepared this document. Activities involved with its preparation included:

- assessing the vegetation type and class present within and adjacent to the proposed development site using descriptions provided in *AS 3959:2018*
- assigning the bushfire hazard based on the vegetation classes present around the Site
- determining indicative BAL-ratings for each development cell located within 100 m of any classified vegetation based on currently available information
- suggesting management strategies that will be implemented based on current and projected site considerations.

Signed: 
Date: 31 March 2026
Accreditation Number: BPAD36638
Accreditation Expiry Date: 30 April 2026

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

2. Environmental Considerations

Environmental considerations within Lancelin South were assessed by Ecoscape (Australia) Pty Ltd (2007) in to support preparation of the original 2007 Lancelin South Structure Plan and the later 2013 Structure Plan (SP) and Outline Development Plan (ODP) (Taylor, Burrell, Barnett, 2013). The Site is primarily vegetated with coastal heath species, with locations of conservation flora and fauna noted within the broader Lancelin South location.

2.1 Regional Context

Lancelin is located within the Swan Coastal Plain region of the Interim Biogeographical Regionalisation of Australia (IBRA). The Swan Coastal Plain comprises two major divisions, namely the Swan Coastal Plain 1 – Dandaragan Plateau and Swan Coastal Plain 2 – Perth Coastal Plain. The Site is in the Perth Coastal Plain subregion, which is broadly characterised as including areas of Jarrah and Banksia woodlands on sandy soils in a series of sand dunes, along with wetland areas, often within the interdunal swales (Mitchell, Williams, and Desmond, 2002).

2.2 Environmental Considerations

According to PGV Environmental (2026) within the Site boundaries there are:

- vegetation is dominated by typical coastal heath species including *Melaleuca systena*, *Acacia lasiocarpa*, *Calothamnus quadrifidus*, and *Scaevola thesiodies*
- the presence of three Priority species, namely *Thryptomene* sp. Lancelin (Priority 2), *Stylidium maritimum* (Priority 3), and *Conostylis pauciflora* subsp. *euryrhipis* (Priority 4) (will be retained in the 70-ha conservation zone located in the southwestern portion of the Site adjacent to Old Ledge Point Rd)
- no declared rare flora were present and not considered likely to occur
- no threatened or priority listed ecological communities are present
- no declared rare fauna were noted within the Site boundary, with the Priority 3 Black-striped Snake (*Neelaps calonotos*) and the Priority 4 Graceful Sun Moth (*Synemon gratiosa*) recorded
- note that during the bushfire assessment site visit by Surefire Environmental, *Zanda latirostris* (Carnaby's Cockatoo) was observed foraging on roadside trees in the rural residential area across Indian Ocean Drive to the east, but not within the Site boundary
- the retention of conservation areas within the development area allow for the retention of typical coastal heath vegetation and dunal landforms typical of the area.
- no wetlands or waterways, with the closest wetlands being Karakin Lakes approximately 10 km to the east.

2.3 Native Vegetation – Modification and Clearing

Current land use within the Site is primarily coastal heath vegetation (Figure 4), with most to be cleared in a staged approach to accommodate the development. Where possible, the vegetation around stage(s) being developed will be cleared for an additional 100 m around the development boundary to facilitate the construction process as well as prevent temporary BAL-ratings on residential Lots.



Figure 4: Current Land Use

2.4 Revegetation and Landscaping

No revegetation will occur within the Site boundary. The following reserves will be created during the development process (Figure 1):

- more than 20 public open space areas will be created across the Site that will be landscaped to support community recreational needs and serve a drainage function
- two conservation areas will be created that retain native vegetation, one in the north adjacent to Stage 10, and one in the southwestern portion of the Site
- a visual landscape buffer that protects the current landform will remain along the interface between the Site and Indian Ocean Drive.

At present, the level of landscaping and any tree retention has not been finalised and will be reviewed for bushfire implications when they do become available.

3. Bushfire Assessment Results

This section outlines the outcomes of the bushfire assessment process.

3.1 Broader Landscape Assessment

As the Site is located within an area designated as Area 2 on the Map of Bushfire Prone Areas (OBRM, 2024) (Figure 3), a broader landscape assessment (BLA) was required. Being a regional location with varying levels of vegetation within 2 km of the boundary, a full BLA was carried out using the methodology described in Appendix A Section A.1.4.2 in the *Planning for Bushire Guidelines* (DPLH and WAPC, 2024a) to identify likely landscape scale destruction. This section provides outcomes of the BLA process.

The BLA assessment area included a 2 km zone surrounding the Lancelin South boundaries. Table 1 provides the justification for the BLA assessment process, and Table 3 the designation of the BLA area type based on the outcomes of the assessment process.

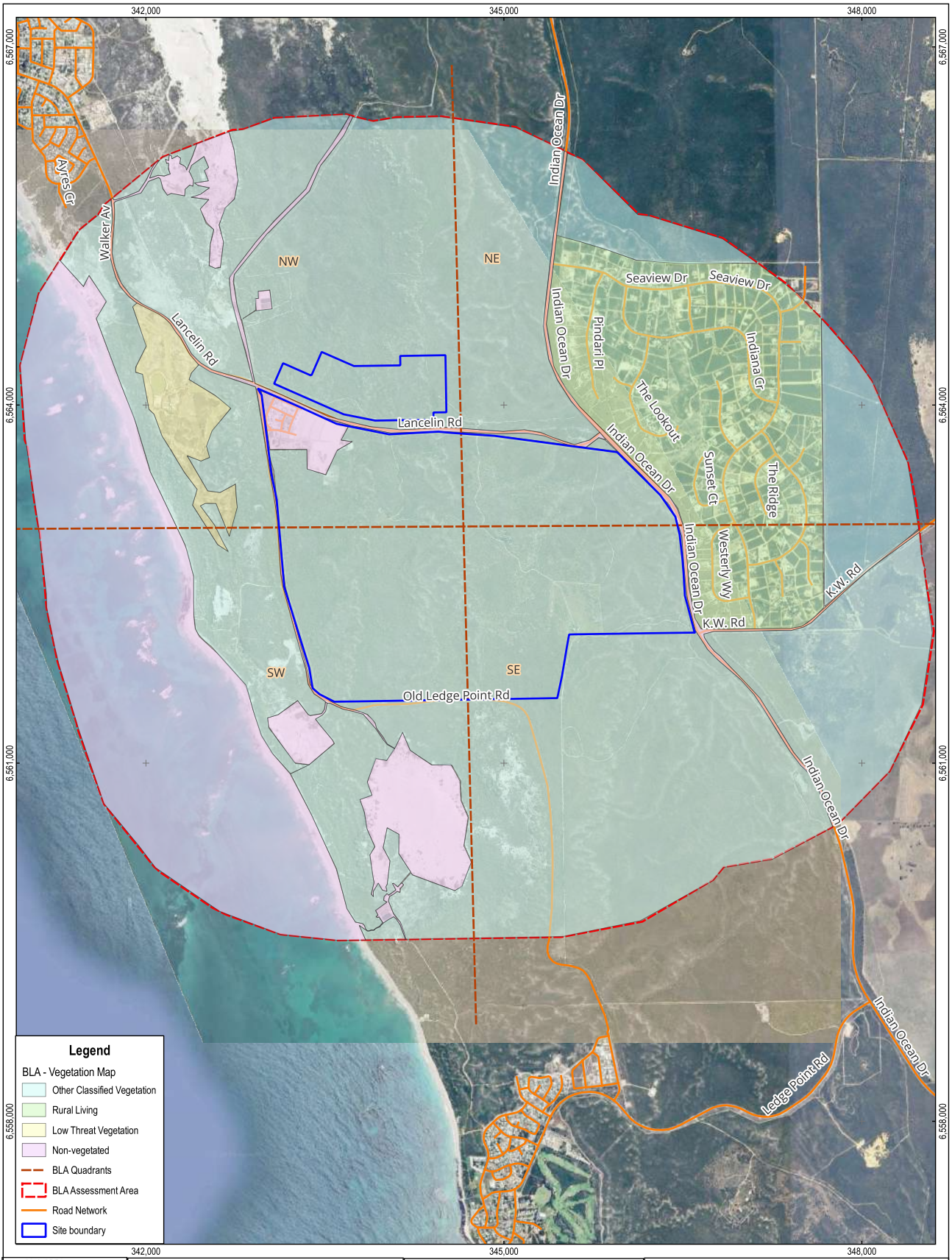
Table 1: BLA Assessment and Justifications

Step	Activity	Outcome
1	Determine BLA area	BLA area is delineated as 2 km from the Site boundaries (Figure 5).
2	Assess and map the broader landscape	**A. Vegetation mapping** The broad vegetation mapping for the BLA is shown on Figure 5. The vegetation is primarily coastal heath (other classified vegetation) with the golf course to the west low threat vegetation, and the rural residential property (rural living) to the east across Indian Ocean Drive a mosaic vegetation pattern.
		B. Assess and map aspects The assessment of aspects is used to quantify bushfire hazards that could present landscape scale destruction. Most of the coastal heath within the Site boundary will be cleared to accommodate the development, and where possible, a 100 m asset protection zone (APZ) will be cleared around various development stages within the Site to the extent possible to prevent temporary BAL-ratings and facilitate staging activities. Coastal heath will remain across Old Lancelin Road to the west, as well as within portions of the broader Lancelin South approved ODP area, and north and south of the development area (Figure 5, Figure 6).
		C. Assess and map the predominant vegetation pattern The predominant vegetation pattern is coastal heath within the approved ODP area, and which extends beyond its boundaries north across Lancelin Road, west across Old Lancelin Road, and south beyond the ODP boundary (Figure 5, Figure 6).
		D. Assess and map road pattern and suitable destinations Lancelin South is being developed from north of Lancelin Road towards the south (Figure 5). The development road network will create roads that provide access to Lancelin Road to the north, and to Old Lancelin Road to the west, both of which provide access to the town of Lancelin or to Indian Ocean Drive. As development to the east and south progresses, additional access/egress options will become available (Figure 6).

Step	Activity	Outcome
3	Establish the broader landscape type	Determined using points scoring system indicated in Table 3 of Appendix A of the *Guidelines*. The Site is a Broader Landscape Type A; see Table 2 for the rationale for this assessment.

Table 2: Determination of the Broader Landscape Type

Criteria	Justification	Points
Proximity of the planning proposal to a suitable destination is:	1 – 10 km – Lancelin is approximately 4 km from the Site, with development within Lancelin South Stages 1 – 6 progressing to and subdivision applications submitted for Stages 7 – 8, and 9 – 10 to the south and east of Stages 1 – 6. Currently developed areas with the broader Lancelin South development, a rural residential area across Indian Ocean Drive to the east, as is the coastal foreshore and golf course across Old Ledge Point Rd to the west are all < 1 km away. Ledge Point is approximately 4 km to the south.	1
The road pattern from the planning proposal to a suitable destination is:	The planned road network for the urban development area and the light industrial area north of Lancelin Rd is/will be simple and direct, as is the road to the Lancelin Town Centre.	1
The predominant vegetation pattern is:	The predominant vegetation pattern is extensive coastal heath that will largely be cleared to accommodate the development.	5
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is:	The coastal heath within the Site will mostly be cleared to accommodate the development. Where possible, that which occurs for 100 m around the development area within the Developer's land will also be cleared. The interface of the built environment with vegetation will be to the west, north, and south, with some exposure to the east.	4
Total Points		**11**
Assessed Broader Landscape Type		**A**



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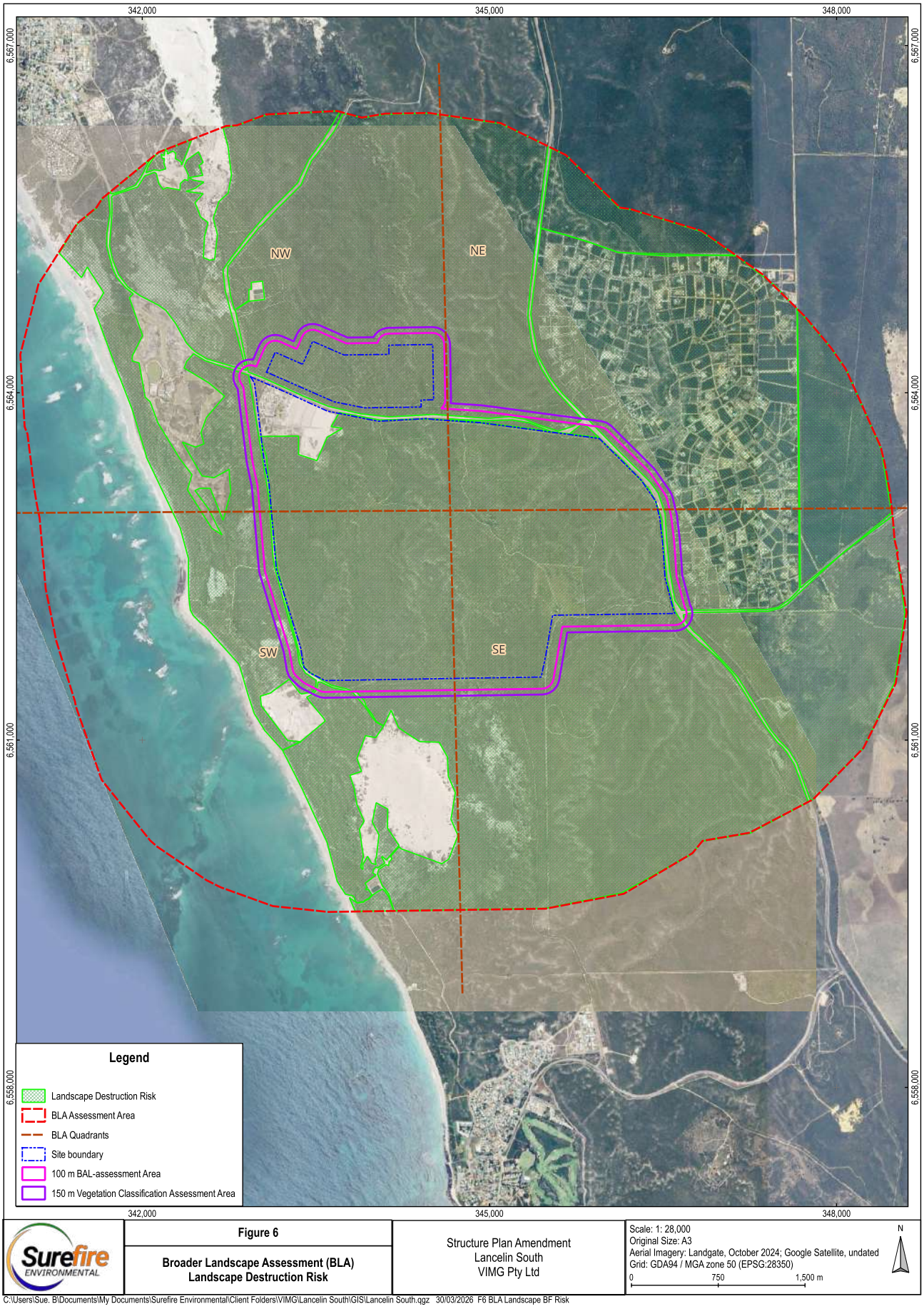
Figure 5

Broader Landscape Assessment (BLA)
Vegetation Mapping

Structure Plan Amendment
Lancelin South
VIMG Pty Ltd

Scale: 1: 28,000
Original Size: A3
Aerial Imagery: Landgate, October 2024; Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 750 1,500 m
N

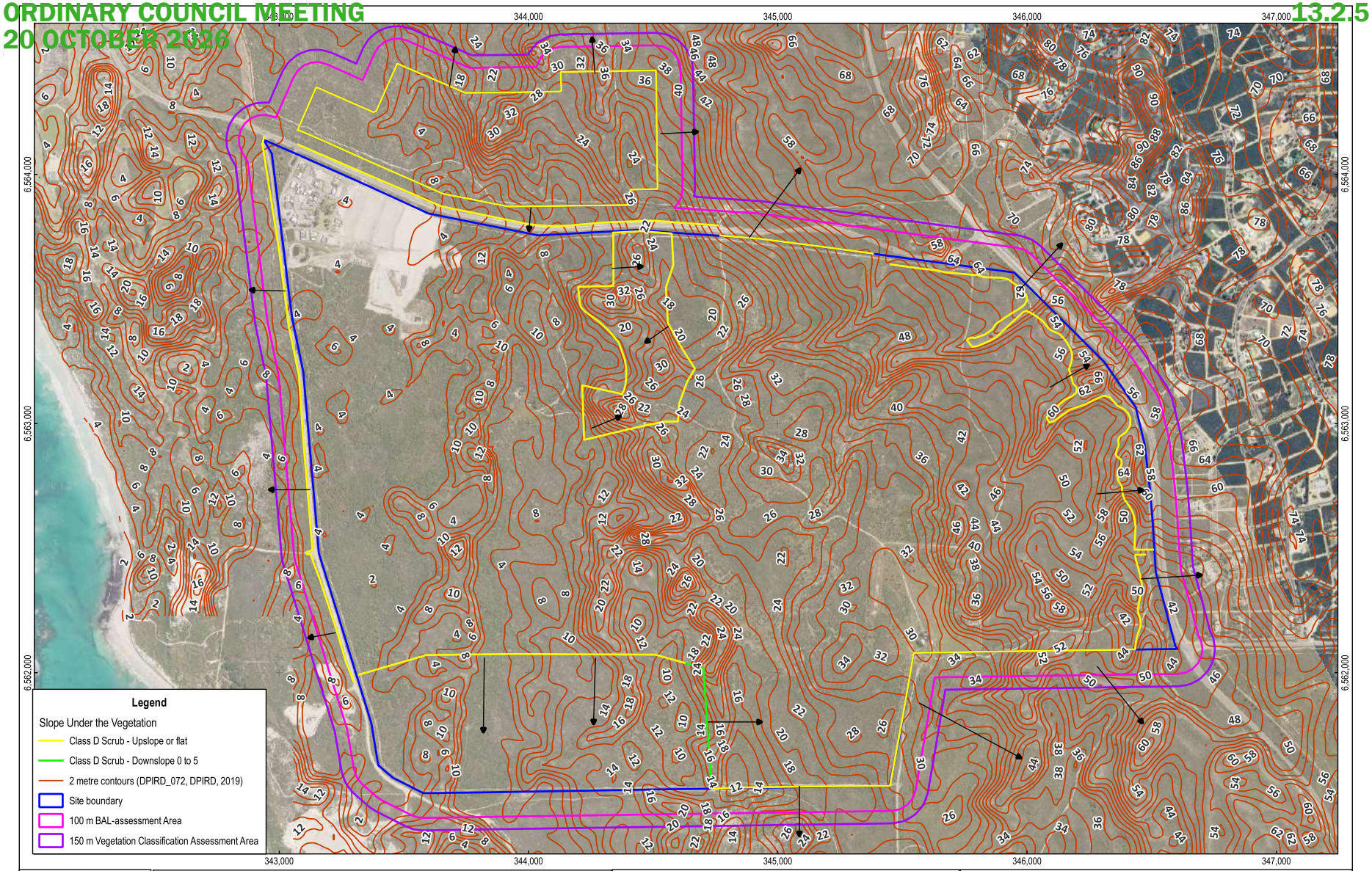
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342,000
345,000
348,000
6,567,000
6,564,000
6,561,000
6,558,000
NW
NE
SW
SE
Legend
Landscape Destruction Risk
BLA Assessment Area
BLA Quadrants
Site boundary
100 m BAL-assessment Area
150 m Vegetation Classification Assessment Area
Surefire ENVIRONMENTAL
Figure 6
Broader Landscape Assessment (BLA)
Landscape Destruction Risk
Structure Plan Amendment
Lancelin South
VIMG Pty Ltd
Scale: 1: 28,000
Original Size: A3
Aerial Imagery: Landgate, October 2024; Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0
750
1,500 m
N
C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\VIMG\Lancelin South\GIS\Lancelin South.qgz 30/03/2026 F6 BLA Landscape BF Risk

3.2 Contours and Slope

The topography across the Site is undulating terrain associated with coastal dunes (Figure 7). There is a general rise in the Site from west (4 m Australian Height Datum (AHD)) to east (up to 64 m AHD). Topography within the Site is variable with a series of dune ridges and swales, with lowest height being 1 m AHD in the eastern dune swale, and up to 64 m along the highest dune ridge adjacent to Indian Ocean Drive (Figure 7). When considering the vegetation that will be retained in perpetuity, a review of the slope under the vegetation indicates that the slope will primarily be Upslope or Flat, with one area where it will be Downslope 0 – 5^{o} (Figure 7); these are the slopes that have been applied to the BAL-modelling (Section 3.6).

Modification of the dunes will occur when clearing and civil engineering activities involving cut and fill are carried out to create a stable surface for development activities. Note that where possible, clearing will occur for up to 100 m beyond Stage boundaries being progressed to facilitate further staging activities and minimise temporary BAL-ratings. As clearing and development continues over time, the outcome will mean that the only classified vegetation that will be present within 100 m of the Site is that which will be retained on an ongoing basis, including that within conservation areas and vegetation to be retained on an ongoing basis beyond the Lancelin South boundary.



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Figure 7

Contours and Slope Under the Vegetation

Structure Plan Amendment
Lancelin South
VIMG Pty Ltd

Scale: 1: 13,374
Original Size: A3
Aerial Imagery: Landgate October 2024, Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 500 1,000 m

N

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3.3 Vegetation Classification

The vegetation classification in addition to the slope of the potential source of the fire is key to determining the potential for exposure of a location to radiant heat, smoke, and embers, for example. The vegetation classification within 150 m of the Site was assessed during the site visit carried out on 16 and 17 May 2025 using descriptions provided in Table 2.3 and Figure 2.4 of *AS 3959:2018*. Note the following limitations with the vegetation classification assessment process:

- limited trafficable sandy access tracks
- the presence of limestone outcrops
- general vegetation density across the Site, including overgrown tracks
- the presence of other obstructions/debris on tracks and other areas
- private property
- fences and gates.

In the short term, one of the primary aims of the process is to confirm that the bushfire implications of the proposed development can be effectively managed. As the Structure Plan will not be the final phase of the planning process, there will be additional opportunities to review and confirm the Site slope and vegetation assessment, as well as other relevant aspects of the proposed development.

For the purposes of this document and development phase, each vegetation class is discussed and shown in Figure 8, Figure 9, Figure 10, and Figure 11. The pre-development vegetation classification, or current situation, for the Site is provided in Figure 12, with the expected post-development classification, or the vegetation that will remain a bushfire risk to the planned subdivision in the longer term, shown in Figure 13.

3.3.1 Patch 1: Class D Scrub

Class D Scrub is characterised by shrubs to 4 m with a continuous canopy from ground level, noting that trees to 6 m (e.g.: Acacia and Melaleuca) can be present. This vegetation classification is present across most of the development area and extends for 150 beyond the Site boundary to the north, east and south (Figure 8). Note that while small patches of Class C Shrubland and Class G Grassland are present within the Site, the dominant vegetation class is the Class D Scrub. This vegetation class will mostly be cleared to accommodate the development, with some to be retained in the planned conservation areas and the landscape protection area. The patch across Old Ledge Point Road to the west, areas beyond the southern Site boundary, that which is present around the light industrial area across Lancelin Rd to the north, as well as that which will be kept in the conservation areas will be retained and represent an ongoing bushfire risk.

Patch: 1 **Classification:**	Class D Scrub
	
Photo ID 1	Photo ID 2
	
Photo ID 3	Photo ID 4
	
Photo ID 5	Photo ID 6
	
Photo ID 7	Photo ID 8

	
Photo ID 9	Photo ID 10
	
Photo ID 11	Photo ID 12

Figure 8: Class D Scrub

3.3.2 Patch 2: Class C Shrubland

Class C Shrubland is characterised by shrubs to 2 m with a continuous canopy from ground level, with the occasional taller tree or shrub present. This vegetation class is present in small patches within the Site, with two larger patches apparent in the southwestern portion of the Site and across Old Ledge Point Road (Figure 9). The patch within the Site will be cleared to accommodate the development, and as the second patch is more than 70 m to west, it will not influence BAL-ratings as the patch of Class D Scrub in this area is closer to the Site boundary.

Patch: 2	**Vegetation Classification:** Class C Shrubland
	
Photo ID 13	Photo ID 14

Figure 9: Class C Shrubland

3.3.3 Patch 3: Class G Grassland

Class G Grassland includes all forms except for tussock moorlands and may include the presence of the occasional tree and shrub if the overstorey canopy cover is less than 10%. Patches of Grassland area associated with areas of disturbance within the Site, including adjacent to tracks, previously cleared areas, and the property in the southern portion of the Site (Figure 10).

Patch: 3	**Vegetation Classification:** Class C Shrubland
	
Photo ID 9	Photo ID 10
	
Photo ID 11	Photo ID 12

Figure 10: Class G Grassland

3.3.4 Patch 4: Low Threat Vegetation

Low Threat Vegetation is characterised by factors such as flammability, moisture content or fuel load. Examples include grassland managed in a minimal fuel condition, maintained lawns, golf courses, reserves, parklands, and sporting fields. At present, the only low threat vegetation present within the Site boundary are two of the public open space (POS) areas that have recently been created in Stages 1 – 3 in the northwestern portion of the Site, hence no photos are available (Figure 1). Additional low threat areas will be created as development across the Site progresses and landscaping occurs in those areas. Patches of landscaped vegetation (low threat vegetation) will also be created around the perimeter of the planned conservation areas and the landscape buffer that will be created along the eastern boundary near Indian Ocean Drive. Each will be reviewed for bushfire implications as the development of the various stages are progressed and clearance letters are prepared ahead of titles being issued after the Lots are created.

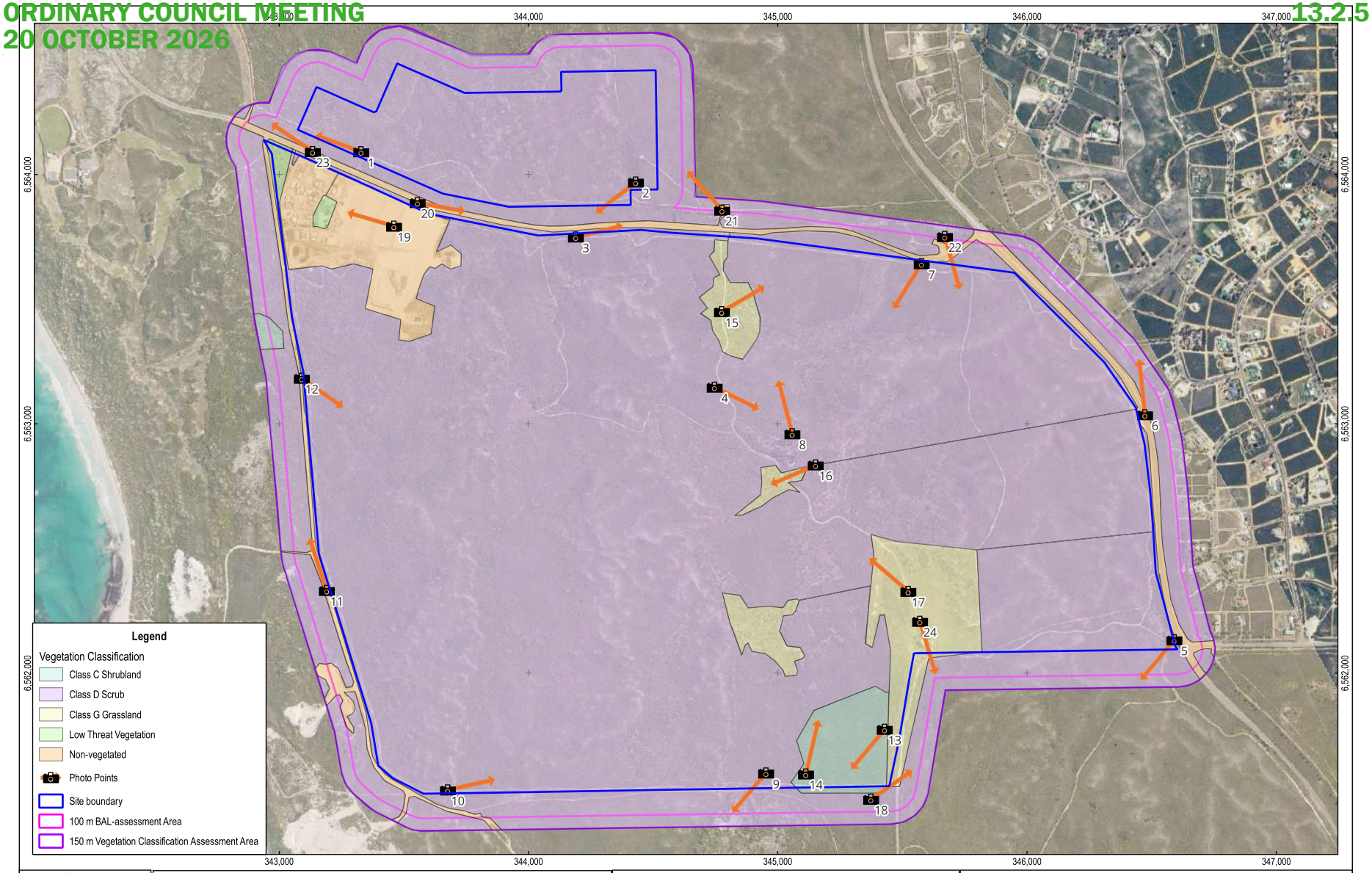
3.3.5 Patch 5: Non-Vegetated Areas

Non-vegetated areas are subject to exclusion clause 2.2.3.2 (e) of *AS 3959:2018*, with those within and close to the Site including (Figure 11):

- cleared areas associated with previous development phases to the northeast
- Old Ledge Point Road to the west, Lancelin Road to the north, and Indian Ocean Drive to the east
- internal sandy/limestone tracks
- current buildings and other infrastructure.

Patch: 5	**Exclusion Clause:** Non-vegetated Areas, Clause 2.2.3.2 (e)
	
Photo ID 19	Photo ID 20
	
Photo ID 21	Photo ID 22
	
Photo ID 23	Photo ID 24

Figure 11: Non-vegetated Areas



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Figure 12

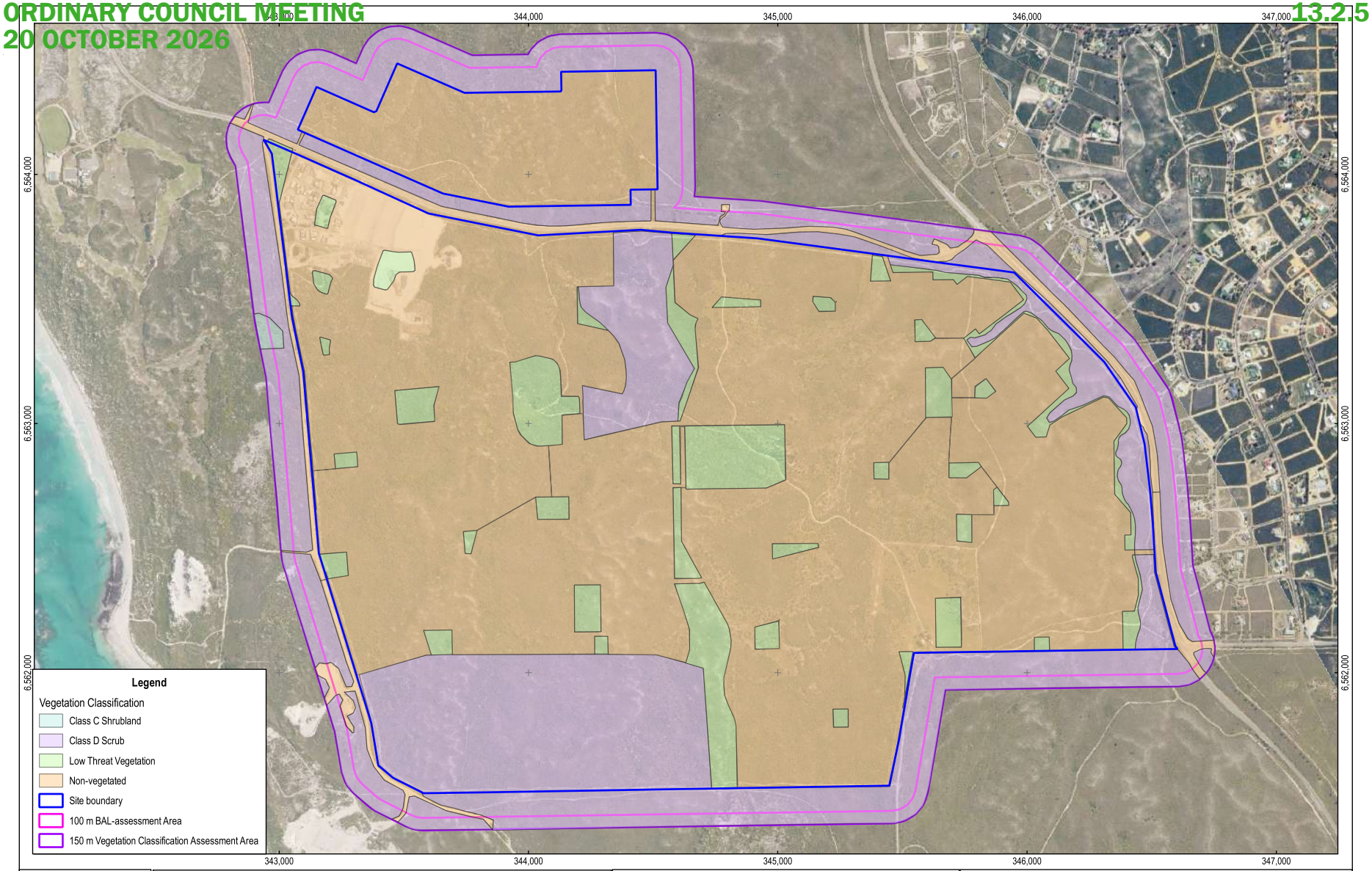
Pre-development Vegetation Classification

Structure Plan Amendment
Lancelin South
VIMG Pty Ltd

Scale: 1: 13,374
Original Size: A3
Aerial Imagery: Landgate October 2024, Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 500 1,000 m

N

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Surefire ENVIRONMENTAL

Figure 13

Post-development Vegetation Classification

Structure Plan Amendment
Lancelin South
VIMG Pty Ltd

Scale: 1: 13,374
Original Size: A3
Aerial Imagery: Landgate October 2024, Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 500 1,000 m

N

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3.4 Fire Danger Index (FDI)

The Fire Danger Index for this site is FDI 80, as documented in Table 2.4.3 of *AS 3959:2018* and which is the nominated FDI for Western Australia.

3.5 Potential Bushfire Impacts

Potential bushfire impacts within the Site include smoke, ember attack, and radiant heat, with the BAL-analysis provided in Table 3.

Table 3: BAL-analysis

Patch	Vegetation Class	Slope	Separation Distance (m)	Maximum BAL-rating
1	Class D Scrub	Upslope or Flat	> 13	BAL-29
2	Class C Shrubland	Upslope or Flat	> 70	BAL-12.5
3	Class G Grassland	Will be cleared	N/A	BAL-Low
4	Low Threat Vegetation	N/A	N/A	BAL-Low
5	Non-vegetated areas	N/A	N/A	BAL-Low

3.6 BAL-Assessment

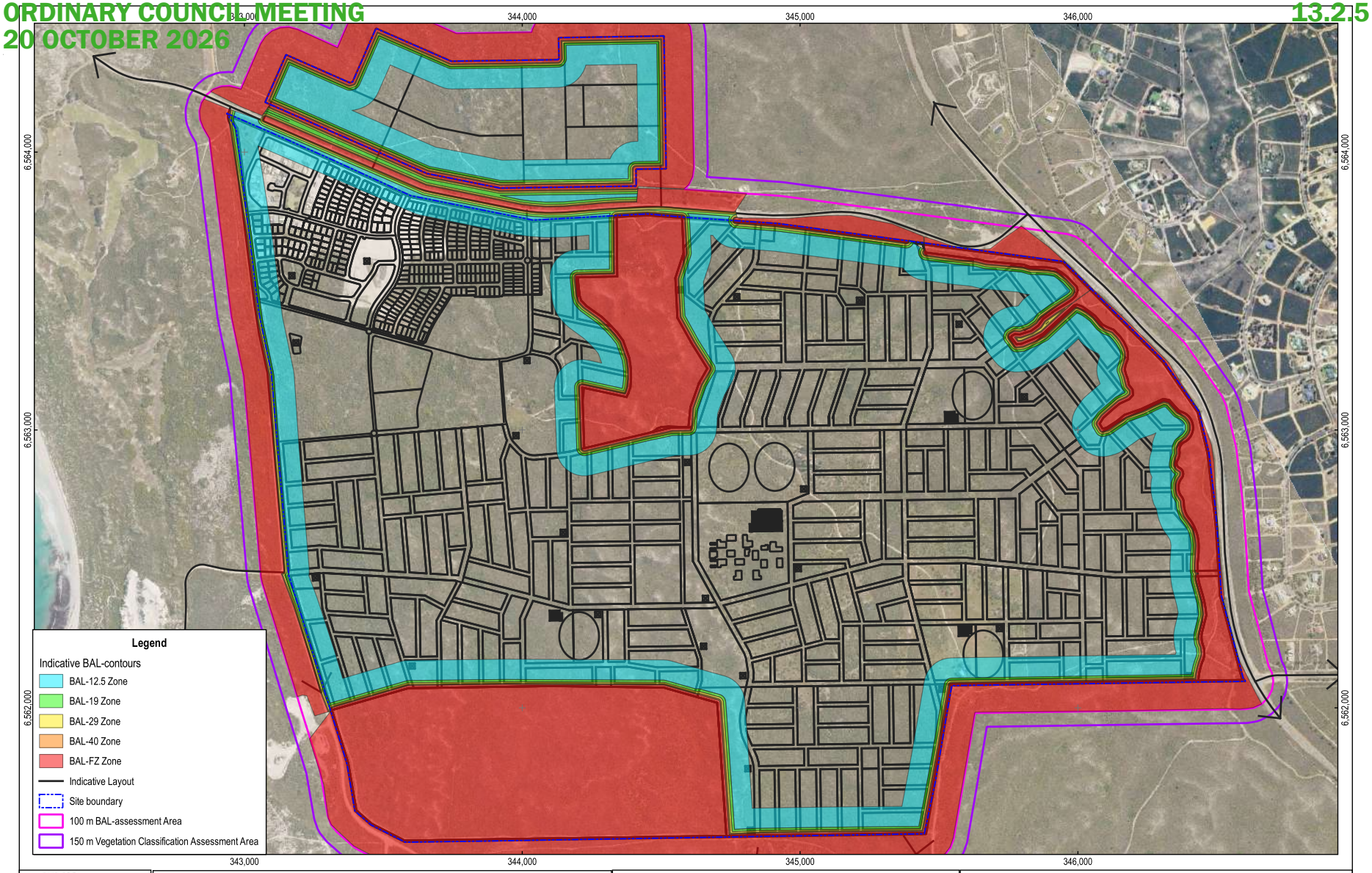
As a detailed Lot layout is not available, the BAL-contour diagram (Figure 14) provides an indication of BAL-ratings based on currently expected site conditions. The BAL-assessment process indicates that the maximum BAL-rating for Lots will be BAL-12.5, with no Lots located within a BAL-40 or BAL-FZ zone. Accordingly, this demonstrates that the bushfire implications associated with Lancelin South can be effectively managed. A review of BAL-contours and ratings will occur at relevant future planning phases such as during subdivision phases or when there has been a change to the design; at that time an updated BAL-contour diagram will be prepared.

3.7 Asset Protection Zone

The Asset Protection Zone (APZ) for the Site is the area that provides the separation distance between the edge of the classified vegetation and building walls, with the preferred width of the APZ being 100 m. For locations where a 100 m APZ width cannot be achieved, a reduced APZ can be implemented when a BAL-rating is determined for the building. The reduced APZ commences at the junction of the BAL-40 and BAL-29 zones, or the junction of the orange and yellow zones shown in Figure 14 and will extend to the building walls which is the point where the potential radiant heat impact of a bushfire does not exceed 29 kW/m^2. As no Lot has a BAL-rating higher than BAL-29, a suitable APZ for the Site can be demonstrated.

3.8 Shielding

Clause 3.5 of *AS 3959:2018* allows for a reduction in the nominated construction standard for a building in a bushfire prone area where the elevation is not exposed to the source of the bushfire attack, noting that the reduction in building standard cannot reduce below BAL-12.5. As some Lots will be rated BAL-29 and BAL-19, the shielding provisions may apply.



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Figure 14

Indicative BAL-contours

Structure Plan Amendment
Lancelin South
VIMG Pty Ltd

Scale: 1: 12,000
Original Size: A3
Aerial Imagery: Landgate October 2024, Google Satellite, undated
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 500 1,000 m

N

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4. Bushfire Hazard Issues

A review of the environmental considerations, current vegetation classification (Figure 12) and the expected post-development vegetation classification (Figure 13) indicated that there are no impediments to development of the Lancelin South development area. Additionally, as a concept plan has been prepared, it was possible to model the BAL-contours for the Site (Figure 14) based on the expected post-development vegetation classification and confirm that the Site is suitable for development and will comply with the bushfire protection criteria.

5. Assessment Against Bushfire Protection Criteria

Appendix B of the *Guidelines* (DPLH and WAPC, 2024a) provides details of the acceptable bushfire protection solutions that can be used to demonstrate how a location can be developed in bushfire prone areas.

5.1 Compliance Table

The compliance table focuses on ensuring that that the subdivision design complies with Element 2: Siting and Design, Element 3: Vehicular Access, and Element 4: Water. Outcomes of how the Site will comply are provided in Table 4 with all compliance requirements able to be achieved.

Table 4: Compliance Table

Bushfire Protection Criteria	Method of Compliance – Method 1		Proposed Bushfire Management Strategies
	Acceptable Solutions		
Element 1: Location	A1.1a	Broader Landscape Type A	BLA outcome as described in Section 3.1 indicates that the Site is a Broader Landscape Type A and is compliant with Element 1: Location.
Element 2: Siting and Design	A2.1	Siting and Design	The development of this location is a continuation of development that is occurring within the broader ODP area to the northwest and is consistent with the design included with the 2007 and 2013 applications. Figure 14 demonstrates that a suitable APZ can be achieved for the Site.
	A2.2	Asset Protection Zone	The assessment process indicates that a suitable APZ can be demonstrated for all Lots (Figure 14), with no Lot rated higher than BAL-29.
	A2.3	Clearing of Native Vegetation	Clearing of native vegetation will occur within the Site boundary and where possible, for up to 100 m around the various development Stages to accommodate the subdivision (Figure 13). The original and current subdivision planning process has considered the value of the native vegetation, including vegetation to be retained within nominated conservation areas (Figure 1).

Bushfire Protection Criteria	Method of Compliance – Method 1 Acceptable Solutions		Proposed Bushfire Management Strategies
Element 3: Vehicular Access	A3.1	Public Roads	Public roads will be constructed in accordance with the technical requirements outlined in Column 2, Area 1 of Table 10 on page 103 of the *Guidelines*. Road design will be reviewed and approved by the Shire of Gingin prior to construction commencing.
	A3.2	Access Roads	Access and egress from the subdivision will be available to at least two different destinations available to the north through the existing development stages to Lancelin Road, to the west to Old Ledge Point Road (Figure 1, Figure 14), and in time, to Indian Ocean Drive to the east.
	A3.3a	No-through Roads	Some temporary no-through roads may be required until development to the east and south is progressed. If so, construction will comply with the requirements of a public road as detailed in Appendix B.3 Table 10, Column 2 of the *Guidelines*, and include a turn-around area/head as per Figure 30 of the *Guidelines*.
	A3.3b	No-through Road Requirements	Any temporary no-through roads will comply with the requirements of a public road as detailed in Appendix B.3 Table 10, Column 2 of the *Guidelines*, and include a turn-around area/head as per Figure 30 of the *Guidelines*.
	A3.4	Emergency Access Ways	As the development will be an extension of that being implemented within accordance with the current ODP, combined with the plan to clear for up to 100 m around development Stages where possible to do so, the need for an emergency access way is not envisaged.
	A3.5a	Perimeter Roads	The current subdivision design indicates a perimeter road will be constructed between areas of retained vegetation and the development (Figure 1, Figure 14).
	A3.5b	Fire Service Access Routes	N/A – fire service access requirements will be via the planned road network.
	A3.6	Battle-axe Access Leg	N/A – Structure Plan, Lot detail is not yet available (Figure 14)
Element 4: Water	A4.1	Water Supply for Structure Plans	A suitable reticulated water supply will be available from Lancelin South Water, with designs reviewed and approved prior to installation commencing.
	A4.2	Water Supply for subdivision applications	N/A – update of Structure Plan

Bushfire Protection Criteria	Method of Compliance – Method 1		Proposed Bushfire Management Strategies
	Acceptable Solutions		
	A4.3	Water Supply for existing Habitable Buildings	N/A – update of Structure Plan

5.2 Additional Bushfire Mitigation Measures

No additional bushfire mitigation measures than those outlined in this BMP will be required.

6. Responsibilities for Implementation and Management of the Bushfire Mitigation Measures

Required bushfire mitigation measures that will be implemented and maintained by the Developer until the Site is developed and Lots are sold are provided in Table 5. Also provided are an indication of the responsibilities of future lot and landowners and the maintenance requirements associated with the various responsibilities.

Table 5: Bushfire Mitigation Measures

Item	Mitigation Measure	Maintenance
Landowner/Developer Prior to Sale or Occupancy		
1	When development of the Site progresses, where possible, a low-fuel zone (APZ) up to 100 m, or the extent possible based on the Classified vegetation within and in proximity to the Site will be installed around active stages to prevent temporary BAL-ratings being applied to Lots under construction and facilitate future development activities.	Ongoing as required
2	If required, bushfire implications are reviewed for subdivision if there is a change in the area (m^2) of classified vegetation to be cleared or retained.	As required
3	The bushfire implications of any changes to the Site layout are assessed prior to being implemented.	As required
4	Hydrant design requirements will be in accordance with the Lancelin South Water Design Standard for hydrants: ▪ installation of markings to indicate the presence of hydrants ▪ clearance on the placement of hydrants is required from Lancelin South Water ▪ hydrants to be clearly identifiable, with markings installed by the developer after practical completion.	As required during various future planning approval phases.
5	Public roads and no-through roads will be constructed in accordance with the technical requirements outlined in Column 2, Area 1 of Table 10 on page 103 of the *Guidelines* and be consistent with those constructed in surrounding areas, noting that road design will be approved	As required during various future planning approval phases.

Item	Mitigation Measure	Maintenance	
	by the Shire of Gingin prior to construction commencing.		
6	BAL-contours and ratings will be confirmed at various future planning approval phases.	At appropriate future planning approval phases, such as prior to the development of nominated subdivision stages.	
7	Comply with the Shire of Gingin's annual fire hazard reduction notice.	As per the requirements of the Shire of Gingin annual fire hazard reduction notice.	
8	Prepare a BMP compliance report to demonstrate that the relevant bushfire management measures have been implemented during subdivisional works to deliver compliance.	As required at each appropriate planning stage.	
Landowner/Developer – Ongoing Management			
1	Maintain vehicular access routes, including secondary access routes, within the development area to the required surface condition and clearances.	As required.	
Developer – Prior to Issue of Certificate of Titles for New Lots			
No.	**Implementation Action**	**Local Government Clearance**	**Bushfire Consultant Clearance**
1	Confirm the BAL-ratings of Lots within the subdivision, including confirming that a maximum BAL-29 rating can be achieved.		✓
2	Construct the public roads and no-through roads to the standards stated in the BMP.	✓	✓
3	Two access/egress options are available for each stage of the development.		✓
4	Clearing of vegetation to create the APZ to be undertaken in accordance with the BMP and land tenure.		✓
5	Hydrant and water supply is in accordance with Lancelin South Water requirements.	✓	✓
6	Ensure that bushfire risk and mitigation is reassessed when future phases of the development proceed.		✓

7. References

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20 March 2026

Your Ref:
Our Ref: H25021Av2

CLE Town Planning & Design
2 Abbotsford Street
West Leederville WA 6007
ATTENTION: Eleni Thorman

Dear Eleni,

LANCELIN SOUTH LOCAL WATER MANAGEMENT STRATEGY ADDENDUM

This Local Water Management Strategy (LWMS) Addendum has been prepared by Hyd2o on behalf VIMG to provide updated stormwater modelling to inform the revised concept masterplan for Lancelin South being prepared by CLE Town Planning & Design.

Stormwater remodelling is provided in this report to support revisions to the local structure plan which have resulted in changes in the location and sizes of the sites stormwater management areas. The modelling in this report is intended to supersede previous modelled as detailed in the sites LWMS (RPS, 2010). For reference purposes, the previous stormwater plan from the LWMS (RPS, 2010) and previous structure plan are included as Appendix A.

Key principles and objectives of the approved LWMS remain current and valid for implementation. This addendum report therefore does not reproduce all elements of the previously approved LWMS (RPS, 2010).

It is intended to be read in conjunction with the previous document and provide only the relevant stormwater modelling revisions necessary to demonstrate overall compliance with the original LWMS's intent and inform the structure plan revision.

1. SITE CHARACTERISTICS

The site location is shown in Figure 1, and is located approximately 120 km north-west of Perth and 4 km south east of central Lancelin adjacent to existing and planned development areas. The site is generally described as having the following predevelopment characteristics:

- The majority of the site consists of coastal dune bushland vegetation. There are no existing buildings within the site (Figure 2).
- The topography is characteristic of undulating coastal sand dunes and ranges from around 4 mAHD towards the coastal areas in the west to 60 mAHD at the eastern boundary (Figure 2).
- The Geological Survey of WA (1978) 1:250,000 Geology Map indicates the shallow sub surface conditions beneath the site comprise of Safety Bay Sand. According to the Department of Primary Industries and Regional Development (DPIRD) Soil Landscape Mapping, the site is situated on top of the Quindalup Dune System, a known

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p +61 8 9382 8683 | f +61 8 6380 1910 | www.hyd2o.com.au

geomorphic expression of the Safety Bay Sand geological unit. Figure 3 details the soil landscape subsystems in proximity to the site. Various geotechnical investigations for initial western stages of development in the area have indicated the site as characterised as having a mixture of varying grades of sand underlain by limestone at variable depths.

- With respect to hydraulic conductivity, testing was reported in the LWMS (RPS) at ten locations with rates ranging from 7 m/day to 45 m/day. Further testing for various UWMP's have been undertaken by Hyd2o (2 sites) and Douglas Partners (4 sites) with a similar range of rates ranging from 12 to 41 m/day.
- Predevelopment groundwater monitoring and mapping across the site was undertaken by RPS in 2010 (Figure 4). Groundwater levels at the site are at their lowest point at the western boundary (0.85 mAHD), with much of the central part of the site at 0.95 mAHD. Depth from natural surface to groundwater ranges between approximately 3 m at the western end to beyond 59 m towards the eastern boundary.
- Indicative predevelopment surface water catchment mapping is shown in Figure 5 based on identified major ridges within the site. Note that there are no defined waterways, watercourses, or drains within the site, and all surface water runoff currently infiltrates through the subsurface profile.
- There are no Bush Forever sites or classified wetlands within the site.

2. PROPOSED CONCEPT MASTERPLAN

A copy of the revised concept masterplan for the site is included as Figure 6.

Proposed land use within the site is generally consistent with that shown in the original LWMS (RPS, 2010), albeit with the realignment of roads, lots and POS across the site.

Changes have resulted in modifications to post development drainage routes and local catchment boundaries, with the associated revised calculations to define post development stormwater requirements detailed in Section 3.

3. REVISED STORMWATER MODELLING

Based on the revised concept masterplan and POS locations (Figure 6) and site earthworks model developed by Peritas, catchment boundaries and areas are identified in Figure 7. The total site comprises approximately 30 individual catchments with land use breakdown within each catchment as specified in Tables 1-5. This high number of catchments is considerably larger than the previous LWMS (RPS, 2010) and enables distributed infiltration and stormwater management at source consistent with water sensitive urban design principles.

All catchments will provide water quality treatment and infiltration of all stormwater from a 15mm event via biofiltration areas, as well as providing management of larger flood events up to the 1% Annual Exceedance Probability (AEP) event within POS area.

Revised stormwater modelling of the updated concept masterplan was undertaken using the PONDS shallow water table infiltration model. PONDS is a program designed for modelling groundwater/surface water interactions for the design of the stormwater infiltration areas based on the finite difference computer program MODFLOW developed

by the US Geological Survey. The design storms used within PONDS were calculated with reference to the methodology in Australian Rainfall and Runoff. The rainfall temporal pattern was assumed to be spatially uniform across the catchment. Storm durations modelled ranged from 1 to 72 hours.

The following key parameters were used in modelling to inform the revised stormwater modelling:

- The POS stormwater storage areas to include a biofiltration area sized to manage the 15mm event for water quality treatment, located within an overall flood storage area sized to retain and infiltrate the 1% annual exceedance probability (AEP) event.
- Side slopes of 1:6 for the POS flood storage infiltration areas and 1:0 for biofiltration.
- A maximum allowable storage depth less than 1.2 m for the 1% AEP event.
- A design groundwater level at the site for modelling purposes based on the LWMS mapped groundwater levels (RPS, 2010). Adopted groundwater levels at each storage location are shown in relation to the indicative storage inverts in Tables 1-5. These AAMGL levels are estimated to range from 0.85 mAHD in the west of the site to 1.0 mAHD in the east.
- Runoff rates calculated and applied based on Hyd2o's CURRV runoff calculator as detailed in Tables 1-5. Note runoff coefficient used for road reserve in current modelling differ from those adopted in the previous LWMS (RPS,2010) and are considered a refinement based on a more detailed assessment of likely rates. Hyd2o's CURRV runoff calculator is a standardised approach used by Hyd2o across all development projects to estimate runoff rates. In estimating runoff rates CURRV considers rainfall IFD's, land use breakdown, percentages of impervious and pervious areas within land use type and likely initial and continuing loss of soil types.
- Conservative rates of 5 m/day for flood storage area modelling, with no infiltration assumed for the initial sizing of biofiltration area and volume requirements.

Revised modelling results for each individual catchment are presented in Tables 1 to 5 and Appendix C, with estimated approximate storage areas shown in Figures 8 and 9 for the 15 mm biofiltration areas and 1% AEP areas respectively. Note areas in Figures 8 and 9 are shown approximately to scale to indicate the likely size of stormwater storage areas in relation to POS provisions.

The results indicate the proposed POS areas to be sufficient in size and location to manage storage runoff from the site post development up to the 1% AEP event for the revised concept plan.

Landscape concept plans prepared by LD total showing the integration of stormwater and POS areas are contained as Appendix D.

Table 1: Stormwater Modelling for Revised Local Structure Plan (Catchments 1-5)

Catchment	1a	1b	2	3	4	5
Lots (ha) @ 44%RO 1%AEP	12.33	10.41	7.62	5.14	7.51	9.68
POS (ha) @ 17%RO 1%AEP	2.22	0.58	1.72	1.87	0.66	1.59
Road Reserve (ha) @ 68%RO 15mm @ 85%RO 1%AEP	5.58	4.34	3.68	2.70	3.80	4.26
Total Area (ha)	20.13	15.33	13.02	9.71	11.97	15.53
Equiv Imp Area EIA (15mm) (ha)	3.79	2.95	2.50	1.84	2.58	2.90
Equiv Imp Area EIA (1% AEP) (ha)	10.55	8.37	6.77	4.87	6.65	8.15
15mm Event Biofiltration Area						
Volume Required (m^3)	569	443	375	276	387	435
Flood Depth (m)	0.30	0.30	0.30	0.30	0.30	0.30
TWL Elevation (mAHD)	2.80	1.80	42.80	33.80	28.80	12.80
Modelled Base & TWL Area (m^2)	1895	1475	1250	920	1290	1450
Flood Storage Parameters						
Base Area (m^2) [1]	2740	2740	1700	950	1575	1670
Approx Storage Invert (mAHD)	2.5	1.5	42.5	33.5	28.5	12.5
Design Groundwater Level (mAHD)	0.85	0.85	1.0	1.0	1.0	0.95
Side Slopes (v:h)	6	6	6	6	6	6
Infiltration Rate (m/d)	5.0	5.0	5.0	5.0	5.0	5.0
20% AEP Event Flood Storage						
Modelled Flood Depth (m)	0.59	0.44	0.59	0.65	0.60	0.64
TWL Elevation (mAHD)	3.09	1.94	43.09	34.15	29.10	13.14
TWL Area (m^2)	3902	3597	2494	1830	2491	3088
Volume (m^3)	1963	1404	1260	917	1235	1531
Critical Duration (hr)	3	1	3	3	3	3
1% AEP Event Flood Storage						
Modelled Flood Depth (m)	1.20	1.17	1.19	1.18	1.17	1.18
TWL Elevation (mAHD)	3.70	2.67	43.69	34.68	29.67	13.68
TWL Area (m^2)	5208	5141	3403	2637	3457	4377
Volume (m^3)	4758	4634	3032	2119	2937	3560
Critical Duration (hr)	3	24	3	3	3	3

1. Biofiltration area estimates are considered conservative. Where biofilter area requirements above exceed flood storage base areas shown , storage designs will require refinement at later stages of planning to suit.

Table 2: Stormwater Modelling for Revised Local Structure Plan (Catchments 6-10)

Catchment	6	7	8	9a	9b	10
Lots (ha) @ 44%RO 1%AEP	8.57	17.33	1.63	15.36	9.26	3.77
POS (ha) @ 17%RO 1%AEP	3.43	3.78	0.45	10.14	0.44	0.77
Road Reserve (ha) @ 68%RO 15mm @ 85%RO 1%AEP	3.92	7.74	0.88	8.05	4.66	2.52
Total Area (ha)	15.92	28.85	2.96	33.55	14.36	7.06
Equiv Imp Area EIA (15mm) (ha)	2.67	5.26	0.60	5.47	3.17	1.71
Equiv Imp Area EIA (1% AEP) (ha)	7.69	14.85	1.54	15.32	8.11	3.93
15mm Event Biofiltration Area						
Volume Required (m^3)	401	789	90	821	476	257
Flood Depth (m)	0.30	0.30	0.30	0.30	0.30	0.30
TWL Elevation (mAHD)	13.80	13.80	47.80	20.80	31.80	12.80
Base & TWL Area (m^2)	1335	2630	300	2735	1585	855
Flood Storage Parameters						
Base Area (m^2) [1]	1550	4000	170	4180	2280	750
Approx Storage Invert (mAHD)	13.5	13.5	47.5	20.5	31.5	12.5
Design Groundwater Level (mAHD)	0.95	0.95	1.0	0.95	0.95	0.95
Side Slopes (v:h)	6	6	6	6	6	6
Infiltration Rate (m/d)	5.0	5.0	5.0	5.0	5.0	5.0
20% AEP Event Flood Storage						
Modelled Flood Depth (m)	0.65	0.57	0.72	0.57	0.56	0.65
TWL Elevation (mAHD)	14.15	14.07	48.22	21.07	32.06	13.15
TWL Area (m^2)	2898	5552	582	5677	2984	1474
Volume (m^3)	1451	2736	287	2831	1492	738
Critical Duration (hr)	3	3	3	3	3	3
1% AEP Event Flood Storage						
Modelled Flood Depth (m)	1.19	1.18	1.18	1.20	1.19	1.17
TWL Elevation (mAHD)	14.69	14.68	48.68	21.70	32.69	13.67
TWL Area (m^2)	4110	7316	923	7440	3883	2141
Volume (m^3)	3369	6682	646	6941	3685	1703
Critical Duration (hr)	3	3	3	3	3	3

1. Biofiltration area estimates are considered conservative. Where biofilter area requirements above exceed flood storage base areas shown , storage designs will require refinement at later stages of planning to suit.

Table 3: Stormwater Modelling for Revised Local Structure Plan (Catchments 11-14)

Catchment	11	12a	12b	13a	13b	14
Lots (ha) @ 44%RO 1%AEP	9.52	7.89	14.26	11.73	11.01	0.72
POS (ha) @ 17%RO 1%AEP	3.35	1.00	3.85	0.72	0.64	1.71
Road Reserve (ha) @ 68%RO 15mm @ 85%RO 1%AEP	5.28	4.46	6.72	5.97	4.87	1.52
Total Area (ha)	18.15	13.35	24.83	18.42	16.52	3.95
Equiv Imp Area EIA (15mm) (ha)	3.59	3.03	4.57	4.06	3.31	1.03
Equiv Imp Area EIA (1% AEP) (ha)	9.25	7.43	12.64	10.36	9.09	1.90
15mm Event Biofiltration Area						
Volume Required (m^3)	540	455	686	609	497	155
Flood Depth (m)	0.30	0.30	0.30	0.30	0.30	0.30
TWL Elevation (mAHD)	18.80	26.80	40.80	21.80	38.80	18.80
Base & TWL Area (m^2)	1800	1515	2285	2030	1655	515
Flood Storage Parameters						
Base Area (m^2) [1]	915	2100	3745	2700	2600	300
Approx Storage Invert (mAHD)	18.5	26.5	40.5	21.5	38.5	18.5
Design Groundwater Level (mAHD)	0.95	0.95	1.0	0.95	1.0	0.95
Side Slopes (v:h)	6	6	6	6	6	6
Infiltration Rate (m/d)	5.0	5.0	5.0	5.0	5.0	5.0
20% AEP Event Flood Storage						
Modelled Flood Depth (m)	0.75	0.55	0.54	0.59	0.56	0.68
TWL Elevation (mAHD)	19.25	27.05	41.04	22.09	39.06	19.18
TWL Area (m^2)	3768	2804	4707	3848	3351	693
Volume (m^3)	1761	1372	2298	1935	1975	358
Critical Duration (hr)	6	3	3	3	3	3
1% AEP Event Flood Storage						
Modelled Flood Depth (m)	1.20	1.17	1.19	1.20	1.20	1.19
TWL Elevation (mAHD)	19.70	27.67	41.69	22.70	39.70	19.69
TWL Area (m^2)	5558	3701	5977	5139	4319	1075
Volume (m^3)	3886	3379	5760	4688	4156	815
Critical Duration (hr)	3	3	3	3	3	3

1. Biofiltration area estimates are considered conservative. Where biofilter area requirements above exceed flood storage base areas shown , storage designs will require refinement at later stages of planning to suit.

Table 4: Stormwater Modelling for Revised Local Structure Plan (Catchments 15-20)

Catchment	15	16	17	18	19	20
Lots (ha) @ 44%RO 1%AEP	10.70	22.08	9.45	16.11	4.75	5.88
POS (ha) @ 17%RO 1%AEP	3.04	5.33	1.24	1.00	1.35	2.59
Road Reserve (ha) @ 68%RO 15mm @ 85%RO 1%AEP	5.07	10.37	4.86	7.27	2.33	2.91
Total Area (ha)	18.81	37.78	15.55	24.38	8.43	11.38
Equiv Imp Area EIA (15mm) (ha)	3.45	7.05	3.30	4.94	1.58	1.98
Equiv Imp Area EIA (1% AEP) (ha)	9.53	19.44	8.50	13.44	4.30	5.50
15mm Event Biofiltration Area						
Volume Required (m^3)	518	1058	495	741	237	297
Flood Depth (m)	0.30	0.30	0.30	0.20	0.30	0.30
TWL Elevation (mAHD)	2.80	2.80	7.80	1.70	51.80	11.80
Base & TWL Area (m^2)	1725	3525	1650	3705	790	990
Flood Storage Parameters						
Base Area (m^2) [1]	2880	7500	2450	7000	1000	1425
Approx Storage Invert (mAHD)	2.5	2.5	7.5	1.5	51.5	11.5
Design Groundwater Level (mAHD)	0.85	0.85	0.8	0.85	1.0	0.85
Side Slopes (v:h)	6	6	6	6	6	6
Infiltration Rate (m/d)	5.0	5.0	5.0	5.0	5.0	5.0
20% AEP Event Flood Storage						
Modelled Flood Depth (m)	0.52	0.39	0.54	0.26	0.62	0.58
TWL Elevation (mAHD)	3.02	2.89	8.04	1.76	52.12	12.08
TWL Area (m^2)	3618	8458	3172	7540	1576	2044
Volume (m^3)	1704	3156	1544	1889	807	1014
Critical Duration (hr)	3	1	3	1	3	3
1% AEP Event Flood Storage						
Modelled Flood Depth (m)	1.18	1.19	1.17	1.17	1.19	1.17
TWL Elevation (mAHD)	3.68	3.69	8.67	2.67	52.69	12.67
TWL Area (m^2)	4667	10560	4121	9584	2204	2773
Volume (m^3)	4471	10744	3836	9698	1913	2453
Critical Duration (hr)	24	24	3	24	3	3

1. Biofiltration area estimates are considered conservative. Where biofilter area requirements above exceed flood storage base areas shown , storage designs will require refinement at later stages of planning to suit.

Table 5: Stormwater Modelling for Revised Local Structure Plan (Catchments 21-26)

Catchment	21	22	23	24	25	26
Lots (ha) @ 44%RO 1%AEP	2.12	5.43	4.25	0.68	2.74	1.22
POS (ha) @ 17%RO 1%AEP	0.44	0.45	0.43	0.47	2.01	1.41
Road Reserve (ha) @ 68%RO 15mm @ 85%RO 1%AEP	1.00	2.50	1.61	0.41	2.19	0.89
Total Area (ha)	3.56	8.38	6.29	1.56	6.94	3.52
Equiv Imp Area EIA (15mm) (ha)	0.68	1.70	1.09	0.28	1.49	0.61
Equiv Imp Area EIA (1% AEP) (ha)	1.86	4.59	3.31	0.73	3.41	1.53
15mm Event Biofiltration Area						
Volume Required (m^3)	102	255	164	42	224	92
Flood Depth (m)	0.30	0.30	0.30	0.30	0.30	0.30
TWL Elevation (mAHD)	40.80	21.80	44.80	55.80	39.80	51.80
Base & TWL Area (m^2)	340	850	545	140	745	305
Flood Storage Parameters						
Base Area (m^2) [1]	300	1125	600	32.5	630	165
Approx Storage Invert (mAHD)	40.5	21.5	44.5	55.5	39.5	51.5
Design Groundwater Level (mAHD)	0.95	0.95	1.0	1.0	0.95	0.95
Side Slopes (v:h)	6	6	6	6	6	6
Infiltration Rate (m/d)	5.0	5.0	5.0	5.0	5.0	5.0
20% AEP Event Flood Storage						
Modelled Flood Depth (m)	0.67	0.60	0.67	0.79	0.66	0.73
TWL Elevation (mAHD)	41.17	22.10	45.17	56.29	40.16	52.23
TWL Area (m^2)	686	1681	1227	269	1271	575
Volume (m^3)	349	856	627	137	643	287
Critical Duration (hr)	3	3	3	6	3	3
1% AEP Event Flood Storage						
Modelled Flood Depth (m)	1.17	1.19	1.20	1.20	1.18	1.19
TWL Elevation (mAHD)	41.67	22.69	45.70	56.70	40.68	52.69
TWL Area (m^2)	1059	2329	1815	463	1864	912
Volume (m^3)	794	2049	1441	299	1478	644
Critical Duration (hr)	3	3	6	3	3	3

1. Biofiltration area estimates are considered conservative. Where biofilter area requirements above exceed flood storage base areas shown , storage designs will require refinement at later stages of planning to suit.

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Should you have any queries regarding this report, please do not hesitate to contact Sasha Martens or Brian Lau of this office.

Yours sincerely,



Brian Lau
Environmental Hydrologist, Hyd2o

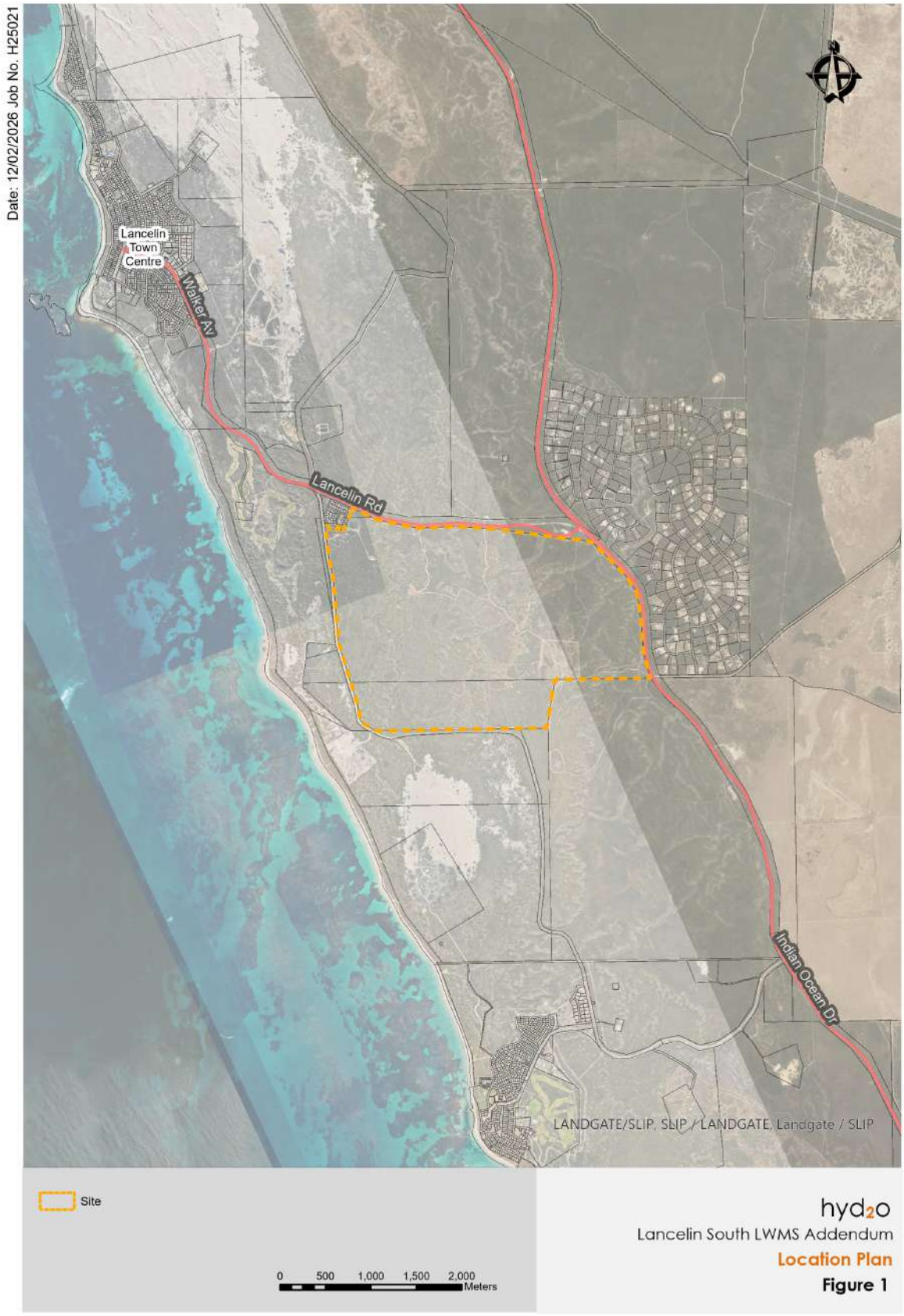
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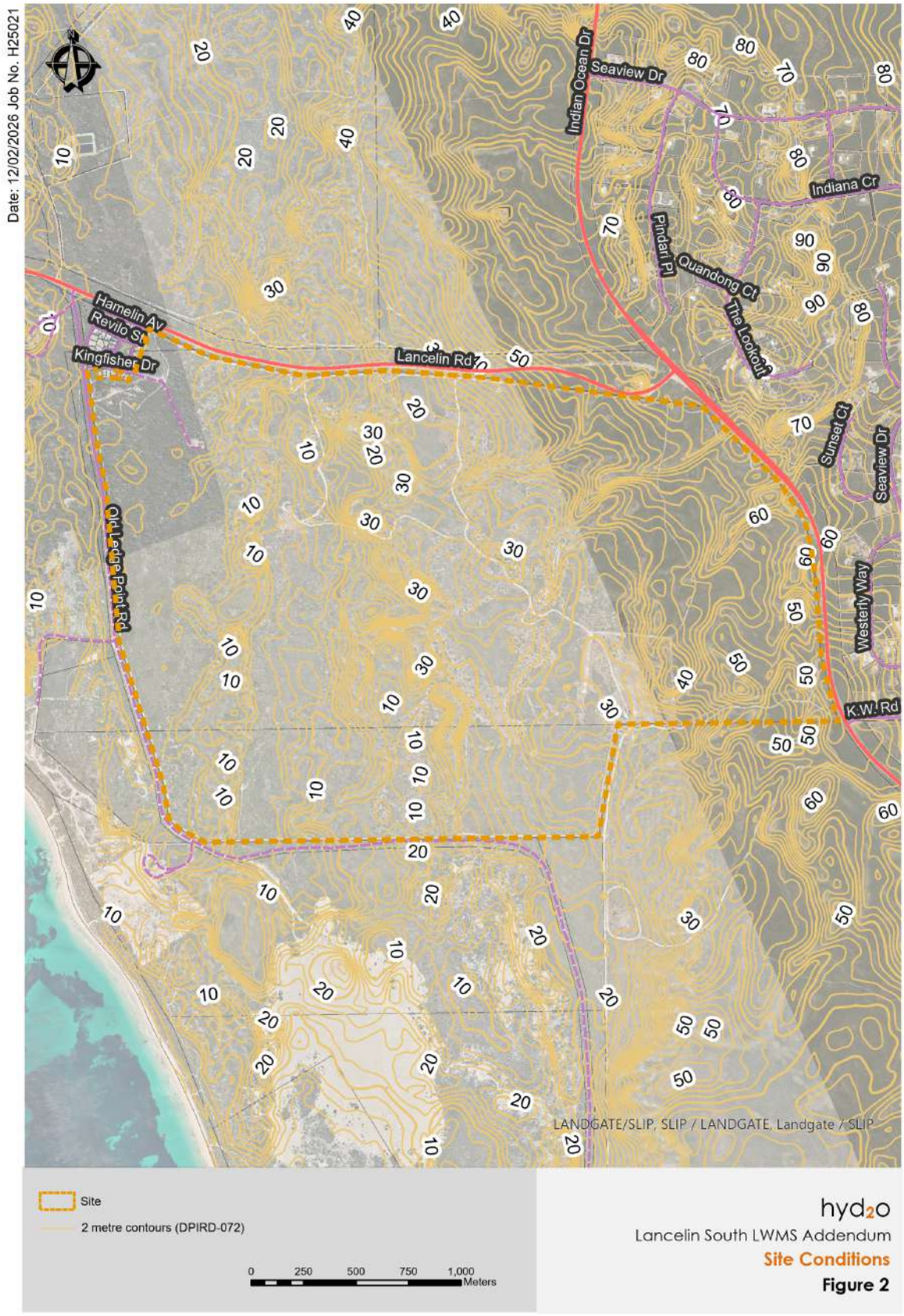
Figure 1: Location Plan
Figure 2: Site Conditions Plan
Figure 3: Geotechnical Plan
Figure 5: Groundwater Plan
Figure 4: Surface Water Plan
Figure 6: Revised Concept Masterplan
Figure 7: Post Development Catchment Plan
Figure 8: 15mm Biofiltration Plan
Figure 9: Stormwater Management Plan

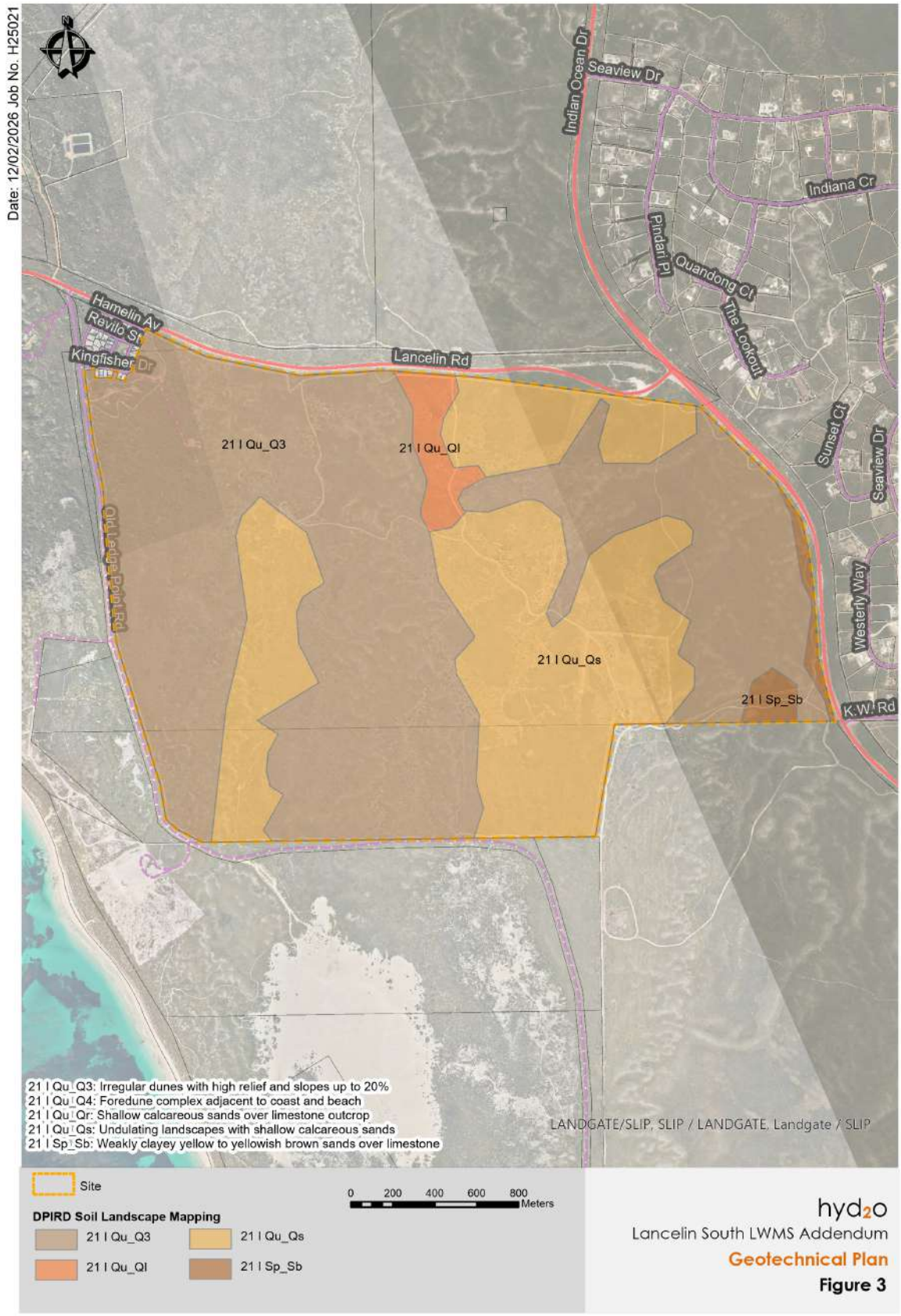
Appendix A: LWMS Extracts (RPS, 2010)
Appendix B : Engineering Plans (LDTotal, 2025)
Appendix C : Stormwater Modelling Summary
Appendix D: Landscape Plans (Peritas, 2025)

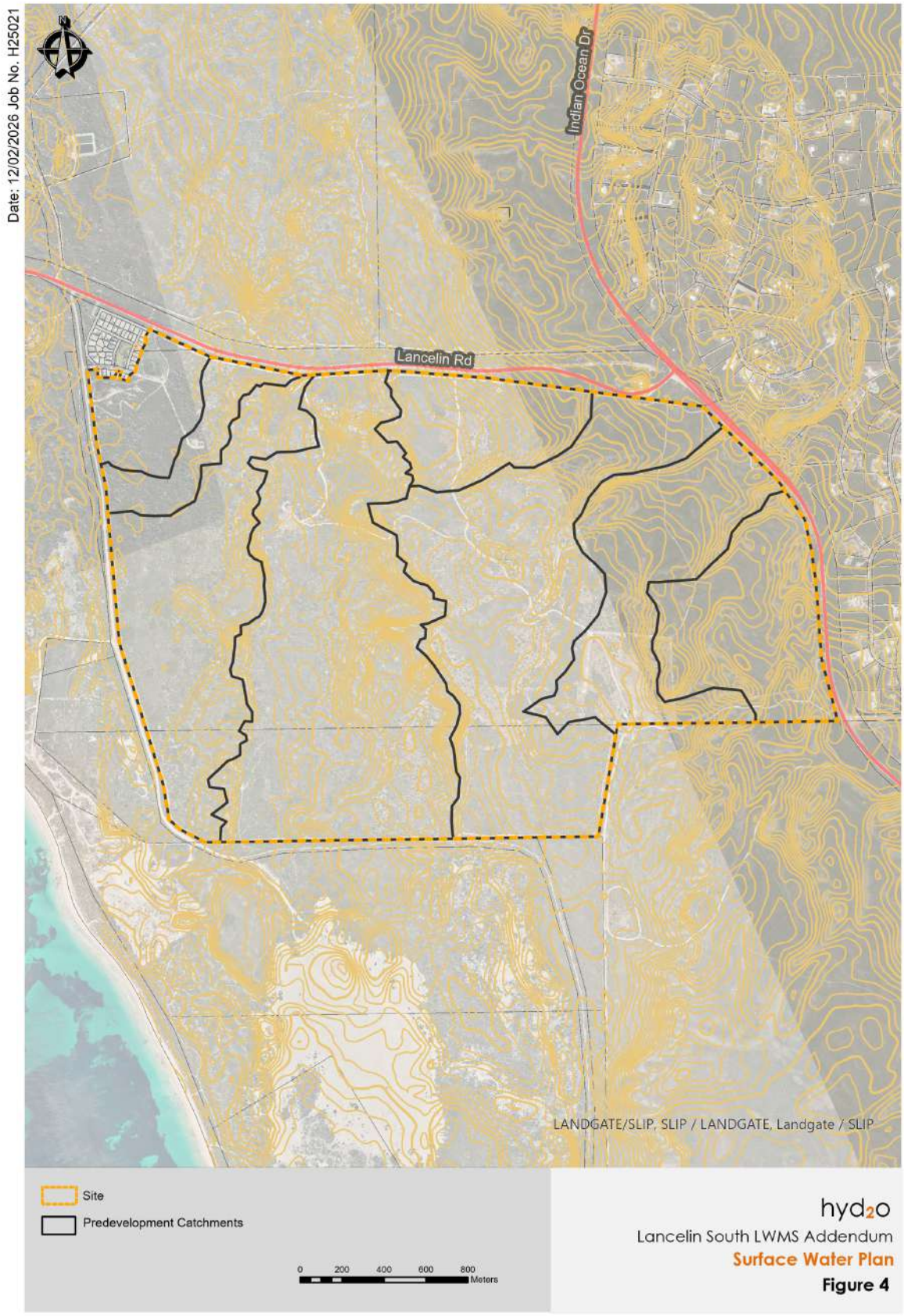
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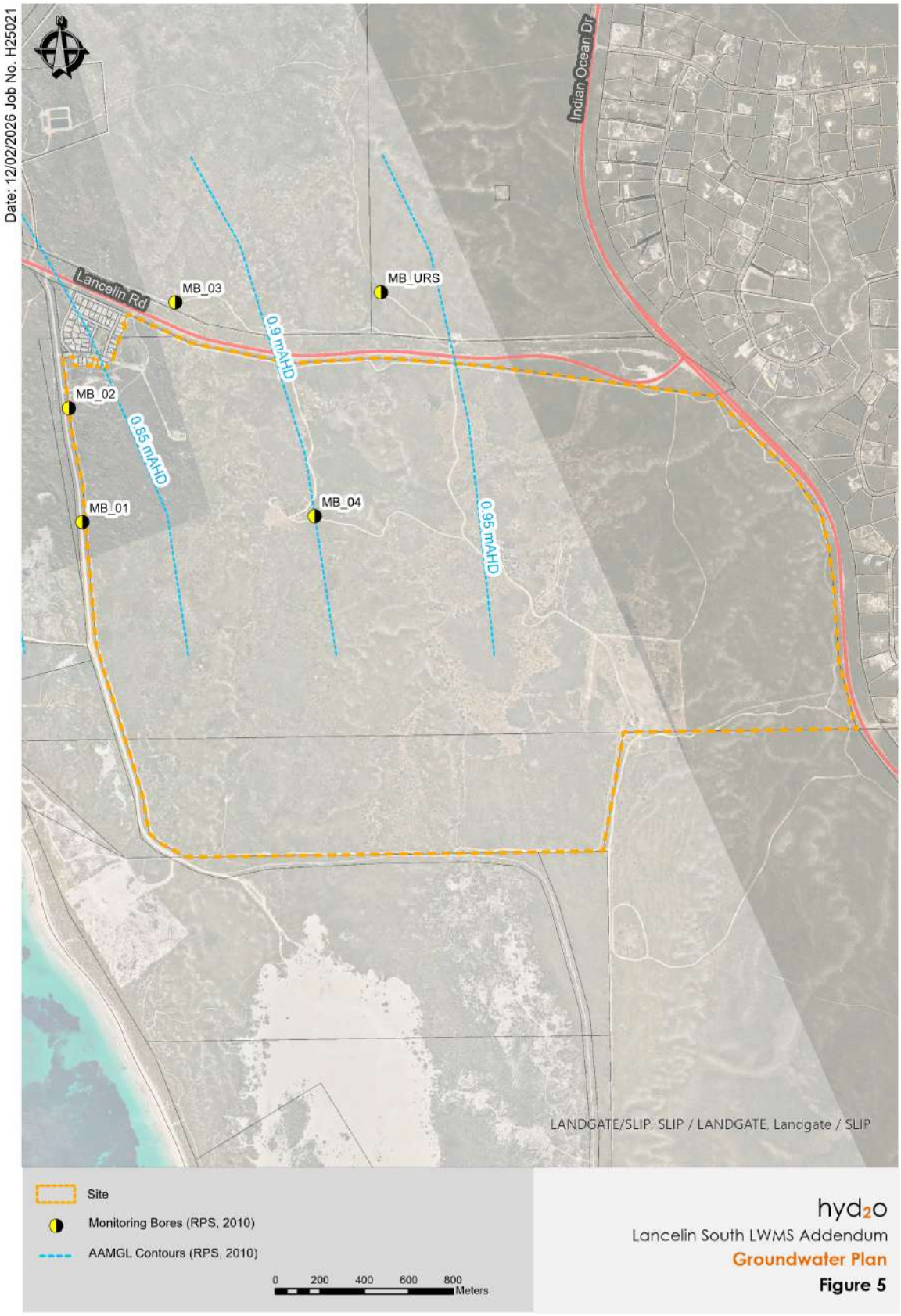
FIGURES


Date: 12/02/2026 Job No. H25021
Lancelin Town Centre
Walker Av
Lancelin Rd
Indian Ocean Dr
LANDGATE/SLIP, SLIP / LANDGATE, Landgate / SLIP
Site
0 500 1,000 1,500 2,000 Meters
hyd2o
Lancelin South LWMS Addendum
Location Plan
Figure 1


Date: 12/02/2026 Job No. H25021
Indian Ocean Dr
Seaview Dr
Indiana Cr
Pindari Pl
Quandong Ct
The Lookout
Sunset Ct
Seaview Dr
Westerly Way
K.W. Rd
Hamelin Av
Revilo St
Kingfisher Dr
Lancelin Rd
Old Ledge Point Rd
LANDGATE/SLIP, SLIP / LANDGATE, Landgate / SLIP
Site
2 metre contours (DPIRD-072)
0 250 500 750 1,000
Meters
hyd2o
Lancelin South LWMS Addendum
Site Conditions
Figure 2


Date: 12/02/2026 Job No. H25021
Indian Ocean Dr
Seaview Dr
Indiana Cr
Pindari Pl
Quandong Ct
The Lookout
Hamelin Av
Revillo St
Kingfisher Dr
Lancelin Rd
Sunset Ct
Seaview Dr
Old Lancelin Point Rd
Westerly Way
K.W. Rd
21 | Qu_Q3
21 | Qu_Ql
21 | Qu_Qs
21 | Sp_Sb
21 | Qu_Q3: Irregular dunes with high relief and slopes up to 20%
21 | Qu_Q4: Foredune complex adjacent to coast and beach
21 | Qu_Qr: Shallow calcareous sands over limestone outcrop
21 | Qu_Qs: Undulating landscapes with shallow calcareous sands
21 | Sp_Sb: Weakly clayey yellow to yellowish brown sands over limestone
LANDGATE/SLIP, SLIP / LANDGATE, Landgate / SLIP
Site
0 200 400 600 800
Meters
DPIRD Soil Landscape Mapping
21 | Qu_Q3
21 | Qu_Qs
21 | Qu_Ql
21 | Sp_Sb
hyd2o
Lancelin South LWMS Addendum
Geotechnical Plan
Figure 3


Date: 12/02/2026 Job No. H25021
Indian Ocean Dr
Lancelin Rd
LANDGATE/SLIP, SLIP / LANDGATE, Landgate / SLIP
Site
Predevelopment Catchments
0 200 400 600 800
Meters
hyd2o
Lancelin South LWMS Addendum
Surface Water Plan
Figure 4


Date: 12/02/2026 Job No. H25021
Indian Ocean Dr
Lancelin Rd
MB_03
MB_URS
MB_02
MB_01
MB_04
0.9 mAHD
0.85 mAHD
0.95 mAHD
LANDGATE/SLIP, SLIP / LANDGATE, Landgate / SLIP
Site
Monitoring Bores (RPS, 2010)
AAMGL Contours (RPS, 2010)
0 200 400 600 800
Meters
hyd2o
Lancelin South LWMS Addendum
Groundwater Plan
Figure 5

Date: 20/03/2026 Job No. H25021



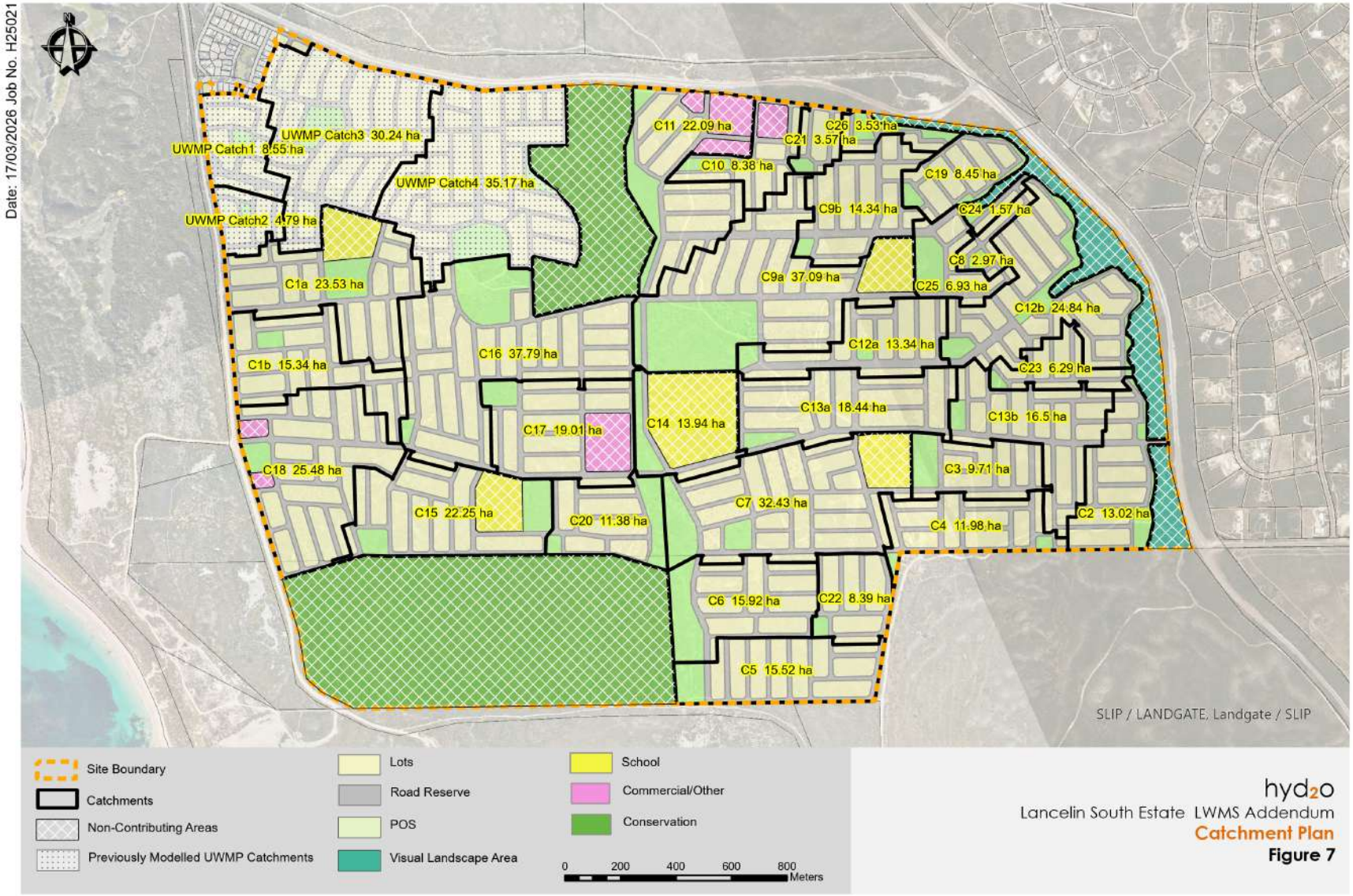
Source : CLE Town Planning & Design, Concept Materplan March 2026

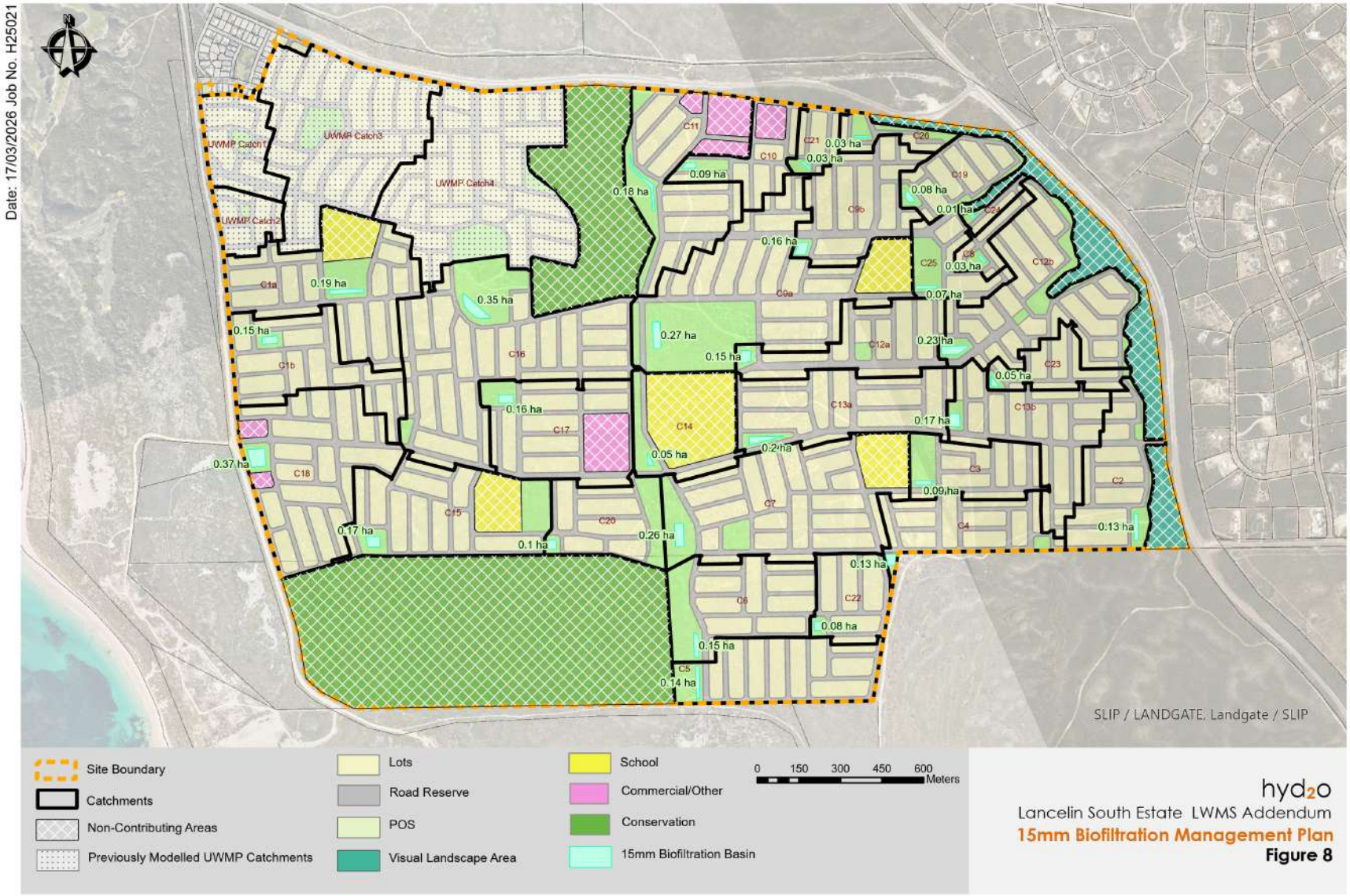
hyd$_2$o

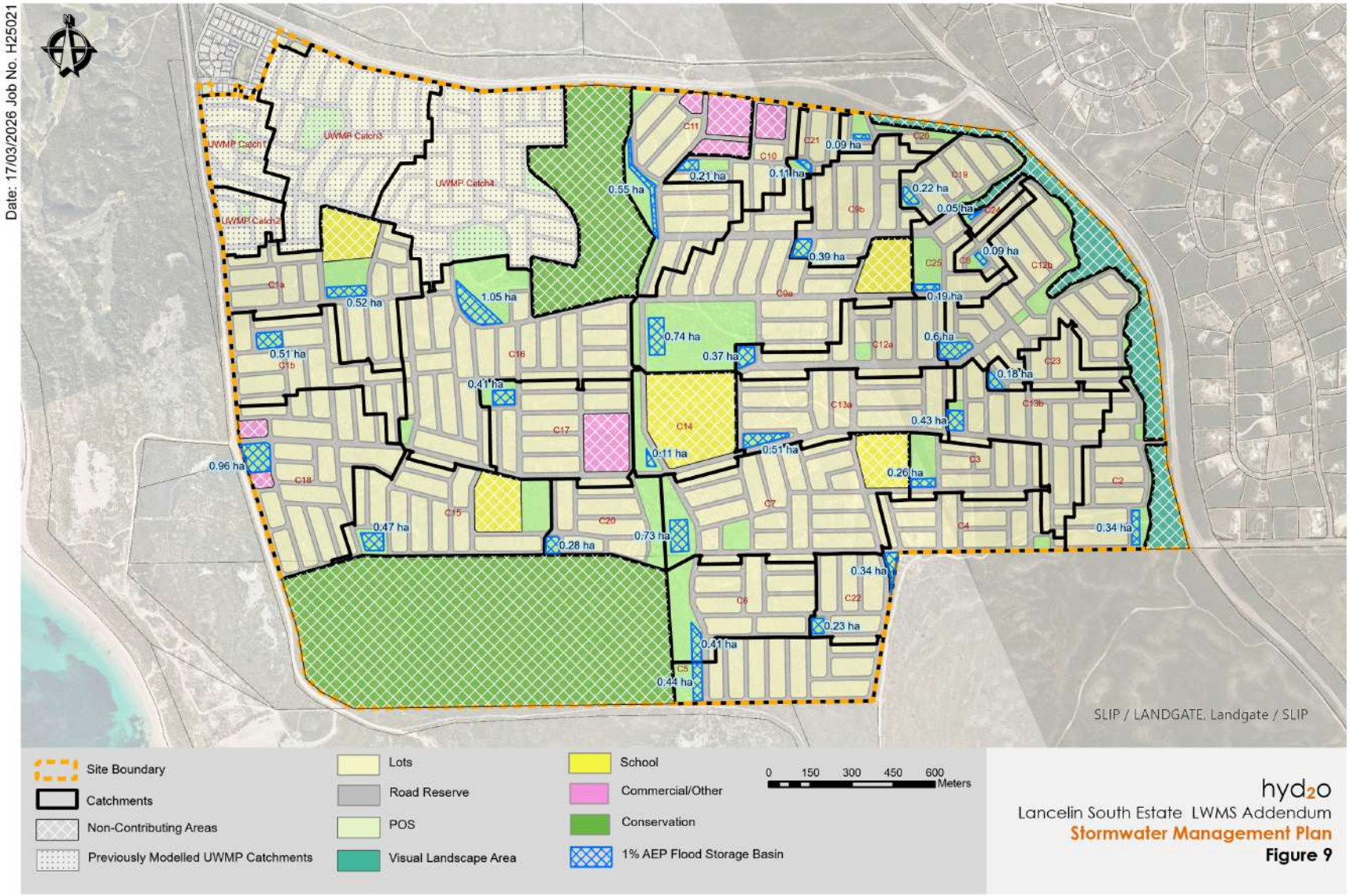
Lancelin South LWMS Addendum

Revised Concept Masterplan

Figure 6


Date: 17/03/2026 Job No. H25021
UWMP Catch1 8.55 ha
UWMP Catch3 30.24 ha
UWMP Catch4 35.17 ha
UWMP Catch2 4.79 ha
C1a 23.53 ha
C1b 15.34 ha
C11 22.09 ha
C26 3.53 ha
C21 3.57 ha
C10 8.38 ha
C19 8.45 ha
C9b 14.34 ha
C24 1.57 ha
C8 2.97 ha
C9a 37.09 ha
C25 6.93 ha
C12b 24.84 ha
C12a 13.34 ha
C16 37.79 ha
C23 6.29 ha
C13a 18.44 ha
C13b 16.5 ha
C14 13.94 ha
C17 19.01 ha
C18 25.48 ha
C3 9.71 ha
C7 32.43 ha
C15 22.25 ha
C20 11.38 ha
C2 13.02 ha
C4 11.98 ha
C6 15.92 ha
C22 8.39 ha
C5 15.52 ha
SLIP / LANDGATE, Landgate / SLIP
Site Boundary
Catchments
Non-Contributing Areas
Previously Modelled UWMP Catchments
Lots
Road Reserve
POS
Visual Landscape Area
School
Commercial/Other
Conservation
0 200 400 600 800
Meters
hyd2o
Lancelin South Estate LWMS Addendum
Catchment Plan
Figure 7


Date: 17/03/2026 Job No. H25021
UWMP Catch1
UWMP Catch2
UWMP Catch3
UWMP Catch4
C1a
C1b
C2
C3
C4
C5
C6
C7
C8
C9a
C9b
C10
C11
C12a
C12b
C13a
C13b
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
0.19 ha
0.35 ha
0.15 ha
0.37 ha
0.17 ha
0.1 ha
0.26 ha
0.14 ha
0.15 ha
0.08 ha
0.13 ha
0.13 ha
0.09 ha
0.18 ha
0.03 ha
0.03 ha
0.08 ha
0.01 ha
0.16 ha
0.03 ha
0.07 ha
0.23 ha
0.15 ha
0.27 ha
0.05 ha
0.16 ha
0.17 ha
0.2 ha
0.05 ha
0.09 ha
SLIP / LANDGATE, Landgate / SLIP
Site Boundary
Catchments
Non-Contributing Areas
Previously Modelled UWMP Catchments
Lots
Road Reserve
POS
Visual Landscape Area
School
Commercial/Other
Conservation
15mm Biofiltration Basin
0 150 300 450 600
Meters
hydzo
Lancelin South Estate LWMS Addendum
15mm Biofiltration Management Plan
Figure 8


Date: 17/03/2026 Job No. H25021
UWMP Catch1
UWMP Catch2
UWMP Catch3
UWMP Catch4
0.55 ha
0.21 ha
0.11 ha
0.09 ha
0.22 ha
0.05 ha
0.39 ha
0.09 ha
1.05 ha
0.52 ha
0.19 ha
0.74 ha
0.37 ha
0.6 ha
0.51 ha
0.41 ha
0.18 ha
0.43 ha
0.11 ha
0.51 ha
0.96 ha
0.26 ha
0.47 ha
0.28 ha
0.73 ha
0.34 ha
0.34 ha
0.23 ha
0.41 ha
0.44 ha
SLIP / LANDGATE, Landgate / SLIP
Site Boundary
Catchments
Non-Contributing Areas
Previously Modelled UWMP Catchments
Lots
Road Reserve
POS
Visual Landscape Area
School
Commercial/Other
Conservation
1% AEP Flood Storage Basin
0 150 300 450 600
Meters
hyd2o
Lancelin South Estate LWMS Addendum
Stormwater Management Plan
Figure 9

APPENDIX A

LWMS Extracts (RPS, 2010)

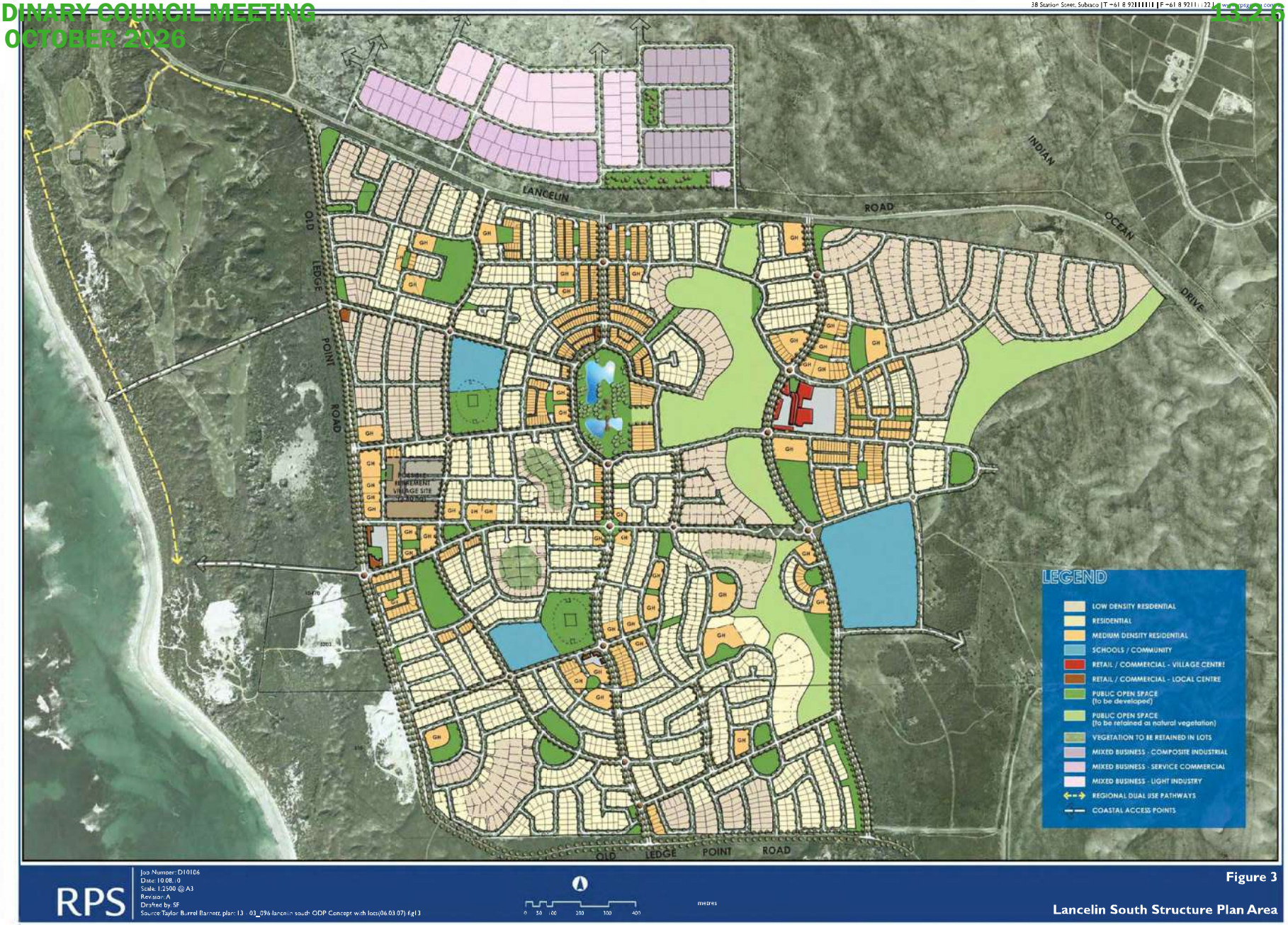
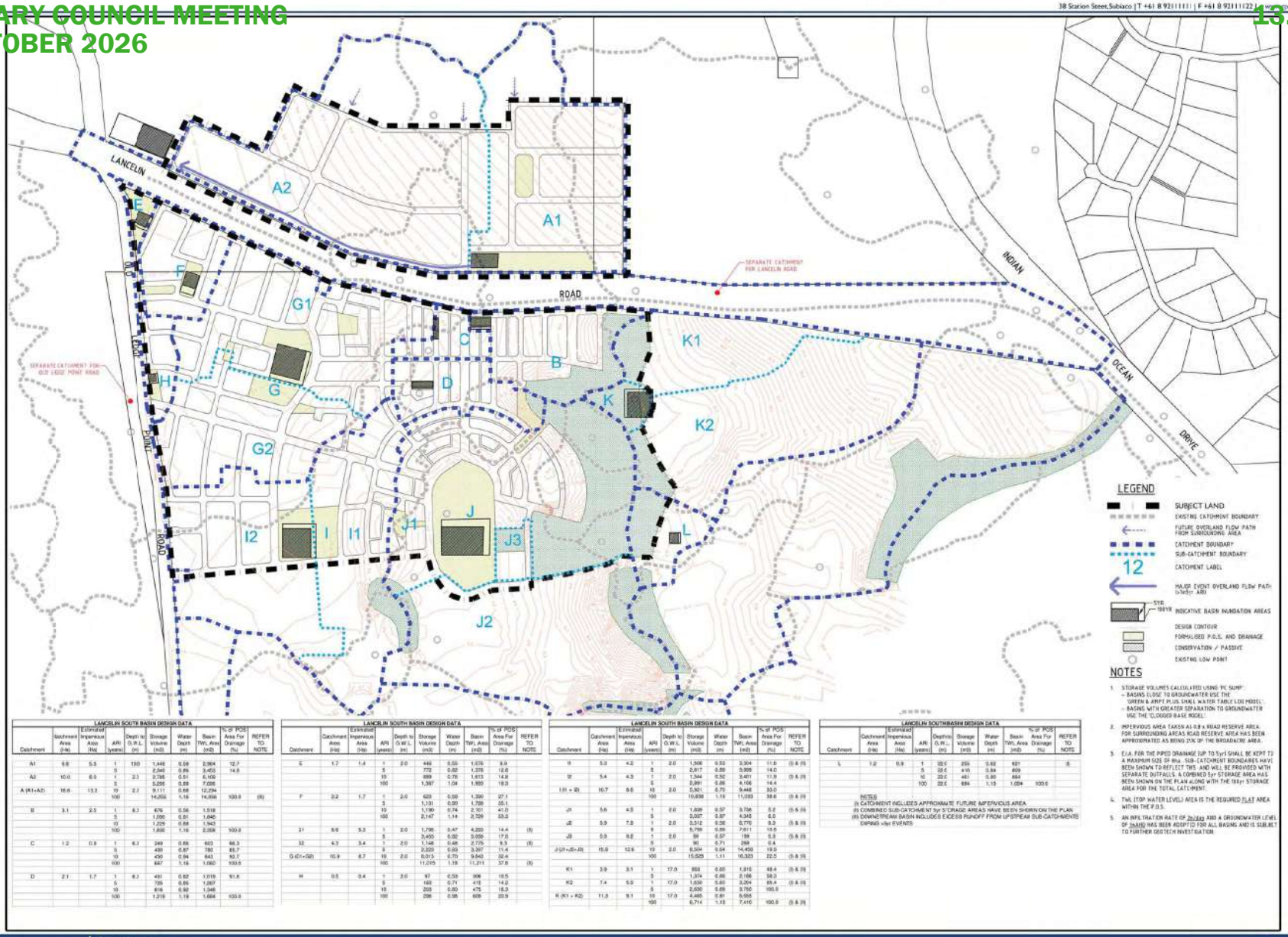


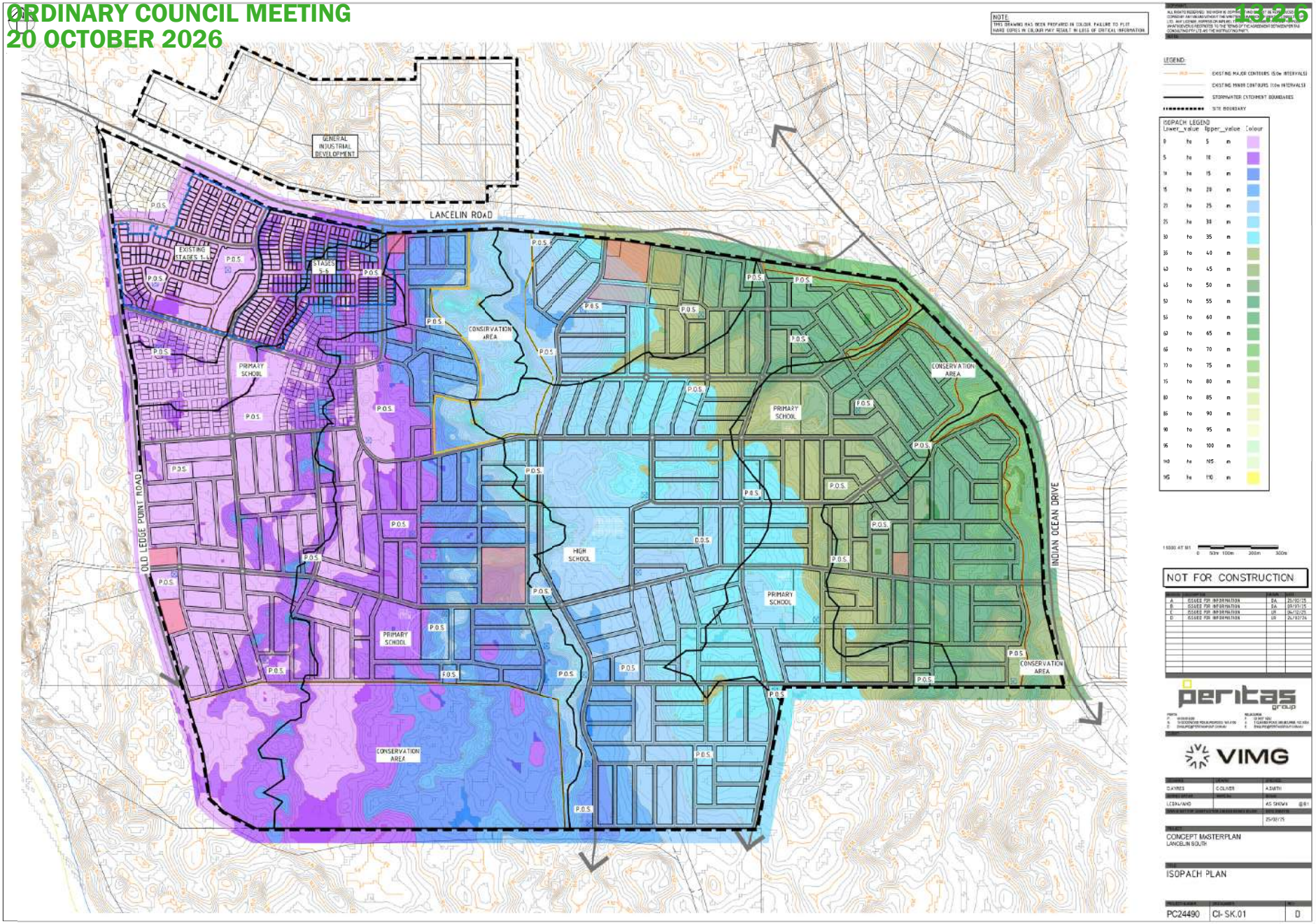
Figure 3

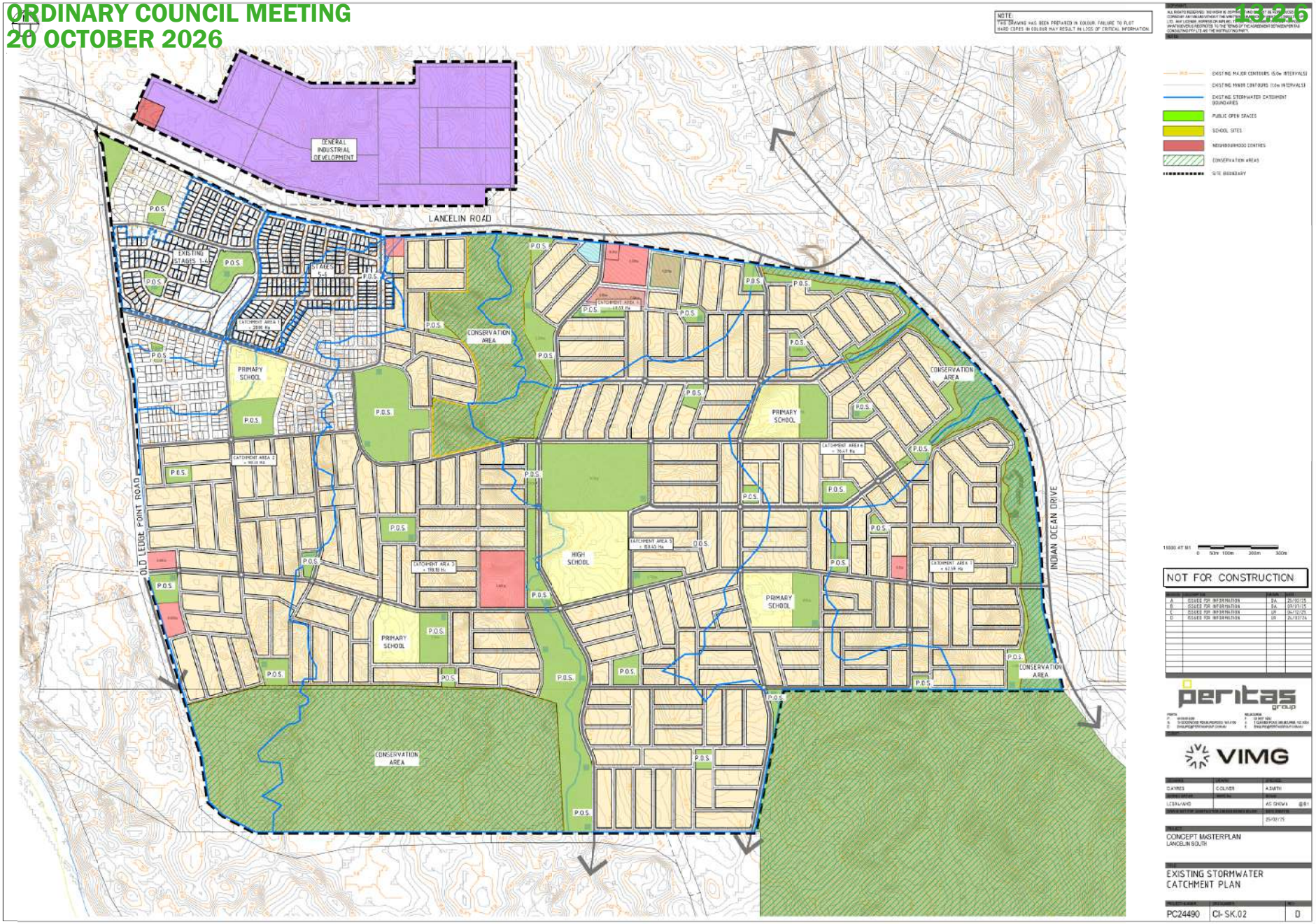
Lancelin South Structure Plan Area

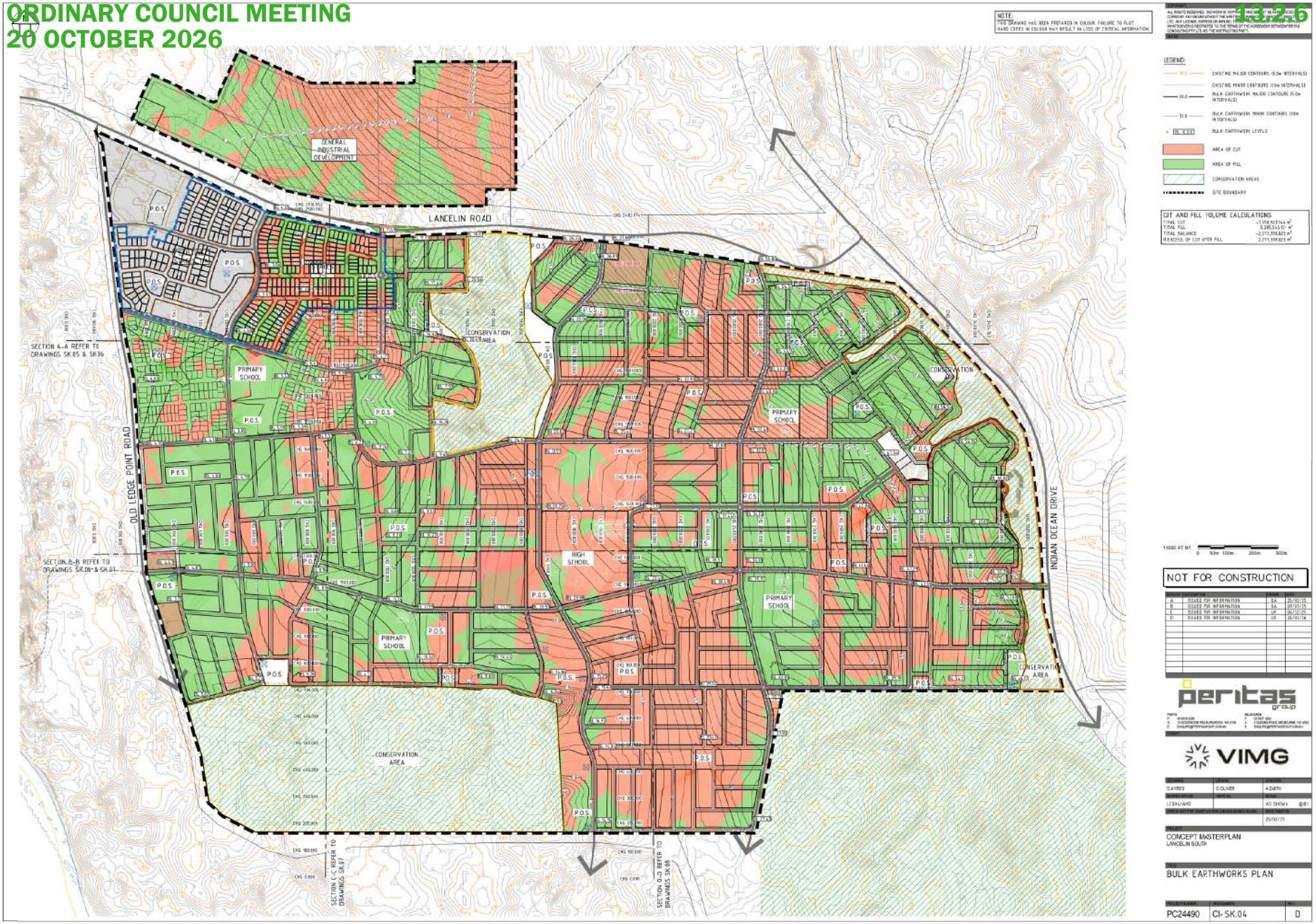

LANCELIN
ROAD
INDIAN
OCEAN
DRIVE
POINT
A1
A2
B
C
D
F
G
G1
G2
H
I
I1
I2
J
J1
J2
J3
K
K1
K2
L
SEPARATE CATCHMENT FOR LANCELIN ROAD
SEPARATE CATCHMENT FOR OLD LEGO POINT ROAD
LEGEND
SUBJECT LAND
EXISTING CATCHMENT BOUNDARY
FUTURE OVERLAND FLOW PATH FROM SURROUNDING AREA
CATCHMENT BOUNDARY
SUB-CATCHMENT BOUNDARY
CATCHMENT LABEL
12
MAJOR EVENT OVERLAND FLOW PATH (>1in100yr ARI)
5YR
100YR
INDICATIVE BASIN INUNDATION AREAS
DESIGN CONTOUR
FORMALISED P.O.S. AND DRAINAGE
CONSERVATION / PASSIVE
EXISTING LOW POINT
NOTES
1. STORAGE VOLUMES CALCULATED USING 'PC SUMP'.
– BASINS CLOSE TO GROUNDWATER USE THE 'GREEN & AMPT PLUS SHALLOW WATER TABLE LOSS MODEL'.
– BASINS WITH GREATER SEPARATION TO GROUNDWATER USE THE 'CLOGGED BASE MODEL'.
2. IMPERVIOUS AREA TAKEN AS 0.8 x ROAD RESERVE AREA FOR SURROUNDING AREAS. ROAD RESERVE AREA HAS BEEN APPROXIMATED AS BEING 25% OF THE BROADACRE AREA.
3. C.I.A. FOR THE PIPED DRAINAGE (UP TO 1yr) SHALL BE KEPT TO A MAXIMUM SIZE OF 4ha. SUB-CATCHMENT BOUNDARIES HAVE BEEN SHOWN TO REFLECT THIS AND WILL BE PROVIDED WITH SEPARATE OUTFALLS. A COMBINED 1yr STORAGE AREA HAS BEEN SHOWN ON THE PLAN ALONG WITH THE 100yr STORAGE AREA FOR THE TOTAL CATCHMENT.
4. TWL (TOP WATER LEVEL) AREA IS THE REQUIRED FLAT AREA WITHIN THE P.O.S.
5. AN INFILTRATION RATE OF 2m/day AND A GROUNDWATER LEVEL OF 3mAHD HAS BEEN ADOPTED FOR ALL BASINS AND IS SUBJECT TO FURTHER GEOTECH INVESTIGATION.
LANCELIN SOUTH BASIN DESIGN DATA
LANCELIN SOUTH BASIN DESIGN DATA
LANCELIN SOUTH BASIN DESIGN DATA
LANCELIN SOUTHBASIN DESIGN DATA
RPS
Job Number: D10106
Date: 16.09.10
Page: A3
Revision: A
Drafted by: SF
Source: TABEC, dwg 2173-SK-028 B, 16.08.10
metres
0
125
250
375
500
Figure 15
Concept Drainage Plan

APPENDIX B

Engineering Plans (Peritas, 2025)


NOTE
THIS DRAWING HAS BEEN PREPARED IN COLOUR. FAILURE TO PLOT HARD COPIES IN COLOUR MAY RESULT IN LOSS OF CRITICAL INFORMATION
LEGEND:
EXISTING MAJOR CONTOURS (5m INTERVALS)
EXISTING MINOR CONTOURS (1m INTERVALS)
STORMWATER CATCHMENT BOUNDARIES
SITE BOUNDARY
ISOPACH LEGEND
Lower_value Upper_value Colour
GENERAL INDUSTRIAL DEVELOPMENT
LANCELIN ROAD
EXISTING STAGES 1-4
STAGES 5-6
CONSERVATION AREA
PRIMARY SCHOOL
HIGH SCHOOL
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
P.O.S.
NOT FOR CONSTRUCTION
peritas group
VIMG
CONCEPT MASTERPLAN
LANCELIN SOUTH
ISOPACH PLAN
PC24490
CI- SK.01
D


NOTE:
THIS DRAWING HAS BEEN PREPARED IN COLOUR. FAILURE TO PLOT HARD COPIES IN COLOUR MAY RESULT IN LOSS OF CRITICAL INFORMATION.
EXISTING MAJOR CONTOURS (5.0m INTERVALS)
EXISTING MINOR CONTOURS (1.0m INTERVALS)
EXISTING STORMWATER CATCHMENT BOUNDARIES
PUBLIC OPEN SPACES
SCHOOL SITES
NEIGHBOURHOOD CENTRES
CONSERVATION AREAS
SITE BOUNDARY
GENERAL INDUSTRIAL DEVELOPMENT
LANCELIN ROAD
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
EXISTING STAGES 1-4
STAGES 5-6
CONSERVATION AREA
PRIMARY SCHOOL
HIGH SCHOOL
P.O.S.
CATCHMENT AREA 1
CATCHMENT AREA 2
CATCHMENT AREA 3
CATCHMENT AREA 4
CATCHMENT AREA 5
1:5000 AT M1
0 50m 100m 200m 300m
NOT FOR CONSTRUCTION
A ISSUED FOR INFORMATION BA 29/10/25
B ISSUED FOR INFORMATION BA 07/11/25
C ISSUED FOR INFORMATION LR 04/12/25
D ISSUED FOR INFORMATION LR 25/02/26
peritas group
VIMG
DRAWN C.OLIVER A.SMITH
LOCALAND AS SHOWN @A1
25/02/26
CONCEPT MASTERPLAN
LANCELIN SOUTH
EXISTING STORMWATER CATCHMENT PLAN
PC24490 CI- SK.02 D


NOTE:
THIS DRAWING HAS BEEN PREPARED IN COLOUR. FAILURE TO PLOT HARD COPIES IN COLOUR MAY RESULT IN LOSS OF CRITICAL INFORMATION.
LEGEND:
EXISTING MAJOR CONTOURS (5.0m INTERVALS)
EXISTING MINOR CONTOURS (1.0m INTERVALS)
BULK EARTHWORK MAJOR CONTOURS (5.0m INTERVALS)
BULK EARTHWORK MINOR CONTOURS (1.0m INTERVALS)
BULK EARTHWORK LEVELS
AREA OF CUT
AREA OF FILL
CONSERVATION AREAS
SITE BOUNDARY
CUT AND FILL VOLUME CALCULATIONS
TOTAL CUT -1,358,927.44 m³
TOTAL FILL 5,285,345.57 m³
TOTAL BALANCE +3,271,378.023 m³
REQUIRED CUT PER FILL 2,713,399.023 m³
LANCELIN ROAD
GENERAL INDUSTRIAL DEVELOPMENT
OLD LEDGE POINT ROAD
INDIAN OCEAN DRIVE
SECTION A-A REFER TO DRAWINGS SK.05 & SK.06
SECTION B-B REFER TO DRAWINGS SK.06 & SK.07
SECTION C-C REFER TO DRAWINGS SK.07
SECTION D-D REFER TO DRAWINGS SK.08
CONSERVATION AREA
PRIMARY SCHOOL
HIGH SCHOOL
P.O.S.
1:5000 AT A1
0 50m 100m 200m 300m
NOT FOR CONSTRUCTION
A ISSUED FOR INFORMATION BA 29/10/25
B ISSUED FOR INFORMATION BA 07/11/25
C ISSUED FOR INFORMATION LR 26/12/25
D ISSUED FOR INFORMATION LR 26/02/26
peritas group
VIMG
DRAWN C.OLIVER A.SMITH
CHECKED
LOCAL/AHD AS SHOWN @A1
ISSUED FOR CONSTRUCTION 25/02/26
CONCEPT MASTERPLAN
LANCELIN SOUTH
BULK EARTHWORKS PLAN
PC24490 CI- SK.04 D

APPENDIX C

Stormwater Modelling Summary

Lancelin LWMS Addendum

Hyd2o Modelling Result Summary , with adjusted 15mm POS areas to 0.3m depth



xxxx total area of inundation for specified event
xx % percentage of contributing catchment area (excluding commercial,conservation, and schools)

Catchment	1a	1b	2	3	4	5	6	7	8	9a	9b	10	11	12a	12b	13a	13b	14	15	16	17	18	19	20	21	22	23	24	25	26		
Lots (ha) @ 44%RO 1%AEP	12.33	10.41	7.62	5.14	7.51	9.68	8.57	17.33	1.63	15.36	9.26	3.77	9.52	7.89	14.26	11.73	11.01	0.72	10.70	22.08	9.45	16.11	4.75	5.88	2.12	5.43	4.25	0.68	2.74	1.22		
POS (ha) @ 17%RO 1%AEP	2.22	0.58	1.72	1.87	0.66	1.59	3.43	3.78	0.45	10.14	0.44	0.77	3.35	1.00	3.85	0.72	0.64	1.71	3.04	5.33	1.24	1.00	1.35	2.59	0.44	0.45	0.43	0.47	2.01	1.41		
Road (ha) @ 68% RO 15mm, 85% RO 1% AEP	5.58	4.34	3.68	2.70	3.80	4.26	3.92	7.74	0.88	8.05	4.66	2.52	5.28	4.46	6.72	5.97	4.87	1.52	5.07	10.37	4.86	7.27	2.33	2.91	1.00	2.50	1.61	0.41	2.19	0.89		
Total Area (ex Conserv,Schools,Commercial)	20.13	15.33	13.02	9.71	11.97	15.53	15.92	28.85	2.96	33.55	14.36	7.06	18.15	13.35	24.83	18.42	16.52	3.95	18.81	37.78	15.55	24.38	8.43	11.38	3.56	8.38	6.29	1.56	6.94	3.52		
Equiv Imp Area EIA (15mm) (ha)	3.79	2.95	2.50	1.84	2.58	2.90	2.67	5.26	0.60	5.47	3.17	1.71	3.59	3.03	4.57	4.06	3.31	1.03	3.45	7.05	3.30	4.94	1.58	1.98	0.68	1.70	1.09	0.28	1.49	0.61		
Equiv Imp Area EIA (1% AEP) (ha)	10.55	8.37	6.77	4.87	6.65	8.15	7.69	14.85	1.54	15.32	8.11	3.93	9.25	7.43	12.64	10.36	9.09	1.90	9.53	19.44	8.50	13.44	4.30	5.50	1.86	4.59	3.31	0.73	3.41	1.53		
Storage Parameters																																
Base Area (m2)	2740	2740	1700	950	1575	1670	1550	4000	170	4180	2280	750	915	2100	3745	2700	2600	300	2880	7500	2450	7000	1000	1425	300	1125	600	32.5	630	165		
Approx Storage Invert (mAHD)	2.5	1.5	42.5	33.5	28.5	12.5	13.5	13.5	47.5	20.5	31.5	12.5	18.5	26.5	40.5	21.5	38.5	18.5	2.5	2.5	7.5	1.5	51.5	11.5	40.5	21.5	44.5	55.5	39.5	51.5		
Side Slopes (v:h)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Infiltration Rate (m/d) : Flood Storage Modelling	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
15mm Event Biofiltration Area (assumed nested within overall storage with 0.3m design depth, 1:0 batters to minimise area)																																
15mm Event Total Volume (m^3)	569	443	375	276	387	435	401	789	90	821	476	257	540	455	686	609	497	155	518	1058	495	741	237	297	102	255	164	42	224	92		
Flood Depth (m)	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	**0.20**	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30		
TWL Elevation (mAHD)	2.80	1.80	42.80	33.80	28.80	12.80	13.80	13.80	47.80	20.80	31.80	12.80	18.80	26.80	40.80	21.80	38.80	18.80	2.80	2.80	7.80	1.70	51.80	11.80	40.80	21.80	44.80	55.80	39.80	51.80		
TWL Area (m^2)	1895	1475	1250	920	1290	1450	1335	2630	300	2735	1585	855	1800	1515	2285	2030	1655	515	1725	3525	1650	3705	790	990	340	850	545	140	745	305	42830	1.0%
20% AEP Event Flood Storage																																
Modelled Flood Depth (m)	0.59	0.44	0.59	0.65	0.60	0.64	0.65	0.57	0.72	0.57	0.56	0.65	0.75	0.55	0.54	0.59	0.56	0.68	0.52	0.39	0.54	0.26	0.62	0.58	0.67	0.60	0.67	0.79	0.66	0.73		
TWL Elevation (mAHD)	3.09	1.94	43.09	34.15	29.10	13.14	14.15	14.07	48.22	21.07	32.06	13.15	19.25	27.05	41.04	22.09	39.06	19.18	3.02	2.89	8.04	1.76	52.12	12.08	41.17	22.10	45.17	56.29	40.16	52.23		
TWL Area (m^2)	3902	3597	2494	1830	2491	3088	2898	5552	582	5677	2984	1474	3768	2804	4707	3848	3351	693	3618	8458	3172	7540	1576	2044	686	1681	1227	269	1271	575	87857	2.0%
Volume (m^3)	1963	1404	1260	917	1235	1531	1451	2736	287	2831	1492	738	1761	1372	2298	1935	1975	358	1704	3156	1544	1889	807	1014	349	856	627	137	643	287		
Critical Duration (hr)	3	1	3	3	3	3	3	3	3	3	3	3	6	3	3	3	3	3	3	1	3	1	3	3	3	3	3	6	3	3		
1% AEP Event Flood Storage																																
Modelled Flood Depth (m)	1.20	1.17	1.19	1.18	1.17	1.18	1.19	1.18	1.18	1.20	1.19	1.17	1.20	1.17	1.19	1.20	1.20	1.19	1.18	1.19	1.17	1.17	1.19	1.17	1.17	1.19	1.20	1.20	1.18	1.19		
TWL Elevation (mAHD)	3.70	2.67	43.69	34.68	29.67	13.68	14.69	14.68	48.68	21.70	32.69	13.67	19.70	27.67	41.69	22.70	39.70	19.69	3.68	3.69	8.67	2.67	52.69	12.67	41.67	22.69	45.70	56.70	40.68	52.69		
TWL Area (m^2)	5208	5141	3403	2637	3457	4377	4110	7316	923	7440	3883	2141	5558	3701	5977	5139	4319	1075	4667	10560	4121	9584	2204	2773	1059	2329	1815	463	1864	912	118156	2.7%
Volume (m^3)	4758	4634	3032	2119	2937	3560	3369	6682	646	6941	3685	1703	3886	3379	5760	4688	4156	815	4471	10744	3836	9698	1913	2453	794	2049	1441	299	1478	644		
Critical Duration (hr)	3	24	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	24	24	3	24	3	3	3	3	6	3	3	3		

APPENDIX D

Landscape Plans (LD Total, 2025)

Concept Master Landscape Master Plan

Legend

- E1 Existing POS - NW Triangle
- E2 Existing POS - NW Rectangle

- U1 POS U1
- U2 POS U2
- U3 POS U3
- U4a POS U4a
- U4b POS U4b
- 1a POS 1a
- 1b POS 1b
- 2a POS 2a
- 2b POS 2b
- 3 POS 3
- 4a POS 4a
- 4b POS 4b
- 5 POS 5
- 6 POS 6
- 7a POS 7a
- 7b POS 7b
- 8 POS 8
- 9a-1 POS 9a-1
- 9a-2 POS 9a-2
- 9b POS 9b
- 10 POS 10
- 11a POS 11a
- 11b POS 11b
- 12a-1 POS 12a-1
- 12a-2 POS 12a-2
- 12b-1 POS 12b-1
- 12b-2 POS 12b-2
- 12b-3 POS 12b-3
- 13a POS 13a
- 13b POS 13b
- 14 POS 14
- 15a POS 15a
- 15b POS 15b
- 16a POS 16a
- 16b POS 16b
- 16c POS 16c
- 17 POS 17
- 18 POS 18
- 19a POS 19a
- 19b POS 19b
- 20a POS 20a
- 20b POS 20b
- 21 POS 21
- 22 POS 22
- 23a POS 23a
- 23b POS 23b
- 24 POS 24
- 25 POS 25
- 26a POS 26a
- 26b POS 26b
- 37 POS 37



LD TOTAL

VIMG (CLIENT) | 10.7212 (PROJECT NO) | B (REVISION) | 18.03.2026 (DATE) | 1 OF 5 (PAGE)

LancelinSouth
Quality coastal living

Consultation Landscape Master Plan

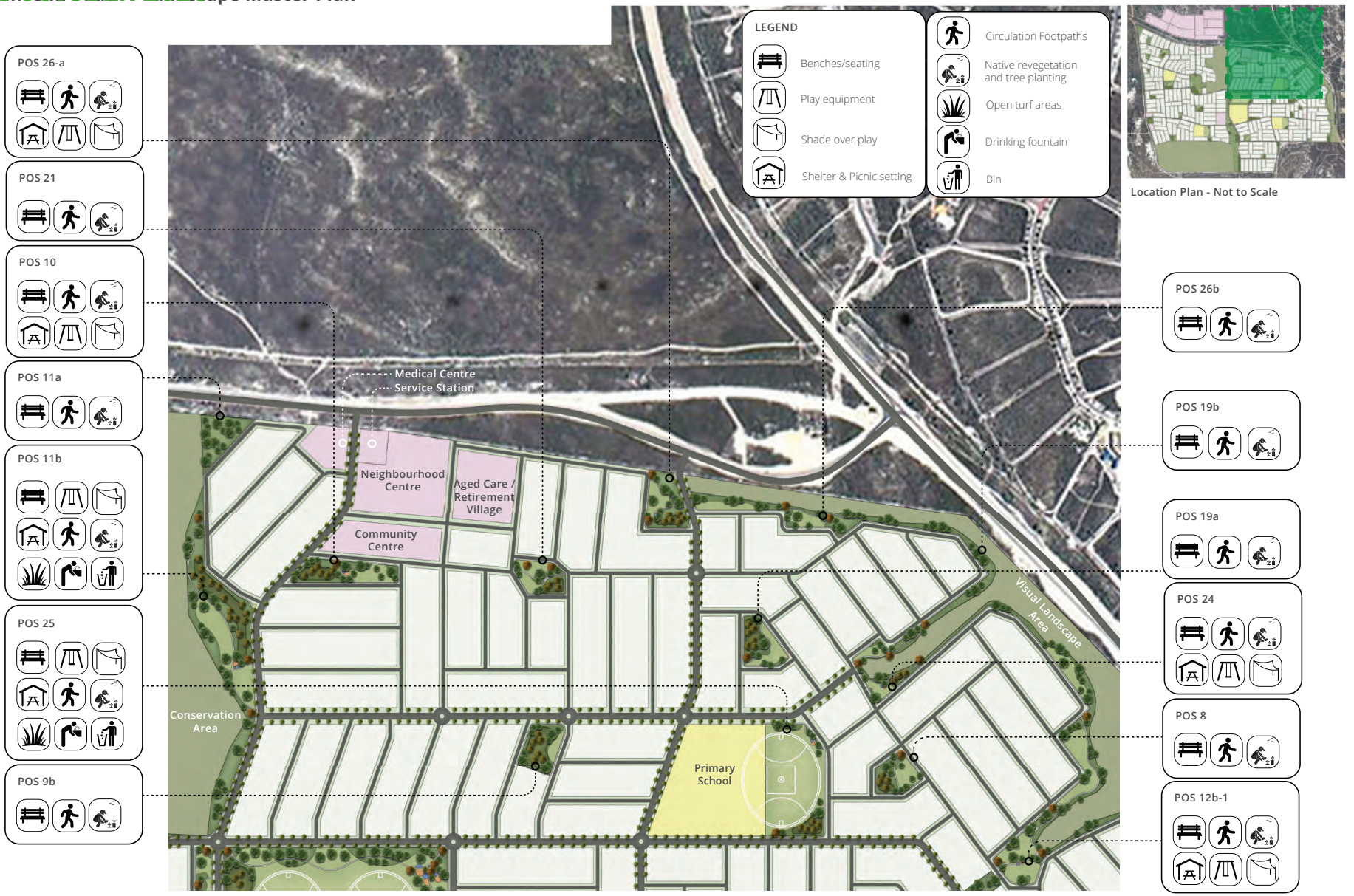


Location Plan - Not to Scale

LD TOTAL

VIMG (CLIENT) | 10.7212 (PROJECT NO) | B (REVISION) | 18.03.2026 (DATE) | 2 OF 5 (PAGE)

Concept Open Space Landscape Master Plan



LD TOTAL

VIMG CLIENT | 10.7212 PROJECT NO | B REVISION | 18.03.2026 DATE | 3 OF 5 PAGE

Lancelin South - Landscape Master Plan



Location Plan - Not to Scale

LD TOTAL

VIMG	10.7212	B	18.03.2026	4 OF 5
CLIENT	PROJECT NO	REVISION	DATE	PAGE

Consultation Landscape Master Plan



Location Plan - Not to Scale

LD TOTAL

VIMG CLIENT | 10.7212 PROJECT NO | B REVISION | 18.03.2026 DATE | 5 OF 5 PAGE

LANDSCAPE ARCHITECTURAL SERVICES

LANCELIN SOUTH

LOT 9001

VISUAL LANDSCAPE ANALYSIS AND VISUAL IMPACT ASSESSMENT






CREATE COLLABORATE EXCEL

PERTH:
LEVEL 1, 278 RAILWAY PARADE
WEST LEEDERVILLE WA 6007
PHONE: +61 8 9388 9566

MELBOURNE:
LEVEL 1, 5-7 PEEL STREET
COLLINGWOOD VIC 3066
PHONE: +61 3 8391 3313

WWW.PLANE.COM.AU

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Plan E would like to acknowledge the traditional owners of this land, past, present and emerging.
We strive to achieve the best landscape architectural outcomes for all people within our communities.

PLAN E

ISO 9001 QUALITY

1. INTRODUCTION

1.1 General

PLAN E have been appointed by VIMG to undertake the Visual Landscape Analysis and Visual Impact Assessment to help protect the tourist experience approaching the subject site. The site is located adjacent Indian Ocean Drive and Lancelin Road, just outside the townsite of Lancelin.

The purpose of this report is to identify and evaluate the visual landscape values of the subject site as identified in July 2025, and provide recommendations for managing the visual landscape values with proposed land development for the eastern edge of the subject site adjacent Indian Ocean Drive.

PLAN E have prepared this document with reference to:

The Department of Planning and Infrastructure and Western Australian Planning Commissions Nov 2007 Visual Landscape Planning in Western Australia, a manual for evaluation, assessment and siting design.

The framework of this report is outlined by:

1. A detailed visual site analysis followed by the identification of key landscape values;

2. Outline management of these findings and provide recommendations associated with future site planning/design;

3. Provide final recommendations to help inform further development plans for the site.

1.2 Subject Site and Land Use Context

The subject site which will be referred to as lot 9001 (L9001), or 'the subject site' has existing land use zonings including predominantly 'Future Development' with a 'Conservation Area' and 'Landscape Protection Zone' identified. An Overall Development Plan (ODP) has been approved in 2014 for the majority of the land within L9001.

Refer Figure 1: Site Location Plan
Refer Figure 6: Zoning

Lancelin is 121 km north of Perth CBD and the subject site is 4km south of the Lancelin main town ship. The subject site is within the Lancelin local area within the Upper Coastal Subregion of the Shire of Gingin.

The site is bounded by Lancelin Road to the north, Indian Ocean Drive to the East, Old Ledge Point Road to the west and the south. A portion of the southern boundary between Indian Ocean Drive and Old Ledge Point Road has no road access and is bounded by the existing dunal landform and vegetation.

The subject site sits in a predominately existing natural dunal landform typical to the area, covered with a variety of native coastal vegetation. The first stages of the Lancelin South residential development including 51 lots is situated in the northwestern corner of the site at the intersection of Lancelin Road and Old Ledge Point Road.

The Shire of Gingin Local Planning Scheme No. 9 (September 2012) classifies the site as a 'Future Development' site, with two parcels of conservation land and a landscape protection zone along Indian Ocean Drive. The landscape protection zone does not restrict development, but calls for a considered site responsive urban design to minimise visual impact of development as seen from Indian Ocean Drive.

There is limited development around the site with the surrounding areas characterized by the continuation of the coastal dunal landform and vegetation. To the north of Lancelin Road the land is zoned a mix of Future Development and Rural. There is a small area of Public Use zoning on the western edge of this area adjacent to Lancelin Road, which includes the Lancelin Tip & Lancelin South Water Treatment Plant.

The western boundary from Old Ledge Point Road to the ocean and wrapping around on the south boundary the coastal dunes have been zoned as Parks and Recreation. Located in the northern section of this zone adjacent to Lancelin Road is the Lancelin Community Sports Centre and Golf Club. There is also a parcel of land within this area in the southwest corner which is zoned rural that includes lime and sand mining operations. The remainder of the southern boundary is zoned Conservation which extends south along Indian Ocean Drive to the Indian Ocean Drive and Ledge Point Road intersection.

To the east across Indian Ocean Drive is Seaview Park a residential development consisting of larger lifestyle lots set amongst areas of retained dunal landform and vegetation.

Refer Figure 01: Site Location
Refer Figure 02: Site Key Features

1.3 Pre-requisites for Visual Impact Assessment

This report including all technical information, drawings, figures and photographic recording has been reviewed or undertaken by two Australian Institute of Landscape Architect (AILA) registered Landscape Architects with further supporting Landscape Architects.

Landscape Architects critically assess the natural and urban landscape character to determine the best opportunities the subject landscapes present.
As part of this study Plan E have completed the following:

- Site inspection and analysis of the subject site as of July 2025;
- Desktop Review of background documents and reports including;

a. *Lancelin South Environmental Assessment by PGV Environmental (July 2014)*

b. *The Shire of Gingin Local Planning Scheme No. 9 (September 2012)*

c. *MNG access aerial and historial mapping*

d. *Heritage ID reference – Inherit provided by Department of Planning, Lands and Heritage*

- Contextual analysis of the visual landscape character as seen from Indian Ocean Drive and Lancelin Road as the priority vantage points. Photographic records and key site assessment plans are included in this report to document the findings graphically and to support the descriptive text analysis.

This visual landscape analysis and visual impact assessment cannot pre-empt future changes in government policy, vegetation or environmental classification, or bush fire policy, yet it has identified what character is of visual importance at the time of inspection.



Plate 1 Site image, view of the subject site looking west with dune peak



Plate 2 Site image, Existing small farm located within the subject site



Plate 3 Site image, typical dunal vegetation looking west

2. LANDSCAPE EVALUATION: VISUAL ANALYSIS

2.1 Existing Landform & Topography

The landform consists of a series of naturally formed dunal valleys, ridges and peaks, that rise in elevation from RL 2.00 along Old Ledge Point Road in the west up to RL 60.00 along Indian Ocean Drive in the east. The elevation rise is generally consistent across the site from the west to the east.

Two distinct old dune ridge lines run north-south through the western portion of the site before the site rises to a series of dune peaks closer to Indian Ocean Drive. The highest of these peaks has an elevation of RL 66.00. One of these peaks forms a distinct point making it a prominent landform feature in the southeastern corner of the site. This landmark dune can be seen from multiple points within the site and from the surrounding area. The ridge lines create a series of wider north-south valleys that rise in elevation with the site.
Refer Plate 1.

Even though the elevation change over the site is large, due to the size of the lot much of the site has a gentle rolling topography, with areas of steeper slopes associated with the ridge lines and higher dune peaks.

The same dunal landform continues outside the site boundaries with an increase in elevation to the north and east of the site. Due to this increase in elevation, areas within Seaview Park overlook the site and some have unobstructed ocean views.
The series of dune peaks and ridgelines along the southwestern edge of Indian Ocean Drive being higher than the road level provide a visual and physical buffer, limiting views into the site as seen from travelling cars.

The elevation gain across the site provides expansive views of the site, views to the coast to the west and up into Seaview Park to the east.

There seems to have been minimal disturbance or degradation to the natural landform through past land use, with access tracks and a small farm/agistment area located in the valleys following the landform and topography.

Lancelin South housign estate has been developed in a natural low flat location within the northwest corner of the site with minimal earth works undertaken. However, the recent expansion of this development has involved more extensive earthworks to flatten the landform and topography as it expands west and south.

Refer Figure 07: Landform
Refer Figure 08: Slope



Plate 4 Site image, typical dune landform profile



Plate 5 Site image, typical sandy Quindalup Dune soil profile with limestone deposits



Plate 6 Site image, gently undulating dunal landform

2.2 Existing Soil and Geology Type

The site is predominately located on the Quindalup Dune System. The Quindalup dunes are composed of unconsolidated sand (quartz grains) and shell fragments (Bolland, 1998). There is organic matter that darkens the surface layers in some locations. The shell fragments are mostly calcium carbonate, making the sand/soil most likely alkaline.

The land sub-zones have been mapped by the Department of Agriculture and Food and the site contains 3 soil phases of the Quindalup Dune system that are described below.

- Quindalup Oldest Dune Phase (211Qu_Q1) which occurs as a wall of sand with low relief, a smooth outline and a symmetrical cross-section. The soil profile is calcareous throughout, has organic matter to at least 30 cm, and white sand below, which shows cementation at about a metre below the surface. This land unit typically has organic matter to 10 cm with minimal cementation.
- Quindalup Third Dune Phase (211Qu_Q3) which has steeper slopes and greater relief. This land unit typically has organic matter to 10 cm with minimal cementation.
- Quindalup Sands (211Qu_Qs) are undulating landscapes with shallow calcareous sands and can have rock outcrops.

At various locations during the site visit surface outcrops of limestone were visible, indicating the potential for limestone rock outcrops. There is a small area on the eastern boundary of the site that is mapped in the Spearwood Dune System which are soils that are older than the Quindalup Dune System and made up of red/brown, yellow and pale yellow/grey sands (Bolland, 1998). The Spearwood soil on the site is mapped as:

- Spearwood Sh Phase (211Sp_Sh) which are weakly clayey yellow to yellowish brown sands over limestone at 1-2m.

(Sourced from Lancelin South Environmental Assessment by PGV Environmental, July 2014)



Plate 7 Site image, shell fragments on sandy surface



Plate 8 Site image, existing sandy tracks used by 4WD vehicles and pedestrians.

2.3 Existing Vegetation

The vegetation on the site was mapped at a broad scale by Shepherd (2009) and is classified as belonging to Association 1007 which is described as:

- Mosaic Shrublands; Acacia lasiocarpa and Melaleuca systena heath / Shrublands Acacia rostellifera and Acacia cyclops thicket (Shepherd, 2009).

According to Heddle et. al. (1980), the site occurs entirely within the Quindalup Vegetation Complex (which is a complex restricted to coastal dunes). Heddle et al. (1980) divided the Quindalup Vegetation Complex into two main alliances with the mobile and stable dune alliance (slightly inland) being located on the site.

A more detailed vegetation survey was undertaken by Ecoscape in 2006. The vegetation was described by Ecoscape (2008a) is listed below.

- Vegetation Type:Acacia xanthina / Spyridium globulosum
  Associated Landform:Swales.
- Vegetation Type: Melaleuca systena / Scaevola thesioides / Acacia lasiocarpa
  Associated Landform:Swales, slopes and crests.
- Vegetation Type: Melaleuca systena / Scaevola thesioides / Acacia lasiocarpa - Calothamnus quadrifidus or Dryandra sessilis
  Associated Landform: Shallow sand over limestone .
- Vegetation Type: Melaleuca systena / Spyridium globulosum
  Associated Landform: Swales.
- Vegetation Type: Mainly Weeds
  Associated Landform: Swales.

(Sourced from Ecoscape, 2008a)

At the time of the survey undertaken by Ecoscape they rated the vegetation condition for much of the site as in very good to excellent condition. The vegetation condition at the time strongly mirrored the vegetation type. Because the degradation of the vegetation was associated with grazing, the areas that contained the most palatable vegetation had been grazed more heavily and therefore had a lower vegetation condition rating.

(Sourced from Lancelin South Environmental Assessment by PGV Environmental, July 2014)

Refer Figure 03: Vegetation Assessment
Refer Figure 04: Vegetation Type



Plate 10 Site image, example of existing vegetation with Acacia and Melaleuca systena species



Plate 11 Site image, example of existing vegetation, Calothamnus quadrifidus with some Hardenbergia comptoniana

2.4 Existing Waterways or Bodies

There were no observed waterways or bodies of water on site during the site visit. However, during our desktop review of aerial imagery, there looks to be the possibility of a small seasonal water body located in a low point adjacent to the historical site of De Burgh's Well.

Refer Figure 02: Site Key Features

2.5 Existing Indigenous Cultural Heritage (Physical and Non-Physical)

The site is part of the wider listed Ledge Point historic Aboriginal Heritage area (Place ID 3237) As an area that was used as a camp and water source with no gender restrictions. The use of the site as a water source is reinforced by the local heritage site of De Burgh's Well (place number 17716) Located at a low point between the two north south ridge lines in the western half of the site.

De Burgh's Well consists of a well, tank and stock trough near two large Tuart trees within a large clearing. It was most likely part of 'deBurgh's Coast Run.' which ran along the coast as a route used for the movement of stock when searching for better pastures to fatten stock up during the winter months

There is also a more defined Ledge Point historic Aboriginal Heritage area (Place ID 3237 & 3354) just to the south of the site adjacent to Old Ledge Point Road. This area was used as a camp, water source and contains artefacts and scatter with no gender restrictions. While it is not within the site boundary it is important to note as it reinforces that the area is an important place on country for the local Yued Nyoongar People.

Refer Figure 05: Heritage Mapping

2.6 Existing Rural Activities

A small farm/agistment area is located near the southern boundary of the site. Including simple rural farm sheds/stables, stock yards and associated machinery, all framed by mature trees in planted wind rows. Larger fenced paddocks extend from the central area to the east, north and west, bounded by clear access tracks.

The activities look to have had minimal impact on the existing landform and topography although it is assumed that some vegetation clearing has been undertaken through either planned clearing or through the iterative impacts of grazing stock.

There is a distinct boundary along the eastern edge of the fenced paddocks along the access track between the disturbed open vegetation in this farm/agistment area and the undisturbed natural vegetation to the east.

No current stock presence was observed during the site visit. This along with the fencing looking unmaintained and vegetation starting to grow in the access tracks led to our impression that this area is no longer in use.

Refer Plates 2 & 13

2.7 Existing Mining Activities

There were no observed current or historic mining activities on site.

A sand and lime mining operation is located adjacent and outside of the site to the west of Old Ledge Road to the southwest. There have also been historic sand and lime mining operations outside of the site to the west and south of the site.

Adelaide Brighton Cement Ltd have a live mining lease over the large sand dune to the south of the site. This tenement extends up to Old Ledge Point Road to the north, east and the coast in the west. No activity was observed during the site visit, or activity that may impact the visual amenity of the subject site.

2.8 Existing Transport Routes

Informal access tracks follow the perimeter boundary of the site and thread through the site to the farm/agistment area and the historical site of De Burgh's Well. These tracks are a mix of hard packed site soil/sand and compacted limestone gravel and follow the landform topography of the site with minimal cut or fill.

The site is bounded by Lancelin Road to the north, Indian Ocean Drive to the East, Old Ledge Point Road to the west and the south.

Indian Ocean Drive is the main north south scenic coastal highway running from Perth to Dongara. It runs past the site from K.W. Road in the south to Lancelin Road in the north.
The road has a chip seal bitumen surface with wide shoulders that fall away from the road with no kerbing except around the intersections. There is a median island for lane separation in the lead up to and around the intersection with Lancelin Road.

Existing vegetation extends up the road verge to both sides of Indian Ocean Drive, except at the Lancelin Road intersection which is cut through the dunes. At the southern end of the site there are limited views of the site due to the height of the road being lower than the adjacent dune

landforms. The views open up over the subject site as you approach the Lancelin Road intersection as the road rises with the landform.

Open views between dunes across the site to the southwest are evident for south bound drivers along Indian Ocean Drive. The views are more limited for north bound drivers due to the orientation of the road and adjacent landform.

Even though the traffic volume was low during the site visit, due to the elevation of the road you could hear and see the road and traffic from locations within the site.

Old Ledge Point Road is a local road that connects Lancelin Road to Ledge Point to the southern boundary of the site. The initial portion of the road from Lancelin Road intersection is chip sealed it then becomes a gravel road. The vegetation extends up to the road edge, this along with the low elevation of the road generally limits views into the site.

While both Lancelin Road and Indian Ocean Drive could be seen and heard within the site. The existing landscape, including vegetation does provide a degree of acoustic and visual buffering from the traffic on these roads

2.9 Existing Infrastructure

Infrastructure within the site is limited to old rural fencing to the perimeter and to the farm/agistment area. Services to Lancelin South and an underground Telstra service that runs along the east and north boundary.

2.10 Other Items (Ephemeral)

A range of fauna was observed on site, from insects, snails, to kangaroos and several large flocks of birds. Indicating that the site in its current state supports a range of fauna and plays a role as a habitat corridor connecting the site to the surrounding undeveloped land.



Plate 12 Site image, intersection of Indian Ocean Drive and Lancelin Road



Plate 13 Site image , small amount of existing rural fencing on site



Plate 14 Site image , rural fence and signage adjacent Indian Ocean Drive.

3. THE EXISTING VISUAL CHARACTER

3.1 Landscape Character

The subject site is largely undeveloped and in a natural state consisting of rolling dunal landforms and the existing Mosaic Shrubland vegetation. It is a large area which combined with the 60m elevation gain from the west to the east means that the site has an open expansive feel. The shrubland vegetation that blankets the landform gives the site an overall uniformity with subtle variations to the landform and vegetation in valleys and in the lee of the dune ridges. This open expansive uniform rolling landscape character is the dominant visual and environmental asset of the site, bedding the subject site into the wider landscape.

The landscape character provides future opportunities for visual and environmental connections through the site that can work as public open space, buffers and habitat corridors within proposed development, to help mitigate the visual and environmental impacts of the development of the site.

Refer Figure 03: Vegetation Assessment
Refer Figure 04: Vegetation Type
Refer Figure 07: Landform
Refer Figure 08: Slope



Plate 15 Site image, example of existing vegetation with Acacia, Calothamnus and Melaleuca systena species

3.2 Built Form Character

As the subject site and its surrounds have undergone minimal development there is limited built form character present. Lancelin South located in the northwest corner of the site is a traditional residential development consisting of approximately 51 lots that range in size from 700m sq up to 1200m sq. The development area has been fully cleared with approximately 50% of the lots already built on.
At the time of the site visit clearing and earthworks were underway to the north and south for future expansion of this estate. The built form is of a typical residential development consisting of standard single storey homes that are a mix of styles commonly associated with local builders. Most of the lots have additional free standing garages and sheds with mainly irrigated turf gardens. This means that the estate has a similar built form character to residential estates found in Perth, and future development with some adjustments could cater to a site specific response.

Seaview Park to the east of the site across Indian Ocean Drive is a large block lifestyle development consisting of large homes generally located in the center of the block. The homes are mainly rural style houses that often include additional buildings like sheds or other similar rural structures. The visual impact of this built form is somewhat mitigated by rural style building materials and some retained vegetation within each block. This creates a low-density rural character that is nestled within the rising landscape, and seems to align with the existing Lancelin town area.



Plate 16 Site image, example of existing housing within Seaview Estate

As this estate gets further developed with more lots being cleared and developed this built form character will most likely evolve and change. Refer Figure 06: Zoning

3.2 Significant Sites

The subject site is part of the wider listed Ledge Point historic Aboriginal Heritage area (Place ID 3237) relating to the area being used as a camp and water source with no gender restrictions. There are no specific identified sites listed within the subject site related to this listing. It does mean that the site is an important place on country for the local Yued Nyoongar People. As such Plan E recommends that consultation is undertaken to determine the cultural significance of the site and how this can be observed and protected.

A local colonial heritage site 'De Burgh's Well' (place number 17716) is located in the subject site at a low point between the two north south ridge lines in the western half of the site. It consists of a well, tank and stock trough near two large Tuart trees within a large clearing. A seasonal water body sits on the northern edge of the clearing, reinforcing the use of the site as water source as listed in the wider Ledge Point historic Aboriginal Heritage area above.

3.3 Overall Landscape Experience of the Subject Site

Based on the assessment by the landscape architects that attended site, it is the view that the existing visual character can be described as predomiantly that of an open expansive natural rolling dunal landscape with uniform low native shrubland vegetation cover.

The eastern portion of the site from Indian Ocean Drive to the small farm/ agistment area is more densely vegetated with some visually prominent dune peaks but mainly open expansive views across the site to the west and southwest.

As you move west through the site a series of valleys formed by dune ridges open up where vegetation thins out through natural changes in vegetation type and possibly more coastal exposure. This change in vegetation allows for views south across the site along the valleys framed on either side by the dune ridges.
The ridge lines also provide some shelter from the predominate westerly weather patterns, where small pockets of larger shrubs/small trees can be found on the lee side of the dune and in the low points of the valley where there is seasonal water.

The further west you travel through the site and the elevation drops and the site opens out into a large valley running north south along the western boundary. The remainder of the subject site flattens out; the vegetation slightly increases in height with surrounding dune formations within and outside the site gently rising. Due the overall size of the site the landscape experience is still one of open expansive rolling dunal landscape with little variation.

Refer Figure 6: Site Opportunities



Plate 17 Site image example of existing housing within Lancelin South (source Google street view)



Plate 18 Site image example of combination of vegetation textures and colours



Plate 19 Site image overall landscape experience

4. KEY VISUAL INDICATORS

4.1 Viewing Locations of Significance

The dune forms, peaks and ridgelines do not form any major key visual indicators of the site, and only have subtle directing views, or framing view lines. There are no significant visual landmarks through vegetation or structures that exist, and the main infrastructure of visual dominance and viewing location of significance is Indian Ocean Drive itself.

Views of and into the site from Indian Ocean Drive (based on static views) vary from south to north due to the elevation change of Indian Ocean Drive in relation to the subject site. The views from Indian Ocean Drive into the subject site are limited along the southern edge due the lower elevation of the road against the proximity and elevation of the dunes along the site boundary.
The location of these dunes in the foreground also limits long views across the site and if retained would screen future development of the site when travelling north and as viewed from the car.

Long views open up across the site as you travel north on Indian Ocean Drive closer to the intersection of Lancelin Road, framed by east west ridge lines running down into the site. This allows for open views between dunes across the site to the southwest for south bound drivers.

Due to their higher elevation and lower foreground dunes, development of the western portion of the site will be highly visible from the northern section of Indian Ocean Drive lookign south, and from the intersection at Lancelin Road. There are expansive views of the subject site to the southwest as you travel west down Lancelin Road away from Indian Ocean Drive.
As Lancelin Road cuts through the dune ridge lines and drops in elevation these vistas are closed down and mainly focused along the edge of Lancelin Road.
Views of the subject site may have been restricted historically due to the drop in elevation and the height of the roadside vegetation along Lancelin Road. However, these views have opened up with the some clearing (possibly bush fire management) and earthworks being undertaken as part of the subdivision works.

Due to the low elevation and high roadside vegetation there are limited views of the site from Old Ledge Point Road into the subject site, except for where clearing and earthworks have been recently undertaken.

As the priority area of visual impact assessment is the eastern boundary of the site adjacent Indian Ocean Drive and the secondary area from the intersection of Indian Ocean Drive and Lancelin Road, PLAN E have viewed other areas of the site for context only.
As the entirity of the subject site is gently rolling dune formations, views to the ocean are provided at numerous vantage points. The protection of ocean views is not part of this assessment and the tourist experience when travelling along Indian Ocean Drive is the key area that has been assessed for viewing locations of significance.

Refer Figure 07: Landform
Refer Figure 09: Site Opportunities



Plate 20 Site image, view of subject site flooking west over Indian Ocean Drive

5. MANAGING THE VISUAL LANDSCAPE CHARACTER

5.1 Landscape Values

Lancelin is a highly valued holiday destination, loved for its relaxed beachside feel and surrounding natural attractions. Part of this experience is the drive down Lancelin Road after turning off Indian Ocean Drive. Driving down through the natural landscape past the subject site with the views out to the coast herald that you have arrived at Lancelin.

PLAN E believe that the key landscape value is the natural dunal landform with dune peaks and pockets of elevation that provide views out to the ocean to the west and southwest. While some of the higher dunes provide views inland, it is the coastal views that will be highly valued by the local residents and visitors to Lancelin.

The retention of the natural dunal landscape and the long views will be seen as a critical part of any development of the subject site and with context to urban development needs careful consideration of retention to mitigate built form visual impact.

The current proposed planning design does include vast areas of conservation spaces that will retain dune landform with its asscoiated coastal vegetation. The land adjacent Indian Ocean Drive also falling within a dedicated Landscape Protection Zone encourages the retention of landform and coastal vegetation.

5.2 Potential Visual Impact

The landscape of the subject site is unique to the Lancelin area and is an important part of the feel of the township and coast particularly when experienced from Indian Ocean Drive and Lancelin Road. Local residents, visitors and holiday makers are drawn to the area by this ocean side landscape.

To date, urban development within the Lancelin townsite has expanded in a slow growth format with housing on larger lots that has catered for the lifestyle and tourism opportunities the town offers, relaxed and spatious. The more recent urban development within Seaview Park has been designed and constructed to maximise ocean views, and also considers the landform with lifestyle lots, sloped lots and site responsive built form.

To achieve a reduced visual impact generally, the design of the proposed built form development adjacent the identified Landscape Protection Zone will need to work with the landscape character within the Landscape Protection Zone. This can be done through using a responsive site planning and design approach with regards to levels and earthworks, and also addressing built form recommendations. The site planning should respond to:

1. Retention of dune peaks within the Landscape Protection Zone adjacent to Indian Ocean Drive. The existing height and undulating form will provide a natural visual relief blocking urban development.

2. Retention of areas of good quality vegetation within the Landscape Protection Zone will provide a natural relief to visually block urban development. Integrating additional new planting (screen shrubs or trees) within the Landscape Protection Zone with species that compliment the retained vegetation will significantly add to a reduced visual impact from the development as seen from Indian Ocean Drive.

3. Ensuring the Landscape Protection Zone is not extensively cleared and earthworked. Where some dune depressions exist in this area, some additional fill with rehabilitation planting would asssit in adequately screening proposed dwellings from being seen from Indian Ocean Drive. This needs careful planning and consideration to prevent damage to surrounding dunes.

4. Ensuring built form adjacent the Landscape Protection Zone is generally proposed with the top of roof heights to be at lower levels than Indian Ocean Drive. Dwelling design that mitigates the visual impact through mandated maximum building heights, mandated single storey dwellings and construction materials that can blend with the landscape (ie limited bright coloured materials or reflective materials) will reduce their visual impact.

5. If urban design is proposed and sited in areas of higher vision from Indian Ocean Drive, aim to screen built form through the use of native vegetation and trees to create a ‘green screen’ either on separate lots, or within the open space that is proposed between the Landscape Protection Zone and the road and housing development areas.

Refer Figure 14 for CLE Planning Design.

6. THE VISUAL MANAGEMENT MEASURES & RECOMMENDATIONS

6.1 Site Responsive Design and Design Best Practice

PLAN E believe that any proposed development plans for this site will need to be weighed carefully between the valued visual and landscape character and current best practice urban design. PLAN E acknowledge the existing approved ODP that covers the majority of the subject site, and provide the below suggestions for the interface of the development on the eastern boundary adjacent Indian Ocean Drive and within the Landscape Protection Zone.

The following are the development design framework areas that we feel would need to be included.

- A landform first approach that prioritizes the retention of the existing landform and vegetation directly adjacent Indian Ocean Drive.
  We believe that a band of land running the entire north-south extent of the subject site directly adjacent Indian Ocean Drive at contours +55m AHD to +60m AHD should form the basis of the Landscape Protection Zone boundary.
- Site responsive local roads adjacent the western edge of the Landscape Protection Zone aligned to the contouring of the site whilst considering existing surrounding level change. This does not preclude earthworks but would prevent a flat 'cookie cutter' earth working approach applied.
  Pedestrian friendly zones and connection to key community nodes and open space should also consider the landform in this areas and encourage walkability along the western edge of the Landscape Protection Zone.
- The extent of the Landscape Protection Zone along Indian Ocean Drive should also connect to a section running adjacent Lancelin Road to protect the visitor experience at this intersection. Where possible, these landscape buffers should also connect to areas of public activity through further open spaces inside the future development.
- House design and proposed materiality will need to be detailed within design guidelines or local development plans for the urban development adjacent the Landscape Protection Zone.
- Amalgamating areas of public open space, conservation areas, landscape buffers and active open spaces into larger parcels, instead of small unuseable pockets of green space.
- Bush Fire Management through the allocation of low fuel buffer zones and increased construction standards for housing to mitigate fire risk instead of clearing vegetation to reduce Bushfire Attack Levels.



Plate 21 Image: Seaside Estate utilises coastal species with coastal colour built form materiality to soften built form impact



Plate 22 Project Image: Seaside Estate example of parkland blending, new coastal style landscape with existing vegetation



Plate 23 Project Image: Trinity estate example of parkland blending, new coastal style landscape, built form and existing vegetation

6.2 Built Form Recommendations

Adjacent the Landscape Protection Zone, PLAN E have identified an area of the proposed development that should have built form design guidelines prepared to assist future dwelling LDP approvals, to help minimise the visual impact of the housing development.

With particular reference to roof height and pitch, building heights shall be a maximum of 5m from lot level to top of roof pitch. This will restrict house product to single storey only.

Roof pitch angle (where even roof plane design such as standard gable roof), should not exceed 25 degrees. The general preference however is for roof pitch's to have standard 14-18 degree "low pitch" options.

Where flat or skillion roof designs are proposed, generally the angle should be within a 5 degree to maximum 35 degree angle, to again minimise roof height and dominance. A general design approach should ensure that roof forms and lines are designed so they are compatible with the house design so that thay do not draw major visual attention.

For dwellings that may opt for alternative roof designs (such as curved roof profiles) they remain allowable as long as they can adhere to the maximum height recommendation of 5m.

Pergolas, patios, sheds and garages shall also adhere to the same height and roof pitch recommendations.

With reference to current standard builder home products, the standad single storey product generally has a finish floor level to ceiling height of 2.6-2.8m. This then enables a ceiling to top of roof pitch maximum height of 2.2m-2.4m to ensure the overall house design remains at or under the 5m maximum height restriction.

To help minimise the visual impact of housing, roof colours outlined in design guidelines should be limited to colours found in the natural landscape setting as found in the adjacent retained areas of the Landscape Protection Zone.

Roof colours should have a matt finish and a textured profile with the preference of colorbond products over tiled products. Roof colours should generally be the same for each lot, so dwelling, patio, garages and sheds should all have the same colour and roof type to prevent any major visual differences.

Roof colours should also appear compatible to the built form materials to also ensure there is no major visual attention drawn to the home.



Plate 24 Image: Example of skillion roof at max height , with remaining built form heights lower (from colorbond)



Plate 25 Image: Example of house product with low roof pitch (by Shire Building Design)



Plate 26 Image: Example of patio height lower than total roof pitch height (from colorbond)

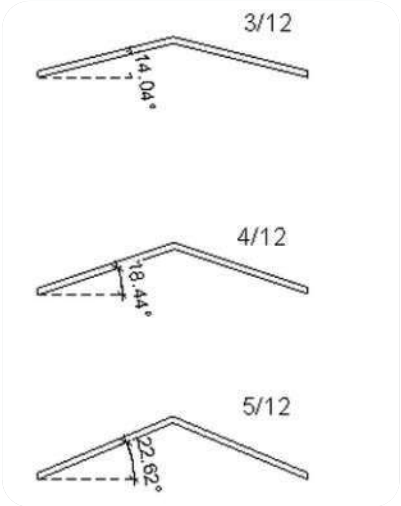


Plate 27 Image: Preferred low roof pitch profiles

PLAN E

Plates 27 Example of colours and textures found in the existing landscape setting, that can have colorbond roof colours aligned with.

















6.3 Landscape Protection Zone Recommendations

Indian Ocean Drive is currently 100km/hr road, averages 3146 vehicles/ day – (source MRWA trafficmap) which requires a road safety clear zone width of 13.5m – 10m from road edge. This safety zone should not have any non frangible items (such as walling or structures), additional earthworks or large tree planting as this would pose as a safety issue. Beyond this safety zone however, the addition of earth work shaping to soften slopes, or fill any areas where visual impact into the development may be seen, with additional screen planting will help maintain a landscape visual barrier between Indian Ocean Drive and the proposed development.
Fill and earth working between existing dune peaks will provide additional screening when rehabilitated with endemic species, providing a naturalized enhancement along Indian Ocean Drive. After reviewing 3D mapping of existing levels along Indian Ocean Drive with the proposed height of housing, Plan E have provided recommended areas where we believe this strategy should be applied in or adjacent the Landscape Protection Zone.
Refer Figures 15-26

The addition of fill between existing dune hollows should be installed to a depth of +1m - +4m to block direct views of the housing abutting the Landscape Protection Zone when seen from Indian Ocean Drive.
Screen planting for rehabilitation purposes to earthworked areas or in any existing degraded dune areas shall be of local endemic species that will not create any increase in bush fire attack levels, but also act as a vegetated screen when established. The following species are endemic to the site and would blend with the existing dune formations and vegetation if planted in mixes or no more than 3 of the same species next to each other. Plant mixes create a naturalised finish and will soften the vegetated landscape through the differing forms, textures, leaf and flower colours.



Acacia lasiocarpa



Banksia sessilis



Calothamnus quadrifidus



Melaleuca systena



Scaevola thesiodes

6.4 Visual Management Measures

PLAN E have determined that to mitigate the potential visual impact of urban development the following key objectives need to be proposed as part of a revised local structure plan or local development plan.

A landscape first approach that prioritizes the retention of the existing landform and vegetation along Indian Ocean Drive within the subject site, referred to as the Landscape Protection Zone. The recommendation is the retention of a zone of dune landform that meanders in width, (but has no less than 50m between the Indian Ocean Drive Road Reserve boundary and proposed development within the subject site).
This zone requires a combination of retained dune formations and retained vegetation plus enhanced rehabilitation planting to areas that need additional fill within dune hollows.
As the contours are irregular this does create a varying shaped zone along the eastern site boundary which once protected and enhanced will maintain the visual landscape quality as seen from Indian Ocean Drive.
This area of land recommended for retention will need discussion with future stakeholders for potential community use plus ongoing maintenance and management. The Design team appointed on the project will need to also evaluate value of landform and landscape retention with maintenance objectives including bush fire management.

Built Form restrictions, with maximum roof heights and recomended low roof pitch, plus landscape sensitive built form materials for proposed houses adjacent to the Landscape Protection Zone.
Through the 3D mapping process, Plan E advise that a series of proposed housing cell blocks have built form restrictions implemented through design guidelines or as part of local development plans.
Refer Figures 27 & 28

6.5 Summary

The subject site has visual and landscape values that cant be ignored in any planning and design of future development. The location, landscape character and elevation of the subject site particularly along Indian Ocean Drive make it sensitive to future urban development, which can lead to significant visual impact to the site, detriment to the surrounding area and experience of Lancelin.

The site offers a unique opportunity to explore alternatives to the typical approach to land development that if embraced will truly embed the development in the site and its surroundings. Building on, and enhancing the unique landscape and 'feel' of Lancelin, this development has the opportunity to promote site responsive urban development that would enhance the existing Lancelin township.

This visual landscape assessment remains the professional independant advice from PLAN E Landscape Architects.
The recommendations included are provided to assist in reducing the visual impact of development to protect the tourist experience, and provide recommendations to reduce the visual impact of development within the landscape protection zone.

This report is subjective as over time landform and vegetation change, as can planning policies and best design practice. This report does not address any potential future hazards such as climate change, coastal erosion, severe weather events or catastrophic fire events, and remains an analysis and recommendation only report consistent with site conditions as at July 2025.

LANDSCAPE ARCHITECTURAL SERVICES

PLAN E

PERTH:
LEVEL 1, 278 RAILWAY PARADE
WEST LEEDERVILLE WA 6007
PHONE: +61 8 9388 9566

MELBOURNE:
LEVEL 1, 5-7 PEEL STREET
COLLINGWOOD VIC 3066
PHONE: +61 3 8391 3313

WWW.PLANE.COM.AU

Concept Urban Landscape Master Plan

Legend

- E1 Existing POS - NW Triangle
- E2 Existing POS - NW Rectangle

- U1 POS U1
- U2 POS U2
- U3 POS U3
- U4a POS U4a
- U4b POS U4b
- 1a POS 1a
- 1b POS 1b
- 2a POS 2a
- 2b POS 2b
- 3 POS 3
- 4a POS 4a
- 4b POS 4b
- 5 POS 5
- 6 POS 6
- 7a POS 7a
- 7b POS 7b
- 8 POS 8
- 9a-1 POS 9a-1
- 9a-2 POS 9a-2
- 9b POS 9b
- 10 POS 10
- 11a POS 11a
- 11b POS 11b
- 12a-1 POS 12a-1
- 12a-2 POS 12a-2
- 12b-1 POS 12b-1
- 12b-2 POS 12b-2
- 12b-3 POS 12b-3
- 13a POS 13a
- 13b POS 13b
- 14 POS 14
- 15a POS 15a
- 15b POS 15b
- 16a POS 16a
- 16b POS 16b
- 16c POS 16c
- 17 POS 17
- 18 POS 18
- 19a POS 19a
- 19b POS 19b
- 20a POS 20a
- 20b POS 20b
- 21 POS 21
- 22 POS 22
- 23a POS 23a
- 23b POS 23b
- 24 POS 24
- 25 POS 25
- 26a POS 26a
- 26b POS 26b
- 37 POS 37



LD TOTAL

VIMG (CLIENT) | 10.7212 (PROJECT NO) | B (REVISION) | 18.03.2026 (DATE) | 1 OF 5 (PAGE)

LancelinSouth
Quality coastal living

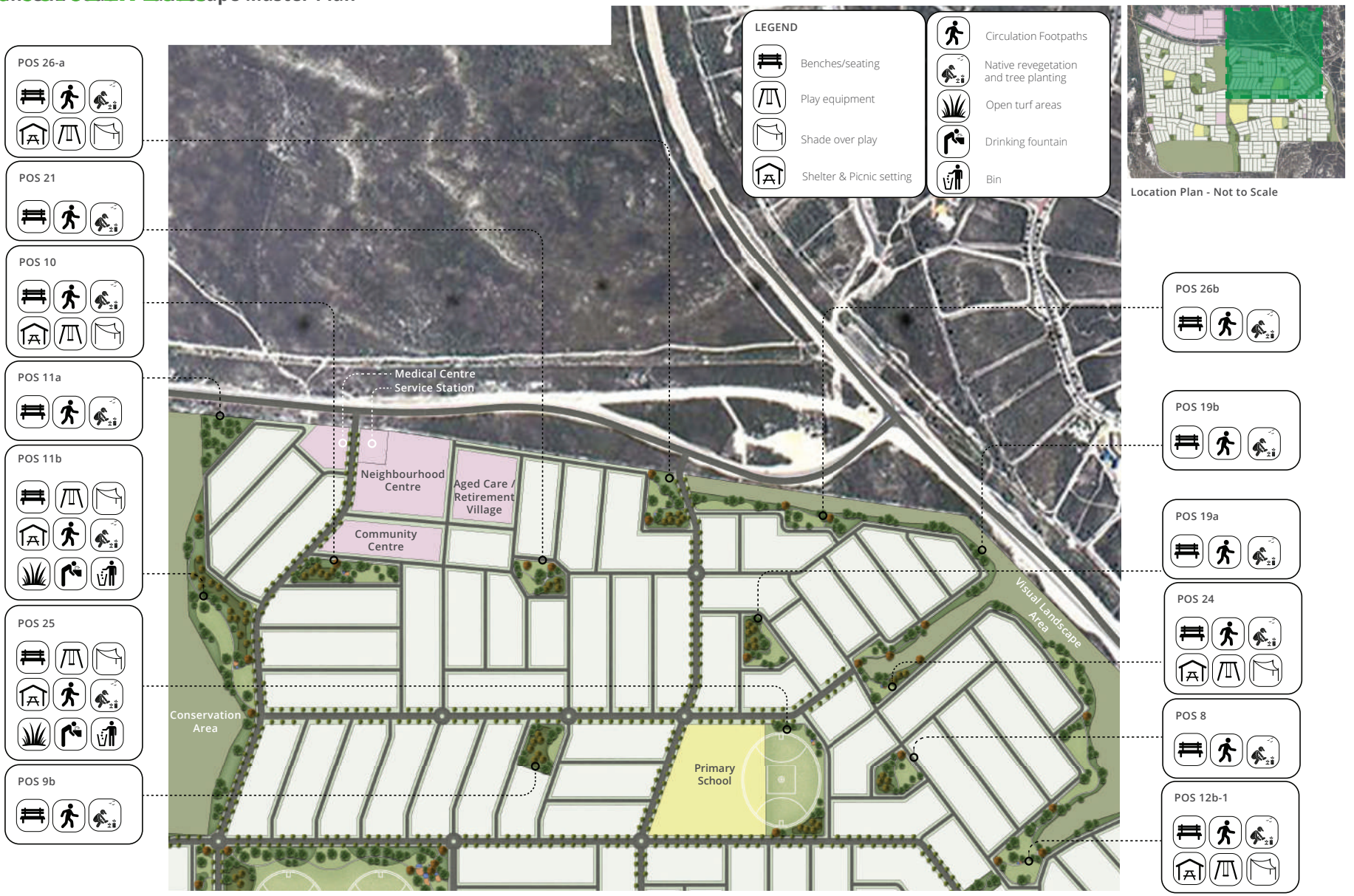
Consultation Landscape Master Plan



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Consultation Landscape Master Plan



LD TOTAL

VIMG (CLIENT) | 10.7212 (PROJECT NO) | B (REVISION) | 18.03.2026 (DATE) | 3 OF 5 (PAGE)

Lancelin South - Landscape Master Plan



Location Plan - Not to Scale

LD TOTAL

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CLIENT	PROJECT NO	REVISION	DATE	PAGE

Cranbourne Gardens Landscape Master Plan



Location Plan - Not to Scale

LD TOTAL

VIMG CLIENT | 10.7212 PROJECT NO | B REVISION | 18.03.2026 DATE | 5 OF 5 PAGE

TRAFFIC IMPACT STATEMENT

Proposed Centre Pivot Operation

John Treloar

Lot 108 (281) Lennards Road, Lennard Brook

Author: Halsall & Associates

1. Introduction

The Department of Planning, lands & Heritage have issued specific Transport Impact Assessment Guidelines for development applications referenced at Volume 4.

The Guidelines outline that the size of development should be taken into account to determine the level of assessment, noting that individual developments can vary from very large scale to a particular single land use such as the subject proposal.

A three-level assessment process has been developed to accommodate diversity of applications.

For subdivisions and individual developments, low impact is deemed to be where vehicle movements are less than 10 trips per peak hour, moderate is between 10-100 trips per peak hour and high impact is 0-100 vehicle trips per peak hour.

Where a development is considered to be low impact, no transport information is normally required. It is necessary simply to provide a brief description of the land use and proposed development to establish this as low impact.

2. Description of Proposal to Determine Low Impact

The subject proposal incorporates a centre pivot operation that will generally involve higher level activities between December – March (4-month period).

Other operations throughout the year will be more limited.

The proposal incorporates submission of a Farm Management Plan which documents the level of traffic expected for the land use and conditional approval of the development and required compliance with this Farm Management Plan can ensure this.

The operations will include the following:

For 8 months of the year, between April – November, vehicle movements will consist of one ute moving to and from the site daily, tractor movements (one tractor only) and truck movements at 3-4 per month occasional visits by contractors or Government officials if necessary.

This represents that if a tractor movement, vehicle movement, truck and contractor or Government official visited the site at any given time within the same hour, there would be three or four vehicle movements maximum at peak hour.

During the December – March period inclusive, traffic movements will increase to one ute plus an additional light vehicle for occasional assistant worker. There will also be one tractor moving onsite and 3 truck visits per week.

There would also be the occasional contractor or Shire official visit.

This means during the peak season of operations, if the two workers, truck movement, contractor or official and tractor all visited in the same peak hour, there would be 5 or 6 vehicle movements.

The vehicle movements anticipated from the use being primarily a one person operation with limited farm machinery and limited truck movements, is well below the 10 vehicle movements per peak hour and therefore does not warrant further transport information and detailed traffic transport impact assessment.

The table provided below is excerpted from the Transport Impact Assessment Guidelines and this indicates the types of uses that trigger moderate or high impact and therefore, the need for detailed traffic impact assessment.

Table 1: Level of TIA required by land use and size

LAND USE	MODERATE IMPACT	HIGH IMPACT
	Transport Impact Statement required	Transport Impact Assessment required
	10 – 100 vehicle trips in the peak hour	> 100 vehicle trips in the peak hour
Residential	10–100 dwellings	>100 dwellings
Schools	10–100 students	>100 students
Entertainment venues, restaurants, etc.	100–1000 persons (seats) OR 200–2000 m^2 gross floor area	>1000 persons (seats) OR >2000 m^2 gross floor area
Fast food restaurants	50–500 m^2 gross floor area	>500 m^2 gross floor area
Food retail / Shopping centres with a significant food retail content	100–1000 m^2 gross floor area	>1000 m^2 gross floor area
Non-food retail	250–2500 m^2 gross floor area	>2500 m^2 gross floor area
Offices	500–5000 m^2 gross floor area	>5000 m^2 gross floor area
Service Station	1–7 refuelling positions	>7 refuelling positions
Industrial/Warehouse	1000–10,000 m^2 gross floor area	>10,000 m^2 gross floor area
Other Uses	Discuss with approving authority	Discuss with approving authority

It is evident from this table that there would need to be equivalent to 10 dwellings or 100 persons visiting a venue or other significant land uses to trigger moderate impact and therefore, a Transport Impact Statement.

3. Conclusion

The proposal is clearly low impact and does not warrant a Transport Impact Statement other than explanation of the use and the vehicle movements expected.

Given this is documented in a Farm Management Plan which can be made conditional to an approval, the proposal can be assured to be maintained as low impact.

SCHEDULE OF SUBMISSIONS AND RESPONSES

Lancelin South Structure Plan (Amendment April 2026)

The full Schedule of Submissions, including the Applicant's Responses and Officer's Responses, is set out in the table on the following pages.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
1	DoE	The proposed Structure Plan has been assessed against the relevant provisions of the Western Australian Planning Commission's Operational Policy 2.4 – Planning for School Sites (OP 2.4) and Liveable Neighbourhoods (LN). The following matters have been identified and are required to be addressed: **Demand of public-school sites** The Department supports the inclusion and spatial distribution of four public primary school sites and one public high school site based on the proposed dwelling yields within the Structure Plan area. However, should there be any increase in the number of dwellings or changes to the density coding or zoning which would result in an increase to the student enrolment demand, and/or the school site is impacted by any physical or environmental constraints which may compromise the developability of the site, the Department reserves the right to review the public school planning at future structure plan amendment or subdivision process and that additional public school infrastructure may be required. **Size of public primary school sites** The Department requests that the proposed primary school sites are increased from 3.5 hectares (ha) to 3.75 ha to accommodate supplementary services including childcare.		Noted **Demand of public-school sites** Noted, the four public primary school sites and one public high school site is supported subject to further changes requiring further review by the Department. **Size of public primary school sites** Noted. Recommend changes to structure Plan to increase school site areas or enlarge adjoining shared-use POS, amend the road hierarchy fronting school sites, and add

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		As per the OP 2.4, a school site adjacent active Public Open Space (POS) that can accommodate a shared use oval, the primary school site can be reduced to 3.5 ha and the Department requests an additional 0.25 ha to be used to provide childcare services. Shared use POS. This allowance to reduce a primary school sites area, is on the basis it is co-located with active POS. At a minimum, the shared use POS needs to be able to accommodate a junior oval and all associated community infrastructure and facilities, ensuring a maximum oval encroachment (including the oval over-kick zone) of 0.5 ha into the school footprint. The key function of shared use POS is to provide active POS and are not intended to perform drainage or vegetation conservation functions. The proposed shared use POS (POS 1a, POS 3, POS 15a & POS 25) need to be increased to ensure the area of unrestricted POS can accommodate an oval and ancillary infrastructure. **Roads** The road network and number of street frontages around the school sites is generally supported. However, there should be an emphasis on maximising local Access Road frontage to facilitate on-street parking opportunities, and access to on-site parking. The north-eastern primary school site is surrounded by 3 x Neighbourhood Connectors (with one being a Landscape Boulevard Street). The lack of Access roads is concerning, and this		groundwater allocation commentary cross-referenced to the Local Water Management Strategy. **Roads** Noted. Consider maximising local access road frontage to facilitate on-street parking opportunities, and access to on-site parking. Noted. To be addressed by Applicant.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		needs to be addressed with appropriate traffic calming and maximising school site access. The Department requests that all the lower order roads adjoining all the school site should be designed to the 17.9 m Access Street B standard identified in LN. These requirements are not based on forecast traffic volumes, but on achieving an appropriate outcome for pedestrian movement, school access, on-street parking. **Vegetation** The OP 2.4 seeks to secure school sites which are developable, unencumbered and fit for its purpose. School sites should not feature any native vegetation, threatened fauna habitat, or need any State or Australian Government environmental approvals or offsets, or require significant areas of vegetation to be retained. **Groundwater allocation** The Structure Plan Report does not include any commentary on whether there is sufficient groundwater allocation across the Structure Plan area. It is critical that adequate groundwater allocation is available to meet the future irrigation demands of the public primary school sites and adjoining public open spaces. **Recommendation** In view of the above, the Department has no objections to the proposed Structure Plan subject to the above matters being satisfactorily addressed. The Department welcomes the opportunity to liaise with the		Noted. **Vegetation** Noted. Applicant to undertake assessment of impact of meeting this requirement and provide clarification to DoE. **Groundwater allocation** Noted. Applicant to provide assessment and if sufficient groundwater allocation has been considered across the Structure Plan area, in regard to potential DoE sites. Noted.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Shire of Gingin, Department of Planning, Lands and Heritage and/or developer to ensure compliance with the provisions of the OP 2.4.		
2	DoH (No objection – with comment)	**1. Water supply and wastewater disposal** Drinking water and sewage services must be provided by a licensed service provider. Any non-drinking water (i.e., water that is not intended or suitable for drinking) must be managed to ensure it cannot be confused with or contaminate the drinking water supply. This requires satisfactory labelling of non-drinking water taps and, depending on system configuration suitable backflow prevention arrangements in accordance with Australian/New Zealand Standards AS3500 – Plumbing and Drainage. **2. Medical Entomology – Mosquito Management** The subject land is in a region that occasionally experiences problems with nuisance and disease carrying mosquitoes. These mosquitoes are known carriers of Ross River (RRV) and Barmah Forest (BFV) viruses. Human cases of RRV and BFV diseases occur in some years in this general locality. To ensure the suitability of the land for development, all land use planning decisions should take into account the possible risk to human health and safety in relation to nuisance mosquitoes and mosquito-borne		**Water supply and wastewater disposal.** Noted **Medical Entomology – Mosquito Management.** Noted. No wetlands are located within the SP area and wetlands have not been proposed to be constructed / part of the Landscape Master Plan.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		disease. Consideration must be given to proximity of mosquito breeding habitats and whether mosquito management, if required, will be effective, appropriately resourced; and be approved by the relevant environmental agencies. Mosquito breeding sites may be either natural wetlands or constructed water bodies. For this reason, careful planning and consideration must be given to the design and location of 'liveable communities' and social infrastructure, such that there are buffer zones between water bodies and developments that reflect mosquito dispersal distances.		
3	DPIRD	The development is technically achievable but is highly sensitive to poor implementation. **Native vegetation** Given the substantial area of native vegetation that will be cleared, DPIRD recommends that the proponents liaise closely with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions. Habitat loss and fragmentation will occur, along with edge effects (weed invasion, more clearing for fire management, and human recreation) and local biodiversity decline. **Erosion risks** The clearing will also reduce the protection of the sand dunes, which will increase the wind and water erosion risk. However, the		Noted. **Native vegetation.** Noted the proposal has been referred to DBCA and comments received. **Erosion risks.** Noted. The report is required adequately address wind and water erosion risks in the dune environment and recommends controls through an agreed

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		establishment of the infrastructure on the land may assist mitigating erosion. The development is also around 0.5-1km from the beach, which gives a small buffer from coastal erosion. There are media reports that indicate that Lancelin has experienced significant coastal erosion. One beach at Lancelin reportedly saw erosion of about 6 metres from a storm in early June 2026, and over the past 15 months, approximately 50 metres of Lancelin's northern beach has disappeared1. **Groundwater** The highly permeable sandy soils carry a risk of groundwater contamination, as pollutants (e.g. nutrients, hydrocarbons) will rapidly infiltrate and affect the aquifer. Mitigation exists via biofiltration, but the residual risk remains high, particularly if poorly maintained. **Practical suggestions** Some practical suggestions to reduce risk from the development include: • Stage clearing with immediate soil stabilisation (mulch/revegetation) • Retain additional dune crests and vegetation corridors. • Implement dust and wind erosion controls during construction. • Mandate long-term maintenance of biofiltration systems. • Establish erosion monitoring triggers and corrective actions.		Construction Management Plan. The Environmental Management Plan to be amended to acknowledge the soil characteristics and susceptibility to wind and water erosion. **Groundwater** Noted **Practical suggestions** Noted. A combination of mitigating measures will be negotiated in management documentation.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		(1) https://www.abc.net.au/news/2026-06-11/rapid-erosion-along-wa-coast-lancelin-emergency-funds/106769464		
4	**Main Roads**	In response to your correspondence received on 4 June 2026, Main Roads provides the following comments: **Section 4.3 Movement Network, Proposed Indian Ocean Drive Access** (approx. slk 66.7) The structure plan proposes an additional local road connection to Indian Ocean Drive. Main Roads does not support additional access along this section of the IOD. No direct vehicle access shall be permitted to or from Indian Ocean Drive in accordance with both WAPC and Main Roads planning guidelines, policies and the endorsed Indian Ocean Drive transport planning (as listed in Attachments A and B). Please find the following detail to further understand Main Roads current position in accordance with the Indian Ocean Drive Planning Study: **Indian Ocean Drive Planning Study** (D23#431865) Main Roads have finalised the Indian Ocean Drive Planning Study, developing a safe and consistent future road network that aligns with Safe System principles and manages current and future transport demands along the corridor. As part of the study, an Access Strategy was developed to manage access to Indian		**Movement Network, Proposed Indian Ocean Drive Access** Noted. **Indian Ocean Drive Planning Study** Noted:

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Ocean Drive in a safe and coordinated manner, including identifying appropriate access arrangements and opportunities for shared access where possible. - *Access to a State Road may be granted in accordance with a vehicle access strategy if the strategy has been agreed by Main Roads and the relevant Local Government (Driveway Policy Section 3.1.1).* - *Where alternative access could be made available from side or rear streets or from rights of way, no access shall be permitted to the State Road unless special circumstances apply, such as an agreed vehicle access strategy. (Driveway Policy Section 2.4).*		Noted. Access to a State Road may be granted. A meeting was conducted between the applicant, Main Roads WA and Shire officers. There has been no conclusion to the issue of a second access / interaction between the development site and Indian Ocean Drive. As noted in the report an alternative intersection point at KW Road was considered at the meeting, but the applicant does not support this due to road widening requirements and cost.
		The proposed Access Strategy and key outcomes for the study (i.e. duplication of IOD) were publicly advertised and consulted on with key stakeholders, including affected landowners and the Shire of Gingin, to inform the development of the final strategy.		Noted.
		The proposed access at approximately SLK 66.7 was not included in the adopted Access Strategy, as direct access at that location was not considered appropriate having regard to the strategic function and safety objectives of Indian Ocean Drive.		Noted.
		A summary of Indian Ocean Drive has been provided in Appendix C to add further background to the IOD to compliment the information found on the Indian Ocean Drive Planning Study webpage including the Planning Study Fact Sheet dated April 2021. Please note that the Indian Ocean Drive		Noted.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Planning study is a planning study only, the upgrading/widening of Indian Ocean Drive and Lancelin Road Intersection is not in Main Roads current 4-year forward estimated construction program and all projects not listed are subject to change without notice. Excerpts to note in the IOD Planning Study Access Strategy: - *It is recommended that Main Roads continue to consult with landowners and the Shire of Gingin to identify future land development and access requirements along the corridor, and ensure these developments align with the ultimate concept design and access strategy for IOD.* (Page 62). - *Future extension of Old Ledge Point Road to connect Ledge Point Road to Lancelin Road would provide both communities with a second access option in the event of a bushfire emergency.* (Page 62). - *As discussed with individual landowners, should any future development be considered, they are encouraged to approach Main Roads to ensure their development plans are compatible with the ultimate road reserve requirements and proposed access strategy* (Page 80). **Additional Comments Regarding Road Safety and Access** The addition of new access points to high-speed regional roads is generally discouraged, as research in Australia and		Noted. Noted. This extension of Old Ledge Point Road to connect Ledge Point Road to Lancelin Road as option is yet to be confirmed by the Applicant. Noted. **Additional Comments Regarding Road Safety and Access** Noted.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		internationally demonstrates that increasing the number of access connections leads to higher crash rates and increased crash frequency (Austroads Guide to Road Design Part 4). A US study (US DoT, Technical Summary: Corridor Access Management 2016) indicates that each additional unsignalised access point per mile increases the overall crash rate by 3% and crash frequency by 5%. Consistent with Safe System principles, Austroads recommends limiting the number of access points on roads operating above 60 km/h to reduce conflict points and minimise the likelihood and severity of crashes (Austroads – Safe System in the Planning Process Section 2.4). Austroads (Austroads GRD4) further recommends that access to high-speed roads be consolidated wherever possible, using existing side roads, service roads or shared access arrangements rather than creating new direct connections (Section 7.2.3). Vehicles entering or leaving an access point disrupt through traffic and create additional conflict points, with these impacts becoming more critical as traffic speeds and volumes increase (Appendix E – Access Spacing). **Section 4.3 Movement Network, Lancelin Road Access** (approx. 0.5 SLK) The access onto the Lancelin Road is located at the end of a merge lane required for the		Noted. Noted. Noted. Noted. **Movement Network, Lancelin Road Access**

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		upgraded intersection between Lancelin Road and the Indian Ocean Drive. The functional area of the intersection needs to be considered when locating the access on Lancelin Road. With the addition of the traffic from the proposed IOD connection the structure plan indicates Lancelin Road could be carrying in the order of 15,000 vehicles per day (likely to be significantly higher during seasonal peaks). Future upgrades to Lancelin Road shall also need to be considered. **Section 4.3 Movement Network, Intersection of Indian Ocean Drive and Lancelin Road** (approx. 68.25 SLK) Main Roads have indicated Indian Ocean Drive and Lancelin Road intersection may be upgraded in the future to a 2 lane roundabout. To date there has only been a preliminary concept with little detail to assist determine the scope of work required to progress through the design stages. No funding has yet been committed to progress with the design and is not in Main Roads current 4-year forward estimated construction program, all projects not listed are subject to change without notice. **Section 4.3 Connectivity** Main Roads recommends further detail and investigation in the Structure Plan and broader area commenting on the options and potential staging to connect the existing developed areas with Lancelin South facilities including:		Noted. Consider function of Lancelin Road when locating intersection points. Noted. **Movement Network, Intersection of Indian Ocean Drive and Lancelin Road** Noted. Indian Ocean Drive and Lancelin Road intersection may be upgraded in the future to a 2 lane roundabout. **Connectivity** Noted. Further detail and investigation in the Structure Plan and broader area commenting on the options.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		• Access to/from Seaview Park Estate to address local vehicle trips, pedestrian and cyclist movements expected as a result of commercial and school developments in the structure plan area.		Noted. Access to/from Seaview Park Estate to be acknowledged in SP.
		• Extension of Old Ledge Point Road to Ledge Point Road (Ledge Point) to provide for anticipated inter-town movements. In addition to connecting Ledge Point residents/visitors with access to additional community facilities in Lancelin South this would provide an alternative access to Indian Ocean Drive for Lancelin South.		Noted. Extension of Old Ledge Point Road to Ledge Point Road.
		• Access to memorial alongside IOD will need to be from local road network ultimately, as soon as possible considering the staging of subdivision progress.		Noted. Access to memorial alongside IOD from local road network.
		Section 4.10 Bushfire Management Plan		**Bushfire Management Plan**
		Main Roads does not support access to the Indian Ocean Drive for bushfire emergency purposes, in the first instance. Consistent with access management and road safety principles emergency access should be accommodated through the local road network wherever practicable. All alternative options must be thoroughly investigated and demonstrated to be unfeasible to Main Roads satisfaction before emergency access to IOD could be contemplated.		Noted.
		Although the Structure Plan proposes a local road access, the establishment of an		

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Emergency Access Way (EAW) to IOD has also been considered by Main Roads. Due to limitations on the allowable length and operation of EAWs per State Planning Policy 3.7 Bushfire, it is unlikely that an EAW would provide an acceptable solution for the initial stages of development, and an alternative access arrangement would still need to be identified and delivered. In addition, an EAW connecting to a high-speed regional road presents the same road safety risks as any other access point. While the need to use the EAW during a bushfire event may be infrequent, the presence of the access connection creates an ongoing safety risk through the introduction of an additional conflict point on the regional road network. By virtue of their emergency function, EAWs must remain available for public use during an emergency and therefore cannot be permanently secured in a manner that reliably prevents unauthorised access. Unauthorised vehicle access would create an ongoing road safety and compliance issue for Main Roads. Furthermore, EAWs can attract illegal dumping, trespassing, vandalism and other antisocial activities, resulting in ongoing maintenance and land management issues that would typically fall to the relevant local government authority. Accordingly, Main Roads' preference remains that bushfire access and egress requirements be addressed through a suitably connected local road network rather than by creating any additional		Noted. Noted. Noted. Noted.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		access to Indian Ocean Drive. **Section 3.2, 4.4, 4.11, 4.12 Landscape Protection Zone Abutting Indian Ocean Drive** The structure plan proposes a reduction in width to the landscape protection zone (Section 3.2 and 4.4). Main Roads has no objection provided visual screening and there is sufficient detail and space for any noise reduction (section 4.11) methods supported by the Shire of Gingin. Main Roads would like to review further detail of the extent of fill and levels proposed to fill the hollows (section 4.4 and 4.12) in combination with proposed reduction in width to the landscape zone to determine if there are any impacts to the future widening of the Indian Ocean Drive, considering: • It is not known at this stage the design / final levels of the IOD between Lancelin Road and KW Road. • Final design and construction of IOD between Lancelin Road and KW road may require further noise mitigation in the area considering a reduction in the landscape protection zone ie. Walls. • Water Tank Site is proposed within the reduced landscape protection zone. Main Roads welcome further discussion with WAPC with regard to Main Roads position and advice provided above.		**Landscape Protection Zone Abutting Indian Ocean Drive** Noted. No objection provided visual screening and sufficient detail and space for any noise reduction methods supported by the Shire of Gingin. Noted. Further detail of fill and levels proposed to fill the hollows understand impacts to the future widening of IOD. Noted. Final levels of the IOD between Lancelin Road and KW Road to be determined by MRWA. Noted. Construction of IOD may require further noise mitigation in the area considering a reduction in the landscape protection zone. Noted. Water tank site proposed within landscape protection zone. Noted. Meeting has been conducted between the applicant, MRWA and Shire of Gingin.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Main Roads encourage applicants to meet with Main Roads to discuss access arrangements to the state primary road network prior to lodgment of planning proposals, especially where development plans involve land adjacent to or have the potential to impact on the State road network. Main Roads requests a copy of the Commission's final determination to be sent to mwgplanning@mainroads.wa.gov.au quoting the file reference above. **Attachments (Found at the end of this document)** *Attachment A: Planning Guidelines and Policy, and Indian Ocean Drive Planning Attachment B: Mechanisms to protect the road network from unapproved access Attachment C: 2026 Main Roads Response Email Following Recent Meeting (D26#758240) Attachment D: 2016 Main Roads Response to Structure Plan (D16#564340) Attachment E: Indian Ocean Drive Summary Attachment F: Aglime Routes Plan.*		
5	**DBCA**	The Department of Biodiversity, Conservation and Attractions (DBCA) has reviewed the proposal pursuant to DBCA's responsibilities under the *Biodiversity Conservation Act 2016* (BC Act) and the *Conservation and Land Management Act 1984.* DBCA has previously provided advice to the Shire of Gingin regarding the Lancelin South		Noted. Noted.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Structure Plan, Lancelin South Outline Development Plan, and the Stage 2 Lancelin South Structure Plan. The advice provided below is consistent with DBCA's previous comments. **Fauna** DBCA is aware that Carnaby's black cockatoos (*Zanda latirostris)* were recorded on site during a fauna survey by Ecoscape in 2008, and that the subject area contains foraging habitat for black cockatoos. Black cockatoos are listed as threatened species under the State BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). I It is unclear whether recent comprehensive fauna surveys have been taken across the entire extent of the structure plan area with a lack of supporting information provided in the Environmental Assessment Report (Emerge 2026) (EAR). The EAR also does not quantify the amount of foraging habitat potentially present with insufficient assessable data from the surveys undertaken included to support the conclusions. DBCA advises that additional survey and supporting information should be provided for review to inform environmental referral requirements under the EPBC Act prior to further planning stages. One Priority 4 species, the graceful sun moth (*Synemon gratiosa)* and one Priority 3 species, the black-striped snake (*Neelaps calonotos)* have been recorded on the site, with other priority species potentially present on the site. The Structure Plan notes that these species could be impacted by future		**Fauna** Noted. Noted. Applicant to provide additional survey and supporting information for review aligned with environmental referral requirements under the EPBC Act, prior to further planning stages. Noted. The relocation proposal will need to comply with the requirements of the EPBC Act and applicant to contact DBCA's Species and Communities Branch for more information.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		subdivision and development activities and proposes the relocation of fauna as required. Any fauna relocation proposal will need to comply with the requirements of the EPBC Act and as such the proponent should contact DBCA's Species and Communities Branch for more information. **Ecological Communities** It is unclear whether adequate survey for threatened and priority ecological communities has been undertaken due to a lack of supporting information provided in the EAR. DBCA advises that the EAR does not discuss the potential for the State BC Act and Commonwealth EPBC Act listed 'Sedgelands in Holocene dune swales of the southern Swan Coastal Plain' ecological community to be present on site with known occurrences located nearby, south of Lancelin. The EAR (Emerge 2026) should be updated to address the potential for occurrence of the threatened ecological community within the Structure Plan area to inform mitigation and environmental referral requirements prior to further planning stages. **Conservation Zone** DBCA advises that whilst the Structure Plan proposes the protection of environmental values within 'conservation zones', there is a lack of detail provided in the report and supporting documentation to inform how long-term protection will be secured. As previously advised by DBCA, unless these areas are created as Crown reserves to be managed by the Shire of Gingin there is no certainty of their long-term protection. A commitment to retain the conservation value		**Ecological Communities** Noted. Applicant to discuss with DBCA adequacy of survey data on threatened and priority ecological communities, demonstrate to Shire of Gingin and WAPC. Amend the SP to address potential occurrence of the threatened ecological community. **Conservation Zone** Noted. Lack of detail supporting how long-term protection will be secured in 'conservation zones'. Applicant to provided amended report to address above to DBCA satisfaction.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		of this area was a major consideration in the environmental assessment of the planning scheme amendment (Local Planning Scheme No.9 proposed Amendment No. 3). Greater surety is required to guarantee the long-term purpose and protection of these sites through reservation. Furthermore, in previous advice from DBCA regarding the planning scheme amendment (LND/634 November 2014) it was advised that any Environmental Management Plan (EMP) for areas set aside for conservation should be prepared and approved as part of the structure planning process, rather than as a condition of subdivision. The preparation of an EMP, to the satisfaction of the shire and on advice from DBCA, should occur prior to any subdivision approvals. An EMP should address issues such as the management, enhancement and protection of the conservation zones, significant fauna and fauna habitat, the interface between future subdivision areas and the conservation zone, protection of any regionally significant vegetation, and formalised public access, if appropriate, and how these issues are to be addressed i.e. fencing, signage, access, building envelopes. Additionally, a EMP should be prepared for the interface between the structure plan area and the 'conservation zone' within the adjacent Lot 2 as identified in the Shire of Gingin Local Planning Scheme No.9. **Vegetation Retention**		Noted. The Applicant to amend Environmental Management Plan (EMP) subject to DBCA input. EMP to address issues as noted by DBCA. Noted. Applicant to amend the EMP to address interface between the structure plan area and the 'conservation zone'.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		DBCA advises that there is insufficient information provided in the Structure Plan to identify and quantify vegetation and fauna habitat retention within the proposed Linear public open space (POS) areas and the Landscape Enhancement Area. The EAR stated that the impact to the graceful sun moth (Priority 4) will be partly abated through the retention of habitat within the linear POS and Landscape Enhancement Area. The potential for retention of vegetation and fauna habitat should be investigated further at the structure planning stage to inform subdivision requirements and not be delayed to subdivision stages. The Structure Plan contains no specific information regarding the proposed widths of ecological corridors along the linear POS area. DBCA recommends that such details on placement and width of the corridors, as well as appropriate interface treatments between residential development and ecological corridors, should be addressed prior to the subdivision phase. The Bushfire Management Plan does not accommodate the retention of vegetation within the majority of the linear POS. DBCA advises that the retention of vegetation and fauna habitat is unlikely to meet the condition of a low threat vegetation level and should be updated accordingly to an appropriate BAL vegetation classification. An updated BMP should consider and incorporate the required retention of vegetation and ongoing protection requirements to inform updated bushfire attack levels.		**Vegetation Retention** Noted. The applicant to amend SP to identify and quantify vegetation and fauna habitat retention within the proposed Linear public open space (POS) areas and the Landscape Enhancement Area. Noted. Noted. The BMP to be amended to include incorporate the required retention of vegetation and ongoing protection requirements to inform updated bushfire attack levels for the linear open space.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
6	Ratepayer (Not Supported)	We are deeply concerned about the impact of the high-density housing as shown in the new amended structure plan for Lancelin South. This area, or anywhere nearby, has no infrastructure in place for employment for this sort of housing. Traffic congestion would increase along Indian Ocean Drive, this road is notorious for accidents already, and Lancelin Road. Our other concern is provisions of fresh water and safe and healthy disposal of effluent. This needs to be proven to be sustainable for the future number of residents that will eventually live in this area. When we moved into the area 4 years ago it was with the knowledge that the area was going to have decent size blocks and we felt at the time that this would a sustainable and inviting place to live but all this has now changed with the new developer looking at how rich they can get with no concern about residents. In conclusion, we strongly urge you to reconsider this amended structure plan. Whilst we recognise the need for more housing, we believe that high density housing is simply not the right fit for our neighbourhood. Thank you for your attention to this matter		Noted. The proposal does not constitute high density house in terms of standard urban development. Support infrastructure for the future population is an important consideration. Traffic impact and safety is a priority consideration for all large-scale subdivision development. A Traffic Impact Assessment has been prepared. Noted. A community Needs Assessment supporting the increased population is recommended.

SCHEDULE OF SUBMISSIONS AND RESPONSES

Lancelin South Structure Plan (Amendment April 2026)

The full Schedule of Submissions, including the Applicant's Responses and Officer's Responses, is set out in the table on the following pages.

No.	Submitter	Submission Details	Applicant's Response	Officer Response
1	DoE	The proposed Structure Plan has been assessed against the relevant provisions of the Western Australian Planning Commission's Operational Policy 2.4 – Planning for School Sites (OP 2.4) and Liveable Neighbourhoods (LN). The following matters have been identified and are required to be addressed: **Demand of public-school sites** The Department supports the inclusion and spatial distribution of four public primary school sites and one public high school site based on the proposed dwelling yields within the Structure Plan area. However, should there be any increase in the number of dwellings or changes to the density coding or zoning which would result in an increase to the student enrolment demand, and/or the school site is impacted by any physical or environmental constraints which may compromise the developability of the site, the Department reserves the right to review the public school planning at future structure plan amendment or subdivision process and that additional public school infrastructure may be required.	Noted. The matter raised can be monitored as subdivision progresses over the site.	

		Size of public primary school sites The Department requests that the proposed primary school sites are increased from 3.5 hectares (ha) to 3.75 ha to accommodate supplementary services including childcare. As per the OP 2.4, a school site adjacent active Public Open Space (POS) that can accommodate a shared use oval, the primary school site can be reduced to 3.5 ha and the Department requests an additional 0.25 ha to be used to provide childcare services.	Clause 3.7.3 of OP 2.4 does not establish the additional 2,500m² as a standard site requirement. The provision is discretionary and conditional "*where there is an identified need in a community*" and where there is a need, the additional land is to be "*set aside for acquisition*". For example, a child care lot of approximately 2,100sqm has been provided within the Stage 9 subdivision area within the 'Stage 1 ODP' to deliver on the need for child care within the estate, as agreed with the Shire of Gingin. The provision of future child care centres should therefore be reviewed on an as required basis as the project progresses based on demonstrated demand and capability of the market to deliver, as per the principles of the policy. The capability of private industry to deliver the need for childcare is available as needed, and is standard practice across WA, where childcare serves are delivered by the private sector. There has been no analysis or modelling undertaken by DOE to demonstrate that the market will not be able to meet demand as the estate develops, which is commonplace in greenfield development areas. Should a need be identified, these services can be accommodated or in adjoining zones, given that the land use is discretionary in the residential zone. If the Department were to require the 3.5ha school sites to be increased, a further needs assessment be identified by DoE and note that any additional land provided would be subject to acquisition by DoE as outlined in OP 2.4. This can be addressed at subdivision stage on an as required basis and therefore is not	

			recommended to be included in the structure plan as a requirement given the inconsistency with OP 2.4.	
		Shared use POS This allowance to reduce a primary school sites area, is on the basis it is co-located with active POS. At a minimum, the shared use POS needs to be able to accommodate a junior oval and all associated community infrastructure and facilities, ensuring a maximum oval encroachment (including the oval over-kick zone) of 0.5 ha into the school footprint. The key function of shared use POS is to provide active POS and are not intended to perform drainage or vegetation conservation functions. The proposed shared use POS (POS 1a, POS 3, POS 15a & POS 25) need to be increased to ensure the area of unrestricted POS can accommodate an oval and ancillary infrastructure.	The shared use POS areas have been sized to be capable of accommodating a junior oval and all necessary community infrastructure without encroaching into the school footprint. This is spatially depicted on the concept plan which show that junior ovals can be accommodated entirely within the POS area, refer updated version attached. All active POS requirements can be accommodated, including provision of relatively minor small areas of drainage as outlined below: • POS 1a (2.17ha) o 0.2ha of restricted POS • POS 3 (2.03ha) o 0.09ha restricted POS • POS 15a (2ha) o No drainage proposed • POS 25 (2.02ha) o 0.05ha restricted POS It is standard practice for drainage infrastructure to be located in shared use POS, noting that the drainage in these areas is relatively minor and will have a negligible impact on the functionality of these POS areas.	

No.	Submitter	Submission Details	Applicant's Response	Officer Response

		Roads The road network and number of street frontages around the school sites is generally supported. However, there should be an emphasis on maximising local Access Road frontage to facilitate on-street parking opportunities, and access to on-site parking. The northeastern primary school site is surrounded by 3 x Neighbourhood Connectors (with one being a Landscape Boulevard Street). The lack of Access roads is concerning, and this needs to be addressed with appropriate traffic calming and maximising school site access. The Department requests that all the lower order roads adjoining all the school site should be designed to the 17.9 m Access Street B standard identified in LN. These requirements are not based on forecast traffic volumes, but on achieving an appropriate outcome for pedestrian movement, school access, on-street parking.	The landscaped boulevard street along the northern boundary of that primary school site is capable of accommodating on-street parking and has been proposed to intentionally maximize pedestrian connections and street tree planting to promote walkability and accessibility within the site Whilst the TIA identifies this road as a Neighbourhood Connector, this is a product of its width and function, with volumes more commensurate with an Access Street B (<3000vpd) and not a Neighbourhood Connector. The landscaped boulevard streets will provide pedestrian footpaths on both sides, as well as a centralized shared path. Staged crossings with median refuge will be provided to allow pedestrians and cyclists to cross the road safely. All other schools are proposed to be bound by local Access Streets as required by OP 2.4.	
		Vegetation The OP 2.4 seeks to secure school sites which are developable, unencumbered and fit for its purpose. School sites should not feature any native vegetation, threatened fauna habitat, or need any State or Australian Government environmental approvals or offsets, or require significant areas of vegetation to be retained	Noted.	
		Groundwater allocation The Structure Plan Report does not include any commentary on whether there is sufficient groundwater allocation across the Structure Plan area. It is critical that adequate groundwater allocation is available to meet the future irrigation demands of the public primary school sites and	The site has 350,625 kL/yr groundwater license which aligns with the longer-term irrigation requirements for the site, including for all POS Irrigation and school ovals. In time the allocation required to irrigate the school ovals would be transferred to DoE once the schools are established.	

		adjoining public open spaces.		

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		Recommendation In view of the above, the Department has no objections to the proposed Structure Plan subject to the above matters being satisfactorily addressed. The Department welcomes the opportunity to liaise with the Shire of Gingin, Department of Planning, Lands and Heritage and/or developer to ensure compliance with the provisions of the OP 2.4.	Noted and the proponent will continue to liaise with the DoE as subdivision progresses over the balance of the site.	
2	DoH (No objection – with comment)	**1. Water supply and wastewater disposal** Drinking water and sewage services must be provided by a licensed service provider. Any non-drinking water (i.e., water that is not intended or suitable for drinking) must be managed to ensure it cannot be confused with or contaminate the drinking water supply. This requires satisfactory labelling of non-drinking water taps and, depending on system configuration suitable backflow prevention arrangements in accordance with Australian/New Zealand Standards AS3500 – Plumbing and Drainage.	Noted. Water and wastewater services will continue to be managed by the Lancelin South Water Pty Ltd, a licensed water utility.	
		2. Medical Entomology – Mosquito Management The subject land is in a region that occasionally experiences problems with nuisance and disease carrying mosquitoes. These mosquitoes are known carriers of Ross River (RRV) and Barmah Forest (BFV) viruses.	There are no open water bodies on the site except for excavated dam near DeBurgh's Well. The management of this open water body will be ascertained at subdivision. The construction of additional open water bodies is highly unlikely which will be confirmed at	

		Human cases of RRV and BFV diseases occur in some years in this general locality. To ensure the suitability of the land for development, all land use planning decisions should take into account the possible risk to human health and safety in relation to nuisance mosquitoes and mosquito-borne disease. Consideration must be given to proximity of mosquito breeding habitats and whether mosquito management, if required, will be effective, appropriately resourced; and be approved by the relevant environmental agencies. Mosquito breeding sites may be either natural wetlands or constructed water bodies. For this reason, careful planning and consideration must be given to the design and location of 'liveable communities' and social infrastructure, such that there are buffer zones between water bodies and developments that reflect mosquito dispersal distances.	subdivision. Any drainage infrastructure as per the future UWMPs will ensure that all stormwater will be infiltrated within 3.5 days for the 1% AEP in accordance with the *Stormwater Management Manual for Western Australia* Chapter 9 *Structural Controls* (DWER 2022).	

No.	Submitter	Submission Details	Applicant's Response	Officer Response
3	DPIRD	The development is technically achievable but is highly sensitive to poor implementation. **Native vegetation** Given the substantial area of native vegetation that will be cleared, DPIRD recommends that the proponents liaise closely with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions. Habitat loss and fragmentation will occur, along with edge effects (weed invasion, more clearing for fire management, and human recreation) and local biodiversity decline.	In accordance with clause 4.8.8.2 and Environmental Condition 2, Schedule 7 of the LPS 9, an Environmental Management Plan (EMP) will be prepared and implemented as a condition of subdivision for land adjacent to the 'Conservation' zoned land where native vegetation is proposed to be retained. The EMP will be prepared in consultation with DWER and DBCA to minimize habitat loss and making provision for weed control, fire response and suppression, revegetation, and design and maintenance of pathways and public viewing areas. This is enforced via Part 1 of the amended LSP which requires the preparation and implementation of an EMP as a condition of subdivision approval.	

		Erosion risks The clearing will also reduce the protection of the sand dunes, which will increase the wind and water erosion risk. However, the establishment	Noted. The LSP has been designed to ensure the protection and retention of dunal forms within POS, the Conservation zone and/or the Landscape Protection zone. Consideration of engineering design levels to minimize substantial level differences at interface locations will be addressed at subsequent stages of planning. The development is approximately 650m – 800m from the coast, and SPP 2.6 coastal planning is therefore not relevant to this site.	

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		of the infrastructure on the land may assist to mitigate the erosion. The development is also around 0.5-1km from the beach, which gives a small buffer from coastal erosion. There are media reports that indicate that Lancelin has experienced significant coastal erosion. One beach at Lancelin reportedly saw erosion of about 6 metres from a storm in early June 2026, and over the past 15 months, approximately 50 metres of Lancelin's northern beach has disappeared.		
		Groundwater The highly permeable sandy soils carry a risk of groundwater contamination, as pollutants (eg: nutrients, hydrocarbons) will rapidly infiltrate and affect the aquifer. Mitigation exists via biofiltration, but the residual risk remains high, particularly if poorly maintained.	The export of nutrients and other pollutants into groundwater will be managed in terms of waste water disposal and stormwater management based on the current Best Management Practices in Water Sensitive Design. The multi-purpose corridors and public open space areas used for stormwater management will incorporate water sensitive design principles, including: • Appropriate separation between developments and groundwater to ensure that urban stormwater is not discharged in to the groundwater without first receiving appropriate treatment;	

			• Managing surface water quality through a number of non-structural and structural methods using Water Sensitive Urban Design (WSUD) principles • At source treatment and infiltration; and • Use of ecologically sound compensation and infiltration basins designed to remove nutrients.	
		Practical suggestions Some practical suggestions to reduce risk from the development include: • Stage clearing with immediate soil stabilisation (mulch/revegetation) • Retain additional dune crests and vegetation corridors • Implement dust and wind erosion controls during construction • Mandate long-term maintenance of biofiltration systems • Establish erosion monitoring triggers and corrective actions *(1) https://www.abc.net.au/news/2026-06-11/rapid-erosion-along-wa-coast-lancelin-emergency-funds/106769464*	The proposed structure plan aligns with the expectations of the underlying planning framework and will be development in accordance with industry standards. Information associated with construction will be provided at relevant stages of the approval process. Areas of POS will retain existing landforms and vegetation where possible, however it is noted that the extent of natural landforms to be retained is limited due to the undulating natural topography. Some of this information would also be included within the Environmental Management Plan as required at subdivision in accordance with Ministerial Statement 853, for conservation areas.	
4	**Main Roads**	In response to your correspondence received on 4 June 2026, Main Roads provides the following comments: **Section 4.3 Movement Network, Proposed Indian Ocean Drive Access** (approx. slk 66.7) The structure plan proposes an additional local road connection to Indian Ocean Drive. Main Roads does not support additional access along this section of the IOD. No direct vehicle access shall be permitted to or from Indian Ocean Drive in accordance with both WAPC and Main Roads planning guidelines, policies and the endorsed Indian Ocean Drive transport planning (as listed	We acknowledge Main Roads' comments and the strategic importance of appropriately managing access to Indian Ocean Drive. However, at this stage the development team considers that there remains a strong strategic case for retaining the proposed second connection to Indian Ocean Drive from within the Lancelin South Structure Plan, subject to further consultation with Main Roads. In particular: • The proposed road connection is not an individual property driveway or minor development access. It is intended as a strategic road network	

		in Attachments A and B). Please find the following detail to further understand Main Roads current position in accordance with the Indian Ocean Drive Planning Study: **INDIAN OCEAN DRIVE PLANNING STUDY** (D23#431865) • Main Roads have finalised the Indian Ocean Drive Planning Study, developing a safe and consistent future road network that aligns with Safe System principles and manages current and future transport demands along the corridor. • As part of the study, an Access Strategy was developed to manage access to Indian Ocean Drive in a safe and coordinated manner, including identifying appropriate access arrangements and opportunities for shared access where possible. o *Access to a State road may be granted in accordance with a vehicle access strategy if the strategy has been agreed by Main Roads and the relevant Local Government.(Driveway Policy Section 3.1.1)* o *Where alternative access could be made available from side or rear streets or from rights of way, no access shall be permitted to the State road unless special circumstances apply, such as an agreed vehicle access strategy. (Driveway Policy Section 2.4)* • The proposed Access Strategy and key outcomes for the study (i.e duplication of IOD) were publicly advertised and consulted on with key stakeholders, including affected landowners and the Shire of Gingin, to inform the development of the final strategy.	connection serving the ultimate Lancelin South development, comprising approximately 7,000 residential lots together with schools, activity centres, community facilities and employment uses. The connection therefore performs a materially different function to an individual driveway providing direct property access to Indian Ocean Drive. • While Main Roads has referred to its Driveways policy, PJA notes that the policy is principally framed around the management of driveway/property access to State roads. The proposed Lancelin South connection is instead a strategic public-road connection forming part of the broader movement network for a substantial future urban area. Nevertheless, the policy itself provides the opportunity for access to a State road where this forms part of an agreed vehicle access strategy between Main Roads and the relevant Local Government, and therefore provides a mechanism through which an appropriate access outcome can be further investigated and agreed. The Main Roads' Driveways policy refers to the WAPC Development Control Policy 5.1 Regional Roads (Vehicular Access), which states: '*The types of development that would be allowed access to a regional road include large traffic generators such as major shopping, recreation or community centres*'. *'These would justify either a local distributor or access road, leading from a junction with the regional road to car parks servicing the centre.'*	

		• The proposed access at approximately SLK 66.7 was not included in the adopted Access Strategy, as direct access at that location was not considered appropriate having regard to the strategic function and safety objectives of Indian Ocean Drive. • A summary of Indian Ocean Drive has been provided in Appendix C to add further background to the IOD to compliment the information found on the Indian Ocean Drive Planning Study webpage including the Planning Study Fact Sheet dated April 2021. Please note that the Indian Ocean Drive Planning study is a planning study only, the upgrading/widening of Indian Ocean Drive and Lancelin Road Intersection is not in Main Roads current 4-year forward estimated construction program and all projects not listed are subject to change without notice. • Excerpts to note in the IOD Planning Study Access Strategy: *It is recommended that Main Roads continue to consult with landowners and the Shire of Gingin to identify future land development and access requirements along the corridor, and ensure these developments align with the ultimate concept design and access strategy for IOD.* (Page 62) o *Future extension of Old Ledge Point Road to connect Ledge Point Road to Lancelin Road would provide both communities with a second access option in the event of a bushfire emergency.* (Page 62) o *As discussed with individual landowners, should any future development be considered, they are encouraged to*	• This collaborative approach is also consistent with the Indian Ocean Drive Planning Study, which specifically considers future land development, access requirements and intersection treatments along the corridor. Main Roads' published material recognises the need to minimise connection points while still providing appropriate levels of network access. • A second connection to Indian Ocean Drive provides an important traffic distribution and network resilience function, allowing traffic generated by the substantial Lancelin South development to be distributed across the surrounding road network rather than concentrating traffic movements through Lancelin Road and the existing Indian Ocean Drive / Lancelin Road intersection. • Retaining the second road connection to Indian Ocean Drive also provides greater flexibility in the long-term operation and staging of the transport network. Removing the connection does not remove the traffic demand generated by Lancelin South. • The TIA has already deliberately developed the proposed intersection with safety in mind. This includes a reduced speed environment, removal of the demonstrated higher-risk southbound right-turn movement from Indian Ocean Drive into Lancelin South structure plan, appropriate channelisation and turning treatments, and provision for vehicles exiting the development towards the south to undertake the movement in stages and accelerate within an acceleration lane before merging with southbound	

			approach Main Roads to ensure their development plans are compatible with the ultimate road reserve requirements and proposed access strategy. (Page 80)	traffic. • The intersection location and ultimate design can be subject to further detailed assessment, including confirmation of appropriate intersection geometry, sight distance, speed management, auxiliary lane requirements and compatibility with the ultimate Indian Ocean Drive corridor design. On this basis, PJA considers that it would be premature to remove the proposed Indian Ocean Drive connection from the Structure Plan at this stage given there is a technical basis to support the inclusion of the proposed road connection. PJA and the development team are committed to working collaboratively with Main Roads, the Shire of Gingin and other relevant agencies to successfully resolve this matter in due course. It is expected that this will include further technical assessment and an in-person meeting with the relevant agencies to discuss the measures necessary to achieve a safe and mutually acceptable outcome.	

		Additional Comments Regarding Road Safety and Access • The addition of new access points to high-speed regional roads is generally discouraged, as research in Australia and internationally demonstrates that increasing the number of access connections leads to higher crash rates and increased crash frequency (Austroads Guide to Road Design Part 4). • A US study (US DoT, Technical Summary: Corridor Access Management 2016) indicates that each additional unsignalised access point per mile increases the overall crash rate by 3% and crash frequency by 5%.	As above	

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		• Consistent with Safe System principles, Austroads recommends limiting the number of access points on roads operating above 60 km/h to reduce conflict points and minimise the likelihood and severity of crashes (Austroads – Safe System in the Planning Process Section 2.4). • Austroads (Austroads GRD4) further recommends that access to high-speed roads be consolidated wherever possible, using existing side roads, service roads or shared access arrangements rather than creating new direct connections (Section 7.2.3). • Vehicles entering or leaving an access point disrupt through traffic and create additional conflict points, with these impacts becoming more critical as traffic speeds and volumes increase (Appendix E – Access Spacing).		
		Section 4.3 Movement Network, Lancelin Road Access (approx. 0.5 SLK) The access onto the Lancelin Road is located at the end of a merge lane required for the upgraded intersection between Lancelin Road and the Indian Ocean Drive. The functional area of the intersection needs to be considered when locating the access on Lancelin Road. With the addition of the traffic from the proposed IOD connection the structure plan indicates Lancelin Road could be carrying in the order of 15,000 vehicles per day (likely to be significantly higher during seasonal peaks). Future upgrades to Lancelin Road shall also need to be considered.	The alignment of the intersection closest to Lancelin Road can be reviewed to avoid conflict with the merge lane as needed. Assume that this will be considered in the schedule of modifications and can be investigated and resolved accordingly in subsequent stages of assessment.	
		Section 4.3 Movement Network, Intersection of Indian Ocean Drive and Lancelin Road (approx. 68.25 SLK)	Noted, we have not been provided with a copy of the preliminary design of the roundabout by MRWA, however this is generally consistent	

		Main Roads have indicated Indian Ocean Drive and Lancelin Road intersection may be upgraded in the future to a 2 lane roundabout. To date there has only been a preliminary concept with little detail to assist determine the scope of work required to progress through the design stages. No funding has yet been committed to progress with the design and is not in Main Roads current 4-year forward estimated construction program, all projects not listed are subject to change without notice.	with the envisaged approach developed under the TIA which modelled a dual lane roundabout.	
		Section 4.3 Connectivity Main Roads recommends further detail and investigation in the Structure Plan and broader area commenting on the options and potential staging to connect the existing developed areas with Lancelin South facilities including: • Access to/from Seaview Park Estate to address local vehicle trips, pedestrian and cyclist movements expected as a result of commercial and school developments in the structure plan area. • Extension of Old Ledge Point Road to Ledge Point Road (Ledge Point) to provide for anticipated inter-town movements. In addition to connecting Ledge Point residents/visitors with access to additional community facilities in Lancelin South this would provide an alternative access to Indian Ocean Drive for Lancelin South. • Access to Memorial alongside IOD will need to be from local road network ultimately, as soon as possible considering the staging of subdivision progress.	• Seaview – the proposed South Lancelin development does not preclude future pedestrian access from Seaview, but it is not the role of Lancelin South to facilitate this outcome for the established developments. Seaview park is not designed to a pedestrian / cyclist standard, there is poor connectivity east-west and currently and there are no footpaths within the estate. The Shire of Gingin and MRWA could investigate investment in this space in the future if pedestrian access from the estate into Lancelin South was a community priority of Seaview. • The connection of Lancelin South to Ledge Point has never been a consideration of previous planning exercises and Indian Ocean Drive is an adequate connector route for Future Residents. If the Shire of Gingin see this	

			to be a future priority, they could investigate upgrading the existing road reservation in the future. • The intent of the memorial note is unclear, however if this relates to providing any limitation to intersection access from Indian Ocean Drive, this is not supported.	
		Section 4.10 Bushfire Management Plan Main Roads does not support access to the Indian Ocean Drive for bushfire emergency purposes, in the first instance. Consistent with access management and road safety principles emergency access should be accommodated through the local road network wherever practicable. All alternative options must be thoroughly investigated and demonstrated to be unfeasible to Main Roads satisfaction before emergency access to IOD could be contemplated. Although the Structure Plan proposes a local road access, the establishment of an Emergency Access Way (EAW) to IOD has also been considered by Main Roads. Due to limitations on the allowable length and operation of EAWs per State Planning Policy 3.7 Bushfire, it is unlikely that an EAW would provide an acceptable solution for the initial stages of development, and an alternative access arrangement would still need to be identified and delivered. In addition, an EAW connecting to a high-speed regional road presents the same road safety risks as any other access point. While the need to use the EAW during a bushfire event may be infrequent, the presence of the access connection creates an ongoing safety risk through the introduction of an additional conflict point on the regional road network. By virtue of their emergency function, EAWs must remain available for public use during an emergency and therefore cannot be permanently	Section 4.10 of the BMP - at this stage, emergency egress for emergency purposes is not proposed. While the Guidelines indicate that there needs to be at least two egress options available, these will be via the planned/intended road network, rather than being an EAW as defined in the Guidelines. The intersection at Indian Ocean Drive is proposed as a standard intersection, not an emergency access. Note that most subdivisions I am involved with, very few have a designated emergency access that is for that purpose alone. It is presumed that any access to IOD or Lancelin Rd will be suited to the expected usage by the local residents. Based on the size of the subdivision, there are also likely to be places, like reserves and ovals, that would provide a safe, suitable place for residents to travel to. As no EAW is proposed, the issues will security and the prevention of unauthorised access will not be an issue.	

		secured in a manner that reliably prevents unauthorised access. Unauthorised vehicle access would create an ongoing road safety and compliance issue for Main Roads. Furthermore, EAWs can attract illegal dumping, trespassing		
		, vandalism and other antisocial activities, resulting in ongoing maintenance and land management issues that would typically fall to the relevant local government authority. Accordingly, Main Roads' preference remains that bushfire access and egress requirements be addressed through a suitably connected local road network rather than by creating any additional access to Indian Ocean Drive.		

		Section 3.2, 4.4, 4.11, 4.12 Landscape Protection Zone Abutting Indian Ocean Drive The structure plan proposes a reduction in width to the landscape protection zone (Section 3.2 and 4.4). Main Roads has no objection provided visual screening and there is sufficient detail and space for any noise reduction (section 4.11) methods supported by the Shire of Gingin. Main Roads would like to review further detail of the extent of fill and levels proposed to fill the hollows (section 4.4 and 4.12) in combination with proposed reduction in width to the landscape zone to determine if there are any impacts to the future widening of the Indian Ocean Drive, considering: • It is not known at this stage the design / final levels of the IOD between Lancelin Road and KW Road • Final design and construction of IOD between Lancelin Road and KW road may require further noise mitigation in the area considering a reduction in the landscape protection zone ie. Walls • Water Tank Site is proposed within the reduced landscape protection zone.	The structure plan does not propose a reduction to the landscape protection zone under LPS 9, it provides a landscaped response within the landscape protection zone consistent with the intent and land use permissibility that is facilitated through LPS 9. Support is noted. The proposed fill in the Landscape Protection zone doesn't preclude the future construction of IOD, with further detail on the exact location and extent of fill required to be confirmed as part of detailed engineering designs. All fill will be located within the private landholding. Any future noise impacts can be managed through applicable house design packages which will be confirmed as subdivision progresses for the site. Any future modification to the road network that may result in impacts to adjoining landowners following development will be the responsibility to MRWA.	

		Main Roads welcome further discussion with WAPC with regard to Main Roads position and advice provided above. Main Roads encourage applicants to meet with Main Roads to discuss access arrangements to the state primary road network prior to lodgment of planning proposals, especially where development plans involve land adjacent to or have the potential to impact on the State road network. Main Roads requests a copy of the Commission's final determination to be sent to mwgplanning@mainroads.wa.gov.au quoting the file reference above. **Attachments (Found at the end of this document)** *Attachment A: Planning Guidelines and Policy, and Indian Ocean Drive Planning* *Attachment B: Mechanisms to protect the road network from unapproved access* *Attachment C: 2026 Main Roads Response Email Following Recent Meeting (D26#758240)* *Attachment D: 2016 Main Roads Response to Structure Plan (D16#564340)* *Attachment E: Indian Ocean Drive Summary* *Attachment F: Aglime Routes Plan*	A meeting will be sought with MRWA, DPLH and Shire of Gingin, and we propose to resolve the IOD access matter concurrently with the WAPC assessment of the structure plan.	
5	**DBCA**	The Department of Biodiversity, Conservation and Attractions (DBCA) has reviewed the proposal pursuant to DBCA's responsibilities under the *Biodiversity Conservation Act 2016* (BC Act) and the *Conservation and Land Management Act 1984.* DBCA has previously provided advice to the Shire of Gingin regarding the Lancelin South Structure Plan, Lancelin South Outline Development Plan, and the Stage 2 Lancelin South Structure Plan. The advice provided below is consistent	Noted	

No.	Submitter	Submission Details	Applicant's Response	Officer Response
		with DBCA's previous comments. **Fauna** DBCA is aware that Carnaby's black cockatoos (*Zanda latirostris)* were recorded on site during a fauna survey by Ecoscape in 2008, and that the subject area contains foraging habitat for black cockatoos. Black cockatoos are listed as threatened species under the State BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is unclear whether recent comprehensive fauna surveys have been taken across the entire extent of the structure plan area with a lack of supporting information provided in the Environmental Assessment Report (Emerge 2026) (EAR). The EAR also does not quantity the amount of foraging habitat potentially present with insufficient assessable data from the surveys undertaken included to support the conclusions. DBCA advises that additional survey and supporting information should be provided for review to inform environmental referral requirements under the EPBC Act prior to further planning stages. One Priority 4 species, the graceful sun moth (*Synemon gratiosa)* and one Priority 3 species, the black-striped snake (*Neelaps calonotos)* have been recorded on the site, with other priority species potentially present on the site. The Structure Plan notes that these species could be impacted by future subdivision and development activities and proposes the relocation of fauna as required. Any fauna relocation proposal will need to comply with the requirements of the BC Act and as such the proponent should contact DBCA's Species and Communities Branch for more information.	The EAR provides a Basic Fauna Survey in accordance with EPA Technical Guidance Fauna Surveys for Environmental Impact Assessment (EPA, 2020), undertaken in 2026. It also should be noted that the Black Cockatoo habitat assessment by Bamford in 2011 was undertaken for the entire Lancelin South area of 1398ha. Black Cockatoo habitat, as noted in the EAR is a maximum of 322ha of 'poor' quality foraging habitat in accordance with the Bamford assessment. Additionally, there is 0.06ha of high-quality foraging habitat. The referral of a project under the EPBC Act is based on a specific 'Action'. At the broadscale Structure Planning stage, it is not possible to identify with sufficient certainty the areas of vegetation that may ultimately be retained within POS, opportunities for the provision of additional habitat within parks, or other mitigation measures that may be incorporated through subsequent planning and development stages. The requirement for an EPBC Act referral to relate to a specific Action avoids the need for broadscale, 'worst-case scenario' referrals where the extent of potential impacts and available mitigation measures cannot yet be accurately defined. Such an approach allows mitigation and avoidance measures to be appropriately considered and quantified as the project progresses through subsequent planning stages. Importantly, the EPBC Act referral process also allows discrete components or parts of a larger project to be referred where appropriate,	

			while considering the potential for cumulative impacts associated with the broader Action. The proponent is aware of responsibilities under the EPBC Act. Noted	

		Ecological Communities It is unclear whether adequate survey for threatened and priority ecological communities has been undertaken due to a lack of supporting information provided in the EAR. DBCA advises that the EAR does not discuss the potential for the State BC Act and Commonwealth EPBC Act listed 'Sedgelands in Holocene dune swales of the southern Swan Coastal Plain' ecological community to be present on site with known occurrences located nearby, south of Lancelin. The EAR (Emerge 2026) should be updated to address the potential for occurrence of the threatened ecological community within the Structure Plan area to inform mitigation and environmental referral requirements prior to further planning stages.	There were 70 sample sites for the vegetation survey and none recorded the TEC or recorded vegetation that could be considered to be representative of the TEC. Of the four sedge species typical to the TEC three were not present. *Ficinia nodosa* was recorded but not as a major component of any vegetation. A search of the DBCA Database undertaken in late 2025 did not show any occurrence of FCT 19 within 20km of Lancelin South. The TEC is wetland vegetation in Holocene dune swales. There was no wetland vegetation on the site. The soil mapping does not show any soil phases associated with the TEC such as: 211Qu_Qf3 Quindalup South Qf3 phase which are Relict foredunes forming a plain which is topographically lower than Qf2 with prominent ridges and swales. Swamps frequently occupy the swales. Deep calcareous sands with variable organic matter Or 211QuW_SWAMP Quindalup South wet, swamp phase The TEC does not occur on the site.	

		Conservation Zone DBCA advises that whilst the Structure Plan proposes the protection of environmental values within 'conservation zones', there is a lack of detail provided in the report and supporting documentation to inform how long-term protection will be secured. As previously advised by DBCA, unless these areas are created as Crown reserves to be managed by the Shire of Gingin there is no certainty of their long-term protection. A commitment to retain the conservation value of this area was a major consideration in the environmental assessment of the planning scheme amendment (Local Planning Scheme No.9 proposed Amendment No. 3). Greater surety is required to guarantee the long-term purpose and protection of these sites through reservation. Furthermore, in previous advice from DBCA regarding the planning scheme amendment (LND/634 November 2014) it was advised that any Environmental Management Plan (EMP) for areas set aside for conservation should be prepared and approved as part of the structure planning process, rather than as a condition of subdivision. The preparation of an EMP, to the satisfaction of the shire and on advice from DBCA, should occur prior to any subdivision approvals. An EMP should address issues such as the management, enhancement and protection of the conservation zones, significant fauna and fauna habitat, the interface between future subdivision areas and the conservation zone, protection of any regionally significant vegetation, and formalised public access, if appropriate, and how these issues are to be addressed i.e. fencing, signage, access, building envelopes. Additionally, a EMP should be prepared for the	The Structure Plan requires that the Conservation Zones will created as Crown reserves and will be managed by the Shire of Gingin. The proposed development of Lancelin South has required amendments to the Shire of Gingin Local Planning Scheme. Initially the north-western corner of the Structure Plan area was subject to the Shire of Gingin Town Planning Scheme (TPS) No. 8 Amendment 93. The amendment was approved subject to conditions under Ministerial Statement 853 in 2011. The north-south Conservation Area was included within the proposal, proposed to be zoned Conservation under the Shire of Gingin Local Planning scheme. The Ministerial Statement required the addition of provisions for the Conservation zone as follows:: i) *A minimum of 22.49 hectares (in accordance with Figure 1 of this Appendix) shall be set aside for vegetation conservation purposes and delineated in the Lancelin South Outline Development Plan as 'Conservation' zone;* *ii) At the time of subdivision, the subdivider shall prepare and implement an 'Environmental Management Plan' to address the use and management of the land set aside for conservation purposes;* *iii) The 'Environmental Management Plan' shall make provision for fencing, weed control, fire response and suppression, revegetation, and design and maintenance of pathways and public viewing areas (restricted access).* A second Scheme Amendment, Shire of Gingin Local Planning Scheme 9 Amendment 3 was approved by the EPA as 'Scheme Not Assessed' in December 2014 – presumably	

		interface between the structure plan area and the 'conservation zone' within the adjacent Lot 2 as identified in the Shire of Gingin Local Planning Scheme No.9.	taking into account the comments provided by DBCA from Nov 2014. The decision included the following statements: *The EPA is of the view that Amendment 3 can meet its environmental objectives subject to the key environmental values being retained within the 70 hectare (ha) Conservation Zone.* *In addition, to ensure clear and ongoing management responsibilities of the Conservation Zone, the EPA expects that the scheme text requiring the subdivider to prepare and implement an Environmental Management Plan should specify that it should be prepared and implemented to the requirements of the Shire of Gingin.* The decision refers to the subdivider. It is noted that the scheme text has been altered from the wording as required under the Ministerial Statement. Engineering and subdivision design will determine the risk factors and potential impacts to vegetation within the Conservation Zone. Accordingly, it is considered appropriate that the EMP be prepared at the subdivision stage in response to a condition of approval, when the design and associated risk factors are sufficiently defined. This timing is also consistent with the requirements of MS 853. It is therefore proposed that the EMP be prepared at subdivision stage.	

		Vegetation Retention DBCA advises that there is insufficient information provided in the Structure Plan to identify and quantify vegetation and fauna habitat retention within the proposed Linear public open space (POS) areas and the Landscape Enhancement Area. The EAR stated that the impact to the graceful sun moth (Priority 4) will be partly abated through the retention of habitat within the linear POS and Landscape Enhancement Area. The potential for retention of vegetation and fauna habitat should be investigated further at the structure planning stage to inform subdivision requirements and not be delayed to subdivision stages. The Structure Plan contains no specific information regarding the proposed widths of ecological corridors along the linear POS area. DBCA recommends that such details on placement and width of the corridors, as well as appropriate interface treatments between residential development and ecological corridors, should be addressed prior to the subdivision phase.	The width of POS corridors will be generally guided by the structure plan, topography and engineering design. The north-south corridor is identified as approximately 30m – 160m. There will be limited ability to retain vegetation as part of public open space due to challenging topographical conditions and need for earthworks to develop a functional urban area. Opportunities for vegetation retention will be established through the subdivision process and vegetation / landform will be maintained wherever possible. Vegetation retention will also be balanced in the consideration of the provision of amenity in POS. It is noted that areas of vegetation retention have been reserved through Conservation Zones.	
		The Bushfire Management Plan does not accommodate the retention of vegetation within the majority of the linear POS. DBCA advises that the retention of vegetation and fauna habitat is unlikely to meet the condition of a low threat vegetation level and should be updated accordingly to an appropriate BAL vegetation classification. An updated BMP should consider and incorporate the required retention of vegetation and ongoing protection requirements to inform updated bushfire attack levels.	The extent of retained vegetation in the POS corridor is subject to detailed design, and any bushfire threat from this vegetation can be adequately managed by road interface or managed public open space. BMP's at subdivision stage can adequately address this requirement once POS design has been established. The level/density/location of habitat/vegetation that meets the definition of classified vegetation as per AS 3959 can only be identified at that stage. This will also be informed by the earthworks.	

No.	Submitter	Submission Details	Applicant's Response	Officer Response
6	Ratepayer (Not Supported)	We are deeply concerned about the impact of the high-density housing as shown in the new amended structure plan for Lancelin South. This area, or anywhere nearby, has no infrastructure in place for employment for this sort of housing. Traffic congestion would increase along Indian Ocean Drive, this road is notorious for accidents already, and Lancelin Road. Our other concern is provisions of fresh water and safe and healthy disposal of effluent. This needs to be proven to be sustainable for the future number of residents that will eventually live in this area. When we moved into the area 4 years ago it was with the knowledge that the area was going to have decent size blocks and we felt at the time that this would a sustainable and inviting place to live but all this has now changed with the new developer looking at how rich they can get with no concern about residents. In conclusion, we strongly urge you to reconsider this amended structure plan. Whilst we recognise the need for more housing, we believe that high density housing is simply not the right fit for our neighbourhood. Thank you for your attention to this matter	The amended Structure Plan has been prepared with these matters in mind as noted below. The amended Structure Plan provides for a R25-R60 density range which will provide for a range of different lot types, with smaller "higher density" to be provided where in close proximity amenity. This approach will concentrated density where this is desirable to meet market demands, however most development will be for larger lots of 350sqm – 700sqm, consistent with what has already been delivered at Lancelin South. The traffic impacts associated the site have been modelled as part of the Traffic Impact Assessment (prepared by PJA) lodged with the amendment, demonstrating that all roads, including Indian Ocean Drive and Lancelin Road are able to operate sufficiently when considering the ultimate forecast volumes up to the year 2051. Road intersection treatments onto Lancelin Road and Indian Ocean Drive will be designed to optimize safety and improve traffic flow to these key roads. On employment, the Structure Plan provides one industrial area which has partial subdivision approval, includes two neighbourhood centres and three local centres which are expected to provide a range of retail and commercial offerings. These are employment-generating land uses that do not presently exist in the locality, which will assist to provide employment opportunities to ensure a self-sufficient community at South Lancelin. The proposed floorspace is commensurate with the expected population for the site and	

			will provide adequate job opportunities for future residents. Water and wastewater services will continue to be managed by the Lancelin South Water Pty Ltd, a licensed water utility. Additional modular storage tanks and a new production bore will also provide further capacity and offset increases to demand as development progresses.	

Attachment A Planning Guidelines and Policy, and Indian Ocean Drive Planning

SPP1: State Planning Framework Policy

- *Principle: Ensure infrastructure supports development*. Ii) protecting key infrastructure, including ports, airports, roads, railways and service corridors, from inappropriate land use and development;

DCP 5.1: Regional Roads (Vehicular Access)

General presumption on traffic and safety grounds against the creation of new driveways or increased use of existing accesses to regional roads. Where alternative access is or could be made available from side or rear streets or from rights of way, no access shall be permitted to a regional road unless special circumstances apply. *Quotes from the Policy:*

- 3.1.4 In summary, the capacity of regional roads to carry traffic, the safety of that traffic, and the free flow of traffic are all related to access - the fewer the number of driveways and junctions, the smoother the traffic flow and safer the road.
- 3.3.1 In considering applications for access on regional roads, the effects of the proposals on traffic flow and road safety will be the primary consideration. The more important the regional road, the greater the importance attached to these factors. In general, the WAPC will seek to minimise the creation of new driveways on regional roads and rationalise existing access arrangements.

The Indian Ocean Drive Planning Guideline (2014)

- broadly summarizes this: *'Main Roads resists new accesses or intersections to the IOD, in particular, no direct residential lot access is permitted'.*

Indian Ocean Drive Planning Study and Access Strategy:

- The Fact Sheet (April 2021) on this work provides the following information: 'Direct lot accesses and local road connections introduce potential conflict points for traffic on the road network. To optimise safety and efficiency on the network, we need to minimise the number of connection points, while allowing for appropriate levels of lot and network access.' Please refer to the link below for the Indian Ocean Drive Planning Study and associated information on this page. Indian Ocean Drive Planning Study | Main Roads Western Australia

Attachment B Mechanisms to protect the road network from unapproved access

Main Roads uses the following mechanisms to inform planning/development proposals and lot owners where access to the State Road Network shall not be permitted by either new crossovers, driveways or roads. Both essentially serve the same purpose but the triggers for application and the mechanism under which they are employed are different.

Restrictive Covenants on State or Local Government Roads

- 'Restrictive Covenants' can be imposed under the Planning and Development Act 2005 (eg. Section 150) or the Transfer of Land Act (129BA). Where Section 150 applies where the parcel directly abuts a created road reserve and 129BA can be applied more broadly (including where there is a future road or a parcel between the subject lot and road).
- Applied as a condition of approval in the case of development applications/subdivisions and requiring exact definition of the affected portion of the boundary via a plan for lodgement on the Title (at landowners expense).

Control of Access (CoA) on State Roads or Highways

- Roads where access is controlled by Main Roads Western Australia under section 28A of the *Main Roads Act 1930* and *Local Government Act 1995 and regulated by the Local Government (Administration) Regulations 1996.*
- Created through a Gazettal process under proclamation by the Governor.

Approval for access to the road network

- This is a separate and distinct process from the planning process.
- The Local Government is required to consult with the Main Rods (Commissioner) in approving a crossover (driveway or road) and obtain approval in writing before approving. Reg 12 and Reg 14 of Local Government (Uniform Local Provisions) Regulations 1996
- If an access is approved through a planning approval, against Main Roads objections, the applicant is still required to seek approval for access, thereby rendering an invalid conditional approval (lacking finality).

Taking the above into account, please find a summary of where the mechanisms have been applied to inform the requirement for no access to the IOD in this area:

- Proposed Control of Access: North of the Lancelin Road intersection applied as part of project to extend IOD to Cervantes. (D17#936658)
- Proposed Contol of Access: IOD dual carriageway when constructed.
- Existing Restrictive Covenants: Lot boundary changes to subdivision immediately south of South Lancelin area as part of application proposal WAPC 162881
- Required Covenant: South Lancelin. During Recent Subdivision Stages, Stage 2 and onwards, Main Roads has consistently required a condition on subdivision to include a covenant on the title advising on the prevention of access.
- Scheme/Structure Plan: Advised previous Lancelin South structure plans no access supported.
- Existing Spite Strip: Sea View Park on the opposite side of the IOD from South Lancelin Structure Plan applied a different method. Prior to placing a covenant on title, the method used at subdivision/development stage was to create a narrow spite strip running parallel to the road reserve boundary to prevent access.

OFFICIAL

Attachment C 2026 Main Roads Response Email Following Meeting (D26#758240)

[redacted]

OFFICIAL

Hi Richard

Thanks for the discussion yesterday, please see attached transcript as requested.

As discussed in our meeting, Main Roads WA (Main Roads, MRWA) does not support the currently proposed structure plan amendment detailing the construction of a direct access from the Lancelin South Structure Plan area onto Indian Ocean Drive (IOD).

Main Roads WA has commenced the Indian Ocean Drive Planning Study (link) which aims to provide a safer and more efficient network whilst identifying long-term requirements for the route between Military Rd and Seaview Drive. The Planning Study Factsheet released in April 2021 states: "Direct lot accesses and local road connections introduce potential conflict points for traffic on the road network. To optimise safety and efficiency on the network, we need to minimise the number of connection points, while allowing for appropriate levels of lot and network access."

Furthermore, future plans for the IOD include dual carriageway between Breakwater Drive, Yanchep and Seaview Drive, Lancelin with a 14-metre wide, vegetated median or a narrow median with concrete barrier separation where there are constraints which would be inconsistent with supporting the proposed access.

The revised Structure Plan that PJA is referencing (endorsed 11 Jun 2013) is not consistent with the information provided in the Structure Plan & Outline Development Plan document and more recently endorsed Structure Plans (11 Jan 2018). The 2018 Structure Plan does not include any proposed access from the development area directly onto Indian Ocean Drive nor does the Master Plan provided on the Lancelin South website (link). The Concept Master Plan provided by PJA is also inconsistent with the approved and endorsed Structure Plans and none of the Structure Plans have the required traffic modelling or Traffic Impact Assessment (TIA) reports needed to make any assessment regarding the suitability of any proposed access onto Lancelin Road or Indian Ocean Drive.

The intention to encourage traffic to access the coast via the proposed internal road with direct access onto Indian Ocean Drive is also unsupported. This is likely to have an adverse transport impact on the surrounding area through the generation of recreational traffic on low-volume residential roads past sensitive uses such as schools and encourage rat-running through a residential area. The additional access point is also inconsistent with the Indian Ocean Drive Planning Guideline (link) published in 2014 which states "In general, Main Roads resists new accesses or intersections to IOD. In particular, no direct residential lot access is permitted." Section 5 of the Planning Guideline provides guidance of how developments can safeguard the road's key function as a 'scenic, coastal tourist route'.

The introduction of an additional intersection will only increase the potential for conflict on Indian Ocean Drive and increases road user exposure risk. Additionally, crash history for the 5 years between 2020 and 2024 show there were 4 reported crashes including 3 Fatal or Seriously Injured crashes involving right turns either into or out of Lancelin Road.

The staging plan and timeframes for the approved section of the sub-division development area is uncertain and there is additional uncertainty regarding the timeframes for future stages of the development area.

Main Roads WA is confident the above details clearly state the reasons we are not able to consider any access onto Indian Ocean Drive. This information will also help clarify the required future planning tasks for the Lancelin South Structure Plan area. This response is consistent with the responses provided by MRWA to the WAPC for previous structure plan reviews and sub-division referrals including WAPC applications 163013, 162881, 164479, 201298 and 202157.

Please feel free to contact me should you require any clarification regarding the above.

Regards,

Anthony Williams
Asset Manager
Mid West - Gascoyne Region
Regional Operations
Tel: +61 8 9956 1261



Main Roads acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures; and to Elders both past and present.

Appendix D MRWA Response to Lancelin South Structure Plan Stage 2, 2016

Enquiries: Isabel Huston on 08 9956 1238
Our Ref: 15/7984, D16#499555
Your Ref: LND/137

6 September 2016

Kylie Bacon
Manager Statutory Planning
Shire of Gingin
7 Brockman Street
Gingin WA 6503

By email: msp@gingin.wa.gov.au

Dear Ms Bacon

Proposed Stage 2 Lancelin South Structure Plan

Thank you for consulting Main Roads on the proposed Stage 2 Lancelin South Structure Plan in regard to Lot 9001 Lancelin Road, Lancelin.

Section 5.1.2.1 of the structure plan recognises the subdivision and development requirements for the 'Landscape Protection' zone abutting Indian Ocean Drive. Main Roads has no objection to the proposed structure plan subject to the Shire of Gingin imposing our recommendation that section 5.1.2.1 is reworded or similarly to include the requirement that:

- No direct vehicle access shall be permitted to or from Indian Ocean Drive within the 'Landscape Protection' zone as per section 3.3 Development Control Policy 5.1 – Regional Roads (Vehicular Access). All vehicle access is to be taken from local roads and internal subdivision roads; and
- Uniform fencing shall be required on the boundary between Indian Ocean Drive road reserve and the adjacent lots created at subdivision.

Please forward a copy of Council's final determination on this proposed development, quoting file reference: 15/7984 (D16#499555). If you would like any further information please contact Isabel Huston on 9956 1238.

Yours sincerely

Bernie Miller
Regional Manager
Mid West-Gascoyne Region

Main Roads Western Australia
Mid-West Gascoyne
Geraldton Office, Eastward Road, PO Box 165, Geraldton WA 6531
Carnarvon Office,470 Robinson Street, PO Box 480, Carnarvon WA 6701

mainroads.wa.gov.au
enquiries@mainroads.wa.gov.au
138 138

Appendix E Indian Ocean Drive and Lancelin South

Indian Ocean Drive is a scenic coastal drive opened in 2010. The highway was built in a bid to divert traffic and tourists off the Brand Highway, a busy freight route, and provide easy access to popular tourist destinations such as the Pinnacles Desert, Nambung National Park, Lake Thetis, Lesueur National Park, Stockyard Gully National Park and the small coastal towns of Lancelin, Cervantes, Jurien Bay, Green Head and Leeman.

Due to its proximity to the ocean, panoramic views and the many opportunities to take a break in beachside communities, the route has grown in popularity with tourists and local travellers alike. In 2019 Tourism WA launched a global campaign promoting Western Australia as the 'home of the road trip' and Indian Ocean Drive is one of the routes notably featured in this campaign.

Indian Ocean Drive and Brand Highway are north/south roads, connecting Perth with the northern regions of the State, and part of Western Australia's State Road Network operated and maintained by Main Roads Western Australia. The Indian Ocean Drive has RAV 4 rated sections and is promoted as a tourist route. The section of the IOD from Shire of Gingin Boundary to Cervantes is predominantly not part of the RAV (Restricted Access Vehicles) or Tandem Drive Network and therefore prevents the IOD being used as a through route for the larger vehicle classes. Brand Highway, which runs parallel further inland, is the main restricted access vehicle (RAV) route.

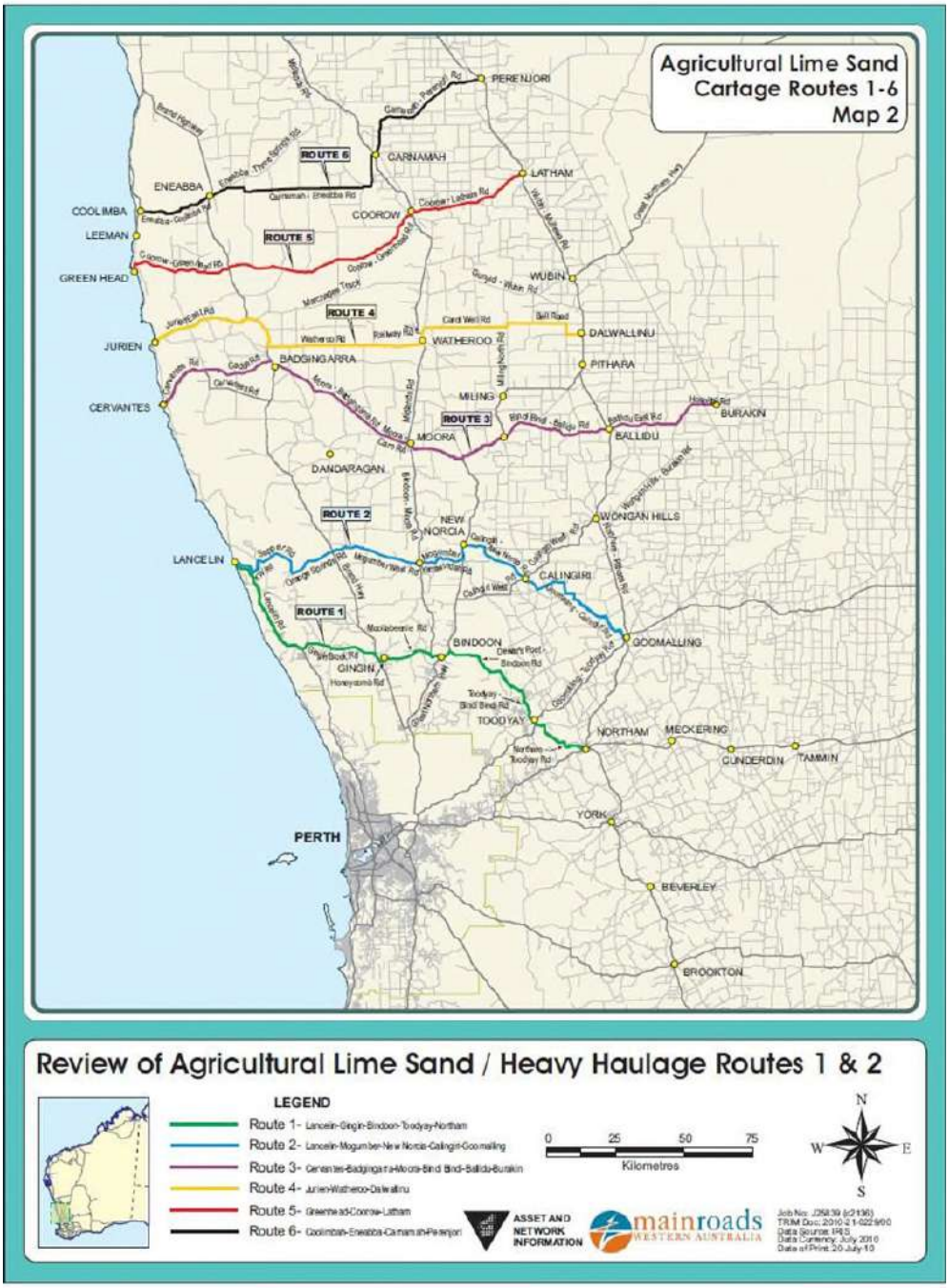
Also needing consideration and of economic significance in this area are the major Agricultural Lime Sand Cartage RAV 4 routes that run east/west linking coastal areas (the source of lime) with inland agricultural areas. These routes are key to maintaining the productive capacity of the crops in the grain belt of Western Australia by facilitating the safe and efficient cartage of agricultural lime sand.(see Appendix E)

As a result of the above there are peak periods during school holidays that coincide with lime sand cartage on Indian Ocean Drive. These periods can result in significantly increased traffic and turning movement at intersections.

The Indian Ocean Drive Planning Study | Main Roads Western Australia complements the recently completed safety upgrades and will assess future demand for the road, including potential land development, access requirements and traffic volumes. These can be found under the 'History' heading on this site.

mainroads WESTERN AUSTRALIA

Appendix F Agricultural Lime Sand Cartage Route 1 - 6



Department of Biodiversity, Conservation and Attractions

PARKS AND WILDLIFE SERVICE

We're working for Western Australia.

Your ref:	LND/0137
Our ref:	PRS 39862
Enquiries:	Alex Hutchinson
Phone:	9219 9525
Email:	alex.hutchinson@dbca.wa.gov.au

Development Services
Shire of Gingin
PO BOX 510
GINGIIN WA 6503

Attention: Casimir Penheiro

PROPOSED AMENDMENT LANCELIN-SOUTH STRUCTURE PLAN 2026

I refer to your correspondence of 4 June 2026 requesting comments on the proposed amendment to the Lancelin-South Structure Plan. The Department of Biodiversity, Conservation and Attractions (DBCA) has reviewed the proposal pursuant to DBCA's responsibilities under the *Biodiversity Conservation Act 2016* (BC Act) and the *Conservation and Land Management Act 1984.* DBCA has previously provided advice to the Shire of Gingin regarding the Lancelin South Structure Plan, Lancelin South Outline Development Plan, and the Stage 2 Lancelin South Structure Plan. The advice provided below is consistent with DBCA's previous comments.

Fauna

DBCA is aware that Carnaby's black cockatoos (*Zanda latirostris*) were recorded on site during a fauna survey by Ecoscape in 2008, and that the subject area contains foraging habitat for black cockatoos. Black cockatoos are listed as threatened species under the State BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is unclear whether recent comprehensive fauna surveys have been taken across the entire extent of the structure plan area with a lack of supporting information provided in the Environmental Assessment Report (Emerge 2026) (EAR). The EAR also does not quantity the amount of foraging habitat potentially present with insufficient assessable data from the surveys undertaken included to support the conclusions. DBCA advises that additional survey and supporting information should be provided for review to inform environmental referral requirements under the EPBC Act prior to further planning stages.

One Priority 4 species, the graceful sunmoth (*Synemon gratiosa*) and one Priority 3 species, the black-striped snake (*Neelaps calonotos*) have been recorded on the site, with other priority species potentially present on the site. The Structure Plan notes that these species could be impacted by future subdivision and development activities and proposes the relocation of fauna as required. Any fauna relocation proposal will need to comply with the requirements of the BC Act and as such the proponent should contact DBCA's Species and Communities Branch for more information.

Ecological Communities

It is unclear whether adequate survey for threatened and priority ecological communities has been undertaken due to a lack of supporting information provided in the EAR. DBCA advises that the EAR does not discuss the potential for the State BC Act and Commonwealth EPBC Act listed 'Sedgelands in Holocene dune swales of the southern Swan Coastal Plain'

Swan Region
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Corner Australia II and Hackett Drive, Crawley WA 6009
dbca.wa.gov.au

ecological community to be present on site with known occurrences located nearby, south of Lancelin. The EAR (Emerge 2026) should be updated to address the potential for occurrence of the threatened ecological community within the Structure Plan area to inform mitigation and environmental referral requirements prior to further planning stages.

Conservation Zone

DBCA advises that whilst the Structure Plan proposes the protection of environmental values within 'conservation zones', there is a lack of detail provided in the report and supporting documentation to inform how long-term protection will be secured. As previously advised by DBCA, unless these areas are created as Crown reserves to be managed by the Shire of Gingin there is no certainty of their long-term protection. A commitment to retain the conservation value of this area was a major consideration in the environmental assessment of the planning scheme amendment (Local Planning Scheme No.9 proposed Amendment No. 3). Greater surety is required to guarantee the long-term purpose and protection of these sites through reservation.

Furthermore, in previous advice from DBCA regarding the planning scheme amendment (LND/634 November 2014) it was advised that any Environmental Management Plan (EMP) for areas set aside for conservation should be prepared and approved as part of the structure planning process, rather than as a condition of subdivision. The preparation of an EMP, to the satisfaction of the shire and on advice from DBCA, should occur prior to any subdivision approvals. An EMP should address issues such as the management, enhancement and protection of the conservation zones, significant fauna and fauna habitat, the interface between future subdivision areas and the conservation zone, protection of any regionally significant vegetation, and formalised public access, if appropriate, and how these issues are to be addressed i.e. fencing, signage, access, building envelopes.

Additionally, a EMP should be prepared for the interface between the structure plan area and the 'conservation zone' within the adjacent Lot 2 as identified in the Shire of Gingin Local Planning Scheme No.9.

Vegetation Retention

DBCA advises that there is insufficient information provided in the Structure Plan to identify and quantify vegetation and fauna habitat retention within the proposed Linear public open space (POS) areas and the Landscape Enhancement Area. The EAR stated that the impact to the graceful sunmoth (Priority 4) will be partly abated through the retention of habitat within the linear POS and Landscape Enhancement Area. The potential for retention of vegetation and fauna habitat should be investigated further at the structure planning stage to inform subdivision requirements and not be delayed to subdivision stages.

The Structure Plan contains no specific information regarding the proposed widths of ecological corridors along the linear POS area. DBCA recommends that such details on placement and width of the corridors, as well as appropriate interface treatments between residential development and ecological corridors, should be addressed prior to the subdivision phase.

The Bushfire Management Plan does not accommodate the retention of vegetation within the majority of the linear POS. DBCA advises that the retention of vegetation and fauna habitat is unlikely to meet the condition of a low threat vegetation level and should be updated accordingly to an appropriate BAL vegetation classification. An updated BMP should consider and incorporate the required retention of vegetation and ongoing protection requirements to inform updated bushfire attack levels.

OFFICIAL

Thank you for the opportunity to comment on this proposed structure plan. Please contact Alex Hutchinson at Parks and Wildlife's Swan Coastal District office on 9303 7700 or by email at alex.hutchinson@dbca.wa.gov.au if you have any queries regarding this advice.

Yours faithfully,



Kim Onton
A/REGIONAL MANAGER

02 July 2026

13.3 SCHEME AMENDMENT NO. 30 - LOT 12 (NO. 276) AURISCH ROAD, BOONANARRING - INITIATION FOR ADVERTISING

This matter was brought forward for discussion as the third item of business (see pg. 10).

File	LND/8
Applicant	Altus Planning
Location	Lot 12 (No. 276) Aurisch Road, Boonanarring
Owner	Remondis Australia Pty Ltd
Zoning	General Rural
WAPC No	Nil
Author	Stephy Ma - Planning Officer
Reporting Officer	Mark Close - Temporary Executive Manager Regulatory and Development Services
Refer	6 February 2009 – Item 11.3.2 23 July 2010 – Item 11.3.6 15 July 2014 – Item 11.1.6 19 June 2018 – Item 11.3.6 15 December 2020 – Item 11.3.1
Appendices	1. Scheme Amendment Report [**13.3.1** - 117 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

For Council to consider:

1. Adopting Scheme Amendment No. 30 to Local Planning Scheme No. 9 (LPS9) to insert Additional Use No. 29 for 'Resource Recovery Centre' to Lot 12 (No. 276) Aurisch Road, Boonanarring (subject lot);

2. Adopting the amendment as a 'standard amendment' for referral to the Western Australia Planning Commission (WAPC) to consider advertising under the *Planning and Development Act 2005* (the Act);

3. referring the amendment to the Environmental Protection Authority (EPA) for environmental review; and

4. Authorising advertising of the amendment after referral to the Minister for Planning.

BACKGROUND

Site Context/ Background

The subject lot (259.13 ha) is on the east of Brand Highway, located approximately 15 km north-west of the Gingin townsite adjoining the Boonanarring Nature Reserve on the east.

On 6 February 2009, Council issued development approval for a 'Noxious Industry Offensive Trade' – (Composting Facility) use. The focus of that activity is on the southern portion of the lot, while the western portion is mainly undeveloped containing native vegetation.

The use was amended several times at Council meetings on 23 July 2010 (increasing capacity to 50,000 tonnes per annum), 15 July 2014 (relocation of facilities), 19 June 2018 (additional hardstand area and a leachate dam), 15 December 2020 (additional hardstand area and a leachate dam) and 17 May 2022 (increasing capacity to 124,000 tonnes per annum and introducing 'Food Organics and Garden Organics' – FOGO).

Further approvals were issued under delegation on 24 January 2025 (renewal of the 2022 approval) and 11 May 2026 (upgrades for a new site office, two crib rooms, four ablution stalls, and two light vehicle parking areas additions).

A location plan and aerial image are provided as part of the Scheme Amendment Report (**see appendices**).

Proposal

Amendment No. 30 proposes to insert into 'Schedule 2 – Additional uses' a 'Resource Recovery Centre' use for the subject lot. The amendment proposes to change the Scheme Text and Map. The proposed amendment is to:

- support future expansion of the existing composting facility for acceptance of inorganic materials; and
- address a misalignment in timing of amendments to LPS9 via Omnibus, to the Model Scheme Text, elaborated on further below in this report, that would otherwise resolve the land use proposed under this amendment.

Schedule 2 – 'Additional uses', is proposed to state:

No.	Description of land	Additional Use	Conditions
29	Lot 12 (No. 276) Aurisch Road, Boonanarring	Resource Recovery Centre – premises other than a waste disposal facility used for the recovery of	1. Development is not permitted unless the local government has exercised its discretion by granting.

No.	Description of land	Additional Use	Conditions
		resources from waste.	2. The Resource Recovery Facility shall remain ancillary and secondary to the primary agricultural use of the land and shall occupy no more than 40 hectares of the lot, including all processing areas, storage and stockpiling areas, parking, access, roads and associated infrastructure. 3. The Resource Recovery Facility shall not accept any of the following: • Bulk plastic. • Construction and demolition waste. • Inorganic waste. • Hazardous waste. • Clinical and medical waste. • Asbestos. • Tyres. 4. Alterations to the approved production tonnage require an amendment to the existing Development Approval on the nature and extent of the proposed changes.

PLANNING FRAMEWORK

Local Planning Scheme No. 9 (LPS9)

The relevant aims within LPS9 are outlined below:

n) Facilitate increased demand and diversification of local service industries.

The subject lot is zoned as 'General Rural', the objective of such zone is to:

a) *manage land use changes so that the specific local rural character of the zone is maintained or enhanced;*

b) *encourage and protect broad acre agricultural activities such as grazing and more intensive agricultural activities such as horticulture as primary uses, with other rural pursuits and rural industries as secondary uses in circumstances where they demonstrate compatibility with the primary use;*

c) *maintain and enhance the environmental qualities of the landscape, vegetation, soils and water bodies, to protect sensitive areas especially the natural valley and watercourse systems from damage; and*

d) *provide the operation and development of existing, future and potential rural land uses by limiting the introduction of sensitive land uses in the General Rural zone.*

The existing 'Noxious Industry' use was first approved in 2009, under Local Planning Scheme No. 8 (now revoked). With the adoption of LPS9 the operation became a 'Non-conforming' use, including subsequent extensions to that use, up until 2025.

The proposed amendment supports the existing zone objective (d). In terms of land use sensitivity to the zone objectives, a), b) and c) above, these matters have previously been considered in LPS9 development approvals and extensions.

For 'future' use consideration, statutory context is important:

- The statutory environment is transitioning; LPS9 is in the process of being updated in accordance with the Regulations and WAPC's Model Scheme Text via separate Omnibus Amendment;

- The timing of the latter Omnibus Amendment is uncertain, however it includes the proposed additional use(s) class as 'A' (permitted), subject to advertising, in the Rural zone. Effectively, this Omnibus Amendment unwinds the prohibition in the land use(s) transition from TPS 8 to TPS 9;

- Updates to LPS9 via Omnibus Amendment also include commensurate replacement land use objectives for the Rural zone to that listed above;

- The land uses are more favourably considered in the emerging statutory context as addressed in this amendment. In the short term the proposed amendment resolves this lag; and

- The impact of land uses and zone objective compliance will be considered in future development applications against the prevailing framework at that time.

As there is no guarantee on timing of the Omnibus Amendment, the amendments proposed here are a logical step to accommodate the facility's expansion.

Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations)

The proposed amendment is for an additional use of 'Resource Recovery Centre'. Although not currently not listed on the zoning table or defined under LPS9, it is specifically defined in the Regulations as:

***"resource recovery centre** means premises other than a waste disposal facility used for the recovery of resources from waste;"*

and 'waste disposal facility' mentioned above is a use defined under the Regulations as:

***"waste disposal facility** means premises used —*
a) for the disposal of waste by landfill; or
b) the incineration of hazardous, clinical or biomedical waste;"

Standard Amendment

Division 1 Clause 35(2) of the Regulation permits local governments to determine the category for processing an amendment. This is permitted subject to review by the Western Australian Planning Commission (WAPC) and the Minister for Planning.

The amendment is considered as a 'standard amendment', for the following reasons:

a. the proposed amendment would have minimal impact on the subject lot; and

b. the proposed amendment would not result in any significant environmental, social, economic or governance impacts on the subject lot.

Advertising of Amendment

Division 3 of the Regulations states that a standard amendment to a local planning scheme is required to be advertised. The amendment must be referred to the Minister for Planning and advertised to the public for 42 days or a longer period approved by the WAPC.

Summary

The applicant provides sufficient justification for the proposed amendment for the subject lot. This includes a supporting concept:

- for the future expansion of the existing composting facility;
- acceptance of inorganic materials;

- no waste disposal by landfill; and
- no incineration of hazardous, clinical or biomedical waste.

Should Council support the proposal, upon completion of the scheme amendment the landowner/developer would be required to lodge an application for development approval. Any approval, if granted, will include detailed conditions addressing operational matters aligned to the strategic and statutory framework.

RISK IMPLICATIONS

There is a potential environmental risk associated with the proposed Scheme Amendment, given that the subject site adjoins the Boonanarring Nature Reserve to the east.

Should future operations or activities on the site not be appropriately managed, there is potential for environmental degradation impacting the reserve and surrounding land. It is considered that this risk can be adequately mitigated through the imposition of detailed environmental management requirements and site-specific conditions at the development approval stage. The matter will also be considered by the EPA in the amendment process.

Of importance here to ongoing management and compliance is the alignment of waste management and the environmental quality of the adjacent reserves, which are currently managed under the same State government portfolio and Minister.

STATUTORY/LOCAL LAW IMPLICATIONS

Planning and Development Act 2005
Planning and Development (Local Planning Schemes) Regulations 2015
Local Planning Scheme No. 9

POLICY IMPLICATIONS

State Planning Policy 2.5 – Rural Planning
State Planning Policy 3.7 – Bushfire
Shire of Gingin Local Planning Strategy 2012

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2026-2036

Aspiration	2. Creating Sustainable Economic Growth Opportunities
Strategic Objective	2.1 Strengthening Service and Utilities

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Kestel SECONDED: Councillor Hyne

That Council:

1. Proceed to seek approval to advertise proposed Amendment No. 30, in accordance with the applicant's submission seeking to insert into 'Schedule 2 – Additional uses' a 'Resource Recovery Centre' use and to amend the Scheme Map accordingly for Lot 12 (No. 276) Aurisch Road, Boonanarring, under section 83A of the *Planning and Development Act 2005;*

2. Adopt Amendment No. 30 as a 'standard amendment' for referral to the Western Australia Planning Commission (WAPC) to consider advertising under the *Planning and Development Act 2005;*

3. Adopt Amendment No. 30 for referral to the Environmental Protection Authority (EPA) for environmental review under the *Environmental Protection Act 1986*, in accordance with Clause 81 and 82 of the *Planning and Development Act 2005;* and

4. Subject to the receipt of approval for advertising from WAPC, authorise advertising of Amendment No. 30 in accordance with Part 5, Division 3, Regulation 47 of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

ALTUS PLANNING



Proposed Scheme Amendment – Additional Use (Resource Recovery Centre)

Lot 12 (No. 276) Aurisch Road, Boonanarring

June 2026

TOWN PLANNING | MEDIATION | ADVOCACY

ii

FORM 2A

PLANNING AND DEVELOPMENT ACT 2005

**RESOLUTION TO ADOPT AMENDMENT
TO LOCAL PLANNING SCHEME**

Shire of Gingin
Local Planning Scheme No. 9
Amendment 30

Resolved that the Local Government pursuant to section 75 of the *Planning and Development Act* 2005, amend the above Local Planning Scheme by:

1. Inserting the following into Schedule 2 – Additional Uses:

No.	Description of land	Additional use	Conditions
30	Lot 12 (No. 276) Aurisch Road, Boonanarring	Resource Recovery Centre – premises other than a waste disposal facility used for the recovery of resources from waste	1. Development is not permitted unless the local government has exercised its discretion by granting development approval. 2. The Resource Recovery Facility shall remain ancillary and secondary to the primary agricultural use of the land and shall occupy no more than 40 hectares of the lot, including all processing areas, storage and stockpiling areas, parking, access roads and associated infrastructure. 3. The Resource Recovery Facility shall not accept any of the following: • Bulk plastic • Construction and demolition waste • Inorganic solid waste • Hazardous waste • Clinical and medical waste • Asbestos • Tyres

2. Amending the Scheme Map accordingly.

The Amendment is standard under the provisions of the Planning and Development (Local Planning Schemes) Regulations 2015 for the following reason(s):

a) an amendment that would have minimal impact on land in the scheme area that is not the subject of the amendment; and

b) an amendment that does not result in any significant environmental, social, economic or governance impacts on land in the scheme area.

Dated this ____ day of _____ 20___

_____
Chief Executive Officer

FORM 2A

PLANNING AND DEVELOPMENT ACT 2005

**RESOLUTION TO ADOPT AMENDMENT
TO LOCAL PLANNING SCHEME**

Shire of Gingin
Local Planning Scheme No. 9
Amendment 30

Resolved that the Local Government pursuant to section 75 of the *Planning and Development Act* 2005, amend the above Local Planning Scheme by:

1. Inserting the following into Schedule 2 – Additional Uses:

No.	Description of land	Additional use	Conditions
30	Lot 12 (No. 276) Aurisch Road, Boonanarring	Resource Recovery Centre – premises other than a waste disposal facility used for the recovery of resources from waste	1. All developments on the site shall be subject to application to the local authority for approval to commence development.

2. Amending the Scheme Map accordingly.

The Amendment is standard under the provisions of the Planning and Development (Local Planning Schemes) Regulations 2015 for the following reason(s):

a) an amendment that would have minimal impact on land in the scheme area that is not the subject of the amendment; and

b) an amendment that does not result in any significant environmental, social, economic or governance impacts on land in the scheme area.

Dated this ____ day of _____ 20___

_____
Chief Executive Officer

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1.0 Executive Summary

This Scheme Amendment request seeks to introduce 'Resource Recovery Centre' as an 'Additional Use' for Lot 12 (No. 276) Aurisch Road, Boonanarring and follows various Shire approvals for an existing composting facility on site.

The Shire of Gingin's Local Planning Scheme No. 9 contains land use definitions which do not align with Schedule 1 – Model Provisions for Local Planning Schemes as set out in the *Planning and Development (Local Planning Schemes) Regulations 2015* and as a consequence, the receipt of any inorganic materials on site would attract a land use classification of 'Landfill Site' which is not permitted. This is despite the very purpose of the existing operations being to reuse materials/waste products and divert them from landfill.

The proposed amendment has been considered against the applicable planning framework and is considered to align with the objectives of the 'General Rural' Zone, does not contravene the Shire's Local Planning Strategy in relation to rural land, is consistent with the aspirations of the Shire's Strategic Community Plan 2022-2032, as well as the State Government's *Waste Avoidance and Resource Recovery Strategy 2030*, and is also consistent with State Planning Policy 2.5 – Rural Planning.

Part of the land is designated as a 'bushfire prone area' however an existing Bushfire Management Plan is in place which demonstrates compliance with the requirements of State Planning Policy 3.7 – Planning in Bushfire Prone Areas and the associated Guidelines.

Accordingly, this report establishes that the proposed amendment warrants Council's support to proceed.

2.0 Background

2.1 Purpose

This submission has been prepared by Altus Planning on behalf of Remondis Australia Pty Ltd (**Applicant**) as the relevant background and planning justification for an amendment to the Shire of Gingin (**Shire**) Local Planning Scheme No. 9 (**LPS9** or **Scheme**). The purpose of this amendment is to include 'Resource Recovery Centre' as an Additional Use (**proposed amendment** or **proposal**) at Lot 12 (No. 276) Aurisch Road, Boonanarring (**subject land** or **site**).

This request follows the development approval granted by Council at its meeting on 17 May 2022 for an expansion to the existing composting facility at the subject land.

2.2 Site Description

The subject land is located approximately 15km to the north-west of the Gingin townsite and is located on the southern side of Aurisch Road, approximately 800m west of Brand Highway.

The site measures approximately 259.1351 hectares (**ha**) and the current activities on-site include a composting facility, as well as unrelated mineral sand mining activity.

Specifically, the composting facility which comprises of an enclosed forced aeration pasteurisation processing area, an open-air windrow composting area, an automated packaging plant, a shredding and grinding plant, and hardstand areas, is located near the mid-point of the site.

The mineral sand mining activity is being conducted on the eastern portion of the site, which is anticipated to be completed and the site backfilled and rehabilitated within five (5) years.

The western portion of site contains native vegetation.

In terms of the surrounding area, the site predominantly sits amongst agricultural landholdings, with the Boonanarring Mine Site located directly opposite on the northern side of Aurisch Road. The subject land's south-eastern boundary intersects with the boundary of the Boonanarring Nature Reserve.

An aerial image of the subject site and immediate surrounds with cadastral overlay is provided in Figure 1 below.

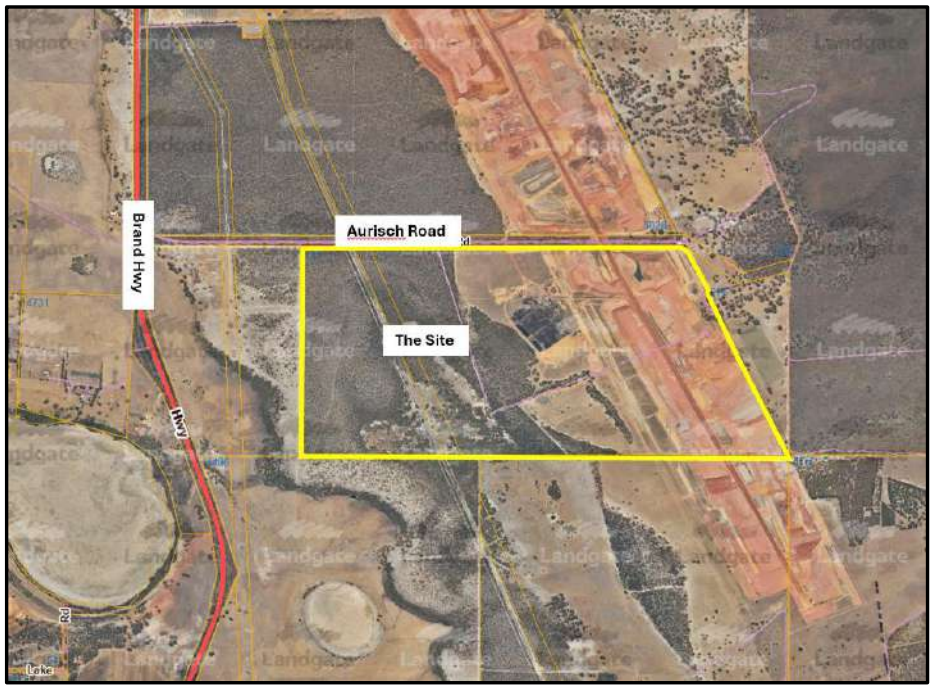


Figure 1: Aerial/cadastre of subject site and surrounds (Source: PlanWA, 2023)

Refer to **Attachment 1** – Certificate of Title.

2.3 Site History

The original development approval for the composting facility was approved by Council at its meeting on 6 February 2009, subject to conditions. An amendment was subsequently approved by Council at its meeting on 23 July 2010 to increase capacity from 5,000 tonnes per annum (**tpa**) to 50,000 tpa.

An additional amendment was approved by Council at its Meeting on 15 July 2014 to relocate the facility within the subject allotment, including the provision of an outdoor hardstand area and a leachate dam.

Further approval was issued by Council at its meeting on 19 June 2018 for a leachate dam and additional hardstand area to enable a more efficient composting process.

At its meeting on 15 December 2020, Council approved an additional hardstand area and a leachate dam to allow the facility to further increase output capacity closer to the previously approved 50,000 tpa.

More recently, Council granted conditional approval at its meeting on 17 May 2022 for an expansion of the existing composting facility from 50,000 tpa to 124,000 tpa to cater for increased demand for organic waste disposal, with most of the increased throughput being Food Organics and Garden Organics (**FOGO**) material.

This most recent substantive application originally included a second phase for the acceptance of several inorganic materials. However, this second phase was removed from the application prior to Council's determination and it was discussed with Shire officers that a subsequent Scheme Amendment be sought to introduce an additional use of 'Resource Recovery Centre' for the site prior to the consideration of inorganic materials. The reason being that without 'Resource Recovery Centre' being a permissible use for the site, the facility would otherwise be categorised as a 'Landfill Site', which is a land use not permitted in any zone under LPS9.

Finally, an amended development approval was issued by the Shire of Gingin on 24 January 2025. The amendment was limited in scope to modifications to Condition 4 of the original determination (P2281), primarily relating to the types of materials able to be accepted and processed as part of the composting operation.

It is with the above context that this request is being made to Council.

3.0 Proposal

The Applicant is proposing a Scheme Amendment to allow for the use of 'Resource Recovery Centre' on the subject land for the purposes of enabling future expansion of the existing composting facility, including the acceptance of inorganic materials.

4.0 Planning Considerations

4.1 Shire of Gingin Local Planning Scheme No. 9

The subject land is zoned 'General Rural' pursuant to the Shire's LPS9.

Clause 3.2.7 of LPS9 sets out the objectives for the 'General Rural' zone which are to:

a) *manage land use changes so that the specific local rural character of the zone is maintained or enhanced;*

b) *encourage and protect broad acre agricultural activities such as grazing and more intensive agricultural activities such as horticulture as primary uses, with other rural pursuits and rural*

industries as secondary uses in circumstances where they demonstrate compatibility with the primary use;

c) *maintain and enhance the environmental qualities of the landscape, vegetation, soils and water bodies, to protect sensitive areas especially the natural valley and watercourse systems from damage; and*

d) *provide for the operation and development of existing, future and potential rural land uses by limiting the introduction of sensitive land uses in the General Rural zone.*

The overall premise of the existing operations has previously been determined by Council as being consistent with the aforementioned objectives. Therefore, the proposed amendment, which will simply enable the Applicant to broaden the range of materials accepted as part of the same operations, will remain consistent with the zone objectives.

From a land use perspective, the Shire have previously determined that the existing operations on site are appropriately classified as 'Composting' which is defined in Schedule 1 of LPS9 as follows:

> ***composting*** *means the controlled process whereby compostable organic wastes, which may include liquid organic wastes, but not any liquid wastes classed as Listed Waste, Radioactive Waste or Hazardous Waste, are pasteurised and microbiologically transformed under aerobic and thermophilic conditions;*

Pursuant to Table 1 – Zoning Table of LPS9, 'Composting' is an 'A' use within the 'General Rural' zone which means it is a use capable of approval at the local government's discretion, following a period of public advertising.

As outlined in the officer's report to Council on 17 May 2022, this categorisation was on the basis that the existing operations utilise a controlled process that involves organic materials.

Inorganic materials are not captured within the 'Composting' definition and therefore the storing and processing of such materials could potentially fall under the categorisation of 'Landfill Site' which is defined in Schedule 1 of LPS9 as follows:

> ***landfill site*** *means land where waste including Landfill Classes I to V as defined within the Department of Environmental Protection*

> *(Department of Environment and Conservation) document titled Landfill Waste Classification and Waste Definitions 1996 (as amended) is stored, processed, recycled or buried;*

'Landfill Site' is an 'X' use within the 'General Rural' zone, and all other zones within the Shire, meaning that it is a use that is not permitted by the Scheme.

The broadness of the 'Landfill Site' definition is unfortunate as the very purpose of the composting activities being conducted by the Applicant is to divert these materials from landfill and ultimately recycle the solid and liquid waste/material received into mulch and soil conditioner.

Accordingly, it is submitted that there should be a point of difference and that a more appropriate land use classification for the Applicant's current and intended operations is 'Resource Recovery Centre' which, whilst not currently a defined land use within LPS9, is a land use defined in Schedule 1 (Model Provisions for Local Planning Schemes), clause 38 of the *Planning and Development (Local Planning Schemes) Regulations 2015* (**LPS Regulations**) as follows:

> ***resource recovery centre*** *means premises other than a waste disposal facility used for the recovery of resources from waste;*

For clarity, a 'Waste Disposal Facility' which is referred to in the above definition, is also defined in Schedule 1, clause 38 of the LPS Regulations as follows:

> ***waste disposal facility*** *means premises used —*
> *(a) for the disposal of waste by landfill; or*
> *(b) the incineration of hazardous, clinical or biomedical waste;*

As mentioned, the Applicant's current and intended operations do not involve the disposal of waste by landfill, rather they seek to increase diversion from landfill. Furthermore, these operations also do not / will not involve the incineration of hazardous, clinical or biomedical waste.

The land use terms within Schedule 1, clause 38 of the LPS Regulations are considered to be more contemporary than those contained within LPS9 and more appropriately differentiate the Applicant's operations from the current, all-encompassing definition of 'Landfill Site'.

4.2 Shire of Gingin Local Planning Strategy

The Shire's Local Planning Strategy (**LPS**) identifies the subject land as 'Rural uncoded' which is reflective of site's zoning under LPS9.

In relation to rural land, section 2.3.6.2 of the LPS acknowledges that rural land is a finite resource within the Shire, identifying the threats that the spreading urban development and the further fragmentation of land may have on this resource.

In this regard, it is reiterated that the proposed amendment simply seeks to broaden the materials that may be accepted into the already approved and operational composting facility, and therefore does not introduce any incompatibilities with the Shire's LPS. Specifically, the proposed amendment is not seeking to enable urban development or the subdivision of rural land.

4.3 Shire of Gingin Strategic Community Plan 2022-2032

The Shire's Strategic Community Plan 2022-2032 (**SCP**) outlines five (5) aspirations in relation to planning and sustainability.

In relation to the proposed amendment, aspirations 3.3 and 3.5 of the SCP are considered to be of particular relevance and state as follows:

> ***3.3 Planning & Land Use***
> *Plan the use of the land to meet future requirements incorporating economic development objectives and community amenity.*
>
> ***3.5 Sustainable Waste Solutions***
> *Incorporate opportunities that support responsible and sustainable disposal of waste.*

The Applicant's most recent expansion was in relation to the acceptance of FOGO materials collected via kerbside pickup across a number of local government areas throughout the State. The increase in demand is directly related to the WA State Government's priority target, as set out in the *Waste Avoidance and Resource Recovery Strategy 2030* (**Waste Strategy**), for all local governments in the Perth and Peel region to provide three-bin kerbside collection systems that include the separation of FOGO from other waste categories by the year 2025, as well as an overall increase in material recovery to 75% by the year 2030.

It therefore follows that the proposed amendment is consistent with the aforementioned aspirations of the SCP as it supports responsible and sustainable disposal of waste, and sets the subject land up to cater for future waste recovery requirements.

4.4 State Planning Policy 2.5 – Rural Planning

State Planning Policy 2.5 – Rural Planning (**SPP2.5**) is the basis for planning and decision-making for rural and rural living land across Western Australia.

The objectives for SPP2.5 are set out in section 4 of the policy and includes, amongst others:

> *(b) provide investment security for existing, expanded and future primary production and **promote economic growth and regional development on rural land for rural land uses**;* [emphasis added]

Furthermore, section 5 of SPP2.5 states:

> *The intent of this policy is therefore to protect rural land and encourage a diversity of compatible rural land uses.*

Within the Glossary of Terms, 'rural land use' is defined as follows:

> *Land uses that are rural in nature and that support and are associated with primary production, basic raw material extraction, biodiversity conservation, natural resource management, public purposes (eg. prisons, cemeteries, public utilities and **waste management facilities**) and protection of landscapes and views. Does not include rural living (see clause 5.3 of this policy).* [emphasis added]

It therefore follows that the current activities on site and the land use proposed by this amendment classify as a 'rural land use', meaning that the proposed amendment is consistent with the objectives and intention of SPP2.5 in relation to rural land.

4.5 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

The accompanying Bushfire Management Plan confirms that the site is suitable for the proposed Resource Recovery Centre land use and that the Scheme Amendment will not result in an unacceptable increase in bushfire risk. The development footprint is

largely cleared, capable of achieving BAL-29 for all operational areas, and benefits from substantial separation from higher-order vegetation, including forest located approximately 850 metres east of the operational area and scrub vegetation to the west, which is buffered by the existing leachate ponds (refer to Figure 2).



Figure 2: Map of Bushfire Prone Areas (Source: DPLH PlanWA 2023)

Minor vegetation removal within the site will enable a compliant Asset Protection Zone, and achieve a Bushfire Attack Level not exceeding BAL – 29 at hardstand/windrow. Although Aurisch Road is a dead-end road, BPC 7 (Commercial and Industrial) does not require a through-road. In addition, the site contains extensive BAL-Low areas that may provide suitable on-site refuge if evacuation is temporarily constrained.

The facility also significantly exceeds firefighting water requirements and maintains operational controls that reduce ignition risk. Overall, the BMP demonstrates that the amendment is consistent with SPP 3.7 and that future development can achieve full compliance at the development application stage. Refer to **Attachment 2** – Bushfire Management Plan.

4.6 Traffic Review

A traffic review was undertaken to assess whether the proposed Scheme Amendment would have any material impact on the surrounding road network. As outlined earlier in this report, the amendment seeks to provide greater flexibility in the range of materials that may be received at the existing composting facility, without increasing the approved operational scale of the facility. Access to the site will continue to be provided via Aurisch Road and the Brand Highway/Aurisch Road intersection.

The 2022 development approval allowed for up to 75 vehicle trips per day. Updated operational data indicates a maximum of 61 daily trips, comprising 41 truck movements and 20 light-vehicle movements. On this basis, traffic generation associated with the facility will remain below the previously approved threshold. Peak-hour traffic is estimated at 13 vehicle trips, which is considered minor in the context of existing traffic volumes on Brand Highway. Refer to **Attachment 3** – Traffic Review**.**

A warrants analysis indicates that, in theory, the Brand Highway/Aurisch Road intersection would meet the threshold for an Auxiliary Right (**AUR**) and Standard Left (SL) turn treatment. However, the facility has operated for several years without identified traffic or safety issues, and forecast traffic volumes remain within the parameters assessed in the original Traffic Impact Assessment. No crashes were recorded on Aurisch Road or the relevant section of Brand Highway between 2021 and 2025. The traffic review therefore concludes that no intersection upgrades are required, although sealing the western portion of Aurisch Road may assist in managing gravel tracking.

Overall, the proposed Scheme Amendment will not lead to further development that lead to the intensified traffic impacts beyond those already approved and is considered acceptable from a traffic engineering perspective.

4.7 Planning and Development (Local Planning Schemes) Regulations 2015

Part 5 of the LPS Regulations prescribes three (3) categories of amendment types: basic, standard and complex.

Specifically, regulation 34 categorises a 'standard amendment' as follows:

> ***standard amendment*** *means any of the following amendments to a local planning scheme —*

(a) an amendment relating to a zone or reserve that is consistent with the objectives identified in the scheme for that zone or reserve;

(b) an amendment that is consistent with a local planning strategy for the scheme that has been endorsed by the Commission;

(c) an amendment to the scheme so that it is consistent with a region planning scheme that applies to the scheme area, other than an amendment that is a basic amendment;

(d) an amendment to the scheme map that is consistent with a structure plan or local development plan that has been approved under the scheme for the land to which the amendment relates if the scheme does not currently include zones of all the types that are outlined in the plan;

(e) an amendment that would have minimal impact on land in the scheme area that is not the subject of the amendment;

(f) an amendment that does not result in any significant environmental, social, economic or governance impacts on land in the scheme area;

(g) any other amendment that is not a complex or basic amendment.

The proposed amendment is considered to fall within a 'standard amendment' as it will have minimal impact on land outside of the amendment area (subclause e) and will not result in any significant environmental, social, economic or governance impacts (subclause f).

Specifically, it is reiterated that the proposed amendment relates to an existing approved land use and simply seeks to introduce contemporary land use terminology into the Scheme which will enable the Applicant to receive a broader range of materials and in turn, increasing landfill diversion rates to align with State Government priority targets.

5.0 Rationale for Development

The proposed Scheme Amendment to introduce 'Resource Recovery' as an Additional Use for Lot 12 (No. 276) Aurisch Road, Boonanarring is justified on strategic, environmental, and land use planning grounds.

5.1 Alignment with Existing Approved Use

The subject land is already approved for and operating as a large-scale composting facility, including recent approval to expand capacity. The proposed amendment does not introduce a new or incompatible land use; rather, it facilitates the logical progression of the existing operation by enabling the acceptance and processing of additional material streams. This represents an evolution of the current use rather than a fundamental change

5.2 Contribution to State Waste Management Objectives

The proposal directly supports the Western Australian Government's Waste Avoidance and Resource Recovery Strategy 2030 by facilitating increased recovery and diversion of waste from landfill. The ability to process a broader range of waste streams, including inorganic materials, will enhance recycling outcomes and contribute to achieving state targets for material recovery.

5.3 Consistency with the Zone Objectives

The proposed development aligns with the objectives of the 'General Rural' zone, which support rural industries and compatible secondary uses. The facility represents a rural industry that complements agricultural activities by processing organic waste into beneficial soil products. The amendment will not detract from rural character or introduce sensitive land uses, and will maintain compatibility with surrounding agricultural land uses.

5.4 No Adverse Environmental of Infrastructure Impacts

The Technical assessments confirm that:

- Bushfire risk can be appropriately managed in accordance with State Planning Policy 3.7;

- Traffic generation will remain within previously approved levels and will not necessitate infrastructure upgrades; and

- The amendment will not result in significant environmental, social, or economic impacts beyond those already assessed and approved

6.0 Conclusion

This Scheme Amendment request seeks in include the land use term 'Resource Recovery Centre' as an Additional Use for the site under LPS9, aligning with contemporary land use terminology provided in Schedule 1 – Model Provisions for Local Planning Schemes of the LPS Regulations.

Once gazetted, the proposed amendment will enable the Applicant to submit and have considered, a development application(s) that expands upon the materials which can be accepted and processed on site as part of the existing composting facility, without being captured under the broad definition of 'Landfill Site', which is categorically incorrect given the facility seeks to reuse the materials and divert them from landfill.

The proposed amendment is considered appropriate for the following reasons:

- The existing operations have been deemed consistent with the objectives for the 'General Rural' zone under LPS9 and the same should extend to the proposed amendment.

- The proposed amendment does not contravene the strategic intentions for rural land, as set out in the LPS.

- The proposed amendment aligns with aspirations 3.3 and 3.5 of the SCP, and by extension aligns with the State Government's Waste Strategy.

- The proposed amendment relates to a 'rural land use' as defined by SPP2.5 and is therefore consistent with the objectives and intention of SPP2.5 in relation to rural land.

- Although a substantial portion of the subject land is designated as a 'bushfire prone area', the BMP that was prepared in 2022 in relation to the most recent development has demonstrated compliance with SPP3.7 and the associated Guidelines.

- The traffic review concluded that no upgrade of the intersection atm Brand Highway and Aurisch Road is required, as the proposed amendment will not intensify traffic impacts.

For all these reasons, it is considered that the proposed Scheme Amendment warrants support.

Altus Planning

Attachment 1 – Certificate of Title

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
2090	**770**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 12 ON DIAGRAM 92147

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

REMONDIS AUSTRALIA PTY LTD OF LEVEL 4 163 O'RIORDAN STREET MASCOT NSW 2020
(T Q406900) REGISTERED 1/5/2025

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. A371638 EASEMENT TO AMPOL EXPLORATION LTD., SHELL DEVELOPMENT (AUSTRALIA) PTY. LTD., TEXACO OVERSEAS PETROLEUM CO. AND CALIFORNIA ASIATIC OIL CO. SEE SKETCH ON VOL 2090 FOL 770. REGISTERED 12/2/1971.
   K395712 NOTIFICATION. THE GRANTEES OF EASEMENT A371638 ARE NOW APT PARMELIA PTY LTD PURSUANT TO SECTION 20(5) OF THE PETROLEUM PIPELINES ACT 1969. RECORDED 31/10/2007.
2. C328560 EASEMENT TO THE STATE ENERGY COMMISSION OF WESTERN AUSTRALIA. SEE INSTRUMENT C328560. REGISTERED 25/3/1982.
   H600186 SUNDRY. THE GRANTEE OF TRANSFER C328560 IS NOW THE DBNGP LAND ACCESS MINISTER PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. REGISTERED 17/11/2000.
3. H600186 SUNDRY. PORTION OF THE LAND HEREIN IS WITHIN THE DBNGP CORRIDOR PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. SEE LAND ADMINISTRATION PLAN 15555. REGISTERED 17/11/2000.
4. H848617 SUNDRY. PORTION OF THE LAND HEREIN IS WITHIN THE DBNGP CORRIDOR PURSUANT TO THE DAMPIER TO BUNBURY PIPELINE ACT 1997. SEE LAND ADMINISTRATION PLAN 20880. REGISTERED 24/8/2001.
5. H848618 TAKING ORDER. THE DESIGNATED PURPOSE OF STATE CORRIDOR RIGHTS TO THE DBNGP LAND ACCESS MINISTER UNDER THE PROVISIONS OF THE DAMPIER TO BUNBURY PIPELINE ACT 1997. REGISTERED 24/8/2001.
6. N893068 CAVEAT BY IMAGE RESOURCES NL AS TO PORTION ONLY LODGED 9/5/2018.
7. O626284 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 29/1/2021.
8. Q406901 CAVEAT BY SHIRE OF GINGIN LODGED 1/5/2025.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

END OF PAGE 1 - CONTINUED OVER

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RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 12/D92147 VOLUME/FOLIO: 2090-770 PAGE 2

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	2090-770 (12/D92147)
PREVIOUS TITLE:	1574-635, 1574-636
PROPERTY STREET ADDRESS:	276 AURISCH RD, BOONANARRING.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF GINGIN

LANDGATE COPY OF ORIGINAL NOT TO SCALE 16/06/2026 05:15 PM Request number: 69986262

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Attachment 2 – Bushfire Management Plan

Bushfire Management Plan

JD Organics

276 Aurisch Road, Boonanarring

June 2026

envision
bushfire protection

LIMITATIONS STATEMENT

This Bushfire Management Plan ('BMP') has been prepared in support to support a scheme amendment for a change of land use classification Resource Recovery, and proposed extensions to the existing organic composting facility at 276 Aurisch Road, Boonanarring, Western Australia (WA). The site is located within the Shire of Gingin (decision maker).

Envision Bushfire Protection

ABN 19 673 625 486

PO Box 7209 SHENTON PARK WA 6008

Ph: 0428 066 147

Email: admin@envisionbp.com.auj

Version Control

276 Aurisch Road, Boonanarring, Western Australia (WA)			
Version	**Date**	**Author**	
V1	10 June 2026	Anthony Rowe	Draft

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Disclaimer

In undertaking this work, the authors have made every effort to accurately apply the available information at the time of writing following the instructions of the regulatory authorities and applying best practice as described by the Fire Protection Association Australia. Any conclusions drawn or recommendations made in the report are made in good faith, and the consultants take no responsibility for how this information and the report are subsequently used.

Envision Bushfire Protection accepts no liability for a third party's use of, or reliance upon, this specific report.

Envision Bushfire Protection accepts no liability for the inaction of the owner to provide or maintain the bushfire protection measures identified in this report. Vegetation is dynamic, building materials may distort, and the accumulation and the location of flammable materials near the building may affect the potential for damage or loss of a building to occur.

Failure to maintain the property and/or building to these standards may compromise an insurance policy if currently covering any of your assets or those of any third party that may be consequentially affected due such failure. If not insured, and if you are seeking insurance, this report may not influence the decision of any insurer not to offer cover.

Importantly the measures contained in this report cannot guarantee human safety or an absence of harm or that the building will not be damaged or would survive a bushfire event on every occasion. This is due to the unpredictable nature of fire behaviour (knowledge in this field continues to develop) and the unpredictable nature of extreme weather conditions.

V1 DRAFT FOR REVIEW

Scope of this report

The scope of the assessment has been to assess the capability to achieve compliance with the policy measures described in State Planning Policy 3.7., for the purpose of a scheme amendment, to list Resource Recovery at the site.

Client relationship

I was engaged to provide expert bushfire safety and planning advice. My relationship with the client is a standard commercial contract, and no private, personal, or other matter has influenced the content of the BMP or my findings.

STATEMENT OF CONFORMITY – PLANNING AND DEVELOPMENT ACT 2005



Anthony Rowe Level 3 - BPAD36690

Principal Bushfire Consultant **I** Town Planner

BPAD Accredited Practitioner Level 3 I **PIA Registered Practising Planner**

The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 Bushfire 2024 and the Planning for Bushfire Guidelines 2024.

V1 DRAFT FOR REVIEW

ASSESSMENT

Preface

The proposal is for the extension of an organic composting facility at 276 Aurisch Road, Boonanarring, Western Australia (WA)

The site is within a declared bushfire-prone area. Accordingly, the proposal is to be assessed for compliance with State Planning Policy 3.7 *Bushfire 2024* ('SPP 3.7') and the bushfire compliance criteria (risk treatments) listed in the Planning for Bushfire the Guidelines 2024 (the Guidelines).

The existing facility comprises:

- Leachate retention ponds
- windrows green waste (stockpile compost) with an automated water system, 40%-60% moisture maintained
- Green waste storage
- Finished product storage
- Pasteurisation shed
- Office packing shed and fuel store

The proposed extension to the existing facility comprises the provision of:

- An additional hardstand 5
- An additional leachate pond 5
- A finished product storage area
- An additional liquid pond storage 1
- An additional liquid pond storage 2

1. Site details

The site is located 21 km north from the town of Gingin, nearest regional centre, and 83 km north from the Perth CBD. The site does not have access to a reticulated water supply.

The site is accessed from Brand Highway and Aurisch Road, a dead end road that extends 2.6 km east from Brand Highway. The site access is located 1.8 km from Brand Highway.

The organic composting facility (development site) will occupy 17 ha of the western section (development site) of the 260 ha site at 276 Aurisch Road Boonanarring.

The development site is clear of native vegetation and has a low downward slope < 3.0^0 to the west. The development site joins a 128 ha area of Scrub that extends 1 km to the west. The east boundary of the development site is 1 km from forest in the Boonanarring Nature Reserve. The separating area, part of the overall site, is an extractive area and clear of vegetation. The Boonanarring Nature Reserve extends 20 km east and is contiguous forest.

2. Environmental considerations

The site is not affected by any items listed in the Landgate SLIP ecological data base for review as listed in the Department of Planning Lands and Heritage template (*Bushfire Management Plan – Development Applicatio*n).

The development site is mostly clear of native vegetation, but a small area of Scrub at the southwest extent of the site will require removal to facilitate an Asset Protection Zone (APZ) and achieve a Bushfire Attack Level not exceeding BAL – 29 at hardstand/windrow. This is for the purpose of avoiding direct flame contact upon the windrow.

V1 DRAFT FOR REVIEW

3. Bushfire assessment results

A Bushfire Attack Level assessment following Method 1 AS 3959:2018, and the DPLH *Visual guide for bushfire risk assessment in Western Australia*, and using an FFDI of 80, has been undertaken.

The assessment of vegetation within 150 m of the site is illustrated in Figure 3, and Figure 4 illustrates the bushfire attack level radiant heat (BAL contour) at the completion of the development.

The area between the windrows and the adjoining vegetation west, will be occupied by the existing and proposed leachate ponds, which are a low bushfire threat (non-combustible). The leachate ponds will provide a buffer between the windrows and Scrub located at the west.

4. Identification of bushfire hazard issues

The windrows comprise the most vulnerable source of ignition at the site; assuming flammable materials are inadvertently stored in the slope, such as packing crates and open rubbish bins.

The development site is located within an area of grassland, which is unrestricted in terms of management, enabling a separation from flame contact to be achieved. The scrub west of the development site is separated from the windrows by the non-combustible leachate ponds.

The development site is separated by a distance of 850 m from the forest vegetation located east of the site. Forest fires are characterised by a propensity to eject embers that can follow the prevailing wind and ignite spot fires up to 5 km in advance of the firefront. The windrows are irrigated to prevent combustion that will also protect from a sparse ember attack, such as may occur from forest located to the east of the development site.

The area of the development site has a low rise to the east <3.00. The prevailing wind direction during the bushfire season is mostly from the east in the mornings and from the southwest in the afternoon.

The site, present organic composting facility, is serviced by a dead-end road Aurisch Road that extends 1.8 km from Brand Highway to the site entry. It offers the opportunity to evacuate in a direction away from an easterly wind-driven bushfire

5. Assessment against the Bushfire Protection Criteria Development 7– Commercial Industrial

The proposal was compared with the Bushfire Protection Criteria 4 - Strategic Planning (BPC 4) for the scheme amendment and Bushfire Protection Criteria 7 - Commercial and Industrial (BPC 7) as a development proposal for the expanded land use.

The purpose for the BMP is to demonstrate the scheme amendment can facilitate a development capable of compliance with the routine consideration of a commercial industrial development (resource recovery) specific to the site.

A concept proposal has been assessed to demonstrate that compliance can be achieved at the site.

Acceptable Solutions

Element 1-Location – The requirements for location applicable to strategic level plans and subdivisions is not applicable to the development of a site following its intended purpose for development.

The site is within a Broader Landscape Type A – Acceptable.

Element 2 Siting and design – requires that any works needed to achieve BAL 29 will be contained to within the site.

The site is large. There is no restricted vegetation that would impede the achievement of an APZ capable of providing a BAL not exceeding BAL 29 at the hardstand area/windrows and buildings.

The intended development southern extent (Hardstand area 5) will not encroach upon the adjacent vegetation (south) but the future siting of materials should not occur within BAL 29. This can be facilitated by the windrow vehicle access, to assure a separation is maintained.

V1 DRAFT FOR REVIEW

Element 3 Vehicle Access – requires the site has access to a public through road to provide alternate routes (to suitable destinations) for evacuation of occupants and access for fire fighters.

The site is located on a dead end road Aurisch Road with no prospect of making a through road. Aurisch Road terminates at the Boonanarring Nature Reserve.

The predicted maximum vehicle trip generation is 61 total vehicle trips per day (61 inbound and 61 outbound), including 41 truck trips and 20 light vehicle trips (based on a maximum of 20 staff).

Aurisch Road is a compliant unsealed rural road. It has an engineered capacity (IPWEA) for up to 250 vehicles per day1. The development site has a large area that is BAL Low which may provide space for active shelter in the event of a fire arriving from the east that prevents evacuation on Aurisch Road, to Brand Highway and destinations safe from the fire.

Whilst a through road requirement is an acceptable solution at BPC 4, the BPC 7 requirements address a development at an existing site and do not require a through road, only the technical requirements for a private driveway within the site to service the proposal.

Element 4 Water – requires the availability of water for firefighting purposes (A4.1).

The proposal has two existing 150,000 L water (steel) tanks and an additional two tanks of 150 000 L each will be provided. An existing 150 000 L tank will be set aside and dedicated for use by emergency services.

The organic composting facility has two 3 000 L water trucks that can be also used as a mobile firefighting unit.

Appendix B Table 11 (guidelines 2024) requires, for commercial and industrial development a maximum provision of 50 000 L.

Either of the existing tanks could be nominated to be available to emergency services (reserved), to supply the 50 000 L. The nominated tank is required to be isolated from supplying domestic water supply used for drinking, washing and the preparation of food.

Additional Bushfire Management Strategies

No additional bushfire management strategies are required, that are in addition to the routine compliance consideration under Bushfire Protection Criteria 7 Development -Commercial and Industrial.

Spatial representation of the bushfire management strategies

A spatial representation of the bushfire management strategies is not required for a scheme amendment which is seeking an additional use to be applied specific to the site to facilitate by listing 'Resource Recovery'.

6. Responsibilities for implementation and management of the bushfire measures

The Owner responsibilities identify the bushfire management measures necessary to achieve compliance with the bushfire protection criteria. These are provided at section 6 of the BMP.

The details contained within the planning application authorised by the responsible decision maker are enforceable under section 214 of the *Planning and Development Act 2005*, including its consistency with the *Bushfire Protection Criteria*.

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[1] If greater than 250 vehicles per day it is more economical to seal the road

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Attachment 1 – Standard for Asset Protection Zones
Attachment 2 – Technical Requirements for Private Driveways
Attachment 3 - Guidance Note: GN 03 – Fire Safety Considerations for Open Yard Storage

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ENVISION BUSHFIRE PROTECTION BUSSELTON I PERTH
E: admin@envisionbp.com.au T: 0428 066 147

1. PROPOSAL DETAILS

1.1 Introduction

Envision Bushfire Protection has been commissioned to prepare a Bushfire Management Plan for a Scheme amendment to change the landuse classification, to Resource Recovery, together with additions to the existing organic composting facility at 276 Aurisch Road, Boonanarring, Western Australia (WA) (Plate 1).

Purpose of this Plan

The purpose of this BMP is to assess the suitability of the location for the intended use. The site plan is a concept for demonstrating compliance and is shown at Plate 3b. It has been used to demonstrate a resource recovery land use can be achieved at the site that is compliant with SPP 3.7.

This document presents an assessment of a 'development application' with the requirements of State Planning Policy 3.7 Bushfire 2024 and *Planning for Bushfire Guidelines 2024*).

Site and Proposal Description

Address	276 Aurisch Road, Boonanarring
Local Government Area	Shire of Gingin
Local Planning Scheme Zone	Rural
Bushfire Season	1 December – 12 May (precise dates may vary annually)
Development Concept	Change of land use classification (Zoning) Organic composting facility, additions. • An additional Hardstand 5 • An additional Leachate pond 5 • A finished product storage area • An additional liquid pond storage 1 • An additional liquid pond storage 2
Building class	Class 7 and 8
Lot size	260 ha Existing development site is 11.8 ha Proposed development site is 16.9

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Land description site	The development site is clear of native vegetation and has a low downward slope < 3.0^0 to the west. • Leachate ponds • Hardstand areas for composting windrows green waste with an automated water system, 40%-60% moisture maintained • Green waste storage • Finished product storage • Pasteurisation shed • Office packing shed and fuel store The development site joins a 128 ha area of Scrub that extends 1 km to the west. The eastern section of the site up to the east boundary (1 km east) is used for extractive industry and is cleared of vegetation. The east boundary of the site is followed by 20 km of forest.			
Adjoining Land uses	North	East	South	West
Within 150 m	Pasture Grass and Extractive industry	Pasture Grass and extractive industry and Forest 850 m from the development site.	Pasture Grass	Scrub, 50m from the hard stand/wind rows. Scrub within the south east corner of proposed Hardstand 5, and APZ to achieve BAL 29 is required at this corner.
Within 1 km	Extractive industry Scrub 50%	Extractive industry (low threat 600 m) followed by Grassland	Grassland	Scrub 70% Grassland 30%
Within 2 km	Scrub 40% Extractive industry 40% and Grassland 20%	Forest	Grassland	Grassland
Road Access	The site is located 1.8 km from Brand Highway (west) by Aurisch Road, which terminates at the Boonanarring Nature Reserve.			
Water supply	A reticulated supply is not available			
Tele communications	The site is within the Telstra 4G network			
Emergency services	The nearest fire brigade is the Gingin Fire and Rescue service 7 Robinson St, Gingin WA 6503			

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Location



Plate 1: Site location (blue marker is the site location)

Bushfire Prone Area



Plate 2a: Designated bushfire Prone Area - Pink shade (OBRM 2021)

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Zoning

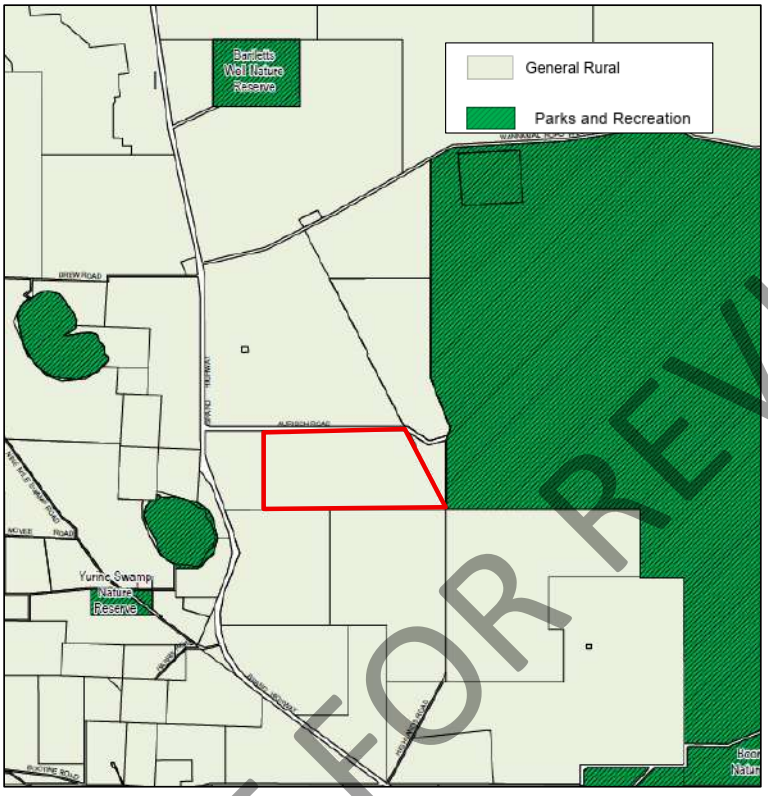


Plate 2b: land use zone

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Plate 3b: Site Aerial Photo

FOR REVIEW

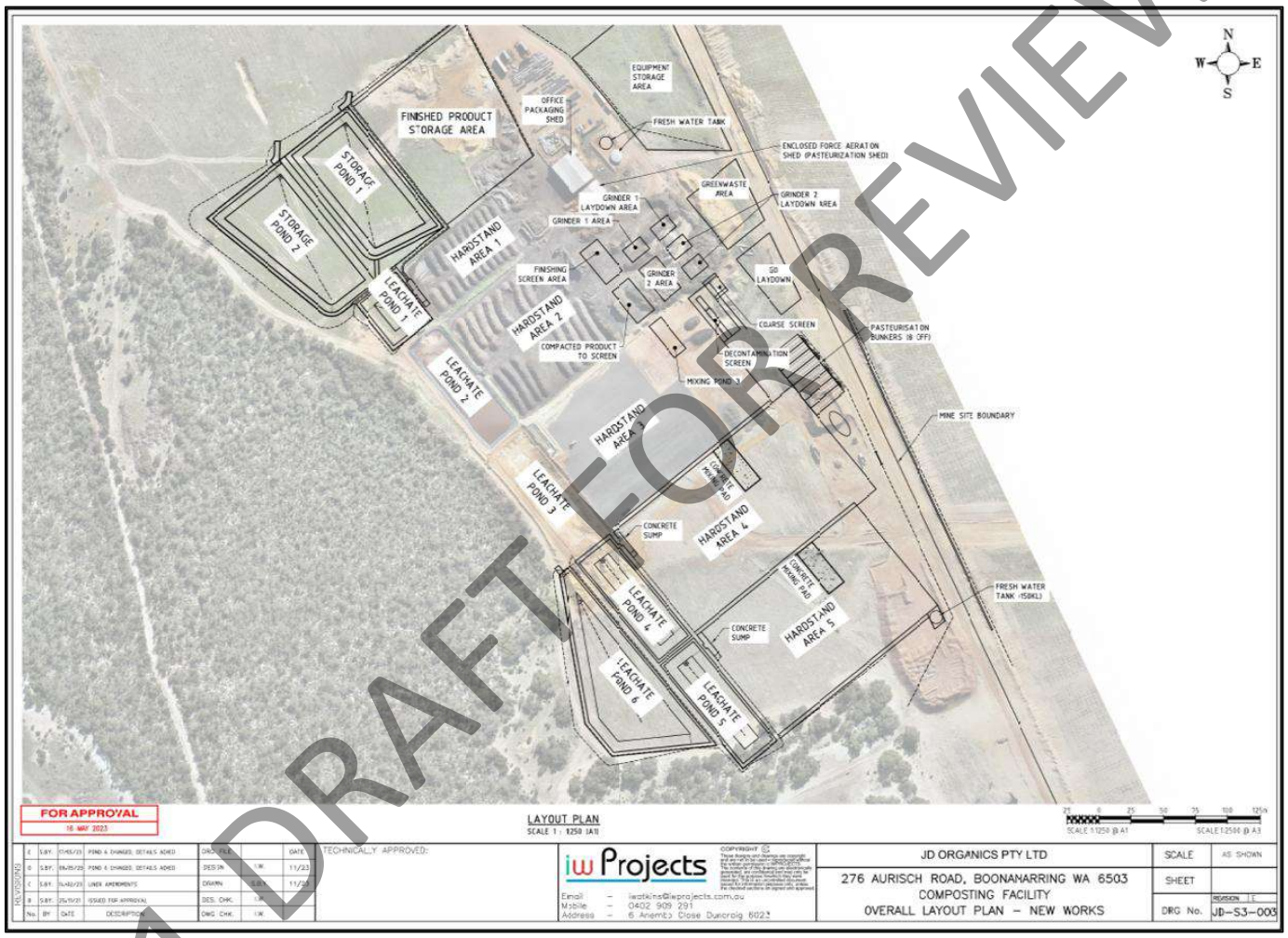


Plate 3b: Concept Site Plan

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1.2 Regulatory Compliance Requirements

Planning and Development Act 2005

Planning and Development (Local Planning Schemes) Regulations 2015 - Schedule 2

The Planning and Planning and Development (Local Planning Schemes) Regulations 2015 - Schedule 2 is the Deemed Provisions, and form part of the local planning scheme. It establishes the authority to require the assessment of certain types of land use and development and the planning considerations, including State Planning Policy; including a duty to take into account the possible risk of bushfire and the risk to human safety.

Relevant provisions include:

Clause 67 Consideration of application by local government

(2) In considering an application for development approval (other than an application on which approval cannot be granted under subclause (1)), the local government is to have due regard to the following matters to the extent that, in the opinion of the local government, those matters are relevant to the development the subject of the application —

(c) any approved State planning policy

(q) the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;

(r) the suitability of the land for the development taking into account the possible risk to human health or safety

Part 10A — Bushfire risk management

The definition of **construction** provided in the Planning and Development (Local Planning Schemes) Regulations 2015 – Deemed Provisions Part 10 A, provides the following definition of construction:

construction of a building includes the erection, assembly or placement of a building but does not include the renovation, alteration, extension, improvement or repair of a building;

The Deemed Provisions Part 10A also provide

78B Application of Part to development

(1) This Part applies to development that is —

(a) the construction or use, or construction and use, of a single house or ancillary dwelling on a lot or lots with a total area of 1 100 m^2 or more; or

(b) the construction or use, or construction and use, of —

(i) a habitable building other than a single house or ancillary dwelling; or

(ii) a specified building.

In this instance, the Proposal is to facilitate the extension of a resource recovery landuse at 276 Aurisch Road, Boonanarring, Western Australia. The development site (portion of the site to be used for the proposed development) is located in the General Rural Zone - Shire of Gingin Local Planning Scheme No.9.

The present zone does not recognise the expectation of a resource recovery centre.

resource recovery centre means premises other than a waste disposal facility used for the recovery of resources from waste;"

In order to facilitate the proposed expansion of the existing activity, the additional land use for a **resource recovery centre** can be applied at the site by a listing in the Local Planning Scheme.

The additions represent an expansion of use (not a building) and will require compliance with BPC #7.

State Planning Policy 3.7 Bushfire (2024).

On 7 December 2015, the State Government first introduced by Gazette, a state map of Bushfire Prone Areas by order under the Fire and Emergency Services Act 1998 and introduced development controls in Bushfire Prone Areas through the Planning and Development Act 2005. These controls were revised (operational 18

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November 2024) introducing State Planning Policy 3.7 Bushfire (SPP 3.7), and the Planning for Bushfire Guidelines, and amendments under Part 10A Schedule 2 of the Planning and Development (Local Planning Scheme) Regulations 2015.

The State Bushfire Map has now been divided into Area 1, within the Perth, Peel and Bunbury metropolitan areas, with the remainder being Area 2.

SPP 3.7 is arranged with a **Policy Intent**, policy objectives and policy outcomes achieved through compliance with the bushfire protection criteria, assigned to a level and class of development through acceptable solutions or an outcome approach.

SPP Policy Intent

> "To implement effective, **risk-based land use planning and development** which in the first instance avoids the bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level. The preservation of life and the management of bushfire impact are paramount."

Planning for Bushfire Guidelines (2024)

Scheme amendment

SPP 3.7 s.4 – Application:

> Where the planning proposal or development is within an area designated as bushfire prone on the *Map of Bush Fire Prone Areas*, and:
>
> - results in the intensification of development (or landuse); or
> - results in an increase of visitors, residents or employees; or
> - adversely impacts or increases the bushfire risk to the subject or surrounding site(s),
>
> then the following trigger the application of the policy:
>
> - a strategic planning proposal within Area 2 on the Map of Bush Fire Prone Areas, which has or will have a Bushfire Hazard Level (BHL) above LOW

The proposal requires a Scheme amendment and constitutes an intensification of development, by the expansion of the land use. Bushfire Protection Criteria 4 Strategic Planning applies for the consideration of the landuse and in turn whether compliance with SPP3.7 at the development application can be achieved.

Development Application

The existing and proposed use is classified as Commercial and industrial requiring compliance with Bushfire Protection Criteria #7 Development – Commercial and industrial. The satisfaction of the listed acceptable solution in BPC 7, satisfies the requirements of SPP 3.7 *and as the relevant authority it also satisfies the LPS Regulations 2015 cl.67 (r) and (s).*

Building Act 2011

The *Building Act 2011* applies the National Construction Code 2022. The NCC does not apply bushfire construction standards to building classes that are not class 1, 2, 3, and 10a, buildings and certain class 9 buildings.

The proposed building is a class of building (Class 5, 7 and 8b) for which Part G5 Construction in bushfire prone areas does not apply.

Large, isolated buildings are required to be provided with a Perimeter Vehicle Access that is a minimum of 6 m wide. This can utilise space within any setbacks from classified vegetation required for bushfire and to reduce the potential for flame contact and the intensity of the radiant heat flux.

Bush Fires Act 1954

Section 33 of the *Bush Fires Act 1954* recognises the responsibility of all landowners to prevent the spread of bushfire. The Shire of Gingin issues and administers an annual Firebreak Notice.

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The Shire can issue a notice upon the landowner to act as and when specified in the notice with respect to anything which is upon the land, and which in the opinion of the local government or its duly authorised officer, is or is likely to be, conducive to the outbreak of a bushfire or the spread or extension of a bushfire.

An owner who fails to comply with a notice is guilty of an offence (Penalty: $5,000).

The local government may in addition carry out the required works of the notice and recover the costs incurred by application to a Court.

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2. ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – Modification and Clearing

A fundamental consideration in the assessment of development under SPP 3.7 is to avoid instances where bushfire risk management measures would conflict with or be limited by other biodiversity management measures.

Conservation class legislation

The ability to implement bushfire risk management measures may be affected by a number of conservation class vegetations: described below.

Environment Protection Act 1986 and Environmental Protection (clearing native vegetation) Regulation 2004

It is an offense to clear native vegetation without the authority of a permit or an exemption. The act of clearing native vegetation, requires a permit from either the Department of Water and Environmental Regulation (DWER) or the Department of Mines, Industry Regulation and Safety (DMIRS), unless an exemption applies.

Exemptions include:

Environment Protection Act 1986

- Clearing required by local government Section 33 *Bushfire Act 1954.*
- **Clearing in accordance with the terms of a subdivision approval.**
- Clearing in accordance with a permit under the *Bush Fires Act 1954* (prescribed burning) and clearing by a bushfire control officer.

Environmental Protection (clearing native vegetation) Regulation 2004 (exemptions do not apply in Environmentally Sensitive Areas, and clearing > than 5 ha)

https://www.der.wa.gov.au/your-environment/environmentally-sensitive-areas

- Clearing to the extent necessary to construct an approved building.
- Clearing that is for fire hazard reduction burning.
- Clearing to maintain an area cleared in the last ten years.

(WA) Biodiversity Conservation Act 2016 and Bio-diversity Conservation Regulations 2018

The *Biodiversity Conservation Act, 2016*, replaces the *Wildlife Conservation Act, 1950*, and the *Sandalwood Act, 1929*, it became operational with the *Bio-diversity Conservation Regulations 2018*, on 1 January 2019.

The Act provides for listing species, threatened ecological communities (TECs), key threatening processes, and critical habitats. It introduces criteria for listing species 'endangered', 'critically endangered' or 'vulnerable,' to align with the Environment Conservation and Biodiversity Conservation Act 1999 (Cth).

The *Biodiversity Conservation Act 2016* recognises that activities approved under the *Environment Protection Act 1986* do not require further approval include clearing of native vegetation that is either exempt or done under the authority of a clearing permit or done in accordance with an implementation decision under Part IV of the *Environment Protection Act 1986*.

Commonwealth Environment Protection Biodiversity Conservation Act 1999

The Commonwealth Environment Protection Biodiversity Conservation Act 1999 provides for the protection of matters of national environmental significance. National environment law does not generally regulate fire prevention measures taken by state and territory governments, but no specific exemptions are provided.

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In accordance with the Department of Planning Lands and Heritage template (*Bushfire Management Plan – Development Application*) a review of the listed databases has been undertaken as part of this assessment. The purpose is to identify whether restrictions or other specific considerations may apply that would affect the possible implementation of any bushfire protection initiatives/risk treatments.

This however is not a comprehensive assessment. Not all ecological details are publicly available and many of the items are not described at a site-specific level, to confirm identification on the site. In this instance the site has been historically cleared.

This BMP therefore does not preclude the requirement or influence the considerations required to be separately taken, in gaining the required authorisations under the conservation class legislation identified above.

Table 2: Ecological database assessment (Landgate SLIP viewed 10 June 2026)**.**

Is the land affected by:	**Yes/No/NA**	**If yes - describe**
Conservation Wetland or buffer (DBCA-019 DBCA-017)	No	Not affected
RAMSAR Wetland (DBCA-010)	No	Not affected
Threatened and Priority Flora (DBCA-036)	No	Not affected within 500 m of the site
Threatened and Priority Fauna (DBCA-037)	No	Not affected within 500 m of the site
Threatened Ecological Communities (DBCA-038)	No	Not affected within 500 m of the site
Bush Forever (COP-071)	No	Not affected
Environmentally Sensitive Area (DWER-046)	No	Not affected within 500 m of the site
Regionally Significant Natural Areas (DWER-070)	No	Not affected
Conservation Covenant (DPIRD-023)	N/A	Nota affected
Does the proposal require the removal of restricted vegetation?		**~~Yes~~** **No**

2.2 Native Vegetation – Modification and Clearing

SPP 3.7 Bushfire prioritises the retention of native vegetation unless unavoidable.

Objective 5.4

Prioritise the retention of native vegetation for biodiversity conservation environmental protections and landscape amenity

Outcome 6.2

Ensure siting and design solutions:

avoid, or where unavoidable, minimise the clearing of native vegetation

The development site will mostly occupy unrestricted pasture grasses.

2.3 Revegetation/Landscape Plans

The development site will be maintained as a low threat. There are no revegetation or landscape plans associated with the proposal.

Any required setbacks to the windrow material are expected to be achieve within the hardstand area.

Any future landscaping consideration must follow the Asset Protection Zone standard as specified in the Guidelines.

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3. BUSHFIRE ASSESSMENT

3.1 Bushfire Attack Level Assessment (Inputs)

The following assessment has applied the methodologies described in AS 3959:2018, the Guidelines, and has used the Fire Protection Association Australia accredited practitioner methodology for the preparation of Bushfire Attack Level (BAL) assessments.

All vegetation within 150 m (context) of the subject building has been classified following Clause 2.2.3 (AS 3959:2018) to determine the predominant vegetation affecting the behaviour at the locality. The Bushfire Attack Level is determined by the **predominant** vegetation within 100 m of the site boundary (for subdivision), or around the development site (building envelope) or the external face from a habitable building.

The classifications of vegetation used in AS 3959:2018 are based on foliage cover, measured as a percentage of a hectare and by the fuel (vegetation) height.

> ***Foliage cover**: The portion of the ground that would be shaded by foliage when the sun is shining directly overhead, expressed as a percentage for each stratum or identifiable layer of vegetation*

AS 3959:2018

Layer/ Stratum	Description	Hazard
Bark	Tight/fine – course/ribbon	Spotting and ember attack potential associated with forest
Canopy	Trees taller than 6 m (forest)	Influences the flame height
Elevated fuel	Trees and Shrubs up to 6 m	Influences the flame height
Near surface	Grasses and shrubs taller than 100 mm and up to 2 m	Influences the rate of spread and canopy ignition
Surface	On ground material, leaves, twigs, bark	Influences the rate of spread

From CFA (Vic) Overall fuel assessment guide 2010

AS 3959:2018 prescribes six categories of Bushfire Attack Level (BAL): BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40, and BAL-FZ. In addition, BAL-FZ describes only performance solutions where the separation from classified vegetation (on completion) is less than 10 m. The BAL level is used for determining the siting of development (to be less than BAL-40) and in turn the construction standard that is equivalent to the BAL at the proposed building location.

This assessment has followed the guidance of AS 3959:2018. This includes:

- A recognition of excluded vegetation types described at cl.2.2.3.2 (e) and (f), but the underlying vegetation should still be classed e.g., an orchard may be excluded but not the grassland within it.
- A separate plot is applied if there is a variation in the slope greater than 5.0^0
- For various vegetation classes a representation that is less than 10%, does not constitute the predominant class. Foliage cover referred to in AS 3959:2018 for various classes is based on the foliage cover for that class as a percentage of a ha. (shadow cast is not representative of foliage cover).
- The measurement point and the most influential vegetation class (presenting the highest BAL at the building) is used for the determination of the BAL at the building (Figure 2.2 AS 3959:2018).

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- Consideration of the predominant vegetation is to consider the likelihood of regeneration.
- Orchards, and single tree rows (planted in a row less than 10 m wide) is determined by underlying the near surface fuel.

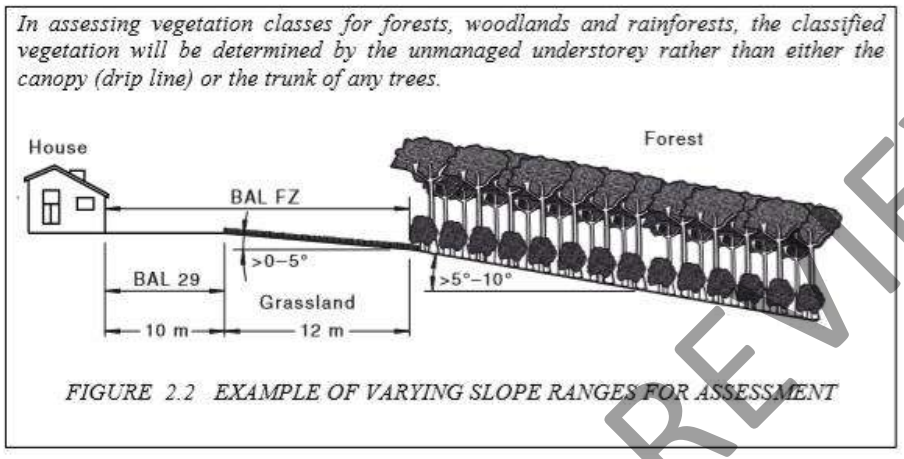


Plate 4: Effective Slope and measurement taken from AS 3959:2018

Effective slope under each vegetation plot was assessed in accordance with the methodology detailed in AS 3959:2018 Construction of buildings in bushfire prone areas (AS 3959) (Standards Australia, 2018 Bushfire Fuels). Slope data was measured on site and cross referenced with Landgate elevation data.

Site Assessment and Site Plans

The assessment of this site / development was undertaken on 16 May 2026 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959: 2018 Simplified Procedure (Method 1).

The following figures illustrate the findings of the assessment and georeferenced photos are provided. The vegetation is assessed by both the aerial photo to determine the horizontal distributions and the oblique photo as evidenced of the vertical fuel structure.

Figure 1 is provided for the area context.

Figure 2 illustrates the topography

Figure 3 illustrates the vegetation plots and the photo evidence positions.

Figure 4 illustrates the post development BAL contour.

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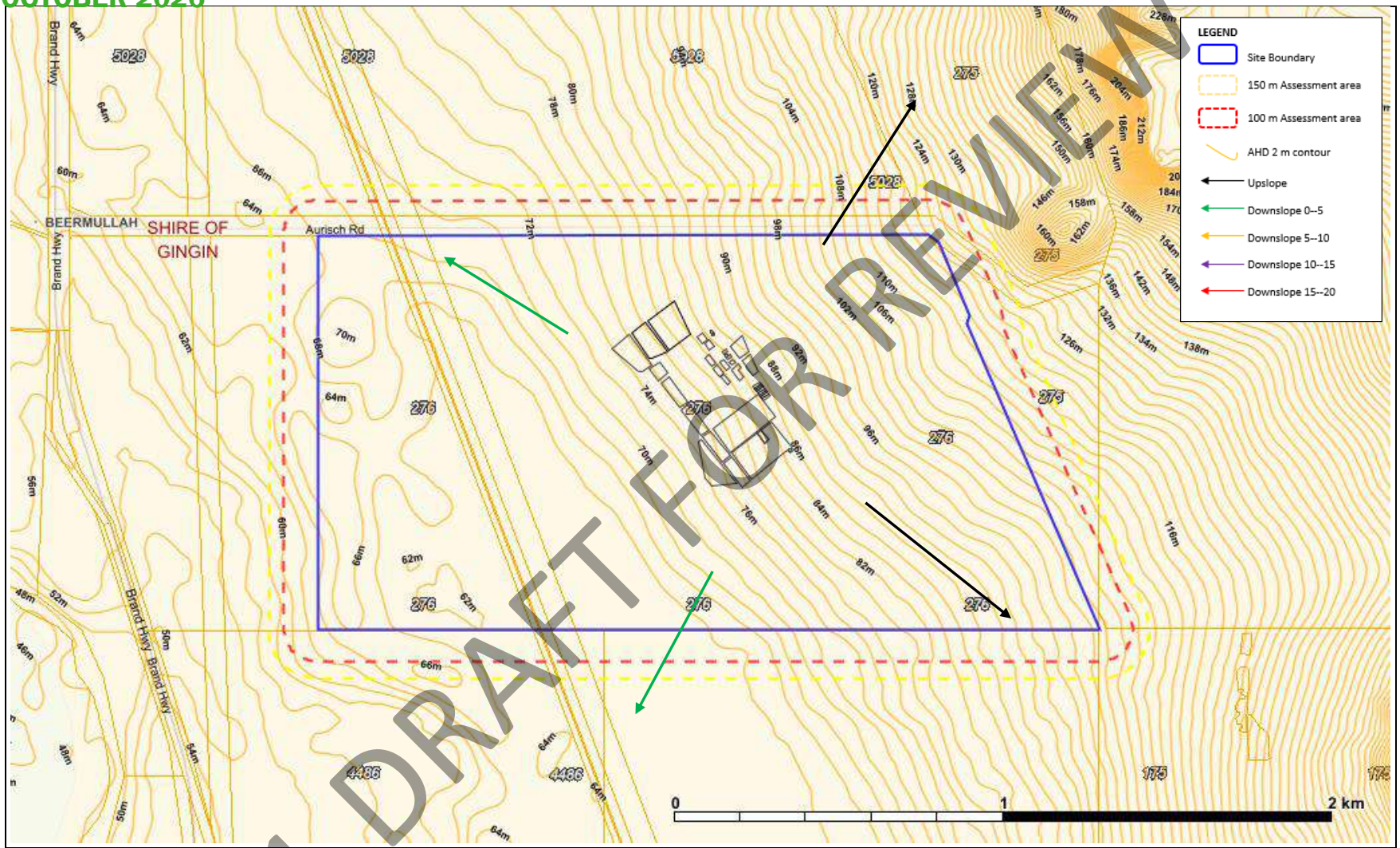


Figure 1: Location

Assessment Date: 16/05/2026
Prepared: Anthony Rowe I Accreditation Level: BPAD L3
Accreditation Number: 36690 Accreditation I Expiry: Dec 2026
FPAA FIRE MAP 2023 I GDA94 MGA Zone 50

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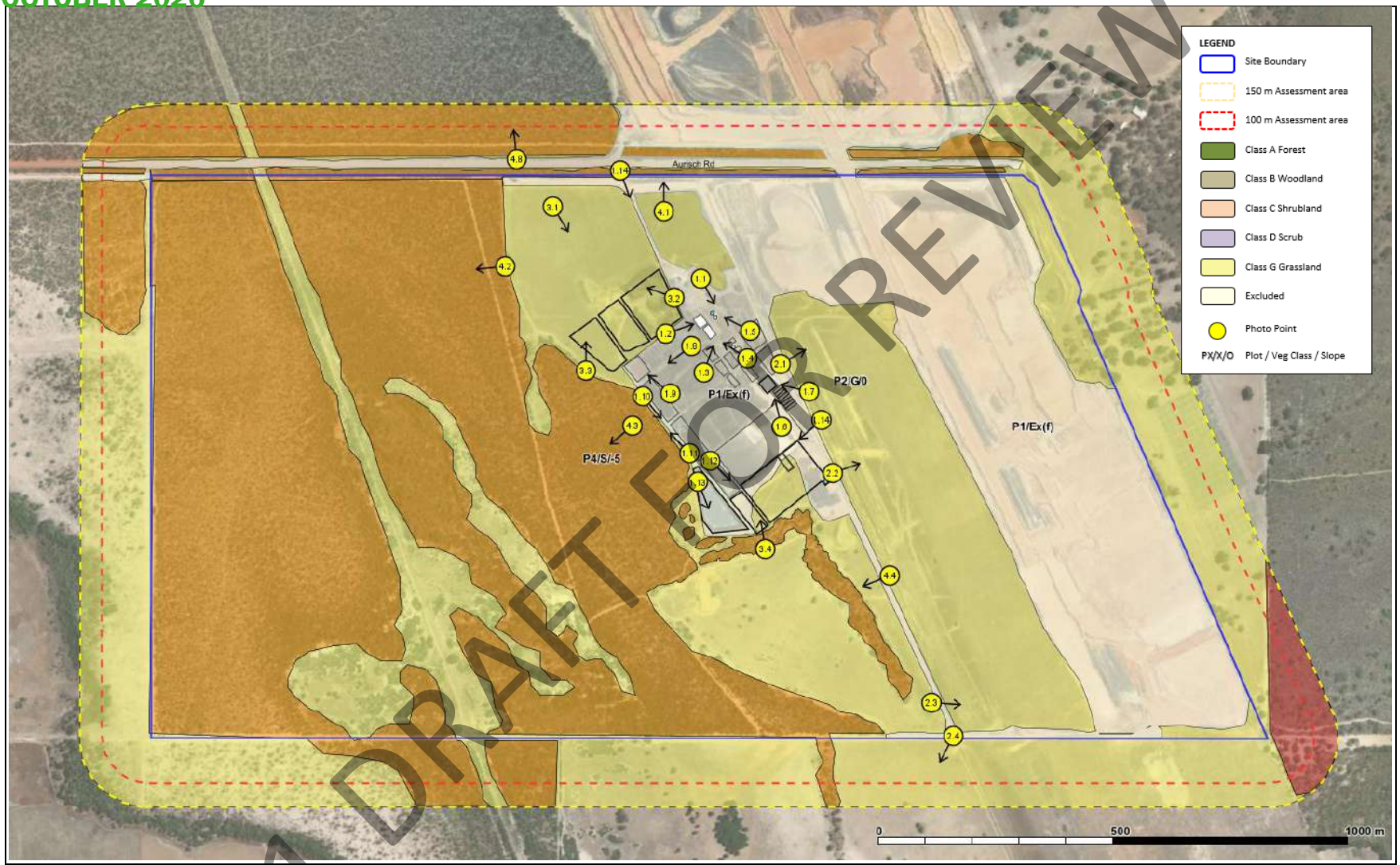
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Figure 2: Topography

Assessment Date: 16/05/2026
Prepared: Anthony Rowe I Accreditation Level: BPAD L3
Accreditation Number: 36690 Accreditation I Expiry: Dec 2026
FPAA FIRE MAP 2023 I GDA94 MGA Zone 50

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Figure 3a: Vegetation Classification and photo locations

Assessment Date: 16/05/2026
Prepared: Anthony Rowe I Accreditation Level: BPAD L3
Accreditation Number: 36690 Accreditation I Expiry: Dec 2026
FPAA FIRE MAP 2023 I GDA94 MGA Zone 50

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PLOT:1				
Vegetation Classification		**Slope**		
Excludable - 2.2.3.2(e) Non Vegetated Areas		Flat		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.				
Post development				
Low threat				



Photo 1.1 Development east of site



Photo 1.2 Development (central) east of site grass in foreground



Photo 1.3 Development (south) east of site grass in foreground



Photo 1.4 Low threat north east of site

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PLOT:1				
Vegetation Classification		**Slope**		
Excludable - 2.2.3.2(e) Non Vegetated Areas		Flat		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.				
Post development				
Low threat				



Photo 1.5 View north east of site



Photo 1.6 View north of site



Photo 1.7 View north of site



Photo 1.8 Windrow mounds

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PLOT:1				
Vegetation Classification		**Slope**		
Excludable - 2.2.3.2(e) Non Vegetated Areas		Flat		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.				
Post development				
Low threat				



Photo 1.9 View northwest basin



Photo 1.10 View south central basin



Photo 1.11 View north from central basin windrow east



Photo 1.12 Windrow mounds

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PLOT:1				
Vegetation Classification		**Slope**		
Excludable - 2.2.3.2(e) Non Vegetated Areas		Flat		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.				
Post development				
Low threat				



Photo 1.13 Southern basins



Photo 1.14 Site entry

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PLOT:2				
Vegetation Classification		**Slope**		
Class G Grassland – Spare open tussock G-24		Flat		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate	✓			
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland.				
Post development				
Grassland				



Photo 2.1 View east grassland



Photo 2.2 Central east grassland



Photo 2.3 south east grassland



Photo 2.4 Grass south of site

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PLOT:3				
Vegetation Classification		**Slope**		
Class G Grassland – Spare open tussock G-24		Downslope 0-5		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate	✓			
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland.				
Post development				
Grassland , Lw threat 3.2, 3.3				



Photo 3.1 View south grassland at north on site



Photo 3.2 Proposed finished product store.



Photo 3.3 Proposed pond 2



Photo 3.4 Grass view from south west of site

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PLOT:4				
Vegetation Classification		**Slope**		
Class D Scrub - Closed scrub D-13		Downslope 0-5		
Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate	✓			
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
Found in wet areas and/or areas affected by poor soil fertility or shallow soils; >30% foliage cover. Dry heaths occur in rocky or sandy areas. Shrubs >2 m high. Typical of coastal areas and tall heaths up to 6 m in height. May be dominated by Banksia, Melaleuca or Leptospermum with heights of up to 6 metres				
Post development				
Scrub				



Photo 4.1 Scrub at north of site



Photo 4.2 Scrub at west of site



Photo 4.3 Scrub central west



Photo 4.4 Scrub south

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Figure 3b: Vegetation Classification and post development

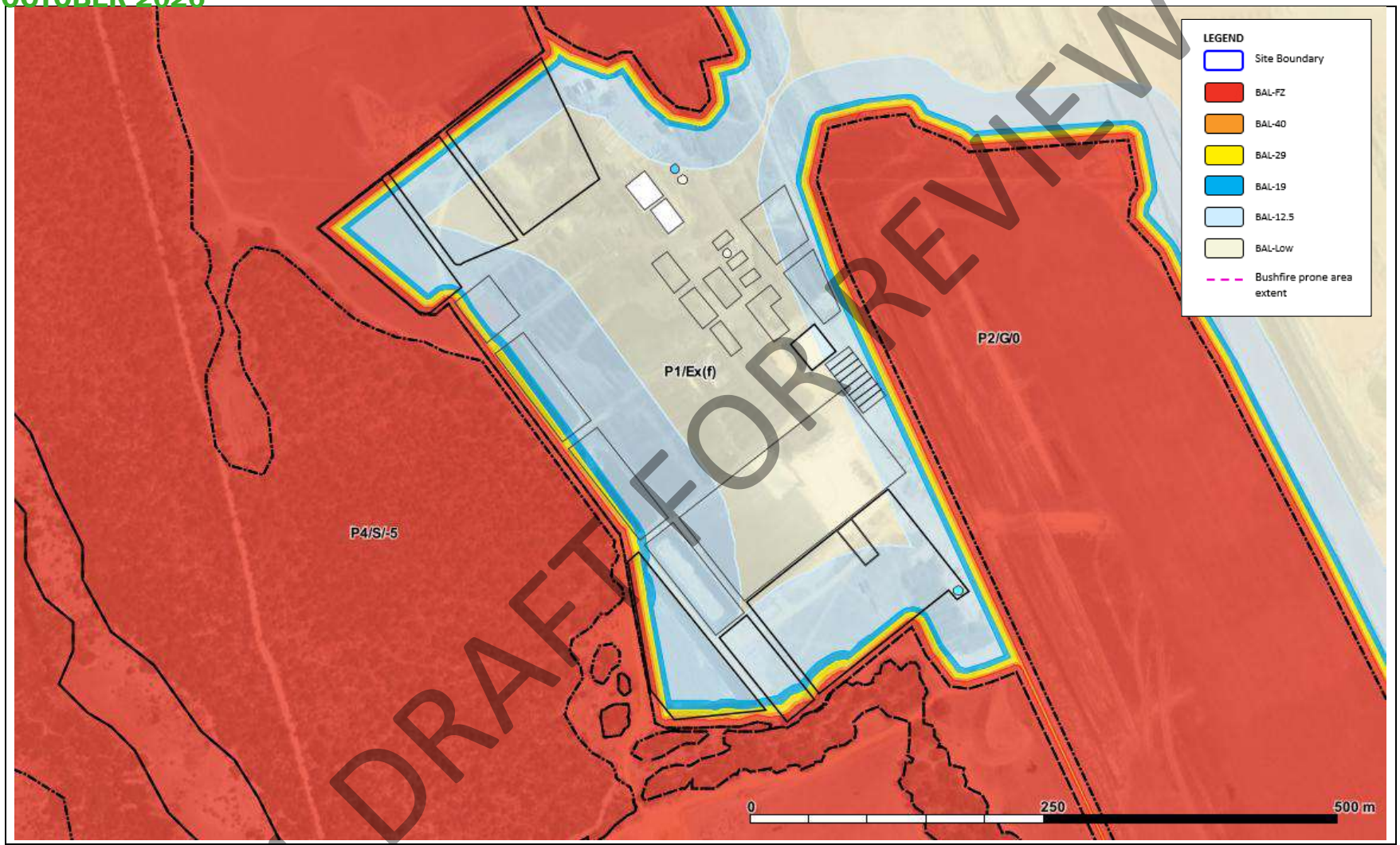
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Assessment Date: 16/05/2026
Prepared: Anthony Rowe I Accreditation Level: BPAD L3
Accreditation Number: 36690 Accreditation I Expiry: Dec 2026
FPAA FIRE MAP 2023 I GDA94 MGA Zone 50

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Figure 4: BAL Contour

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3.2 Assessment Outputs

The Indicative BAL is the expected BAL at completions. In this instance the whole site will be low threat at completion, the resulting BAL level is derived from the presence of classified vegetation upon land adjoining the development site that is assumed to remain external to the site.

Plot no.	Vegetation Classification	Effective slope	Required for BAL 29
2	Grassland	Level/Upslope	8 m
3	Grassland	Downslope 0-5	9 m
4	Scrub	Downslope 0-5	13 m

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4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

(Applied Undertaking an outcomes based approach for Element 1 – Location Bushfire Protection Criteria 4 Strategic Planning).

Preface

SPP 3.7 is not intended to be applied inflexibly but allows for context-sensitive application based on site-specific assessments. Risk under SPP 3.7 is defined and assessed using AS 3959:2018 – Construction of buildings in bushfire-prone areas, which considers vegetation type, slope, site access, and the availability of water for emergency response.

This section in the BMP (following the Guidelines Appendix B - B.1.2) also aligns with the National Emergency Risk Assessment Guidelines (NERAG) 2020, and its Land Use Planning for Disaster Resilient Communities (2020) which operationalise the AS/NZS ISO 31000:2018 Risk Management – Principles and Guidelines and incorporates categorised treatment options from the National Fire Protection Association (NFPA) model, which is also recognised by the Australian Building Codes Board (ABCB).

NERAG	Scale response
Scope and Objective	SPP 3.7 Policy Intent
Risk identification	Bushfire
Risk Analysis	Bushfire Behaviour (contributing attributes) Climate (local) Existing mitigations (controls) relied upon
Risk Evaluation	Cumulative risk: Likelihood (risk of ignition): Inherit fuels, history, external activities. Consequence: – Social (human harm – minor injury, medical treatment, fatality) – Economic (repair cost, disruption cost, or replacement cost)
Risk Treatments	Bushfire Protection Criteria (Additional) As Low as reasonably practical measures (ALARP) addressing: – Minimising Ignition – Minimising exposure - evacuate or shelter – Managing (reducing) the fire effects - managing the fire, sources and building resistance[2].
Communication	Bushfire Management Plan

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The risk treatments aligning the Policy Intent (SPP 3.7) with the NFPA 550 (2012)3 and its risk treatment methods are illustrated in the following table.

SPP 3.7	NFPA	Impact Mitigation
	Prevent Ignition	Nullify potential externalities
Preserving life	Manage the exposed	Evacuation
		Shelter
Property and assets	Manage the fire	Vegetation management (APZ)
		Building construction
		Fire suppression

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[3] Guide to the fire safety concepts tree. Quincy: National Fire Protection Association, 2012.

4.1 Scope and objective

The intent of this policy is:

To implement effective, risk-based land use planning and development which in the first instance avoids the bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an **acceptable level**. The preservation of life and the management of bushfire impact are paramount.

4.2 Risk Identification

Bushfire hazards

The site is within an area identified as bushfire prone, potentially exposing occupants and property to Bushfire Attack.

The proposal is vulnerable from a bushfire attack arriving at the site through fuels identified in the bushfire prone area map.

The nature of the use also has vulnerability to both be affected by bushfire attack and potentially present an ignition source than may increase the threat of bushfire , the spread of fire from the site and into adjoining property.

Windrows are potential bushfire fuels but the compaction of the material, denies oxygen that would contribute to an intense fire. They can be approached from close proximity but once ignited are difficult to extinguish.

Loose surface materials may be susceptible to ignitions from embers and can also become embers if ignited.

Windrows require management to avoid spontaneous combustion and will smoulder until exposed to oxygen. The proposal includes irrigation to maintain windrow moisture at 40%-60%.

DFES have produced a guidance note GN03 - Fire Safety Considerations for Open Yard Storage - 2020 (Attachment 3) it is however a case by case consideration to avoid the ignition and spread of fire.

Injury and damage

Bushfire attack risks include

fatal and property destroying *includes: flame immersion, accumulated embers, and radiant heat 4-7 kWm^2 (human – the time for harm reduces as the heat level increase) 10 kWm^2 (maximum for vehicles), and toxic smoke and carbon monoxide asphyxiation (fatal humans).*

harmful *convective heat, strong winds (blown object injuries), particle injuries (embers small burns and eye injury) heavy smoke (obscured vision, trips, falls, collision, and respiratory sensitivity impacts (increases with smoke thickness), and mental trauma (bushfires are terrifying).*

fire actions: *these include*

- ***Airborne embers*** *(concentrations diminish with distance from the fire front, but can be up to 500 m from a forest)*
- ***Burning debris*** *and/or accumulated embers adjacent to building elements (concentrations diminish with distance from the fire front but high concentration within 100 m of forest*
- ***Heat transfer*** *from combustible materials within the site (ignited structures)*
- ***Radiant heat*** *from a bushfire front (outside of direct flame contact)*
- ***Flame contact*** *from a bushfire front, includes extreme radiant heat, burning embers and cyclonic winds.*

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Bushfire Behaviour

Sustainable fire combustion depends upon the availability of fuel, oxygen, and heat. Removal of any one of the three aspects will extinguish or not sustain a fire. Fuel management, the management of vegetation, is the most practical means of control.

Bushfire behaviour, as it increases in intensity and speed of travel, can exceed human control measures and when this occurs the risk increases to humans and property. Bushfire behaviour is a result of climate, topography, and the availability of bushfire fuel (vegetation).

- Climate (drought and season) & weather (temperature, humidity, wind, atmospheric instability).

  Wind

  Bushfires are influenced by the wind direction and the speed. The wind direction generally determines the direction of the fire and wind speed, along with ground slope, generally determines the speed a fire will travel over ground. As wind strength increases it increases the availability of oxygen allowing the fire intensity to increase.

  Atmospheric conditions determine the potential for the uplift of embers and particles that can be distributed by the prevailing wind direction well ahead of the fire, up to 5 km, to create spot fires that can advance the location of the fire front.

  Fire Danger Index FDI

  FDI is an indicator of potential fire intensity and behaviour based upon weather conditions; temperature, humidity, and wind speed, together with climate measures, drought factor representing the dryness of the ground fuels.

- Topography (slope of the ground, aspect) – fire travels faster uphill, and in some conditions may determine the direction of the fire. The landform can also channel and increase the windspeed at a locality and create turbulence. It is measured as 0.0^0 or in downslope increments of 5.0^0.

- Vegetation (horizontal and vertical structure, flammability, mass, and availability). Measured as a vegetation classification, or an exclusion, in AS 3959 (Method 1). The arrangement of fuel has a greater effect upon the intensity of a fire than just its mass; its exposure to oxygen is referred to as its availability in a bushfire.

Grass fires are fast moving and influenced by the wind direction.

Forest Fires are characterised by the high fuel mass and have the highest fire line intensity requiring the largest separations to reduce radiant heat.

Forest fires, if of sufficient size and intensity can eject embers up to 5 km in advance of the fire front (and greater distances but rare).

Ember attack is the cause of the highest building loss, either finding gaps and flammable materials within a building or igniting flammable materials near a building that can expose a building to direct flame contact.

Whilst a distance of 100 m from the firefront is attributed to account for 80% of all building loss, the proportion declines with distance from the firefront. No building loss is attributed directly to a fire front located more than 700 m from the site.

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Climate

The nearest weather station to the site is at Gingin airport (6 km south west of the site). The site is within an area described as having a Mediterranean climate of dry summers and mild, wet winters. The majority of rainfall is between May and September. The prohibited burning period is from mid-December to mid-March.

Bushfires generally travel in the direction of the prevailing wind. The direction of the prevailing wind conditions can affect the options for evacuation and anticipated fire intensity depending upon the slope and fuel.

The wind roses below (Plates 5 and 6) for February (averaged) recorded at 9 am and 3 pm. illustrate the winds are strongest and most frequent from the east in the morning. Afternoon winds are generally stronger and of a higher frequency from the south west.

A fire can come from any direction the wind may be blowing at the time. The wind roses provide an indication that over a period, if a fire is not controlled or is allowed to flare up, it may adopt a typical prevailing wind.

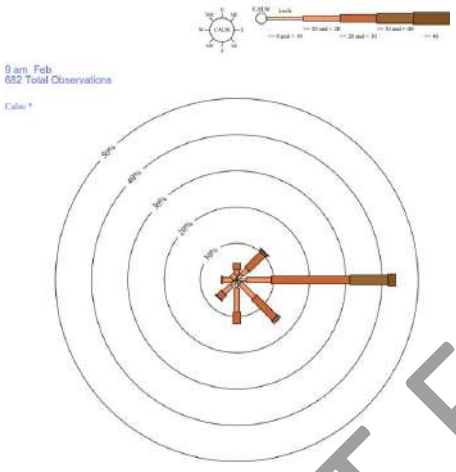


Plate 5: wind directions as at 9 am

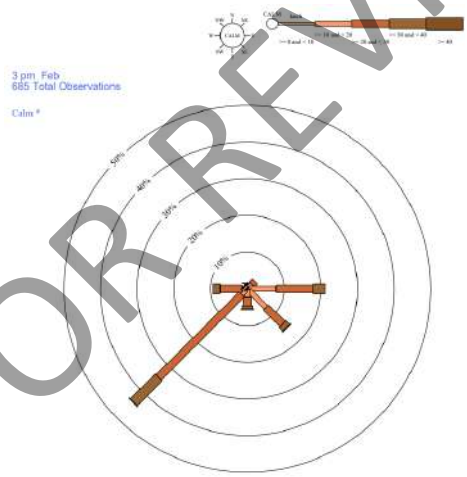


Plate 6: wind directions as at 3 pm

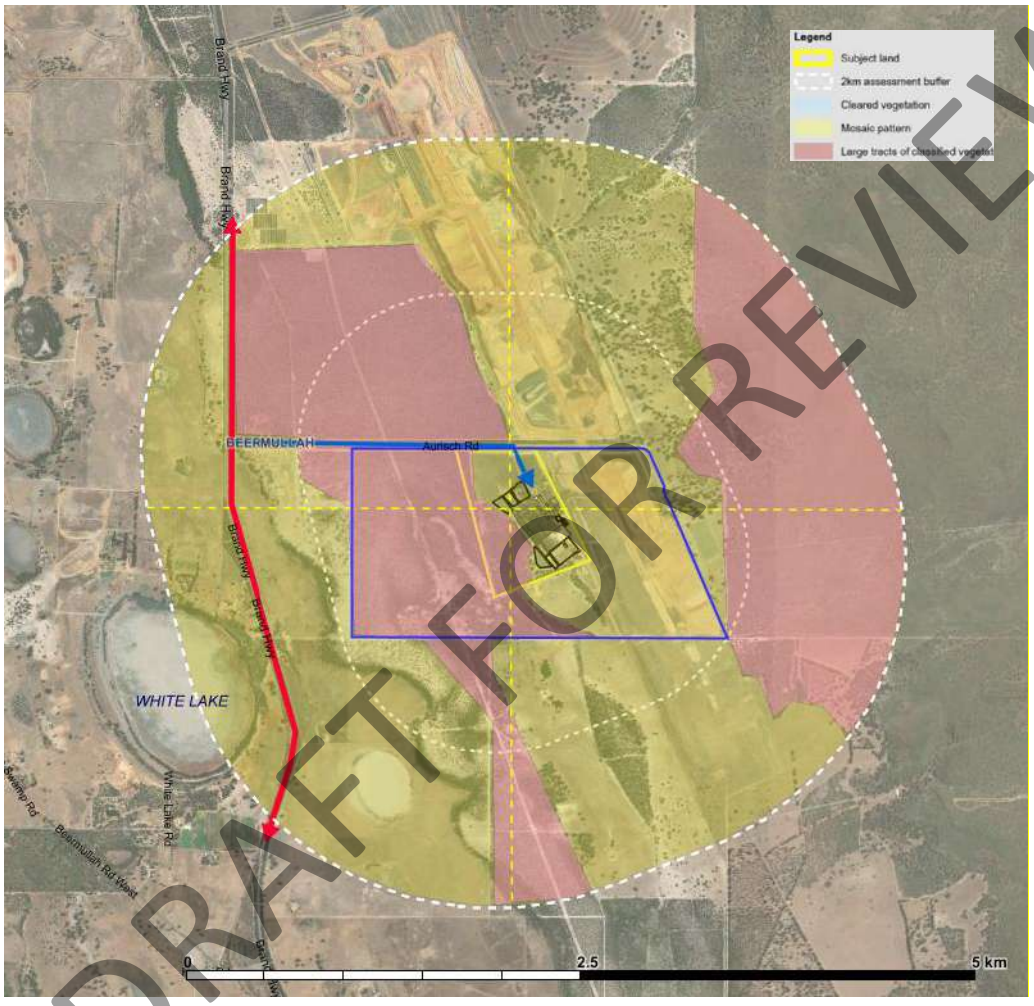
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4.3 Risk Analysis

Identified hazards

Broader Landscape Assessment (Area extending 2 km from development site)

The following diagram is a summary of steps A – D Guidelines A.1 - Broader Landscape Assessment



A site is vulnerable to a landscape scale fire if contiguous vegetation is more than 1 km deep and within 1 km of the site.

Forest presents the possibility of extreme bushfire behaviour, and potential for ember attack upon buildings up to 700 m from a fire front, although ember attack diminishes with distance from the fire front. Management of heat is required within 100 m of the fire front and ember attack up to 700 m from the fire front.

It is accepted (General acceptance B.1.2.1) that the site will be subject to ember attack and smoke.

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Scenario

North

The development site is separated from Scrub, north of Aurisch Road. The development site joins grassland immediately north to the development site. Management of potential grass flame contact and short extreme heat is required

East

Contiguous landscape scale areas of grass can produce fast moving fires and grass can be subject to spotting and ignitions a head of a forest fire. Management of ember attack is required for a fire arriving from the east.

The development site joins grassland immediately east to the development site. Management from potential grass flame contact and short extreme heat is required

South

The development site joins grassland immediately south to the development site. Management from potential grass flame contact and short extreme heat is required

West.

The development site faces Scrub immediate to its west. Management of potential Scrub flame contact and extreme heat and dense ember attack close to the fire front is required.

The site is within 1 km of Forest to the east but outside of ember range (greater than 700 m).

Grass surrounds the immediate development site requiring risk treatment to separate the site assets from flame contact.

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Likelihood

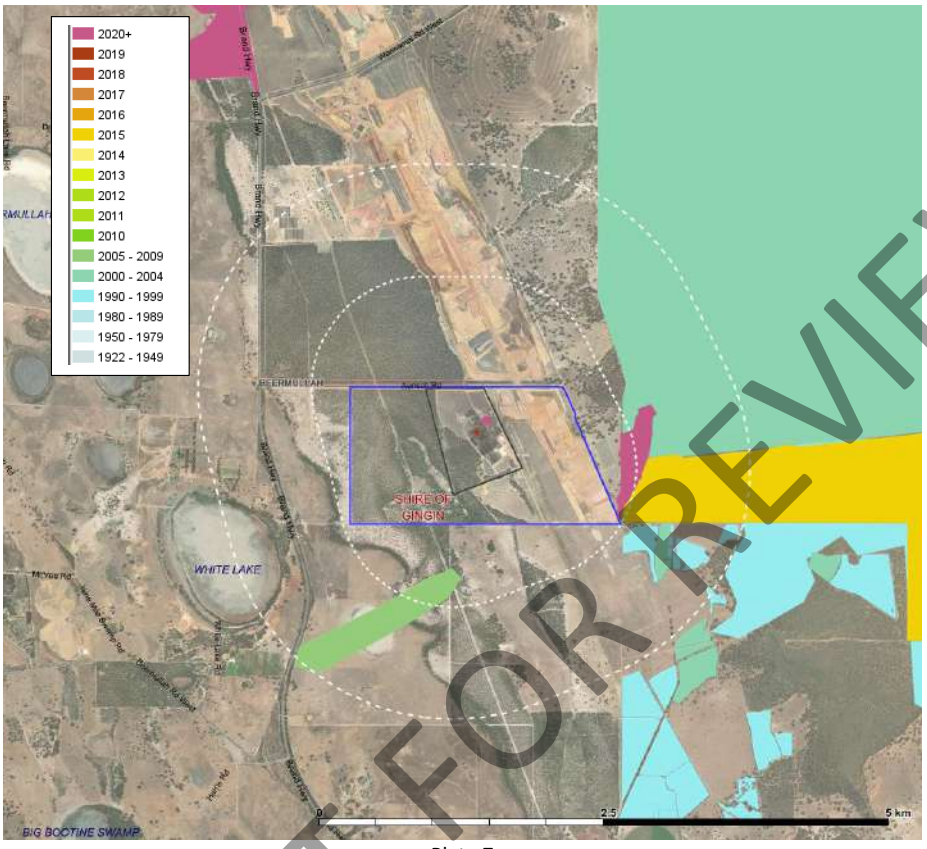


Plate 7

Having regard to the NERAG categories of likelihood (Plate#) and comparing the fire history, the likelihood of the site being affected by a fire is 1:10 APE Likely within 10 years. It is important to note that only landscape scale fires are recorded. There are numerous ignitions that require emergency service attendance throughout the year that do not progress.

LIKELIHOOD	ANNUAL EXCEEDANCE PROBABILITY (AEP)	AVERAGE RECURRENCE INTERVAL (ARI) (INDICATIVE)	FREQUENCY (INDICATIVE)
Almost certain	63% per year or more	Less than 1 year	Once or more per year
Likely	10% to <63% per year	1 to <10 years	Once per 10 years
Unlikely	1% to <10% per year	10 to <100 years	Once per 100 years
Rare	0.1% to <1% per year	100 to <1000 years	Once per 1000 years
Very rare	0.01% to <0.1% per year	1000 to <10,000 years	Once per 10,000 years
Extremely rare	Less than 0.01% per year	10,000 years or more	Once per 100,000 years

Plate from NERAG 2020

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Table 3 Determined Consequence criteria

Consequence	Social/ Life	Economic/ Asset
Catastrophic	Fatality.	Extensive loss, extended closure until facility is rebuilt.
Major	Major or Multiple injuries resulting in temporary disability or ill health, Extended lost time for recovery.	Partial loss, partial closure until isolated items are rebuilt.
Moderate	Injury or illness requiring medical or psychological treatment, lost injury time.	Disruption only for evaluation, repairs required to a primary building but not closure.
Minor	Minor injury, first aid treatment required. No lasting impact.	Disruption only for evaluation, damage to incidental structures.
Insignificant	No treatment.	No Disruption

Internal vulnerability

Dry outer layers of windrows can be ignited from ember attack or radiant heat during a bushfire.

A fire spreading within the windrows may destroy or compromise the product onsite, potential loss until replaced. Consequence - moderate.

External vulnerability

Windrows can generate internal heat through microbial activity. Under poor management, this can contribute to spontaneous combustion, and potential for windblown materials to escape into joining land.

This presents potential liability for the operator.

Table 4 Existing controls

Ignition Prevention	Method	Comment	Control strength
DBCA/PWS	Crown land management	Can reduce the intensity of fire on Crown lands, but does not eliminate the risk and it is dependent upon the fuel reduction cyclone	Low
Shire	Administration of the Fire Break notice	Grass growth can be fast	Medium
	Administration of total fire bans		Low
State Emergency Management Framework			
LEMA	Shire sponsored coordination of response 'combat' agencies	The facility would not be a prioritised asset	Low
Local Emergency Services		Competing priorities	Low
Telecommunications			
	Mobile phone	4G available at site	High
	BOM forecast	FBI Available 4 pm on the preceding day	High
	Emergency WA Alerts	Delay in public announcement	Low

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Ignition Prevention	Method	Comment	Control strength
Access			
	Aurisch Road	Aurisch Road is a dead end road, the site access is separated 1.8 km from Brand Highway (through road) by Scrub greater than 1 km in depth.	Medium

Existing on site controls to protect and respond to a bushfire event

The present longstanding response is to stay and defend the facility in the event of a bushfire and assist emergency services. Staff are trained to undertake active fire suppression.

Existing onsite controls include

- 2@ 3000L water trucks
- 2@ 150000 L water tanks
- Earth moving vehicles (four dozers)
- 4G Mobile phone access to receive alerts and monitor BoM
- Automated water system, 40%-60% moisture maintained
- Portable water sprinkler system for wetting windrows.
- Separation of windrows by leachate /water basins along the west perimeter, north west and south west. Low threat extractive industry land east of the windrow areas.
- The arrangement of windrows with vehicle access between and around the perimeter.
- Staff trained to undertake fire suppression (private firefighting)

	CONSEQUENCE LEVEL				
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ALMOST CERTAIN	Medium	Medium	High	Extreme	Extreme
LIKELY	Low	Medium	High	Extreme	Extreme
UNLIKELY	Low	Low	Medium	High	Extreme
RARE	Very low	Low	Medium	High	High
VERY RARE	Very low	Very low	Low	Medium	High
EXTREMELY RARE	Very low	Very low	Low	Medium	High

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Table 5 Assigned level of risk

Likelihood = Likely		Consequence			
Scenario direction	Hazard/Fire Actions	Do nothing consequence (Vulnerability) Includes existing controls assumed to apply		Consequence after Risk Treatment	
		Life	Asset	Life	Asset
North	Grassland fire spread within the site. High radiant heat. Shrub area is located 300 m north from the development site. Low level sparse ember attack unlikely to accumulate against flammable materials. Low radiant heat. May ignite exposed high flammability materials.	**Consequence - Minor** There is open visibility to the north of the site to detect an approaching fire Early evacuation of visitors before the arrival at Aurisch Road would avoid exposure and potential to harm. A fire penetrating the site from the north is a grass fire through slashed grasses. Onsite shelter options are available within the site. Travel along Aurisch Road should be avoided if entrapment is likely Evacuation west to Brand Highway and south to a suitable destination	**Consequence - Minor** A grassfire from the north would ignite contacted flammable object, in the finished product storage area. The facility has an active firefighting reposes, ready equipment and trained staff. The storage areas have a have perimeter vehicle access, and the site has two mobile suppression facilities (water trucks) that are deployed to protect assets and suppress fire. Fires within materials stored at the site are low flaming. A slow moving fire would enable active suppression if penetration from the perimeter occurs.	**Consequence - Minor** The facility is an existing operation. The facility will maintain an active firefighting response Facility firefighting (by staff) require support from maintained training and up to date PPE to avoid injury. Onsite shelter options are available within the site. Travel along Aurisch Road should be avoided if entrapment is likely .	**Consequence - Minor** Grassland fire is accepted as a mitigatable intensity. The facility will maintain an active firefighting response, ready equipment and trained staff. A low threat separation is to be provided around any storage area that provides vehicle access for the facility fire trucks and bulldozers. This enable any ignitions to be suppressed and the material isolated to prevent spreading. In addition to the automated irrigation system, to pre-wet before the fire arrives the facility has an active fire suppression response.
		Risk Level = Medium	**Risk Level = Medium**	**Risk Level = Medium**	**Risk Level = Medium**
East	An Extractive industry is located in the eastern portion of the site separates the development site from forest that extends eat (Darling Ranges) Aside from the surface management of the extractive site (potentially unmanaged	**Consequence Insignificant** Evacuation east to Brand Highway (May not be necessary given the distance from the firefront)	**Consequence -Insignificant** The facility is out of range from historic damage by ember attack. The facility has a firefighting response, and operating conditions would be	**Consequence - Insignificant** Evacuation east to Brand Highway (May not be necessary given the distance from the firefront)	**Consequence - Insignificant** The facility is out of range from historic damage by ember attack. The facility has a firefighting response, and operating conditions would be

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Likelihood = Likely		Consequence			
Scenario direction	Hazard/Fire Actions	Do nothing consequence (Vulnerability) Includes existing controls assumed to apply		Consequence after Risk Treatment	
		Life	Asset	Life	Asset
	grassland) the treat from the east is distant and a dispersed ember attack		maintained to attend to any ignitions should they occur.		maintained to attend to any ignitions should they occur. A low threat separation is to be provided around any storage area that provides vehicle access for the facility fire trucks and bulldozers. This enable any ignitions to be suppressed and the material isolated to prevent spreading. In addition to the automated irrigation system, to pre-wet before the fire arrives the facility has an active fire suppression response.
		Risk Level = Low	**Risk Level = Low**	**Risk Level = Low**	**Risk Level = Low**
South	The development site joins grassland immediately south to the development site management from potential grass flame contact and short extreme heat is required	**Consequence - Minor** There is open visibility to the north of the site to detect an approaching fire Early evacuation of visitors before the arrival at Aurisch Road would avoid exposure and potential to harm. A fire penetrating the site from the north is a grass fire through slashed grasses. Onsite shelter options are available within the site.	**Consequence - Minor** A grassfire from the south would ignite contacted flammable objects, in the hardstand storage area. The site has two mobile suppression facilities (water trucks) that are deployed to protect assets and suppress fire. Fires within materials stored at the site are low flaming. A slow-moving fire would enable active suppression id	**Consequence - Minor** Evacuation initially north to Aurisch Road and east to Brand Highway if safe to do so Onsite shelter options are available within the site. Travel along Aurisch Road should be avoided if entrapment is likely Facility firefighting (by staff) require support from maintained training and up to date PPE to avoid injury.	**Consequence - Minor** Grassland fire may run up to the site from the south is accepted as a mitigatable intensity, responsive to a fire break and is a low ember threat. The facility will maintain an active firefighting reposes, ready equipment and trained staff. A low threat separation is to be provided around any storage area that provides vehicle

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Likelihood = Likely		Consequence			
Scenario direction	Hazard/Fire Actions	Do nothing consequence (Vulnerability) Includes existing controls assumed to apply		Consequence after Risk Treatment	
		Life	Asset	Life	Asset
		Travel along Aurisch Road should be avoided if entrapment is likely Evacuation west to Brand Highway and north to a suitable destination. Evacuation west to Brand Highway and north to a suitable destination.	penetration from the perimeter occurs		access for the facility fire trucks and bulldozers. This enable any ignitions to be suppressed and the material isolated to prevent spreading. In addition to the automated irrigation system, to pre-wet before the fire arrives the facility has an active fire suppression response.
		Risk Level = Medium	**Risk Level =Medium**	**Risk Level = Medium**	**Risk Level = Medium**
West	The development site faces Scrub immediate to its west. Management from potential Scrub flame contact and extreme heat and dense ember attack close to the fire front is required is required The flammable material are separated by the ponds located along the west boundary which may provide protection to undertake suppression of any ignitions The facility has an active firefighting resource to stay and defend the site with trained personnel and fire trucks.	**Moderate** Visitors to the site may be unable to evacuate by Aurisch Road and will need to shelter at the site, at the office. The site may be affected by thick smoke affecting those with respiratory sensitivities. Active firefighting necessitates an exposure to extreme heat and particle. It requires effective PPE and training	**Minor** The ponds provide a separation from the west Past actions have proven to be effective; damage did not result in disruption of the economic activity	**Moderate** Visitors to the site may be unable to evacuate by Aurisch Road and will need to shelter at the site, at the office. The site may be affected by thick smoke affecting those with respiratory sensitivities. P2 smoke masks should be kept in quantity for any visitors attending the site. Active firefighting necessitates an exposure to extreme heat and particle. It requires effective PPE and training	**Minor** The expansion retains the pond to the wests. They are an important buffer to a fire from the west Active suppression will be dependent upon the facilities being in ready order with staff trained and provided with effective PPE that supports their effectiveness in suppressing any ignitions.
		Risk Level = High	**Risk Level =Medium**	**Risk Level = High**	**Risk Level = Medium**

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Risk Level Assessment

The site is not occupied by vulnerable persons. All persons at the site are able bodied and can move to actively avoid harmful bushfire conditions. The site as an existing organic processing facility and has active fire suppression resources (two fire trucks) independent of reticulated services and a trained response (staff) that can attend any location within the site and apply water for suppression. The facility also has heavy dozers capable of establishing fire breaks or isolating ignited materials.

A high risk level, is primarily only from the west

The highest priority treatments are protection of the windrows from an approaching fire and the escape of fire from the windrows at the site.

The development site does not retain native vegetation. Existing buildings (not a class requiring bushfire construction) can be separated to achieve a BAL commensurate to their construction and desired retention.

Onsite fire suppression services are required, because external assistance cannot be relied upon. This includes water capacity, and a means of distribution without reliance upon network power supplies. Two fire trucks are available.

The office (which is located in a large steel shed) should be identified as safer place for refuge, in case of a fire arriving from the west of the site, making Aurisch Road unsafe for passage.

4.4 Risk Evaluation

A Risk evaluation usually follows in a NERAG assessment of the Risk Level as a basis for assigning priorities over a program that may span a number of years.

In this instance the site is an existing organic composting facility large area.

The risk treatments that are identified are those that require compliance under the bushfire protection criteria. There is no priority for the risk treatment; these measures, because they are also matters of compliance, require immediate action.

In regard to this matter the risk treatments follow the compliance requirement at development application through the direction provided through this scheme amendment BMP.

4.5 Risk Treatments

<u>Minimising Exposure (human safety)</u>

Move people away from the approaching fire – evacuate on observation of a fire other than from the west of the site.

A localised fire may not be publicly announced; action should be taken upon observation of a fire, in addition to any direct/public instruction to evacuate.

Identify a safer place on site, for retreat if it is not safe to leave.

<u>Asset Protection</u>

The separation of windrows from adjoining vegetation where there may be a risk of escape

Maintaining the ponds at the west and north west provides an important buffer to fire spread into the site from the west.

The separation of windrows from adjacent vegetation, greater than the flame length of the adjacent vegetation type.

The provision of onsite suppression to attend to ember ignitions at windrows and provide preventative wetting to avoid ignition from an approaching fire.

The isolation of windrows to enable containment

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5. BUSHFIRE PROTECTION MEASURES

Planning for Bushfire Guidelines (2024) (the Guidelines)

The Bushfire Protection Criteria in the Guidelines is divided into 8 classifications, each with four elements – location, siting and design, vehicular access, water. Each element aligns to an Outcome listed in SPP 3.7.

The applicable classification is Bushfire Protection Criteria 7: Development - Commercial and industrial

Each element is provided with an Acceptable Solution that satisfies the SPP3.7 outcome. Compliance with all applicable Acceptable Solution is a demonstration of compliance with SPP 3.7.

Where an Acceptable Solution is not achieved an alternative bushfire risk management measure of no lesser a standard than the Acceptable Solution may satisfy the outcome of the policy.

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Table 6: Bushfire Protection Criteria assessment.

Bushfire Protection Criteria 4: Strategic planning.

Demonstrated Compliance (DC)	AS	Acceptable solution	OB	Outcomes-based approach	N/A	Not Applicable

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
Element 1: location **O1 -** Avoid broader landscapes that present an unacceptable bushfire risk to life, property and infrastructure	**Area 1 (Urban):** Does not require assessment of Element 1: Location. **Area 2:** Determine the Broader Landscape Type in accordance with Appendix A.1 and proceed with the following acceptable solutions:		
	A1.1 Location The subject site is located in an area that is a Broader Landscape Type A. This location satisfies the policy outcome for Element 1: Location and no additional consideration is required.		The development site is in a Broader Landscape Type A
	A1.1b Broader Landscape Type B The subject site is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape-scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the acceptable solution for Element 1: Location. Where the practitioner considers that further analysis could demonstrate to the decision-maker that the risks can be appropriately managed, and/or mitigated, an outcomes-based approach should be prepared, in accordance with policy measure 7.5 of SPP 3.7. Further explanatory notes are provided in Appendix B.1 of the Guidelines.		

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Broader Landscape Assessment

The Broader Landscape Assessment is shown at section of 2.6 in the BMP (plate #). It has followed the mapping methodology for Step A-D as described at Appendix A.1.

The table below has been used to inform Appendix A Step Three : Establish the broader landscape type

Criteria	5 Points	2 Points	1 Point	score
Proximity of the planning proposal to a suitable destination is:	**>10 km**	1-10 Km	< 1 km	5
The road pattern from the planning proposal to a suitable destination is:	Complex and indirect (cul-de-sacs, and/or multiple intersections)	Mixed road patterns	**Simple and/or direct (limited intersections)**	1
The predominant vegetation pattern is	large tracts of vegetation (contiguous vegetation)	**A mosaic pattern of vegetation (e.g. vegetation within rural living precincts)**	Cleared vegetation (e.g. clearing for residential zoned urban lots)	2
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from	Three or four aspects	**Two aspects**	From nil or one aspect only	2
Total				**10**
0-11 Points	**Broader landscape type A (BLT A)**			✓
12-20 points	Broader landscape type B (BLT B)			

Bushfire Landscape Assessment - Outputs

A point score, following Table 3 Appendix A -Planning for Bushfire Guidelines, is used to determine the Bushfire Landscape Assessment type. The definition of a broader Landscape scale at Appendix B1.1.

- Proximity to a suitable destination: the site is greater than 10 km from the town of Gingin

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
	• The road pattern has legible access: Notwithstanding Aurisch Road is a dead end road it is a directed road to Brand Highway which is a direct unambiguous route north and south • The **predominan**t classified vegetation type within 2 km is grass land (mosaic) • Exposure directions to an external bushfire hazard; **large tracts** (only those meeting the landscape scale definition 1 km (length to site) x 100 m within the BLA area of 2 km (must be within 1 km of the site, excluding grass, to achieve the required min length). There are landscape scale hazards to the west and east The development site is within Broader Landscape Type A.		
Element 2: Siting and Design **O2 -** Ensure siting and design solutions: • manage or mitigate the bushfire risk to people, property and infrastructure; and • avoid, or where unavoidable, minimises the clearing of native vegetation.	**Area 1 (Urban):** Does not require assessment of Element 2: Siting and design. **Area 2: Proceed with the following acceptable solutions:**		
	A2.1 Siting and design The areas of the subject site(s) identified for intensification and/or the future development site(s) achieve a pre- or post-development bushfire hazard level of moderate or low. **A2.2 Clearing of native vegetation** The strategic planning proposal avoids, or where unavoidable, minimises the clearing of native vegetation.	AS	A2.1 Refer to the assessment of BPC 7. Setback areas can be provided within the hardstand areas to achieve BAL 29 – a Moderate level BHL The proposed facility will displace existing grassland
Element 3: Vehicular Access **O3 -** Ensure the design and capacity of vehicular access and egress provide: • for efficient and effective evacuation to a suitable destination(s) and/or • as a contingency measure for vulnerable land uses, an on-site shelter, where	**Area 1 (Urban):** Does not require assessment of Element 3: Vehicular access. **Area 2:** Proceed with the following acceptable solutions:		
	A3.1 Public roads Public roads are to meet the technical requirements in Appendix B.3, Table 10.	AS	The site is accessed from Aurisch Road, (unsealed but compliant with Appendix B.3, Table 10, Column 1) which connects to Brand Highway, sealed state road (sealed and compliant with Appendix B.3, Table 10, Column 1) providing expansive access north and south of the site. It is assumed for the purpose of this BMP that the intersection of Aurisch Road and Brand Highway is resolved to the satisfaction of Mainroads WA. The proposed intensification of the existing land use is likely to increase the frequency of vehicle rotation to and from the site, rather than a significant increase in vehicles at the site at any one time.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
demonstrated appropriate, as a last resort option.			The change of use classification, to facilitate the intensification at the site, will not impose an adverse effect upon the evacuation of an existing population/catchment. The use of Aurisch Road and Brand Highway from the site should be avoided if a fire is approaching from the west or if the route cannot be cleared in sufficient time before the fire arrival across Aurisch Road. Shelter at the site should be taken until Aurisch Road is safe. Aurisch Road is lined by Shrubs unlikely to fall and block Aurisch Road, enabling movement shortly after the passage of the fire..
	A3.2 Access routes Public road access should be provided in two different directions to two different suitable destinations, with an all-weather surface.	O	Outcome solution, SPP 3.7 at section 7.5 The site is accessed from Aurisch Road which is a 2.6 km dead end road, the access to the site being 1.8 m east from Brand Highway.
	A3.3a No-through roads If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the subject site boundary to an intersection where two-way access is provided. The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met: – the no-through road travels towards a suitable destination; **and** – the balance of the no-through road that is greater than 200 metres from the subject site is wholly within BAL-LOW, or is within a residential built-out area, or is within Area 1 (Figure 29).	O	Outcome solution, SPP 3.7 at section 7.5 (see A3.2) Aurisch Road is a dead end road and the site is more than 200 m from Brand Highway (nearest through road). The balance (from the western corner of the site through to Brand Highway runs through classified vegetation, longer than 200 m at the west of the site through to Brand Highway. **a) address the acceptable solutions to the greatest extent possible;** Undertaken in this section of the BMP - (A1.1 through to A4.1); repetition is not required. **b) identify the non-compliance with the acceptable solutions and why these cannot be achieved;** Aurisch Road ostensibly serves two extractive industry sites including the activity proposed at the development site. The activities along the east of Brand Highway are restricted to a narrow band by the Boonanarring Nature Park (forest). There are no available routes east, and arrangement through private property north and south of the site would only return to Brand Highway.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
			Aurisch Road, road reserve, is Scrub < 6 m. It is unlikely to be damaged in a bushfire event to fall and block passage of the road after the fire's passing. There is therefore no advantage in a secondary access as a contingency for an extended blockage of a single access in this instance. Aurisch Road will be available for passage shortly after the passing of the fire. **c) detail how the design addresses bushfire risk and where additional bushfire risk management measures have been deemed necessary and included to minimise the risk;** The proposed use and the additions are materially similar to the existing use. SPP 3.7 is not retrospective, and the proposal will utilise the existing road arrangement. Whilst the overall frequency of movement will increase through the course of the day (higher volume of material to arrive and leave) there is expected to be little change to the attendance on site at any one time; than is available to attend to the existing landuse. The intersection with Brand Highway is being reviewed as part of the planning considerations, subject to the consideration of the Traffic Impact Assessment prepared by Shawmac 21 May 2025). **d) detail if there are any community net-benefits, such as improvements to the public road network;** The proposal imposes no external burden that requires a proportionate offset. **e) include any fire engineering solutions or written evidence such as publications and State Administrative Tribunal decisions to support the proposal (where available);** Water tankage, water trucks and irrigation of windrows to maintain moisture at 40%-60%. The separation of windrows from classified vegetation and the isolation of windrow cells to restrict the potential for fire spread.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
			A Transport Impact Assessment (TIA) was prepared by Shawmac for the original application in 2022 and revised on 21 May 2025 The predicted maximum vehicle trip generation is 61 total vehicle trips per day (61 inbound and 61 outbound), including 41 truck trips and 20 light vehicle trips (based on a maximum of 20 staff). Aurisch Road is a compliant unsealed rural road. It has an engineered capacity (IPWEA) for vehicles unsealed up to 250 vehicles per day[4]. This is in excess of the frequency of 61 vehicle movements generated from the proposed operation. The 21 May 2015 TIA concluded *" Although the predicted traffic volumes technically warrant potential upgrades at the intersection, the client has been operating for several years without issue and the expected volumes will remain below the thresholds specified in the original application and approval. On this basis, it may be sufficient to just seal a portion of Aurisch Road from Brand Highway to prevent road material being dragged onto the highway. "* **f) outline how the policy outcomes have been achieved; and** The facility is arranged with low threat activities at its perimeter, leachate ponds, to reduce the impact of an approaching fire or the escape from the site. A setback is to be provided at hardstand 5 to reduce the impact of an approaching fire or the escape from the site and provide perimeter access to the windrow for suppression. **g) outline why approval is warranted by the decision-maker in this instance.** SPP 3.7 is not intended to be retrospective. The proposal is an existing composting facility, proposed as a Resource Recovery land use for the facilitation of its additions, to be enable by identification as an additional use in the General Rural Zone.

[4] Greater than 250 vehicles per day it is more economical to seal the road

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
	A3.3b No-through road requirements A no-through road is to meet all the following requirements: – requirements of a public road (Appendix B.3, Table 10, Column 2); **and** – turn-around area/head (Figure 30).	N/A	The proposal is not a subdivision. It is a change of classification for an existing landuse at the site. Aurisch Road, is an unsealed road compliant with Appendix B.3, Table 10, Column 1. The site access is located 1.8 km from Brand Highway. The site is large and the development site is open providing large vehicle hardstand areas suitable for a fire appliance turn around (exceeding the turn around area illustrated in Figure 30.
Element 4: Water **O4 -** Ensure that sufficient water is available and accessible for emergency services, to enable people, property and Infrastructure to be defended from bushfire.	**Area 1 (Urban):** Does not require assessment of Element 4: Water supply. **Area 2:** Proceed with the following acceptable solutions:		
	A4.1 Water supply for structure plans Evidence that a reticulated or sufficient and sustainable **non-reticulated water supply** for bushfire firefighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements in Appendix B.4: Water Supply dedicated for bushfire firefighting.	AS	The development site does not have access to a reticulated water supply. The proposal is not a subdivision. It is a change of classification for an existing landuse at the site. The site has two 150 000 L water tanks and an additional two 150 000 L water tanks are proposed. The site has an irrigation system to maintain the moisture content of the windrows and a two 3000 L water trucks. The development requirement for water tankage is based upon the expectation of habitable buildings (10 000L for each building and up to 50 000 L). The site has one office and a transportable building (2 habitable buildings) It is recommended at BPC 7 that a 50 000 L tank be provided reserved for emergency services, to address the existing building and any further transportable arrangements.

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Table 7: Bushfire Protection Criteria 7: Development - Commercial and industrial

Demonstrated Compliance (DC)	AS	Acceptable solution achieved	OB	Outcomes-based approach required	N/A	Not Applicable

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
Element 1: location	**Area 1 Not applicable** **Area 2:** Not Applicable	N/A	Element 1 is only applicable to strategic plans and subdivision. It is not applicable to a development following the expectation of the Zone.
Element 2: Siting and Design **O2 -** Ensure siting and design solutions: • manage or mitigate the bushfire risk to people, property and infrastructure; **and** • avoid, or where unavoidable, minimises the clearing of native vegetation.	**A2.1a Siting and design** Every habitable building achieves radiant heat impact not exceeding 29 kW/m² (BAL-29).	AS	The development site comprises an existing composting facility, the proposed additions include additional ponds and finished product storage as a northern extension of the existing activity and an additional leachate pond and hardstand (or compiling compost material - hardstand 5) as a southern extension. The hardstand areas provide the space upon which the organic composting (windrows) are placed and pushed into position by earth moving equipment. Material is placed in mounds up to 4 m high. DFES provides Guidance for external storage of materials. The Guidance acknowledges there is no statutory requirement for the arrangement and storage of stockpiled materials Figure 4 illustrates that no habitable building will be located within a BAL exceeding 29 kW/m² (BAL-29). The stockpiling of material should be kept at no less than BAL 29, outside of the flame length from the adjoining classified vegetation. The separation should be a clear mineral earth surface, and traversable by vehicles to support fire suppression. The purpose is to prevent the spread of fire from the site, and reduce the vulnerability of stockpiled materials to ignition from an approaching bushfire
	A2.1b Siting in an area with a radiant heat impact exceeding 29 kW/m2 (BAL-40 or BAL-FZ)	AS	Not applicable, no building is proposed at completion to exceed BAL 29.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
	The siting of a commercial or industrial habitable building, with a radiant heat impact exceeding 29 kW/m2 (BAL-40 or BAL-FZ) should only be considered where: – the lot was created prior to December 2015; **and** – there are demonstrated site characteristics and/or biodiversity or conservation values that prevent the achievement of a radiant heat impact not exceeding 29 kW/m2 (BAL-29); **and** – it is demonstrated that the reduction of the building footprint or a redesign to manage or mitigate the risk, is not practical or appropriate. If the provision of an APZ in accordance with acceptable solution A2.2 cannot be achieved, then the vegetation immediately surrounding the building is to be managed as defendable space in accordance with Appendix B.2, Table 9 – APZ technical requirements.		
	A2.2 Asset Protection Zone (APZ) The siting of a commercial or industrial habitable building, with a radiant heat impact exceeding 29 kW/m2 (BAL-40 or BAL-FZ) should only be considered where: **Width** – the APZ is to be measured from any external wall or supporting post or column of the building, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29) to any part of the building, in all circumstances. **Location** – the APZ is to be contained solely within the boundaries of the lot, except in instances where: – the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, Table 9 – APZ technical requirements, or an alternative standard in a gazetted local planning scheme, on an ongoing basis in perpetuity; **or** – the adjoining land is and will remain in perpetuity, non-vegetated.	AS	The development site is an existing organic composting facility, with the windrows located centrally, and mostly separated from classified Scrub vegetation at the west by the leachate ponds, min 25 m wide Low threat. The proposed 'hardstand 5' will require a 15 m setback from its southern boundary (to scrub 0-5) to achieve BAL 29. It is recommended that the separation be used as a perimeter access to the windrow cell.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
	Management – the APZ is managed in accordance with the requirements of Appendix B.2, Table 9 – APZ technical requirements, or an alternative standard in a gazetted local planning scheme.		
	A2.3 Clearing of native vegetation The development avoids, or where unavoidable, minimises the clearing of native vegetation.	AS	The extension of the organic composting facility can occupy existing grassland. The scrub adjacent Hardstand 5 is shown to be retained. It will require a setback to achieve BAL 29 (see A 2.1a).
	A2.4 Storage of hazardous, flammable and/or combustible materials Where a proposed land use will include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations, the materials are to be stored in an area that: – is subject to a radiant heat impact not exceeding 29 kW/m2 (BAL-29); – is non-combustible and shields the materials to reduce their exposure to radiant heat from the bushfire to levels significantly lower than 29 kW/m^2 and prevents the entry of debris and embers; **and** – limits to the degree necessary and practical, the escape of sources of ignition from the stored materials into bushfire prone vegetation.	AS	No building is subject to a radiant heat impact exceeding 29 kW/m2 The storage of fuels for the generators will not exceed BAL 29. The windrows are not habitable buildings and will require a direction to avoid a radiant heat impact not exceeding 29kWm^2 (BAL 29).
Element 3: Vehicular Access **O3 -** Ensure the design and capacity of vehicular access and egress provide: • for efficient and effective evacuation to a suitable destination(s) and/or • as a contingency measure for vulnerable land uses, an on-site	**A3.1 Private driveway** There are no private driveway technical requirements (prescribed by these Guidelines) where the private driveway is within a lot serviced by reticulated water and is no greater than 70 metres in length between the most distant external part of the habitable building and the public road. In circumstances where the above conditions are not met, the private driveway is to meet all of the following requirements: – requirements in Appendix B.3 Table 10, Column 5; **and** – passing bays every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2	AS	The site is accessed from Aurisch Road The existing private driveway from Aurisch Road is a made mineral all weather surface 6 m wide and 369 m up to a large open hardstand area, the office and first water tank. All internal vehicle access routes should be compliant with Appendix B.3 Table 10, Column 5.

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Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	DC	Proposed Bushfire Management Strategies
shelter, where demonstrated appropriate, as a last resort option.	metres (i.e. the combined carriageway width of the passing bay and constructed private driveway to be a minimum 6 metres); **and** – turn-around area (Figure 30) and within 30 metres of the habitable building (Figure 38).		 Entry from Aurisch Road The aisles between the windrows vary in width 3 -10 m. They are part of the exiting organic composting facility, not required to meet any contemporary standard. Is recommended that a minimum aisle width be provided as a matter of future practice.
Element 4: Water **O4 -** Ensure that sufficient water is available to enable people, property and infrastructure to be defended from bushfire.	**A4.1 Water supply** Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix A.4, Table 11 – Water supply dedicated for bushfire firefighting.	AS	The site is not connected to a reticulated water supply. Water storage on site comprises two 3,000 L water tanker trucks and two 150,000 L water tanks. The total water storage capacity exceeds the maximum quantity threshold of 50,000 L specified for commercial and industrial use in Appendix A.4, Table 11.   Water trucks   2 @ 150 000 L tanks

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Additional Bushfire Management Strategies

No additional bushfire management strategies are required, given the proposal complies with the acceptable solution for BPC.

Spatial representation of the bushfire management strategies

A spatial representation of the bushfire management strategies ids not required for a scheme amendment which is seeking an additional use to be applied specific to the site to facilitate by listing 'Resource Recovery'.

6. RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

The responsibilities for implementation and management of the bushfire measures, summarises the measures identified to achieve compliance with the bushfire protection measures following SPP 3.7.

The items addressed in the following table are directions to be applied through the local planning scheme as consideration for the subsequent development application.

The items listed do not repeat the compliance requirements that will routinely apply to a development application in a bushfire prone area. Section

Scheme amendment

Description of Land	Additional Use	Conditions
276 Aurisch Road, Boonanarring	Resource Recovery	Areas for stockpiling material are to maintain a separation of stored material from classified vegetation, which achieves BAL 29, by providing a traversable mineral earth surface. The separation is to restrict the potential for fire to spread from the site.

The landowner acknowledges that this BMP has demonstrated a proposal to facilitate a Resource Recovery facility that can achieve compliance at development application, but the subsequent development application will be assessed afresh by the relevant Bushfire Protection Criteria that is applicable at the time of decision.

Acknowledgment - Proponent

The proponent acknowledges the responsibilities as listed above and the requirement to ensure that should the land transfer to a new owner, that the new owner is aware of the BMP and their ongoing responsibility.

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GENERAL REFERENCES

Blanchi R., Whittaker J., Haynes K., Leonard J., Opie K., Holland M., Dreyfuss S., 2015 *Sheltering practices during bushfire,* CSIRO Land and Water Report to the Emergency Management Victoria Natural Disaster Resilience Grants Scheme.

SA Department of Environment and Natural Resources, Government of South Australia, 2012 *Overall Fuel Hazard Guide for South Australia*

Standards Australia, *Australian Standard AS 3745:2010 Planning for emergencies in facilities*

Standards Australia, *AS 3959:2018 Construction of buildings in bushfire-prone areas*, Sydney

WA Department of Planning Land and Heritage 2016*, Visual Guide for bushfire risk assessment in Western Australia*

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Bushfire 2024*, Western Australian Planning Commission, Perth, Perth

Western Australian Planning Commission (WAPC) 2024, *for Planning for Bushfire Guidelines 2024*, Western Australia

Online references

Office of Bushfire Risk Management (OBRM - 2025), Map of Bush Fire Prone Areas, < https://maps.slip.wa.gov.au/landgate/bushfireprone/>December

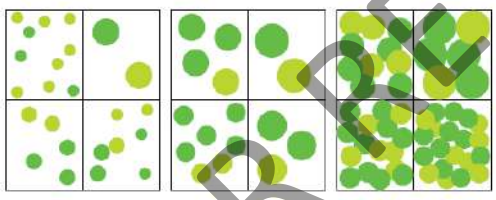
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Attachment 1 – Standard for Asset Protection Zones

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envision bushfire protection

Table 9: Asset Protection Zone (APZ) technical requirements

OBJECT	REQUIREMENT
Fences within the APZ	Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (combustible, dead vegetation matter less than 6 mm in thickness)	• Should be managed and removed on a regular basis to be maintained as low threat vegetation • Should be maintained at less than two tonnes per hectare (on average) • Mulches should be non-combustible such as stone, gravel, shells, rock or crushed mineral earth or wood mulch more than five millimetres in thickness.
Trees* (more than 6 m in height)	• Trunks at maturity should be a minimum distance of six metres from all elevations of the building • Branches at maturity should not touch or overhang a building or powerline • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be less than 15 per cent of the total APZ area • Tree canopies at maturity should be at least 5 m apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided the total canopy cover within the APZ does not exceed 15 per cent and is not connected to the tree canopy outside the APZ. Tree canopy cover – ranging from 15 to 70 per cent at maturity  15% 30% 70%

OBJECT	REQUIREMENT
Shrub* and scrub* (0.5 m to 6 m in height). Shrub and scrub more than 6 m in height are to be treated as trees.	• Should not be located under trees or within three metres of buildings • Should not be planted in clumps more than five square metres in area • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground cover* (less than 0.5 m in height. Ground cover more than 0.5 m in height is to be treated as shrub)	• Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above • Can be located within two metres of a structure but three metres from windows or doors if more than 100 mm in height.
Grass	• Grass should be maintained at a height of 100 mm or less, at all times • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	Within three metres of each wall or supporting post of a habitable building; the area is kept free from vegetation but can include ground cover, grass and non- combustible mulches as prescribed above.
Liquid petroleum gas cylinders	• Should be located on the side of a building farthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building • The pressure relief valve should point away from the house • No flammable material within six metres from the front of the valve • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

Notes:
** Plant flammability, landscaping design and maintenance should be considered – refer to following explanatory notes*

Fine fuel load is the combustible, dead or dry vegetation matter on the ground, near ground, or elevated. Fine fuel includes grass, leaves, bark and twigs less than six millimetres in diameter that ignite readily and are burnt rapidly when dry.

Fine fuel should be maintained at less than 2t/ha. 100gm/m² equates to 1t/ha. To estimate a fuel load (in t/ha), collect the dry fine fuel from a representative one square meter and weigh (in grams using kitchen scales) and multiply the weight by 0.01.

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Attachment 2 – Technical Requirements for Private Driveways

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From Appendix B Table 10 in the for Planning for Bushfire Guidelines

Table 10: Vehicular access technical requirements

	1		2		3		4		5	
TECHNICAL REQUIREMENTS	**PERIMETER ROADS**		**PUBLIC ROADS**		**EMERGENCY ACCESS WAY[3]**		**FIRE SERVICE ACCESS ROUTE[3]**		**BATTLE-AXE & PRIVATE DRIVEWAYS[1]**	
MAP OF BUSH FIRE PRONE AREAS DESIGNATION	**Area 2**	**Area 1**	**Area 2**	**Area 1**	**Area 2**	**Area 1**	**Area 2**	**Area 1**	**Area 2**	**Area 1**
Minimum horizontal clearance (metres)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (metres)	4.5									
Minimum weight capacity (tonnes)	15									
Maximum grade unsealed road[2]	See note 5		See note 5		1:10 (10% or 6°)					
Maximum grade sealed road[2,4]					1:7 (14.3% or 8°)					
Maximum average grade sealed road					1:10 (10% or 6°)					
Minimum inner radius of road curves (metres)					8.5					

Notes:

[1] Driveways and battle-axe legs to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision where not required to comply with the widths in this Appendix or the Guidelines.

[2] Dips must have no more than a 1 in 8 (12.5% - 7.1 degrees) entry and exit angle.

[3] To have crossfalls between 3 per cent and 6 per cent.

[4] For sealed roads only the maximum grade of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50 metres is permissible, except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed.

[5] As outlined in the Institute of Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards Main Roads standard, supplement, policy or guideline and/or any applicable or relevant local government standard or policy.

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Attachment 3 - Guidance Note: GN 03 – Fire Safety Considerations for Open Yard Storage

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Guidance Note: GN03

Fire Safety Considerations for Open Yard Storage

Version 1. 2020



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FOR A SAFER STATE

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FOR A SAFER STATE

Revised: 1st Issue

Valid: November 2023

Authorised: DFES Manager Critical Infrastructure/Heavy Industry

NOTE: GN03

FIRE SAFETY CONSIDERATIONS FOR OPEN YARD STORAGE

1. Purpose

The purpose of this Guidance Note (GN) is to provide consistent advice regarding fire protection considerations for open yard storage that meet the FES Commissioner's operational requirements when responding to a fire incident.

This guidance note is aimed specifically at operators to help them manage open yard storage facilities as safely as practicable, and to ensure that fire mitigation strategies employed are based on established fire engineering principles, tests, data, fire incidents and field experience.

It is suggested that owners / operators may need to engage the services of a suitably experienced Fire Engineer to assist in formulating open yard layout designs based on the advice contained in this GN.

2. Scope

This GN acknowledges the minimum mandatory requirements of legislation as well as specifying DFES's recommended considerations regarding the fire mitigation strategies required for open yard materials storage areas, including shipping container storage areas.

Australian Standard (AS)2419.1, "Fire hydrant systems, design, installation and commissioning defines an open yard as: "a designated area greater than 500m2 which may be used for storage or processing of ***combustible material****".*

An open yard may or may not be associated with a structure on the same allotment.

3. Regulatory Requirements

Whilst open yard storage fire hydrant requirements are prescribed in (AS) 2419.1, the requirements within are not empowered through referencing by the National Construction Code (NCC) as open yards are not an NCC classified structure.

Additionally, the fire protection requirements in AS2419.1 are generic and take no account of the types of materials stored or the configuration of storage.

This GN does not modify existing requirements within other legislation or DFES Guidance Notes for fire protection requirements for a specific type of material stored in an open yard, e.g. rubber tyre storage.

Where open yard storage is associated with a structure which under the provisions of the NCC is required to meet prescribed fire protection requirements, e.g. NCC requirements for "Large Isolated Buildings – Vehicular Access Paths", the vehicular access and 18 metre clear space requirements prescribed in the NCC (between structure and boundary) must still be met. This GN does not modify those requirements. Refer to DFES Guide Line GL-11 "**DFES Site Planning and Fire Appliance Specifications**" for general principals and technical guidance.

4. Open Yard Storage – Fire Risk Management

4.1 Managing Potential Fire Size and Impact

The most effective means of preventing a very large fire requiring considerable DFES resources over a protracted time is limiting storage (fuel) quantities through employment of adequate material separation practices. It is also by default an insuring action by owners / operators against significant loss of stock and business continuity.

Fire separation can be achieved in one of 2 ways:

- Physical non-combustible barriers between amounts of fuel, or
- Adequate distance between amounts of fuel.



Figure 1: Two (2) ways to achieve fire separation

This GN discusses separation by distance only as this is the most common storage configuration for larger fuel quantities.

4.2 Points to Consider when Determining Adequate Separation Distances

Radiant heat versus ignitability of product is the basic principal of determining an adequate separation distance, i.e. the heat received by unignited materials adjacent to the radiator (the burning pile) should be safely below the ignition temperature of the materials being stored.

The two variables affecting this are:

- The distance between piles measured from flame edge, and
- The area of the radiator facing the unburnt material (view factor).

It is suggested that a conservative safety factor be applied to the calculated distance to account for wind (causing a piloted ignition of adjacent piles), stock falling from piles, and tenability of fire fighters moving between piles. The fire engineer will determine this.

Fire separation by distance is not a new concept, for example Australian Building Codes have, for many years, required a separation distance of six (6) metres between commercial type buildings to reduce likelihood of fire spread. Yet this distance is reduced to 3.6 metres between ordinary stand-alone dwellings. The use of basic fire engineering principals, i.e. single dwelling houses are generally limited in their overall size, height, room sizes, external ignitability and a lower radiant heat is (usually) emitted to the boundary.

4.3 Pile (Fire) Size Limitations

Limiting piles to a size where a developed fire can be contained or extinguished by suitably trained and clothed site personnel, using fire extinguishers and or fire hose reels is always an optimum strategy. However, it is recognised that limiting pile sizes to this level may not always meet business requirements.

The next best practice would be to limit piles to a size where if fully involved in fire, it could be extinguished using only the water stored on a responding fire appliance. Typically, in an urban environment this will be a pumping appliance carrying approximately 1200 litres of water which can be delivered to the fire using an on-board heavy-duty fire hose reel.

In addition to the fuel management strategies recommended, there is a requirement in AS2419.1 to provide fire hydrant coverage to all areas of open yard storage exceeding 500m2.

4.4 Examples of Incidents Involving Open Yards

FIRE IN PLASTIC GRAPE BINS STORED IN AN OPEN YARD

Piles are either too large or too close considering:

- Ignitability.
- Radiant - heat release rate of product and
- Flame size - length / velocity properties, figure 2 and 3.



Figure 2: Fire in plastic grape bins stored in an open yard

MOULDED PLASTIC GRAPE BINS IN OPEN YARD

- Fire spread is uncontrollable, figure 3.



Figure 3: Moulded plastic grape bins in open yard

SCRAP METAL YARD FIRE

- Contained to a single pile due to stockpile separation practices.
- However, this stockpile is excessively large, figure 4.



Figure 4: Scrap metal yard fire

FIRE IN PILED AND BALED RECYCLABLES IN VICTORIA, 2017

- Significant stock destroyed as there was no separation practices used.
- Fire took 3 days to control and over a week to extinguish, figure 5.



Figure 5: Fire in piled and baled recyclables in Victoria, 2017

WA SALVAGE

- The fire that destroyed this store started in a pallet of citronella oil displayed in the yard outside of the building, figure 6 & 7.



Figure 6: WA Salvage Incident



Figure 7: Location of stored citronella oil in yard relative to building

5. Fire Hydrants

Fire hydrant systems should be provided, located, and designed to operate at a residual pressure in accordance with the provisions of AS2419.1 as it applies to open yard hydrant coverage.

Every part of all storage, production equipment and plant in the protected area is to be within reach of a 10m hose stream issuing from a nozzle at the end of a maximum 60m length of hose connected to a fire hydrant outlet.

Where any part of the fire hydrant pipework is situated above ground and within 150m of any structure in the protected area, fire hydrants shall be placed not more than 60m apart along the pipe work.

Hydrants shall be sited at an accessible location and at a minimum two sides of storage area to allow firefighting from an upwind direction.

The number of fire hydrant outlets required to discharge simultaneously for protected open yards shall be determined in accordance with Australian Standard 2419.1, Table 3.3 at a flow rate and pressure in accordance with Table 2.2 and Table 2.3.

Further to the provisions of AS2419.1, the positioning of hydrants should not require a fire appliance or firefighter to pass within 10 metres of stored materials to make a connection to a fire hydrant. To achieve this objective, more hydrant standpipes may be required than the number prescribed by AS2419.1

6. Provisions for Special Hazards (Fire-Fighting Water Supplies)

Where the materials being stored are fire sensitive dangerous goods or have:

- Inherently low temperature ignitability properties or,
- Properties making extinguishment difficult such as tyres, combustible metals, compost / mulch /peat and the like, bulk baled carbonaceous materials such as hay, wastepaper (awaiting recycling) expanded plastics, etc. or,
- A storage configuration making extinguishment difficult (high stacking, large footprint piles such as scrap metal yards), or has several multidimensional protected areas (protected from extinguishing water penetration) such as auto dismantler or crushing yards, etc.

Suitable additional provisions should be made as special problems for firefighting are likely to arise. The problems encountered are possibly going to require a water supply that exceeds the minimum requirements prescribed in AS2419.1 to account for longer duration fire-fighting effort or higher flow rates to permit a greater number of hose streams.

Refer to DFES Guidance Note GN01 "***Firefighting Water Supply Considerations Special Hazard & Dangerous Goods Sites***" for general principals and technical guidance on determining an appropriate fire-fighting water supply volume and duration.

7. Emergency Vehicular Access and Hardstand

The ability to apply water effectively to a fire is a critical element of timely extinguishment. This capability needs to be supported by the provision of adequate vehicular access through and around stored materials.

Generally, the fire hydrant coverage requirements detailed in AS2419.1 will guide where vehicular access is required, however there are additional provisions that can be made to ensure a fire service response is effective, safe and meets DFES operational requirements:

- Vehicular access paths should be a minimum of 4 metres wide, widening to 6 metres at the approaches and departures of bends more acute than 120o. There should be at least 2 means of accessing the vehicular access path and they should be as far apart as possible.
- Vehicular access paths should meet the construction requirements for a hard stand surface as defined in AS2419.1.
- Hard standing surfaces adjacent to hydrants should be impervious to water, i.e. asphalt, concrete surfaces and be capable of supporting the weight of a fire service pumping appliance.
- A vehicular access path should be provided around the entire perimeter of the yard to facilitate the fire service operating (generally) up wind of the fire location.
- Where vehicular access paths traverse areas between piles of stored materials, no part of the path should be closer than 10 metres to the stored material.
- There should be no dead-end vehicular access paths allowing a continuous forward movement along all paths.
- The vehicular access path layout should not require a fire appliance to be less than 10 metres of stored materials.

8. Further Design/Layout Considerations

When assessing the location of fire hydrants for open yard storage, the following points need to be considered in the context of an assumed fire event/incident:

- Protection of above ground fire hydrants and or associated pipe work from external damage.
- The amount of radiant heat the fire hydrant may be exposed to.
- Fire hydrant locations should be external to bunds.
- Proximity of isolation valves to stored materials.
- Proximity of fire hydrants to stored products.
- Consideration of the topography and drainage in relation to contaminated fire water run-off.
- The location of monitors, especially if they are manually operated, are subject to the above considerations.
- Site security – limit access of unauthorized personnel and or public.

9. Shipping Container Storage Yard

Typical intermodal shipping containers are designed to be stacked 6 to 9 containers high and to hold weights of 32205kg (of often indeterminate content) making extinguishment of a fire event a particularly challenging and possibly dangerous operation. The inherent strength and typically low levels of ventilation (0.0079% of the wall and roof area) make them particularly prone to an explosive failure should volatile contents combust rapidly, e.g. flammable gas vessel leakage, chemical reaction, etc.

When considering the layout / design of open yards for shipping container lay-up, the following should be considered (in addition to all the above points and relevant legislation):

- Provide adequate lighting to whole of yard, (assists fire services and deters unauthorised access).
- Use only pillar type hydrants, (below ground hydrants are prone to being covered and can be difficult to locate).
- All (filled) containers are to be positioned with a door end readily accessible.
- Hydrant system isolation valves are to be outside of designated storage areas.
- Containers having known volatile contents should be distributed laterally across the yard Rather than Stacked in A Single Cluster.

10. Container Storage Yard

Access by fire fighters to container doors is restricted by the set down / lay-up configuration used, figure 8.

NOTE: Configuration is acceptable if all are empty.

Storage configured with all door ends accessible to fire-fighters, and not stacked overly high, figure 9.



Figure 8: Container Storage Yard



Figure 9: Storage configuration all doors accessible to firefighters

Examples of Challenging incident's faced by firefighters and operators at container storage yards:

- Ability to access incident scene extremely challenging, figures 10.
- A difficult and costly clean-up for the operator, figure 11.



Figure 10: An extremely challenging firefighting incident



Figure 11: A challenging clean-up for the operator

11. Key Message

Key message is:

- Keep pile sizes as small as practicable and as far apart as practicable.
- Engage a Fire Engineer to determine maximum pile sizes vs separation distance.
- Provide a fire water supply commensurate with fire scenario.
- Provide access to all stored materials for fire appliances and fire fighters.
- Keep stored materials away from structures and ignition sources.

This Guidance Note should be read in conjunction with DFES Guidance Note (GN01) "***Firefighting Water Supply Considerations for Special Hazard & Dangerous Goods Sites".***

12. References

Australian Standard 2419.1 – 2005 Fire Hydrant Installations – System design, installation and commissioning.

DFES GN1 - Firefighting Water Supply Considerations for Special Hazard and Dangerous Goods Sites.

DFES GN2 - Bulk Storage of Rubber Tyres and Shredded and Crumbed Tyres.

Melbourne Metropolitan Fire Brigade.

13. Legislation

Building Code of Australia - ABCB National Construction Code (only in relation to structures associated with an open yard).

***Please note**: This is a controlled document. DFES Guidance Notes are available on the DFES Website: www.dfes.wa.gov.au under Regulation and Compliance.*

Should the information provided in this Guidance Note require further clarification, please contact DFES Manager Critical Infrastructure/Heavy Industry (08) 9395 9300.

Disclaimer

The information contained in this publication is provided voluntarily as a public service by the Department of Fire and Emergency Services (DFES). This publication has been prepared in good faith and is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, the reliability and accuracy of the information cannot be guaranteed and DFES expressly disclaims liability for any act or omission based on reliance on the information and for any consequences whether direct or indirect, arising from such act or omission. The publication is intended to be a guide only and readers should obtain their own independent advice and make their own necessary enquiries.

Contact
Department of Fire and Emergency Services

Emergency Services Complex
20 Stockton Bend
COCKBURN CENTRAL WA 6164

PO Box P1174 Perth WA 6844

Tel: +61 8 9395 9300

Email: dfes@dfes.wa.gov.au
Web: www.dfes.wa.gov.au

Attachment 3 – Traffic Review

Traffic Review

Subject:	Proposed Rezoning - Traffic Engineering Review 276 Aurisch Road, Boonanarring		
Date:	21st May 2026		
Author:	P. Nguyen	Reviewer:	R. Needham
Client:	GO Organics c/- Altus Planning		

1. Introduction and Background

1.1. Client and Scope

GO Organics currently operate a composting facility at 276 Aurisch Road in Boonanarring. A Transport Impact Assessment (TIA) was prepared by Shawmac for the original application in 2022.

Altus Planning have been engaged to submit a rezoning application for the site which will allow greater flexibility on material received and stored on the site. It is understood that the overall operations will remain relatively unchanged.

Shawmac has been engaged to undertake a supplementary traffic analysis to review the following:

- Vehicle types, volumes, days and hours of operation that will access the road network.
- An updated review of the Brand Highway / Aurisch Road intersection and warrants calculation to determine if upgrades are required to accommodate the expected traffic volumes.

1.2. Site Location and Road Details

The site address is 276 Aurisch Road, Boonanarring. The local authority is the Shire of Gingin. Vehicle access is currently via Aurisch Road and the Brand Highway / Aurisch Road intersection.

The existing site is shown in **Figure 1**.



Figure 1: Existing Site and Access

Aurisch Road is an Access Road with no posted speed limit and is unsealed.

Brand Highway is a Primary Distributor Road under the jurisdiction of Main Roads WA. The speed limit is 110km/h in the vicinity of the site and Aurisch Road.

Figure 2 is an image of Aurisch Road from the Brand Highway intersection and **Figure 3** is an image of the Brand Highway cross section near Aurisch Road.



Figure 2: Aurisch Road from Brand Highway (Google Street View, September 2025)



Figure 3: Brand Highway near Aurisch Road (Google Street View, September 2025)

1.3. Traffic Volumes

The latest traffic volumes on Brand Highway were obtained from the Main Roads WA *Traffic Map* as shown in **Figure 4**. The counts are from Brand Highway north of Dewar Road, approximately 11km south of Aurisch Road. Other traffic count sites further north along Brand Highway indicate that the volumes decrease towards the north and so the volumes shown below are likely to be slightly higher than the actual volumes in the vicinity of Aurisch Road.

mainroads WESTERN AUSTRALIA

SITE 5074

Hourly Volume

Brand Hwy (H004)

North of Dewar Rd (SLK 37.31)

2025/26
Monday to Friday

	All Vehicles			Heavy Vehicles			
	NB	SB	Both	NB	SB	Both	%
00:00	5	8	13	3	6	9	69.2
01:00	5	7	12	4	5	9	75.0
02:00	8	7	15	5	5	10	66.7
03:00	18	8	26	9	5	14	53.8
04:00	43	9	52	18	6	24	46.2
05:00	90	19	109	33	12	45	41.3
06:00	108	34	142	44	17	61	43.0
07:00	110	51	161	45	25	70	43.5
08:00	97	73	170	41	34	75	44.1
09:00	98	81	179	39	34	73	40.8
10:00	106	92	198	41	36	77	38.9
11:00	103	107	210	39	40	79	37.6
12:00	95	118	213	35	42	77	36.2
13:00	93	128	221	34	45	79	35.7
14:00	82	139	221	29	44	73	33.0
15:00	77	136	213	27	45	72	33.8
16:00	68	118	186	23	39	62	33.3
17:00	60	96	156	21	33	54	34.6
18:00	50	63	113	21	23	44	38.9
19:00	35	43	78	18	16	34	43.6
20:00	25	29	54	13	12	25	46.3
21:00	23	19	42	14	8	22	52.4
22:00	14	15	29	9	7	16	55.2
23:00	8	10	18	5	5	10	55.6
TOTAL	1421	1410	2831	570	544	1114	39.4

Peak Statistics

AM	TIME	06:30	11:45	11:15	06:30	11:15	11:15
	VOL	118	113	215	49	41	80
PM	TIME	12:45	14:45	13:30	12:45	14:45	12:45
	VOL	95	142	225	36	48	84

Figure 4: Brand Highway Average Weekday Traffic Volumes (2025)

Historical counts also indicate that traffic volumes on Brand Highway have remained relatively stable in recent years as shown in **Figure 5**.

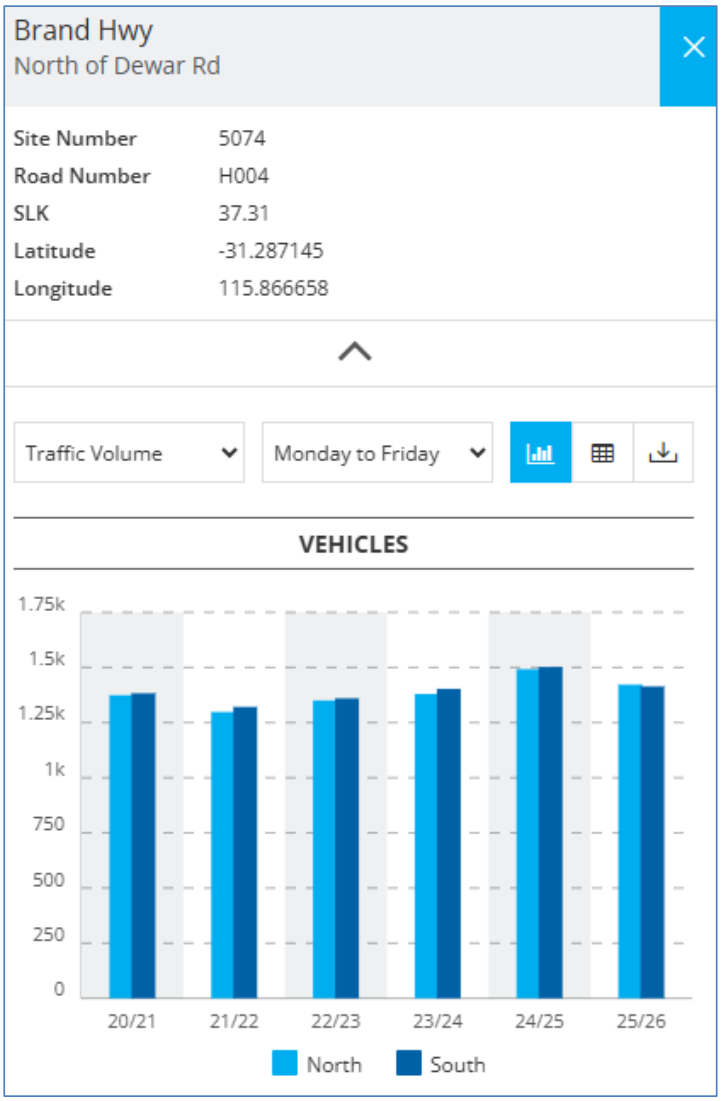


Figure 5: Brand Highway Traffic Volume Trend

2. Assessment

2.1. Operating Details and Traffic Volumes

The facility operates from 3am to 11pm Monday to Friday and truck haulage occurs from 7am to 5pm. The truck types will vary with approximately 60% of trucks being B-Doubles and 40% of trucks being single trailer trucks.

The original TIA and development approval for the site was based on a maximum of 75 total vehicle trips per day (75 inbound and 75 outbound), including light vehicle trips. 95% of trips are to/from the south along Brand Highway and 5% of trips are to/from the north. It is understood that this volume of vehicle movements was intended as an upper limit and that the actual operations to date have remained well below the approved numbers.

The operator has provided updated details of the vehicle trip generation, including provision for growth in the future. The predicted maximum vehicle trip generation is 61 total vehicle trips per day (61 inbound and 61 outbound), including 41 truck trips and 20 light vehicle trips (based on a maximum of 20 staff).

Overall, the existing and proposed traffic volumes are below the current approval and so the ongoing change in traffic impact is expected to be minimal.

2.2. Peak Hour Traffic

Of the 20 staff, 2 operate the bagging plant and arrive or leave outside of the main peak periods. The remaining 18 staff are split into day and night shifts with 9 staff working from 6am to 3pm and 9 staff working from 3pm to 11pm. On this basis, the peak hour of traffic for the development will be from 2 to 3pm which broadly coincides with the peak hour of the road network. During this peak hour, the staff movements during the shift change would generate approximately 9 inbound vehicle trips and 9 outbound vehicle trips, assuming all staff drive individually as a worst case scenario.

Truck trips occur between 7am and 5pm and are spread out during the day. On this basis, there would be approximately 4 truck trips during the peak hour (4 inbound and 4 outbound).

Overall, the peak hour traffic generation is estimated to be 13 vehicle trips (9 cars and 4 trucks in / 9 cars and 4 trucks out).

2.3. Auxiliary Lane Warrants

A warrants analysis has been undertaken using the Main Roads WA Intersection Warrants calculator spreadsheet which is based on the Main Roads WA Supplement to Austroads Guide to Traffic Management Part 6. The warrants are based on the peak hour through and turning volumes at the intersection as shown in **Figure 6**.

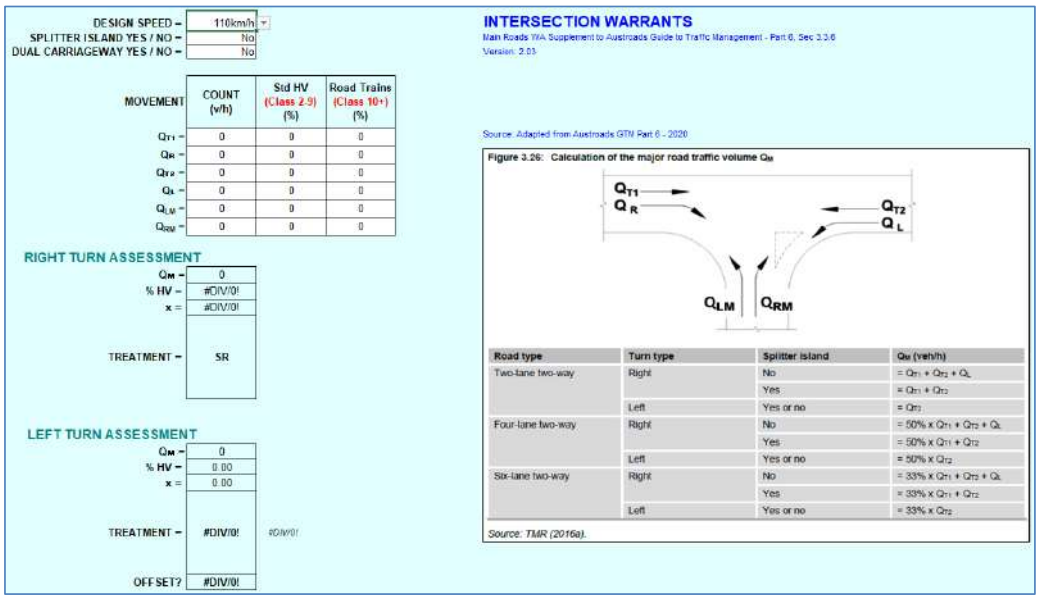


Figure 6: Intersection Warrants Calculation Criteria

The base volumes along Brand Highway were derived from Main Roads WA traffic count data. Although the historical volumes have remained relatively stable, the base volumes have been factored up by a nominal 3% per year to account for general traffic growth for 10 years into the future (2036).

It is understood that the only other developments along Aurisch Road are hobby farms which are unlikely to generate any traffic movements during the assessed peak hour. The adjacent mine does not have access to Aurisch Road.

For simplicity, it has been assumed that all traffic during the peak hours are distributed to/from the south along Brand Highway.

The calculations are shown in **Figure 7**.

DESIGN SPEED =	110km/h
SPLITTER ISLAND YES / NO =	No
DUAL CARRIAGEWAY YES / NO =	No

MOVEMENT	COUNT (v/h)	Std HV (Class 2-9) (%)	Road Trains (Class 10+) (%)
Q_{T1} =	110	24	11
Q_R =	13	15	15
Q_{T2} =	187	21	11
Q_L =	0	0	0
Q_{LM} =	13	15	15
Q_{RM} =	0	0	0

RIGHT TURN ASSESSMENT

Q_M =	297
% HV =	33.111
x =	1.49
TREATMENT =	AUR

The adoption of a CHR(S) treatment shall only be considered where there are demonstrated severe geometric constraints and shall be accompanied by a 'departure from standards' approval by Manager Road and Traffic Engineering Branch

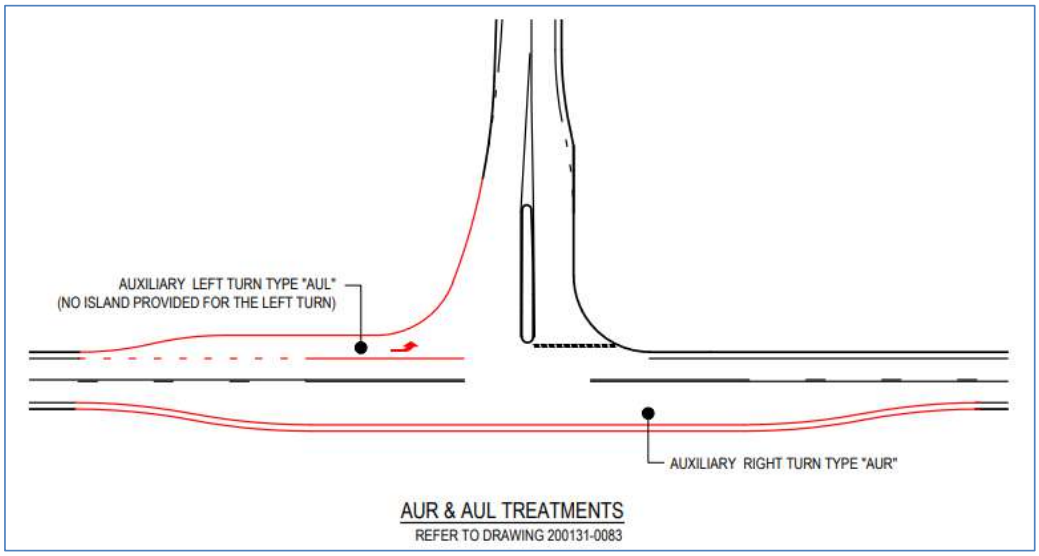
LEFT TURN ASSESSMENT

Q_M =	187
% HV =	32.00
x =	0.00
TREATMENT =	SL
OFFSET?	NO

Figure 7: Intersection Warrants Calculation

As shown, the predicted peak hour volumes would warrant an Auxiliary Right (AUR) and a Standard Left (SL) turn treatment at the intersection.

The example AUR and SL treatments are shown in **Figure 8**.



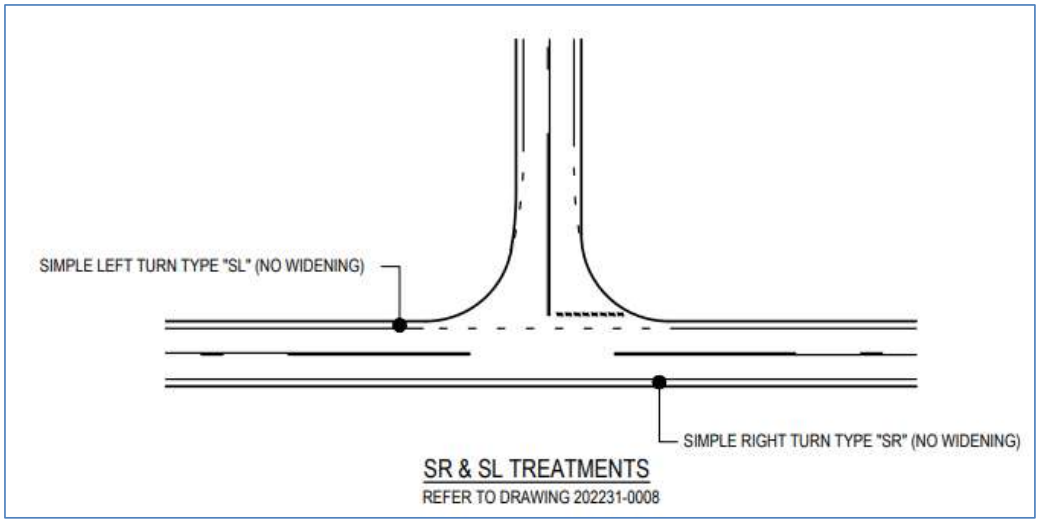


Figure 8: Example AUR and SL Treatments (Main Roads WA Drawing 202231-0007-3)

Although the predicted traffic volumes technically warrant potential upgrades at the intersection, the client has been operating for several years without issue and the expected volumes will remain below the thresholds specified in the original application and approval. On this basis, it may be sufficient to just seal a portion of Aurisch Road from Brand Highway to prevent road material being dragged onto the highway.

2.4. Crash History

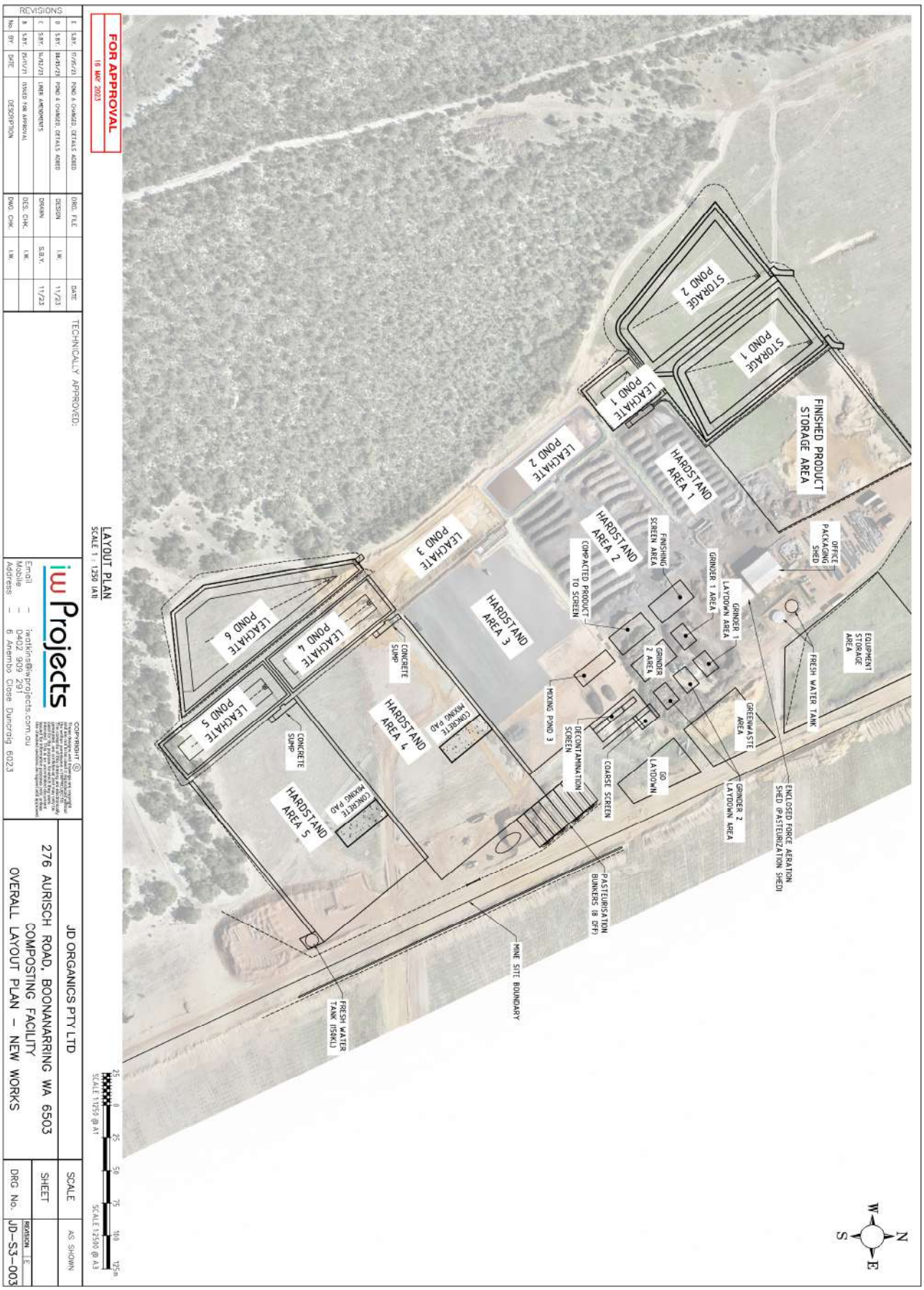
The crash history of the adjacent road network was obtained from Main Roads WA Reporting Centre, including the full length of Aurisch Road and Brand Highway between Drew Road and Beermullah Road West. No crashes have been recorded along these road sections over the five-year period from 2021 to 2025.

3. Conclusion

This traffic engineering review for the rezoning application for 276 Aurisch Road in Boonanarring concluded the following:

- The original TIA and development approval for the site was based on a maximum of 75 total vehicle trips per day (75 inbound and 75 outbound), including light vehicle trips.
- The operator has provided updated details of the vehicle trip generation, including provision for growth in the future. The predicted maximum vehicle trip generation is 61 total vehicle trips per day (61 inbound and 61 outbound), including 41 truck trips and 20 light vehicle trips (based on a maximum of 20 staff).
- Overall, the existing and proposed traffic volumes are below the current approval and so the ongoing change in traffic impact is expected to be minimal.
- The peak hour traffic generation is estimated to be 13 vehicle trips (9 cars and 4 trucks in / 9 cars and 4 trucks out).
- The predicted peak hour traffic volumes would warrant an Auxiliary Right (AUR) and a Standard Left (SL) turn treatment at the intersection.
- Although the predicted traffic volumes technically warrant potential upgrades at the intersection, the client has been operating for several years without issue and the expected volumes will remain below the thresholds specified in the original application and approval. On this basis, it may be sufficient to just seal a portion of Aurisch Road from Brand Highway to prevent road material being dragged onto the highway.
- No crashes have been recorded along the adjacent road sections over the five-year period from 2021 to 2025.

Attachment 4 – Concept Site Plan


FOR APPROVAL
16 MAY 2023
LAYOUT PLAN
SCALE 1 : 1250 (A1)
REVISIONS
No. BY DATE DESCRIPTION
E S.BY 17/05/23 POND 6 CHANGED, DETAILS ADDED
D S.BY 16/05/23 POND 6 CHANGED, DETAILS ADDED
C S.BY 14/12/23 LINER AMENDMENTS
B S.BY 25/11/23 ISSUED FOR APPROVAL
DES. CHK. I.W.
DWG. CHK. I.W.
DRG. FILE
DESIGN I.W. 11/23
DRAWN S.B.Y. 11/23
DATE
TECHNICALLY APPROVED:
iw Projects
COPYRIGHT ©
Email – iwatkins@iwprojects.com.au
Mobile – 0402 909 291
Address – 6 Anembo Close Duncraig 6023
JD ORGANICS PTY LTD
276 AURISCH ROAD, BOONANARRING WA 6503
COMPOSTING FACILITY
OVERALL LAYOUT PLAN – NEW WORKS
SCALE AS SHOWN
SHEET
DRG No. JD-S3-003
REVISION E
STORAGE POND 2
STORAGE POND 1
LEACHATE POND 1
LEACHATE POND 2
LEACHATE POND 3
LEACHATE POND 4
LEACHATE POND 5
LEACHATE POND 6
FINISHED PRODUCT STORAGE AREA
HARDSTAND AREA 1
HARDSTAND AREA 2
HARDSTAND AREA 3
HARDSTAND AREA 4
HARDSTAND AREA 5
OFFICE PACKAGING SHED
FINISHING SCREEN AREA
COMPACTED PRODUCT TO SCREEN
GRINDER 1 LAYDOWN AREA
GRINDER 1 AREA
GRINDER 2 AREA
EQUIPMENT STORAGE AREA
FRESH WATER TANK
GREENWASTE AREA
GO LAYDOWN
GRINDER 2 LAYDOWN AREA
ENCLOSED FORCE AERATION SHED (PASTEURIZATION SHED)
MIXING POND 3
DECONTAMINATION SCREEN
COARSE SCREEN
PASTEURISATION BUNKERS (8 OFF)
CONCRETE SUMP
CONCRETE MIXING PAD
MINE SITE BOUNDARY
FRESH WATER TANK (150KL)
SCALE 1:1250 @ A1
SCALE 1:2500 @ A3
25 0 25 50 75 100 125m
N
W
E
S

14 REPORTS - OPERATIONS AND ASSETS

Nil

15 MOTIONS OF WHICH PREVIOUS NOTICE HAS BEEN GIVEN

Nil

16 COUNCILLORS' OFFICIAL REPORTS

16.1 Cr Vis

Attended both Lancelin Busker's Festival and Ledge Point Car Show. (September long weekend). Both events were well attended and well organised.

Lancelin Busker's Festival 'appeared to have less attendees than in the past, however, unofficial reports have said that the fact that they did not pay for marketing (this time) resulted in better profits overall.

16.2 Cr Kestel

Represented the Shire President at Palettes and Plates.

17 NEW BUSINESS OF AN URGENT NATURE

Nil

18 MATTERS FOR WHICH MEETING IS TO BE CLOSED TO THE PUBLIC

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Balcombe SECONDED: Councillor Peczka

That Council move into a Confidential Session to discuss Item 18.1.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

18.1 NORTH LANCELIN INTERIM COASTAL PROTECTION WORKS

File	ENV/17
Author	Danica Todd – Technical Officer Assets & Procurement
Reporting Officer	Ruth March - Executive Manager Operations and Assets
Refer	OCM 19 August 2025 Item 16.1; OCM 16 September 2025 Item 16.1; OCM 17 February 2026 Item 15.2; SCM 24 March 2026 Item 14.1
Appendices	Evaluation Matrix

Reasons for Confidentiality

This report is confidential in accordance with Section 5.23(4) of the *Local Government Act 1995* which permits the meeting to be closed to the public for business relating to the following:

c. information contained in a tender received by the local government for a contract to the extent that the information - (i) is a tendered price; or (ii) a tendered methodology for calculating a price;

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Wilkie SECONDED: Councillor Kestel

That Council:

1. Accept the quote submitted by MMM (WA) Pty Ltd in response to Q2026-18; and

2. Authorise the Chief Executive Officer to finalise and execute the required contract documents.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Balcombe SECONDED: Councillor Woods

That the meeting be re-opened to the public.

CARRIED UNANIMOUSLY
7 / 0

FOR: *Councillor Balcombe, Councillor Kestel, Councillor Hyne, Councillor Peczka, Councillor Vis, Councillor Wilkie and Councillor Woods*

AGAINST: *Nil*

The meeting re-opened to the public at 3:52 pm. Five members of the public returned to the Gallery and were advised of Council's decision.

19 CLOSURE

There being no further business, the Presiding Member declared the meeting closed at 3:53 pm.

The next Ordinary Council Meeting will be held in Council Chambers at the Shire of Gingin Administration Centre, 7 Brockman Street, Gingin on 17 November 2026, commencing at 3 pm.