WESTERA PARTNERS

Stormwater Management Report

Proposed Retirement Living Development

25 Tall Oak Drive
Cotswold Hills

For: GTH Project No. 2 Pty Ltd

11 June 2026

Ref: B24-058-3

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This report has been prepared for GTH Project No 2 Pty Ltd for the purpose of accompanying related applications to Toowoomba Regional Council. This report must only be used by Ruby Developments Pty Ltd for this purpose and must not be used or relied upon by any other person for any other purpose.

The assessment, conclusions or recommendations in this report are based on conditions encountered and information received at the time of preparing the report and may not be relied upon as site conditions or operations vary over time.

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1 INTRODUCTION

Westera Partners Pty Ltd has been commissioned by GTH Project No. 2 Pty Ltd to prepare a Stormwater Management Report to accompany related applications for a proposed Retirement Living Facility

The proposal involves 229 villas including associated internal access roads, carparking and ground level features. The primary access point will be provided from Tall Oak Drive.

This report documents how stormwater runoff will be managed on site in accordance with Toowoomba Regional Council's (TRC's) requirements.

2 SITE DESCRIPTION

2.1 Location and Land Use

The proposed development site is located at 1-11 Tallowwood Boulevard, Cotswald Hills, also known as Lot 1 & 2 SP330786 & Lot 3 SP338483. The site area is approximately 11.756Ha and is currently vacant, cleared land. The site falls at varying grade to the north and north-east towards Hermitage Road and an existing gully respectively.

The site is bound by Gowrie Junction Road to the west, Tallowwood Boulevard & residential properties to the south, the stormwater gully to the east and Hermitage Road to the north. There is also an existing Council sewer pump station adjoining the north-east of the development site. Refer to Figure 1 for an indicative site location and Appendix D for detail site survey information.

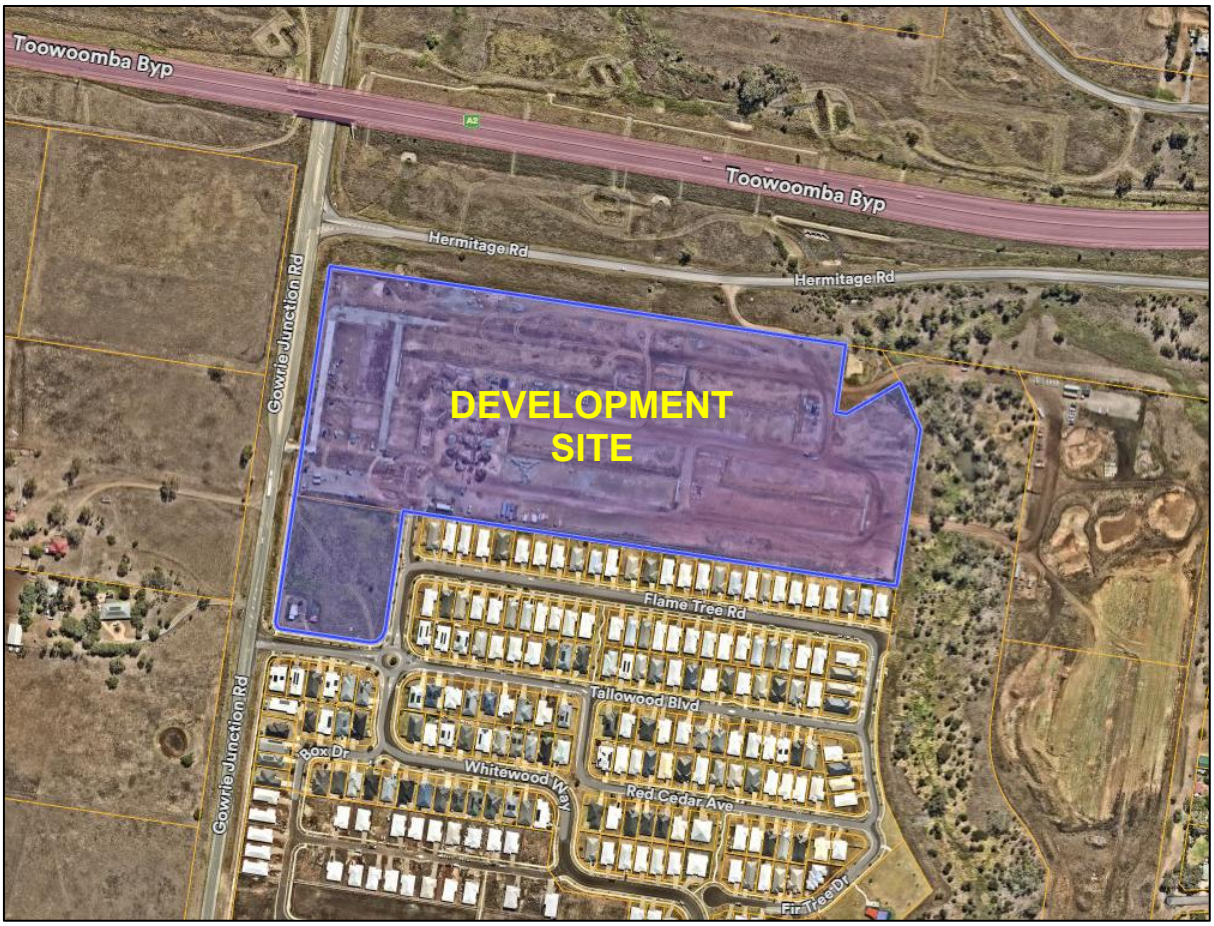


Figure 1 – Indicative site location (Nearmap, 2026)

3 BACKGROUND

There is an existing Material Change of Use & Reconfiguration of a Lot approval over the development site (MCUI/2020/1802 & RAL/2020/1808) for a 185 villa Retirement Facility and four into five lot subdivision. There is also an existing Operational Works approval (OW/2022/3529) for stage 1 of the Retirement Facility and earthworks over the whole site with construction well under way of the approved extent of the facility. Some internal roads and villas have been adjusted to accommodate this proposed expansion. This report has been completed with reference to the approval documents for the MCU/RAL as well as the OPW, with the approved servicing strategy generally maintained unless noted otherwise.

4 SITE DETAILS

4.1 Lawful Point of Discharge

The existing site currently discharges stormwater to the north and north-east towards three separate culverts under Hermitage Road. A cut off swale and associated stormwater infrastructure for the expansion area of the site was originally proposed as part of the stormwater design for the original facility.

Stormwater runoff from the development site will be collected discharged to the existing culverts via new stormwater outlets with the site broken up into separate catchments generally in accordance with existing site conditions and the approved Stormwater Management Report by ADG. The south expansion area will be directed to the stormwater infrastructure designed for this catchment. Refer to the engineering plans within Appendix C for further information.

4.2 Existing Infrastructure

There is currently an existing 750mm stormwater pipe discharging runoff from Tall Oaks Drive and associated catchment from the south to a temporary outlet swale on site. An extension to this infrastructure through the site has been approved by Council and is nearing completion.

4.3 Upstream Drainage Connection

All adjoining properties to the south will be able to achieve compliant lawful points of discharge without requiring piped inter-allotment drainage lines through the site. A cut off drain shall be constructed along the south boundary to manage nuisance flows reaching the site and direct them appropriately to a lawful point of discharge.

4.4 Flooding

The development site is impacted by Council's flood mapping with the existing gully to the east of the site shown as subject to flooding as well as a portion of the western edge of the site impacted by historical flood mapping. As outlined in the approved stormwater report for the original approval, works associated with the local master plan have ensured the site is flood free. The master plan involved in stream works along the stormwater gully to the east of the development site and works have been undertaken along Gowrie Junction Road to direct the west overland flow into a table drain. The site can now therefore be considered flood free and was previously approved on this basis.

5 STORMWATER QUANTITY MANAGEMENT

The existing approved Stormwater Report by ADG concluded that stormwater detention was not required for the site on the basis of the outcomes from approved masterplan. A detailed analysis of the existing and developed flows has therefore not been undertaken and it is considered that stormwater detention is still not required for the site. Internal stormwater catchments though have been set to generally maintain the existing flow regime off the site to the three respective lawful points of discharge. Refer to the engineering plans contained within Appendix C for further information on the existing and developed catchments.

6 WATER QUALITY MANAGEMENT

6.1 Operational Phase

The proposed development would ordinarily need address the State Planning Policy (SPP 2017) as the development site area exceeds 2500m^2. The development shall ensure that environmental values of receiving waters downstream of the development are maintained or enhanced during the construction and operation of the development in accordance with State Legislation and Local Government requirements. Formal stormwater quality treatment is not proposed with the development instead to pay monetary offsets to Toowoomba Regional Council in line with the original Infrastructure Agreement for the wider development area. Stormwater quality management should still be undertaken through the implementation of best management practices.

Pollutants typically generated during the operational phase of the development include:

- Litter/gross pollutants;
- Sediment;
- Nutrients (N & P);
- Hydrocarbons (oils and grease); and
- Heavy metals.

Stormwater quality best management practices that should be implemented for the development include:

- Regular cleaning & maintenance of the stormwater system and in particular the upstream cut off drain.
- On site management of litter and gross pollutants.

Stormwater modelling has been carried out using MUSIC modelling software to determine the required infrastructure needed to meet the Water Quality Objectives (WQO's) above.

6.2 Construction Phase

Management of stormwater runoff during construction and the implementation of an erosion & sediment control program is necessary to avoid impacts to receiving waters from pollutants typically generated during the construction phase. Typical pollutants are described in Table 1 below:

Table 1 – Pollutants Typically Generated During the Construction Phase

Pollutant	Sources
Litter (Gross Pollutants)	Paper, construction packaging, food packaging, cement bags.

Pollutant	Sources
Sediment	Unprotected exposed soils and stockpiles during earthworks and building.
Hydrocarbons	Fuel and oil spills, leaks from construction equipment.
Toxic materials	Cement slurry, asphalt prime, solvents, cleaning agents, wash waters.
pH altering substances	Acid sulphate soils, cement slurry and wash waters.

In addition to the degradation of receiving waters, impacts of inadequate erosion and sediment control downstream from the site include:

- traffic safety problems;
- blocked drains;
- local flooding problems;
- aesthetic pollution of drainage paths; and
- damage to local ecosystems.

6.2.1 Design Objectives

Management of stormwater runoff during construction should be undertaken in accordance with Appendix 2 of the SPP (July 2017). The SPP outlines the design objectives for construction phase stormwater management. These are presented in Table 2, Table 3 and Table 4.

Table 2 – SPP Appendix 2: Part 1 Construction Phase – Stormwater Management Design Objectives

Issue	Desired Outcomes
Drainage Control	1. Manage stormwater flows around or through areas of exposed soil to avoid contamination. 2. Manage sheet flows in order to avoid or minimise the generation of rill or gully erosion. 3. Provide stable concentrated flow paths to achieve the construction phase stormwater management design objectives for temporary drainage works (part 2). 4. Provide emergency spillways for sediment basins to achieve the construction phase stormwater management design objectives for emergency spillways on temporary sediment basins (part 3).
Erosion Control	1. Stage clearing and construction works to minimise the area of exposed soil at any one time. 2. Effectively cover or stabilise exposed soils prior to predicted rainfall. 3. Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised using methods which will achieve effective short-term stabilisation.

Issue	Desired Outcomes
Sediment Control	1. Direct runoff from exposed site soils to sediment controls that are appropriate to the extent of disturbance and level of erosion risk. 2. All exposed areas greater than 2500 metres must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5).
Litter, Hydrocarbons and other contaminants	1. Remove gross pollutants and litter. 2. Avoid the release of oil or visible sheen to released waters. 3. Dispose of waste containing contaminants at authorised facilities.
Waterway Stability and flood flow management	1. Where measures are required to meet post-construction waterway stability objectives, these are either installed prior to land disturbance and are integrated with erosion and sediment controls, or equivalent alternative measures are implemented during construction. 2. Earthworks and the implementation of erosion and sediment controls are undertaken in ways which ensure flooding characteristics (including stormwater quantity characteristics) external to the development site are not worsened during construction for all events up to and including the 1 in 100 year ARI (1% AEP).

Table 3 – SPP Appendix 2: Part 2 Construction Phase – Stormwater Management Design Objectives for Temporary Drainage Works

Temporary Drainage Works	Anticipated Operation Design Life and Minimum Design Storm Event		
	<12 Months	12-24 Months	>24 Months
Drainage Structure	1 in 2 year ARI/39% AEP	1 in 5 year ARI/18% AEP	1 in 10 year ARI/10% AEP
Where located immediately up-slope of an occupied property that would be adversely affected by the failure or overtopping of the structure	1 in 10 year ARI/10% AEP		
Culvert Crossing	1 in 1 year ARI/63% AEP		

Table 4 – SPP Appendix 2: Part 3 Construction Phase – Stormwater Management Design Objectives for Emergency Spillways on Temporary Sediment Basins

Drainage Structure	Anticipated Operation Design Life and Minimum Design Storm Event		
	<3 Months	3-12 Months	>12 Months
Emergency spillways on temporary sediment basins	1 in 10 year ARI/10% AEP	1 in 20 year ARI/5% AEP	1 in 50 year ARI/2% AEP

Best practice erosion and sediment controls must be installed to minimise the discharge of sediment laden runoff during construction and to achieve the objectives outlined in Tables 2-4. This is discussed in the following section.

6.2.2 Erosion and Sediment Control

Management of stormwater runoff during construction is necessary to avoid pollution of downstream waterways from sediment and gross pollutant loading. Impacts of inadequate erosion and sediment control downstream from the site include:

- traffic safety problems;
- blocked drains;
- local flooding problems;
- aesthetic pollution of drainage paths; and
- damage to local ecosystems.

Best practice erosion and sediment controls must be installed to minimise the discharge of sediment laden runoff during construction. Erosion and sediment control plans shall be developed during detailed design phase and must be continually maintained and amended as required to minimise environmental harm.

Erosion and sediment control plans are based on three sets of control measures:

- drainage control;
- erosion control; and
- sediment control.

These control measures must be maintained in an effective operational condition. Sediment disposal from site is to occur to the satisfaction of Toowoomba Regional Council. Defects in erosion and sediment control devices, such as sediment fences, are to be inspected and documented. Upon Inspection, the Contractor is to determine whether the device should be replaced or repaired. Documentation is to include how the damage was caused and what measures can be implemented to reduce the possibility of repeat occurrences. Any damage to either permanent or temporary water quality control structures or devices is to be immediately rectified at the contractor's expense.

The effectiveness of the erosion and sediment control devices can be monitored by visual audits. All ESC measures are to be inspected:

- at least daily (when work is occurring on site) or weekly (when work is not occurring on site);
- within 24 hours of expected rain; and

- within 18 hours of a rainfall event (i.e. an event of sufficient intensity and duration to mobilise sediment on site).

Drainage paths are to be inspected to ensure the sediment fences are not being bypassed as a result of soil erosion.

Sediment laden runoff shall be prevented from entering neighbouring properties. This shall be achieved by landscaping disturbed areas immediately and prior to a rainfall event.

The proposed development has scored a 33 on the IECA erosion hazard assessment with trigger score value exceeded as a result of the development land area (refer Appendix A for details). Further details of proposed on site erosion and sediment control measures will be required at the detailed design phase of the development.

6.2.3 Maintenance and Monitoring Requirements

Periodic maintenance and monitoring of stormwater devices proposed in this report is crucial to ensure effective operation and design life.

Inspect field inlet grates, pits and underground pipes for blockage or damage at least 6 monthly or after significant rainfall event. Any installed filter baskets shall be inspected and maintained preferably by the manufacturer to avoid damage to units and to ensure adequate cleaning and record keeping. For the first 12 months routine inspections of filter baskets shall be carried out monthly with routine clean out at alternate months. Results of the initial 12 months maintenance program shall be used to determine future maintenance intervals. Refer manufacturer's maintenance and monitoring methodology for specific details. Maintenance of ESC measures must occur in accordance with Table 5.

Table 5 - ESC maintenance requirements.

ESC Measure	Maintenance Trigger	Timeframe for Completion of Maintenance
Sediment basins	When settled sediment exceeds the volume of the sediment storage zone	Within 7 days of the inspection.
Other ESC measures	The capacity of ESC measures falls below 75%.	By the end of the day.

Sediment accumulation on ESC devices is to be removed and disposed of to the satisfaction of Toowoomba Regional Council.

7 CONCLUSION

This Stormwater Management Report outlines how stormwater runoff from the site will be managed in order to not adversely impact the receiving environment. The report does not propose any significant variance to the approved stormwater scheme.

Stormwater runoff from the development site shall be directed to the existing culverts under Hermitage Road to the north of the site and to the north-east towards the existing stormwater gully. Stormwater detention is not considered to be required.

Stormwater quality treatment is not required with the developer instead providing monetary contributions to Council in lieu of formal treatment.

The development site is no longer considered to be impacted by flooding.

Further refinement of the proposed stormwater management measures is recommended at the detailed design phase to ensure coordination with final architectural layout.

By implementing the proposed stormwater management system, and providing adequate maintenance, the downstream environment and neighbouring properties will not experience any adverse deterioration of water quality as a result of the proposed development.

8 APPENDICES

Appendix A – Erosion Hazard Assessment

Erosion Hazard Assessment Form

Condition	Points	Score	Trigger value
AVERAGE SLOPE OF DISTURBANCE AREA [1]			
• not more than 3% [3% . 33H:1V]	0		
• more than 3% but not more than 5% [5% = 20H:1V]	1	**4**	**4**
• more than 5% but not more than 10% [10% = 10H:1V]	2		
• more than 10% but not more than 15% [15% . 6.7H:1V]	4		
• more than 15%	6		
SOIL CLASSIFICATION GROUP (AS1726) [2]			
• GW, GP, GM, GC	0		
• SW, SP, OL, OH	1	**3**	
• SM, SC, MH, CH	2		
• ML, CL, or if *imported fill* is used, or if soils are untested	3		
EMERSON (DISPERSION) CLASS NUMBER [3]			
• Class 4, 6, 7, or 8	0		
• Class 5	2	**4**	**6**
• Class 3, (default value if soils are untested)	4		
• Class 1 or 2	6		
DURATION OF SOIL DISTURBANCE [4]			
• not more than 1 month	0		
• more than 1 month but not more than 4 months	2	**6**	**6**
• more than 4 months but not more than 6 months	4		
• more than 6 months	6		
AREA OF DISTURBANCE [5]			
• not more than 1000 m^2	0		
• more than 1000 m^2 but not more than 5000 m^2	1	**6**	**4**
• more than 5000 m^2 but not more than 1 ha	2		
• more than 1 ha but not more than 4 ha	4		
• more than 4 ha	6		
WATERWAY DISTURBANCE [6]			
• No disturbance to a watercourse, open drain or channel	0	**2**	**2**
• Involves disturbance to a constructed open drain or channel	1		
• Involves disturbance to a natural watercourse	2		
REHABILITATION METHOD [7]			
Percentage of area (relative to total disturbance) revegetated by seeding without light mulching (i.e. worst-case revegetation method).			
• not more than 1%	0	**0**	
• more than 1% but not more than 5%	1		
• more than 5% but not more than 10%	2		
• more than 10%	4		
RECEIVING WATERS [8]			
• Saline waters only	0	**2**	
• Freshwater body (e.g. creek or freshwater lake or river)	2		
SUBSOIL EXPOSURE [9]			
• No subsoil exposure except of service trenches	0	**2**	
• Subsoils are likely to be exposed	2		
EXTERNAL CATCHMENTS [10]			
• No external catchment	0	**1**	
• External catchment diverted around the soil disturbance	1		
• External catchment not diverted around the soil disturbance	2		
ROAD CONSTRUCTION [11]			
• No road construction	0	**2**	
• Involves road construction works	2		
pH OF SOILS TO BE REVEGETATED [12]			
• more than pH 5.5 but less than pH 8	0	**1**	
• other pH values, or if soils are untested	1		
Total Score [13]		**33**	

Explanatory notes

Requirements: Specific issues or actions required by the proponent.

Warnings: Issues that should be considered by the proponent.

Comments: General information relating to the topic.

[1] **REQUIREMENTS:**
For sites with an average slope of proposed land disturbance greater than 10%, a preliminary ESCP must be submitted to the regulatory authority for approval during planning negotiations.

Proponents must demonstrate that adequate erosion and sediment control measures can be implemented on-site to effectively protect downstream environmental values.

If site or financial constraints suggest that it is not reasonable or practicable for the prescribed water quality objectives to be achieved for the proposal, then the proponent must demonstrate that alternative designs or construction techniques (e.g. pole homes, suspended slab) cannot reasonably be implemented on the site.

WARNINGS:
Steep sites usually require more stringent drainage and erosion controls than flatter grade sites.

COMMENTS:
The steeper the land, the greater the need for adequate drainage controls to prevent soil and mulch from being washed from the site.

[2] **REQUIREMENTS:**
If the actual soil K-factor is known from soil testing, then the Score shall be determined from Table 1.

If a preliminary ESCP is required during planning negotiations, then it must be demonstrated that adequate space is available for the construction and operation of any major sediment traps, including the provision for any sediment basins and their associated embankments and spillways. It must also be demonstrated that all reasonable and practicable measures can be taken to divert the maximum quantity of sediment-laden runoff (up to the specified design storm) to these sediment traps throughout the construction phase and until the contributing catchment is adequately stabilised against erosion.

WARNINGS:
The higher the point score, the greater the need to protect the soil from raindrop impact and thus the greater the need for effective erosion control measures. A point score of 2 or greater will require a greater emphasis to be placed on revegetation techniques that do not expose the soil to direct rainfall contact during vegetation establishment, e.g. turfing and *Hydromulching*.

COMMENTS:
Table 2 provides an *indication* of soil conditions likely to be associated with a particular Soil group based on a statistical analysis of soil testing across NSW. This table provides only an initial estimate of the likely soil conditions.

The left-hand-side of the table provides an indication of the type of sediment basin that will be required (Type C, F or D). The right-hand-side of the table provides an indication of the likely erodibility of the soil based on the Revised Universal Soil Loss Equation (RUSLE) K-factor.

Table 3 provides some general comments on the erosion potential of the various soil groups.

Table 1 – Score if soil K-factor is known

	RUSLE soil erodibility K-factor			
	K < 0.02	**0.02<K<0.04**	**0.04<K<0.06**	**K > 0.06**
Score	0	1	2	3

Table 2 – Statistical analysis of NSW soil data [1]

Unified Soil Class System	Likely sediment basin classification (%)			Probable soil erodibility K-factor (%) [2]			
	Dry	Wet		Low	Moderate	High	Very High
	Type C	Type F	Type D	K < 0.02	0.02<K<0.04	0.04<K<0.06	K > 0.06
GM	30	**58**	12	12	**51**	26	12
GC	**42**	33	25	13	**71**	17	0
SW	40	**48**	12	**49**	39	12	0
SP	**53**	32	15	**76**	18	5	1
SM	21	**67**	12	26	**48**	25	1
SC	26	**50**	24	16	**64**	18	2
ML	5	**63**	32	4	35	**45**	16
CL	9	**51**	39	12	**56**	19	13
OL	2	**80**	18	34	**61**	5	1
MH	12	41	**48**	15	19	**41**	25
CH	5	44	**51**	39	**43**	11	7

Notes: [1] Analysis of soil data presented in Landcom (2004).

[2] Soil erodibility based on Revised Universal Soil Loss Equation (RUSLE) K-factor.

Unified Soil Classification System (USCS)

GW Well graded gravels, gravel-sand mixtures, little or no fines
GP Poorly graded gravels, gravel-sand mixture, little or no fines
GM Silty gravels, poorly graded gravel-sand-silt mixtures
GC Clayey gravels, poorly graded gravel-sand-clay mixtures
SW Well graded sands, gravelly sands, little or no fines
SP Poorly graded sands, gravelly sands, little or no fines
SM Silty sands, poorly graded sand-silt mixtures
SC Clayey sands, poorly graded sand-clay mixtures
ML Inorganic silts & very fine sands, rock flour, silty or clayey fine sands with slight plasticity
CL Inorganic clays, low–medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL Organic silts and organic silt-clays of low plasticity
MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
CH Inorganic clays of high plasticity, fat clays
OH Organic clays of medium to high plasticity

Table 3 – Typical properties of various soil groups [1]

Soil Groups	Typical properties [2]
GW, GP	• Low erodibility potential.
GM, GC	• Low to medium erodibility potential. • May create turbid runoff if disturbed as a result of the release of silt and clay particles.
SW, SP	• Low to medium erodibility potential.
SM, SC	• Medium erodibility potential. • May create turbid runoff if disturbed as a result of the release of silt and clay particles.
MH, CH	• Highly variable (low to high) erodibility potential. • Will generally create turbid runoff if disturbed.
ML, CL	• High erodibility potential. • Tendency to be dispersive. • May create some turbidity in runoff if disturbed.

Note: [1] After Soil Services & NSW DLWC (1998).
[2] Any soil can represent a high erosion risk if the binding clays or silts are unstable.

Table 4 provides **general** guidelines on the suitability of various soil groups to various engineering applications.

Table 4 – Engineering suitability based on Unified Soil Classification [1]

Unified Soil Class	USC Group	Embankments		Fill	Slope stability	Untreated roads
		Water retaining	Non water retaining			
Well graded gravels	GW	Unsuitable	Excellent	Excellent	Excellent	Average
Poorly graded gravel	GP	Unsuitable	Average	Excellent	Average	Unsuitable
Silty gravels	GM	Unsuitable	Average	Good	Average	Average
Clayey gravels	GC	Suitable	Average	Good	Average	Excellent
Well graded sands	SW	Unsuitable	Excellent	Excellent	Excellent	Average
Poorly graded sands	SP	Unsuitable	Average	Good	Average	Unsuitable
Silty sands	SM	Suitable [2]	Average	Average	Average	Poor
Clayey sands	SC	Suitable	Average	Average	Average	Good
Inorganic silts	ML	Unsuitable	Poor	Average	Poor	Unsuitable
Inorganic clays	CL	Suitable [2]	Good	Average	Good	Poor
Organic silts	OL	Unsuitable	Unsuitable	Poor	Unsuitable	Unsuitable
Inorganic silts	MH	Unsuitable	Poor	Poor	Poor	Unsuitable
Inorganic clays	CH	Suitable [2]	Average	Unsuitable	Average	Unsuitable
Organic clays	OH	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Unsuitable
Highly organic soils	Pt	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Unsuitable

Notes: [1] Modified from Hazelton & Murphy (1992)
[2] Suitable only after modifications to soil such as compaction and/or erosion protection

[3] If the soils have not been tested for Emerson Class, then adopt a score of 4.

REQUIREMENTS:
Works proposed on sites containing Emerson Class 1 or 2 soils have a very high pollution potential and must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the authority) during planning negotiations.

WARNINGS:
Class 3 and 5 soils disturbed by cut and fill operations or construction traffic are highly likely to discolour stormwater (i.e. cause turbid runoff). Chemical stabilisation will likely be required if these soils are placed immediately adjacent to a retaining wall. Any disturbed Class 1, 2, 3 and 5 soils that are to be revegetated must be covered with a non-dispersive topsoil as soon as possible (unless otherwise agreed by the regulatory authority).

Class 1 and 2 soils are highly likely to discolour (pollute) stormwater if exposed to rainfall or flowing water. Treatment of these soils with gypsum (or other suitable substance) will most likely be required. These soils should not be placed directly behind a retaining wall unless it has been adequately treated (stabilised) or covered with a non-dispersible soil.

[4] The duration of disturbance refers to the total duration of soil exposure to rainfall up until a time when there is at least 70% coverage of all areas of soil.

REQUIREMENTS:
All land developments with an expected soil disturbance period greater than 6 months must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the authority) during planning negotiations.

COMMENTS:
Construction periods greater than 3 months will generally experience at least some significant storm events, independent of the time of year that the construction (soil disturbance) occurs.

[5] **REQUIREMENTS:**
Development proposals with an expected soil disturbance in excess of 1ha must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the regulatory authority) during planning negotiations.

The area of disturbance refers to the total area of soil exposed to rainfall or dust-producing winds either as a result of:

(a) the removal of ground cover vegetation, mulch or sealed surfaces;
(b) past land management practices;
(c) natural conditions.

WARNINGS:
A *Sediment Basin* will usually be required if the disturbed area exceeds 0.25ha (2500m^2) within any sub-catchment (i.e. land flowing to one outlet point).

COMMENTS:
For soil disturbances greater than 0.25ha, the revegetation phase should be staged to minimise the duration for which soils are exposed to wind, rain and concentrated runoff.

[6] **REQUIREMENTS:**
All developments that involve earthworks or construction within a natural watercourse (whether that watercourse is in a natural or modified condition) must submit a conceptual ESCP to the regulatory authority for review and/or approval (as required by the regulatory authority) during planning negotiations.

Permits and/or licences may be required from the State Government, including possible submission of the ESCP to the relevant Government department.

[7] **REQUIREMENTS:**
No areas of soil disturbance shall be left exposed to rainfall or dust-producing winds at the end of a development without an adequate degree of protection and/or an appropriate action plan for the establishment of at least 70% cover.

COMMENTS:
Grass seeding without the application of a light mulch cover is considered the least favourable revegetation technique. A light mulch cover is required to protect the soil from raindrop impact, excessive temperature fluctuations, and the loss of essential soil moisture.

[8] **COMMENTS:**
All receiving waters can be adversely affected by unnatural quantities of sediment-laden runoff. Freshwater ecosystems are generally more susceptible to ecological harm resulting from the inflow of fine or dispersible clays than saline water bodies. The further inland a land disturbance is, the greater the potential for the released sediment to cause environmental harm as this sediment travels towards the coast.

For the purpose of this clause it is assumed that all sediment-laden runoff will eventually flow into saline waters. Thus, sediment-laden discharges that flow first into freshwater are likely to adversely affect both fresh and saline water bodies and are therefore considered potentially more damaging to the environment.

This clause does **not** imply that sediment-laden runoff will not cause harm to saline waters.

[9] **COMMENTS:**
This clause refers to subsoils exposed during the construction phase either as a result of past land practices or proposed construction activities. The exposure of subsoils resulting from the excavation of minor service trenches should not be considered.

[10] **WARNINGS:**
The greater the extent of external catchment, the greater the need to divert up-slope stormwater runoff around any soil disturbance.

COMMENTS:
The ability to separate “clean” (i.e. external catchment) stormwater runoff from “dirty” site runoff can have a significant effect on the size, efficiency and cost of the temporary drainage, erosion, and sediment control measures.

[11] **REQUIREMENTS:**
Permission must be obtained from the owner of a road reserve before placing any erosion and sediment control measures within the road reserve.

WARNINGS:
Few sediment control techniques work efficiently when placed on a road and/or around roadside stormwater inlets. Great care must be taken if sediment control measures are located on a public roadway, specifically:

- safety issues relating to road users;
- the risk of causing flooding on the road or within private property.

The construction of roads (whether temporary or permanent) will usually modify the flow path of stormwater runoff. This can affect how "dirty" site runoff is directed to the sediment control measures.

COMMENTS:
"On-road" sediment control devices are at best viewed as secondary or supplementary sediment control measures. Only in special cases and/or on very small projects (e.g. kerb and channel replacement) might these controls be considered as the "primary" sediment control measure.

[12] **WARNINGS:**
Soils with a pH less than 5.5 or greater than 8 will usually require treatment in order to achieve satisfactory revegetation. Soils with a pH of less than 5 (whether naturally acidic or in acid sulfate soil areas) may also limit the choice of chemical flocculants (e.g. Alum) for use in the flocculation of *Sediment Basins*.

[13] **REQUIREMENTS:**
A preliminary ESCP must be submitted to the local government for approval during the planning phase for any development that obtains a total point score of 17 or greater or when any trigger value is scored or exceeded.

Appendix B – Engineering Plans

PROPOSED RETIREMENT LIVING DEVELOPMENT

TALL OAK DRIVE, COSTWOLD HILLS

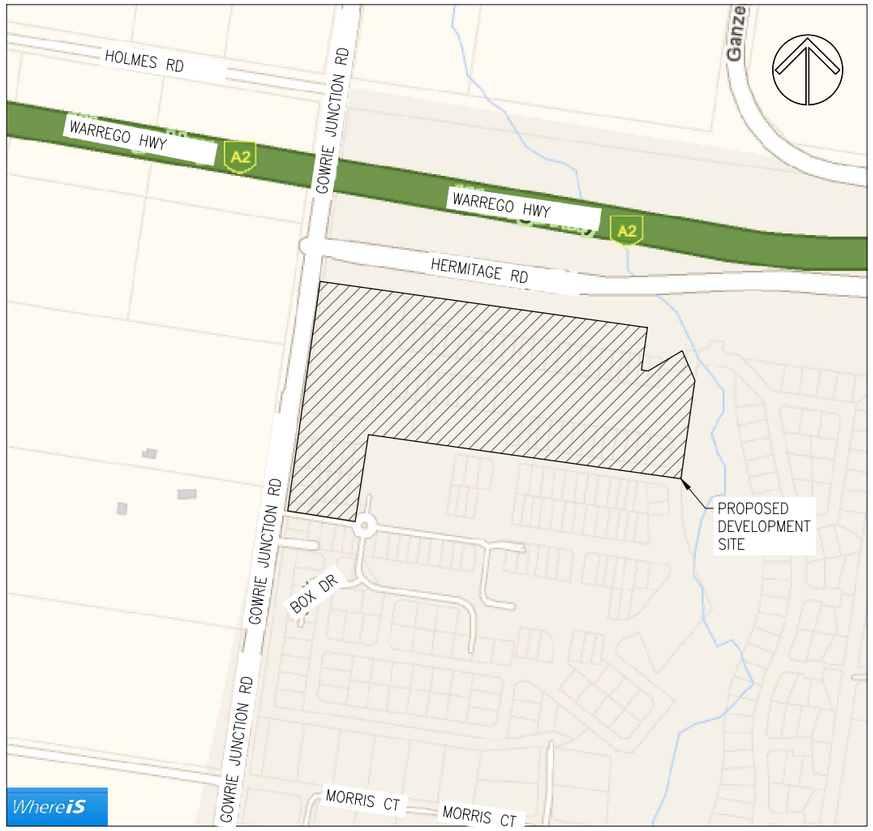
GTH PROJECT NO.2 PTY LTD

Project Number: B24-058

INDEX OF DRAWINGS

GENERAL DRAWINGS

CIVIL DRAWINGS



LOCALITY PLAN
NOT TO SCALE

No.	DATE	REVISIONS	DES	DRN	CHK	APD

DESIGNED R.vdB
DRAWN E.B
CHECKED J.M.H
APPROVED J.M.H
DATE JULY 2024
DOCUMENT CONTROL

J. HILL RPEQ 19891
For and on behalf of WESTERA PARTNERS PTY. LTD.
APPROVED

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DATUM A.H.D.
P.S.M.191512
R.L.529.898

PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE COVER SHEET
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PG01
SHEET NUMBER 01 OF 01
REVISION

1-B24-058-PG_Coversheet.dwg

GENERAL NOTES

G1 WESTERA PARTNERS HAS LIMITED CONTROL OR INPUT TO LOCAL GOVERNMENT OR OTHER LEGISLATED APPROVALS UNLESS SPECIFICALLY ENGAGED BY IT'S CLIENT. ANY CHANGES TO APPROVAL REQUIREMENTS (INCLUDING ORDERS FOR SUSPENSION OF WORKS ETC) SHOULD BE COMMUNICATED TO WESTERA PARTNERS AND ALL OTHER RELEVANT DESIGNERS TO ALLOW ASSESSMENT OF POTENTIAL RISKS AND ENSURE DESIGN AND SAFETY COMPLIANCE.

G2 ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LOCAL AUTHORITIES STANDARD DRAWINGS & SPECIFICATIONS AND COMPLETED TO THE SATISFACTION OF THE SUPERINTENDENT AND LOCAL AUTHORITY.

G3 UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.

G4 PRIOR TO THE COMMENCEMENT OF CONSTRUCTION THE CONTRACTOR MUST LOCATE ALL EXISTING SERVICES AND PROMPTLY PROVIDE THE LOCATION DATA TO THE DESIGN ENGINEER TO ASSESS IMPACTS ON THE DESIGN.

G5 ALL CONNECTIONS TO EXISTING SEWERS AND WATER MAINS ARE TO BE CONSTRUCTED BY THE LOCAL AUTHORITY OR AN APPROVED CONTRACTOR. THE CONTRACTOR IS TO ALLOW IN HIS CONTRACT SUM FOR THE COST OF ANY PROPOSED CONNECTIONS.

G6 ALL SEWERS ARE TO BE 150MM DIA. U.P.V.C. CLASS SN8 RUBBER RING JOINTED AND PROPERTY CONNECTIONS ARE TO BE 100MM DIA. U.P.V.C CLASS SN6 UNLESS NOTED OTHERWISE

G7 THE PAVEMENT DEPTHS SHOWN ARE PRELIMINARY ONLY AND ARE TO BE VERIFIED FOLLOWING SUB-SOIL TESTS OF THE SUB-GRADE MATERIAL.

G8 ALL ROOFWATER CONNECTIONS FROM KERB ADAPTERS ARE TO BE 100MM DIA CLASS SN10 AT A MIN GRADE OF 1.0% UNLESS SHOWN OTHERWISE. ROOFWATER CONNECTIONS FROM FIELD INLETS OR GULLY PITS ARE TO BE 150MM DIA CLASS SN8 AT A MIN GRADE OF 1.0% UNLESS NOTED OTHERWISE.

G9 ALL U.P.V.C. STORMWATER DRAINAGE PIPES ARE TO BE CLASS SN8 (U.N.O.)

ALL R.C. PIPES ARE TO BE CLASS 3 (U.N.O.)
< 900ø = USE SPIGOT AND SOCKET PIPES WITH RUBBER RING JOINTS
900ø < PIPES < 1050ø = USE FLUSH JOINTED PIPES WITH EXTERNAL ELASTOMERIC BAND
1050ø < PIPES = USE FLUSH JOINTED PIPES WITH EXTERNAL ELASTOMERIC BAND AND INTERNAL CEMENT MORTAR JOINT

ALL F.R.C. PIPES ARE TO BE FRCPIPE+ CLASS 4 (U.N.O.) AND SHALL BE DUAL RUBBER RING JOINT WITH COLLAR. PIPES SHALL BE FROM 225ø TO 600ø ONLY.

POLYPROPYLENE/POLYETHYLENE STORMWATER PIPE MINIMUM CLASS SN8 (U.N.O.) SUBJECT TO ACCEPTANCE BY CERTIFYING ENGINEER AND LOCAL AUTHORITY. CONSTRUCTION AND EMBEDMENT TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

G10 WATER PIPES SHALL BE;
- P.V.C.–M WATER PIPES ARE TO BE SERIES 2 PN16 SN10 R.R.J.
- D.I.C.L. WATER PIPES ARE TO BE PN35 WITH ALL FITTINGS TO BE FUSION BONDED POLYMERIC COATED.
- PE WATER PIPES ARE TO BE PN16 SDR11 PE100. DN25 AND DN32 WATER SERVICES SHALL BE PE80B.

G11 ALL "AS CONSTRUCTED" INFORMATION IS TO BE RECORDED AS REQUIRED BY THE LOCAL AUTHORITY AND SUBMITTED TO THE SUPERINTENDENT IMMEDIATELY AFTER COMPLETION OF THE WORKS.

G12 ALL ALLOTMENTS ARE TO BE GRADED AT A MINIMUM GRADE OF 1 IN 200.

CONCRETE NOTES

C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 CONCRETE STRUCTURES CODE AND THE REFERENCED STANDARDS THEREIN.

C2 THE CONCRETE STRENGTH GRADE AND THE COVER TO REINFORCEMENT FOR THE VARIOUS CONCRETE ELEMENTS SHALL BE AS LISTED BELOW:
- CLIMATE ZONE: TROPICAL | TEMPERATE | ARID
- LOCATION: COASTAL | NEAR COASTAL | INLAND

ELEMENT	EXPOSURE CLASSIFICATION	STRENGTH GRADE	MINIMUM COVER
MANHOLES	B1	N32	40
	C2	S50	65
FIELD INLET PITS	B1	N32	40
	C2	S50	65
HEADWALLS	B1	N32	40
	C2	S50	65
INTERNAL ROADS	B1	N40	40
KERB/CHANNEL	B1	N32	–
FOOTPATHS	B1	N32	40
RETAINING WALL PANELS	B1	N32	30*
	C2	S50	60*
BORED PIERS	B1	N32	40
	C2	S50	65

*RIGID FORMWORK & INTENSE COMPACTION

C3 CONCRETE TO HAVE A MAXIMUM AGGREGATE SIZE OF 20mm WITH 80mm MAXIMUM SLUMP, A WATER/CEMENT RATIO OF NOT GREATER THAN 0.65 AND A MAXIMUM FINAL BASIC DRYING SHRINKAGE STRAIN OF 800 x 10^{-6} UNLESS APPROVED OTHERWISE.

C4 NO ADDITIVES SHALL BE ADDED OF APPLIED TO THE CONCRETE MIX WITHOUT THE APPROVAL OF THE ENGINEER.

C5 THE MAXIMUM PERMISSIBLE TRANSPORT TIME FOR CONCRETE BETWEEN BATCHING AND PLACEMENT ON SITE SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE.

AMBIENT AIR TEMPERATURE	MAX. BATCHING TO PLACEMENT TIME
10° – 24°C	120 MINUTES
25° – 27°C	90 MINUTES
28° – 30°C	60 MINUTES
31° – 33°C	45 MINUTES
34° – 36°C	30 MINUTES
37°C+	NO PLACEMENT OF CONCRETE UNLESS CHILLED WATER OR ICE IN MIX

C6 ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. VIBRATORS SHALL NOT BE USED TO SPREAD CONCRETE.

C7 ALL CONCRETE SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH AS1379 ADOPTING THE PROJECT ASSESSMENT METHOD FOR COMPRESSIVE STRENGTH AND SLUMP COMPLIANCE. THE RESULTS OF ALL TESTS SHALL BE PROMPTLY SUBMITTED TO THE ENGINEER FOR REVIEW.

C8 WHEN THE AIR TEMPERATURE EXCEEDS 30°C, ALIPHATIC ALCOHOL SHALL BE APPLIED TO THE CONCRETE SURFACE OF SLABS IMMEDIATELY AFTER THE INITIAL SCREED AND AGAIN AFTER BULL FLOATING.

C9 CURING OF ALL CONCRETE SURFACES SHALL COMMENCE IMMEDIATELY AFTER COMPLETING CONCRETE FINISHING AND SHALL CONTINUE FOR 7 DAYS. CONTRACTOR TO CONFIRM METHOD OF CURING WITH ENGINEER PRIOR TO USE.

C10 SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C11 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY.

C12 NO HOLES, CHASES OR EMBEDDED ITEMS OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER. CONDUITS, PIPES ETC. SHALL NOT BE PLACED IN THE COVER THICKNESS OF THE CONCRETE.

C13 WHERE SERVICE PIPES PENETRATE CONCRETE ELEMENTS, PROVISION SHOULD BE MADE TO ALLOW FOR MOVEMENT OF THE ELEMENT.

C14 FORMWORK SHALL BE DESIGNED, CONSTRUCTED AND STRIPPED IN ACCORDANCE WITH AS3610 FORMWORK CODE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

C15 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION OR SCALE.

C16 ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED IN ITS CORRECT POSITION ON PLASTIC BAR CHAIRS, GENERALLY AT NOT GREATER THAN 800mm CENTRES IN BOTH DIRECTIONS.

C17 WELDING AND HEATING OF REINFORCEMENT SHALL NOT BE PERMITTED WITHOUT APPROVAL OF THE ENGINEER.

C18 ALL STEEL REINFORCEMENT IN CONCRETE ELEMENTS SHALL BE INSPECTED BY THE ENGINEER AND PASSED PRIOR TO POURING OF ANY CONCRETE.

C19 LAP REINFORCEMENT ONLY AT LOCATIONS SHOWN ON THE DRAWINGS OR AS APPROVED BY THE ENGINEER.

C20 SLAB FABRIC SHALL BE LAPPED ONE FULL PANEL OF FABRIC PLUS 50mm SO THAT THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED BY 50mm.

C21 BAR REINFORCEMENT SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING TABLE.

TYPICAL BAR REINFORCEMENT LAP LENGTHS		
BAR	LAP LENGTH UNO	HORIZONTAL BARS WITH GREATER THAN 300mm OF CONCRETE CAST BELOW THEM
N12	550	750
N16	800	1100
N20	1100	1400
N24	1250	1600
N28	1400	1800
N32	1600	2100
N36	2000	2500

WHERE LAPS ARE SHOWN ON THE DRAWINGS THE ABOVE LAP LENGTHS SHALL BE ADOPTED UNLESS NOTED OTHERWISE. WHERE BARS OF DIFFERENT DIAMETER ARE SHOWN LAPPED, ADOPT THE LAP LENGTH APPROPRIATE TO THE SMALLER DIAMETER BAR.

C22 A VAPOUR BARRIER OF 0.2mm (200um) MINIMUM THICK POLYTHENE SHEETING SHALL BE PLACED BENEATH SLABS ON GROUND UNLESS NOTED OTHERWISE.

LEGEND

GENERAL

ASPHALTIC CONCRETE PAVEMENT
REINFORCED CONCRETE PAVEMENT
EXPOSED AGGREGATE CONCRETE PAVEMENT
REINFORCED CONCRETE PATHWAY/CROSSOVER
TURF
STONE PITCHING
CEMENT GROUTED STONE PITCHING
TELECOMMUNICATION
GAS MAIN
ELECTRICITY OVERHEAD
ELECTRICITY UNDERGROUND
LIGHT POLE
POWER POLE
PIT (TELSTRA/ELEC)
EDGE OF BITUMEN
FENCE
EXISTING SURFACE LEVEL × 2.53
FINISHED SURFACE LEVEL × 2.53
CONCRETE SLEEPER RETAINING WALL
MASONRY BLOCK RETAINING WALL
ACOUSTIC BARRIER (INCLUDING RETAINING WALL)
ACOUSTIC BARRIER (NO RETAINING WALL)
RETAINING WALL HEIGHT 1.0
AVERAGE RETAINING WALL HEIGHT ø1.0
TOP OF WALL HEIGHT T.O.W.9.60
BOTTOM OF WALL HEIGHT B.O.W.7.60
STAGE BOUNDARY
VEGETATION PROTECTION ZONE
TREE TO BE RETAINED

STORMWATER DRAINAGE

	NEW	EXISTING
STORMWATER PIPE		
SAG GULLY PIT		
ON GRADE GULLY PIT		
MANHOLE		
600 x 600 FIELD INLET		
900 x 600 FIELD INLET		
900 x 900 FIELD INLET		
HEADWALL		

KERB ADAPTER WITH ROOFWATER PIPE —SWD—
STORMWATER STRUCTURE LABEL 2A

WATER

	NEW	EXISTING	DISUSED
POTABLE WATER MAIN (P.W.M.)	W W	W W	W W
FIRE SERVICE MAIN (F.S.M.)	FS FS		
IRRIGATION MAIN (I.M.)	I I		
FIRE HYDRANT	FH	FH	FH
DUAL OUTLET FIRE HYDRANT	DFH	DFH	DFH
SWABBING DUAL OUTLET FIRE HYDRANT	SDFH		
SWABBING FIRE HYDRANT	SFH	SFH	SFH
ISOLATION VALVE	V	V	V
SCOUR VALVE			
AIR VALVE	AV	AV	AV
DEAD END			
TEST/CHLORINATION POINT			
REDUCER	150 100	150 100	150 100
PIPE MATERIAL CHANGE	PVC DICL	PVC DICL	PVC DICL
WATER SERVICE PRE-TAPPED TEE			
WATER SERVICE PIPE & CONDUIT	DN25ø		
FLOW METER	WM		
FLUSHING POINT	F		
WATER IRRIGATION	I I		
REDUCE PRESSURE ZONE (RPZ)	RPZ RPZ		

SEWERAGE

	NEW	EXISTING	DISUSED
GAS RELEASE VALVE			
GRAVITY SEWER MAIN	S S	S S	S S
SEWER RISING MAIN	RM RM	RM RM	
SEWER VACUUM MAIN	VM VM	VM VM	
MAINTENANCE HOLE & END OF LINE	1/1	1/1	1/1
END OF LINE	1/1 E/1	1/1 E/1	1/1 E/1
MAINTENANCE SHAFT	1/1	1/1	1/1
HORIZONTAL/VERTICAL BEND	VB1/1 HB1/1	VB1/1 HB1/1	VB1/1 HB1/1
COMPOUND BEND	CB1/1	CB1/1	CB1/1
STUB / TEMPORARY END			
RODDING END	RE/1		
PROPERTY CONNECTION			
OVERFLOW MAINTENANCE HOLE	OFMH		
ISOLATION VALVE			
SCOUR VALVE AND CHAMBER			
GAS RELEASE VALVE	GRV		
FLUSHING POINT	FP		
DISCHARGE MAINTENANCE HOLE	DMH		
ISOLATION VALVE	IV		
VENT POLE / ODOUR CONTROL UNIT			

No.	DATE	REVISIONS	DES	DRN	CHK	APD

DESIGNED R.vdB
DRAWN E.B
CHECKED J.M.H
APPROVED J.M.H
DATE JULY 2024
DOCUMENT CONTROL

For and on behalf of WESTERA PARTNERS PTY. LTD.
APPROVED

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PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE CIVIL NOTES AND LEGEND
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC01
SHEET NUMBER 01 OF 07
REVISION

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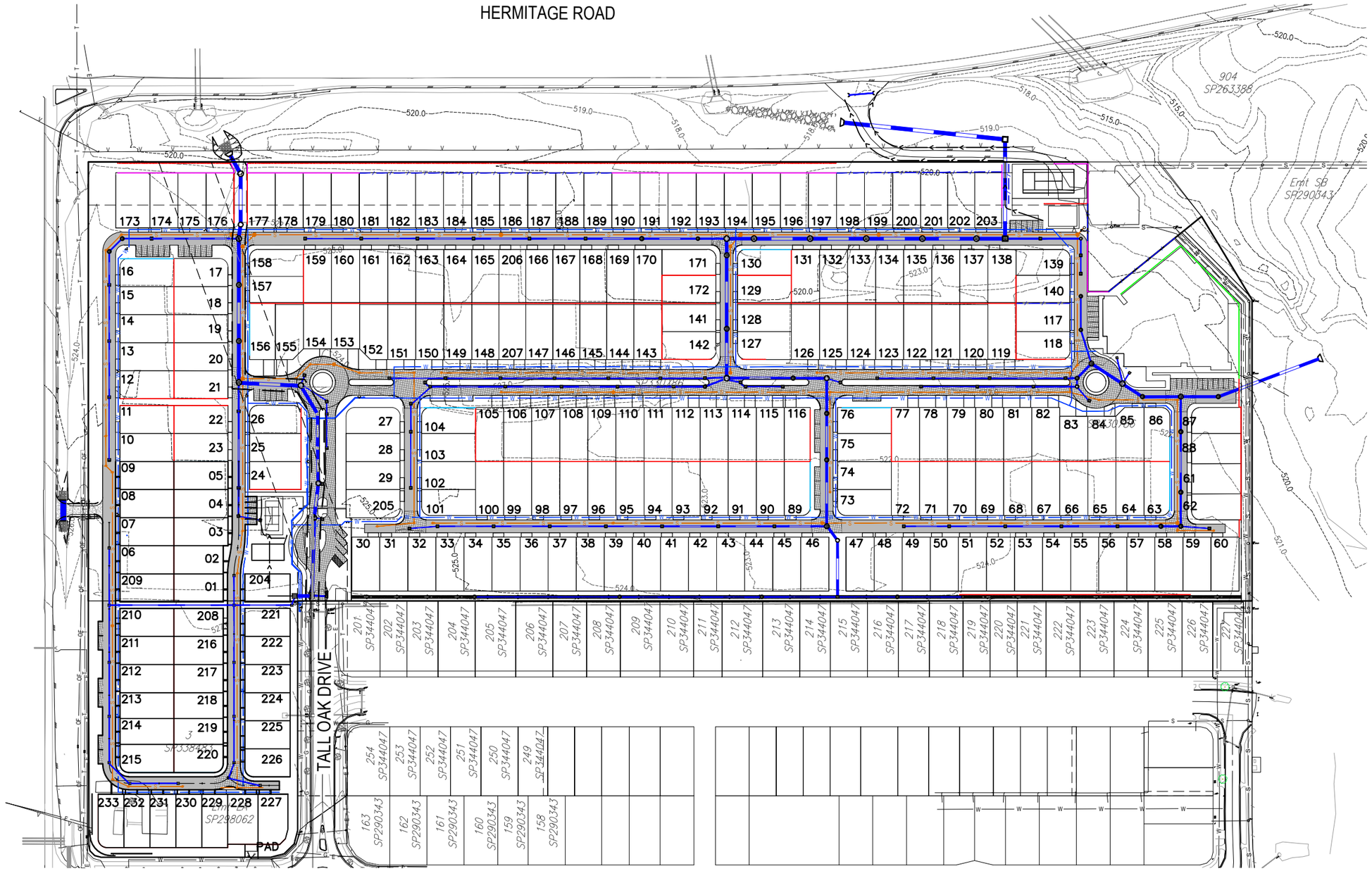

PRELIMINARY SITE PLAN

SCALE 1:1000 (A1 SIZE) 0 10 20 30 40 50

No.	DATE	REVISIONS	DES	DRN	CHK	APD

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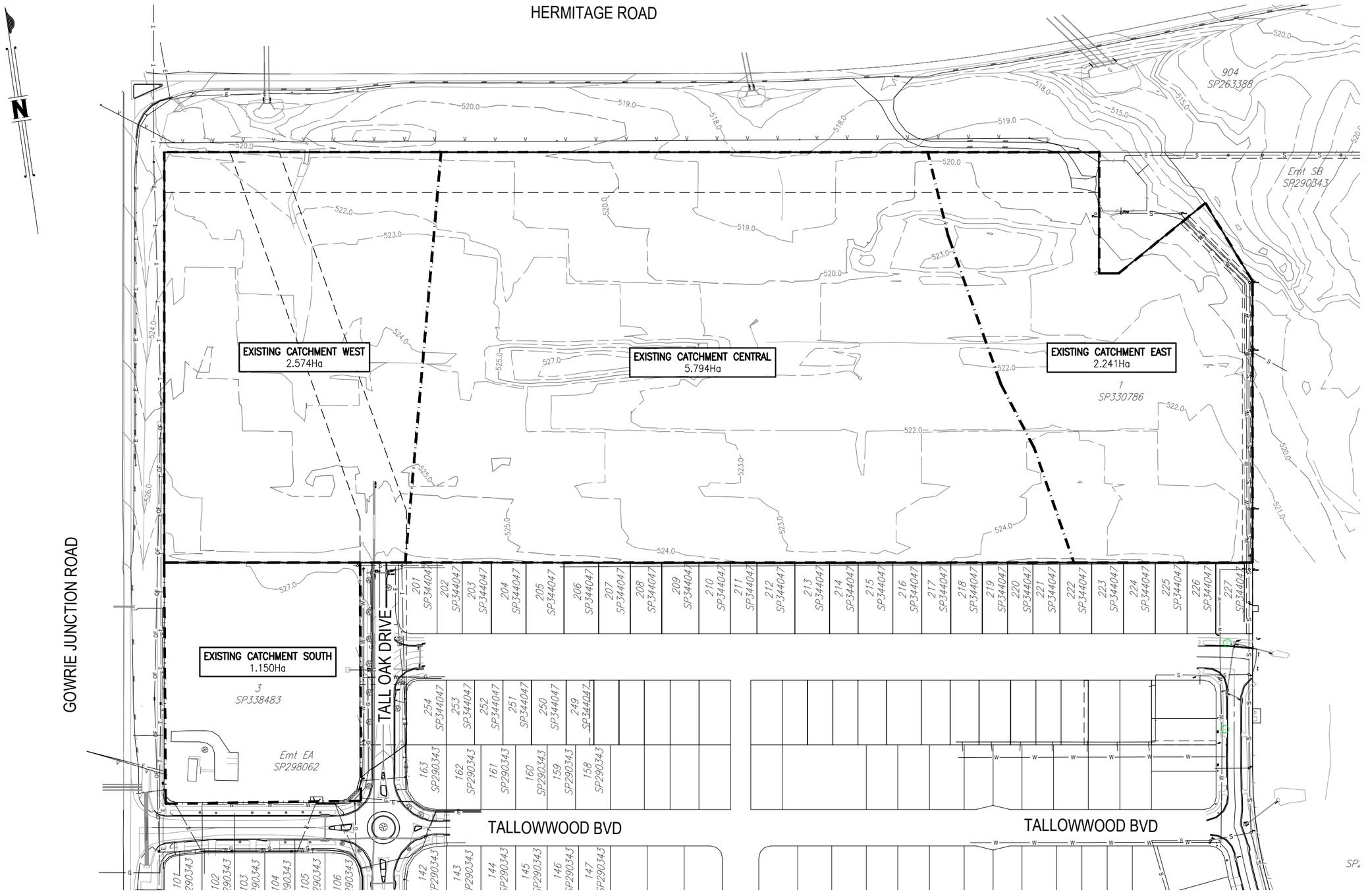
PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE SITE PLAN
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC02
SHEET NUMBER 02 OF 07
REVISION

3-B24-058-PC_Site.DWG



NOTE:
EXISTING CATCHMENTS HAVE BEEN DETERMINED USING HISTORIC CONTOUR INFORMATION FOR SITE PRIOR TO COMMENCEMENT OF EARTHWORKS UNDER PREVIOUS APPROVAL.

EXISTING CATCHMENT PLAN

SCALE 1:1000 (A1 SIZE) 0 10 20 30 40 50

No.	DATE	REVISIONS	DES	DRN	CHK	APD

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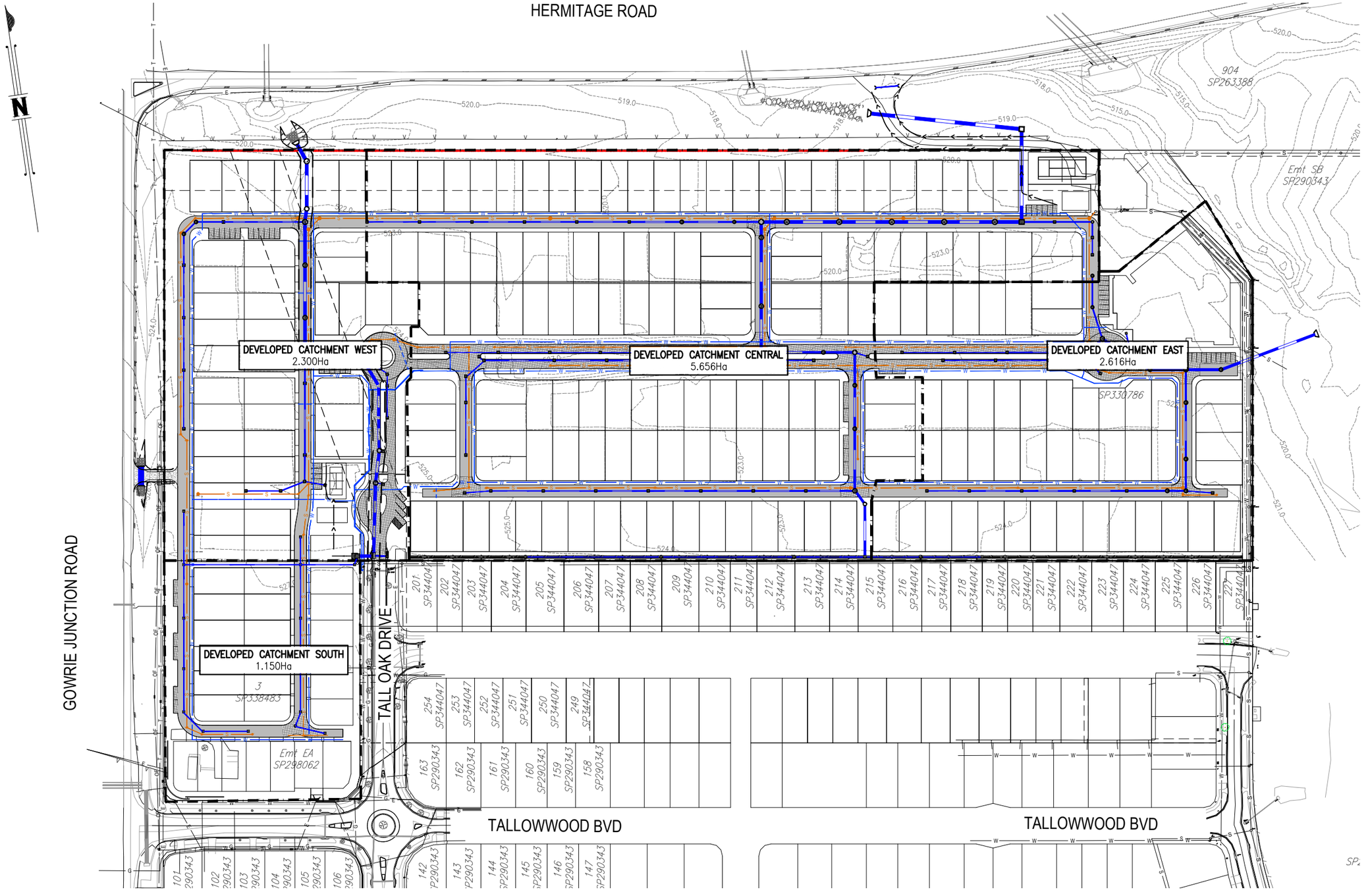
PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE EXISTING CATCHMENT PLAN
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC03
SHEET NUMBER 03 OF 07
REVISION

4-B24-058-PC_Ext_Stm_Catch.DWG



DEVELOPMENT CATCHMENT PLAN

SCALE 1:1000 (A1 SIZE) 0 10 20 30 40 50

No.	DATE	REVISIONS	DES	DRN	CHK	APD

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DATE JULY 2024
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PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE DEVELOPMENT CATCHMENT PLAN
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC04
SHEET NUMBER 04 OF 07
REVISION

5-B24-058-PC_Dev_Stm_Catch.DWG

PROVIDE NEW STORMWATER OUTLET AND SCOUR PROTECTION.

EXISTING ACCESS TO BE REMOVED.

MATCH NEATLY TO ADJACENT FOOTPATH.

EXISTING 750mm STORMWATER PIPE TO BE EXTENDED THROUGH DEVELOPMENT SITE UNDER EASEMENT.

SEAL EXISTING SEWER AT MANHOLE AND REMOVE/GROUT FILL REDUNDANT LINE

EXISTING SEWER MANHOLE TO BE REMOVED

REFER DWG. B24-058-C06 FOR CONTINUATION

REFER DWG. B24-058-C07 FOR CONTINUATION

N

NOTE:
THE INVERT LEVEL & LOCATION OF ALL EXISTING STORMWATER & SEWER INFRASTRUCTURE SHALL BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

***STORMWATER STUB NOTE:**
PROVIDE STUBS AS SHOWN FOR ROOF AND/OR YARD DRAINAGE CONNECTION. REFER HYDRAULIC ENGINEERS DRAWINGS FOR DETAILS.

CONSTRUCTION NOTE:
CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LOCAL AUTHORITIES STANDARD DRAWINGS AND SPECIFICATIONS. WORKS MUST BE COMPLETED TO THE SATISFACTION OF THE SUPERINTENDENT AND LOCAL AUTHORITY. REFER TO SHEET C01 FOR CONSTRUCTION NOTES AND DETAILED DRAWING LEGEND.

PRELIMINARY CIVILWORKS PLAN

SCALE 1:500 (A1 SIZE) 0 5 10 15 20 25

No.	DATE	REVISIONS	DES	DRN	CHK	APD

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DRAWN E.B
CHECKED J.M.H
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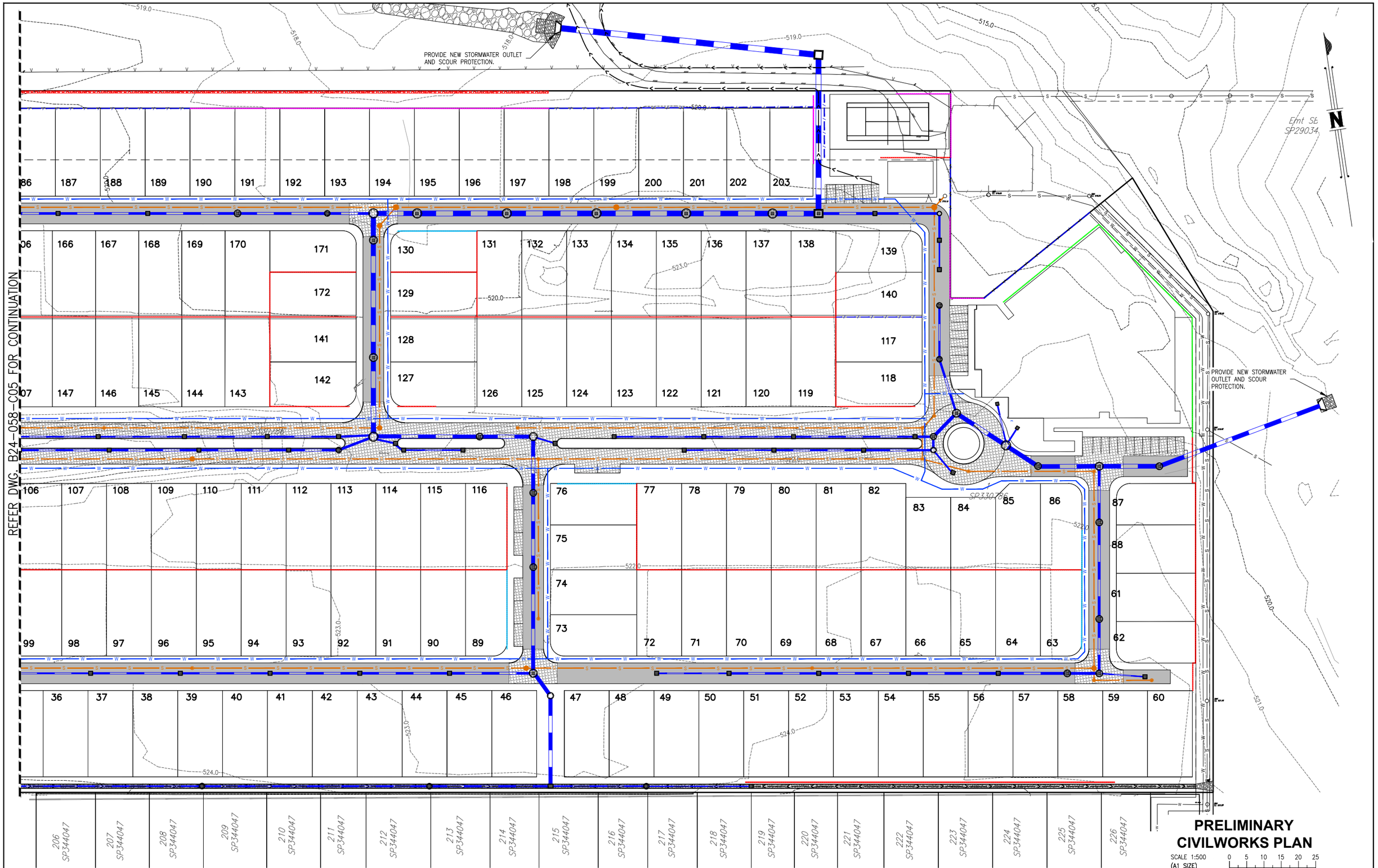
DATUM A.H.D.
P.S.M.191512
R.L.529.898

PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE PRELIMINARY CIVIL WORKS PLAN 1 of 3
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC05
SHEET NUMBER 05 OF 07
REVISION

6-B24-058-PC_Civilwks.DWG



PRELIMINARY CIVILWORKS PLAN

SCALE 1:500 (A1 SIZE)

0 5 10 15 20 25

No.	DATE	REVISIONS	DES	DRN	CHK	APD

DESIGNED R.vdB
DRAWN E.B
CHECKED J.M.H
APPROVED J.M.H
DATE JULY 2024
DOCUMENT CONTROL

J. HILL RPEQ 19891
For and on behalf of WESTERA PARTNERS PTY. LTD.
APPROVED

WESTERA PARTNERS
STRUCTURAL+CIVIL+ENVIRONMENTAL ENGINEERS
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BRISBANE T 07 3852 4333 E brisbane@westerapartners.com.au
GOLD COAST T 07 5571 1599 E goldcoast@westerapartners.com.au
SUNSHINE COAST T 07 5391 3777 E sunshinecoast@westerapartners.com.au
NORTHERN NSW T 02 6674 8047 E nsw@westerapartners.com.au
CENTRAL VICTORIA T 03 5441 0922 E centralvic@westerapartners.com.au

SURVEYOR
DSQ LAND SURVEYORS
PHONE 07 5437 8555

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PROJECT PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE PRELIMINARY CIVIL WORKS PLAN 2 of 3
CLIENT GTH PROJECT NO.2 PTY LTD

DRAWING STATUS PRELIMINARY N.F.C.
DRAWING NUMBER B24-058-PC06
SHEET NUMBER 06 OF 07
REVISION

6-B24-058-PC_Civilwks.DWG

REFER DWG. B24-058-C05 FOR CONTINUATION

MATCH NEATLY TO ADJACENT FOOTPATH.

EXISTING 750mm STORMWATER PIPE TO BE EXTENDED THROUGH DEVELOPMENT SITE UNDER EASEMENT.

SEAL EXISTING SEWER AT MANHOLE AND REMOVE/GROUT FILL REDUNDANT LINE

EXISTING SEWER MANHOLE TO BE REMOVED

EXISTING STORMWATER PIPE AND INLET TO BE REMOVED AND CONNECTION TO GULLY PIT SEALED

TALL OAK DRIVE

TALLOWWOOD BVD

TRANSFORMER

Emt EA SP298062

N

NOTE:
THE INVERT LEVEL & LOCATION OF ALL EXISTING STORMWATER & SEWER INFRASTRUCTURE SHALL BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

***STORMWATER STUB NOTE:**
PROVIDE STUBS AS SHOWN FOR ROOF AND/OR YARD DRAINAGE CONNECTION. REFER HYDRAULIC ENGINEERS DRAWINGS FOR DETAILS.

CONSTRUCTION NOTE:
CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LOCAL AUTHORITIES STANDARD DRAWINGS AND SPECIFICATIONS. WORKS MUST BE COMPLETED TO THE SATISFACTION OF THE SUPERINTENDENT AND LOCAL AUTHORITY. REFER TO SHEET C01 FOR CONSTRUCTION NOTES AND DETAILED DRAWING LEGEND.

PRELIMINARY CIVILWORKS PLAN

SCALE 1:500 (A1 SIZE) 0 5 10 15 20 25

No.	DATE	REVISIONS	DES	DRN	CHK	APD

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DATUM A.H.D.
P.S.M.191512
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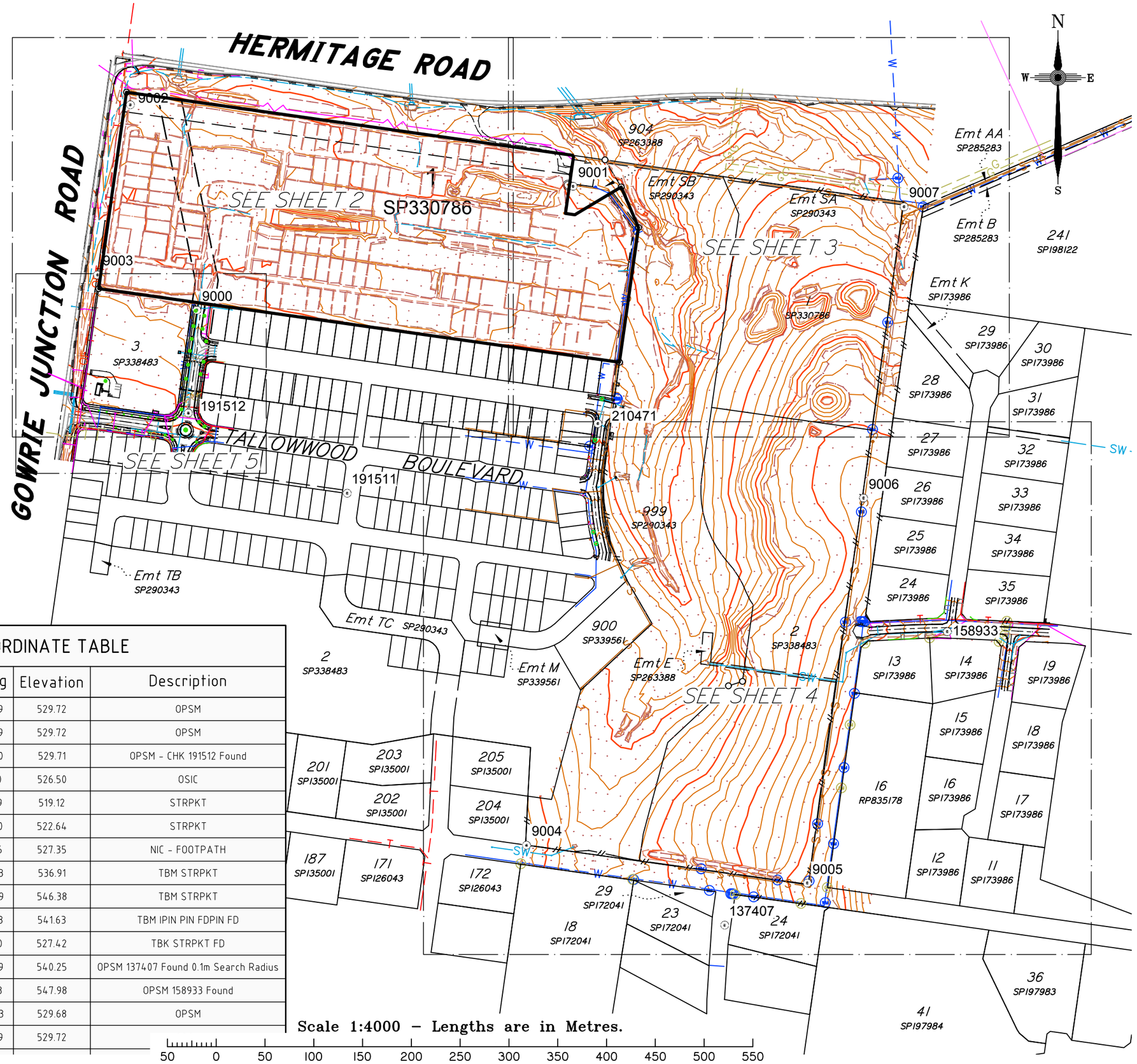
PROJECT: PROPOSED RETIREMENT LIVING DEVELOPMENT
LOCATION: LOT 1 on SP330786 & LOT 3 SP338483 TALL OAK DRIVE, COTSWOLD HILLS
TITLE: PRELIMINARY CIVIL WORKS PLAN 3 of 3
CLIENT: GTH PROJECT NO.2 PTY LTD

DRAWING STATUS: PRELIMINARY N.F.C.
DRAWING NUMBER: B24-058-PC07
SHEET NUMBER: 07 OF 07
REVISION:

6-B24-058-PC_Civilwks.DWG

Appendix C – Site Survey & Architectural Drawings



COORDINATE TABLE

Point #	Easting	Northing	Elevation	Description
5	389888.62	6955925.69	529.72	OPSM
39	389888.62	6955925.69	529.72	OPSM
8006	389888.62	6955925.70	529.71	OPSM - CHK 191512 Found
9000	389897.35	6956031.10	526.50	OSIC
9001	390282.97	6956157.99	519.12	STRPKT
9002	389829.23	6956241.50	522.64	STRPKT
9003	389795.57	6956067.16	527.35	NIC - FOOTPATH
9004	390235.16	6955482.73	536.91	TBM STRPKT
9005	390522.98	6955443.99	546.38	TBM STRPKT
9006	390580.65	6955838.53	541.63	TBM IPIN PIN FDPIN FD
9007	390622.12	6956137.00	527.42	TBK STRPKT FD
137407	390438.31	6955400.89	540.25	OPSM 137407 Found 0.1m Search Radius
158933	390666.43	6955701.63	547.98	OPSM 158933 Found
191511	390051.48	6955843.43	529.68	OPSM
191512	389888.62	6955925.69	529.72	

Scale 1:4000 – Lengths are in Metres.

50 0 50 100 150 200 250 300 350 400 450 500 550

Gemlife

DETAIL SURVEY
Tall Oak Drive, Cotswold Hills

GENERAL NOTES:

1. VISIBLE SERVICES ONLY HAVE BEEN LOCATED. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATION OF ALL SERVICES.
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3. BOUNDARIES HAVE NOT BEEN SURVEYED OR REINSTATED
4. BOUNDARIES SHOWN ARE COMPILED FROM SURVEY PLANS DATA.
5. CONTOUR INTERVAL SHOWN IS 1.0 METRE.

LEGEND

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- COMM'S CABLE U/G
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- ELECTRICAL PILLAR
- LIGHT POLE
- ELECTRICAL PIT
- ELECTRICITY O/H
- SEWER MANHOLE
- SEWER MAIN
- STORMWATER M/H
- GULLY TRAP
- STORMWATER LINE
- WATER METER
- STOP VALVE
- WATER HYDRANT
- POTHOLE LOCATION
- STREET SIGN
- EDGE OF BITUMEN
- TREE
- SURVEY BENCH MARK
- BYDA WATER MAIN
- BYDA ELECTRICITY
- BYDA O/H ELEC
- BYDA SEWER MAIN
- BYDA COMM'S
- BYDA OPTIC FIBRE
- BYDA GAS MAIN
- BYDA STORMWATER

GDA2020

	Revisions	Surveyed	Drawn	Checked	Passed	Date
F	ADDITIONAL SURVEY	NME	JAM	AJP	AJP	30.03.26
D	POTHOLING	JGI	DK	AJP	AJP	24.07.25
C	POTHOLING	DK	DK	AJP	AJP	30.09.24
B	POTHOLING	DK	DK	AJP	AJP	14.08.24
A	ORIGINAL PLAN	DK	DK	AJP	AJP	11.07.24

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SUNSHINE COAST - DALBY - CHINCHILLA

Horiz. Datum MGA2020–56 | Vert. Datum AHD
Origin 191512 | Origin PSM 191512 RL 529.898

Locality: COTSWOLD HILLS

Local Government: TOOWOOMBA R. C.

SHEET 1 OF 5 | Scale A3 1:4000

DRAWING NUMBER 15376-DTM-01 | REV. F

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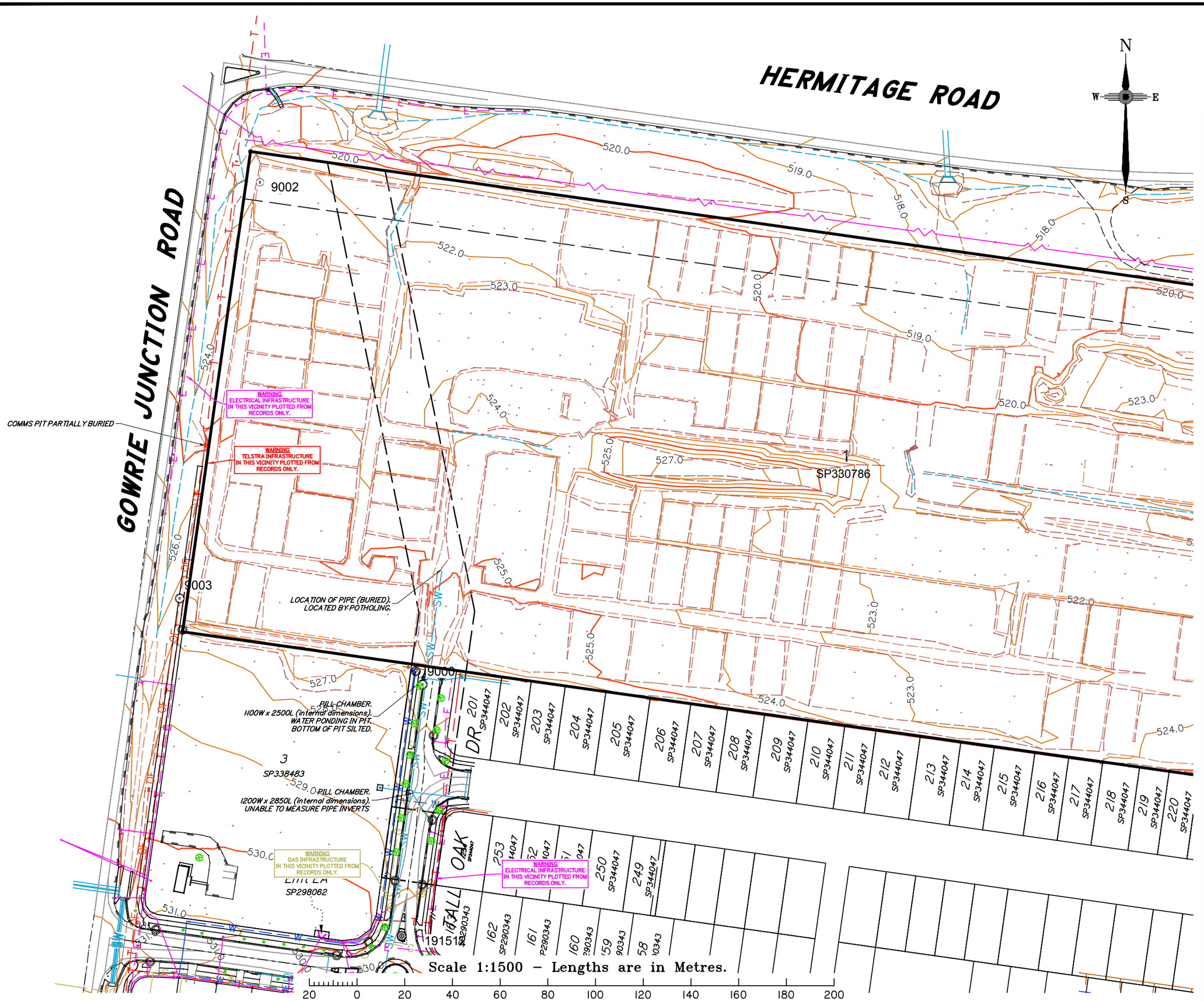
Gemlife

DETAIL SURVEY
Tall Oak Drive, Cotswold Hills



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- ELECTRICAL PIT
- ELECTRICITY O/H
- SEWER MANHOLE
- S — SEWER MAIN
- STORMWATER M/H
- GULLY TRAP
- SW — SW — STORMWATER LINE
- WATER METER
- STOP VALVE
- WATER HYDRANT
- POTHOLE LOCATION
- STREET SIGN
- EDGE OF BITUMEN
- TREE
- SURVEY BENCH MARK
- W — W — BYDA WATER MAIN
- E — E — BYDA ELECTRICITY
- BYDA O/H ELEC
- S — S — BYDA SEWER MAIN
- T — T — BYDA COMM'S
- OF — OF — BYDA OPTIC FIBRE
- G — G — BYDA GAS MAIN
- SW — SW — BYDA STORMWATER

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SUNSHINE COAST - DALBY - CHINCHILLA

Horiz. Datum MGA2020–56	Vert. Datum AHD
Origin 191512	Origin PSM 191512 RL 529.898

Locality: COTSWOLD HILLS

Local Government: TOOWOOMBA R. C.

SHEET 2 OF 5 | Scale A3 1:1500

DRAWING NUMBER 15376-DTM-01 | REV. F

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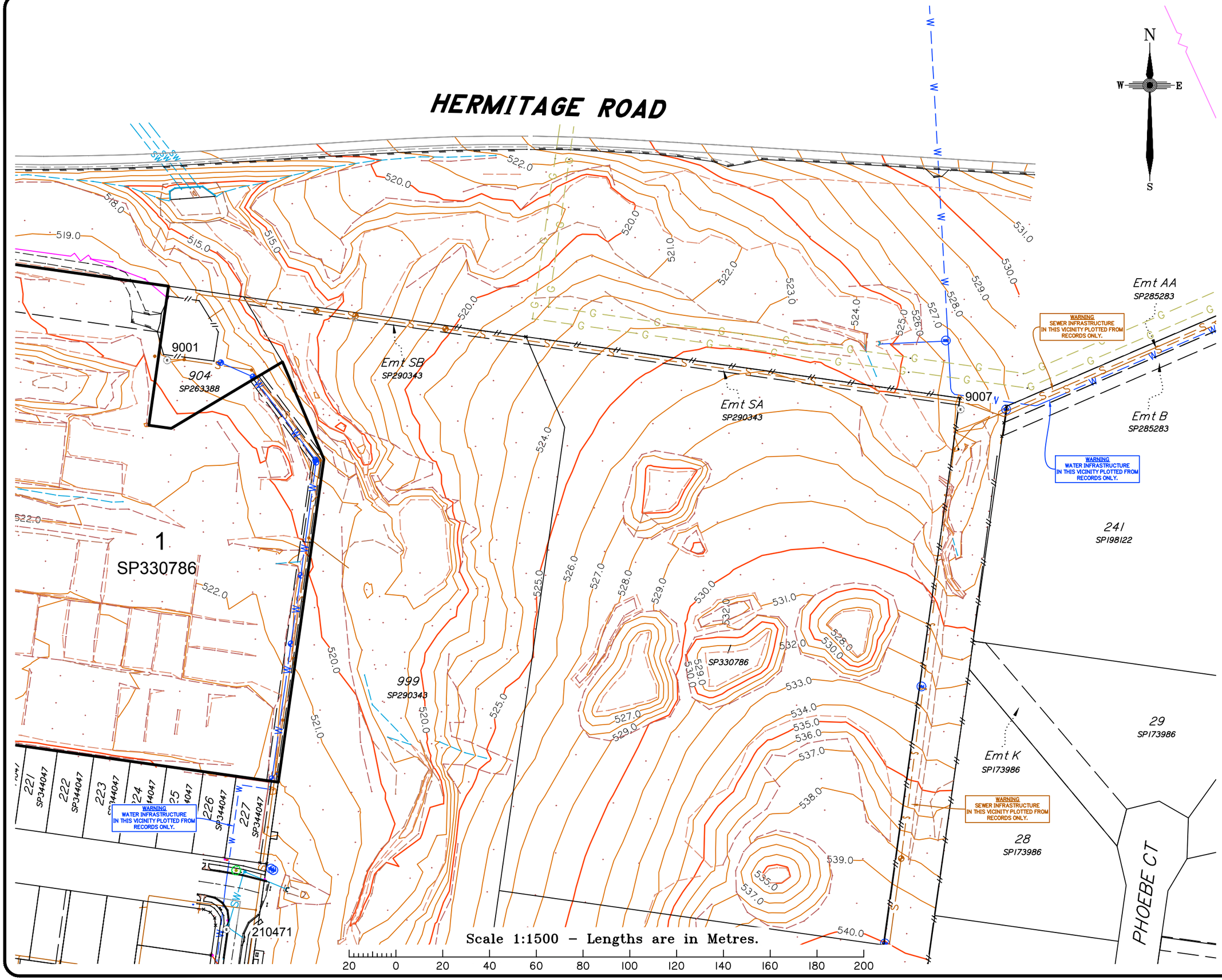
Gemlife

DETAIL SURVEY
Tall Oak Drive, Cotswold Hills



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GDA2020

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Horiz. Datum MGA2020–56	Vert. Datum AHD
Origin 191512	Origin PSM 191512 RL 529.898

Locality: COTSWOLD HILLS

Local Government: TOOWOOMBA R. C.

SHEET 3 OF 5 | Scale A3 1:1500

DRAWING NUMBER 15376-DTM-01 | REV. F

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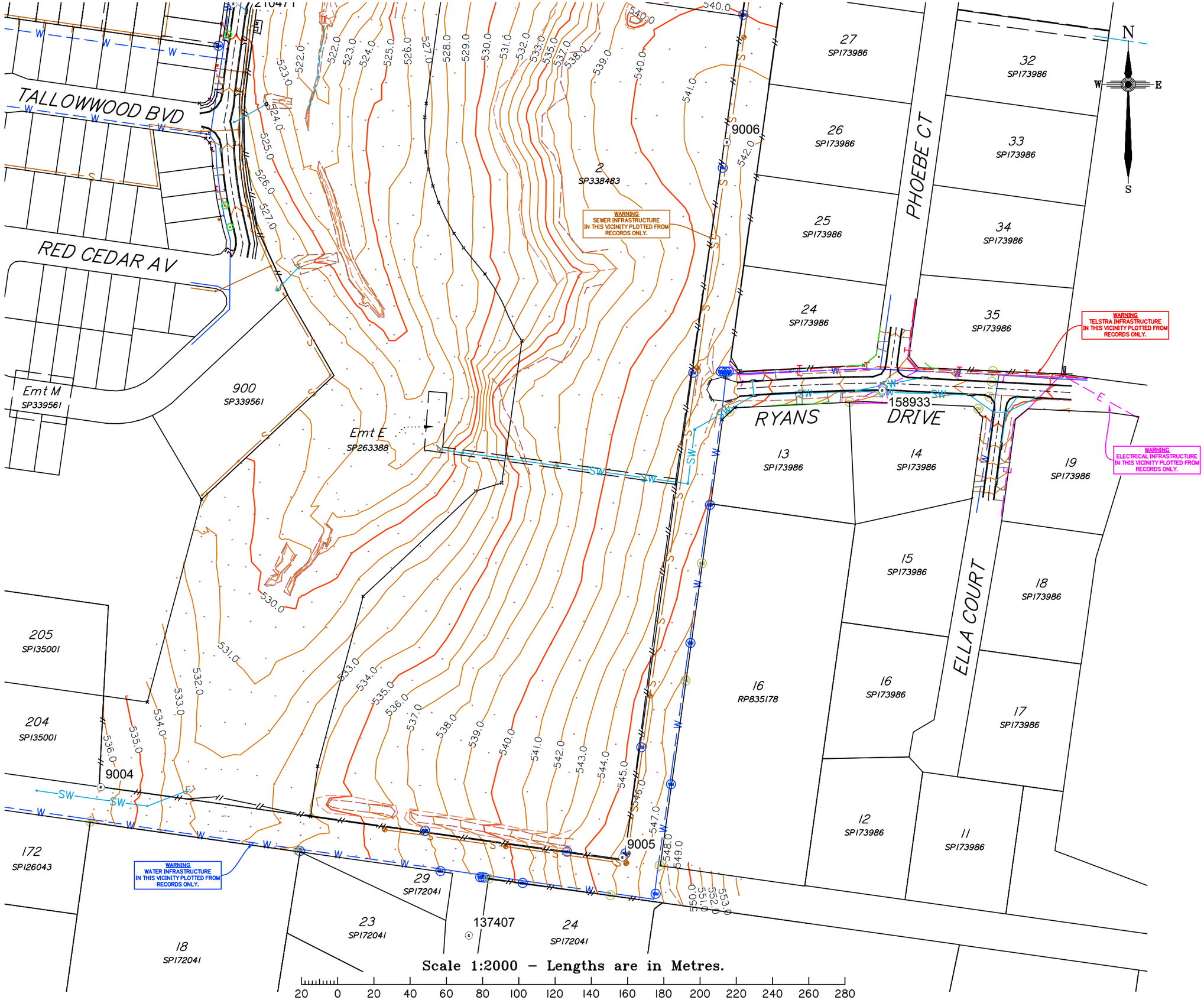

Gemlife

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Horiz. Datum MGA2020–56 Origin 191512
Vert. Datum AHD Origin PSM 191512 RL 529.898

Locality: COTSWOLD HILLS

Local Government: TOOWOOMBA R. C.

SHEET 4 OF 5

Scale A3 1:2000

DRAWING NUMBER 15376-DTM-01

REV. F

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Locality: COTSWOLD HILLS	
Local Government: TOOWOOMBA R. C.	
SHEET 5 OF 5	Scale A3 1:750
DRAWING NUMBER 15376-DTM-01	REV. F

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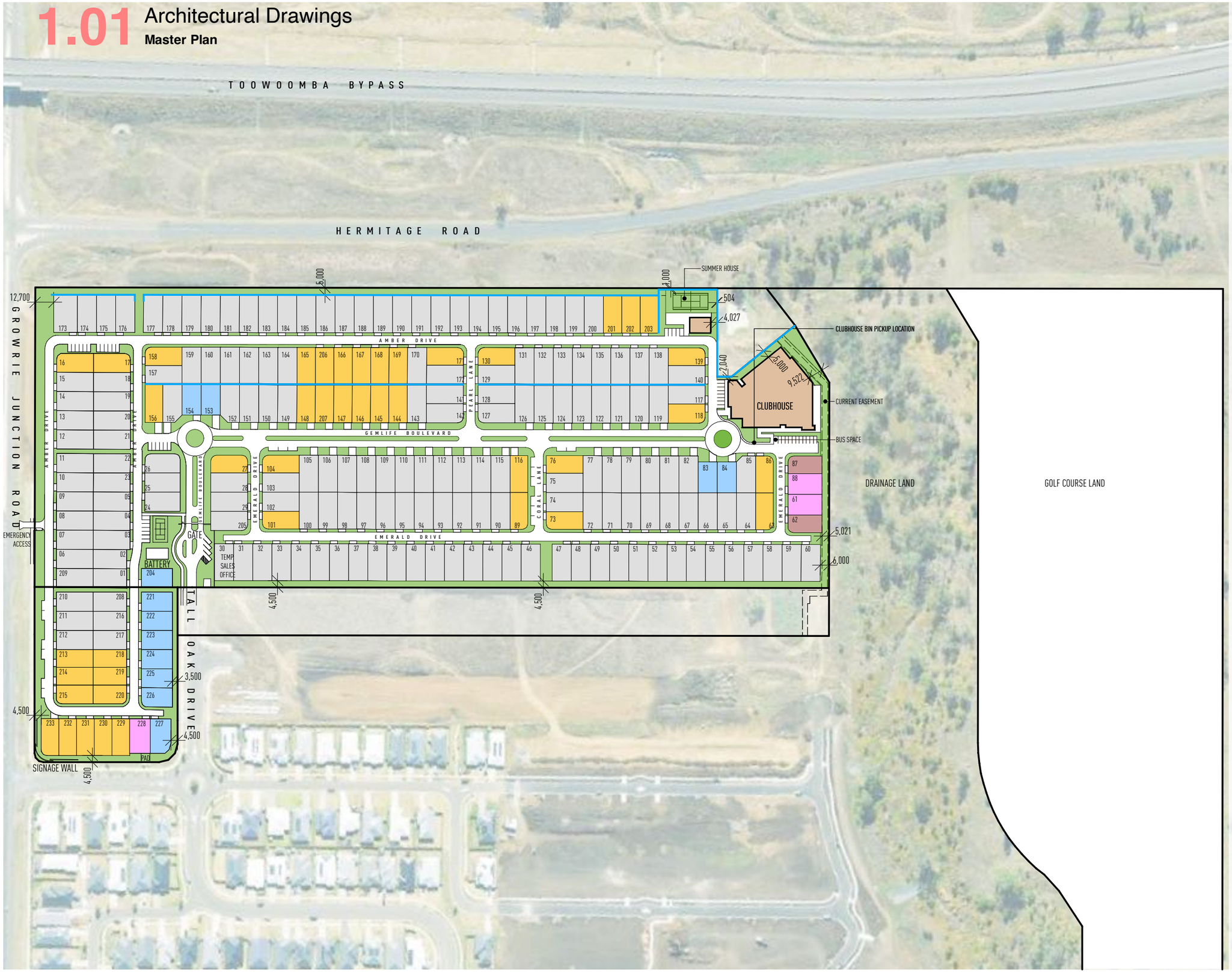
1.01 Architectural Drawings

Master Plan



SITE 1

TOTAL NUMBER OF LOTS	229
COMMERICAL	1500m2 (4 lots)

LOT SIZE	YIELD
13.0m x 25.0m STANDARD LOTS	175
12.0m x 25.0m SMALL LOTS	41
13.0m x 21.0m SMALL LOTS	12
12.0m x 23.0m SMALL LOTS	2
14.0m x 23.0m SMALL LOTS	3
ACOUSTIC FENCE (REFER STATEMENT OF LANDSCAPE INTENT)	

STATISTICS

VISITOR CAR PARKING	69 + 1 MINI BUS SPACE

VIRAGE ARCHITECTS

LEVEL 1 33 ELKHORN AVENUE
SURFERS PARADISE, QLD. 4217 AUSTRALIA
PO BOX 42. ISLE OF CAPRI, QLD. 4217

TEL 07 5527 5300
EMAIL INFO@JPD.COM.AU
WEB WWW.JPD.COM.AU

GemLife™

ISSUE	DATE	DESCRIPTION
Z3	11.05.26	Master plan updated
Z2	27.04.26	Master plan updated
Z1	30.03.26	Master plan updated
Z	23.03.26	Master plan updated
Y	23.02.26	Master plan updated
X	10.02.26	Master plan updated
W	19.01.26	Master plan updated

PROJECT Proposed New Development
Tall Oak Drive Cotswold QLD

CLIENT GemLife

NORTH

DRAWING TITLE BP1495/1.01

10m 50m 125m

SCALE 1:2500 @ A3

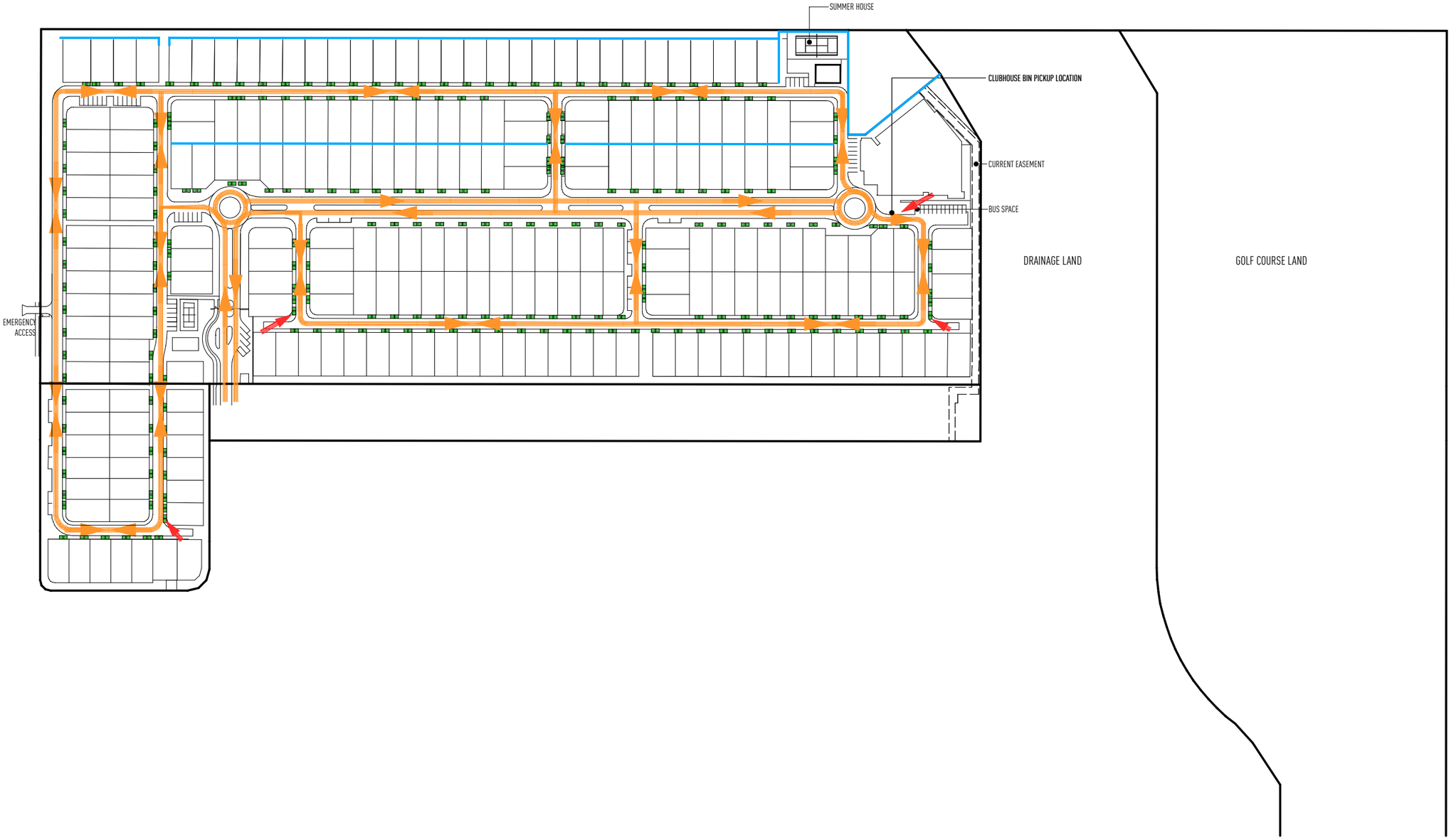
Master Plan

virage

1.02 Architectural Drawings
Waste Management Plan

NOTES

- WCV MOVEMENT
- BIN PICKUP LOCATION
- PATH TO BIN PICK



VIRAGE ARCHITECTS

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PO BOX 42. ISLE OF CAPRI, QLD. 4217

TEL 07 5527 5300
EMAIL INFO@JPD.COM.AU
WEB WWW.JPD.COM.AU

GemLife™

ISSUE	DATE	DESCRIPTION
E	06.03.26	Layout revised
D	12.09.24	Updated plans
C	04.09.24	Updated plans
B	14.08.24	Updated plans
A	21.06.24	Updated plans

PROJECT Proposed New Development
Tall Oak Drive Cotswold QLD

CLIENT GemLife

NORTH

DRAWING TITLE BP1495/1.02

10m 50m 125m

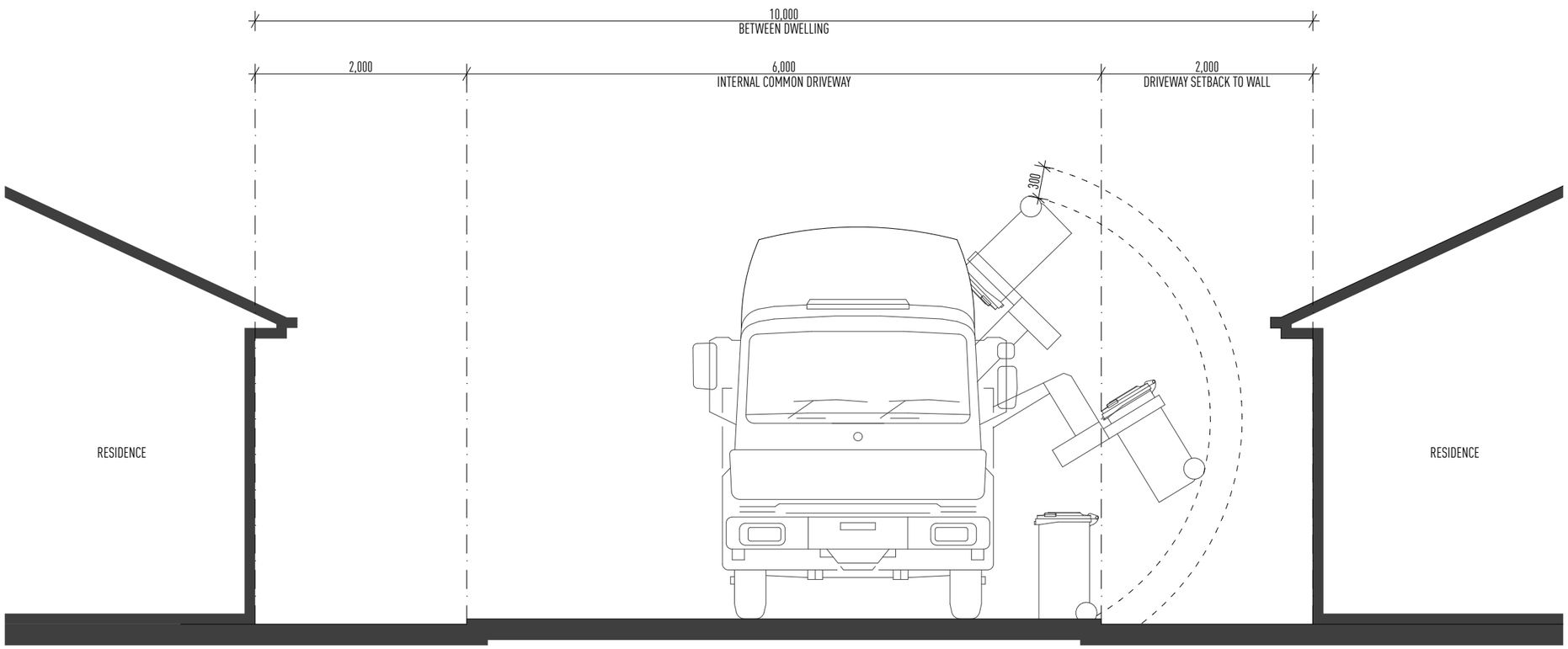
SCALE 1:2500 @ A3

Waste Management Plan

virage

1.03 Architectural Drawings

Refuse Vehicle Details



VIRAGE ARCHITECTS
LEVEL 1 33 ELKHORN AVENUE
SURFERS PARADISE, QLD. 4217 AUSTRALIA
PO BOX 42. ISLE OF CAPRI, QLD. 4217
TEL 07 5527 5300
EMAIL INFO@JPD.COM.AU
WEB WWW.JPD.COM.AU

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ISSUE	DATE	DESCRIPTION
A	01.05.26	New plan

PROJECT Proposed New Development
Tall Oak Drive Cotswold QLD

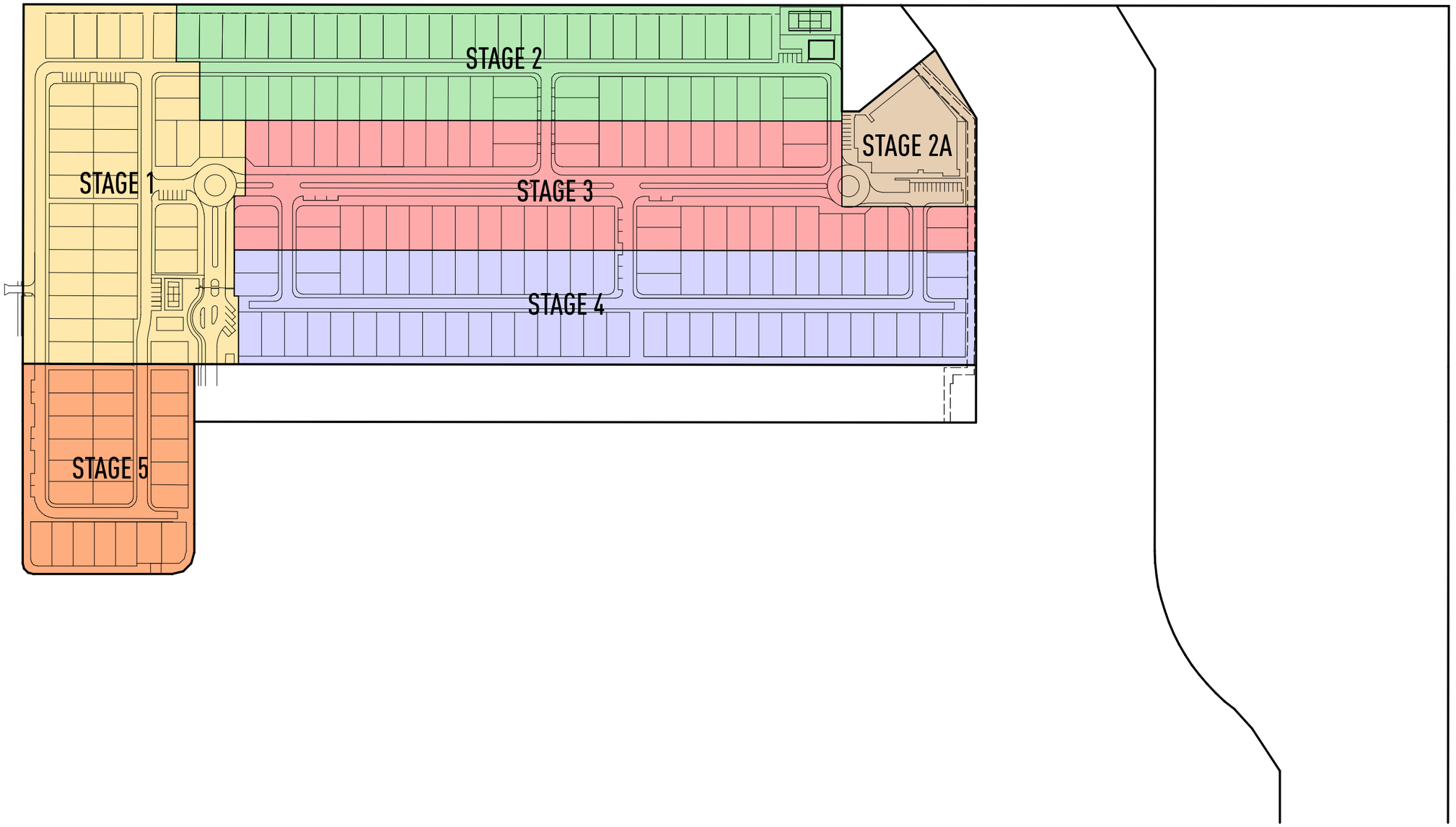
CLIENT GemLife

DRAWING TITLE BP1495/1.03

SCALE @ A3
Refuse Vehicle Details

virage

1.03 Architectural Drawings
Staging Plan



TABLE

STAGE 1	39 + PICKLE BALL COURT AND ENTRY		
	STANDARD LOTS	32	
	SMALL LOTS	7	
STAGE 2	53		
	STANDARD LOTS	41	
	SMALL LOTS	12	
STAGE 2A	CLUBHOUSE AND TENNIS COURT		
STAGE 3	55		
	STANDARD LOTS	39	
	SMALL LOTS	16	
STAGE 4	61		
	STANDARD LOTS	55	
	SMALL LOTS	6	
STAGE 5	25		
	STANDARD LOTS	8	
	SMALL LOTS	17	
TOTAL	233 LOTS		

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ISSUE	DATE	DESCRIPTION
G	06.03.26	Layout revised
F	12.09.25	Layout revised
E	10.07.25	Layout revised
D	04.09.24	Updated plans
C	04.09.24	Updated plans
B	14.08.24	Updated plans
A	21.06.24	Updated plans

PROJECT Proposed New Development
Tall Oak Drive Cotswold QLD

CLIENT GemLife

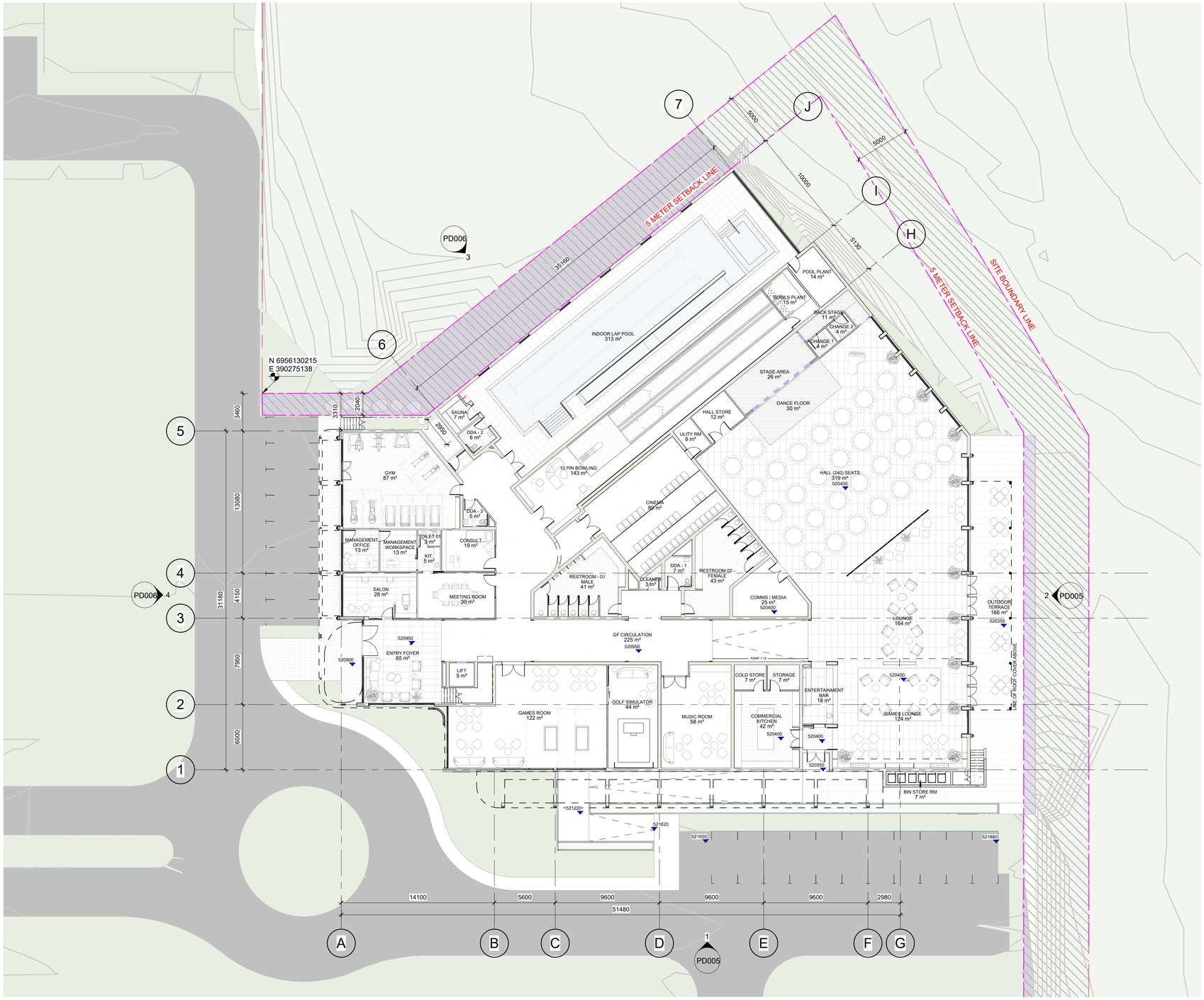
NORTH

DRAWING TITLE BP1495/1.03

10m 50m 125m

SCALE 1:2500 @ A3
Staging Plan

virage



1 GROUND FLOOR PLAN

1 : 200

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QLD-5331 NSW-10322 VIC-19672

REV	DESCRIPTION	DATE
AA	Preliminary Issue	23/03/26

SCALE

1 : 200@A1

PRINT AT 50% @ A3

0 5m 10m 15m 20m 25m

PROJECT

COTSWOLD 3

TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD002	AA

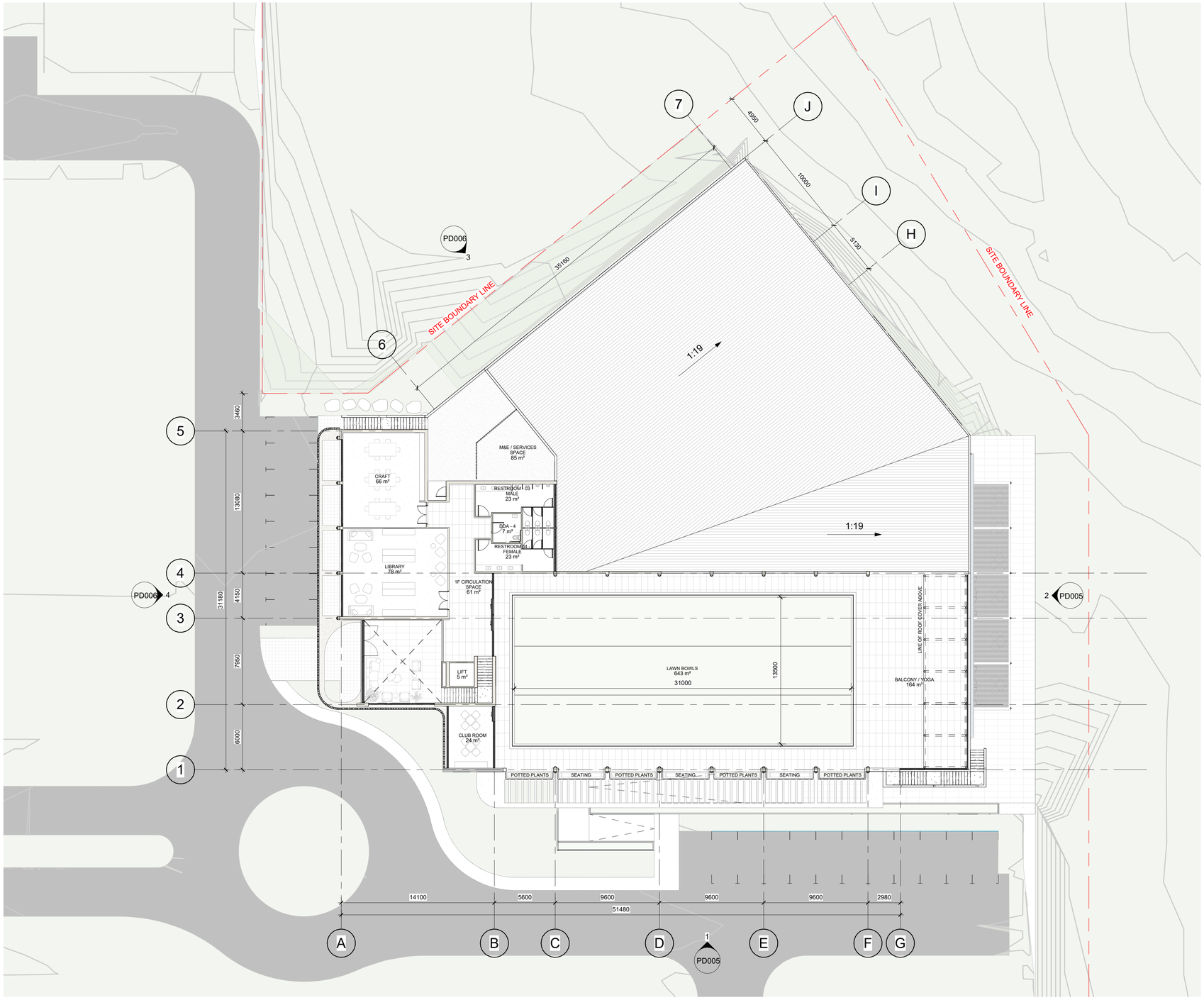
DRAWN	CHECKED	APPROVED
JS	PN	PN

DRAWING TITLE

GROUND FLOOR PLAN

FILE NAME

GL - CWL3 - DWG - CLU - A - PD002



1 FIRST FLOOR PLAN

1 : 200

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REV	DESCRIPTION	DATE
AA	Preliminary Issue	23/03/26

SCALE
1 : 200@A1
PRINT AT 50% @ A3

0 5m 10m 15m 20m 25m

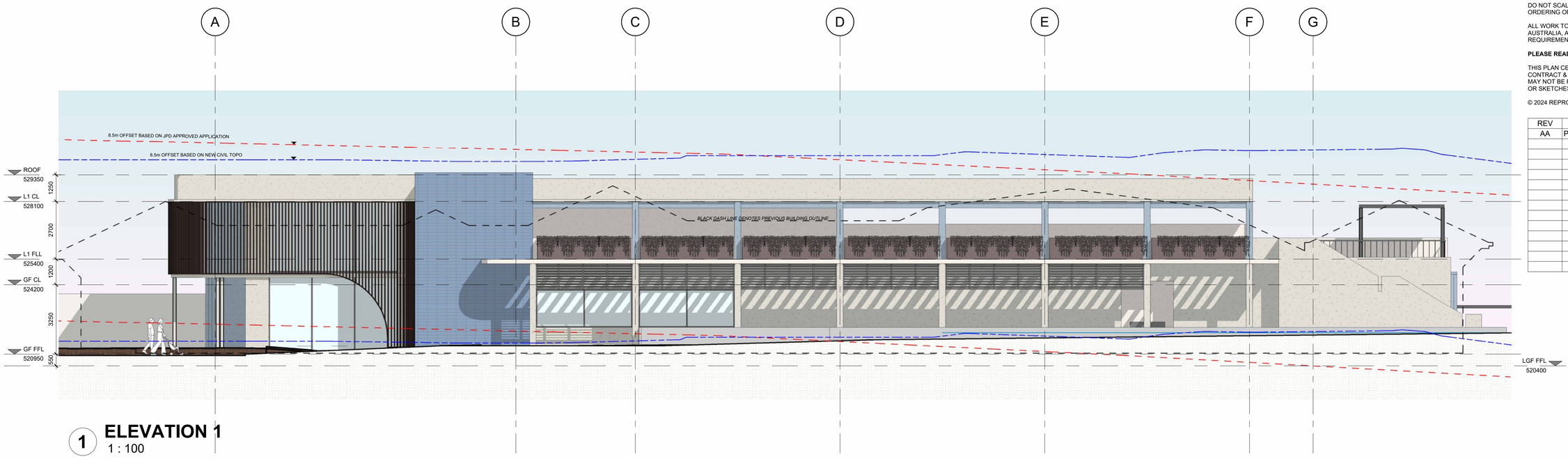
PROJECT
COTSWOLD 3
TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD003	AA

DRAWN	CHECKED	APPROVED
JS	PN	PN

DRAWING TITLE
FIRST FLOOR PLAN

FILE NAME
GL - CWL3 - DWG - CLU - A - PD003



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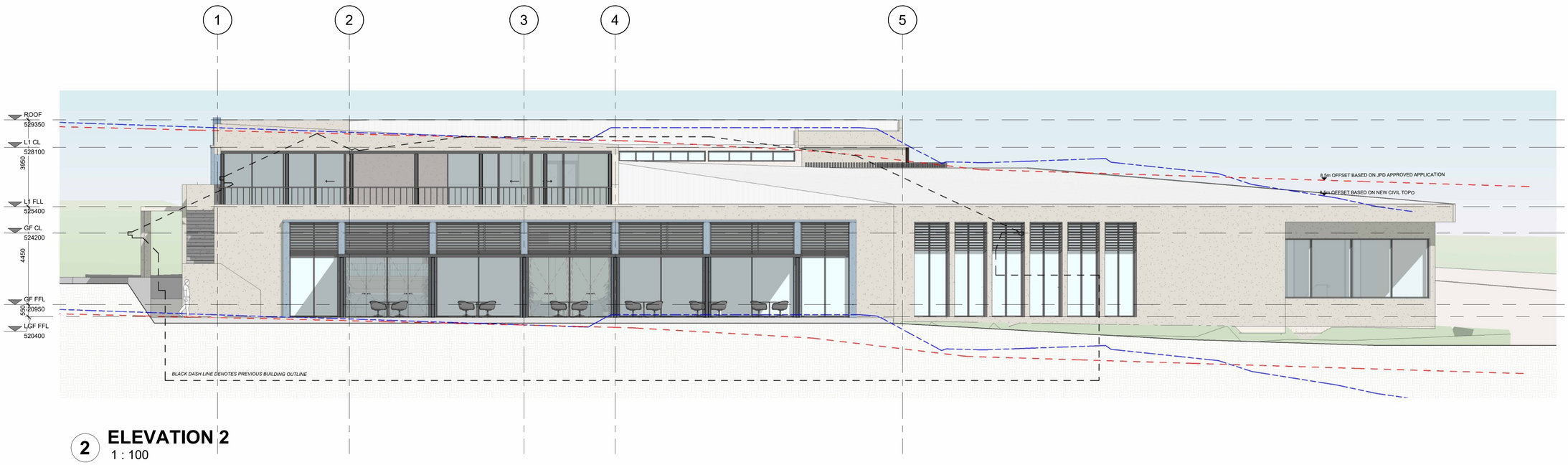
1 : 100



2 ELEVATION 2
1 : 100

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QLD-5331 NSW-10322 VIC-19672

DO NOT SCALE FROM PLAN - VERIFY ALL DIMENSIONS PRIOR TO ORDERING OR SHOP FABRICATION. IF IN DOUBT ASK.

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REV	DESCRIPTION	DATE
AA	Preliminary Issue	23/03/26

SCALE
1 : 100@A1
PRINT AT 50% @ A3
0 5m 10m 15m 20m 25m

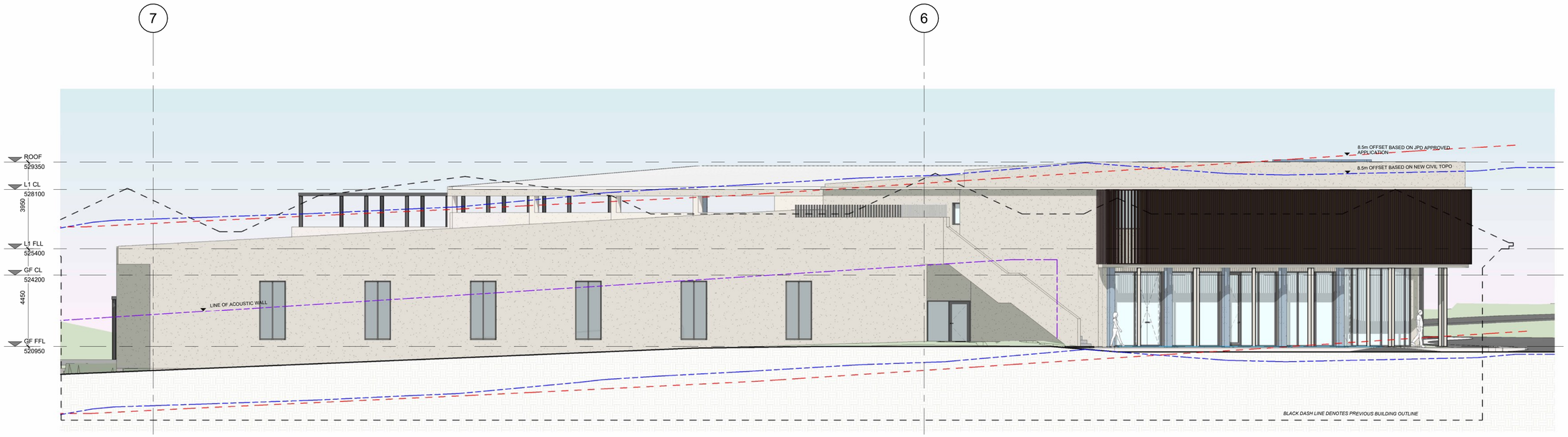
PROJECT
COTSWOLD 3
TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD005	AA

DRAWN	CHECKED	APPROVED
JS	PN	PN

DRAWING TITLE
ELEVATIONS 1-2

FILE NAME
GL - CWL3 - DWG - CLU - A - PD005



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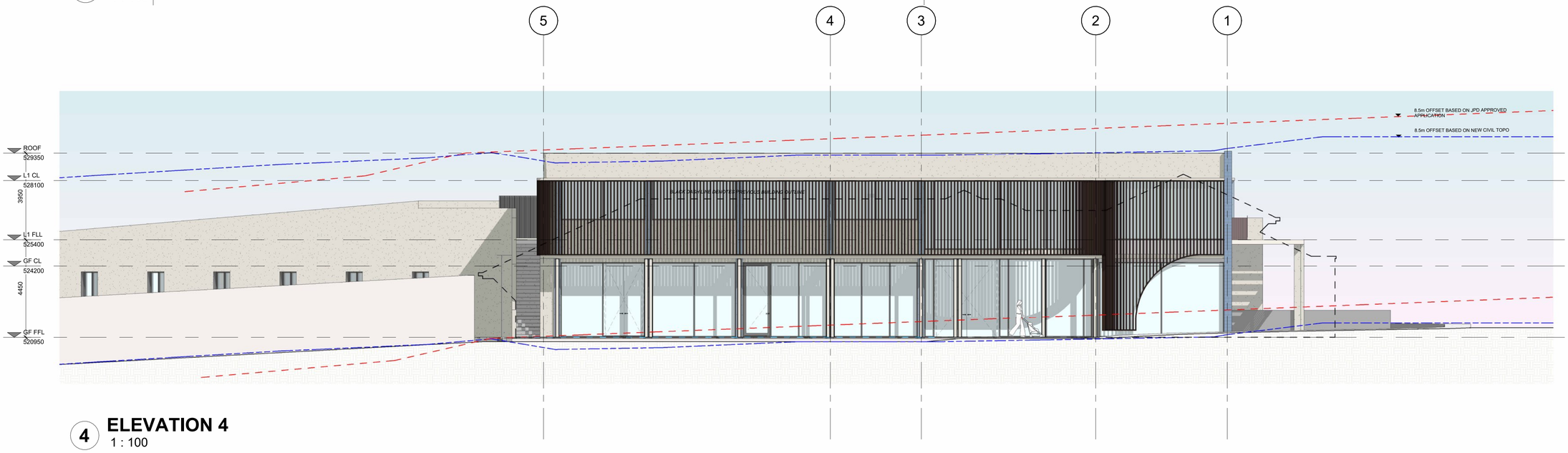
1 : 100



4 ELEVATION 4
1 : 100

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REV	DESCRIPTION	DATE
AA	Preliminary Issue	23/03/26

SCALE
1 : 100@A1
PRINT AT 50% @ A3

0 5m 10m 15m 20m 25m

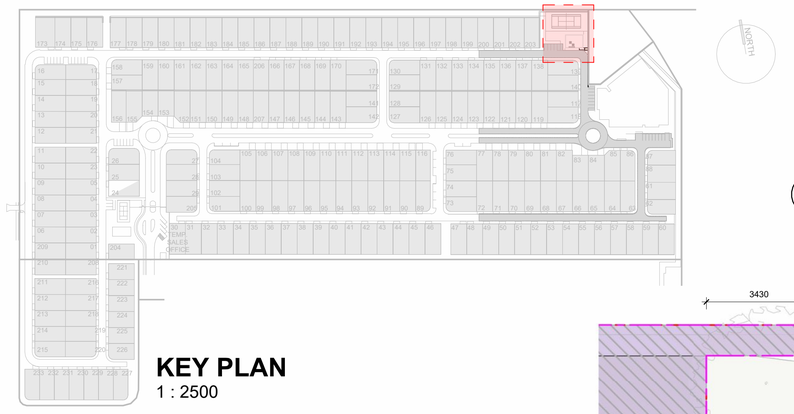
PROJECT
COTSWOLD 3
TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD006	AA

DRAWN	CHECKED	APPROVED
JS	PN	PN

DRAWING TITLE
ELEVATIONS 3-4

FILE NAME
GL - CWL3 - DWG - CLU - A - PD006



KEY PLAN
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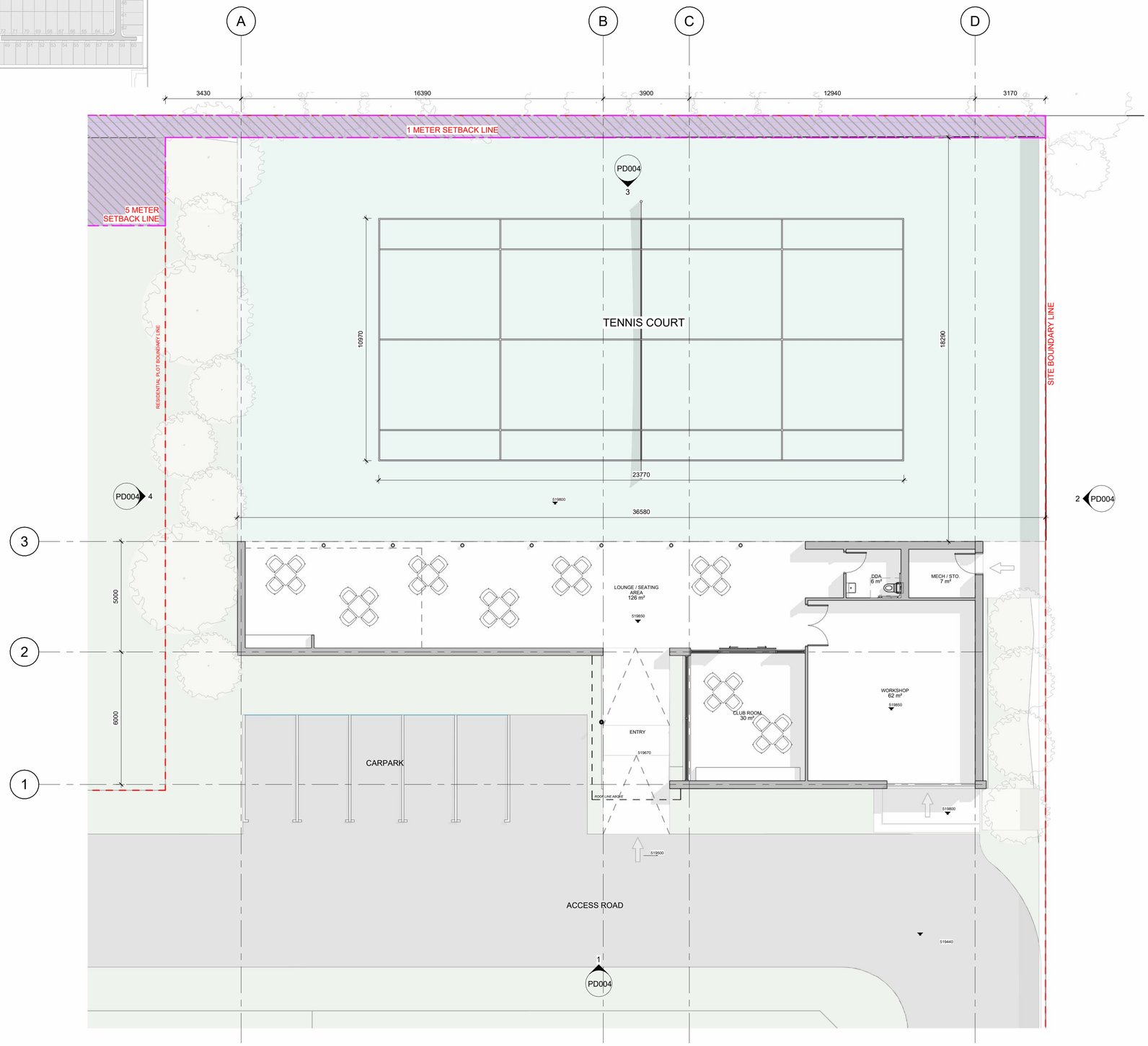

1 TENNIS AND WORSHOP PAVILION
1 : 100

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REV	DESCRIPTION	DATE
AA	DA Concept Issue	06/03/26

SCALE
As indicated@A1
PRINT AT 50% @ A3
0 5m 10m 15m 20m 25m

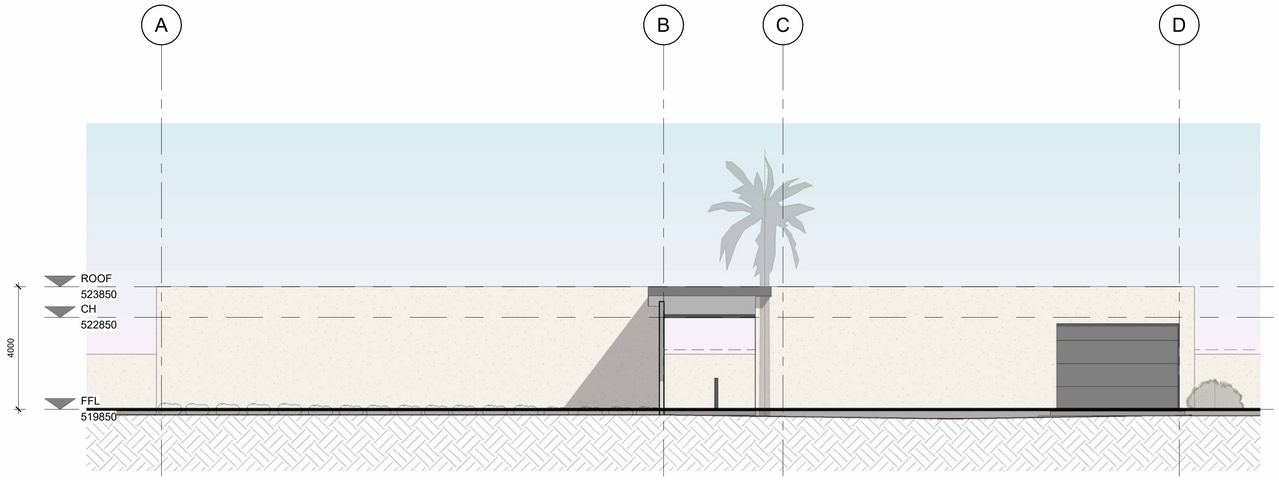
PROJECT
COTSWOLD 3
TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD002	AA

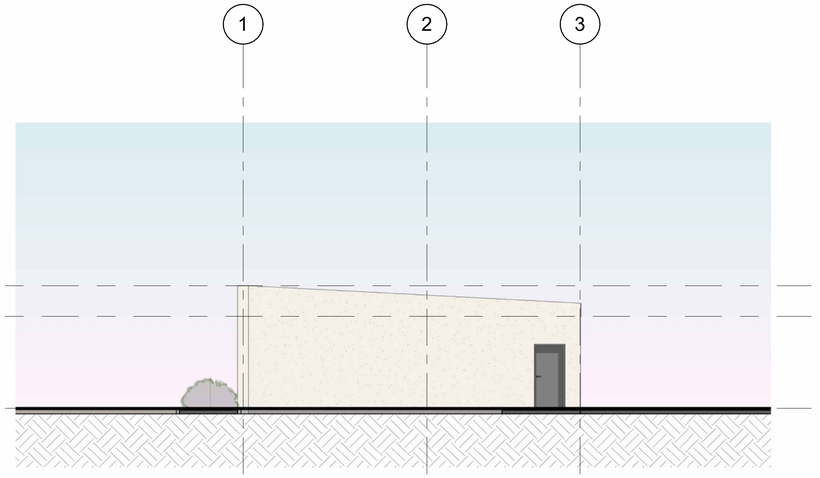
DRAWN	CHECKED	APPROVED
NA	PN	PN

DRAWING TITLE
GROUND FLOOR PLAN

FILE NAME
GL - CWL3 - DWG - CLU - A - PD002



1 ELEVATION 01
1 : 100



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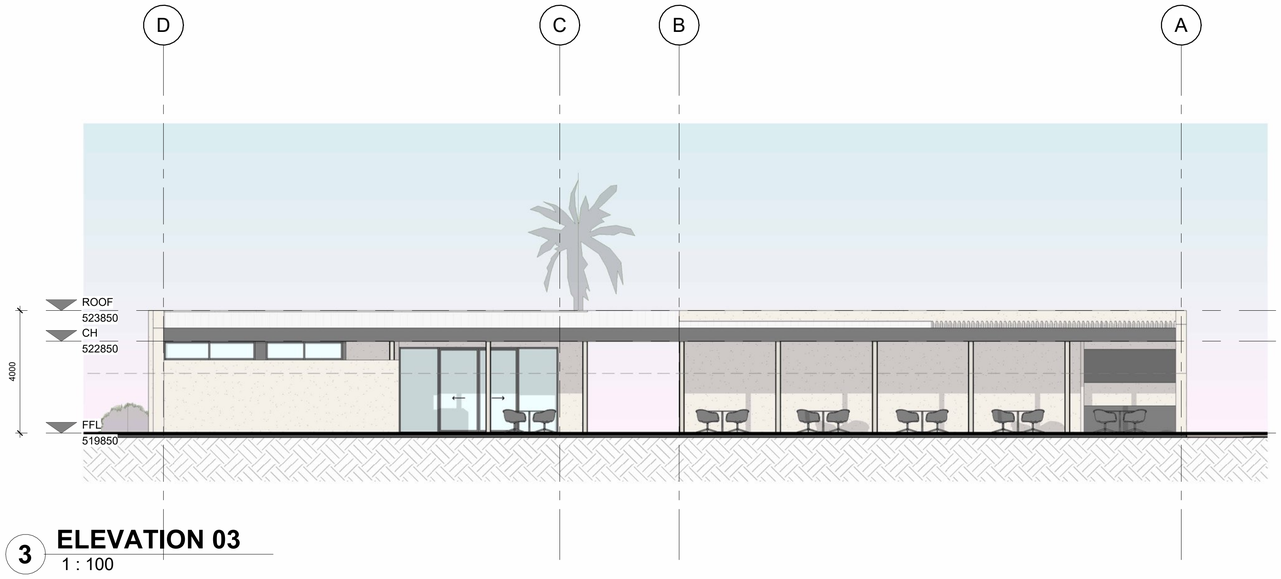

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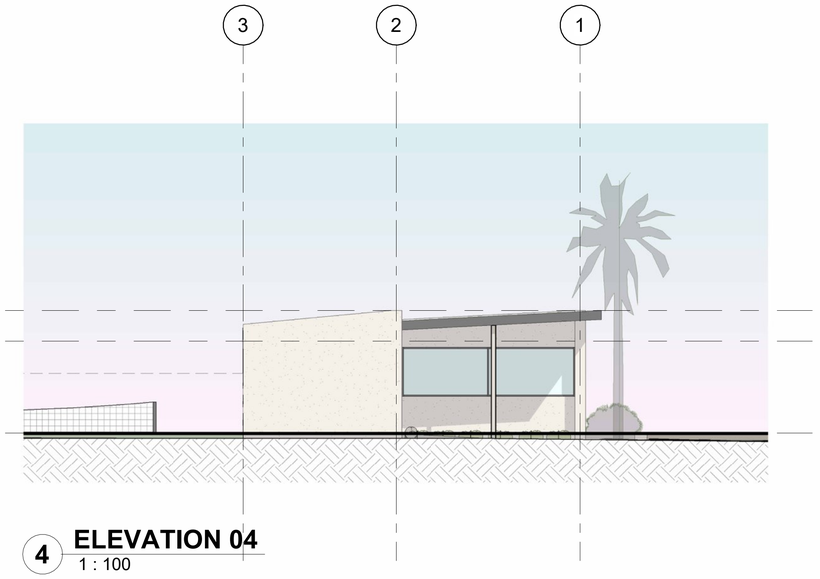

4 ELEVATION 04
1 : 100

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REV	DESCRIPTION	DATE
AA	DA Concept Issue	06/03/26

SCALE
1 : 100@A1
PRINT AT 50% @ A3

0 5m 10m 15m 20m 25m

PROJECT
COTSWOLD 3
TALL OAK DRIVE COTSWOLD QLD

BRANCH	SITE
GL	CWL3
GATE	DOC TYPE
G2	DWG
BUILDING CODE	DISCIPLINE
CLU	A
DRAWING No	REVISION
PD004	AA

DRAWN	CHECKED	APPROVED
NA	PN	PN

DRAWING TITLE
ELEVATIONS

FILE NAME
GL - CWL3 - DWG - CLU - A - PD004