COSSILL & WEBLEY
CONSULTING ENGINEERS

ENGINEERING SERVICING REPORT

AUSTIN LAKES – LOCAL STRUCTURE PLAN

January 2026

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CONTENTS

1. EXECUTIVE SUMMARY

This report has been prepared by Cossill & Webley Pty Ltd (CW) to summarise the key opportunities and constraints related to the servicing of future urban development of Lots 9044 and 9028 (herein referred to as *the Site*), South Yunderup, in support of Local Structure Plan (LSP) submission. The Site is immediately adjacent to ongoing subdivision works within the Austin Lakes Estate, providing established servicing connection points and a coordinated framework for urban expansion.

This report outlines the existing site conditions and provides a servicing strategy for the implementation of major infrastructure required to support urban development within the LSP area. It is acknowledged that additional detailed engineering design will be undertaken at the time of subdivision.

The engineering review addresses earthworks, roadworks, stormwater drainage, sewerage, water supply, power, gas, and telecommunications services. Investigations confirm that the land is capable of supporting development through the progressive extension of existing infrastructure and construction of new reticulation systems as required. While the Site is low-lying with shallow groundwater, these conditions do not limit development provided appropriate earthworks, groundwater separation, and drainage management practices are applied.

Road access to the Site will be provided via the continuation of Keegan Avenue and Rosewood Avenue, which connect into the existing Austin Lakes transport network and provide broader access to Forrest Highway and surrounding areas.

Wastewater servicing can be achieved via a new gravity sewer network discharging to a proposed wastewater pump station centrally located within the Site, with flows conveyed through a pressure main to the existing Austin Lakes estate system. This approach is consistent with Water Corporation's servicing requirements and with the wastewater strategy applied in surrounding stages.

Potable water supply will be provided through connection to the Water Corporation's Integrated Water Supply Scheme (IWSS), with the existing DN250P distribution main at Inlet Boulevard acting as the primary feeder. Proposed DN100 reticulation mains at Keegan Avenue, Brookton Promenade, and Rosewood Avenue will extend the supply network into the LSP area as development progresses.

Power supply will be delivered through the extension of the underground high- and low-voltage network constructed in previous stages of Austin Lakes. All electrical infrastructure will comply with Western Power standards and existing overhead power lines adjacent to the Site will be removed or relocated underground as development proceeds.

Telecommunications will be provided by the NBN fixed-line network, with the Site located within NBN's "Build Commenced" footprint. Fibre-ready pit and pipe work will be installed at subdivision stage in accordance with NBN Co.'s guidelines.

Gas reticulation will be extended from the existing ATCO Gas network that services earlier stages of Austin Lakes. Gas mains will typically be installed within the common trench alongside water infrastructure to maximise efficiency and comply with ATCO construction standards.

The investigations and conclusions presented in this report are based on preliminary advice from the relevant service authorities and are current as of January 2026. Servicing arrangements may be refined as development within the Austin Lakes Estate progresses and additional trunk infrastructure is delivered.

2. INTRODUCTION

This report has been prepared by Cossill & Webley Pty Ltd (CW) to identify and summarise the key opportunities and constraints associated with servicing future urban development of Lots 9044 and 9028, South Yunderup (herein referred to as the Site), in support of the Local Structure Plan (LSP) submission. Access to the Site is provided from the south via the unsealed Bens Road. The eastern boundary adjoins the existing Austin Lakes Estate, where multiple stages of subdivision are currently under construction, providing an established urban framework and enabling coordinated integration of servicing infrastructure. Conservation wetlands define the northern and western boundaries of the Site. The location of the Site is shown in Figure 1.

The Site is located within the Shire of Murray, approximately 80 kilometres south of the Perth city centre. Most of the land is currently utilised for farmland and grazing activities. Vegetation across the Site ranges from low-lying shrubs and bushes to mature trees of significant height.

Figure 1 Site Location (MNG Access, 2025)

3. SITE CONTEXT

3.1 Existing Topography

Figure 2 shows the elevation contours for the site, ranging from 0 to 2 m AHD. Elevations at 0 m AHD correspond to mean sea level, indicating that the area is very low-lying. The absence of distinct contour lines highlights the flat and uniform nature of the terrain, which is characteristic of wetland environments.

Figure 2 Site Contours (MNG Access, 2025)

3.2 Geology

The geological profile of the site presented in Figure 3 below shows the subsurface conditions as obtained from GeoView WA. GeoView WA mapping indicates that the northern portion of the surrounding area is characterised by lagoonal deposits (Mp). To the northeast, a band of reworked Bassendean Sand (S10) is present. The central area of the site is predominantly underlain by Bassendean Sand (S8), with localised pockets of Guildford Formation (S2), comprising alluvial sandy clays. Isolated occurrences of thin Bassendean Sand overlying the Guildford Formation (S10), are also observed within the site. Bassendean Sands are generally well suited for urbanisation due to their high permeability, which supports on-site infiltration and disposal of runoff from newly constructed roads and residential lots.

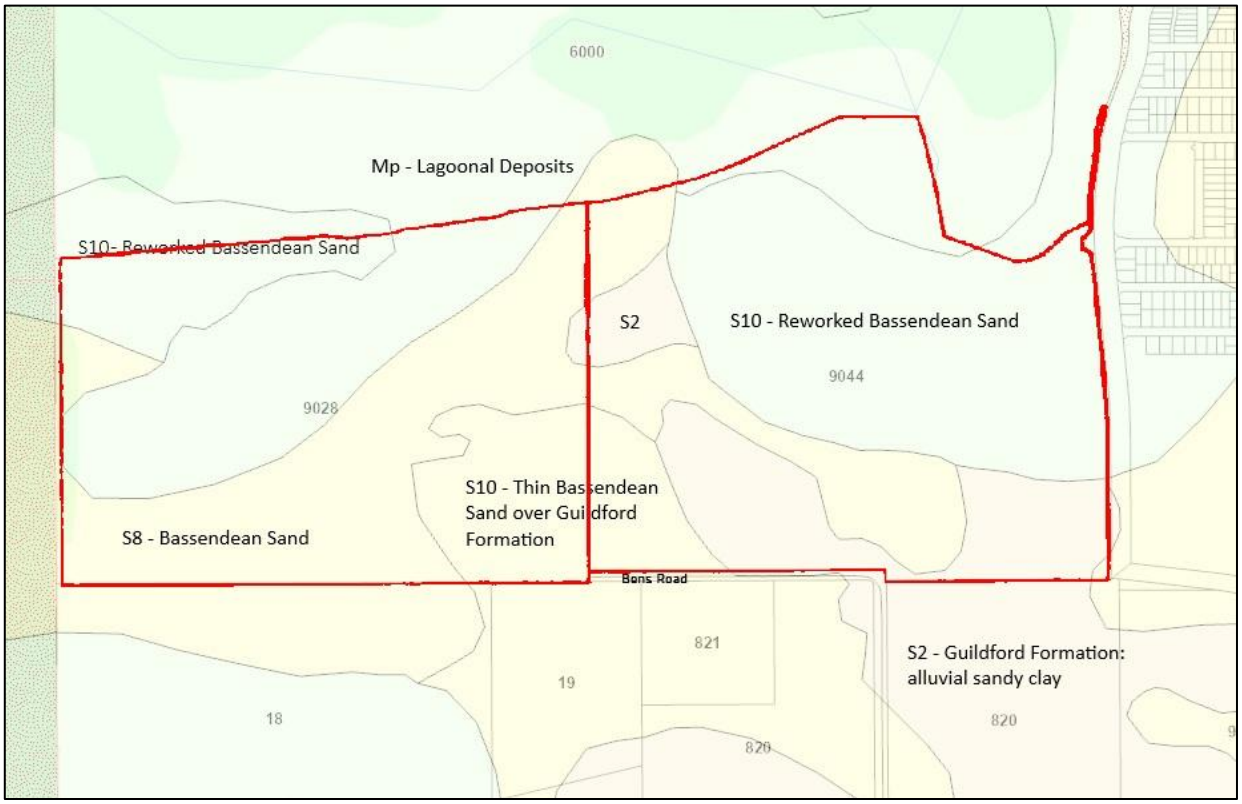


Figure 3 Site Geological Profile (GeoVIEW.WA, 2025)

A recent (2025) geotechnical desktop study completed by Galt Geotechnics' and supplemented by data from the Golder 2007 and Douglas Partners 2020 geotechnical reports, identified subsurface conditions that are generally consistent with the geological mapping for the area. The Site is predominantly underlain by sand materials, with Bassendean Sands and reworked Bassendean Sands encountered across much of the site. In most locations, the upper profile comprises loose to medium dense Sand (SP), locally transitioning into Clayey Sand (SC) or Sandy Clay (CH) at greater depths. In the northern portion of the site, sand was observed to extend to the full depth investigated (approximately 6 m), while in the southern portion thinner sand layers overly zones of soft to firm clayey soils. Overall, the subsurface conditions are dominated by sandy soils suitable for infiltration, with localised clay layers occurring at depth in parts of the site.

3.3 Acid Sulphate Soils

A desktop review of the Department of Environment and Conservation's Acid Sulphate Soil (ASS) Risk Map indicates that the site contains areas with varying risk levels. The southern portion of the Local Structure Plan (LSP) area is classified as having a low to moderate risk of ASS occurring within 3 m of the natural soil surface (or deeper), while the northern portion presents a moderate to high risk, as shown in Figure 4. The areas of elevated risk are generally located adjacent to the wetland boundary.

Where ASS or ASS-impacted groundwater may be disturbed, an Acid Sulphate Soil Management Plan (ASSMP) is required to guide construction activities. Such management is routine within Perth's land development industry and can be effectively implemented throughout the development process.

As planning progresses, further site-specific investigations will be undertaken to confirm the presence and extent of ASS and to assess any implications for the proposed development.

Figure 4 Site Acid Sulphate Soils Risk (MNG Access, 2025)

3.4 Groundwater

Although the Austin Lakes Estate is located outside the Department of Water and Environmental Regulation's (DWER) mapped groundwater dataset, a recent Water Management Plan prepared by RPS (2025) for the Austin Lakes Estate Local Structure Plan (LSP) provides updated groundwater information for the area. Monthly groundwater monitoring has been undertaken since 2006 through a network of shallow monitoring bores and nearby DEC/DWER bores, indicating seasonal groundwater level fluctuations of approximately 1.0–1.5 m across the site. Revised Average Annual Maximum Groundwater Levels (AAMGLs), recalculated by RPS in 2022 using all available monitoring data, range from approximately 1.6 mAHD along the north-western boundary to 2.0 mAHD in the southern and south-eastern areas. Pre-development winter groundwater levels occur close to the natural ground surface, with standing water predicted in low-lying areas. Regional groundwater flow within the superficial aquifer is generally directed west to north-west, towards the Peel Inlet and the Murray River. Pre-development AAMGL contours and groundwater monitoring bores are shown in Figure 5.

RPS indicate that following development, groundwater levels are expected to rise due to filling within the development area, with groundwater potentially rising between 0.5 m and 1.0 m into the sand fill. Earthworks and finished surface levels have therefore been designed to account for this post-development groundwater rise and to maintain adequate separation to groundwater. Areas with finished levels at or above 4.4 mAHD (approximately 2.0 m above the pre-development groundwater mound) will provide sufficient separation to groundwater post-development. Where required, subsoil drainage will be designed to accommodate post-development groundwater conditions and to protect infrastructure.

Figure 5 Pre-development AAMGL contours & Groundwater monitoring bores (RPS, 2025)

4. EARTHWORKS

Site preparation for urban development generally involves the clearing of existing vegetation and, where required, the earthworking of in-situ soils to achieve the design surface levels necessary for subsequent construction. In the Perth region, the extent and nature of siteworks are typically governed by the proposed development density, lot configuration, and the finished ground levels required for residential structures. The trend toward higher-density subdivisions with smaller lot sizes has resulted in comprehensive earthworks across development areas, including the creation of level terraces and the implementation of inter-allotment retaining structures.

This approach provides several engineering and planning benefits:

- Optimisation of building costs through uniform lot grading.
- Rationalisation of retaining wall locations and designs in accordance with Local Authority standards.
- Facilitation of lot terracing along natural slopes, thereby preserving elevation and view corridors.

As discussed in Section 3.4 (Groundwater), post-development groundwater levels within the site are expected to rise as a result of filling. Accordingly, the earthworks strategy for the subject site has been developed in response to the high groundwater table, low-lying topography, and the requirements for future urban infrastructure. Earthworks and finished surface levels have been designed to account for post-development groundwater rise and to maintain adequate separation to groundwater.

The proposed earthworks approach predominantly involves raising the ground surface by approximately 1–3 m using clean, engineered fill to achieve sufficient clearance above post-development groundwater levels, thereby mitigating flood risk and providing suitable conditions for residential construction. Areas with finished levels at or above 4.4 mAHD (approximately 2.0 m above the pre-development groundwater mound) will maintain sufficient separation to groundwater following any potential post-development rise. Where required, subsoil drainage will be designed to accommodate post-development groundwater conditions and to protect buildings and infrastructure.

The design of fill levels will be coordinated with stormwater and sewer reticulation infrastructure to ensure that adequate clearances are maintained for gravity-driven systems and to minimise reliance on pumping where practicable.

This integrated earthwork approach ensures that the site will be developed in a manner that is structurally stable, hydrologically functional, and environmentally responsible, providing a reliable foundation for urban development while protecting groundwater-dependent ecosystems.

5. STORMWATER

5.1 Urban Water Management Strategy

A Technical Memorandum has been prepared by RPS for the LSP area, in lieu of a Local Water Management Strategy (LWMS) as agreed with the Shire of Murray. The Technical Memorandum adopts a best-practice stormwater management approach consistent with the Stormwater Management Manual for Western Australia (DWER, 2022) and related guidelines and provides a basis for ongoing development to ensure that appropriate allowances are made for total water management.

Stormwater drainage management is proposed by adopting a Water Sensitive Urban Design (WSUD) approach. Objectives of WSUD include:

- Detention of stormwater rather than rapid conveyance;
- Use of stormwater to conserve potable water;
- Use of vegetation for filtering purposes; and
- Water efficient landscaping.

Stormwater recharge of the shallow aquifer should be maximised through the adoption of 'Best Management Practices', which promote the dispersion and infiltration of runoff. These include drainage soak wells to infiltrate runoff from buildings and private open space areas and the disposal of road runoff into infiltration basins within areas of public open space POS.

The maximisation of the quality of recharge water through the adoption of "Best Management Practices", which promote the disposal of runoff via water pollution control facilities (including vegetated swales and basins, detention storage and gross pollutant traps) and the implementation of non-structural source controls (including urban design, street sweeping, community education, low fertiliser landscaping regimes, etc.)

Due to the presence of acid sulphate soils in the northern and central-western areas of the estate, and the elevated salinity of the shallow groundwater, private garden bores will not be permitted. Instead, residents will be encouraged to implement water-wise landscaping to reduce scheme water demand. Stormwater will be managed through a treatment-train system incorporating structural measures, such as swales, vegetated multiple-use corridors, and ephemeral POS detention area, to promote infiltration and maintain pre-development flow rates. Non-structural controls, including appropriate POS planning, maintenance regimes, and community education, will further support water-quality objectives. Runoff from roofs will supplement the feature lake and assist in seasonal flushing, while stormwater from roads and hardstand areas will be excluded from the lake during normal conditions to protect water quality. Overall, the strategy emphasises infiltration of frequent rainfall events, attenuation of peak flows, and the protection of downstream flood risk and receiving environments.

5.2 Stormwater Collection and Management

A Drainage Strategy Concept Plan has been prepared by Cossill & Webley on behalf of Wolfdene and in coordination with RPS and is included in Appendix B. The proposed stormwater system has been designed so that runoff from storms up to the 1 in 5-year ARI event is conveyed via an underground pipe network to strategically located low-point infiltration basins, consistent with the requirements of the Shire of Murray.

Areas of public open space (POS) will provide overland flow paths to safely manage surface overflow during more severe storms, with all building pads to be constructed a minimum of 300 mm above the 1 in 100-year ARI flood or storage level. Upon completion of earthworks, the site will comprise free-draining sands with substantial cover to groundwater, providing adequate vertical separation for infiltration.

Runoff generated within future residential lots is expected to be managed on-site, with 16 individual catchment areas identified in the concept plan. Excess stormwater will be directed into various areas of POS via catchment swales, while lot-scale disposal will occur through soak wells or other infiltration facilities that form part of the dwelling and private open space development. Drainage from public roads and lanes will be managed using a combination of underground collection, surface conveyance, and infiltration methods depending on adjacent land uses, traffic volumes and the overall drainage objectives for the estate.

6. ROADWORKS

A Local Structure Plan (LSP) concept plan has been prepared by CLE for the subject site and attached as Appendix A to this report. The concept plan outlines the proposed road hierarchy and future access network. The plan provides for the continuation of Keegan Avenue, Rosewood Avenue and Brookton Promenade, which will form the primary access corridors servicing the proposed primary school and the broader development. A network of Access Streets and internal connections has been configured to efficiently distribute local traffic and provide permeable links back to these key routes. All road infrastructure will be designed in accordance with the Department of Planning's Liveable Neighbourhoods guidelines and the Shire of Murray engineering standards to ensure compliance with contemporary design and safety requirements.

In line with Liveable Neighbourhoods principles, local roads will be engineered to support lower vehicle operating speeds, thereby enhancing safety outcomes and improving pedestrian movement throughout the estate. Reduced speed environments also allow for the adoption of smaller street truncations and reduced intersection curve radii, where appropriate, improving land efficiency without compromising safety or accessibility.

In all cases, road cross-sections will be designed to accommodate utility services on standard verge alignments and incorporate street trees, parking bays (where appropriate), and provisions for both off-street and on-street cycling facilities. These elements will be integrated to align with the broader pedestrian and cycling network, supporting a functional, safe, and well-connected movement system within the development.

7. WASTEWATER

As part of the holistic engineering design process for the Austin Lakes Estate, Cossill & Webley have prepared a Sewer Reticulation Plan for the Local Structure Plan (LSP) area, included as Figure 6. This plan defines the proposed wastewater collection network and its integration with existing and future sewer infrastructure within Austin Lakes. Minor adjustments to the reticulation layout are expected as adjoining completed and under-construction stages are finalised and as-constructed information becomes available.

The LSP area will be serviced primarily by a proposed Wastewater Pump Station (WWPS) located centrally in the POS 15 portion of the site. Wastewater flows from residential lots will be conveyed via a gravity network toward this pump station, with the system configured such that catchments fall naturally to defined low points. The reticulation layout includes a future pressure main, which will transfer flows from the WWPS to a designated discharge access chamber located at Inlet Boulevard to the east, where it connects into the broader estate network. In addition, a proposed WWPS will service the south-eastern area adjacent to the LSP area that is currently under design. The plan also notes an existing wastewater facility—South Yunderup Pump Station No. 13—located north of the LSP boundary, with which the proposed network must coordinate.

The sewer design ensures that all reticulation lines are located within road reserves where practicable, with appropriate access chambers positioned at changes in direction, grade, and pipe diameter to comply with Water Corporation DS 50 Series Standards. This includes adherence to requirements for minimum cover, maximum allowable grades, pipe sizing, hydraulic capacity, operational clearances, and odour and corrosion management. Pump station design will meet Water Corporation's Standard Pump Station Specifications, including emergency storage, duty/standby pumping arrangements, security, ventilation, and safe maintenance access. Pressure mains will be designed in accordance with Water Corporation pressure main guidelines, including air valve placement, scour points, surge management and material selection.

Overall, the proposed sewer reticulation system provides a robust and efficient wastewater servicing framework for the LSP area, ensuring compliance with Water Corporation's servicing standards while integrating seamlessly with the surrounding Austin Lakes wastewater infrastructure.

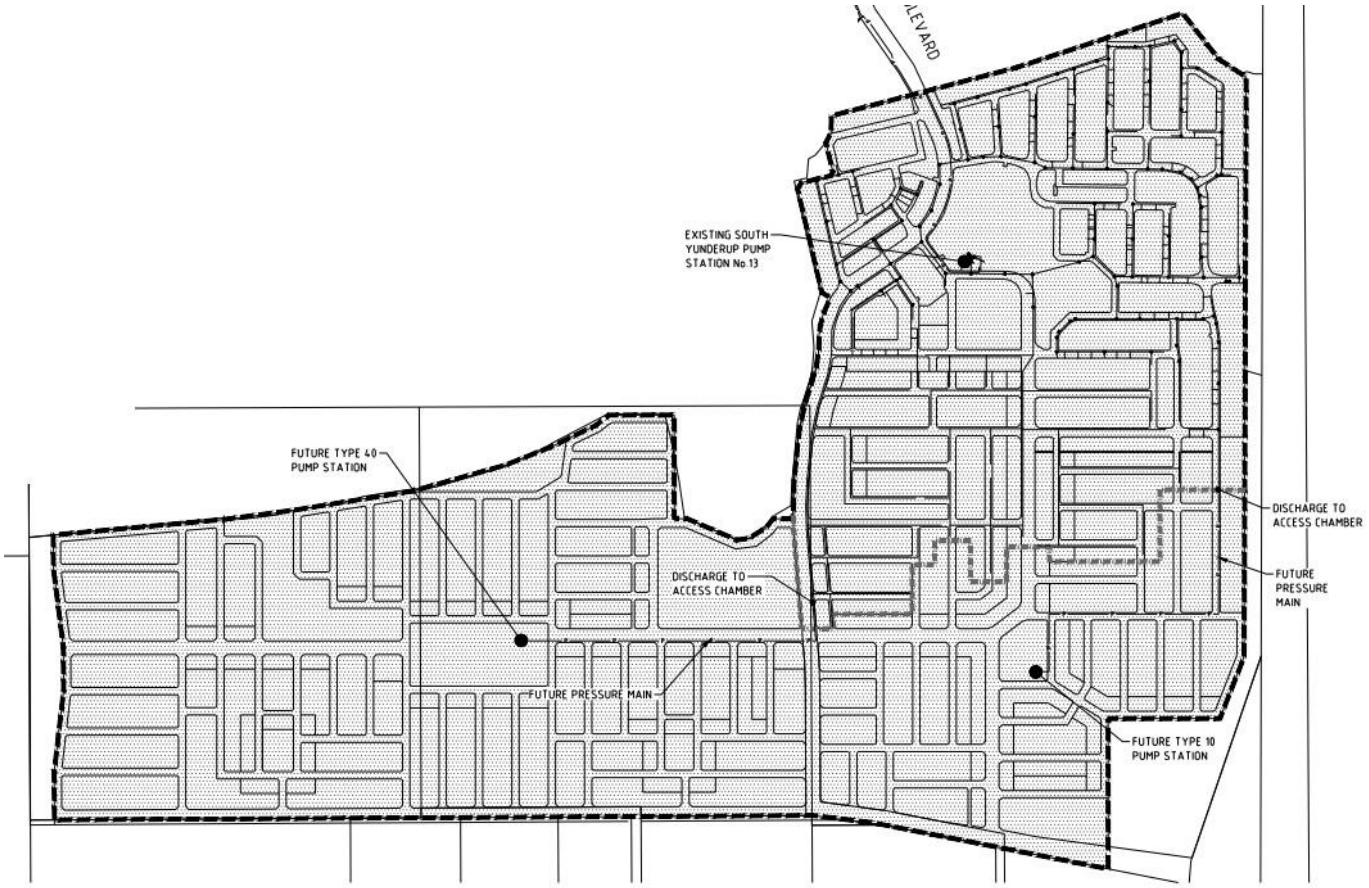


Figure 6 Sewer Reticulation Strategy Plan (CW, 2021)

8. WATER RETICULATION

The proposed LSP area will be serviced with potable water via the Water Corporation's Integrated Water Supply Scheme (IWSS), which supplies the Peel region from a combination of desalination, groundwater sources and surface-water storages.

A key element of the proposed servicing strategy is the existing DN250P distribution main located along Inlet Boulevard, which is expected to function as the primary feeder for the LSP area. From this main, a proposed DN250 reticulation main is expected to be extended along Keegan Avenue, providing the backbone of the proposed water supply system for the LSP area, delivering adequate pressure and capacity for residential development and enabling redundancy within the network, subject to Water Corporation approval. Existing water infrastructure can be seen in Figure 7.

Smaller reticulation mains are expected to be located at Brookton Promenade and Rosewood Avenue to service the internal water reticulation network.

A limit of supply level of 6.0m AHD has previously been advised by the Water Corporation for the existing Austin Lakes development. It is anticipated that finished surface levels within the LSP area will be lower than 6.0m AHD, alleviating any pressure and serviceability concerns.

Figure 7 Existing Water Infrastructure (MNG Access, 2025)

All internal water reticulation infrastructure within the LSP area will be proposed to comply with Water Corporation design standards, including requirements for minimum service pressures, fire-flow performance, and operational redundancy. Given localised topographic variation, the detailed design phase will assess whether pressure-reducing valves (PRVs), localised boosting, or minor pressure-zone adjustments are required to maintain service compliance. Scheme water will remain the sole potable supply for all future lots, with private bores not permitted due to the presence of acid sulphate soils and elevated groundwater salinity. Waterwise landscaping and rainwater use initiatives will be encouraged to support broader water-efficiency objectives.

9. POWER SUPPLY

The proposed development will be serviced by a combination of high- and low-voltage underground distribution infrastructure, designed to provide adequate electrical capacity for all residential lots, the future primary school and associated community facilities. A detailed electrical reticulation design will be prepared during the subdivision design phase to confirm load requirements, feeder configurations, and the need for any distribution transformers, which will be incorporated as required and in full accordance with Western Power's network planning and design standards. All electrical infrastructure will comply with Western Power requirements for supply capacity, voltage regulation, safety, clearances, earthing, metering, and the installation of underground conduits to support future service provision. Street lighting will be designed and installed to match the style, spacing, and performance specifications utilised in the earlier stages of the Austin Lakes Estate, ensuring visual consistency and seamless infrastructure integration across the broader development.

The electrical servicing strategy for the LSP area will also tie into and extend from the existing underground network established in previous stages of Austin Lakes, allowing for coordinated feeder routing, redundancy and efficient staging of reticulation works. This approach ensures compatibility with the broader estate's power infrastructure and supports a unified and resilient electrical network.

Existing overhead power lines located adjacent to and within the LSP area are shown in Figure 8. These assets will be safely decommissioned, removed or relocated underground as required, consistent with the methodology successfully implemented in earlier stages of Austin Lakes. All works will be undertaken in accordance with Western Power's safety and asset-management standards.

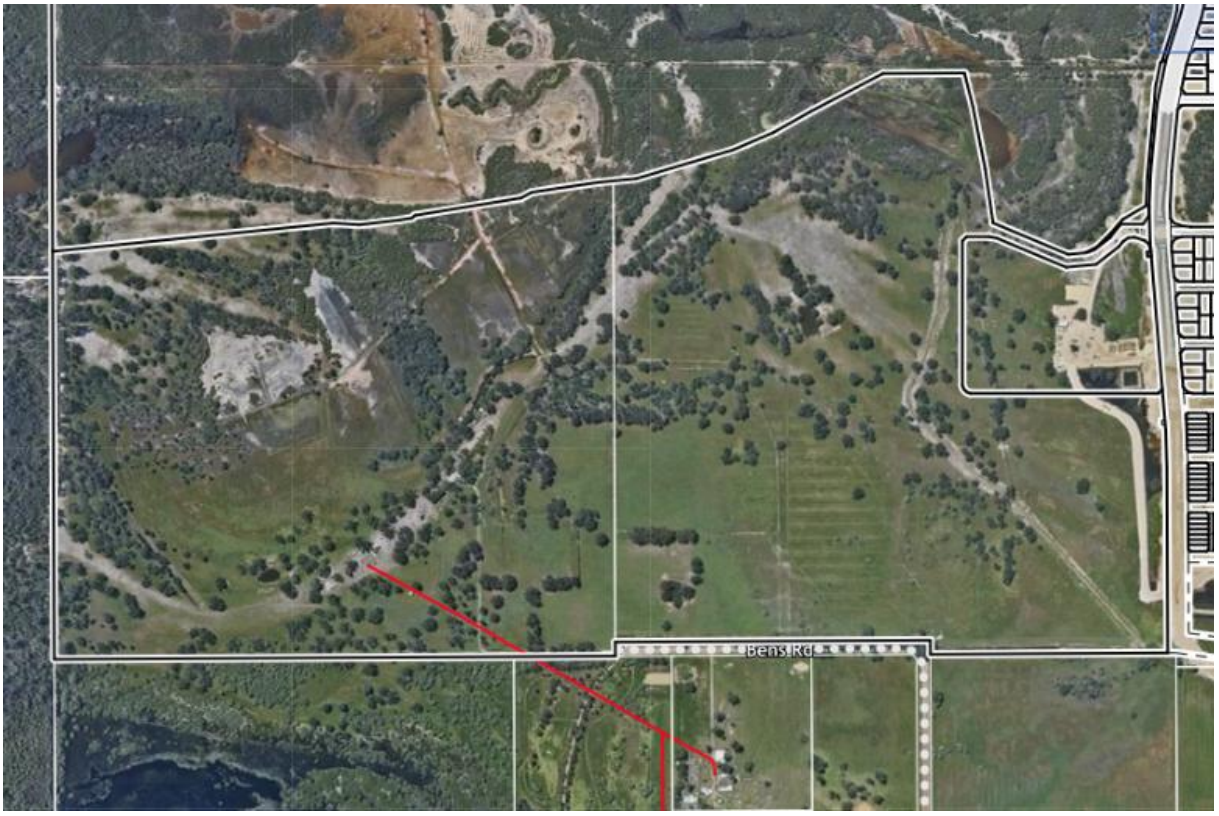


Figure 8 Existing Overhead Power Lines in the LSP Area (MNG Access. 2025)

10. COMMUNICATIONS

The LSP area is located within NBN Co's "Build Commenced" fixed-line rollout area, as shown in Figure 9, and will be serviced with high-speed broadband infrastructure consistent with the earlier stages of the Austin Lakes Estate. The development will be provided with fibre-ready pit and pipe infrastructure, installed within the common trench alongside other underground services, in accordance with NBN New Developments Guidelines, pit and pipe design standards and relevant service-provider requirements. NBN Co (or an accredited alternative carrier) will complete the installation of active fibre infrastructure following the developer's provision of compliant conduit and access pits. Road reserve and verge cross-section designs will incorporate the necessary allowances for broadband infrastructure and any localised equipment sites or connection nodes required by NBN will be accommodated at detailed subdivision design stage. This approach ensures seamless integration with adjacent stages and compliance with current NBN servicing standards for greenfield developments.

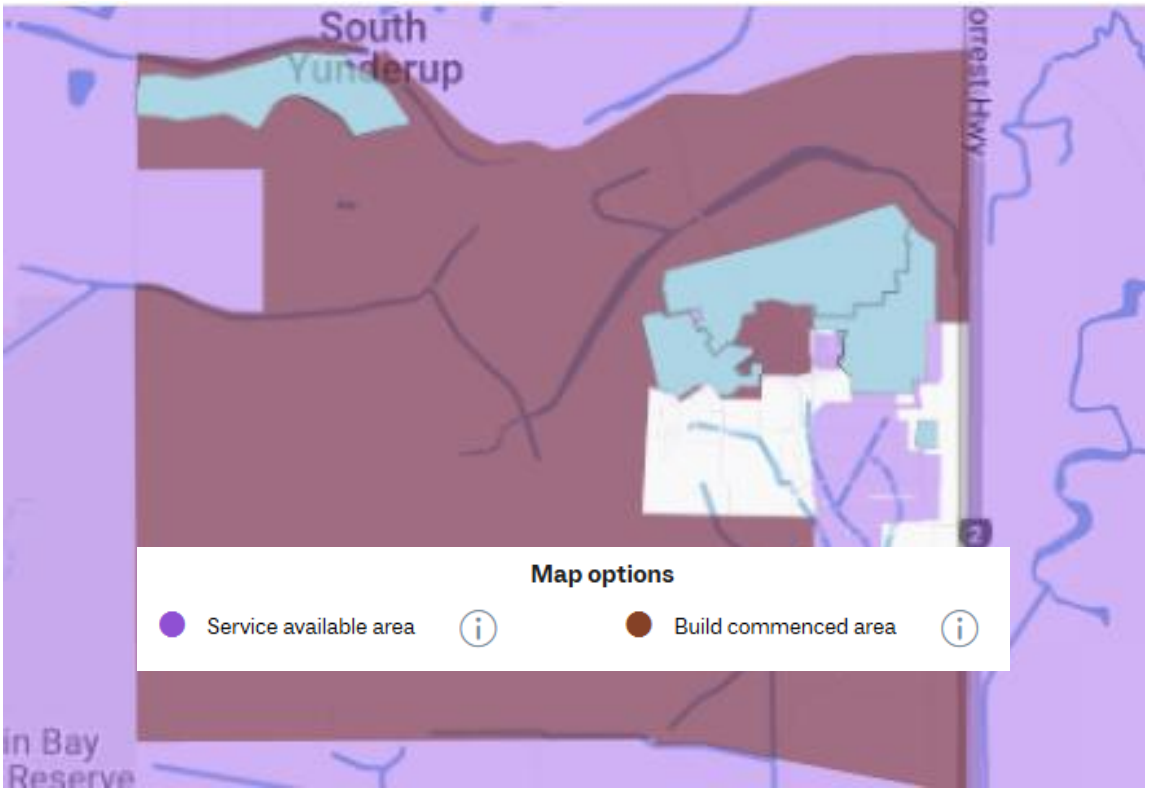


Figure 9 – NBN Rollout Map (NBN, 2025)

11. GAS

The broader Austin Lakes Estate is serviced by reticulated natural gas infrastructure, and the proposed LSP area is expected to be connected in a similar manner. ATCO Gas will prepare a detailed gas reticulation design during the subdivision engineering phase, consistent with their network planning requirements and the approach adopted in previous stages of the estate. Gas mains are typically installed within a common trench alongside the water reticulation infrastructure, allowing coordinated servicing, efficient use of corridor space, and compliance with ATCO's construction and safety standards.

12. CONCLUSION

The Site can be fully serviced with potable water, wastewater, stormwater, power, gas and telecommunications infrastructure, supported by clear strategies and established connection points from the broader Austin Lakes Estate. Engineering investigations undertaken to date confirm that no significant servicing constraints exist that would impede urban development, provided standard design and approval processes are followed. All essential infrastructure can be delivered either through extension of existing networks or through planned upgrades consistent with the requirements of the relevant Service Authorities.

The ongoing staging of the development will require coordinated planning and close liaison with the Water Corporation, Western Power, ATCO Gas, NBN Co. and the Shire of Murray to ensure timely provision of reticulation infrastructure. With these processes in place, the Site can be efficiently integrated into the surrounding estate and developed in accordance with contemporary engineering and planning standards.

APPENDIX A

LSP Development Concept Plan

LEGEND

- Local Structure Plan Boundary

Zones

- Residential (Existing)
- Residential (R25-R60)
- Centre

Reserves

- Public Purpose - Educational
- Public Purpose - Water Authority
- Public Open Space
- Public Open Space (already ceded)
- Wetland Buffer

Other

- Integrator B
- Neighbourhood Connector
- Access Street B

NOTES:

Residential

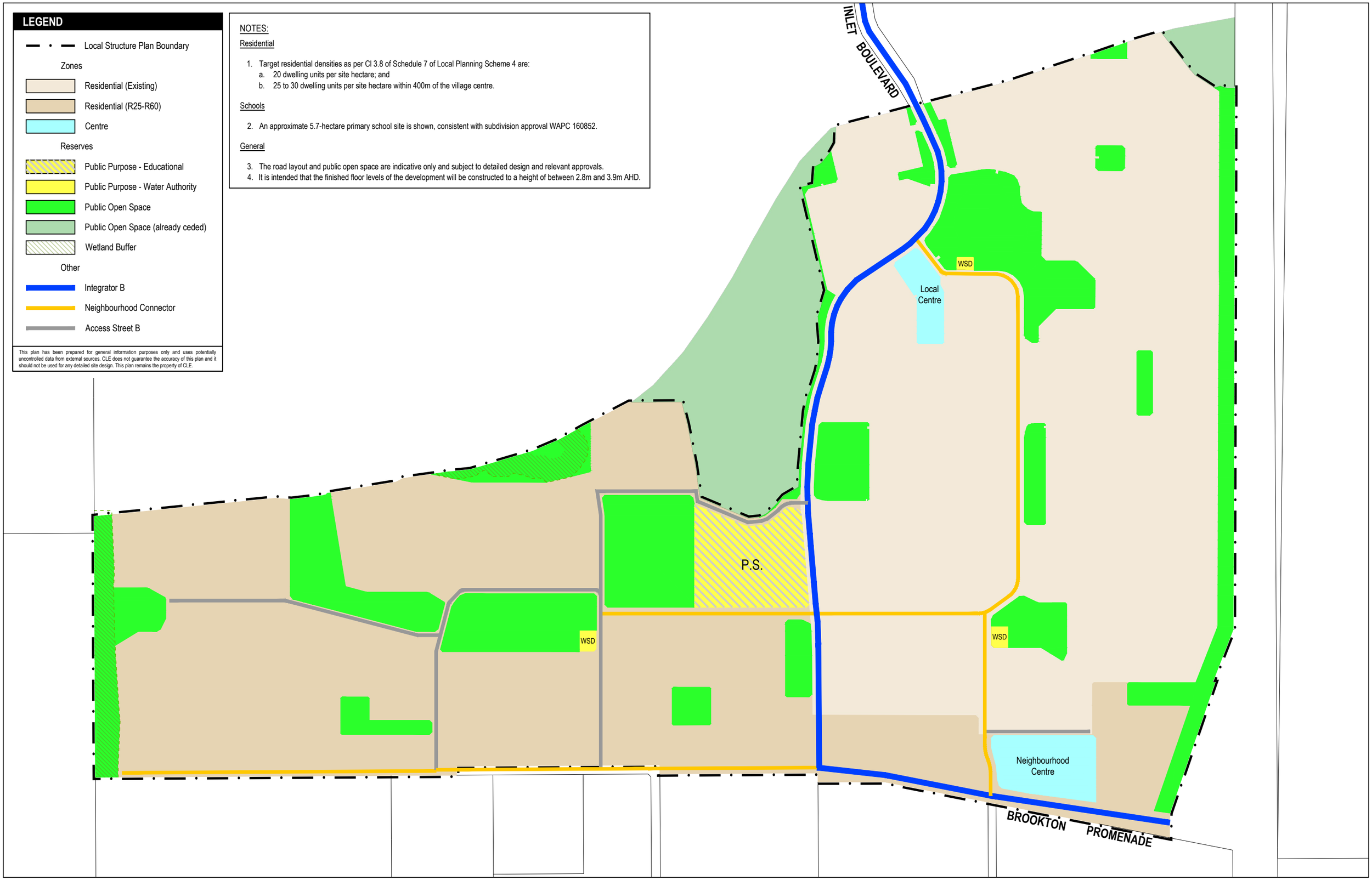
1. Target residential densities as per Cl 3.8 of Schedule 7 of Local Planning Scheme 4 are:
   a. 20 dwelling units per site hectare; and
   b. 25 to 30 dwelling units per site hectare within 400m of the village centre.

Schools

2. An approximate 5.7-hectare primary school site is shown, consistent with subdivision approval WAPC 160852.

General

3. The road layout and public open space are indicative only and subject to detailed design and relevant approvals.
4. It is intended that the finished floor levels of the development will be constructed to a height of between 2.8m and 3.9m AHD.



CLE Town Planning + Design

LOCAL STRUCTURE PLAN

Austin Lakes

0 100 200 300 400 500m

plan no: **2054-764A-01**
date: 2 February 2026
scale: 1:7,500 @A3

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APPENDIX B

Drainage Strategy Concept Plan

LEGEND

DESCRIPTION	SYMBOL
MAIN DRAINAGE PIPE	
EXISTING OPEN DRAIN	
15mm TWL	
20% AEP TWL	
1% AEP TWL	
INDICATIVE LOW POINT / OVERLAND FLOW TO POS	
CATCHMENT C61	
CATCHMENT C62	
CATCHMENT Y	
CATCHMENT MEDIAN SWALE	
CATCHMENT 1	
CATCHMENT 2	
CATCHMENT 3	
CATCHMENT 4	
CATCHMENT 7	
CATCHMENT 8	
CATCHMENT 10	
CATCHMENT 11	
CATCHMENT 12	
CATCHMENT 14	
CATCHMENT 16	

NOTE: ASSUMED THAT 15mm EVENT IS CONTAINED WITHIN 20% AEP EVENT

CONSERVATION AREA

CATCHMENT Y
GROSS AREA ROADS = 3.55 ha
GROSS AREA POS = 0.30 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	1.65	1.65	1.65
PEAK STORAGE VOLUME (m3)	278	590	1542
TOP WATER LEVEL (m)	2.24	2.55 (520m3)	2.55 (520m3)
TOP WATER LEVEL AREA (m2)	1160	1210	1210

CATCHMENT 1
GROSS AREA ROADS = 2.31 ha
GROSS AREA POS = 2.05 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	1.65	1.95	1.95
PEAK STORAGE VOLUME (m3)	290	630	1740
TOP WATER LEVEL (m)	2.00	2.10	2.80
TOP WATER LEVEL AREA (m2)	1000	1690	2380

CATCHMENT 11
GROSS AREA ROADS = 4.51 ha
GROSS AREA POS = 1.81 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	1.88	2.18	2.18
PEAK STORAGE VOLUME (m3)	414	678	984
TOP WATER LEVEL (m)	2.18	2.29	2.41
TOP WATER LEVEL AREA (m2)	1531	2424	2620

CATCHMENT DOS
GROSS AREA ROADS = 0.00 ha
GROSS AREA POS = 5.00 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	2.00	2.27	2.27
PEAK STORAGE VOLUME (m3)	156	355	627
TOP WATER LEVEL (m)	2.27	2.54	2.82
TOP WATER LEVEL AREA (m2)	660	847	1070

CATCHMENT 2
GROSS AREA ROADS = 3.76 ha
GROSS AREA POS = 2.05 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	1.95	2.25	2.25
PEAK STORAGE VOLUME (m3)	425	680	1880
TOP WATER LEVEL (m)	2.40	2.50	3.20
TOP WATER LEVEL AREA (m2)	1460	1740	2200

CATCHMENT 12
GROSS AREA ROADS = 3.62 ha
GROSS AREA POS = 4.25 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	1.85	2.15	2.15
PEAK STORAGE VOLUME (m3)	380	708	1144
TOP WATER LEVEL (m)	2.15	2.28	2.47
TOP WATER LEVEL AREA (m2)	1422	2263	2495

CATCHMENT MEDIAN SWALE
GROSS AREA ROADS = 1.30 ha
GROSS AREA MEDIAN = 0.12 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	VARIES	VARIES	2.85
PEAK STORAGE VOLUME (m3)	94	277	293
TOP WATER LEVEL (m)	3.35	3.35(94m3)	3.35(94m3)
TOP WATER LEVEL AREA (m2)	610	860	860

CATCHMENT C61
GROSS AREA ROADS = 1.16 ha
GROSS AREA POS = 1.06 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	2.55	2.85	2.85
PEAK STORAGE VOLUME (m3)	180	265	530
TOP WATER LEVEL (m)	3.15	3.25	3.65
TOP WATER LEVEL AREA (m2)	620	710	800

CATCHMENT C62
GROSS AREA ROADS = 3.35 ha
GROSS AREA POS = 1.06 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	2.80	3.10	3.10
PEAK STORAGE VOLUME (m3)	470	750	1875
TOP WATER LEVEL (m)	3.30	3.40	4.10
TOP WATER LEVEL AREA (m2)	1560	1900	2450

CATCHMENT 16
GROSS AREA ROADS = 4.26 ha
GROSS AREA POS = 3.84 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	3.00	3.30	3.30
PEAK STORAGE VOLUME (m3)	428	1031	1772
TOP WATER LEVEL (m)	3.3	3.61	3.95
TOP WATER LEVEL AREA (m2)	1587	2016	2412

CATCHMENT 14
GROSS AREA ROADS = 3.53 ha
GROSS AREA POS = 0.99 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	2.40	2.69	2.69
PEAK STORAGE VOLUME (m3)	321	501	785
TOP WATER LEVEL (m)	2.69	2.83	3.02
TOP WATER LEVEL AREA (m2)	1236	1359	1542

CATCHMENT 10
GROSS AREA ROADS = 6.27 ha
GROSS AREA POS = 4.12 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	2.30	2.60	2.60
PEAK STORAGE VOLUME (m3)	584	983	1989
TOP WATER LEVEL (m)	2.60	2.78	3.16
TOP WATER LEVEL AREA (m2)	2134	2346	2840

CATCHMENT 8
GROSS AREA ROADS = 2.15 ha
GROSS AREA POS = 0.73 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	3.10	3.39	3.39
PEAK STORAGE VOLUME (m3)	216	308	813
TOP WATER LEVEL (m)	3.39	3.58	3.96
TOP WATER LEVEL AREA (m2)	835	912	1284

CATCHMENT 7
GROSS AREA ROADS = 7.68 ha
GROSS AREA POS = 0.99 ha

	7A	7B	7C	7A	7B	7C	7A	7B	7C
	15mm			20% AEP			1% AEP		
BASIN RL (m)	3.4/3.5	2.50	2.50	3.4/3.5	2.80		3.4/3.5	2.80	
PEAK STORAGE VOLUME (m3)	41	245	327	60	1184		98	6838	
TOP WATER LEVEL (m)	3.7/3.8	2.80	2.79	3.74/3.84	2.90		3.81/3.91	3.42	
TOP WATER LEVEL AREA (m2)	375	876	1256	466	6387		624	7577	

CATCHMENT 3
GROSS AREA ROADS = 5.04 ha
GROSS AREA POS = 1.58 ha

	3A	3B	3C	3A	3B	3C	3A	3B	3C
	15mm			20% AEP			1% AEP		
BASIN RL (m)	4.10	3.30	3.30	4.10	3.60		4.10	3.60	
PEAK STORAGE VOLUME (m3)	10	162	300	12	980		15	3999	
TOP WATER LEVEL (m)	4.37	3.58	3.59	4.39	3.71		4.41	4.26	
TOP WATER LEVEL AREA (m2)	91	662	1174	101	4764		116	6184	

CATCHMENT 4
GROSS AREA ROADS = 1.97 ha
GROSS AREA POS = 0.76 ha

	15mm	20% AEP	1% AEP
BASIN RL (m)	4.20	4.50	4.50
PEAK STORAGE VOLUME (m3)	183	287	1168
TOP WATER LEVEL (m)	4.48	4.56	5.04
TOP WATER LEVEL AREA (m2)	735	1562	2097

ALLOWANCE FOR HALF OF ROAD RESERVE TO BE CAPTURED. TYPICAL.

REV	DATE	DRN	CKD	APP	AMENDMENT
W	17.06.26	DMC	MC	MJW	ISSUED FOR INFORMATION
V	27.10.25	JAE	MMC	T. BOEKEMAN	ISSUED FOR INFORMATION
U	26.09.25	JAE	MMC	T. BOEKEMAN	ISSUED FOR INFORMATION
T	17.08.25	JAE	TB	T. BOEKEMAN	ISSUED FOR INFORMATION
S	01.08.25	JAE	MMC	T. BOEKEMAN	ISSUED FOR INFORMATION

N

1:2500 0m 50 100 150

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CLIENT: Wolfdene

APPROVED: MJW 20.09.23

DESIGNED: JAE

SCALE: 1:2500

PROJECT: AUSTIN LAKES (SOUTH YUNDERUP) - STRATEGIES

TITLE: DRAINAGE STRATEGY CONCEPT PLAN

WAPC No. –

DRAWING No. 6427-ST-700

REVISION W

ORIGINAL SIZE A1

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