



Prepared for:

BONZA PROJECTS

ENGINEERING SERVICES REPORT INCLUDING SITE BASED STORMWATER MANAGEMENT PLAN

**For
Proposed Townhouse Development
58 Timor Avenue,
Loganholme, QLD 4129**

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1.0 Introduction

Legacy Engineers Pty Ltd has been engaged by the Bonza Projects to prepare a Civil Engineering Report, including a Site-Based Stormwater Management Plan, for the proposed development located at 58 Timor Avenue, Loganholme QLD 4129 (Lot 290 on RP118024).

The intent of this report is to assess and provide recommendations on the services connection and stormwater quality and quantity management strategy for the proposed development in compliance with Logan City Council and state planning requirements.

1.1 Site Location

The site is located within the Logan City Council area and is bounded by Timor Avenue to the southeast and residential Properties to all other directions. Figure 1.1 below provide an aerial locality of the site and adjacent areas.

Figure 1.1 – Proposed Development Site at 58 Timor avenue, Loganholme QLD 4129 (Source: Logan PD Hub Mapping)



1.2 Current Use

The site currently contains a single storey dwelling and two existing vehicle crossovers to Timor Avenue. The house, driveway and the associated structures will be demolished to facilitate the proposed townhouse development.

1.3 Proposed Development

The proposed development, as shown in Figure 1.2, includes the following key elements:

- A two-storey townhouse development comprising ten (10) townhouses.

- As part of the development, the existing driveway crossovers from the Timor Avenue will be removed and reconstructed, with a new crossover provided in accordance with Logan City Council standards to suit refuse collection vehicle.
- Construction of new retaining walls along the side and rear boundaries to accommodate the proposed ground-floor level.
- Provision of new service connections (water, sewer, and stormwater) to service the proposed development.
- Provision of Storm quality and quantity management devices to the proposed development.

The proposed plan of development prepared by Rogue Architects, is included as Appendix A. An extract is included below in Figure 1.2.

Figure 1.2 – Proposed Townhouse Development.



1.4 Covenants/Easements

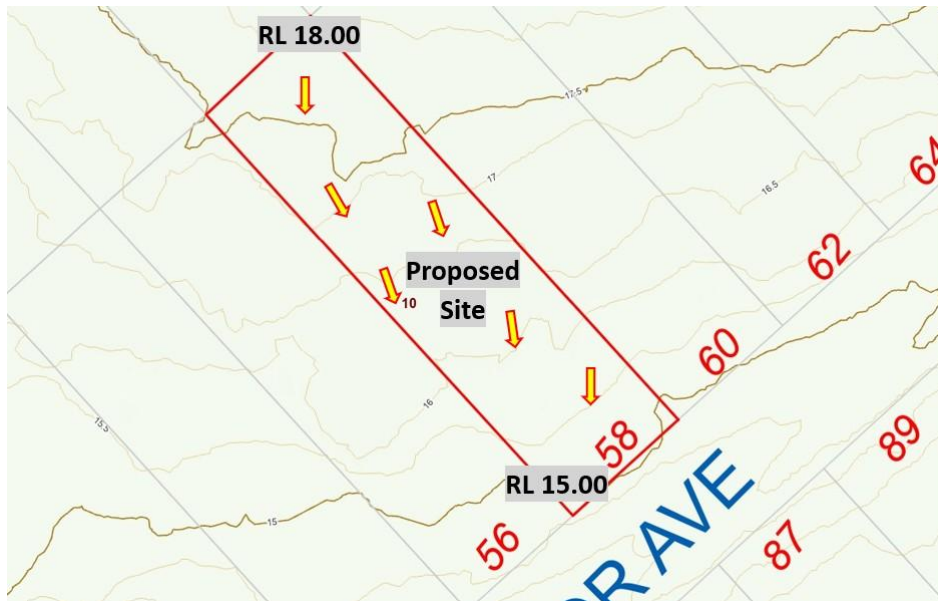
The proposed site currently does not contain any easements or covenants.

1.5 Topography

The site falls from approximately RL 18 m AHD in the north to approximately RL 15 m AHD in the south. Overland flow generally trends toward Timor Avenue, at the southern corner of the site.

The detail survey plan of the site prepared by Santoshi development Consultants, is attached to this report as Appendix B.

Figure 1.3 below indicates the topography of the existing site (source – Logan PD Hub Mapping).

Figure 1.3 – Site topography

1.6 Flood Search

The Property Flood Report obtained from the Logan Flood Portal confirms that the site is not affected by any flood overlay mapping. An overland flow path is anticipated to traverse the site along the south-eastern boundary, generally conveying runoff in a southerly direction along Timor Avenue.

Figure 1.4 – Overland flow path (Source: Logan Flood portal)

2.0 Stormwater Drainage

2.1 Existing Stormwater Drainage Conditions

The existing topography and overland flow paths are described in Clause 1.5 and 1.6 of this report.

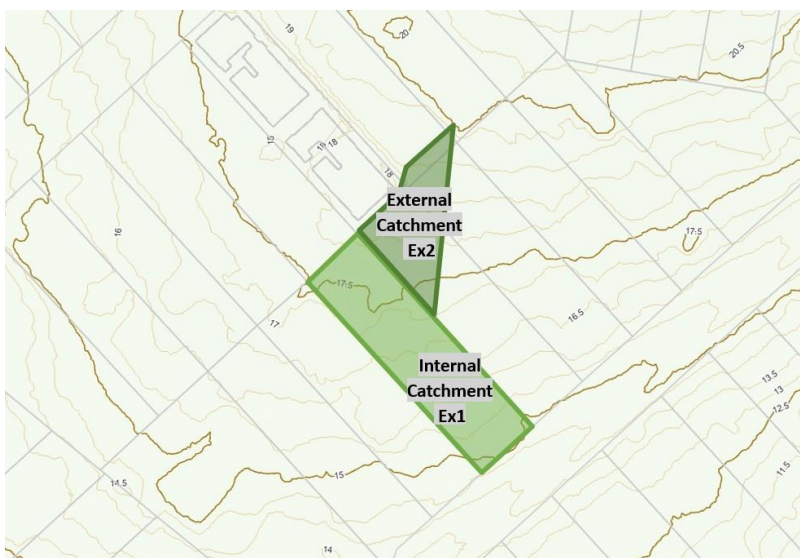
The site is occupied by a single dwelling with approximately 38% impervious area and is serviced by roof water drainage discharging to the kerb and channel. The nearest Council stormwater pits are located on Timor Avenue (In front of the proposed lot). See Figure 2.1 below.

Figure 2.1 – Existing Stormwater Pit Location.



The pre-development stormwater catchment distribution and extent is illustrated in Figure 2.2 below.

Figure 2.2 – Existing Stormwater Catchments.



Based on the above:

- The proposed development footprint is located within the catchment EX1.
- The existing site catchment does not receive any significant external runoff. Based on the existing contours, approximately 870 m² of external catchment (Ex2) is directed towards the north-eastern corner of the property boundary.
- Runoff from internal catchment Ex1 is conveyed towards Timor Avenue, where it combines with the existing overland flow path that traverses downstream along Timor Avenue.

2.2 Proposed Drainage Strategy

The proposed stormwater management strategy has been developed to minimize nuisance, hazard, and potential damage to people, property, and the environment arising from stormwater generated by the developed catchments.

This will be achieved by capturing roof and surface runoff from the development within an underground drainage system for minor storm events, while providing safe overland flow paths to the nominated point of discharge during major storm events where the underground system exceeds its design capacity.

The conceptual stormwater management plan is provided in Appendix C (Drawings DA3-1 and DA3-2). The stormwater management strategy is summarized as follows:

- Roof water downpipes and the surface water collection pits will be connected to an underground stormwater drainage system discharging to an on-site detention (OSD) tank. The OSD tank will be designed to attenuate peak post-development stormwater flows to pre-development discharge rates and to temporarily store excess runoff volumes during storm events.
- The controlled outflow from the OSD tank will discharge through a manhole into the existing (relocated) stormwater gully pit on Timor Avenue.
- The existing stormwater gully pit located in front of the property on Timor Avenue will be relocated along the existing pipe alignment towards the south-west to facilitate the construction of the new vehicular access crossover for the proposed development.
- Sufficient fall is available along the boundary of 60 Timor Avenue towards Timor Avenue, allowing runoff (if any) from external catchments to be conveyed without ponding. Accordingly, the proposed development is not expected to adversely impact the existing overland flow path. A spoon drain is proposed at the top of the retaining walls along this boundary to convey minor flows towards Timor Avenue. In addition, the proposed driveway within the development site is graded towards Timor Avenue, providing a defined overland flow path in the same direction.
- The proposed stormwater quality management system will include 5 x OceanGuard filter baskets within inlet pits and 4 x NPSORB StormFilter cartridge systems to be installed within the proposed detention tank. However, it is intended that a monetary contribution, in lieu of on-site stormwater quality treatment, will be requested for the development.

2.3 Lawful Point of discharge

The lawful point of discharge for the development is the existing (relocated) stormwater gully pit on Timor Avenue, located in front of the proposed development site.

2.4 Stormwater Quantity Management

A hydrological analysis was undertaken using DRAINS software to compare pre- and post-development runoff conditions, based on the existing and proposed catchment layouts shown in Figure 2.2 and Appendix C (Drawing DA-3-3), respectively.

Design rainfall intensities (IFD data) were sourced from the Bureau of Meteorology for the purposes of this assessment. External catchments were excluded from the analysis, as the design provides for their diversion around the on-site detention system.

2.4.1 Existing Conditions

Time of concentration has been calculated as per the QUDM guidelines. The existing catchment plan is shown in Figure 2.2 above in this report.

Table 2.1 – Existing Stormwater Catchments.

Catchment	Area (ha)	Imperviousness (%)	Length of flow (m)	Average slope (%)	Time of concentration (min)	Discharge point
EX1	0.1892	38	88.4	3.4	12	

An ILSAX-Horton model in the software DRAINS was set up to calculate existing stormwater flows from the site. The DRAINS results are summarized in Table 2.2 below.

Table 2.2 – Existing Scenario DRAINS Model Results.

Catchment	Stormwater flow (m3/s) for AEP					
	39%	18%	10%	5%	2%	1%
EX1	0.038	0.052	0.061	0.072	0.090	0.100

The Rational Method calculations, as per the QUDM requirements, were also undertaken to estimate and compare existing flows from the site as follows:

Table 2.3 – Rational Method Results.

Catchment	Stormwater flow (m3/s) for AEP					
	39%	18%	10%	5%	2%	1%
EX1	0.033	0.047	0.057	0.069	0.090	0.106

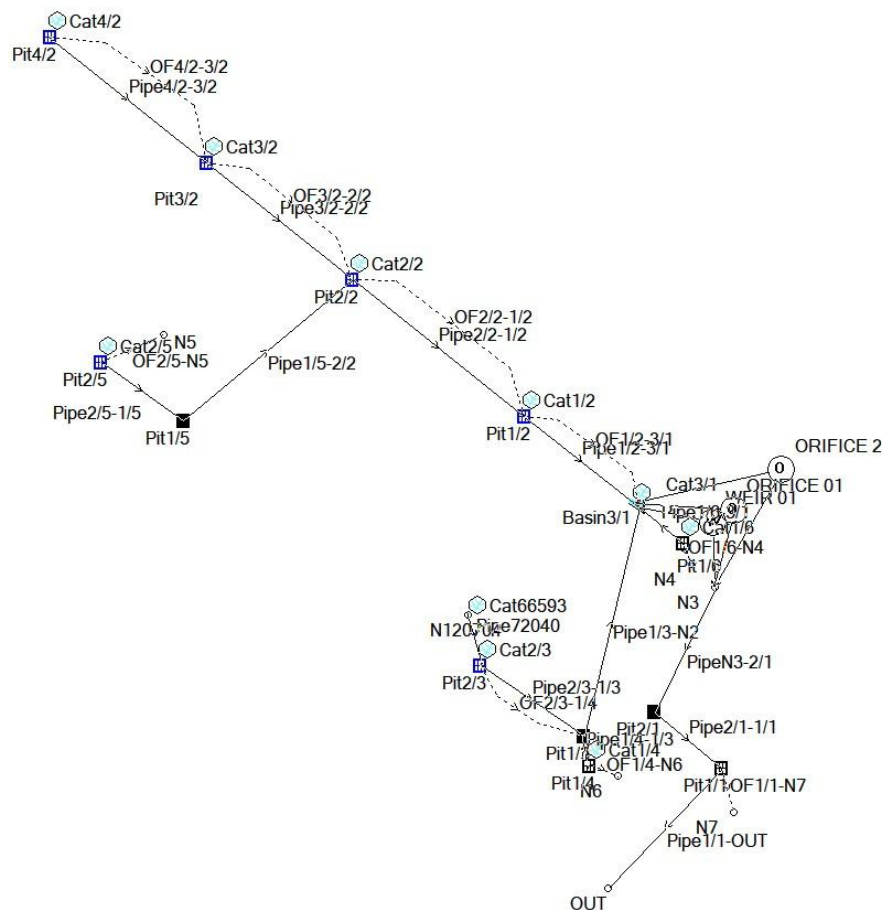
The results from the DRAINS model are comparable to the Rational Method calculations. This comparison confirms that the estimations fall within a reasonable range and are supported by multiple analytical approaches.

2.4.2 Proposed Conditions

The proposed development will result in an increase in impervious surfaces and will modify existing overland flow patterns through the introduction of roof and driveway areas. The conceptual Stormwater Management Plan is provided in Appendix C.

A detailed ILSAX–Horton DRAINS model has been developed to assess the change in discharge rates between the existing and proposed development scenarios. Impervious areas have been modelled using a 5-minute time of concentration, in accordance with the recommendations of the QUDM. The DRAINS model structure is shown in Figure 2.3 below.

Figure 2.3 – DRAINS model for the proposed development.



2.4.3 Proposed Detention Tank

An underground detention tank is proposed to ensure the development does not increase peak stormwater discharge. Roof and the majority of surface runoff will be collected via an underground drainage system and conveyed to the proposed detention system. Controlled discharge from the detention tank will be directed to the existing (relocated) stormwater gully pit located on Timor Avenue. A section through the detention tank, including adopted parameters, is presented in Table 2.4 and Appendix C (Drawing DA-3-2).

Table 2.4 – Underground tank Parameters

Parameters	Description
Internal height(m)	1.5 (2No.ATLAN VAULT 5030Lx 2360Wx1.464H precast concrete tanks)
Total Area(m ²)	20
Total available Volume (m ³)	29.78
Low flow Outlet	150mm dia. orifice at base of tank and 120mm dia. Orifice at a height of 0.6m from the base of tank.
High flow Outlet	2.6m crest length weir is proposed at a height of 1.35 m from the base of the tank.
Overflow	3.6m crest length weir is proposed at the top level of the tank (0.9m square grated pit at the finished surface level).

The analysis outlined in this report has been undertaken based on conceptual design. The basin and orifices parameters will be reviewed and confirmed at detailed design stage.

2.4.4 DRAINS model results

It has been determined that a storage volume of 27.60m³ is required to mitigate flows up to and including the 1% AEP event. A comparison of the pre-development and mitigated flow rates based on the above parameters are shown in Table 2.5 below:

Table 2.5 –Model Results Comparison.

Catchment	AEP					
	39%	18%	10%	5%	2%	1%
Existing Conditions, (m ³ /s)	0.038	0.052	0.061	0.072	0.090	0.100
Post-development un-mitigated, (m ³ /s)	0.058	0.076	0.090	0.106	0.127	0.144
Post-development mitigated. (m ³ /s)	0.036	0.051	0.058	0.065	0.073	0.096
Difference (m ³ /s)	-0.002	-0.001	-0.003	-0.007	-0.017	-0.004

Following graphs show the volume of detention and the maximum water level in the tank during 1% AEP event. Data input and results from DRAINS are attached in Appendix D.

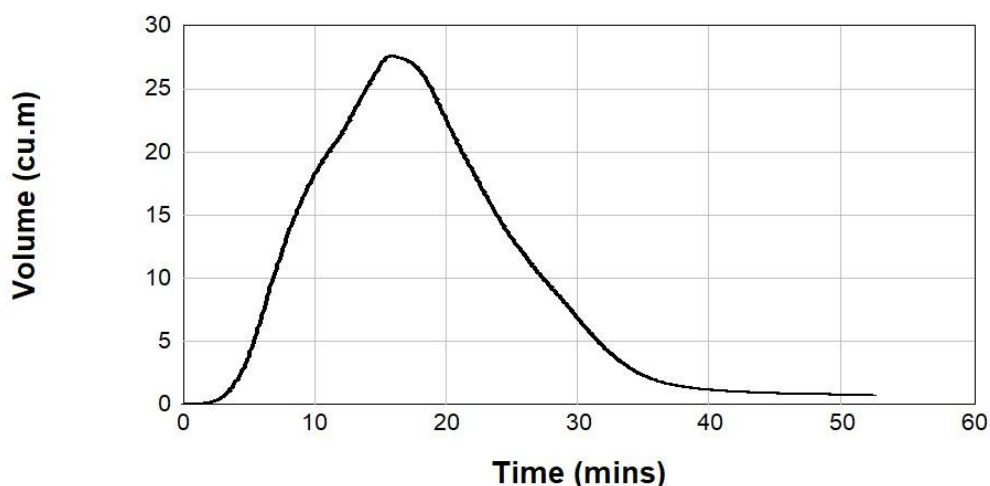
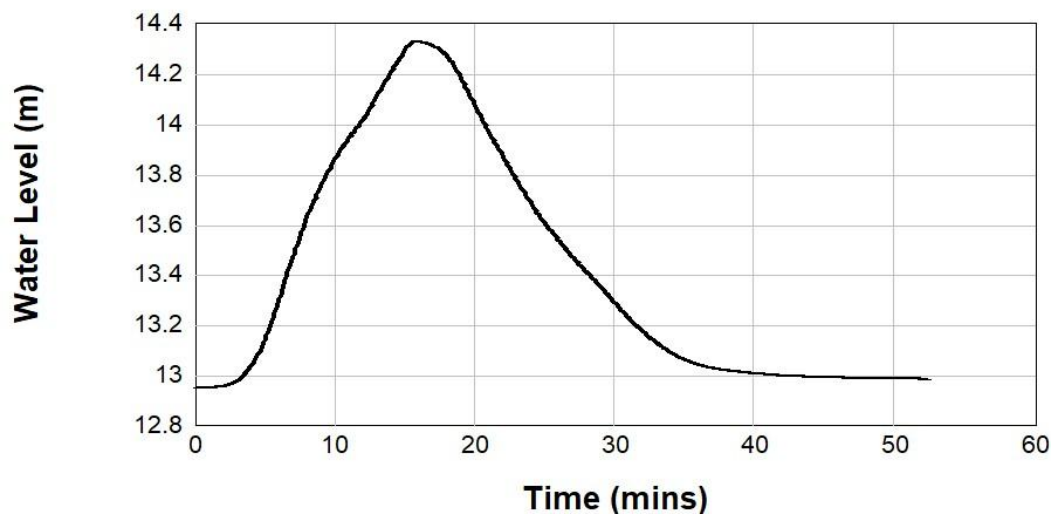
Figure 2.4 – Underground detention tank volume during the 1% AEP event.

Figure 2.5 – Underground detention tank water levels during the 1% AEP event.



2.5 Stormwater Quality Management

In accordance with the State Planning Policy for Healthy Waters and the Logan City Council's planning policies, stormwater treatment measures will need to be included to achieve the mean annual load-based reductions of Total Suspended Solids (TSS); Total Phosphorus (TP), Total Nitrogen (TN), and Gross Pollutants (GP). Following reductions in mean annual load from unmitigated development is identified for the Southeast Queensland (SEQ) under the State Planning Policy:

Total Suspended Solids (TSS)	-	80%
Total Phosphorous (TP)	-	60%
Total Nitrogen (TN)	-	45%
Goss Pollutants >5mm	-	90%

The proposed stormwater quality treatment system has been designed to achieve the required stormwater quality objectives and will comprise five (5) OceanGuard filter baskets installed within inlet pits and four (4) NPSORB StormFilter cartridge systems located within the proposed detention tank. Typical arrangements of these proprietary treatment devices are provided in Appendix E.

2.5.1 Reference Material

The treatment strategy proposed in this document has been designed in accordance with the following documentation:

- Logan City Council Standards and Planning Policies.
- State Planning Policies; and
- Water by Designs MUSIC Modelling Guidelines.

2.5.2 Software

MUSIC Version 6.3 was used to assess pollutant generation and the performance of stormwater treatment measures for the proposed development. Selection and testing of stormwater

management options were undertaken in accordance with Water by Designs “MUSIC Modeling Guidelines - 2018”.

2.5.3 Meteorology Data

The Water by Design MUSIC Modelling Guidelines were adopted to define the rainfall–runoff and pollutant export parameters. The model utilized six-minute rainfall and evaporation data for Shailer Park (Logan City Council east), covering the period from 1 January 1990 to 31 December 1999. This data was supplied with MUSIC software.

2.5.4 Catchment Data

The MUSIC rainfall runoff parameters have been adopted from Table A1.2 of the Water by Design MUSIC Modelling Guidelines for urban residential areas, as presented in Table 2.6 below.

Table 2.6- Recommended MUSIC rainfall runoff parameters (MUSIC Modelling Guidelines)

Parameter	Urban Residential
Rainfall Threshold (mm)	1
Soil Storage Capacity (mm)	500
Initial Storage (% Capacity)	10
Field Capacity (mm)	200
Infiltration Capacity Coefficient A	211
Infiltration Capacity Coefficient B	5
Initial Depth (mm)	50
Daily Recharge rate (%)	28
Daily Baseflow Rate	27
Daily Deep Seepage rate (%)	0

2.5.5 Surface Splits and Fraction impervious

Surface area divided into the followings:

- Roof area = 0.0.67 ha (fraction of impervious = 100%)
- Driveway Area = 0.089 (fraction of impervious = 100%)
- Ground Area = 0.0.033 ha (fraction of impervious = 0%)

2.5.6 Pollutant loading

Pollutant loading for each surface type has been completed in accordance with Table 3.9 of the Water by Design MUSIC Modelling guidelines. The parameter for Urban Residential use is presented in Table 2.7 below.

Table 2.7: Pollutant export parameters for split catchment land use

Flow Type	Surface Type	TSS log ¹⁰ values		TP log ¹⁰ values		TN log ¹⁰ values	
		Mean	St. dev.	Mean	St. dev.	Mean	St. dev.
Baseflow parameters	Roof	N/A	N/A	N/A	N/A	N/A	N/A
	Roads	1.00	0.34	-0.97	0.31	0.20	0.20
	Ground Level	1.00	0.34	-0.97	0.31	0.20	0.20
Stormflow parameters	Roof	1.30	0.39	-0.89	0.31	0.26	0.23
	Roads	2.43	0.39	-0.30	0.31	0.26	0.23
	Ground Level	2.18	0.39	-0.47	0.31	0.26	0.23

2.5.7 Proposed Treatment Train

- Stormwater captured from roof and most of the landscaped areas will be conveyed via the piped drainage system to the proposed detention tank, where it will be treated using a NPSORB StormFilter cartridge system.
- Stormwater runoff from the driveway area will be collected and treated via filter baskets installed within inlet pits before being directed to the detention tank, where it will undergo further treatment using the NPSORB StormFilter cartridge system.

The treatment parameters of the ‘StormFilter’ and ‘OceanGuard’ filter baskets were provided by Ocean Protect and the MUSIC nodes will be provided with the submission.

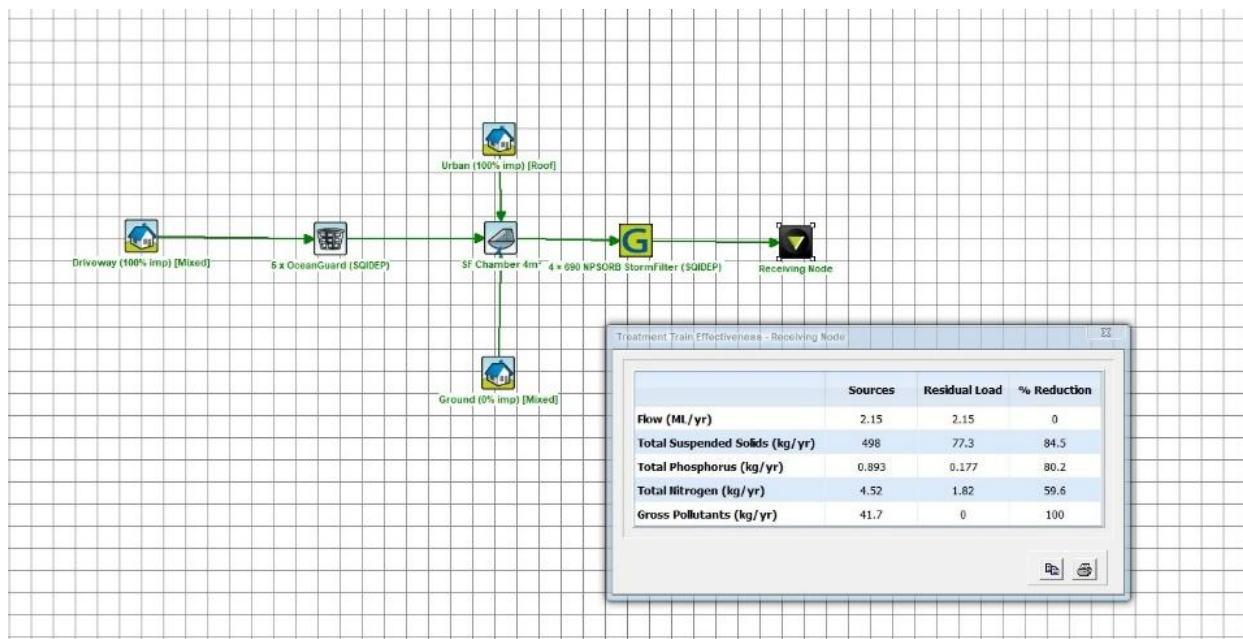
2.5.8 Modelling Results and Compliance

Refer Table 2.8 for the compliance and Figure 2.8 for the MUSIC layout and treatment efficiencies output.

Table 2.8 – MUSIC compliance

Pollutant	Reduction % requirements	Proposed treatment train reduction (combined) %	Compliance
Total Suspended Solids (TSS)	80	84.5	Yes
Total Phosphorus (TP)	60	80.2	Yes
Total Nitrogen (TN)	45	59.6	Yes
Gross Pollutants >5mm	90	100	Yes

Figure 2.6- MUSIC layout and treatment efficiencies



Considering the site constraints, it is concluded that the proposed design represents the best practicable outcome for stormwater quality management and achieves the highest feasible level of compliance under the existing site conditions.

Notwithstanding the above, this application seeks Council approval for a stormwater quality offset payment in lieu of implementing on-site stormwater quality management measures and associated stormwater quality improvement devices.

3.0 Erosion and sediment control

Erosion and settlement control will comply with the best practice including the use of buffer strips, sediment fencing and silt control. These will be maintained until post construction stabilization has been completed. Detail erosion and sediment control plans to be prepared during the detail design stage.

4.0 Existing and Proposed Services

The Services connection strategy included in the civil drawings package (Appendix C – Drawing DA-3-1 and DA-3-2) outlines the existing and proposed infrastructure services for the development. Further details are provided in the relevant services sections below in this report.

4.1 Stormwater

Refer to the Section 2.0 of the report and the conceptual civil drawings (Appendix C, Plan DA-3) for the proposed stormwater management strategy.

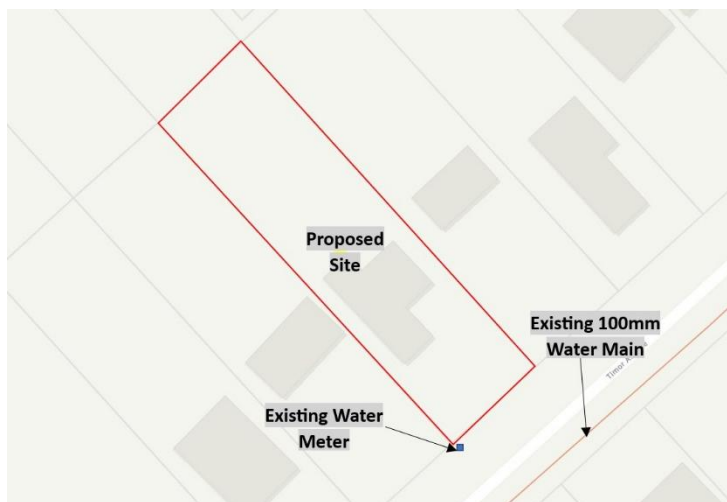
The lawful point of discharge for the development is the existing (relocated) stormwater gully pit on Timor Avenue, located in front of the proposed lot.

4.2 Water

4.2.1 Existing Water

A 100 mm AC water reticulation main is located in Timor Avenue on the opposite side of the proposed development site, based on City of Logan records, as illustrated in Figure 4.1 below. The existing water meter location has been identified on the detailed survey, and a DN20 water service connection has been assumed from the water meter into the property.

Figure 4.1: Existing water reticulation main as per Logan Water Asset Data map



4.2.2 Proposed Water

It is assumed that an internal firefighting system will be provided for the proposed development. Accordingly, the existing property connection is proposed to be upgraded to a 100 mm connection with a larger water meter to service both potable and fire water requirements. This proposal is subject to internal Hydraulic Design, Council's water modelling, approval, and the preferred metering configuration. Local flow and pressure testing will be arranged by the hydraulic consultant to inform further recommendations regarding firefighting and metering arrangements. The approximate proposed location for new water property connection is shown in Appendix C (Drawing DA 3-2).

4.3 Sewer

4.3.1 Existing Sewer

The nearest 150 mm sewer main is located within the Timor Avenue verge, as illustrated in Figure 4.2 below. A property connection (assumed DN100) is currently provided to service the existing dwelling.

Figure 4.2: Existing sewerage infrastructure as per Logan PD hub Mapping.



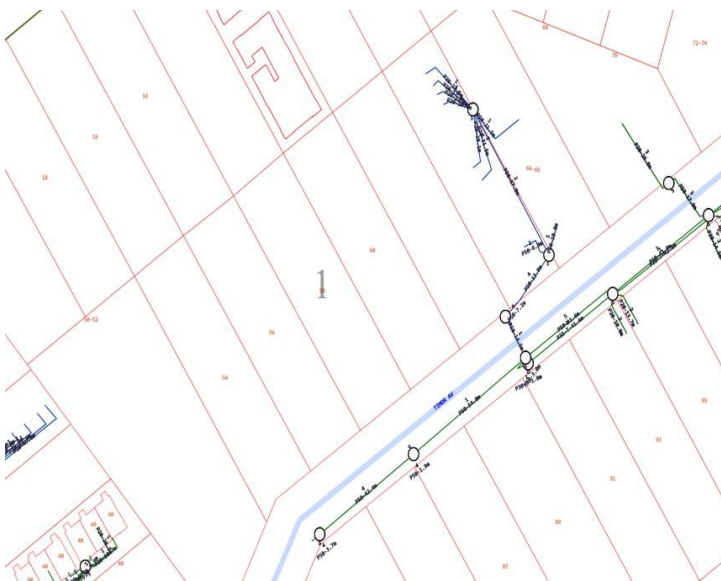
4.3.2 Proposed Sewer

It is recommended that the existing property sewer connection be decommissioned and replaced with a new 150 mm diameter property connection. A new manhole may also be required to be constructed over the existing sewer main, subject to detailed design and authority requirements.

4.4 Electrical & Telecommunications

Overhead and underground electricity, as well as underground telecommunications, are available for connection to the site via Timor Avenue. Dial Before You Dig (DBYD) information for existing underground NBN assets is provided below in Figures 4.3. The electrical consultant will develop a connection strategy for these services, including any requirements for a pad-mounted transformer to service the development.

Figure 4.3: Existing NBN asset in Timor Avenue.



5.0 Driveway Crossover

The existing driveway crossovers will be removed and a new crossover constructed in accordance with the traffic engineer's recommendations, as detailed in the traffic engineering report submitted with this application. A modified (angled) crossover will be provided generally in accordance with IPWEA Standard Drawings RS-049 and RS-050.

6.0 Earthworks

Earthworks involve reshaping the land to achieve suitable levels and gradients for the proposed building pad, overland flow path management and other civil works. These works help manage surface water runoff, create stable foundations, manage flood storage, and optimise overall site functionality.

Refer to the conceptual civil drawings (DA2-1 and DA2-2) attached as Appendix C for the proposed earthworks layout.

The following earthworks are proposed as part of the development:

7.1 Retaining Walls

Retaining walls are proposed along the rear and side boundaries, excluding the frontage, to accommodate the level differences between existing ground levels and proposed finished surface levels. Retaining walls of up to 2.0 m in height are anticipated, with the maximum height occurring at the northern corner of the property boundary.

All retaining walls exceeding 900 mm in height are to be designed and certified by an RPEQ-registered structural engineer.

7.2 Cut Fill Operation

Given the access gradient requirements and to accommodate the proposed site layout, the majority of the site will be cut below existing natural surface levels, with retaining walls provided as described above. As a result, excavation and off-site disposal of spoil will be required to achieve the proposed finished floor and ground levels.

All relevant approvals, including compliance with fire ant management requirements, shall be obtained and adhered to prior to commencement of any earthworks or soil removal.

7.0 Conclusion

This Engineering Report has assessed the stormwater management, stormwater, water and sewer services connections and earthworks requirements for the proposed development at 58 Timor Avenue, Loganholme.

It has been determined that the site can be serviced/ discharged with stormwater, water and sewer connections.

Earthworks, erosion and sediment control solutions required on site can be performed using common and accepted methods.

Service connection points for water and sewer reticulation, stormwater, electricity and telecommunications are located within proximity to the proposed development, and some existing services may need upgrading/ relocating.

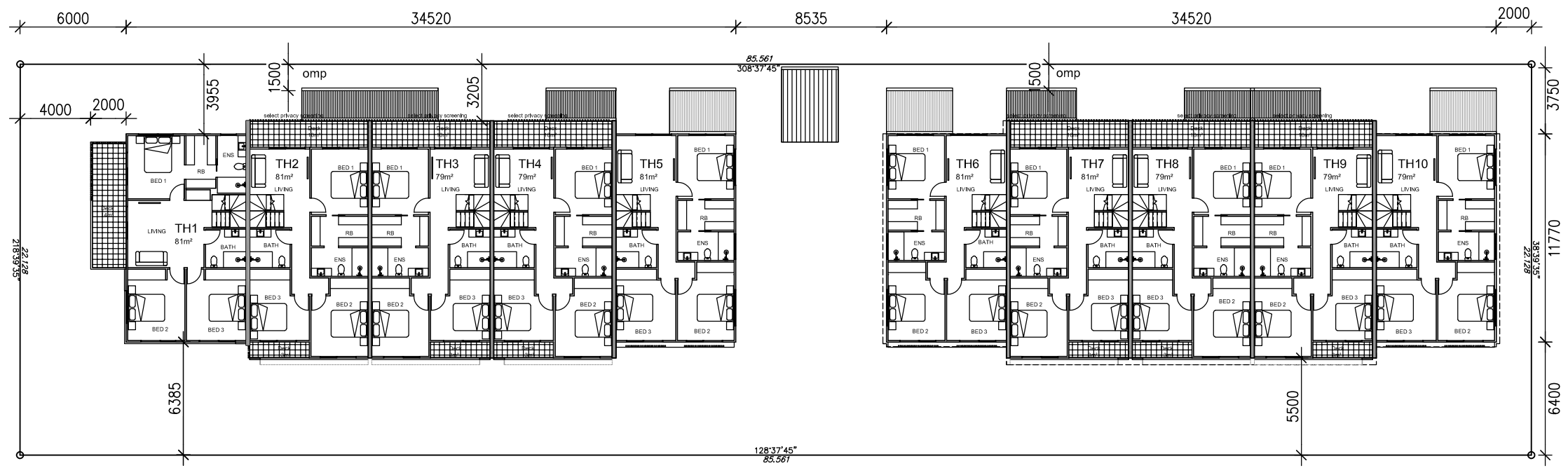
The stormwater quantity management strategy includes an Underground detention tank with 29.78m³ storage volume.

The stormwater quality management strategy includes 5 x OceanGuard filter baskets within inlet pits and 4 x NPSORB StormFilter cartridge systems to be installed within the proposed detention tank. This application seeks Council approval for a stormwater quality offset payment in lieu of implementing on-site stormwater quality management measures and associated stormwater quality improvement devices identified in this report.

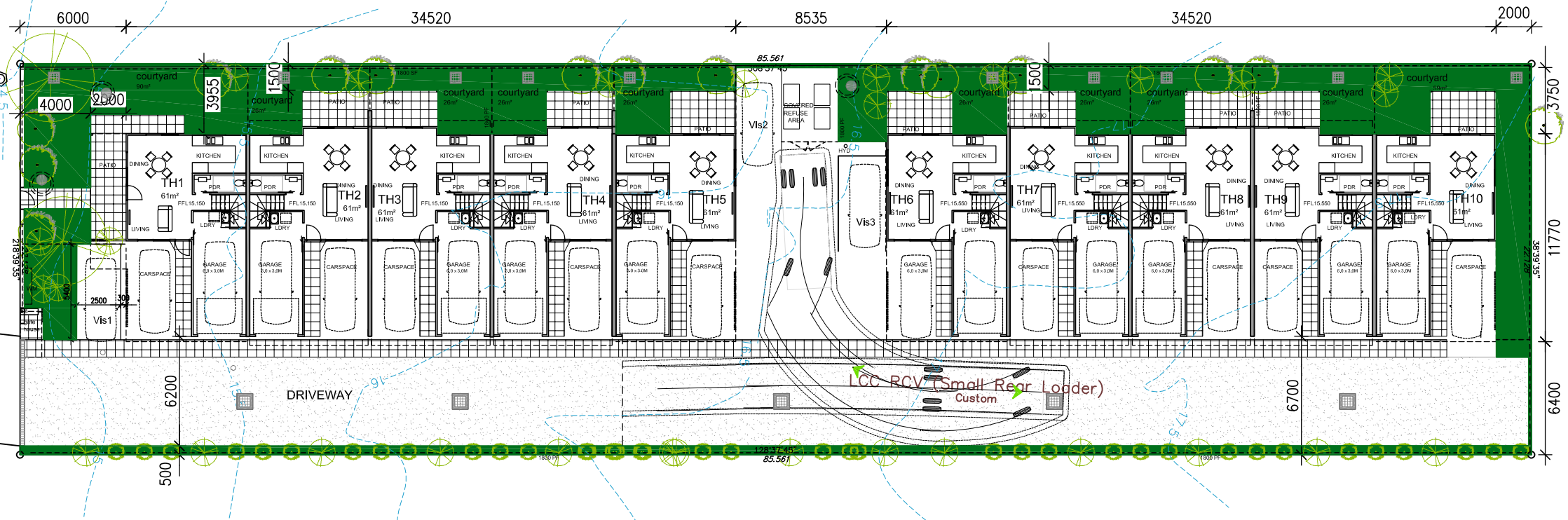
The relevant Logan City Council Code Performance outcomes and acceptable outcomes tables are attached to this report as Appendix F.

-- End report --

Appendix A: Architectural Drawings



UPPER FLOOR PLAN
1:300



GROUND FLOOR
1:300

ROGUE.
ARCHITECTS

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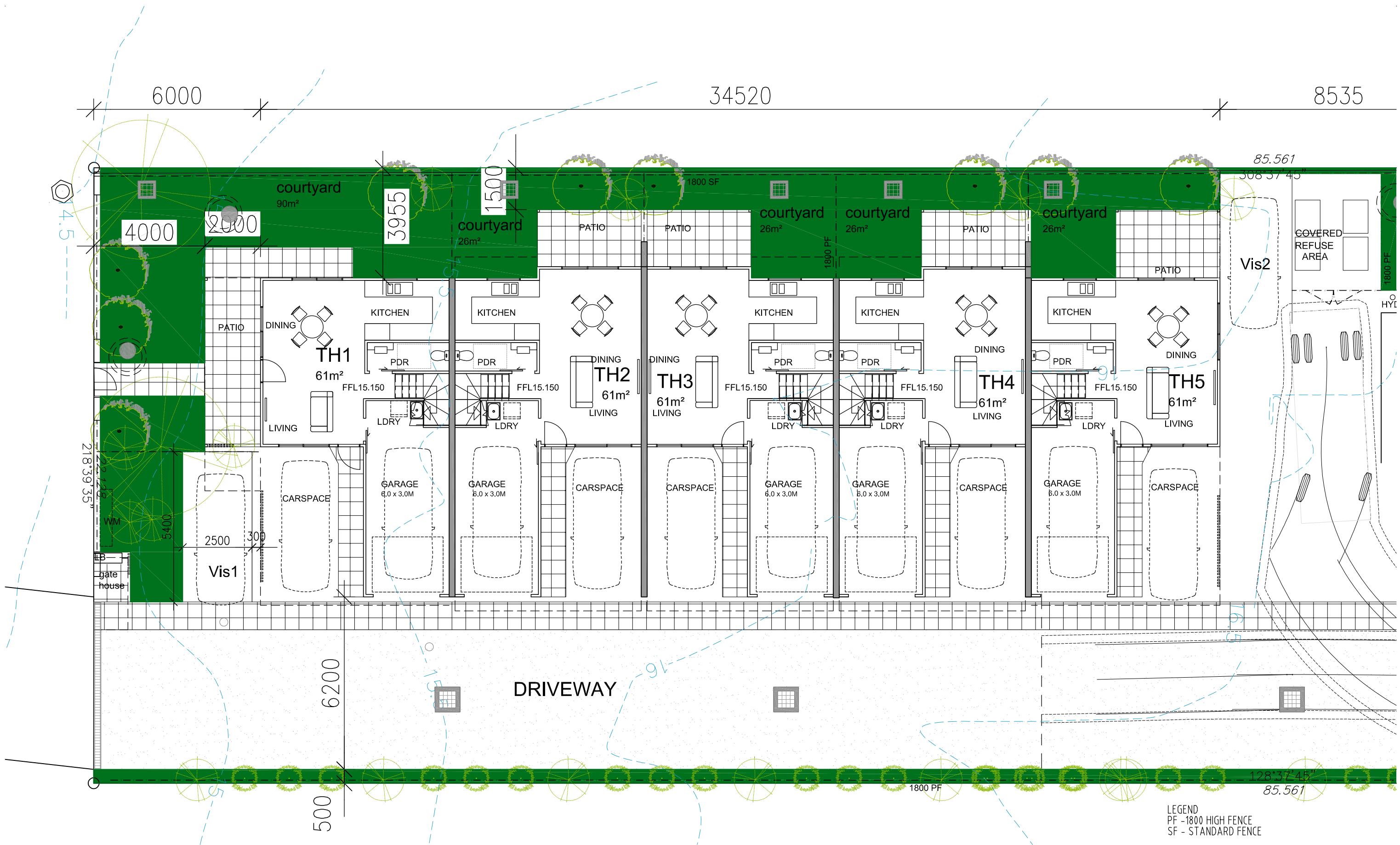
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COMPLY WITH RELEVANT COUNCIL REQUIREMENTS, LOCAL
BUILDING REGULATIONS AND STANDARDS.

CLIENT'S APPROVAL
CLIENT
SIGNATURE DATE

DRAWING TITLE
PLANS
CLIENT

PROJECT TITLE
TOWNHOUSE DEVELOPMENT
PROJECT LOCATION
58 TIMOR Ave, LOGANHOLME
Q4129

SCALE 1:300
DATE 26.6.2026
DRAWN LB
JOB NO. C--
DWG NO. A200
NORTH
REV



REVISION	BY	DATE	DESCRIPTION

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NOTES:
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED.
CHECK ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF
OR FOR MANUFACTURING OR SETOUT. ALL WORKS SHALL
COMPLY WITH RELEVANT COUNCIL REQUIREMENTS, LOCAL
BUILDING REGULATIONS AND STANDARDS.

CLIENT'S APPROVAL

SIGNATURE DATE

DRAWING TITLE

GROUND FLOOR PLAN
FRONT

CLIENT

-

PROJECT TITLE

TOWNHOUSE DEVELOPMENT

PROJECT LOCATION

58 TIMOR Ave, LOGANHOLME
Q4129

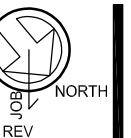
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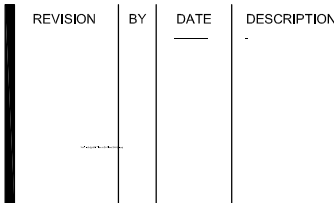
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DRAWN LB

JOB NO. C--

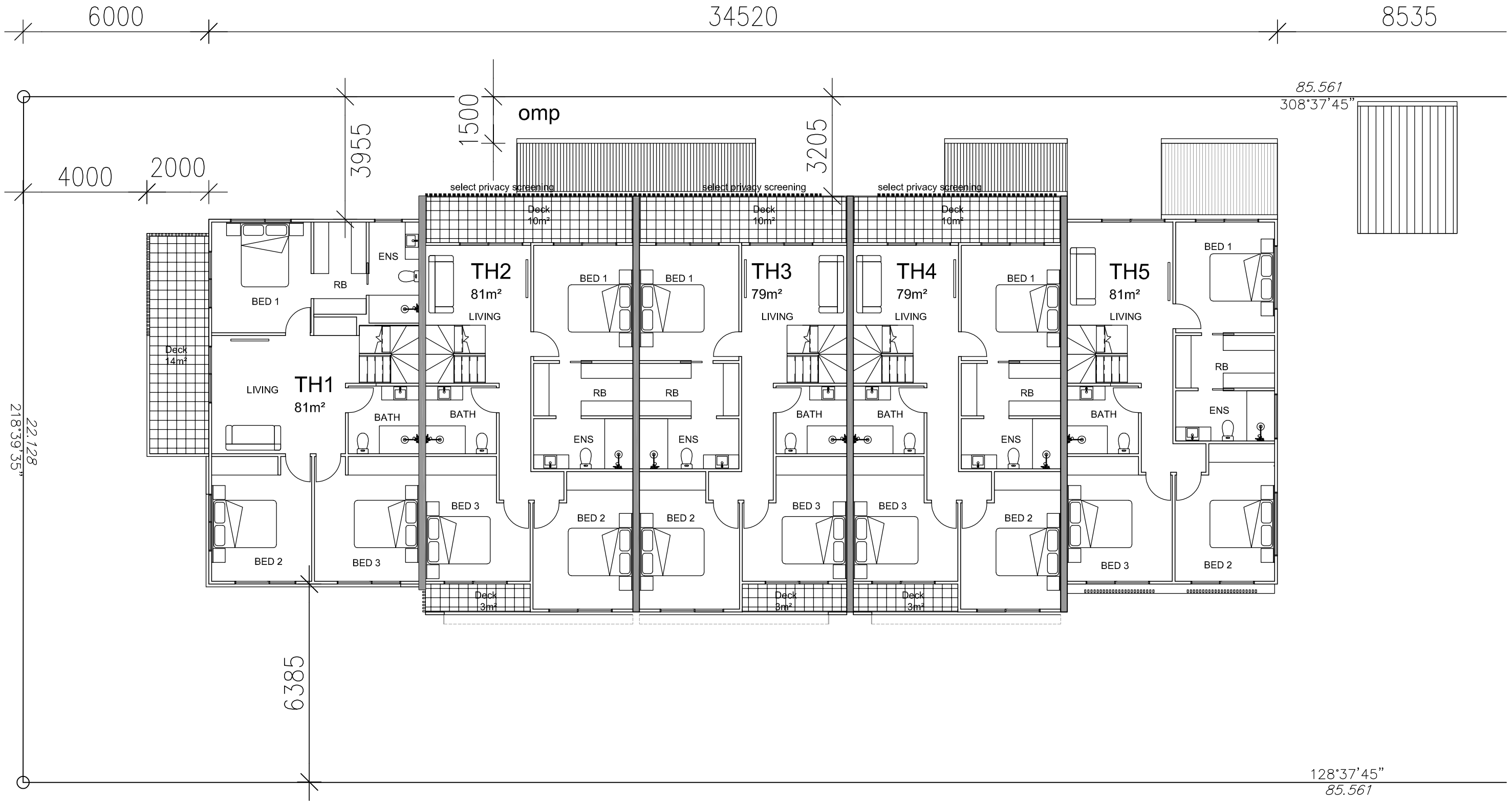
DWG NO. A201





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CLIENT'S APPROVAL

SIGNATURE DATE

DRAWING TITLE

UPPER FLOOR PLAN
FRONT

CLIENT

-

PROJECT TITLE

TOWNHOUSE DEVELOPMENT

PROJECT LOCATION

58 TIMOR Ave, LOGANHOLME
Q4129

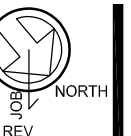
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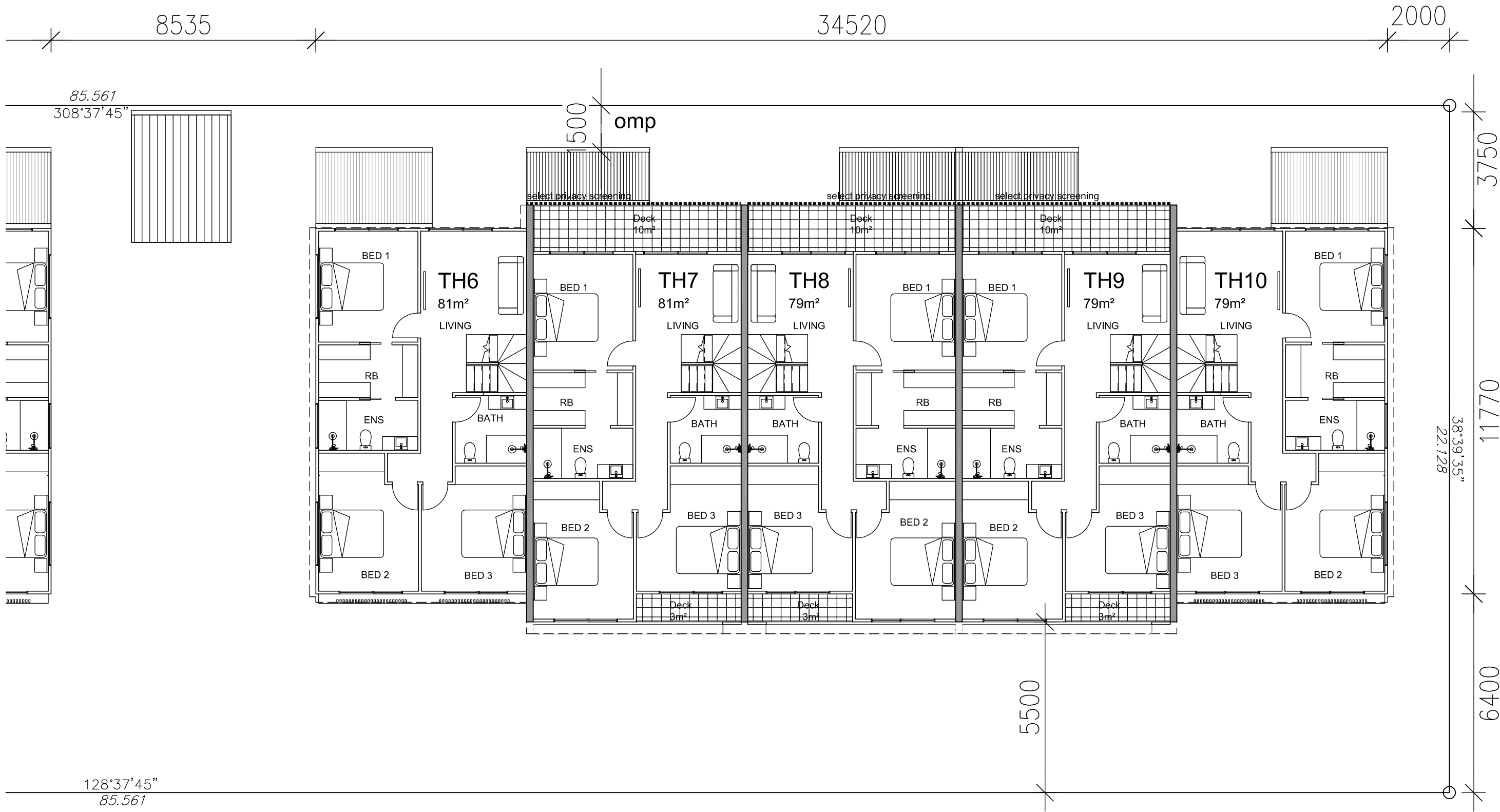
DATE 26.6.2026

DRAWN LB

JOB NO. C--

DWG NO. **A203**





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SIGNATURE _____ DATE _____

DRAWING TITLE

UPPER FLOOR PLAN
REAR

CLIENT

-

PROJECT TITLE

TOWNHOUSE DEVELOPMENT

PROJECT LOCATION

58 TIMOR Ave, LOGANHOLME
Q4129

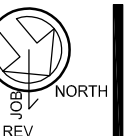
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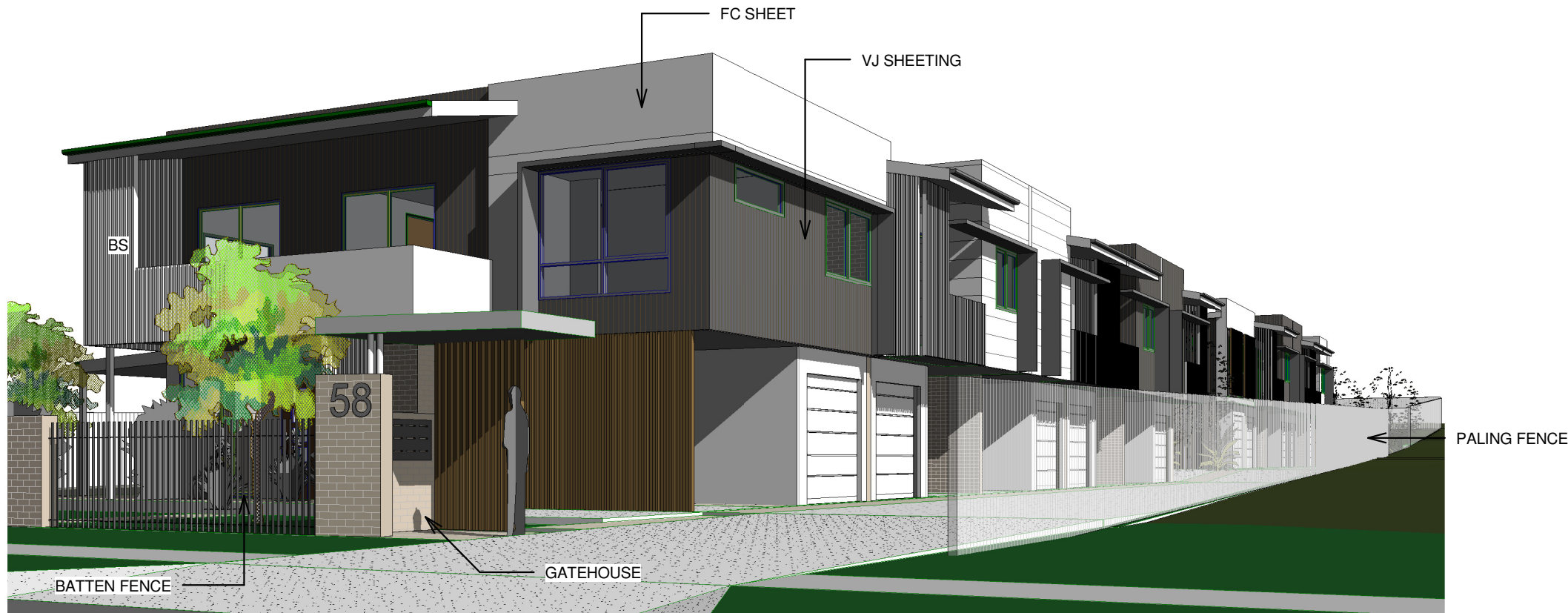
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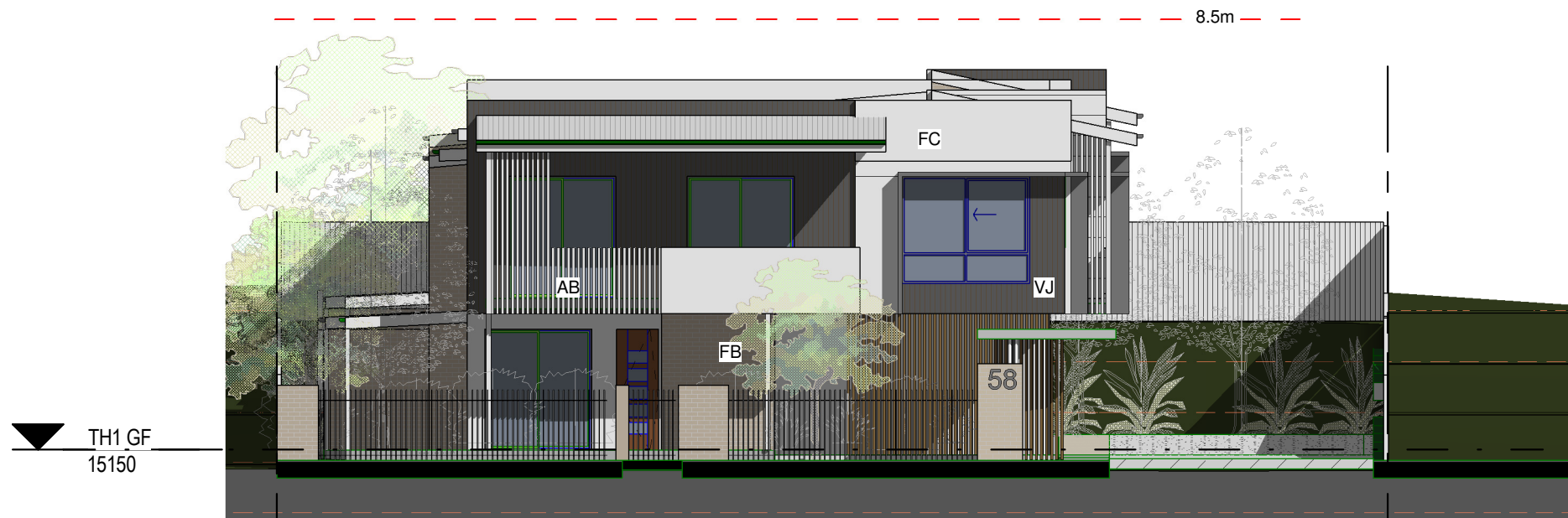
JOB NO. C--

DWG NO. **A204**





1 3D View 1



3 East Elevation (Timor Ave)
1 : 125

LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

SCALE 1 : 125
DATE 26.6.2026
DRAWN LB
JOB NO. REV
DWG NO. A400

Original Sheet Size A3 - 297 x 420mm

REVISION	BY	DATE	DESCRIPTION
	LB		
	LB		

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SIGNATURE DATE

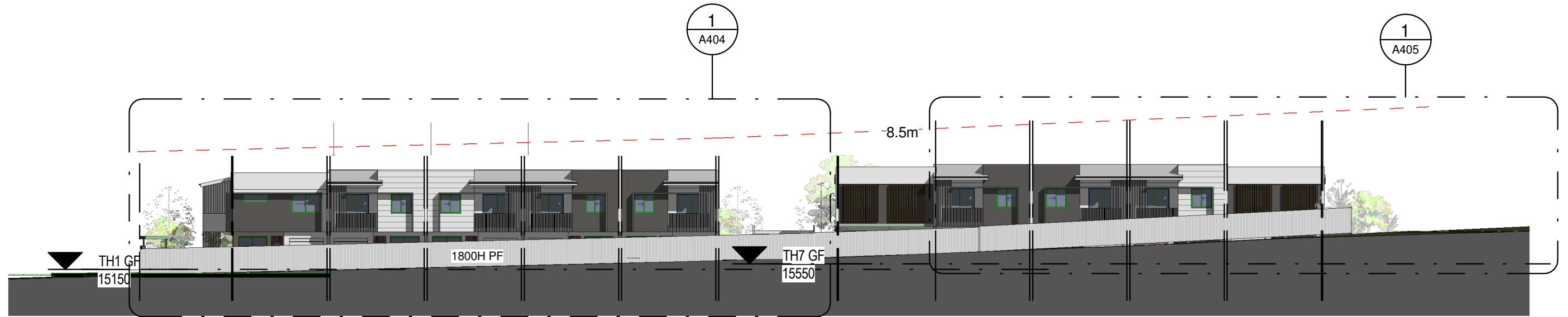
DRAWING TITLE
ELEVATIONS

CLIENT

PROJECT TITLE
TOWNHOUSE DEVELOPMENT

PROJECT LOCATION
58 TIMOR Ave, LOGANHOLME Q4129

6/27/2026 12:36:08 AM



1 North Elevation.
1 : 300

- LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

REVISION	BY	DATE	DESCRIPTION
	LB	LB	

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SIGNATURE DATE

DRAWING TITLE
ELEVATIONS

CLIENT

PROJECT TITLE
TOWNHOUSE DEVELOPMENT

PROJECT LOCATION
58 TIMOR Ave, LOGANHOLME Q4129

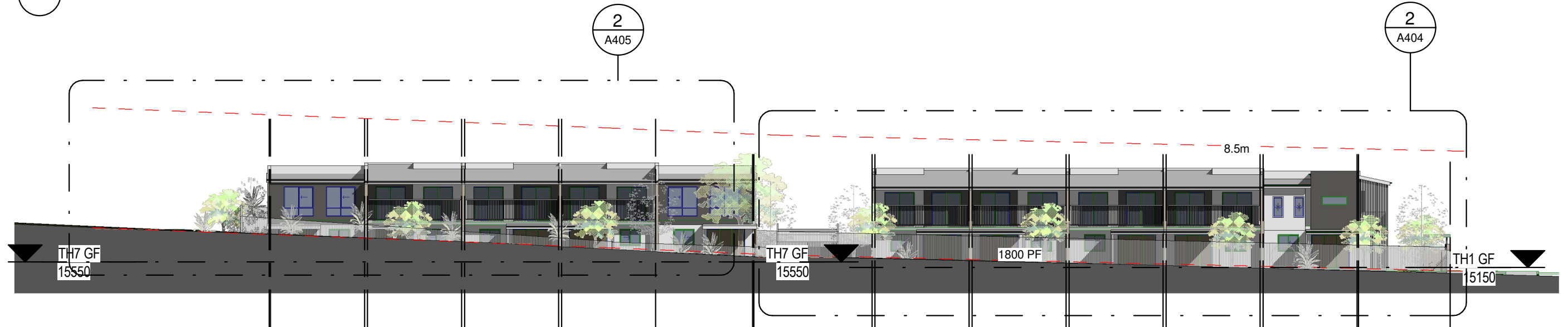
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DATE 26.6.2026
DRAWN LB
JOB NO. REV
DWG NO. A401

Original Sheet Size A3 - 297 x 420mm

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2 3D View 2



1 North Elevation
1 : 300

LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

REVISION	BY	DATE	DESCRIPTION
	LB		
	LB		

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DRAWING TITLE
ELEVATIONS

CLIENT

PROJECT TITLE
TOWNHOUSE DEVELOPMENT

PROJECT LOCATION
58 TIMOR Ave, LOGANHOLME Q4129

SCALE 1 : 300
DATE 26.6.2026
DRAWN LB
JOB NO. REV
DWG NO. A402

Original Sheet Size A3 - 297 x 420mm

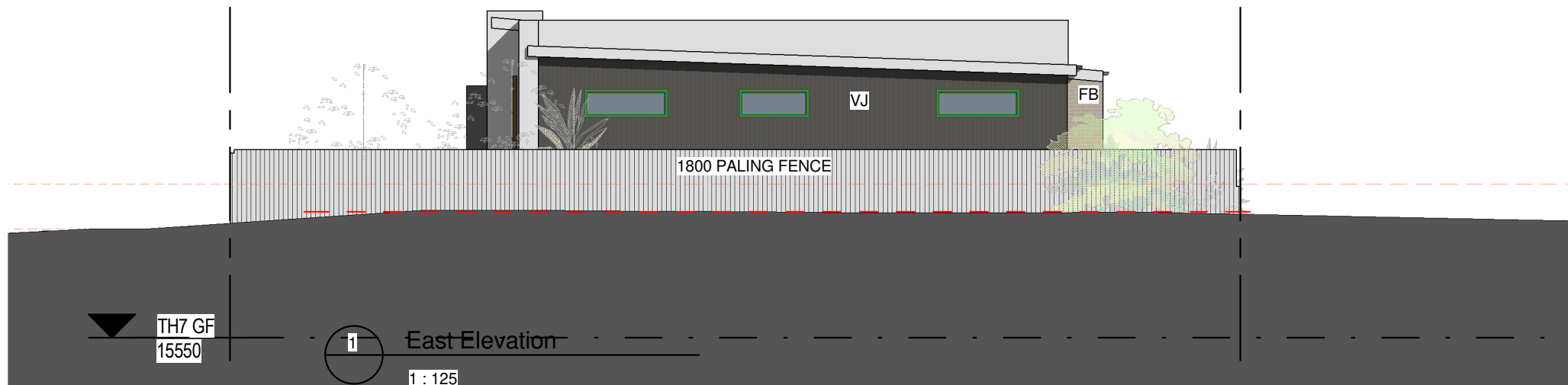
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2

3D View 4

-8.5m-



East Elevation

1 : 125

LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

REVISION	BY	DATE	DESCRIPTION
	LB	LB	

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ELEVATIONS

CLIENT

PROJECT TITLE

TOWNHOUSE DEVELOPMENT

PROJECT LOCATION

58 TIMOR Ave, LOGANHOLME Q4129

SCALE 1 : 125

DATE 26.6.2026

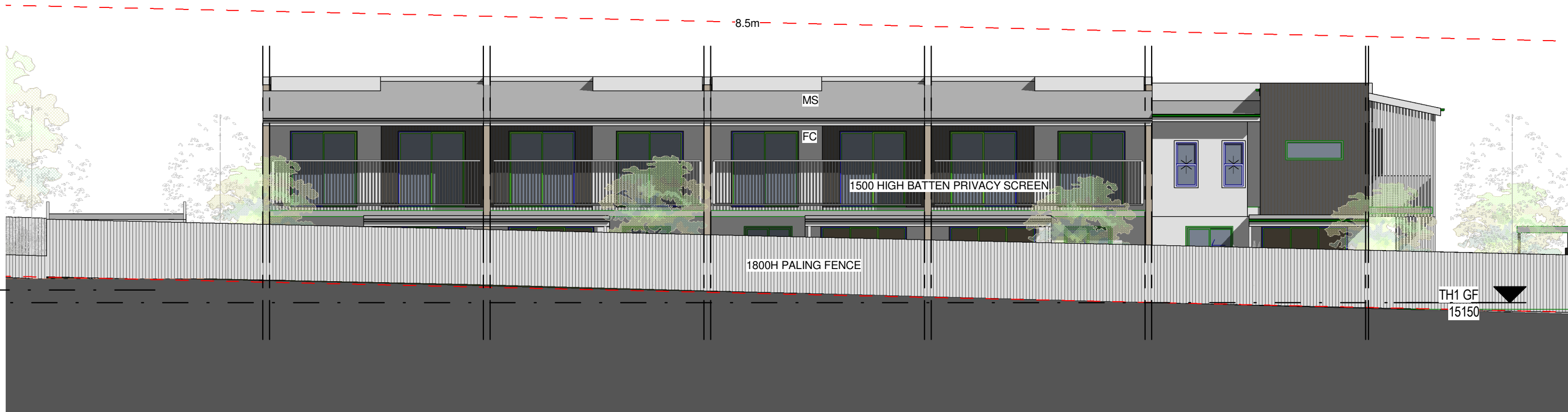
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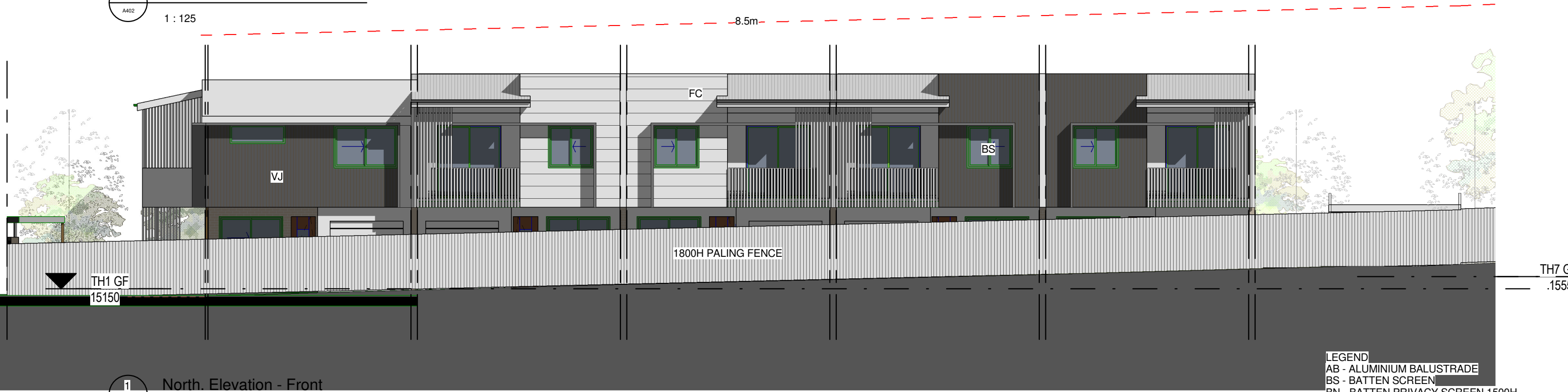
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Original Sheet Size A3 - 297 x 420mm

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2 South. Elevation - Front
A402
1 : 125



1 North. Elevation - Front
A401
1 : 125

LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
BN - BATTEN PRIVACY SCREEN 1500H
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

REVISION	BY	DATE	DESCRIPTION
	LB		
	LB		

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SIGNATURE DATE

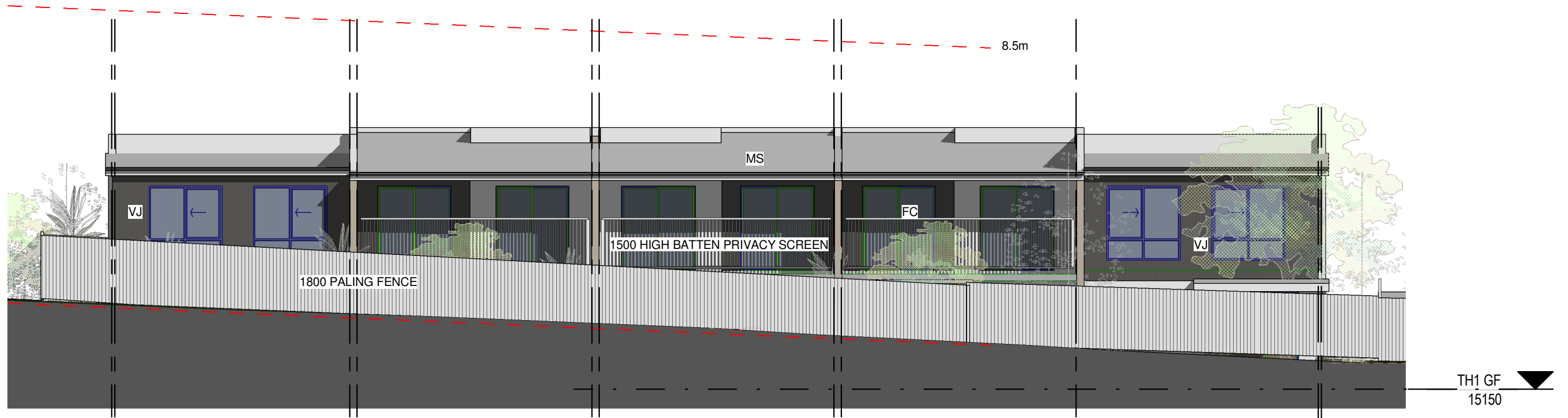
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ELEVATIONS
CLIENT

PROJECT TITLE
TOWNHOUSE DEVELOPMENT
PROJECT LOCATION
58 TIMOR Ave, LOGANHOLME Q4129

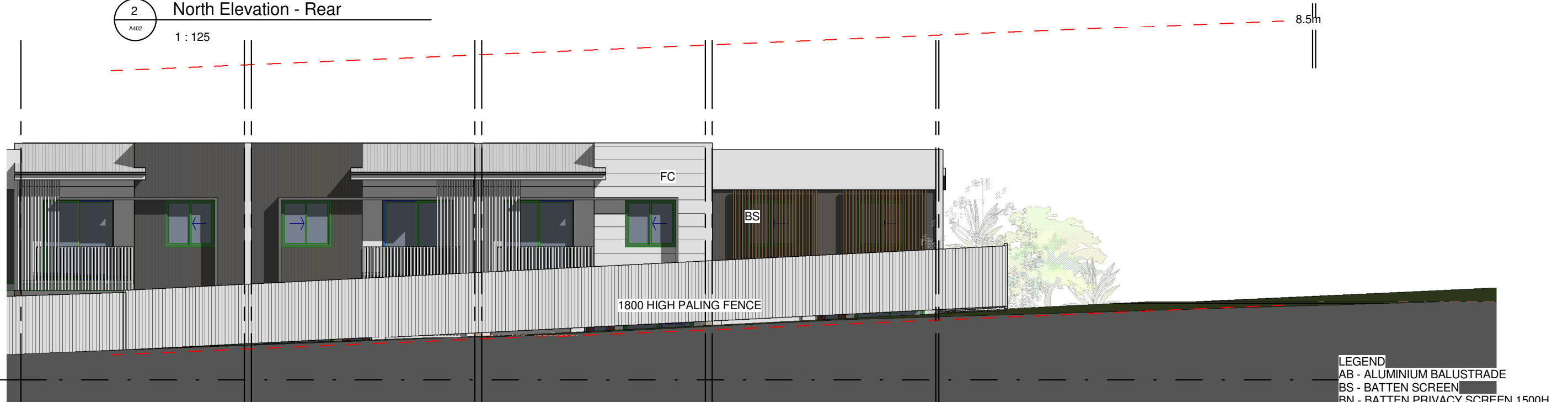
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DATE 26.6.2026
DRAWN LB
JOB NO. REV
DWG NO. A404

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2 North Elevation - Rear
A402
1 : 125



1 South Elevation - Rear
A401
1 : 125

LEGEND
AB - ALUMINIUM BALUSTRADE
BS - BATTEN SCREEN
BN - BATTEN PRIVACY SCREEN 1500H
FB - FACE BRICK TILES
MS - METAL ROOF SHEETING
FC - FC FINE RENDER FINISH
VJ - VJ ACCENT FC

REVISION	BY	DATE	DESCRIPTION
	LB		
	LB		

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ELEVATIONS

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PROJECT TITLE
TOWNHOUSE DEVELOPMENT

PROJECT LOCATION
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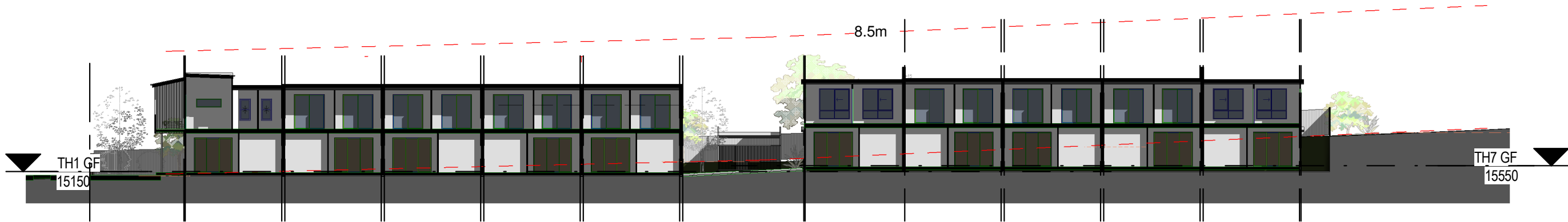
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DRAWN LB
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DWG NO. A405

Original Sheet Size A3 - 297 x 420mm

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2 Section B-B
1 : 125



1 Section A-A
1 : 300

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	LB		

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DRAWING TITLE
SECTIONS

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PROJECT TITLE
TOWNHOUSE DEVELOPMENT

PROJECT LOCATION
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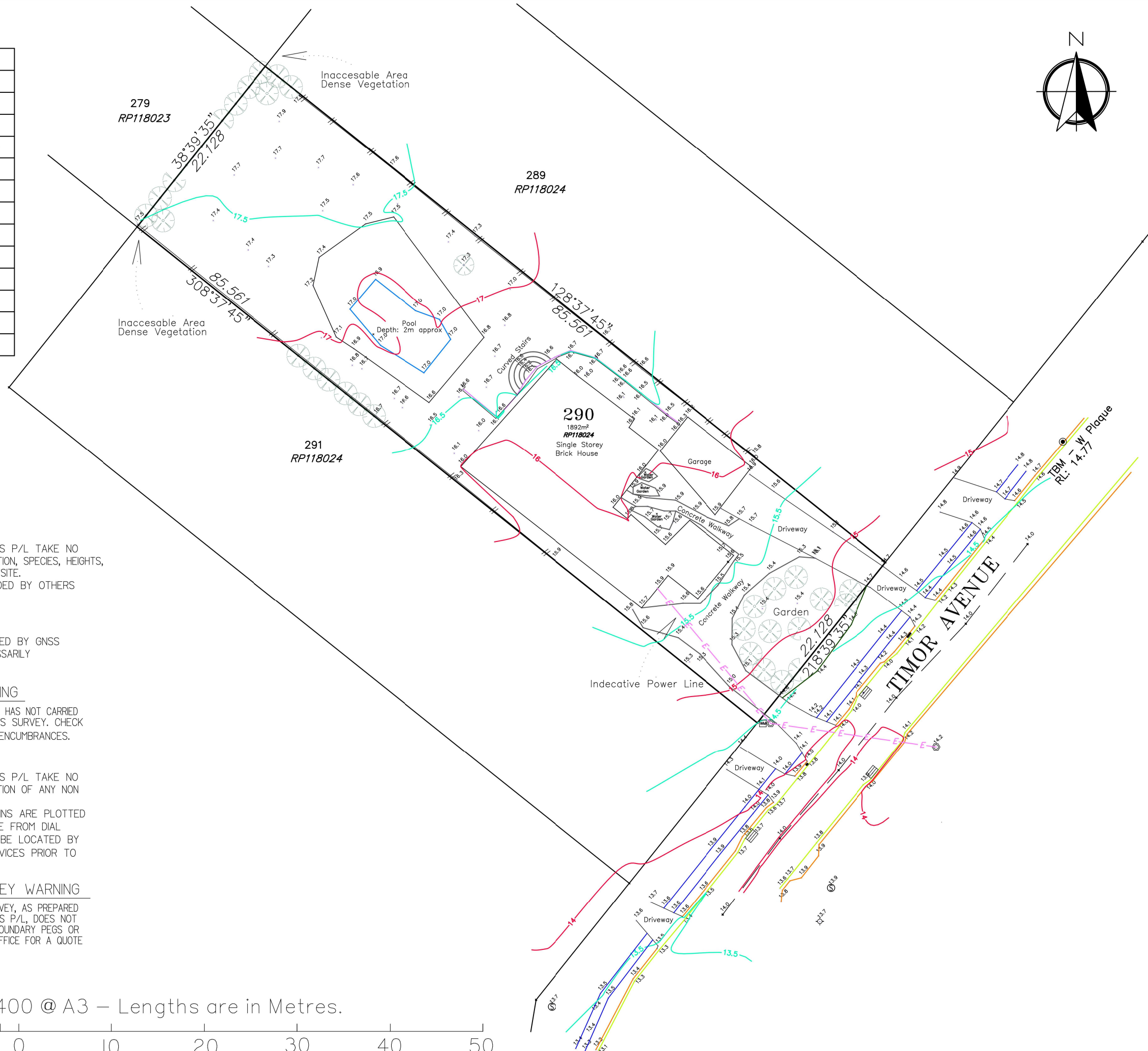
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DATE 26.6.2026
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DWG NO. A410

Original Sheet Size A3 - 297 x 420mm

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Appendix B: Detail Survey Plan

	Kerb Line
	Channel
	Fence Line
	Overhead Power
	Subject Boundary
	Tree
	Sewer MH
	Stormwater Pit
	Fire Hydrant
	Stop Valve
	Power Pole
	Water Meter
	TBM – W Plaque RL: 14.77
	Natural Contours



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HEIGHTS HAVE BEEN MEASURED BY GNSS EQUIPMENT AND DO NOT NECESSARILY AGREE WITH AHD LEVELS.

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Scale 1: 400 @ A3 – Lengths are in Metres.



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ASSOCIATES:	SURVEYED: AY
	DRAWN: AY
	CHECKED: DK
	QT: DK
SCALE: 1:400	DATE: 11.5.26
DRAWING No.: 000	AMEND. No:

CLIENT: Bonza Projects	
TITLE: Contour & Detail Survey 58 Timor Avenue LOGANHOLME LOT 29 on RP38034	
PARISH:	LEVEL DATUM: AHD
COUNTY:	AZIMUTH: ARB
COORD SYSTEM:	ORIGIN: PSM08004

The logo features a stylized red and green figure with arms raised, holding a green circle with the letters 'SDC' in white. The figure is set against a dark green background with a lighter green swoosh.

SANTOSHI™
DEVELOPMENT CONSULTANTS

38 Lochside Drive, North Lakes, QLD, 4509
P: 3886 5183 F: 3886 5183 M: 0403 629 381
E: deepak@santoshi.com.au
PO BOX 986, North Lakes QLD 4509

[illegible]

NOTES :

Boundary dimensions have been adopted from surveys by others.

Services noted on the plan are located from field surveys only. The person utilizing the information on this plan should make detailed investigations prior to carrying out any excavations.

This note is an integral part of this plan.

Appendix C: Conceptual Civil Design Drawings



PROPOSED TOWNHOUSE DEVELOPMENT

58 TIMOR AVENUE, LOGANHOLME, QLD 4129

CONCEPT CIVIL DRAWINGS

PROJECT NUMBER
132629

CLIENT
BONZA PROJECTS

LOCALITY PLAN
NOT TO SCALE

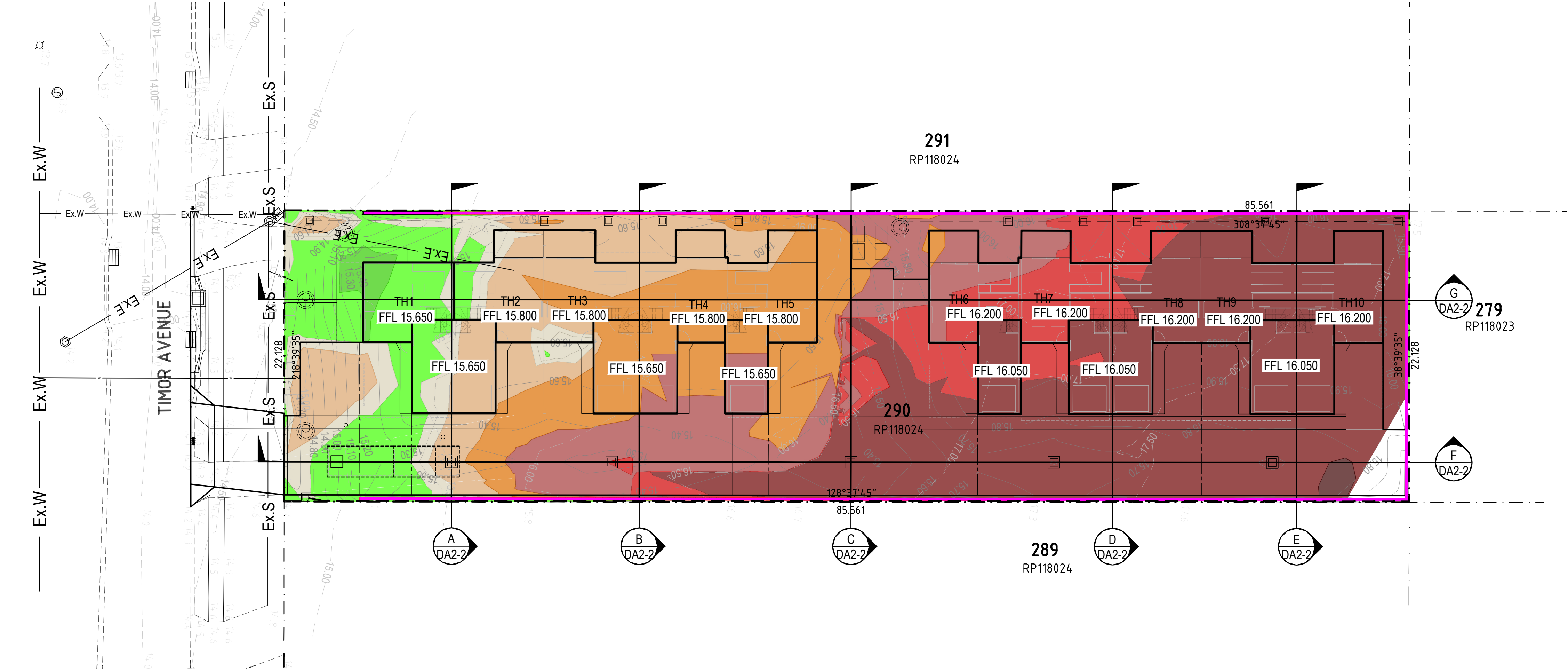
DRAWING INDEX

GENERAL	
DA-1-1	LOCALITY PLAN,DRAWING INDEX AND NOTES
EARTHWORKS	
DA-2-1	CONCEPT EARTHWORKS PLAN
DA-2-2	CONCEPT EARTHWORKS SECTIONS
CIVIL WORKS	
DA-3-1	CONCEPT CIVIL WORKS LAYOUT PLAN - SHEET 1
DA-3-2	CONCEPT CIVIL WORKS LAYOUT PLAN - SHEET 2
DA-3-3	STORMWATER CATCHMENTS PLAN

REFERENCED GUIDLINES & STANDARDS	
LOGAN CITY COUNCIL (LCC)	
LOGAN CITY COUNCIL-PLANNING SCHEME POLICIES (PSPs) AND DEVELOPMENT CODES	
WATER SERVICES ASSOCIATION OF AUSTRALIA	
WATER SUPPLY CODE OF AUSTRALIA-SEQ SERVICE PROVIDERS EDITION V1.3	
GRAVITY SEWERAGE CODE OF AUSTRALIA-SEQ SERVICE PROVIDERS EDITION V2.0	
SEQ CODE FOR WATER SUPPLY AND SEWER DESIGN AND CONSTRUCTION	
SEQ WS&S D&C CODE - DESIGN CRITERIA	
SEQ WS&S D&C CODE - SEQ ACCEPTED INFRASTRUCTURE PRODUCTS AND MATERIALS (IPAM) LIST	
AUSTRALIAN STANDARDS (AS)	
AS 3798-2007	EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS
AS 1289.1.1	METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES
AS 2890.1	OFFSTREET CARPARKING
AS 3500-2018	PLUMBING AND DRAINAGE
INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA)	
IECA AUSTRALIA GUIDELINES AND STANDARD DRAWINGS	

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			P1	ISSUED FOR REVIEW	SK	SK	19/06/2026	ARCHITECT	ROGUE ARCHITECTS	58 TIMOR AVENUE, LOGANHOLME, QLD 4129	LOCALITY PLAN, DRAWING INDEX AND NOTES	DATE JUNE 2026	SHEET SIZE A1		
			P2	ISSUED FOR APPROVAL	SK	SK	03/07/2026								
						DESIGNED	SK							DRAWN	SK
						CHECKED	SK							SCALE	N.T.S.
			SHEET 1 OF 6												



APPROXIMATE CUT FILL VOLUMES:

100mm SITE STRIPPING	-	190 m3 APPROX.
TOTAL CUT BELOW STRIPPED SURFACE LEVEL	-	1445 m3 APPROX.
TOTAL FILL ABOVE STRIPPED SURFACE LEVEL	-	30 m3 APPROX.

- THE ABOVE VOLUMES REPRESENT NET (CLEAR) VOLUMES ONLY AND DO NOT INCLUDE BULKING FACTORS.
- BOX AND BULK PLATFORM LEVELS ARE BASED ON A NOMINAL DEPTH OF 100 mm SITE STRIPPING AND 200 mm BOXING FOR THE BUILDINGS AND PAVEMENTS.
- APPROVED EROSION AND SEDIMENT CONTROL MEASURES MUST BE IMPLEMENTED PRIOR TO THE COMMENCEMENT OF BULK EARTHWORKS.
- EXCAVATION AND FILLING FOR SERVICES, RETAINING WALLS, FOOTPATHS, RAMPS, DETENTION TANK, AND LANDSCAPED AREAS IS EXCLUDED FROM THE ABOVE VOLUMES AND IS CONSIDERED DETAILED EXCAVATION.
- THE ABOVE VOLUMES ARE BASED ON THE CONCEPT DESIGN AND ARE NOT TO BE USED FOR TENDERING PURPOSES.

DRAWING LEGEND	
SYMBOL	DESCRIPTION
PROPOSED	
	PROPOSED BULK EARTHWORKS PLATFORM
	CHANGE OF GRADE LINE (RIDGE OR VALLEY)
	PROPOSED RETAINING WALL
	BULK EARTHWORKS CONTOURS
	TOP OF WALL GROUND LEVEL
	BOTTOM OF WALL GROUND LEVEL
	TEMPORARY EARTHWORKS BATTER (1:2 NOMINAL)
EXISTING	
	EXISTING (PRE-DEVELOPMENT) SURFACE LEVEL
	EXISTING CONTOURS
	EXISTING STORMWATER
	EXISTING SEWER
	EXISTING WATER
	EXISTING ELECTRICITY
	EXISTING COMMUNICATION LINE
	EXISTING SEWER AND STORMWATER MANHOLES
ABBREVIATIONS	
LCC	LOGAN CITY COUNCIL
FFL###.###	PROPOSED FINISHED FLOOR LEVEL
BPL###.###	BULK PLATFORM / SURFACE LEVEL
U.N.O.	UNLESS NOTED OTHERWISE

CUT / FILL DEPTHS LEGEND

LOWER VALUE		UPPER VALUE		COLOUR
-3	to	-4	m	
-2	to	-3	m	
-1.00	to	-2	m	
-0.75	to	-1.00	m	
-0.50	to	-0.75	m	
-0.25	to	-0.50	m	
-0.25	to	-0.05	m	
-0.05	to	0	m	
0	to	0.05	m	
0.05	to	0.25	m	
0.25	to	0.50	m	
0.50	to	0.75	m	
0.75	to	1.00	m	
1.00	to	2.00	m	
2.00	to	3.00	m	
3.00	to	4.00	m	
4.00	to	5.00	m	

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SALANTHA KALLIARACHCHI
RPEQ 13033

REV.	DESCRIPTION	DRAWN	CHECKED	DATE
P1	ISSUED FOR REVIEW	SK	SK	19/06/2026
P2	ISSUED FOR APPROVAL	SK	SK	03/07/2026

SHEET 2 OF 6

CLIENT
BONZA PROJECTS

ARCHITECT
ROGUE ARCHITECTS

DESIGNED
SK

DRAWN
SK

CHECKED
SK

SCALE
1 : 200

PROJECT TITLE
TOWNHOUSE DEVELOPMENT
58 TIMOR AVENUE,
LOGANHOLME, QLD 4129

DRAWING TITLE
CONCEPT EARTHWORKS PLAN

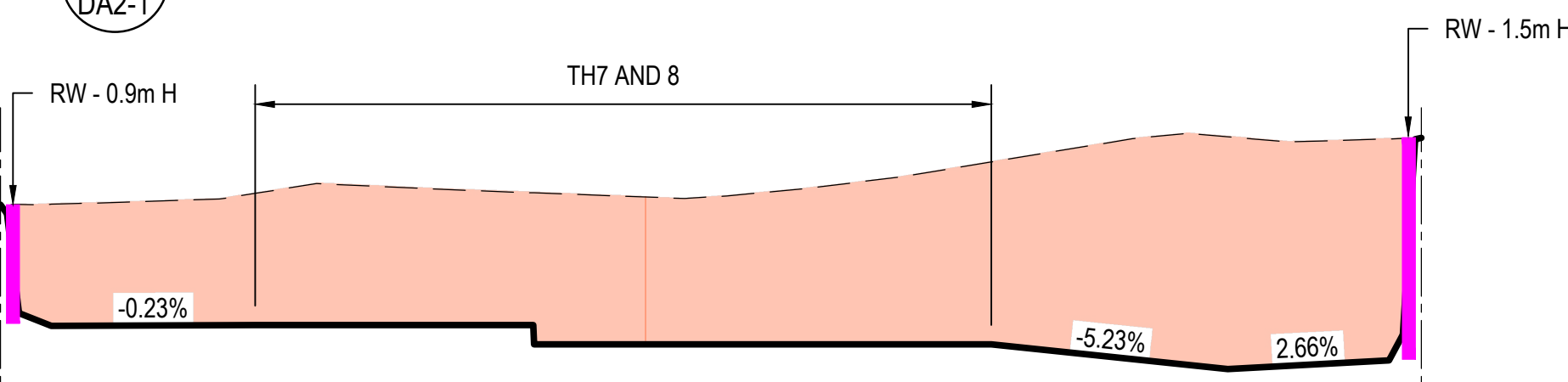
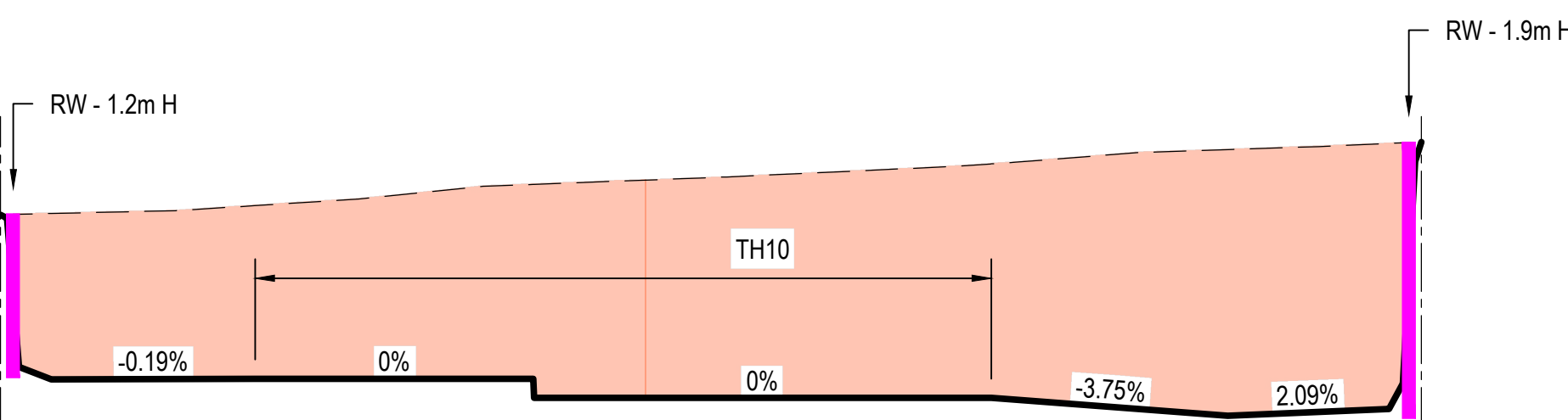
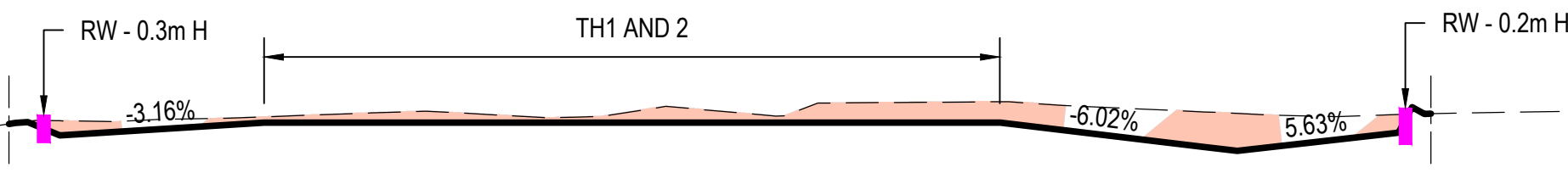
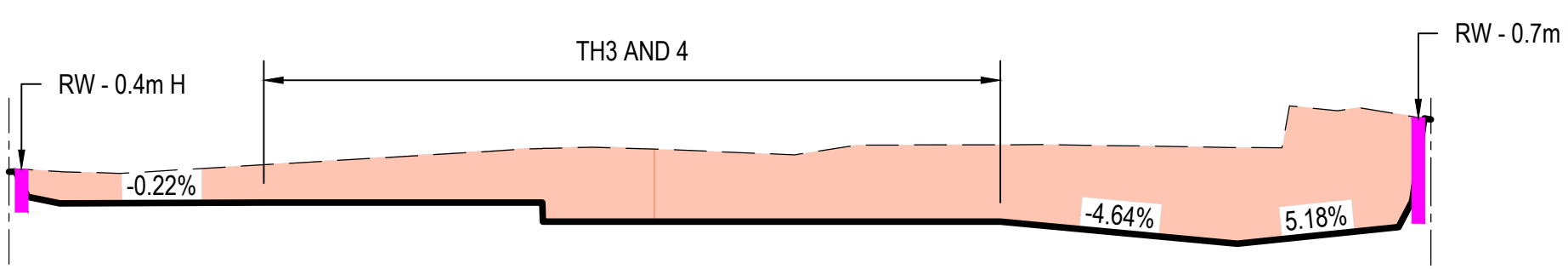
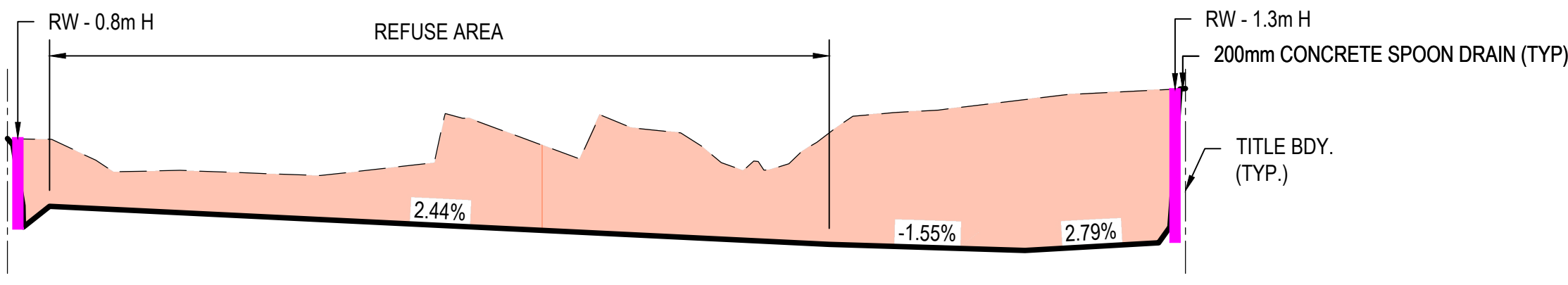
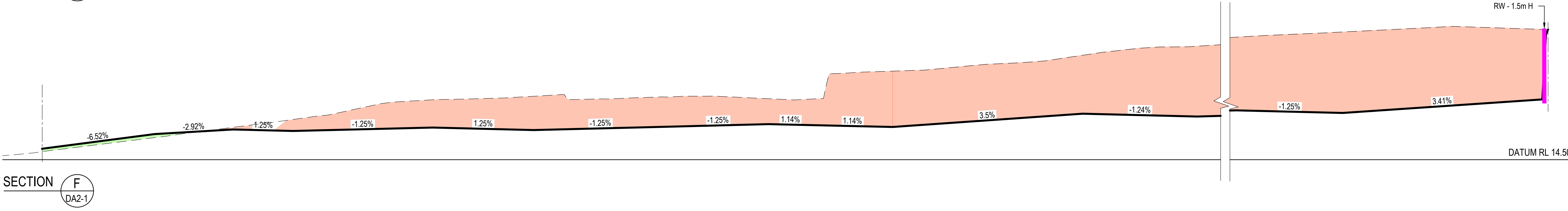
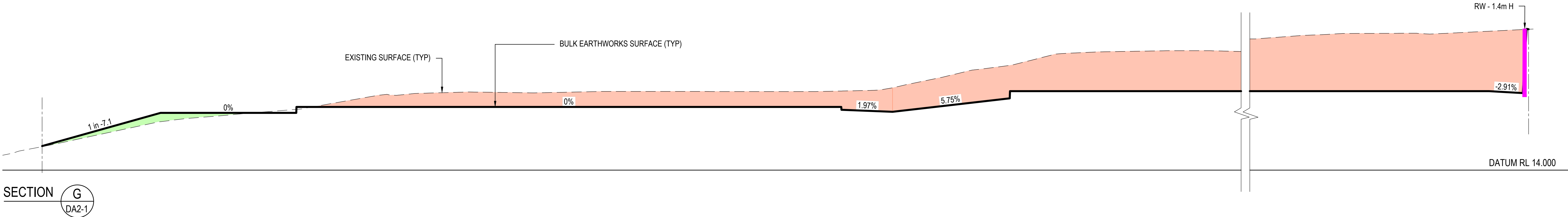
PROJECT No.
162629

DATE
JUNE 2026

DRAWING No.
DA-2-1

SHEET SIZE
A1

REVISION
P2

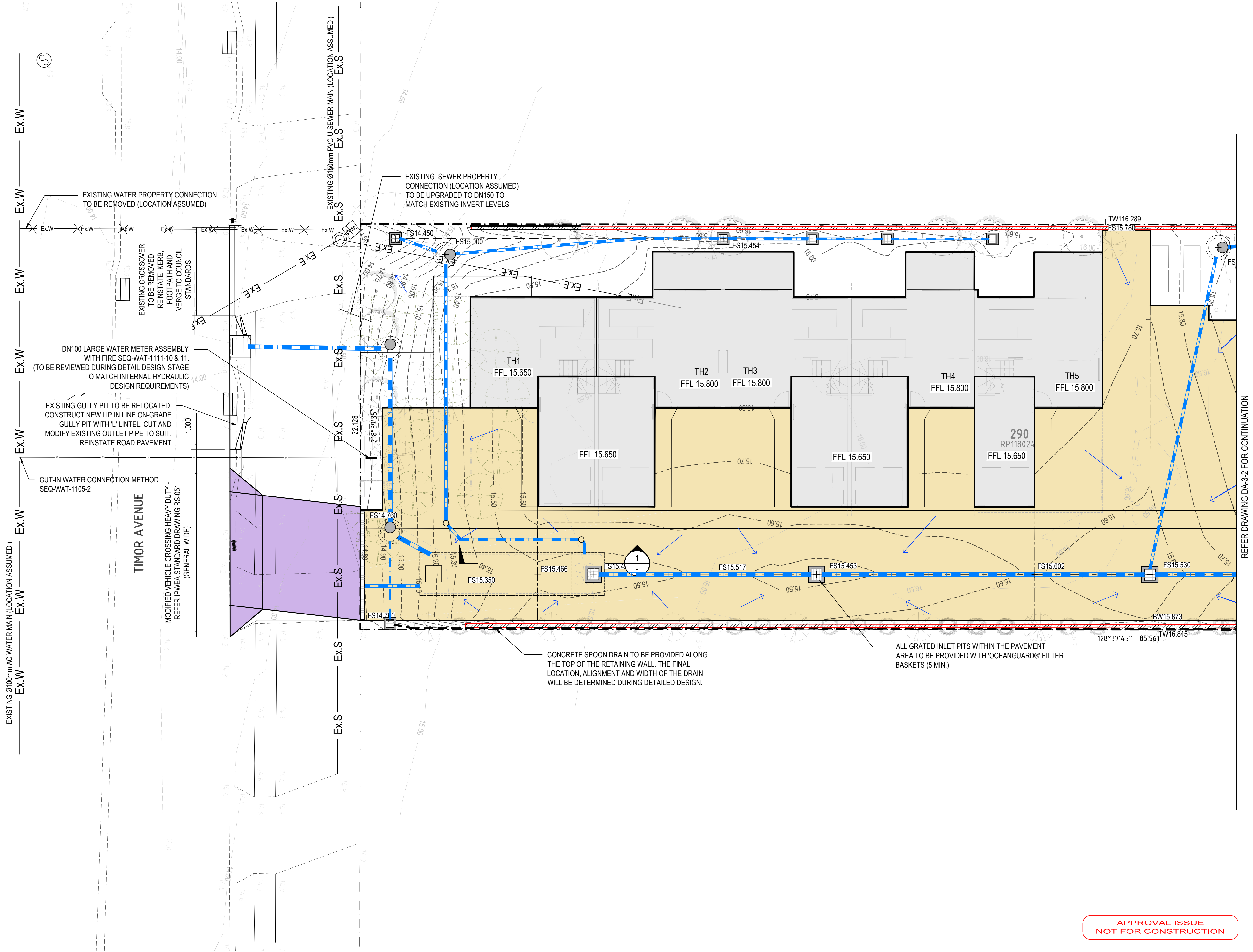


AREA OF CUT

AREA OF FILL

APPROVAL ISSUE
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DRAWING LEGEND	
SYMBOL	DESCRIPTION
PROPOSED	
	PROPOSED BUILDING FOOTPRINT
	PROPOSED CONCRETE PAVEMENT (DETAIL DESIGN)
	PROPOSED DRIVEWAY CROSSOVER (IPWEA RS-051)
	PROPOSED CONTOURS
FS14.400 ⁺	PROPOSED FINISHED SURFACE/ LIP OF KERB LEVEL
TW15.400 ⁺	PROPOSED FINISHED WALL LEVEL (TOP OF WALL)
BW14.250 ⁺	PROPOSED FINISHED WALL LEVEL (BOTTOM OF WALL)
ES15.250 ⁺	EXISTING SURFACE LEVEL (TO BE VERIFIED)
	DIRECTION OF FALL (PROPOSED SURFACE)
	PROPOSED STORMWATER PIT, LINE AND FLOW DIRECTION
	PROPOSED RETAINING WALL
EXISTING	
77.25 ⁺	EXISTING (PRE-DEVELOPMENT) SURFACE LEVEL
	EXISTING CONTOURS
Ex.D	EXISTING STORMWATER
Ex.S	EXISTING SEWER
Ex.W	EXISTING WATER
Ex.E	EXISTING ELECTRICITY
Ex.T	EXISTING COMMUNICATION LINE
	EXISTING SEWER AND STORMWATER MANHOLES
ABBREVIATIONS	
LCC	LOGAN CITY COUNCIL
FFL15.150	PROPOSED FINISHED FLOOR LEVEL



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0 1 2 3 4 5m
SCALE 1:100 AT ORIGINAL SIZE

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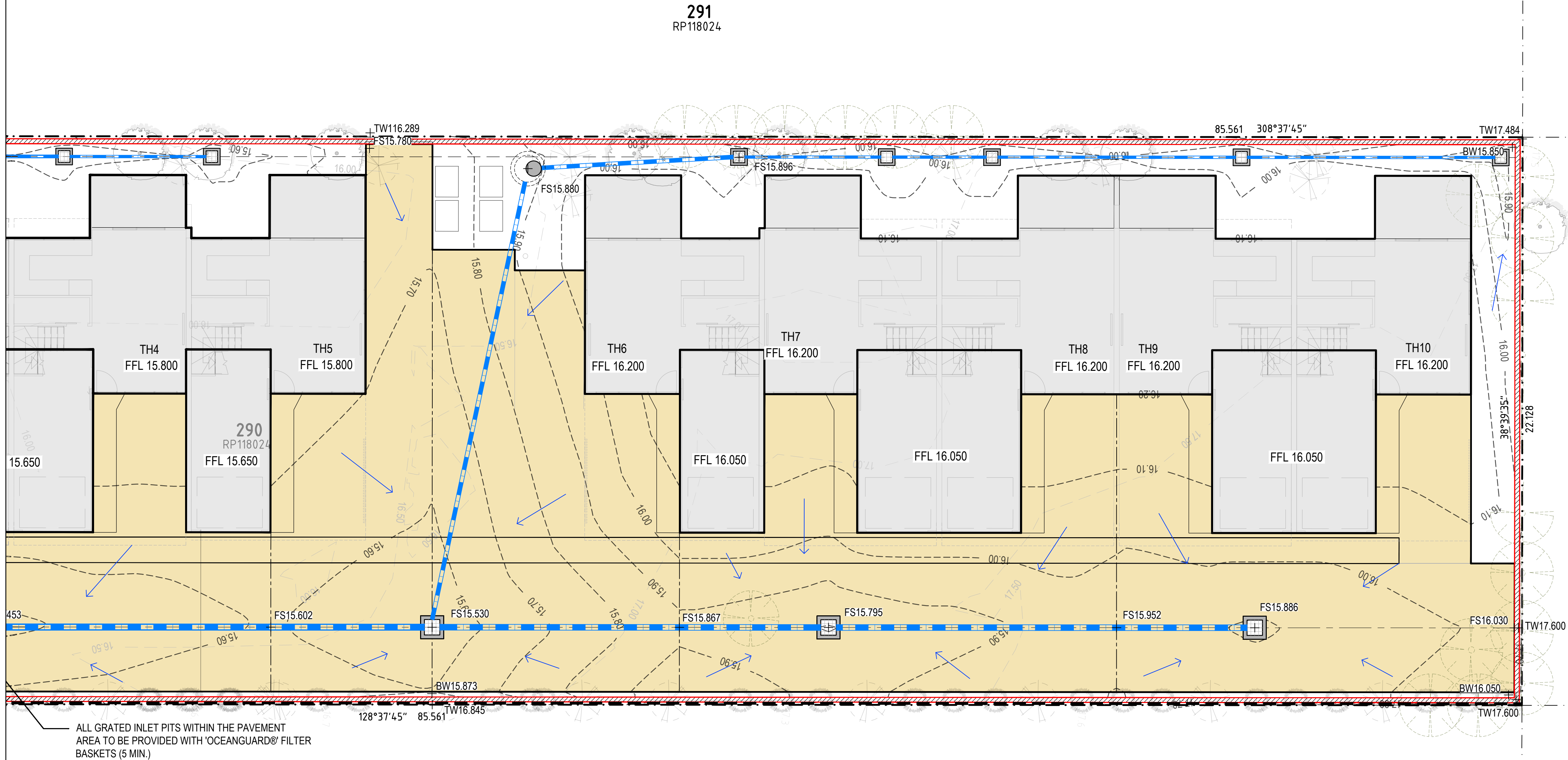
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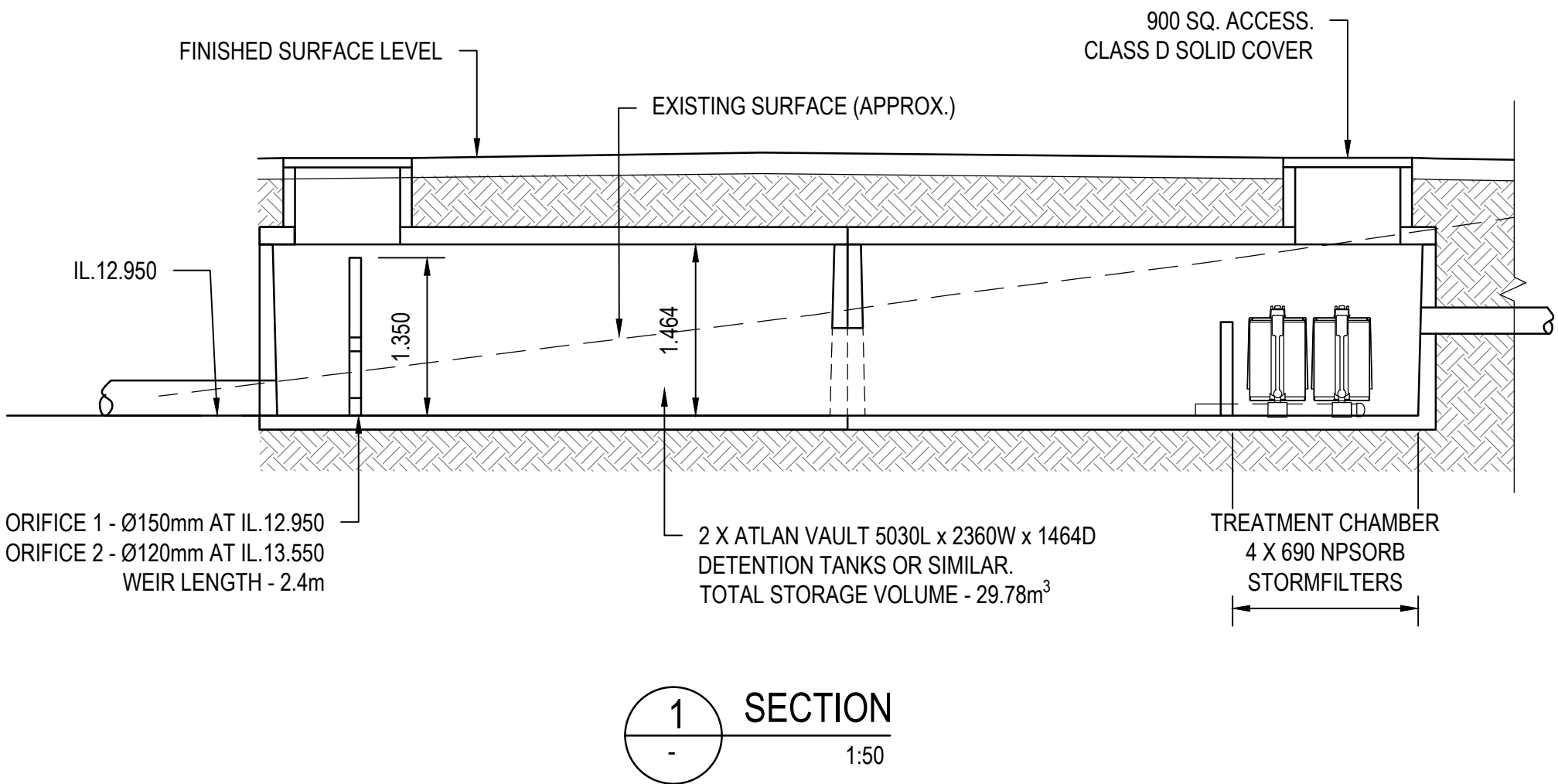
SALANTHA KALLIARACHCHI
RPEQ 13033

REV.	DESCRIPTION	DRAWN	CHECKED	DATE	CLIENT	PROJECT TITLE	PROJECT No.
P1	ISSUED FOR REVIEW	SK	SK	19/06/2026	BONZA PROJECTS	TOWNHOUSE DEVELOPMENT	162629
P2	ISSUED FOR APPROVAL	SK	SK	03/07/2026	ROGUE ARCHITECTS	58 TIMOR AVENUE, LOGANHOLME, QLD 4129	DATE JUNE 2026
					DESIGNED SK	DRAWN SK	SHEET SIZE A1
					CHECKED SK	SCALE 1 : 100	DRAWING No. DA-3-1
							REVISION P2

SHEET 4 OF 6



289
RP118024



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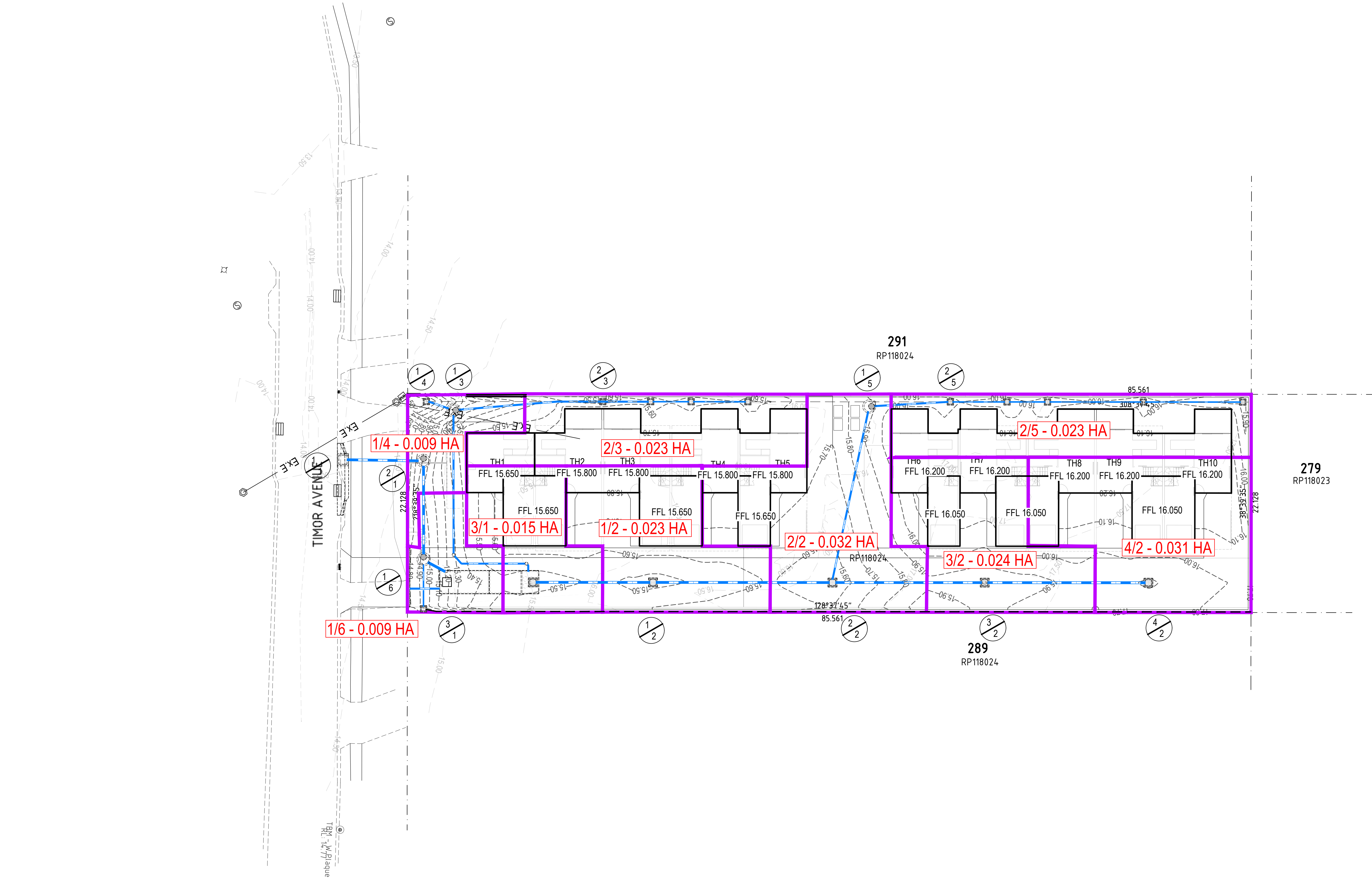
LEGACY ENGINEERS
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P1	ISSUED FOR REVIEW	SK	SK	19/06/2026	BONZA PROJECTS	TOWNHOUSE DEVELOPMENT	162629
P2	ISSUED FOR APPROVAL	SK	SK	03/07/2026	ROGUE ARCHITECTS	58 TIMOR AVENUE, LOGANHOLME, QLD 4129	DATE JUNE 2026
					DESIGNED SK	DRAWN SK	SHEET SIZE A1
					CHECKED SK	SCALE 1 : 100	DRAWING No. DA-3-2
					CONCEPT CIVIL WORKS LAYOUT PLAN SHEET 2		REVISION P2
SHEET 5 OF 6							



APPROVAL ISSUE
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SCALE 1:200 AT ORIGINAL SIZE



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REV.	DESCRIPTION	DRAWN	CHECKED	DATE	CLIENT	PROJECT TITLE	PROJECT No.
P1	ISSUED FOR REVIEW	SK	SK	19/06/2026	BONZA PROJECTS	TOWNHOUSE DEVELOPMENT	162629
P2	ISSUED FOR APPROVAL	SK	SK	03/07/2026	ARCHITECT ROGUE ARCHITECTS	58 TIMOR AVENUE, LOGANHOLME, QLD 4129	DATE JUNE 2026
		DESIGNED SK	DRAWN SK			DRAWING TITLE STORMWATER CATCHMENTS PLAN	SHEET SIZE A1
		CHECKED SK	SCALE 1 : 200				DRAWING No. DA-3-3
							REVISION P2

SHEET 6 OF 6

Appendix D: DRAINS Results

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Version 8		Min Freeboard (m)	Overflow (cu.m/s)	Constraint
			Max Surface Flow (cu.m/s)	Max Pond Volume (cu.m)			
Pit1/4	13.86		0.005		0.74	0	Inlet Capacity
Pit1/3	13.86		0		1.04		None
Pit4/2	14.21	15.65	0.02	0.2	1.41	0	Inlet Capacity
Pit3/2	14.06	15.59	0.012	0.2	1.5	0	Inlet Capacity
Pit2/2	13.92	15.24	0.015	0.2	1.29	0	Inlet Capacity
Pit1/2	13.88	15.28	0.011	0.1	1.38	0	Inlet Capacity
Pit2/5	14.06	15.53	0.013	0.1	1.44	0	Inlet Capacity
Pit1/5	13.97		0		1.6		None
Pit1/6	13.86		0.006		0.9	0	None
N120704	13.87		0.01				
Pit2/3	13.87	15.27	0.004	0.1	1.38	0	Inlet Capacity
N3	13.12		0				
Pit2/1	12.94		0		1.86		None
Pit1/1	12.77		0		1.23	0	None
OUT	12.54		0				

SUB-CATCHMENT DETAILS

Name	Max Flow Q	Paved Max Q	Grassed Max Q	Paved Tc	Grassed Tc	Supp. Tc	Due to Storm
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)	
Cat1/4	0.004	0.001	0.003	5	6		2 10% AEP, 10 min burst, Storm 6
Cat3/1	0.008	0.008	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat4/2	0.016	0.015	0.001	5	6		2 10% AEP, 5 min burst, Storm 1
Cat3/2	0.013	0.012	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat2/2	0.017	0.016	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat1/2	0.012	0.012	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat2/5	0.01	0.007	0.004	5	6		2 10% AEP, 10 min burst, Storm 4
Cat existing	0.061	0.033	0.037	5	12		2 10% AEP, 15 min burst, Storm 8
Cat unmitig	0.09	0.082	0.009	5	6		2 10% AEP, 5 min burst, Storm 1
Cat1/6	0.005	0.005	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat66593	0.008	0.008	0	5	6		2 10% AEP, 5 min burst, Storm 1
Cat2/3	0.003	0	0.003	5	6		2 10% AEP, 10 min burst, Storm 4

PIPE DETAILS

Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)	
Pipe1/4-1/:	0.004	0.09	13.862	13.862	10% AEP, 10 min burst, Storm 1
Pipe1/3-N2	0.013	0.18	13.861	13.859	10% AEP, 10 min burst, Storm 4
Pipe4/2-3/:	0.016	0.75	14.196	14.062	10% AEP, 5 min burst, Storm 1
Pipe3/2-2/:	0.026	0.78	14.062	13.923	10% AEP, 5 min burst, Storm 1
Pipe2/2-1/:	0.051	0.94	13.909	13.876	10% AEP, 10 min burst, Storm 8
Pipe1/2-3/:	0.059	0.55	13.866	13.859	10% AEP, 5 min burst, Storm 1
Pipe2/5-1/:	0.01	0.91	14.062	13.97	10% AEP, 10 min burst, Storm 6
Pipe1/5-2/:	0.01	0.56	13.969	13.923	10% AEP, 10 min burst, Storm 6
Pipe1/6-3/:	0.006	0.16	13.86	13.859	10% AEP, 10 min burst, Storm 3
Pipe72040	0.008	0.45	13.868	13.865	10% AEP, 5 min burst, Storm 1
Pipe2/3-1/:	0.011	0.27	13.864	13.862	10% AEP, 15 min burst, Storm 8
PipeN3-2/1	0.058	1.46	13.118	13.003	10% AEP, 20 min burst, Storm 6
Pipe2/1-1/:	0.058	1.41	12.932	12.83	10% AEP, 20 min burst, Storm 6
Pipe1/1-OL	0.061	1.43	12.773	12.541	10% AEP, 20 min burst, Storm 6

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm
------	-------------------	----------------	--------------

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF1/4-N6	0	0	1.157	0	0	0	0	0
ORIFICE 2	0.017	0.017						10% AEP, 20 min burst, Storm 6
WEIR 01								
ORIFICE 01	0.041	0.041						10% AEP, 20 min burst, Storm 6
OF4/2-3/2	0	0.006	0.904	0.006	0.01	0.57	2.23	10% AEP, 10 min burst, Storm 8
OF3/2-2/2	0	0.008	1.422	0.007	0.01	0.75	1.97	10% AEP, 5 min burst, Storm 1
OF2/2-1/2	0	0.005	0.522	0	0	0	0	10% AEP, 10 min burst, Storm 8
OF1/2-3/1	0	0.004	0.939	0.016	0.01	1.6	0.92	10% AEP, 10 min burst, Storm 8
OF2/5-N5	0	0	0.633	0	0	0	0	
OF1/6-N4	0	0	1.345	0	0	0	0	
OF2/3-1/4	0	0	0.866	0	0	0	0	
OF1/1-N7	0	0	1.415	0	0	0	0	

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
Basin3/1	13.86	18.2	0.058	0	0.058

Run Log for DRAINS v2025.01.9147.24925 - 132629 58 Timor avenue Loganholme V1

Run Log for DRAINS v2025.01.9147.24925 - 132629 58 Timor avenue Loganholme V1.drn run at 10:40:52 on 3/7/2026.

No water upwelling from any pit.
Freeboard was adequate at all pits.

Flows were safe in all overflow routes.

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Version 8			Overflow (cu.m/s)	Constraint
			Max Surfac Flow Arriv (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)		
Pit1/4	14.34		0.007		0.26	0	Inlet Capacity
Pit1/3	14.34		0		0.56		None
Pit4/2	14.57	15.66	0.026	0.2	1.05	0	Inlet Capacity
Pit3/2	14.53	15.59	0.015	0.2	1.03	0	Inlet Capacity
Pit2/2	14.5	15.25	0.021	0.2	0.71	0	Inlet Capacity
Pit1/2	14.38	15.28	0.015	0.2	0.88	0	Inlet Capacity
Pit2/5	14.52	15.53	0.018	0.2	0.98	0	Inlet Capacity
Pit1/5	14.5		0		1.07		None
Pit1/6	14.33		0.008		0.43	0	Inlet Capacity
N120704	14.36		0.013				
Pit2/3	14.35	15.27	0.006	0.1	0.9	0	Inlet Capacity
N3	13.19		0				
Pit2/1	13.01		0		1.79		None
Pit1/1	12.83		0		1.17	0	None
OUT	12.58		0				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
Cat1/4	0.006	0.001	0.004		5	6	2 1% AEP, 10 min burst, Storm 1
Cat3/1	0.012	0.012	0		5	6	2 1% AEP, 5 min burst, Storm 1
Cat4/2	0.025	0.024	0.001		5	6	2 1% AEP, 5 min burst, Storm 1
Cat3/2	0.019	0.019	0		5	6	2 1% AEP, 5 min burst, Storm 1
Cat2/2	0.026	0.025	0.001		5	6	2 1% AEP, 5 min burst, Storm 1
Cat1/2	0.019	0.018	0		5	6	2 1% AEP, 5 min burst, Storm 1
Cat2/5	0.016	0.011	0.005		5	6	2 1% AEP, 5 min burst, Storm 1
Cat existing	0.1	0.042	0.058		5	12	2 1% AEP, 15 min burst, Storm 6
Cat unmitig	0.144	0.127	0.017		5	6	2 1% AEP, 5 min burst, Storm 1
Cat1/6	0.007	0.007	0		5	6	2 1% AEP, 5 min burst, Storm 1
Cat66593	0.012	0.012	0		5	6	2 1% AEP, 5 min burst, Storm 1
Cat2/3	0.005	0	0.005		5	6	2 1% AEP, 10 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Pipe1/4-1/:	0.006	0.15	14.336	14.336	1% AEP, 10 min burst, Storm 4
Pipe1/3-N2	0.022	0.32	14.333	14.328	1% AEP, 10 min burst, Storm 8
Pipe4/2-3/:	0.024	0.61	14.552	14.529	1% AEP, 5 min burst, Storm 1
Pipe3/2-2/:	0.041	0.59	14.515	14.5	1% AEP, 5 min burst, Storm 1
Pipe2/2-1/:	0.078	1.11	14.445	14.377	1% AEP, 5 min burst, Storm 1
Pipe1/2-3/:	0.094	0.85	14.346	14.328	1% AEP, 5 min burst, Storm 1
Pipe2/5-1/:	0.016	0.4	14.51	14.504	1% AEP, 10 min burst, Storm 2
Pipe1/5-2/:	0.017	0.24	14.502	14.5	1% AEP, 10 min burst, Storm 4
Pipe1/6-3/:	0.012	0.3	14.33	14.328	1% AEP, 5 min burst, Storm 1
Pipe72040	0.012	0.69	14.356	14.347	1% AEP, 5 min burst, Storm 1
Pipe2/3-1/:	0.017	0.43	14.342	14.336	1% AEP, 10 min burst, Storm 8
PipeN3-2/1	0.096	1.58	13.194	13.079	1% AEP, 15 min burst, Storm 6
Pipe2/1-1/:	0.096	1.64	12.976	12.876	1% AEP, 15 min burst, Storm 6
Pipe1/1-OL	0.098	1.62	12.825	12.583	1% AEP, 15 min burst, Storm 6

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm
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OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF1/4-N6	0	0	1.16	0	0	0	0	
ORIFICE 2	0.027	0.027						1% AEP, 15 min burst, Storm 6
WEIR 01	0.02	0.02						1% AEP, 15 min burst, Storm 6
ORIFICE 01	0.051	0.051						1% AEP, 15 min burst, Storm 6
OF4/2-3/2	0	0.009	1.471	0	0	0	0	1% AEP, 5 min burst, Storm 1
OF3/2-2/2	0	0.012	1.422	0.01	0.02	0.98	1.83	1% AEP, 5 min burst, Storm 1
OF2/2-1/2	0	0.008	1.517	0	0	0	0	1% AEP, 5 min burst, Storm 1
OF1/2-3/1	0	0.006	1.482	0.019	0.01	1.92	0.98	1% AEP, 5 min burst, Storm 1
OF2/5-N5	0	0	1.762	0	0	0	0	
OF1/6-N4	0	0	1.345	0	0	0	0	
OF2/3-1/4	0	0	1.458	0	0	0	0	
OF1/1-N7	0	0	1.415	0	0	0	0	

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
Basin3/1	14.33	27.6	0.098	0	0.098

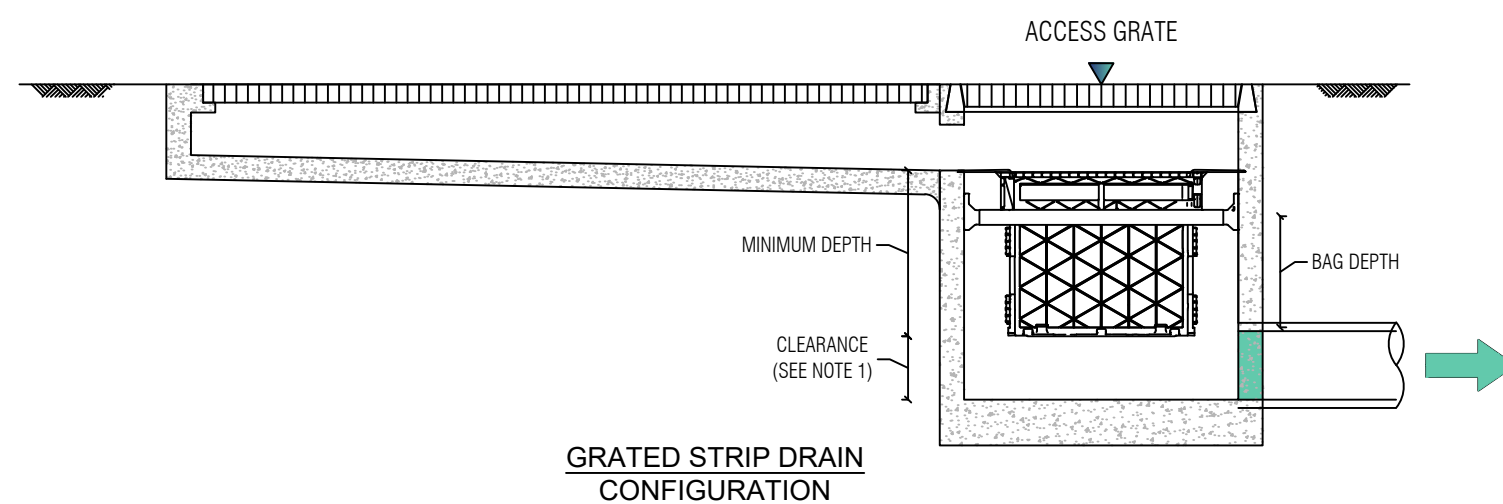
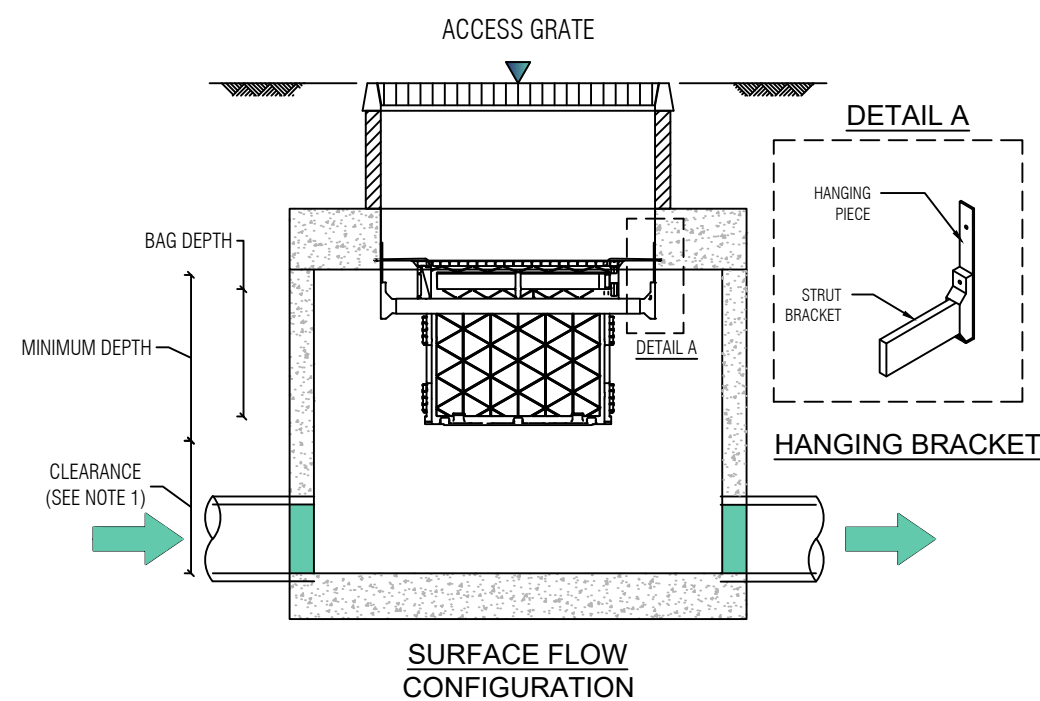
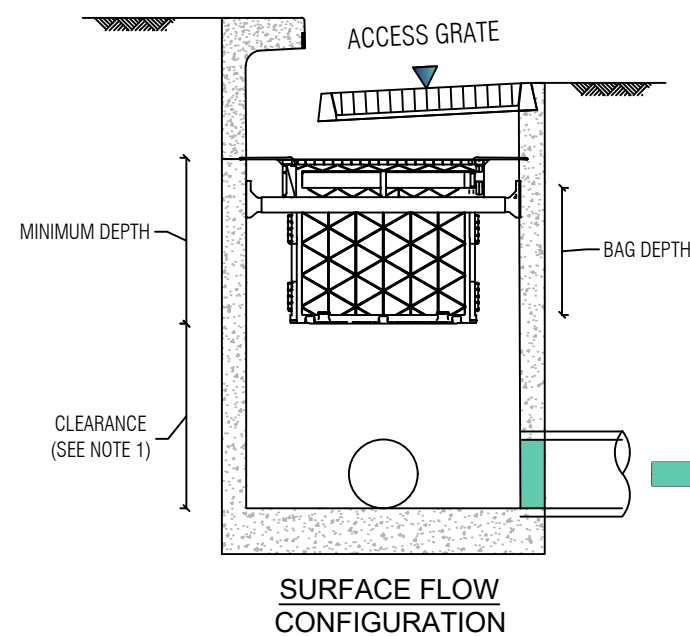
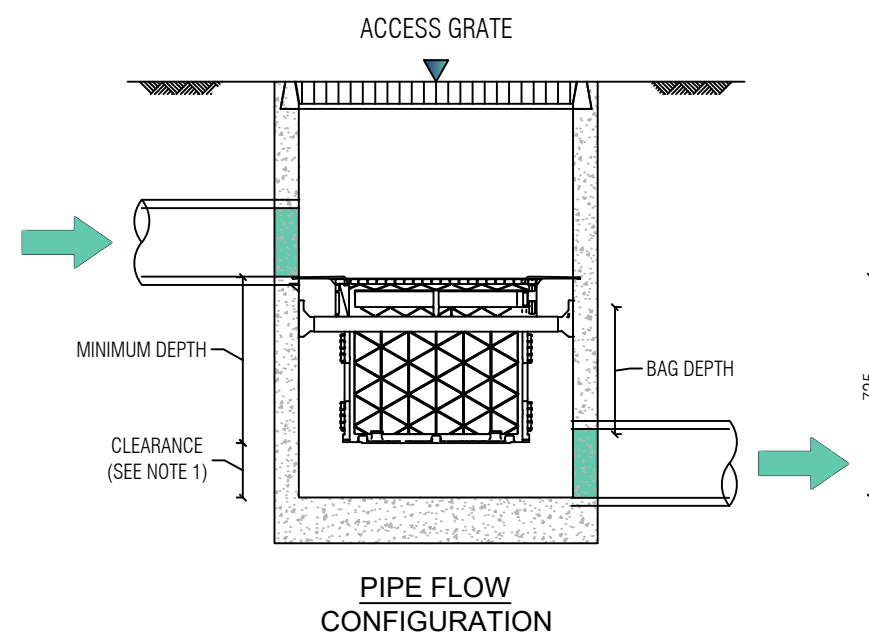
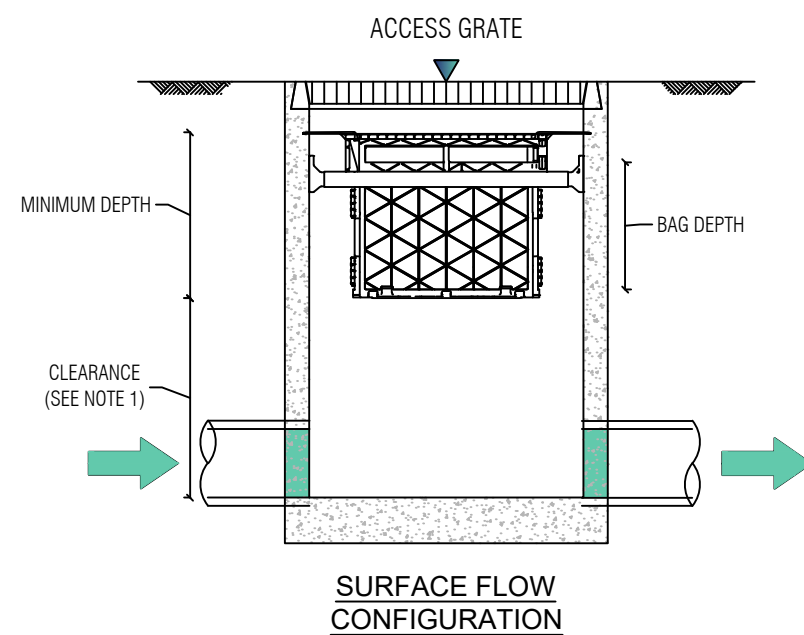
Run Log for DRAINS v2025.01.9147.24925 - 132629 58 Timor avenue Loganholme V1

Run Log for DRAINS v2025.01.9147.24925 - 132629 58 Timor avenue Loganholme V1.drn run at 10:41:18 on 3/7/2026.

No water upwelling from any pit.
Freeboard was adequate at all pits.

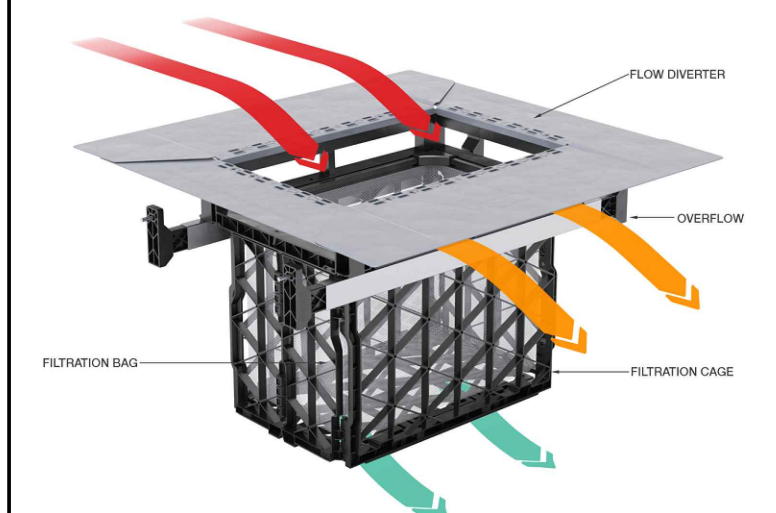
Flows were safe in all overflow routes.

Appendix E: Typical Arrangements of Stormwater Quality Improvement Devices



OCEANGUARD - STANDARD

PRODUCT ID	PIT DIMENSIONS (MAXIMUM) (mm)	MINIMUM DEPTH (mm)	BAG DEPTH (mm)
OG4/6S	450 × 450	350	250
	600 × 600		
OG6D	600 × 600	475	375
OG9S	600 × 900	400	300
	900 × 900		
OG9D	600 × 900	600	500
	900 × 900		
OG12S	900 × 1200	400	300
	1200 × 1200		
OG12D	900 × 1200	600	500
	1200 × 1200		



GENERAL NOTES

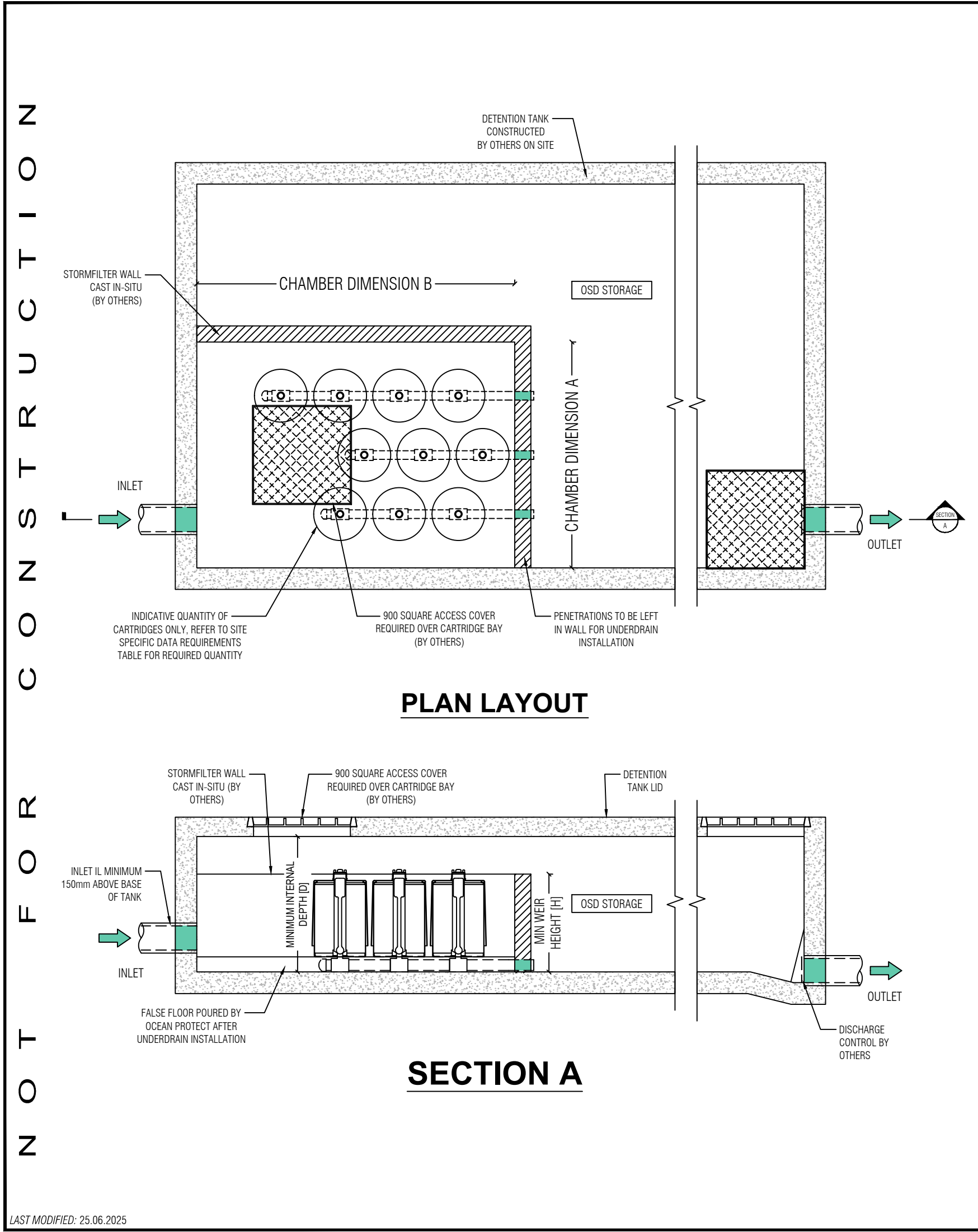
- CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW) CAN BE AS LOW AS 50mm. FOR OTHER PITS, THE RECOMMENDED CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE OBVERT SO AS NOT TO INHIBIT HYDRAULIC CAPACITY.
- OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES:
 - 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING
 - COARSE BAG FOR TARGETING GROSS POLLUTANTS.
- DRAWINGS NOT TO SCALE.
- FOR SPECIAL DESIGNS PLEASE CONTACT OCEAN PROTECT



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TYPICAL ARRANGEMENTS
SPECIFICATION DRAWING



STORMFILTER DESIGN TABLE

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
MINIMUM WEIR HEIGHT* [H] (mm)	910	690	540
MINIMUM INTERNAL DEPTH* [D] (mm)	1050	850	850
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39

* MINIMUM WEIR HEIGHT MAY BE REDUCED IN CERTAIN CIRCUMSTANCES. CONTACT OCEAN PROTECT FOR MORE INFORMATION.

The diagram shows a vertical cross-section of a filter cartridge. It has a central siphon tube. Labels include: PHYSICAL HEIGHT, SIPHON HEIGHT, STORMFILTER CARTRIDGE FILTRATION UNIT, FALSE FLOOR, and PIT BASE. Below the diagram is the text: STORMFILTER CARTRIDGE DETAIL.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
NUMBER OF CARTRIDGES REQ'D	
SIPHON HEIGHT (310 / 460 / 690)	
MEDIA TYPE (ZPG / PSORB)	
WATER QUALITY FLOW RATE (L/S)	
DIMENSION A	
DIMENSION B	
TOTAL CARTRIDGE BAY AREA (A x B) TO MATCH AREA REQUIRED BY MUSIC MODELLING OR COUNCIL SPECIFIC REQUIREMENTS	

GENERAL NOTES

- INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
- A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
- ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
- SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
- THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
- CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
- THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
- DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

- UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

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STORMFILTER SYSTEM

DETENTION TANK ARRANGEMENT

SPECIFICATION DRAWING

LAST MODIFIED: 25.06.2025

Appendix F: Logan City Council Code Compliance Tables

8.2

Overlay codes

8.2.1

Acid sulfate soils overlay code

8.2.1.1

Application

1. This code applies to accepted development (subject to requirements) and assessable development for which the Acid sulfate soils overlay code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.10.1.1 - Acid sulfate soils overlay map OM-01.00 in Part 5.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development located in Part 5 - Tables of assessment.

8.2.1.2

Purpose

1. The purpose of code is to ensure that acid sulfate soils do not adversely affect the natural and built environment and human health and safety.
2. The purpose of the code will be achieved through the following overall outcomes:

a. Development:

i. avoids the disturbance of acid sulfate soils; or

ii. protects ecosystems, the built environment and personal health and safety by managing any disturbed acid sulfate soils and associated drainage waters.

8.2.1.3

Requirements for assessment

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 8.2.1.3.1 - Acid sulfate soils overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
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For accepted development (subject to requirements) and assessable development		
Land in the Potential and actual acid sulfate soil area		
PO1 Development in the Potential and actual acid sulfate soil area identified on Acid sulfate soils overlay map OM-01.01 that involves disturbing soil or sediment at or below 5 metres AHD: a. avoids disturbing acid sulfate soils; or b. is managed to avoid the: i. release of acid and metal contaminants; ii. release of nutrients that contribute to coastal algal blooms. Editor's note - For development to which this overlay code applies, undertake an acid sulfate soils investigation conforming to the current version of Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland and the current Queensland Acid Sulfate Soil Technical Manual: Laboratory Methods Guidelines. Where the presence of acid sulfate soils is confirmed, prepare an acid sulfate soils management plan in accordance with the current Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines.	AO1.1 Development in the Potential and actual acid sulfate soils area at or below 5 metres AHD identified on Acid sulfate soils overlay map OM-01.01 does not involve: a. excavating or otherwise removing 100m³ or more of soil or sediment; or b. filling of land involving 500m³ or more of material with an average depth of 0.5 of a metre or greater; or c. extracting ground water. AO1.2 Development in the Potential and actual acid sulfate soils area above 5 metres AHD and at or below 20 metres AHD area identified on Acid sulfate soils overlay map OM-01.01 does not involve excavating or otherwise removing 100m³ or more of soil or sediment at or below 5 metres AHD.	The proposed development does not involve any excavation or filling below 5.0 m AHD.
Treatment and disposal of acid sulfate soils		
PO2 Development manages the treatment and disposal of acid sulfate soils.	AO2 Where acid sulfate soils are identified, the acid sulfate soils are managed in accordance with an acid sulfate soils management plan prepared in accordance with the current Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines.	The developer is to include this requirement in the construction contract documentation and detailed design drawings.

Editor's note - The following documents will assist in undertaking an acid sulfate soil investigation and assessment:

- Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines
- Queensland Acid Sulfate Soil Technical Manual, Legislation and Policy Guide
- National Acid Sulfate Soils Guidance: National acid sulfate sampling and identification methods manual
- Acid Sulfate Soils: Laboratory Methods Guidelines
- Australian Standard 4969 - Analysis of acid sulfate soil - Dried samples - Methods of test
- National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual
- National Acid Sulfate Soils Guidance: Guidelines for the dredging of acid sulfate soil sediments and associated dredge spoil management
- National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments
- National Acid Sulfate Soils Guidance: Overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands

9.4.2 Filling and excavation code

9.4.2.1 Application

1. This code applies to:
 - a. material change of use:
 - i. that is accepted development (subject to requirements) or code assessable and for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use in Part 5 - Tables of assessment;
 - ii. that is made impact assessment in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use or section 5.9 - Categories of development and assessment - local plans in Part 5 - Tables of assessment;
 - b. reconfiguring a lot:
 - i. that is code assessable and for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
 - ii. that is impact assessable in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
 - c. operational work that is accepted development (subject to requirements) and code assessable operational work - filling or excavation for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.8.1 - Operational work.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5 - Tables of assessment.

9.4.2.2 Purpose

1. The purpose of the code is to protect premises, people and natural processes from adverse impacts associated with filling or excavation.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. development protects:
 - i. natural physical processes and ecosystems;
 - ii. existing and planned infrastructure;
 - iii. personal health and safety and premises;

iv. visual amenity.

9.4.2.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.2.3.1 - Filling and excavation code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Protection of natural processes and ecosystems		
PO1 The discharge of sediments and pollutants from filling or excavation does not adversely affect a waterway or the stormwater network.	AO1 The discharge of sediments and pollutants to a waterway or stormwater network complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The development will comply with this requirement by implementing appropriate erosion and sediment control measures throughout the construction phase.
PO2 Topsoil and spoil stockpiled on the premises do not adversely affect natural processes and ecosystems.	AO2 Topsoil and spoil is stockpiled to comply with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The developer has been notified and will comply with this requirement.
PO3 Filling is carried out using stable, solid and clean earth, free of organic and putrescible waste, rubbish and refuse material.	AO3 Filling complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The developer has been notified of this requirement and will address it during the detailed design stage to ensure compliance.
Protection of existing and planned infrastructure		
PO4 Filling or excavation works do not adversely affect	AO4 Filling or excavation works comply with part 3.3 -	Complies.

infrastructure, including any services.	Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	
Protection and enhancement of personal health and safety and premises		
PO5 Filling or excavation works do not adversely affect personal health and safety.	AO5 Filling or excavation works comply with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The developer has been notified and will comply with this requirement.
Surface water flow		
PO6 Surface water drainage does not cause any of the following: a. ponding on any premises; or b. a hazard or adversely affect personal health and safety and premises; or c. diversion or concentration of flow from or onto adjoining premises or infrastructure.	AO6 Surface water drainage complies with part 3.3 - Filling or excavation standards in Planning scheme policy 5 - Infrastructure.	Site gradients and overland flow path management have been considered in the design to ensure compliance.
Batters		
PO7 A batter: a. does not adversely affect the natural physical processes and ecosystems; b. protects existing and planned infrastructure; c. is safe, stable and easily maintained; d. is landscaped to enhance visual amenity.	AO7 A batter is designed and constructed to comply with the standards specified in 3.3.6 - Batters and retaining walls in Planning scheme policy 5 - Infrastructure.	Complies
Retaining walls		
PO8 A retaining wall:	AO8 A retaining wall is designed and constructed to	Complies. Retaining walls will be fully contained within the property boundary, with adequate clearance from the boundary provided to

a. is not constructed of timber and is not located on existing or proposed lot boundaries, or movement networks; b. does not adversely affect the natural physical processes and ecosystems; c. is located to avoid conflict with adjoining premises; d. is located such that existing and planned infrastructure is not adversely affected; e. protects the visual amenity of adjoining premises or a public open space; f. is located within the premises that is being filled; g. is located within the premises that is cut and is designed to take any surcharge loading allowable on the uphill lot; h. is safe and stable; i. enables easy access for maintenance.	comply with the standards specified in section 3.3.6.2 - Retaining walls in Planning scheme policy 5 - Infrastructure.	accommodate drainage requirements. To be addressed during detail design stage.
Filling of a dam		
PO9 The filling of a dam: a. does not adversely affect the natural physical processes and ecosystems; b. creates a safe and stable surface; c. is integrated into the landscape.	AO9 The filling of a dam complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	Not applicable.

9.4.3 Infrastructure code

9.4.3.1 Application

1. This code applies to:
 - a. material change of use:
 - i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use in Part 5 - Tables of assessment;
 - ii. that is made impact assessment in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use or section 5.9 - Categories of development and assessment - Local plans in Part 5 - Tables of assessment;
 - b. reconfiguring a lot:
 - i. that is code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
 - ii. made impact assessment in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
 - c. operational work that is infrastructure work:
 - i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column Table 5.8.1 - Operational work in Part 5 - Tables of assessment.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5 - Tables of assessment.

9.4.3.2 Purpose

1. The purpose of the code is to ensure that infrastructure is provided to service development.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. development protects the existing infrastructure and planned infrastructure networks being the:
 - i. movement network;
 - ii. park network;

- iii. water network;
- iv. sewerage network;
- v. stormwater network;
- vi. other networks including electricity, gas and telecommunications;
- vii. land for community facilities network;
- b. development other than operational work provides infrastructure that is necessary to service the development, including elements of:
 - i. a safe, efficient and legible road network;
 - ii. a safe, efficient and legible public transport network;
 - iii. a safe, efficient and legible cycle network;
 - iv. a safe, efficient and legible pedestrian network;
 - v. a safe, efficient and legible parks network;
 - vi. a safe and efficient water network;
 - vii. a safe and efficient sewerage network;
 - viii. a safe and efficient stormwater network;
 - ix. safe and efficient other networks including electricity, gas and telecommunications;
 - x. a safe and efficient road lighting network;
 - xi. land for a community facilities network;
- c. development integrates with existing and planned infrastructure networks;
- d. infrastructure is designed and constructed to deliver a standard of service that is efficient and equitable;
- e. the cost to the community for the life of the infrastructure is minimised by providing for a suitable design life, ease of maintenance and ease of replacement;
- f. development appropriately manages refuse and recycling storage and collection;
- g. infrastructure protects personal health and safety and premises;
- h. infrastructure protects environmental values.

9.4.3.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
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For accepted development (subject to requirements) and assessable development		
Provision, design, construction and location of infrastructure		
PO1 Development is demonstrated to be capable of being serviced by necessary infrastructure.	AO1 Reports, plans and drawings are provided in accordance with part 2 of Planning scheme policy 5 - Infrastructure.	Plans and reports have been provided to demonstrate compliance.
PO2 Development: a. provides necessary infrastructure to service the development; b. provides that the design, construction and location of necessary infrastructure: i. protects existing and planned infrastructure networks; ii. services proposed development; iii. integrates with existing and planned infrastructure networks; iv. delivers a standard of service that is efficient and equitable; v. minimises the cost to the community for the life of the infrastructure by providing a suitable design life, ease of maintenance and ease of replacement; vi. protects personal health, safety and premises; vii. protects environmental values.	AO2 Development: a. in a water supply service area connects to the water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; b. not in a water supply service area provides a tank with a minimum storage capacity of 45,000 litres; c. in a sewerage supply service area connects to the waste water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; d. not in a sewerage supply service area complies with part 1 of the Queensland Plumbing and Wastewater Code; e. provides stormwater infrastructure in accordance with part 3.6 of Planning scheme policy 5 - Infrastructure; f. provides a movement network infrastructure in accordance with part 3.4 of Planning scheme policy 5 - Infrastructure; g. provides parks in accordance with part 3.12 of Planning scheme policy 5 -	Complies, Infrastructure connection strategy is provided in the engineering reports submitted for the development approval.

	Infrastructure; h. provides road lighting in accordance with part 3.5 of Planning scheme policy 5 - Infrastructure; i. provides electricity reticulation in accordance with part 3.8 of Planning scheme policy 5 - Infrastructure; j. provides gas and telecommunications reticulation in accordance with part 3.9 of Planning scheme policy 5 - Infrastructure. k. is consistent with the general planning layouts in part 7.2 of Planning scheme policy 5 - Infrastructure. Editor's note - The delivery of any part of a network identified in the plans for trunk infrastructure is governed by Part 4 - Local government infrastructure plan.	
Location of development		
PO3 Development is located to protect trunk infrastructure networks.	A03 Development is located outside a network identified in Local government infrastructure plan map LGIP-03.00 to 08.00 Plans for trunk infrastructure in Schedule 3 - Local government infrastructure plan mapping and tables.	Not applicable
Fire fighting		
PO4 Development in a water service area accessed by common private title provides: a. fire hydrant infrastructure; b. unimpeded access for emergency services vehicles. Editor's note - The term common private title refers to areas such as access roads in community title developments or	A04 Development in a water service area involving a material change of use or reconfiguring a lot where, or to be, accessed by common private title ensures that fire hydrant placement and technical requirements for streets and access ways are in accordance with:	Not applicable

strata title unit access, which are private and under group or body corporate control.	a. Australian Standard (AS) 2419.1 - 2005 <i>Fire hydrant installations</i>; b. QFES: <i>Fire Hydrant and vehicle access guidelines for residential, commercial and industrial lots</i>.	
PO5 Development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for fire fighting purposes.	AO5 Development: a. is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or b. has on-site water storage in accordance with Table 9.4.3.3.2 - Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: i. a separate tank; or ii. a reserve section in the bottom part of the main water supply tankwater tank. Editor's note - The requirement in AO5 is: - in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development; - reflected in AO5 in Table 8.2.3.3.1 - Bushfire hazard overlay code: accepted development (subject to requirements) and assessable development.	Complies. A complete hydraulic design and associated investigations will be undertaken during the detailed design stage.
Waste management		
PO6 Development provides refuse and recycling	AO6.1 Development provides refuse and recycling	Complies. Refer architectural and traffic engineering submissions.

collection and storage facilities that are located and managed so that adverse impacts on building occupants, neighbouring properties and the public realm are minimised.	collection and storage facilities in accordance with Planning scheme policy 9 - Waste management. AO6.2 Development ensures that the location and design of refuse and recycling collection and storage facilities does not have any adverse impact including odour, noise or visual impacts on the amenity of land uses within or adjoining the development. Note - Planning scheme policy 9 - Waste management provides guidance on how to achieve this outcome.	
Disposal of trade waste		
PO7 The disposal of trade waste in a sewerage supply service area does not adversely affect the sewerage network.	AO7 The disposal of trade waste in a sewerage supply service area complies with the sewer admission standards in section 3.2.6 - Sewer admission standards in Planning scheme policy 3 - Environmental management.	Not applicable.
Roof water drainage and surface water drainage		
PO8 Development provides stormwater infrastructure for the drainage of the premises so as not to cause any of the following: a. ponding of stormwater on the premises; b. a hazard to personal health and safety; c. damage to premises; d. an increased risk of flooding to premises within the catchment.	AO8 Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	Complies. A detailed stormwater management plan will be submitted with the development application for assessment.
Natural flow of surface water		

PO9 Development provides that the natural flow of surface water is: a. not altered so as to cause a risk to personal health and safety or damage to property; b. not increased in intensity, velocity or frequency; c. not concentrated onto adjoining premises.	AO9 Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	Complies. Stormwater quality and quantity infrastructure will be provided to manage runoff intensity and discharge. A site-based stormwater management plan submitted with the application will address these requirements in detail.
Water sensitive urban design		
PO10 Development which provides stormwater infrastructure incorporates water sensitive urban design principles having regard to: a. protecting existing natural features and ecological processes; b. protecting the natural hydrologic behaviour of catchments; c. protecting the existing natural flow and water quality regimes of waterways; d. protecting water quality of surface and ground waters; e. minimising demand on the water network; f. minimising sewage discharges to the natural environment; g. integrating water into the landscape to enhance visual and ecological values.	AO10 Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	Complies.
Movement network		
PO11 The projected traffic levels for a use do not adversely affect the planned standards of service	AO11 Development does not cause or contribute to projected traffic levels:	Refer to the Traffic Engineering Report.

for a road or intersection.	a. exceeding the maximum vehicle trips per day in Table 3.4.1.4.2 in Planning scheme policy 5 - Infrastructure; or b. exceeding the maximum control delays through intersections in peak periods in Table 3.4.1.4.3 in Planning scheme policy 5 - Infrastructure.	
Integrated movement concept report		
PO12 Development which generates more than 3,000 vehicle trips per average weekday is designed to integrate the movement network to minimise the transportation costs required to service the use.	AO12 Development which generates more than 3,000 vehicle trips per average weekday provides an integrated movement concept report which integrates the planning of the movement network in accordance with part 2 and 3 of Planning scheme policy 5 - Infrastructure.	Refer to the Traffic Engineering Report.
For assessable development only		
Land use and transport integration		
PO13 Development within 400 metres of existing or future public passenger transport facilities where the total site area is 5,000m ² or more: a. supports a road hierarchy which facilitates efficient, safe and accessible bus services connecting to existing and future public passenger transport facilities; b. enhances connectivity between existing and future public passenger transport facilities and other transport modes; c. optimises the walkable catchment to existing and future public passenger	AO13 No acceptable outcome provided.	Not applicable

transport facilities; d. provides for direct and safe access to and use of existing or future public passenger transport facilities. Note - SPP code: Land use and transport integration in Appendix 4 of the state planning policy provides guidance to achieve this outcome.		
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Table 9.4.3.3.2 - Water storage for fire fighting

Column 1 Lot size / use type	Column 2 Water requirement
For each residential lot:	
a. less than 1,000m ²	5,000 litres
b. between 1,000m ² and less than 1 hectare	10,000 litres
c. greater than 1 hectare	20,000 litres
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard