67 & 69-75 Talinga Drive, Park Ridge QLD 4125

ENGINEERING REPORT & STORMWATER MANAGEMENT PLAN

November 2024

Project No.: 24112 | Revision No.: B

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vT CONSULTING ENGINEERS

Contents

Document Status:

REVISION	PREPARED BY	REVIEWED BY	DATE
A	P Rowel	A. van Tonder RPEQ 16132	22/10/2024
B	P Rowel	A. van Tonder RPEQ 16132	12/11/2024

1. Introduction

vT Consulting Engineers has been commissioned by Urban Strategies Pty Ltd to prepare this engineering services report and stormwater management plan. The proposed development is located at 67 & 69-75 Talinga Drive, Park Ridge QLD 4125. The site locality is illustrated in Figure 1.1. This report is being submitted to support the Development Approval for the proposed residential subdivision development for Logan City Council's consideration.

Refer attached Appendix A for proposed layout plans and details.

The following report will detail civil engineering requirements for the development.

Street Address	67 & 69-75 Talinga Drive, Park Ridge QLD 4125
Real Property Description	Lot 35 & 36 SP179449
Total Site Area	22,383 m^2
Proposed Use	Proposed Residential Subdivision
Local Authority	Logan City Council

Figure 1.1 Site Layout Plan (Nearmap)

The site is situated in an emerging community zone area fronting Talinga Drive. Both lots 36 and 35 on SP179449 are currently vacant, and predominantly grassed with trees and shrubs throughout the site. It is bounded by residential properties on all other sides.

2. Erosion and Sediment Control

Using the International Erosion Control Association's (IECA) Erosion Hazard Assessment Procedure AustIECA, 2016a), we believe the proposed development site represents a high erosion risk as trigger values resulted in a total score of 22 (Refer Appendix B for Erosion Hazard Assessment Form). IECA requires that a preliminary Erosion and Sediment Control Plan (ESCP) be submitted to the local government for approval during the planning phase if the development obtains a total point score of 17 or greater or when any trigger value is scored or exceeded.

The construction contractor is responsible for ensuring that soil and debris does not leave the site as well as the confines of the construction zone and is not deposited on external roads or existing in-use areas due to the proposed earthworks and construction activity.

Acid Sulphate Soils

The local council is listed in the Glossary (Acid Sulphate soil affected area) in State Planning Policy July 2017, indicating that this development application may require compliance with the State Planning Policy July 2017 acid sulphate soils development objectives.

Acid sulphate soil testing is typically conducted in areas with reduced levels of less than 5.0m Australian Height Datum (AHD) as stated in State Planning Policy July 2017. This policy also states that developments below 20.0m AHD that involve a Material Change of Use or operational works are required to be assessed against the State Planning Policy July 2017 acid sulphate soils development objectives. As the lowest point on this site is an approximate level **of RL 63.00,** we believe that there is a low possibility of acid sulphate soil being present, and therefore testing would not be likely.

Figure 2.1 provides a visual aid to determining assessable development.

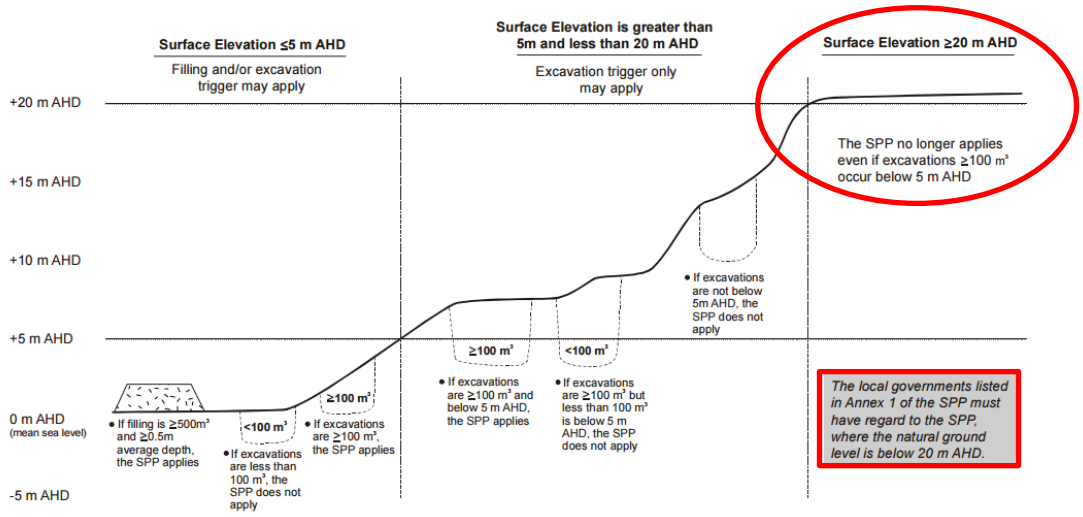


Figure 2.1 Acid Sulphate Soils assessment diagram (Adapted from SPP Water Quality State Interest Guideline 2016)

As the proposed excavations are not expected to be below RL5.0m AHD, the State Planning Policy does not apply. The requirements for Acid Sulphate Testing will be confirmed by a geotechnical engineer prior to the detailed design stage of this proposed development.

Land Disturbing Activities

Important causes/issues of erosion for this site would consist of the following:

- Precipitation and consequent run-off
- Stripping and removal of topsoil
- Removal of fill
- Other earthwork operations
- Heavy vehicle use on site
- Wind erosion

The proposed development will be programmed so that the shortest period of time elapses between ground cover removal and restoration.

Erosion and Sediment Control Measures

Sediment control filter fabric will be securely placed around the downstream boundaries of the construction site. This will ensure sediment is trapped before being released into the catchment. Refer Appendix C.

An ESC measure will be provided at any vehicular access points to the site. Construction and maintenance details are given in Appendix C. A temporary construction entrance will be provided from the adjacent roads for access during construction.

A filter sock sediment trap will be utilized on all downstream stormwater inlets. Refer Appendix C for construction and maintenance details.

No clearing will be undertaken unless preceded or accompanied by installation of adequate run-off and sediment control measures, as described above.

Following practical completion of the project a minimum of 70% coverage of all soil with ground cover (i.e. topsoiling and seeding) will be provided within 30 calendar days.

During the demolition and construction phases, spraying of water will be used with care to act as a dust suppression method.

Monitoring and Maintenance Programs

Water discharge from the site will adhere to a total suspended solid content of less than 50 milligrams per litre and a pH range of between 6.5 and 8.5 at all times. If the pH of the flocculated water is not achieved, then pH adjustments will be required. This could possibly be done by a dosing of lime.

Site personnel will inspect all erosion and control measures at least at the following frequencies:

- Daily during construction works,
- Weekly when construction works are not happening,
- Within 24 hours of expected rain, and
- Within 18 hours of an impacting rainfall event.

All erosion and sediment control measures that have an order of efficiency below 75% will be corrected by the end of that working day.

3. Earthworks

For the purpose of this proposed development, earthworks will be conducted for constructing the new proposed building platforms, retaining walls and access driveway. Excavation on site will be required for the service trenches. Any excess cut will need to be removed from the site by the contractor.

4. Roadworks

The proposed development fronts onto Talinga Drive. Talinga Drive is identified at a local trunk road as per Council's LGIP. New vehicle crossover will be provided as shown on the proposed layout plans. No external roadworks are proposed, and internal roads will be constructed to provide access to the proposed lots within the development site. Existing crossover access of 67 Talinga Drive will be demolished and to be reinstated to match existing profile.

According to the traffic impact assessment prepared by TTM, their desktop assessment has indicated that a Basic Left/Right turn treatment is required for access to Talinga Drive.

All new roads are to be constructed in accordance with Logan City Council standards and specifications.

5. Stormwater Drainage

A. Existing Stormwater Drainage

Stormwater runoff from the existing site flows eastward as overland flow through neighbouring lots, and eventually discharges into a 900mm diameter stormwater culvert located on Talinga Drive.
Figure 5.1 below shows the existing stormwater drainage in the area of the site.

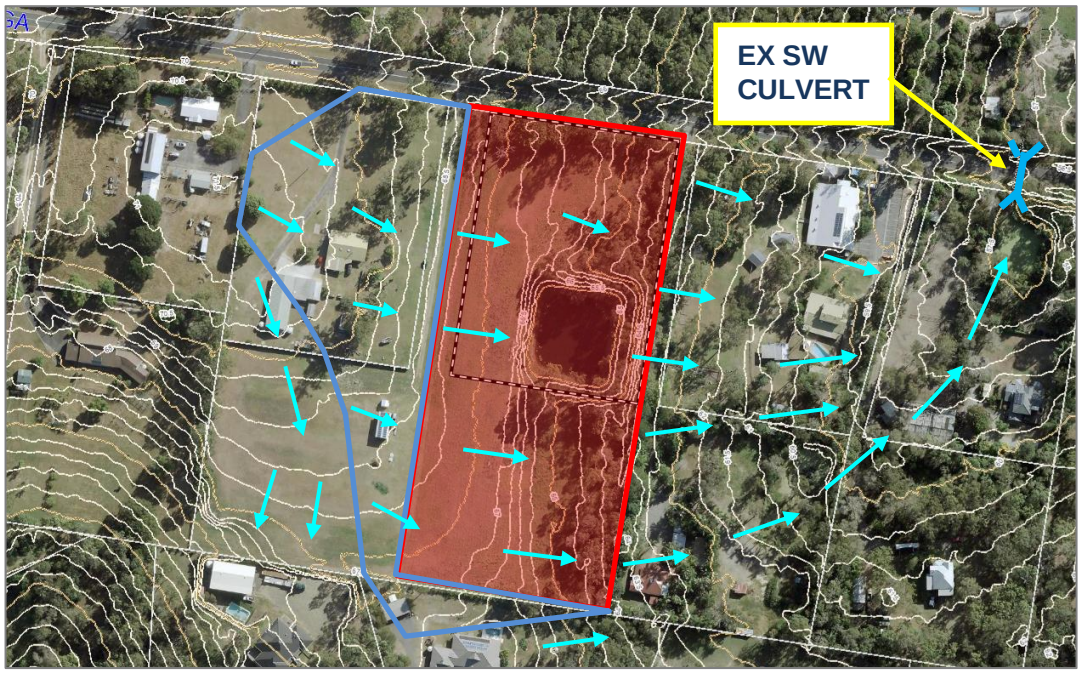


Figure 5.1 Stormwater Drainage -Logan City Council Interactive Mapping

B. Lawful point of discharge

In compliance with the Queensland Urban Drainage Manual, Section 3.9 lawful point of discharge (LPOD) will be required so that stormwater to be released at a location that is under the lawful control of the local government or other statutory authority. Therefore, the stormwater swale along Talinga Drive in front of the site can be considered as the LPOD for the proposed subdivision development.

The aim of stormwater drainage system design over a range of design rainfall events will generally be to minimise changes to runoff patterns particularly at critical locations (such as lawful points of discharge) and to ensure that flows are not concentrated in such a way as to cause nuisance to downstream properties.

In compliance with the Queensland Urban Drainage Manual, it is proposed to maintain the same discharge strategy as the existing site condition and discharge stormwater from the subdivision to the existing LPOD, which is the swale along Talinga Drive.

C. Proposed stormwater drainage

It is proposed that stormwater runoff from the proposed subdivision development will be discharged to the existing lawful point of discharge, which is the swale along Talinga Drive.

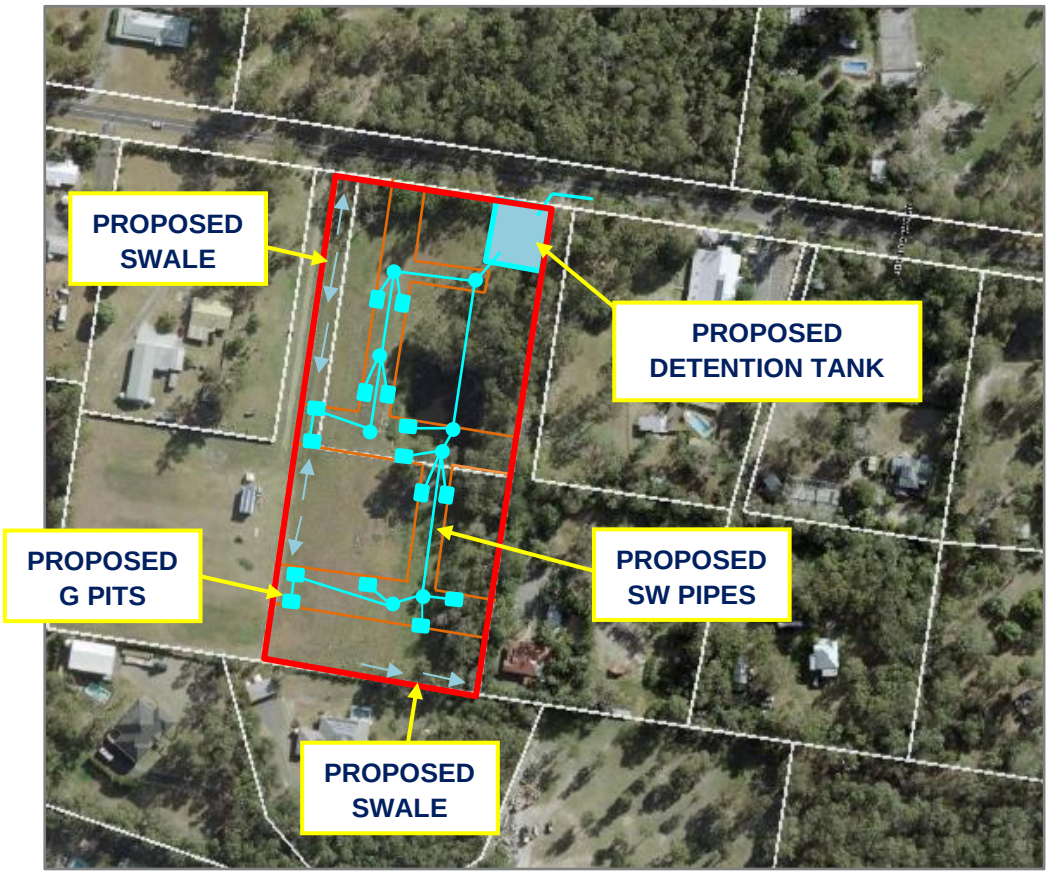


Figure 5.2 Proposed Stormwater Layout - LCC Interactive Mapping

It is proposed to construct new internal drainage that will capture and convey flows to an above ground bio retention/detention basin to mitigate and treat stormwater flows prior to discharging from the site. The proposed stormwater layout is shown in Figure 5.2 above.

Additionally, stormwater swales have been proposed along the western boundary to intercept runoff from the upstream catchment to the west of the site. Another swale has been proposed along the southern boundary to capture runoff from the external catchment to the south. The flows in this southern swale will be discharged into the eastern lots, consistent with the current conditions.

Refer to attached Appendix A for proposed layout plans and details.

D. Stormwater quality management

State Planning Policy

The State Planning Policy (SPP) applies for stormwater quality management and management of new or expanded non-tidal artificial waterways applies to development that is outlined below in Table 5.1.

SPP Part E: Interim development assessment requirements. State Interest – Water Quality	YES / NO
Material change of use for urban purposes that involves a land area greater than 2500m^2 that:	YES
will result in an impervious area greater than 25% of the net developable area	YES
Will result in 6 or more dwellings	YES
Reconfiguring a lot for urban purposes that involves a land area greater than 2500m^2 and will result in six or more lots:	YES
Operational works for urban purposes that involve disturbing more than 2500m^2 of land	NO

Table 5.1 Water Quality Objectives

The proposed development triggers some of the applicable items in the above Table 5.1, therefore, the SPP is applicable, and compliance **is** expected by the local government authority.

E. MUSIC Model

The software program Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Version 6 was used to assess pollutant generation and the performance of the stormwater treatment measures for the proposed development. Selection and testing of stormwater management options was undertaken in accordance with MUSIC Modelling Guidelines prepared by Water by Design (2018).

The catchment was further split to include pavement areas, road areas and landscaped areas in accordance with the MUSIC Modelling Guidelines prepared by Water by Design (2018).

Music Model Parameters

The split catchment parameters used as the MUSIC Pollutant Export Parameters are shown below in Table 5.2 and were derived from Table 3.9 of the MUSIC Modelling Guidelines prepared by Water by Design (2018).

FLOW TYPE	SURFACE TYPE	TSS LOG^{10} VALUES		TP LOG^{10} VALUES		TN LOG^{10} VALUES	
	Urban Residential	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Baseflow Parameters	Roof	N/A	N/A	N/A	N/A	N/A	N/A
	Road	1.00	0.34	-0.97	0.31	0.20	0.20
	Ground	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
	Road	2.43	0.39	-0.30	0.31	0.26	0.23
	Ground	2.18	0.39	-0.47	0.31	0.26	0.23

Table 5.2 Source Node MUSIC Pollutant Export Parameters

The parameters used as the MUSIC Rainfall-Runoff Parameters are shown in the table 5.3 below, and were derived from Appendix A, Table A1.2 of the MUSIC Modelling Guidelines prepared by Water by Design (2018).

Parameters	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 Exponent - b	5.0
Initial Depth (mm)	50
Daily Recharge Rate (%)	28
Daily Baseflow Rate (%)	27
Daily Deep Seepage Rate (%)	0

Table 5.3 MUSIC Rainfall-Runoff Parameters

Music Model Treatment Parameters

The bioretention system is designed to treat the stormwater runoff by filtering the runoff through densely planted vegetation and percolating the runoff through the filter media. The proposed design is in accordance with the Water Sensitive Urban Design Technical Design Guidelines (by Water by Design) and a typical system is shown in the figure 5.3 below.

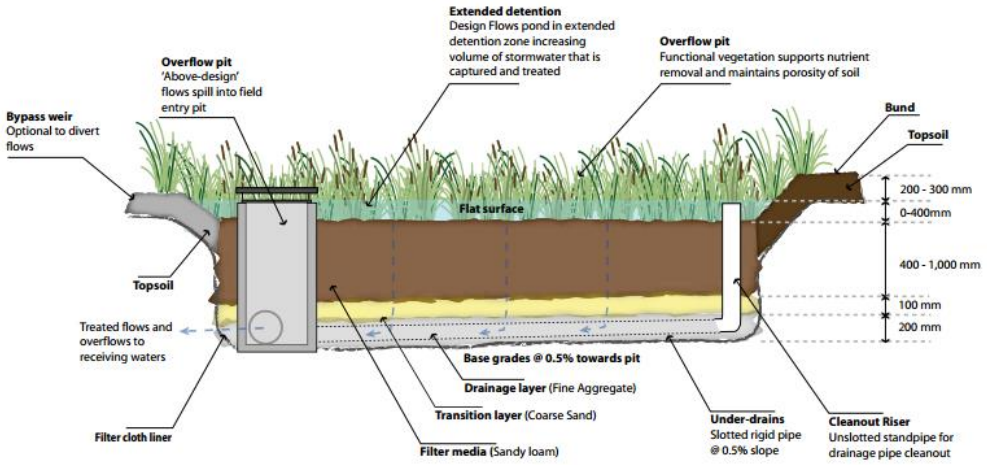


Figure 5.3 Water by Design Bioretention System

The bioretention treatment node parameters used in the MUSIC model are shown in the table 5.4 below.

Parameter	BIORETENTION BASIN
Low Flow By-Pass (m^3/s)	0.00
High Flow By-Pass (m^3/s)	100
Extended Detention (m)	0.10
Surface Area (m^2)	475
Filter Media Area (m^2)	475
Unlined Filter Media Perimeter (m)	0.01
Sat. Hydraulic Conductivity (mm/hr)	200
Filter Depth (m)	0.40
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	30
Exfiltration Rate (mm/hr)	0.00
Is Base Lined?	No
Vegetated with Effective Nutrient Removal plants	Yes
Overflow Weir Width (m)	4.00
Underdrain Present?	Yes
Submerged Zone With Carbon Present?	No

Table 5.4 Water Quality Treatment Bioretention Nodes

F. MUSIC Model Results

Using the MUSIC software, the treatment train for the catchment areas was designed to comply with the water quality objectives (WQO). It was determined that the water quality objectives for the whole proposed development were met as shown in the table below:

POLLUTANT TYPES	WQO OBJECTIVES REDUCTION (%)	MUSIC MODEL RESULTS (%)
Total Suspended Solids (kg/yr)	80.0	93
Total Phosphorus (kg/yr)	60.0	85.8
Total Nitrogen (kg/yr)	45.0	60.2
Litter/gross pollutants (kg/yr)	90.0	100

Table 5.5 Water Quality Treatment Results

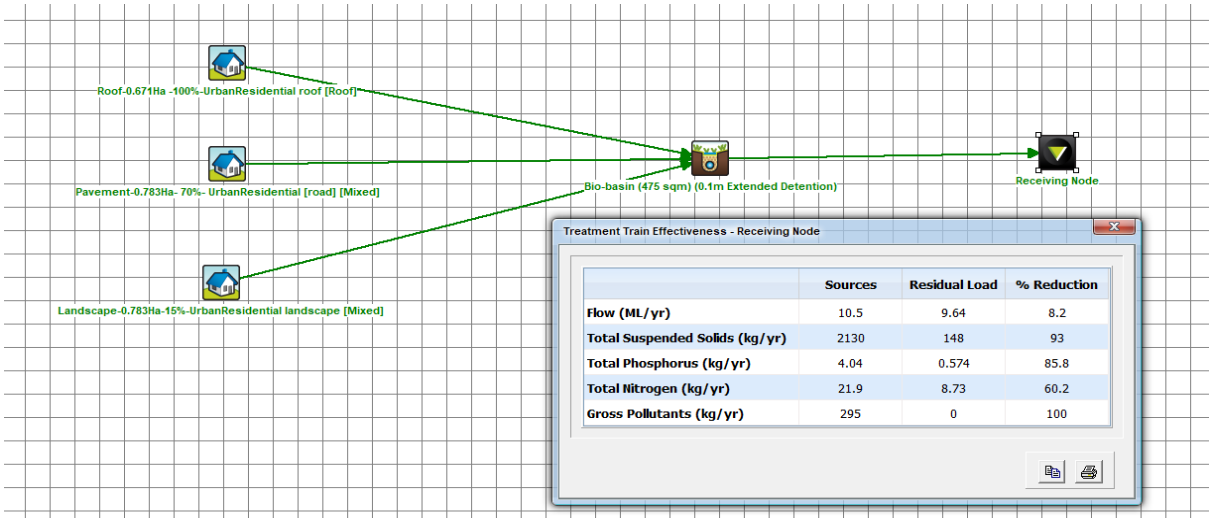


Figure 5.4 MUSIC Model Treatment Results

As shown by the above results, the proposed stormwater treatment train adopts best practice stormwater treatment and will achieve the required Water Quality Objectives. The proposed design is in accordance with the Water Sensitive Urban Design Technical Design Guidelines (by Water by Design).

G. Stormwater quantity management

Catchment

The proposed subdivision development will have a larger impervious area than the existing site and will require a stormwater detention system to mitigate the effects of the additional runoff and to ensure no actionable nuisance is caused to surrounding properties.

Time of Concentration

The time of concentration for the pre-developed site was calculated in accordance with Queensland Urban Drainage Manual (QUDM) Section 4.6.6. The post-developed site adopted a 16 minute time of concentration in accordance with QUDM Table 4.6.3.

Detailed calculations of the flow from the site are summarised in the table below:

Table – sheet flow time, pipe flow time, etc.

PARAMETERS				
Catchment Area - Developed	22383 m^2	Fraction Impervious (f_i)	0.80	
Catchment Area - Undeveloped	22383 m^2	Fraction Impervious (f_i)	0.85	
Runoff Coefficient (C10) - Developed:	0.86	Time of concentration, t_c =	16	min.
Runoff Coefficient (C10) - Undeveloped:	0.70	Time of concentration, t_c =	19	min.

ARI			2yr	5yr	10yr	20yr	50yr	100yr
Rainfall Intensity	16 min	mm/hr	80	110	130	149	174	192
Rainfall Intensity	19 min	mm/hr	73	101	119	137	160	177
Frequency Factor		F_y =	0.85	0.95	1.00	1.05	1.15	1.20
Developed C		C_d =	0.73	0.82	0.86	0.90	0.99	1.00
Undeveloped C		C_u =	0.60	0.67	0.70	0.74	0.81	0.84

SUMMARY FLOWS									
Developed Flows	Q_u =	C*I*A	l/s	361.8	558.8	695.1	836.5	1069.9	1193.8
Undeveloped Flows	Q_u =	C*I*A	l/s	270.4	417.6	517.9	626.1	800.8	924.4
Increase in runoff flows				91.4	141.2	177.2	210.5	269.1	269.3

Table 5.6 Quantity Summary using Rational Method

The proposed development will have a larger impervious area than the existing site and will require a stormwater detention system to mitigate the effects of the additional runoff.

The stormwater runoff from the development site will discharge into the proposed detention basin to ensure no actionable nuisance is caused to surrounding properties.

Stormwater Detention System

XP Storm is a software package for dynamic modelling of urban stormwater systems, river systems and floodplains. XP Storm was used to determine the required detention storage volume to ensure that the developed flow is equal to or less than the pre-development flow. The Laurensen method was used for determining the volume of runoff within the XP Storm model. Figure 5.5 shows the pre-development stormwater flows for various storm events. For clarity, only the maximum storm events for each return period are shown.

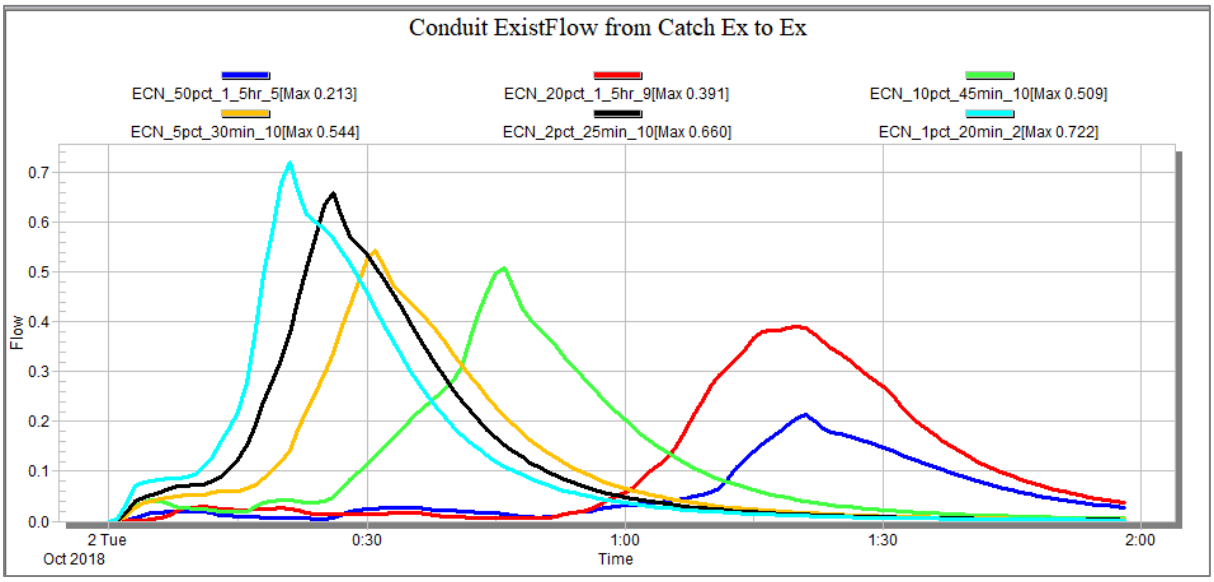


Figure 5.5 Existing stormwater flows for various storm events

As a check for the XP Storm model, the Rational Method was used as outlined in Section 4.3 of the Queensland Urban Drainage Manual (QUDM 2017), to determine the peak flow rate corresponding to the minor and major storm events for the existing conditions. It should be noted that the Rational Method was not used in the calculation of detention volumes but rather as a check that the peak flow outputs for the existing scenario in the XP Storm model were feasible.

Comparing the results from Figure 5.5 and the undeveloped flows within Table 5.6, the relationship is good between the XP Storm and Rational method results and therefore the XP Storm model output is acceptable.

EVENT	RATIONAL METHOD (l/s)	XPSTORM MODEL (l/s)
2yr	270	213
5yr	418	391
10yr	518	509
20yr	626	544
50yr	801	660
100yr	924	722

Table 5.6 Rational Method vs XP Storm Pre-Development flows

Settings within the XP Storm models are shown in Tables 5.7. Results summaries are shown in Tables 5.8.

PARAMETER	DETENTION TANK
Detention Volume (m^3)	455.65
Base Area (m^2)	190
Minor Orifice Area (m^2)	0.16 (0.30mx0.525m) @IL 64.42
Med Orifice Area (m^2)	0.14 (0.20mx0.70m) @IL 64.95
Major Orifice Area (m^2)	0.12 (2 Nos 0.10mx0.60m) @IL 65.4

Table 5.7 Detention Parameters

EVENT	PRE-DEVELOPMENT (l/s)	POST-DEVELOPMENT (l/s)
2yr	213	213
5yr	391	366
10yr	509	476
20yr	544	541
50yr	660	646
100yr	722	716

Table 5.8 Pre- and Post-Development outlet flows

The detention basin was sized using the XP Storm model, the results of which are shown in Figures 5.6.

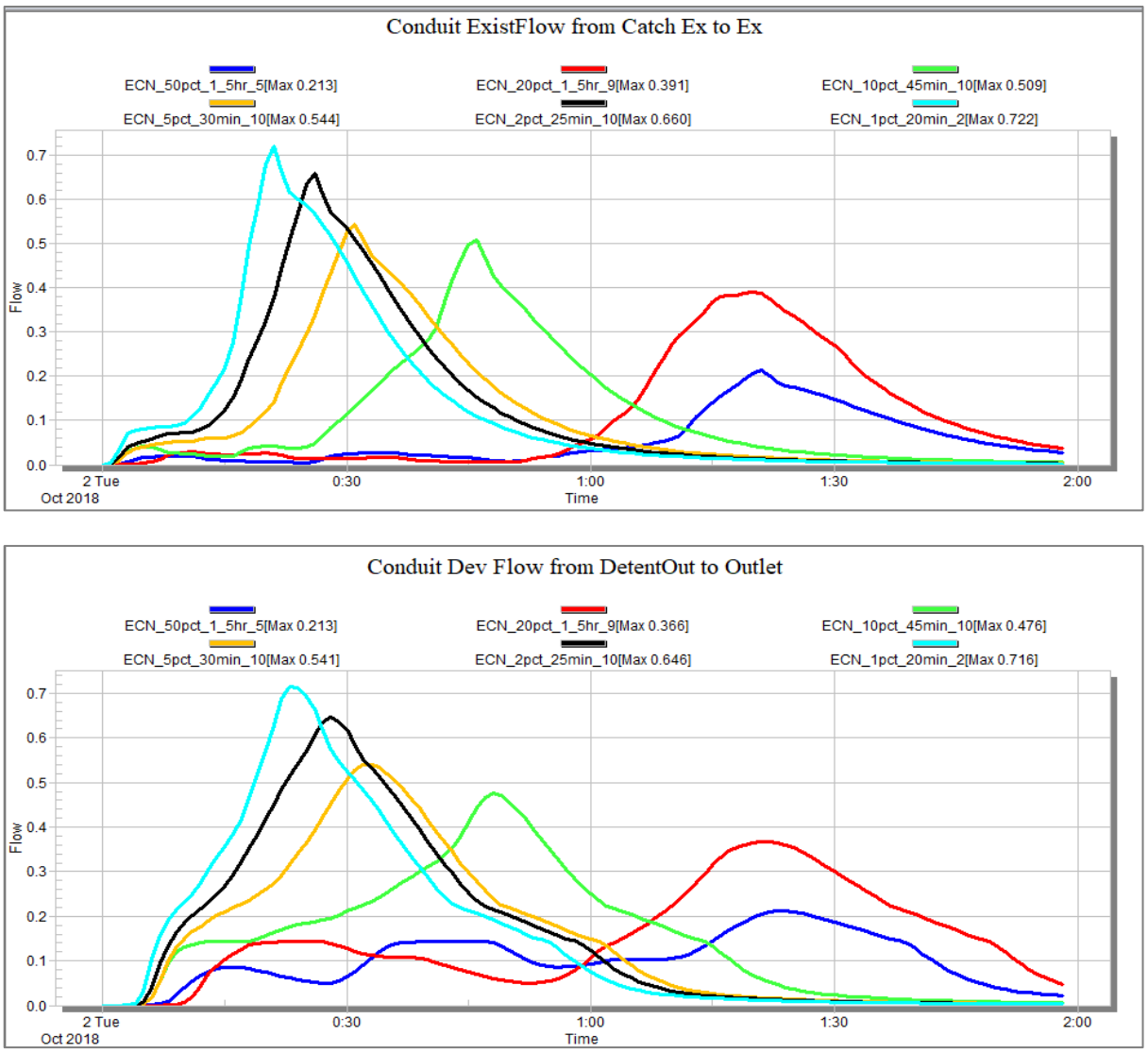


Figure 5.6 Undeveloped vs. Developed stormwater flows for various storm events

Figure 5.5 shows comparisons of the 2yr, 5yr, 10yr, 20yr, 50yr and 100yr flow events for pre- and post-development scenarios using a detention basin volume of **455.65m^3** plus freeboard.

H. External catchments

Based on site survey data, interactive mapping, and available records, it has been determined that external catchments to the west and south of the proposed development discharge through the subject site as sheet flow. Appendix A illustrates the applicable external catchment area that impacts the site. The western catchment is estimated to cover an area approximately 13,205 m², while the southern catchment covers an area around 2070 m², both contributing to the existing flows through the site.

I. Maintenance

Construction Phase Management Plan

Potential construction phase impacts include the following:

- Sedimentation and erosion
- Management of contaminated soils and materials on the site Construction Material (such as cement)

General

The objective of the Construction Phase Management Plan is to comply with the requirements of the Queensland Environmental Protection Act 1994 and Environmental Protection (Water) Policy 2009 so that the environmental values of effected receiving waters are maintained or enhanced. In essence the purpose of the Plan is to prevent polluted stormwater being discharged to the local waterways.

Performance Indicators

The management is not being effective when any of the following occur during the construction phase of the project.

- The required water quality objectives are not achieved,
- Contaminated water is released off site.

Construction Phase Management of Sedimentation and Erosion

Existing vegetation from site will be removed in stages as required to reduce the likelihood of surface erosion. A sediment and siltation fence will be erected around the property boundary to ensure that sediment is not washed off site and onto adjacent properties or roads. Entry and exit from the site will be restricted to a single stabilised location to minimise the rise of onsite transport of silt sediment or mud. It is anticipated that a layer of crushed rock will provide the necessary stabilisation of the access route. If required a specific bunded wash down area will be provided for the cleaning of plant before leaving the site and all wash down wastewater will be collected. In the event that debris or sediment leaves the site it will be cleaned.

Management of Imported Materials

Any material imported to the site including construction materials will be stockpiled in a location where it cannot contaminate the stormwater system or stormwater runoff.

Complaint Response

The contractor will erect signage at the entrance to the works with contact information, including afterhours contact numbers. The contractor will properly deal with all complaints.

Monitoring and Reporting

All sediment and erosion control devices will be checked daily and after rainfall events by the construction site supervisor. Defective or full devices will be cleaned and repaired as required. Regular inspections and maintenance of the storm water system will be carried out by the property owner. The civil components (structural and erosion) are to be assessed by a suitably qualified engineer as required.

Stormwater Treatment Systems

The design, installation and ongoing maintenance of the stormwater treatment systems is to be in accordance with the manufacturers specifications.

It remains the service provider and user's responsibility to maintain the treatment and site in accordance with the current State Planning Policy and legislation requirements.

Lifecycle cost assessment

There will be no abnormal capital or recurrent costs for the proposed stormwater strategy.

6. Flood Planning and Overland Flow

Figure 6.1 below shows the extent of flooding in relation to the site. As shown, the site is not impacted by river, creek or waterway and overland flow sources. In addition to this, there are currently no Coastal Hazard Overlays that apply this property. Although the project development site is not located within an overland flow area, it is still anticipated that development complies with Logan City Council's flooding requirements.

vT Consulting Engineers have not been commissioned to complete a flood assessment report for this development.

Please refer to Appendix D for a copy of the Logan City Council's Floodwise Property Report for 67 & 69-75 Talinga Drive, Park Ridge QLD 4125.

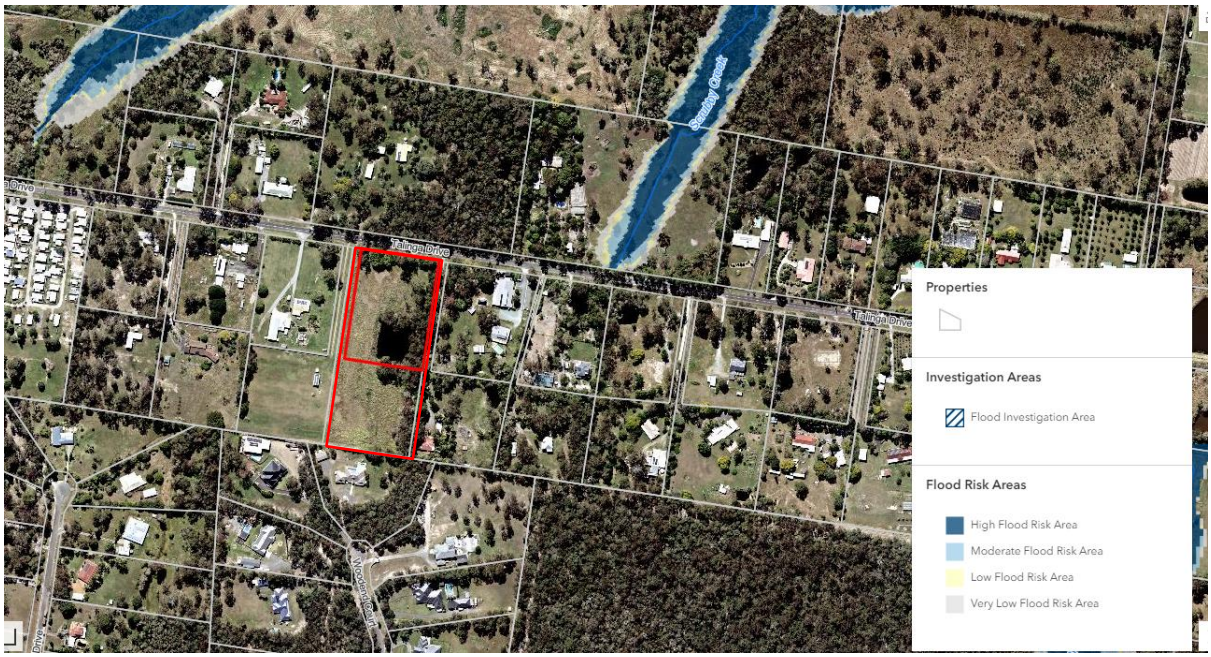
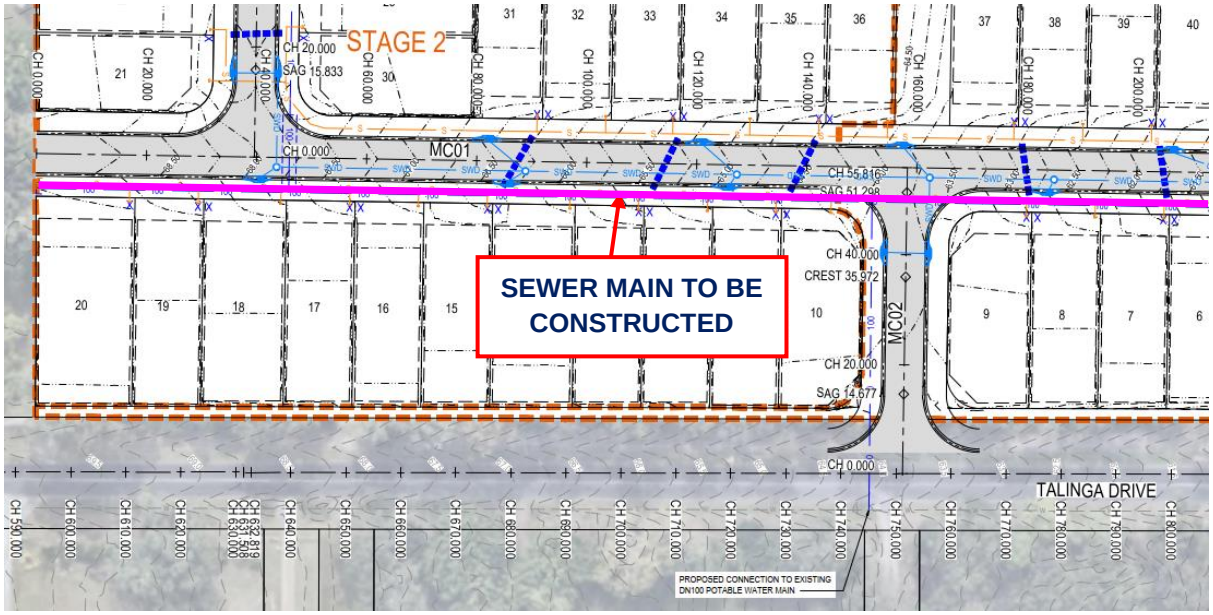


Figure 6.1 Logan City Council Interactive Mapping – Flood Planning Areas

7. Sewer Reticulation

There are no sewer mains within the immediate vicinity of the site. Logan City Council has indicated there are no planned upgrades for sewer infrastructure in the vicinity of the site.

Logan City Council Development Enquiry shows that a decision is pending for a proposed future development on Lot 3 RP131003 across Talinga Road under ongoing application (COM/77/2023). As part of this development, a gravity sewer main is proposed to run parallel to Talinga Drive (shown in magenta below) throughout the site, as shown below.



It is proposed to connect the sewer from the proposed development site to the new gravity sewer main proposed across Talinga Drive on Lot 3 RP131003. Please refer to Figure 7.1.

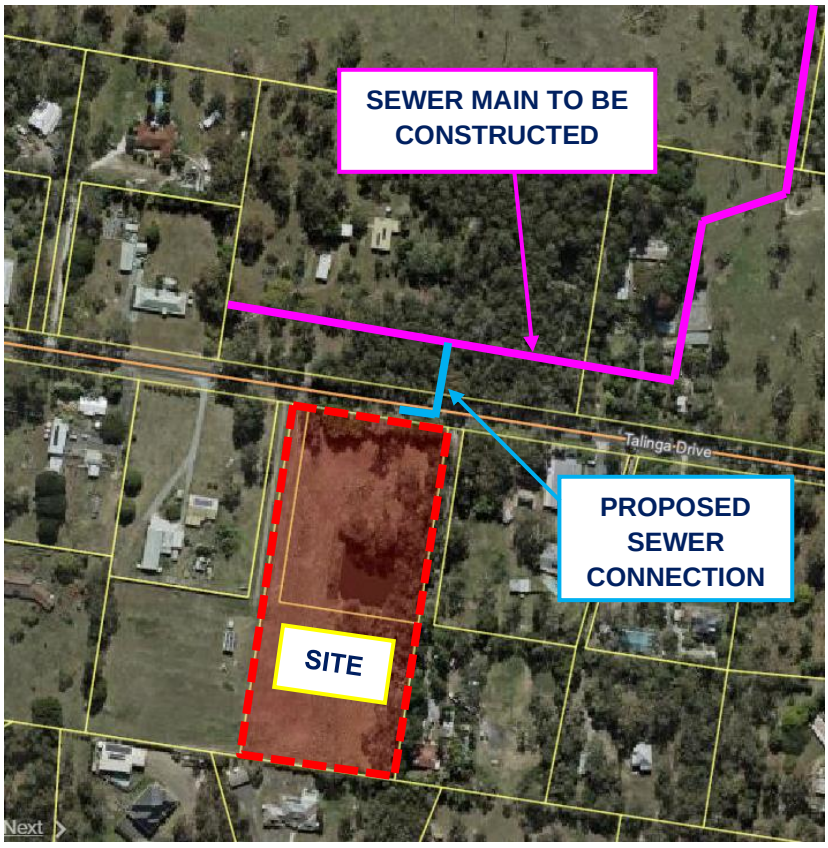


Figure 7.1 Proposed Sewer Connection for the development

This connection is subject to the completion of the sewer infrastructure as part of the development on Lot 3 RP131003. Therefore, it is proposed that the proposed subdivision development be undertaken after the new sewer infrastructure on lot 3 RP131003 is completed.

It is believed that the sewer infrastructure work at Lot 3 RP131003 will be completed before the proposed development work begins. However, if the development work on Lot 3 Rp131003 does not proceed as expected, an interim service strategy for the proposed development will be required.

For more details refer to the engineering plans in Appendix A.

Internal house drainage design for this proposed development will be by others.

8. Water Reticulation

It is proposed to establish a new connection from the water main running along Talinga Drive to service the proposed subdivision development on Lot 35 & 36 SP179449 in accordance with LCC and SEQ Code design standards. The fire hydrant at the front of the site is situation in Talinga Drive to service the proposed subdivision development. Please refer to Figure 7.1.

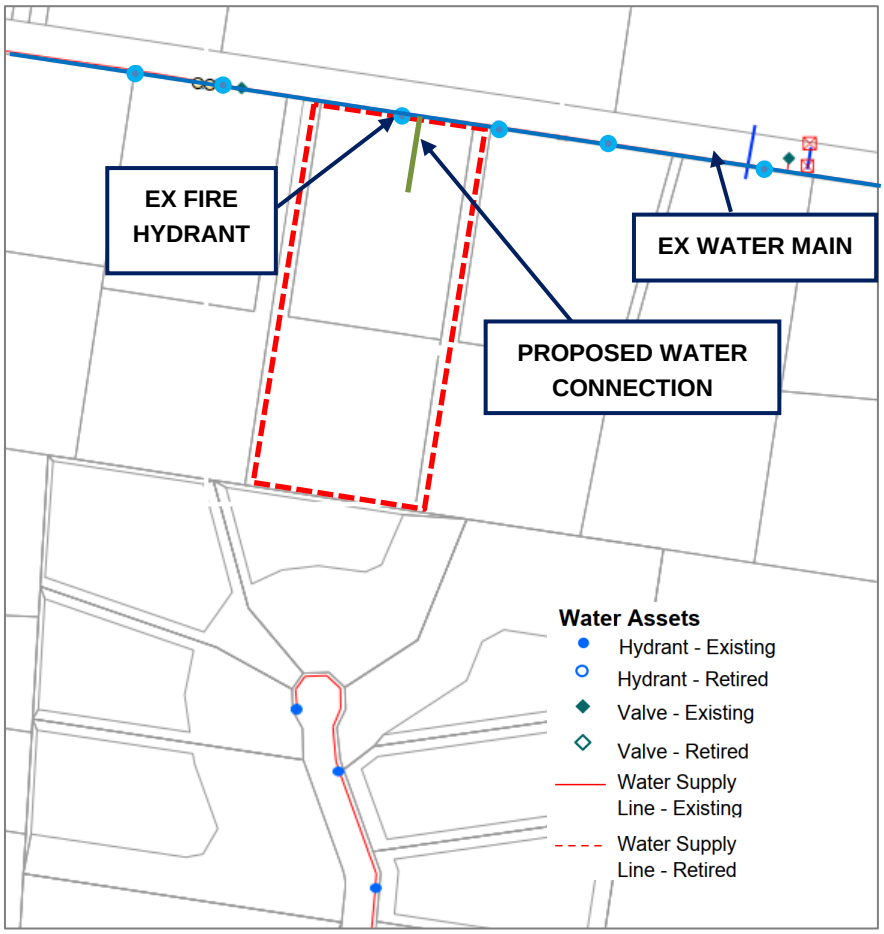


Figure 7.1 DBYD sewer and reticulated water infrastructure plan (Aug 2024)

The domestic and fire supply requirements to service the development is to be confirmed by a hydraulic consultant at detailed design.

For more details refer to the engineering plans in Appendix A.

The Internal water supply design for this proposed development will be by others.

9. Electrical and Telecommunication

The electrical supply and communications supply for this proposed development will be by others.

10. Development Codes

The following applicable Local Codes have been completed to address the proposed development and are included in Appendix E:

- Logan City Council Infrastructure Code
- Logan City Council Filling and Excavation Code
- Logan City Council Potential and Actual Acid Sulphate Soils Overlay Code

11. Safety in Design

At the time of preparing this report, it is considered that there is no atypical safety in design issues for a project of this type and use. Typical issues to be reviewed include but are not limited to construction activities, falls, confined spaces, excavations, and hazardous materials.

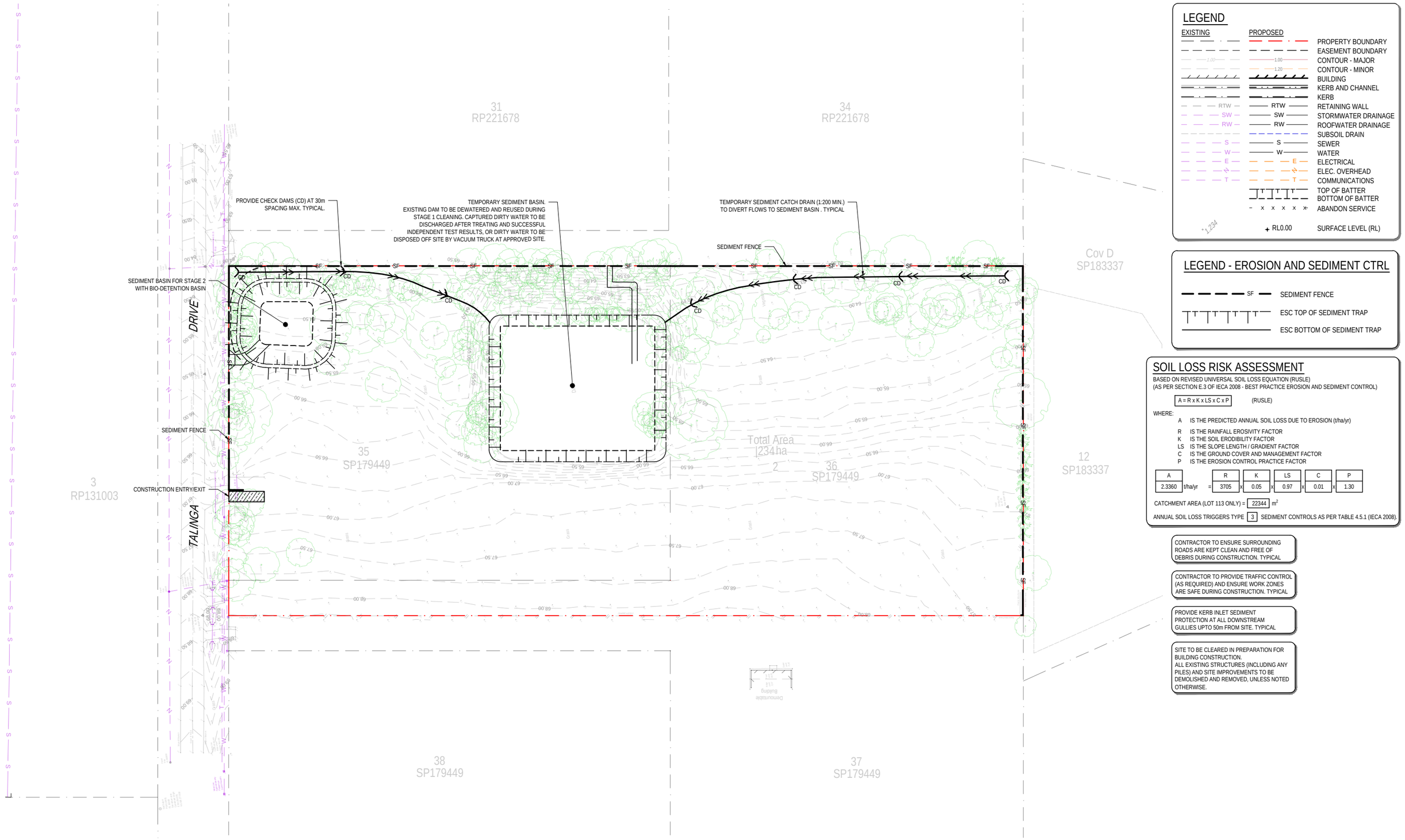
A full review of and preparation of a Safety In Design report will be conducted during the detailed design of the project by the project design engineer. The ongoing implementation, review and amendments to the Safety in Design register is to be by the property owner or users.

12. Conclusions

vT Consulting Engineers has undertaken a preliminary review of civil engineering services required for the proposed development located at 67 & 69-75 Talinga Drive, Park Ridge QLD 4125.

Based on all the findings outlined in this report, vT Consulting Engineers believes that, should the recommendation contained within the report be implemented, there are no significant engineering issues in relation to this development.

Appendix A - Proposed Preliminary Design Drawings



LEGEND

EXISTING	PROPOSED	
		PROPERTY BOUNDARY
		EASEMENT BOUNDARY
1.00	1.00	CONTOUR - MAJOR
1.20	1.20	CONTOUR - MINOR
		BUILDING
		KERB AND CHANNEL
		KERB
RTW	RTW	RETAINING WALL
SW	SW	STORMWATER DRAINAGE
RW	RW	ROOFWATER DRAINAGE
		SUBSOIL DRAIN
S	S	SEWER
W	W	WATER
E	E	ELECTRICAL
OH	OH	ELEC. OVERHEAD
T	T	COMMUNICATIONS
		TOP OF BATTER
		BOTTOM OF BATTER
		ABANDON SERVICE
+1.234	+ RL0.00	SURFACE LEVEL (RL)

LEGEND - EROSION AND SEDIMENT CTRL

- SF — SEDIMENT FENCE
- ESC TOP OF SEDIMENT TRAP
- ESC BOTTOM OF SEDIMENT TRAP

SOIL LOSS RISK ASSESSMENT

BASED ON REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE)
(AS PER SECTION E.3 OF IECA 2008 - BEST PRACTICE EROSION AND SEDIMENT CONTROL)

$A = R \times K \times LS \times C \times P$ (RUSLE)

WHERE:

- A IS THE PREDICTED ANNUAL SOIL LOSS DUE TO EROSION (t/ha/yr)
- R IS THE RAINFALL EROSIVITY FACTOR
- K IS THE SOIL ERODIBILITY FACTOR
- LS IS THE SLOPE LENGTH / GRADIENT FACTOR
- C IS THE GROUND COVER AND MANAGEMENT FACTOR
- P IS THE EROSION CONTROL PRACTICE FACTOR

A			R		K		LS		C		P
2.3360	t/ha/yr	=	3705	x	0.05	x	0.97	x	0.01	x	1.30

CATCHMENT AREA (LOT 113 ONLY) = 22344 m^2

ANNUAL SOIL LOSS TRIGGERS TYPE 3 SEDIMENT CONTROLS AS PER TABLE 4.5.1 (IECA 2008).

CONTRACTOR TO ENSURE SURROUNDING ROADS ARE KEPT CLEAN AND FREE OF DEBRIS DURING CONSTRUCTION. TYPICAL

CONTRACTOR TO PROVIDE TRAFFIC CONTROL (AS REQUIRED) AND ENSURE WORK ZONES ARE SAFE DURING CONSTRUCTION. TYPICAL

PROVIDE KERB INLET SEDIMENT PROTECTION AT ALL DOWNSTREAM GULLIES UPTO 50m FROM SITE. TYPICAL

SITE TO BE CLEARED IN PREPARATION FOR BUILDING CONSTRUCTION.
ALL EXISTING STRUCTURES (INCLUDING ANY PILES) AND SITE IMPROVEMENTS TO BE DEMOLISHED AND REMOVED, UNLESS NOTED OTHERWISE.

LAYOUT PLAN

SCALE 1:500

0 5 10 20 25
SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

vT CONSULTING ENGINEERS
A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

DRAWING TITLE: PRLIMINARY EROSION & SEDIMENT CONTROL LAYOUT PLAN

PROJECT No.: 24112

DRAWING No.: P100 PRELIMINARY

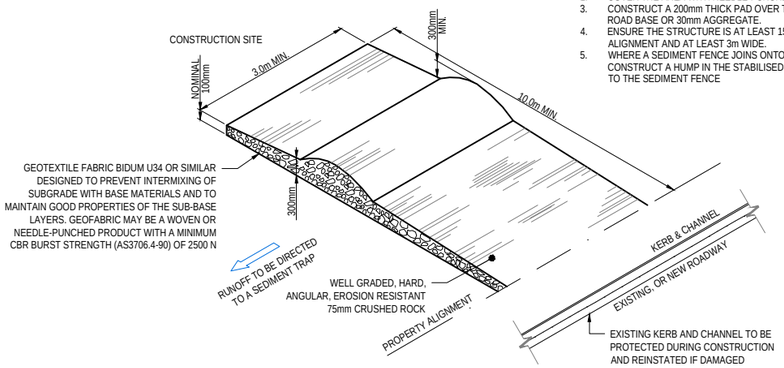
REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION

CONSTRUCTION ENTRY/ EXIT NOTES

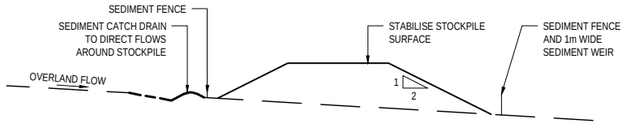
1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE



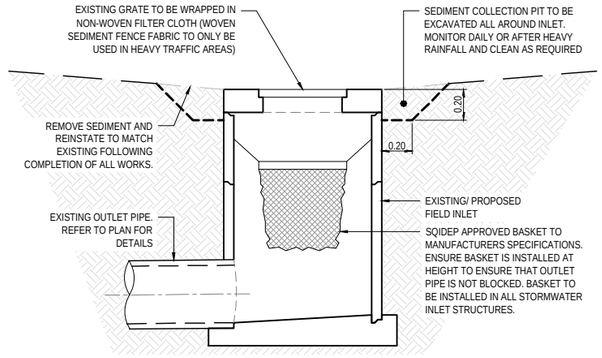
TYPICAL CONSTRUCTION ENTRY/ EXIT
NOT TO SCALE

STOCKPILE NOTES

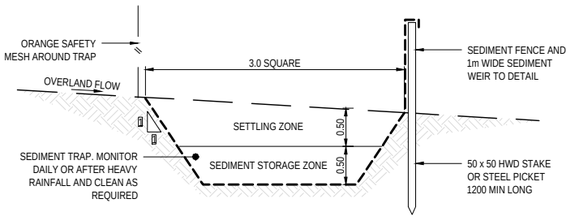
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



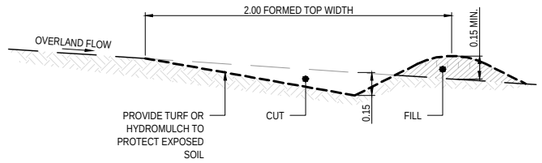
TYPICAL STOCKPILE
NOT TO SCALE



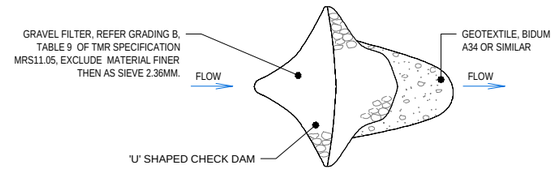
TYPICAL FIELD INLET SEDIMENT TRAP
NOT TO SCALE



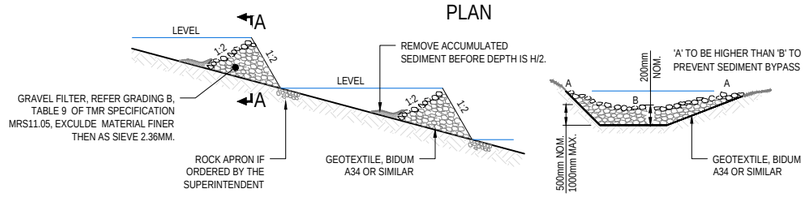
TYPICAL EXCAVATED SEDIMENT TRAP SECTION
NOT TO SCALE



TYPICAL SEDIMENT CATCH DRAIN
NOT TO SCALE



PLAN

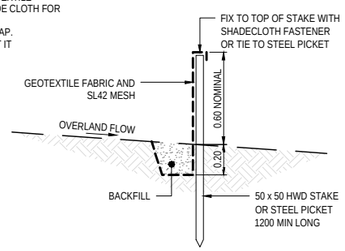


ELEVATION SECTION A-A

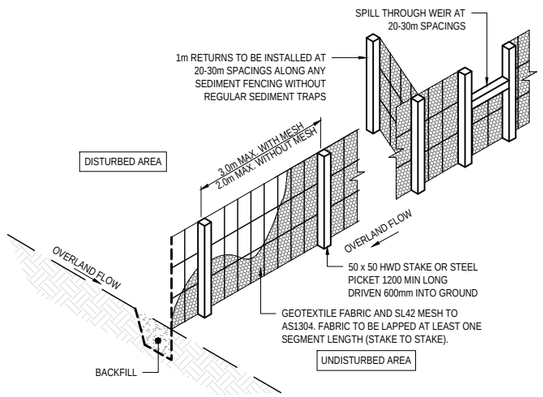
CHECK DAMS FLOW CONTROL
NOT TO SCALE

SEDIMENT FENCE NOTES

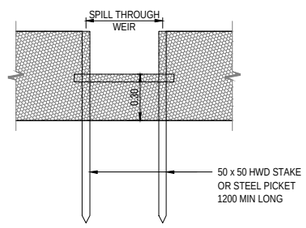
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50L/s IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT INTERVALS EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



TYPICAL SEDIMENT FENCE SECTION
NOT TO SCALE



TYPICAL SEDIMENT FENCE ELEVATION
NOT TO SCALE



TYPICAL SEDIMENT WEIR ELEVATION
NOT TO SCALE

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

vT CONSULTING ENGINEERS
A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

DRAWING TITLE: PRELIMINARY EROSION & SEDIMENT CONTROL DETAILS - SHEET 1

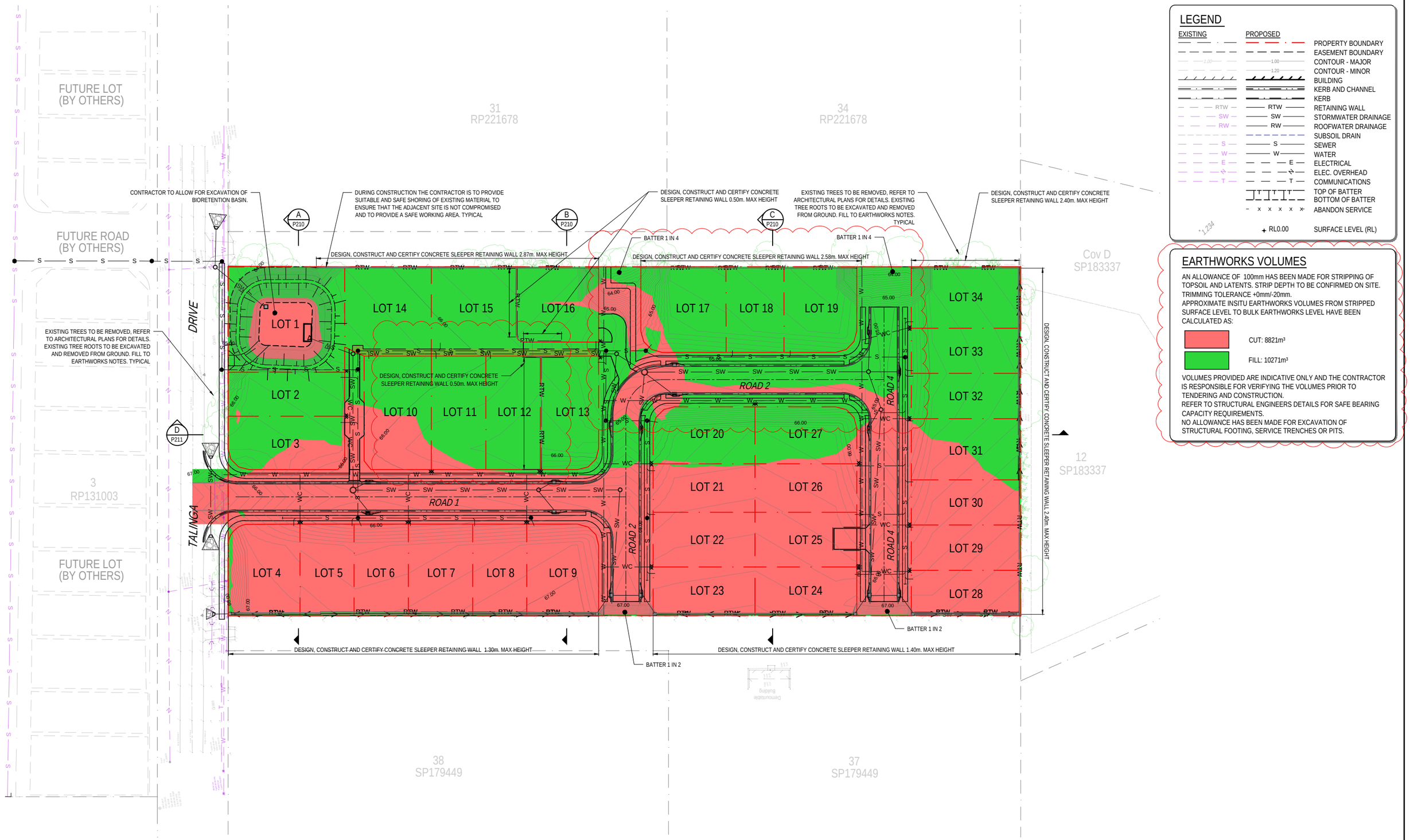
PROJECT No.: 24112

DRAWING No.: P105 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



LEGEND

EXISTING	PROPOSED
	PROPERTY BOUNDARY
	EASEMENT BOUNDARY
1.00	CONTOUR - MAJOR
1.20	CONTOUR - MINOR
	BUILDING
	KERB AND CHANNEL
	KERB
RTW	RETAINING WALL
SW	STORMWATER DRAINAGE
RW	ROOFWATER DRAINAGE
	SUBSOIL DRAIN
S	SEWER
W	WATER
E	ELECTRICAL
	ELEC. OVERHEAD
T	COMMUNICATIONS
	TOP OF BATTER
	BOTTOM OF BATTER
	ABANDON SERVICE
1234	RL0.00 SURFACE LEVEL (RL)

EARTHWORKS VOLUMES

AN ALLOWANCE OF 100mm HAS BEEN MADE FOR STRIPPING OF TOPSOIL AND LATENTS. STRIP DEPTH TO BE CONFIRMED ON SITE.
TRIMMING TOLERANCE +0mm/-20mm.
APPROXIMATE INSITU EARTHWORKS VOLUMES FROM STRIPPED SURFACE LEVEL TO BULK EARTHWORKS LEVEL HAVE BEEN CALCULATED AS:

CUT: 8821m³

FILL: 10271m³

VOLUMES PROVIDED ARE INDICATIVE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE VOLUMES PRIOR TO TENDERING AND CONSTRUCTION.
REFER TO STRUCTURAL ENGINEERS DETAILS FOR SAFE BEARING CAPACITY REQUIREMENTS.
NO ALLOWANCE HAS BEEN MADE FOR EXCAVATION OF STRUCTURAL FOOTING, SERVICE TRENCHES OR PITS.

LAYOUT PLAN

SCALE 1:500

0 5 10 20 25
SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

vT CONSULTING ENGINEERS
A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

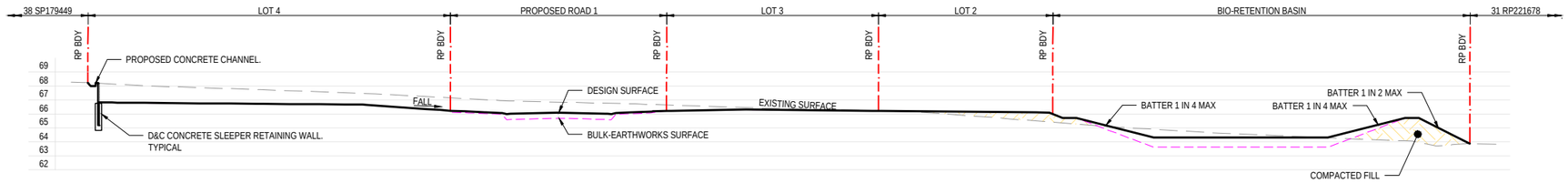
DRAWING TITLE: PRELIMINARY BULK EARTHWORKS LAYOUT PLAN

DRAWING No.: P200 PRELIMINARY

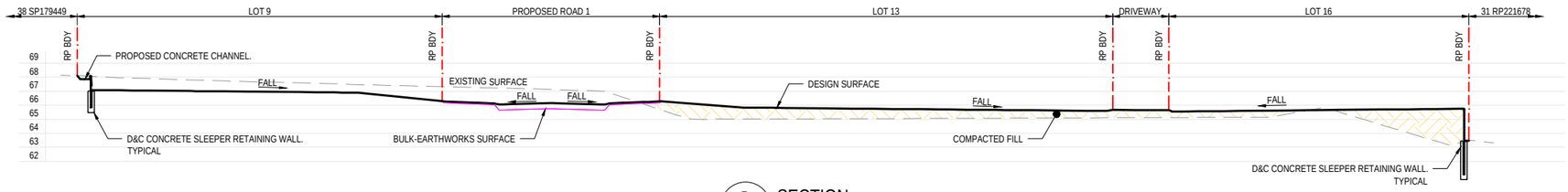
REV.: B

PLOTTED: 11.11.2024

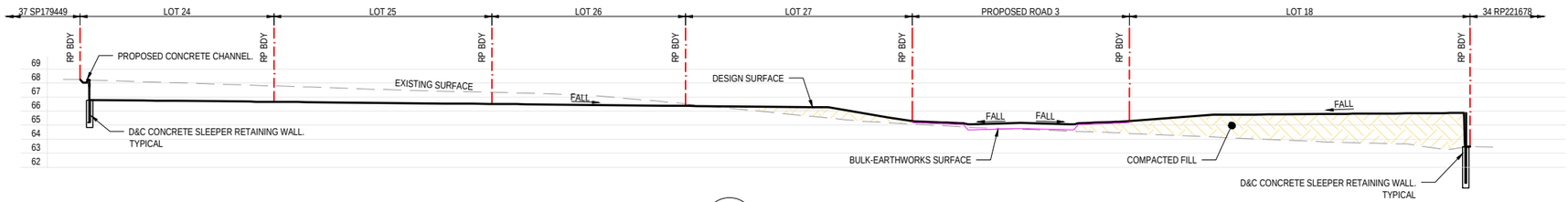
THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



A P200 SECTION
SCALE 1:200



B P200 SECTION
SCALE 1:200



C P200 SECTION
SCALE 1:200

0 2 4 6 8 10
SCALE 1:200

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

vT CONSULTING ENGINEERS
A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
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CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
APPROVED:			

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

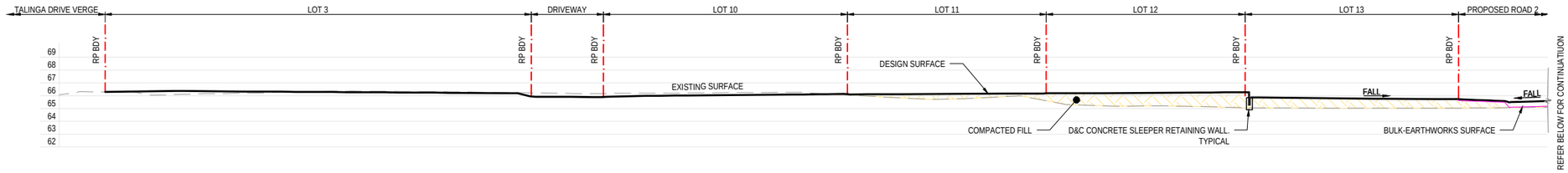
DRAWING TITLE: PRELIMINARY BULK EARTHWORKS SECTIONS - SHEET 1

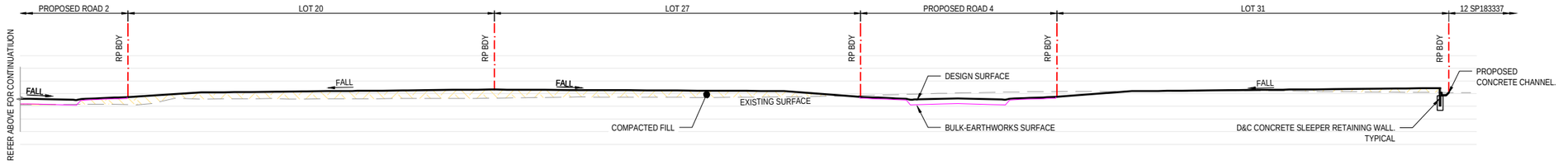
DRAWING No.: P210
PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION





D / P200 SECTION
SCALE 1:200

0 2 4 6 8 10
SCALE 1:200

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
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SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

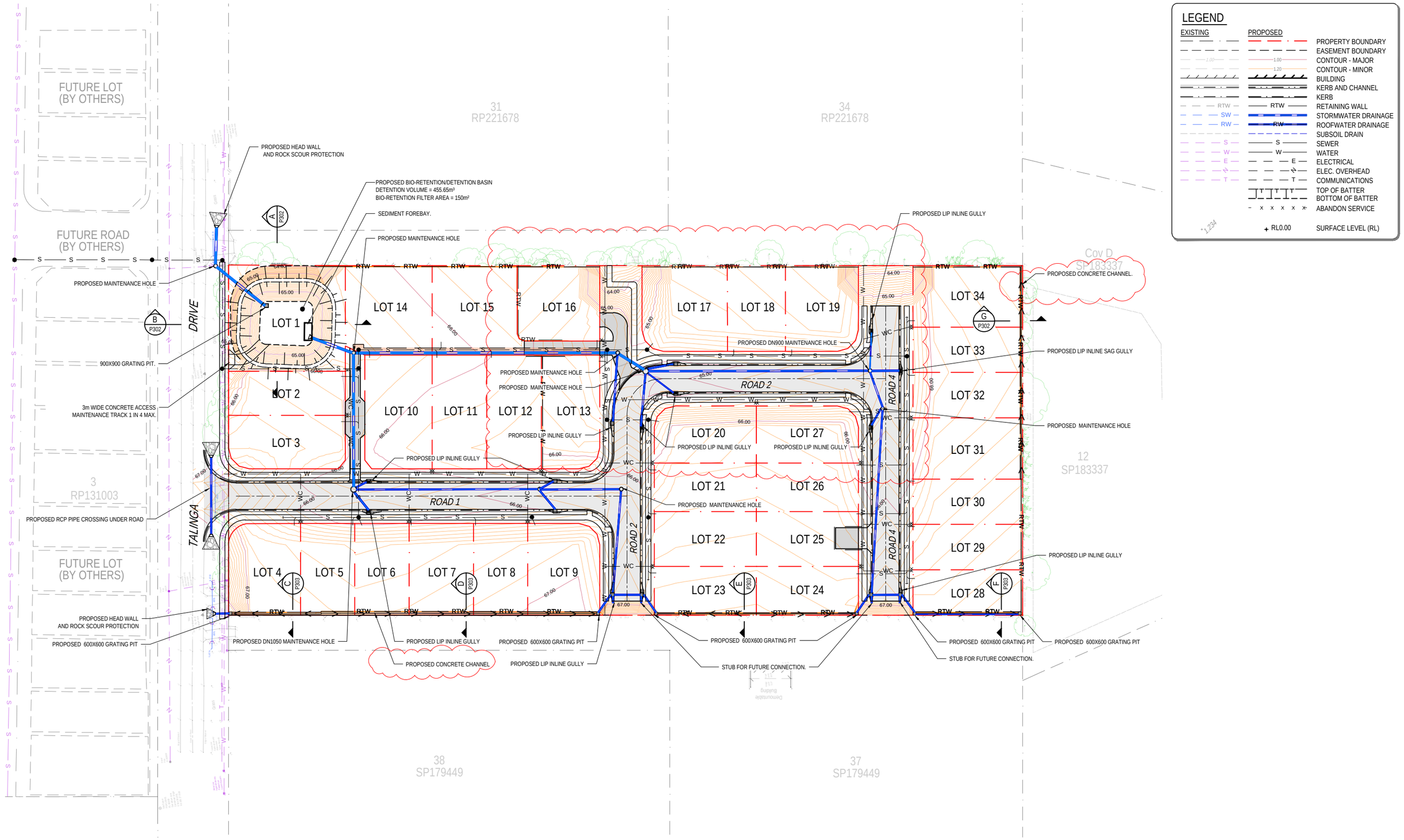
DRAWING TITLE: PRELIMINARY BULK EARTHWORKS SECTIONS - SHEET 2

DRAWING No.: P211 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



LAYOUT PLAN

SCALE 1:500

0 5 10 20 25

SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
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CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

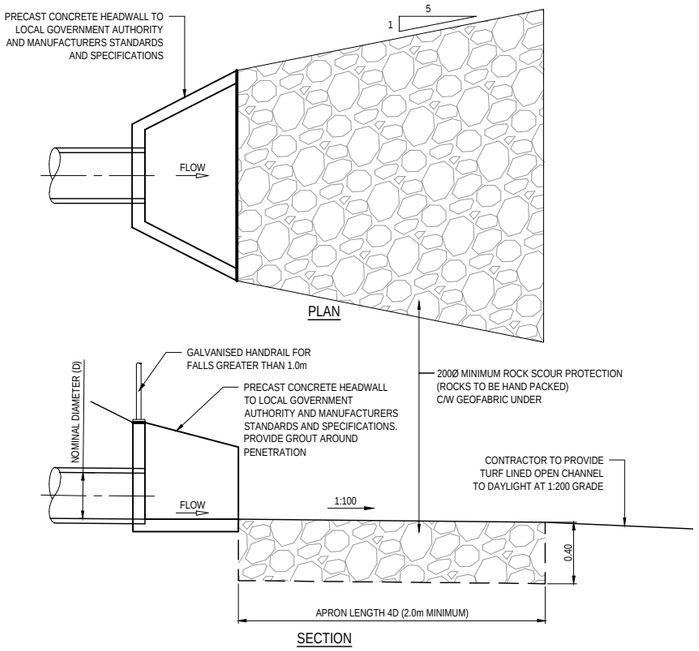
DRAWING TITLE: PRELIMINARY STORMWATER LAYOUT PLAN

DRAWING No.: P300 PRELIMINARY

REV.: B

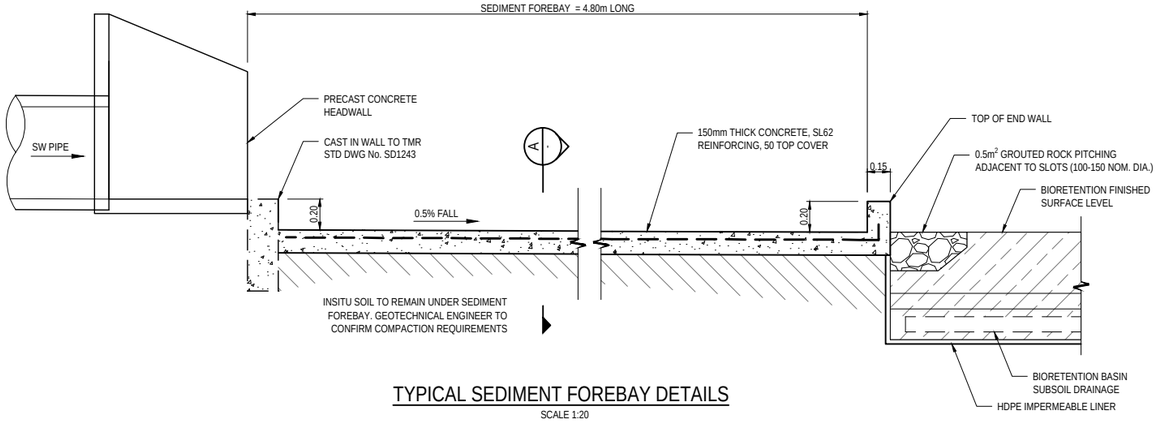
PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



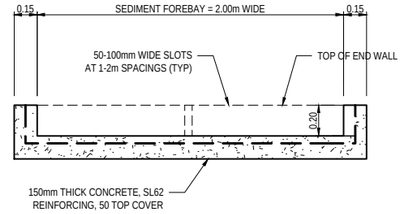
PRECAST CONCRETE OUTLET HEADWALL TYPICAL DETAILS

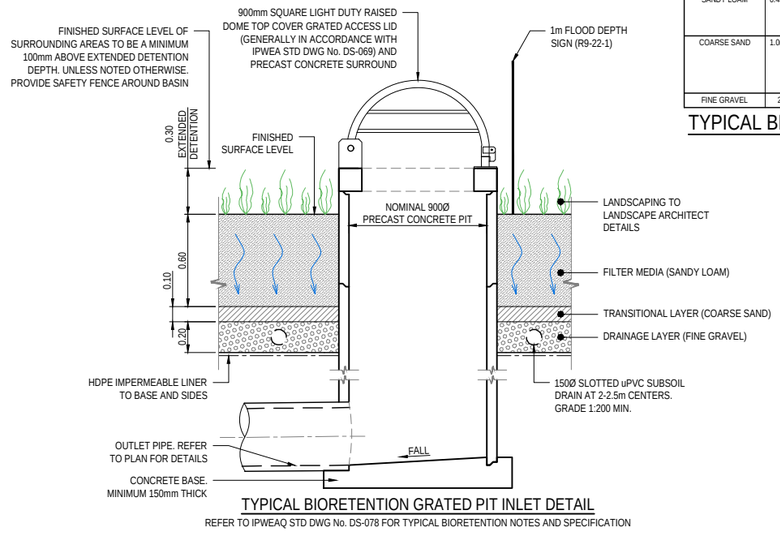
NOT TO SCALE



TYPICAL SEDIMENT FOREBAY DETAILS

SCALE 1:20





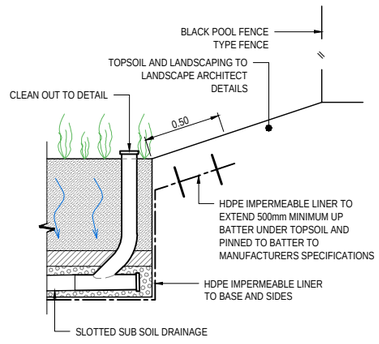
TYPICAL BIORETENTION GRATED PIT INLET DETAIL

REFER TO IPWEAQ STD DWG No. DS-078 FOR TYPICAL BIORETENTION NOTES AND SPECIFICATION

BIORETENTION MEDIUM		
SANDY LOAM	0.45mm - 0.5mm	ORGANIC: 3 - 10%
		ACIDITY: pH 5.5 - 7.5
		HYDRAULIC CONDUCTIVITY: 400mm/hr
COARSE SAND	1.0mm TYPICAL	1.4mm: 100%
		1.0mm: 80%
		0.7mm: 44%
		0.5mm: 8.4%
FINE GRAVEL	2mm - 5mm	

TYPICAL BIORETENTION DETAIL

SCALE 1:20

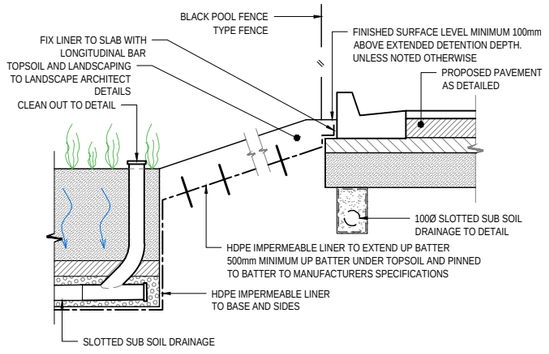


TYPICAL BIORETENTION LINER DETAIL

SCALE 1:20

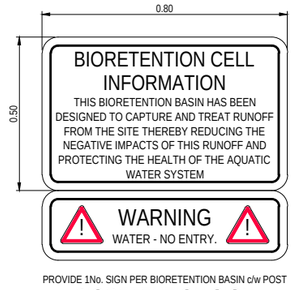
NOTES

HDPE IMPERMEABLE LINER TO BASE AND SIDES. LINER TO HAVE A HYDRAULIC CONDUCTIVITY OF LESS THAN $1X10^{-9}$M/S. EXTEND LINER UP SIDES, 500mm ABOVE FINISHED WATER SURFACE LEVEL AND PIN UNDER TOPSOIL. PLACE LINER ON BEDDING SAND AND GEOFABRIC IF REQUIRED TO MANUFACTURERS SPECIFICATIONS. JOINTS TO BE LAPPED AND WELDED TO MANUFACTURERS SPECIFICATIONS. CONTRACTOR TO PROVIDE CERTIFICATION THAT LINER IS INSTALLED TO MANUFACTURERS SPECIFICATIONS.



TYPICAL BIORETENTION LINER DETAIL

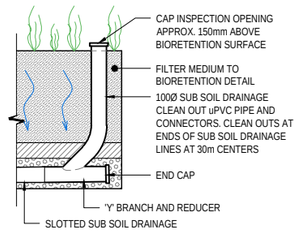
SCALE 1:20



PROVIDE 1No. SIGN PER BIORETENTION BASIN c/w POST

BIORETENTION SIGN

NOT TO SCALE



TYPICAL BIORETENTION CLEAN OUT (CO) DETAIL

SCALE 1:20

0 0.2 0.4 0.6 0.8 1.0

SCALE 1:20

REV.	DATE:	AMENDMENT:	BY:	CHK:
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E: admin@vtce.com.au
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CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

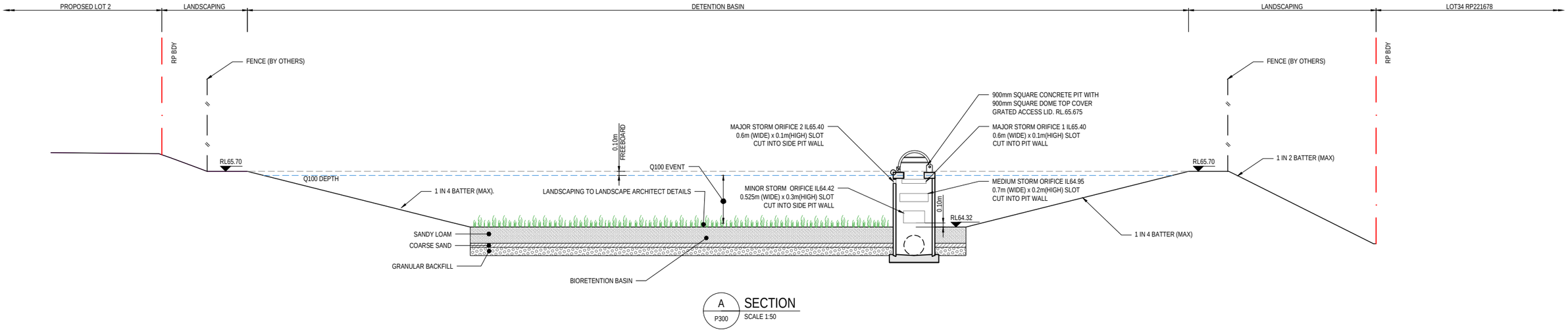
DRAWING TITLE: PRELIMINARY STORMWATER DETAILS - SHEET 1

DRAWING No.: P301 PRELIMINARY

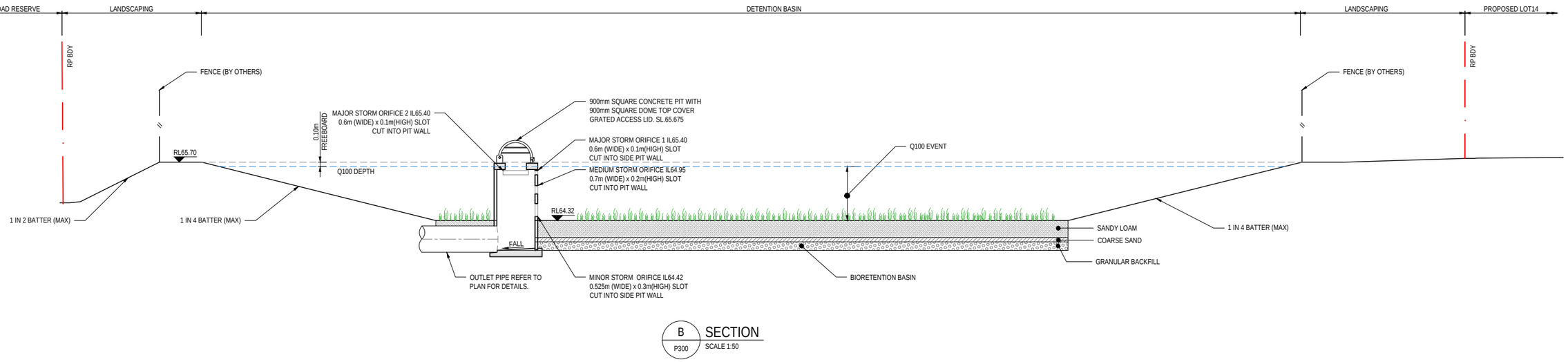
REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



A P300 SECTION
SCALE 1:50



B P300 SECTION
SCALE 1:50

0 0.5 1.0 2.0 2.5
SCALE 1:50

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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A: PO Box 26 Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

CLIENT: Anjan Padavala

SCALE:	AS SHOWN
SHEET SIZE:	A1
DATUM:	AHD
DRAFTER:	ZK
DESIGNER:	KP
ENGINEER:	ML
APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY STORMWATER DETAILS - SHEET 2

DRAWING No.: P302 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

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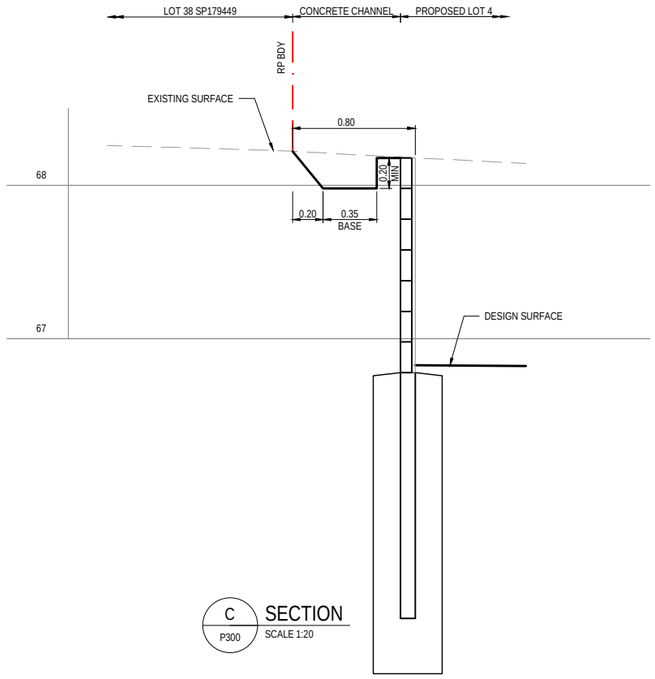
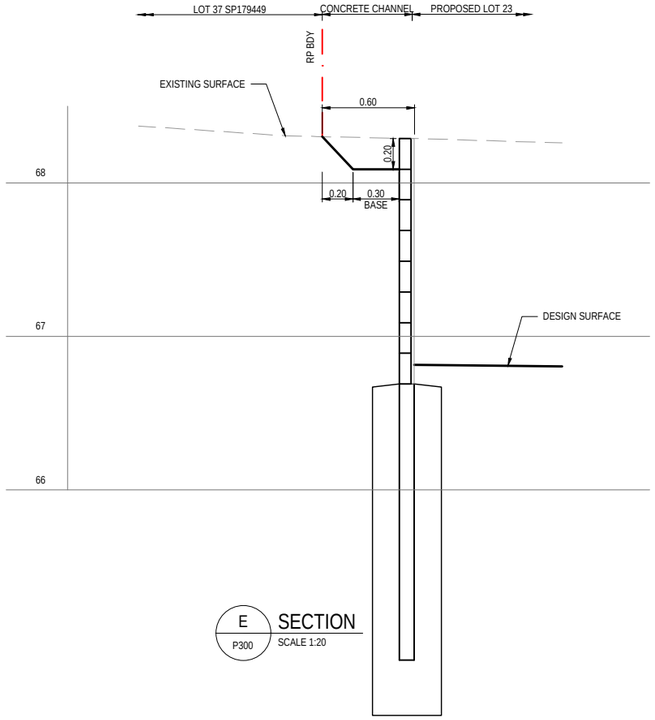
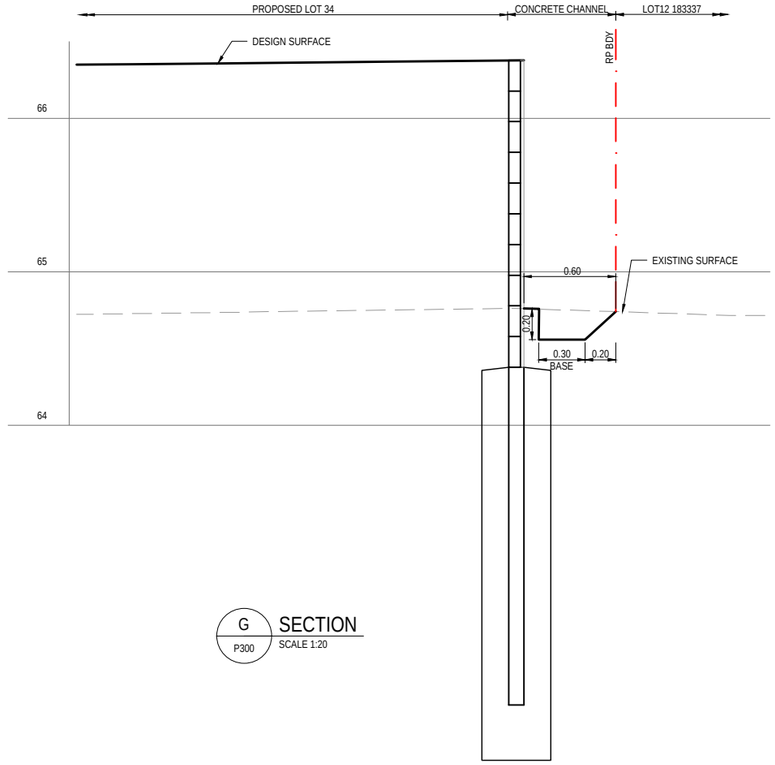


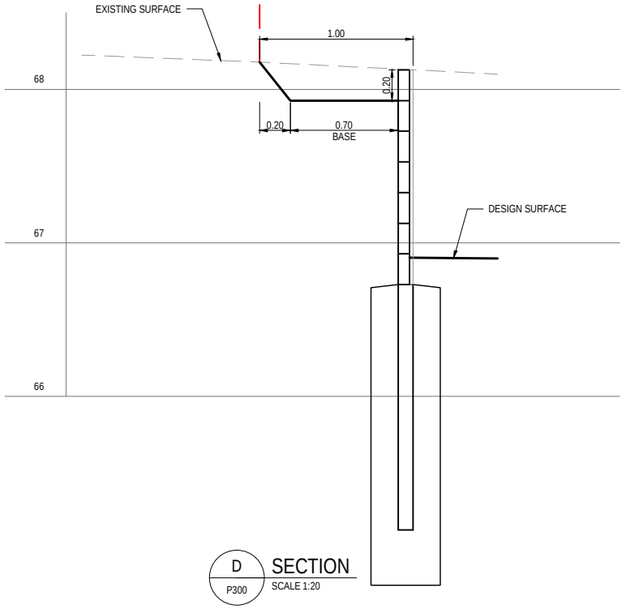
C SECTION
P300
SCALE 1:20



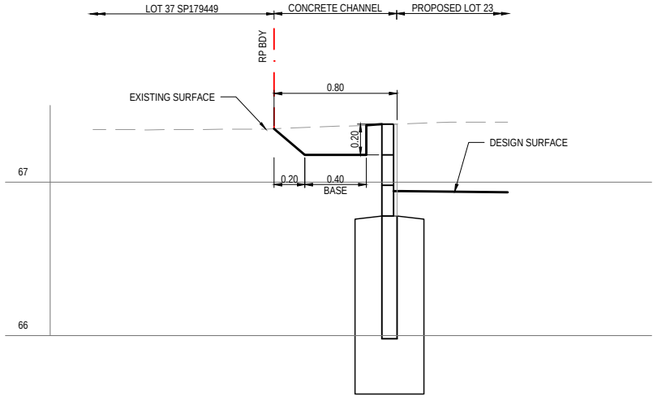
E SECTION
P300
SCALE 1:20



G SECTION
P300
SCALE 1:20



D SECTION
P300
SCALE 1:20



F SECTION
P300
SCALE 1:20

0 0.2 0.4 0.6 0.8 1.0
SCALE 1:20

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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E: admin@vtce.com.au
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W: vtce.com.au

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SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY STORMWARER DETAILS - SHEET 3

DRAWING No.: P303 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

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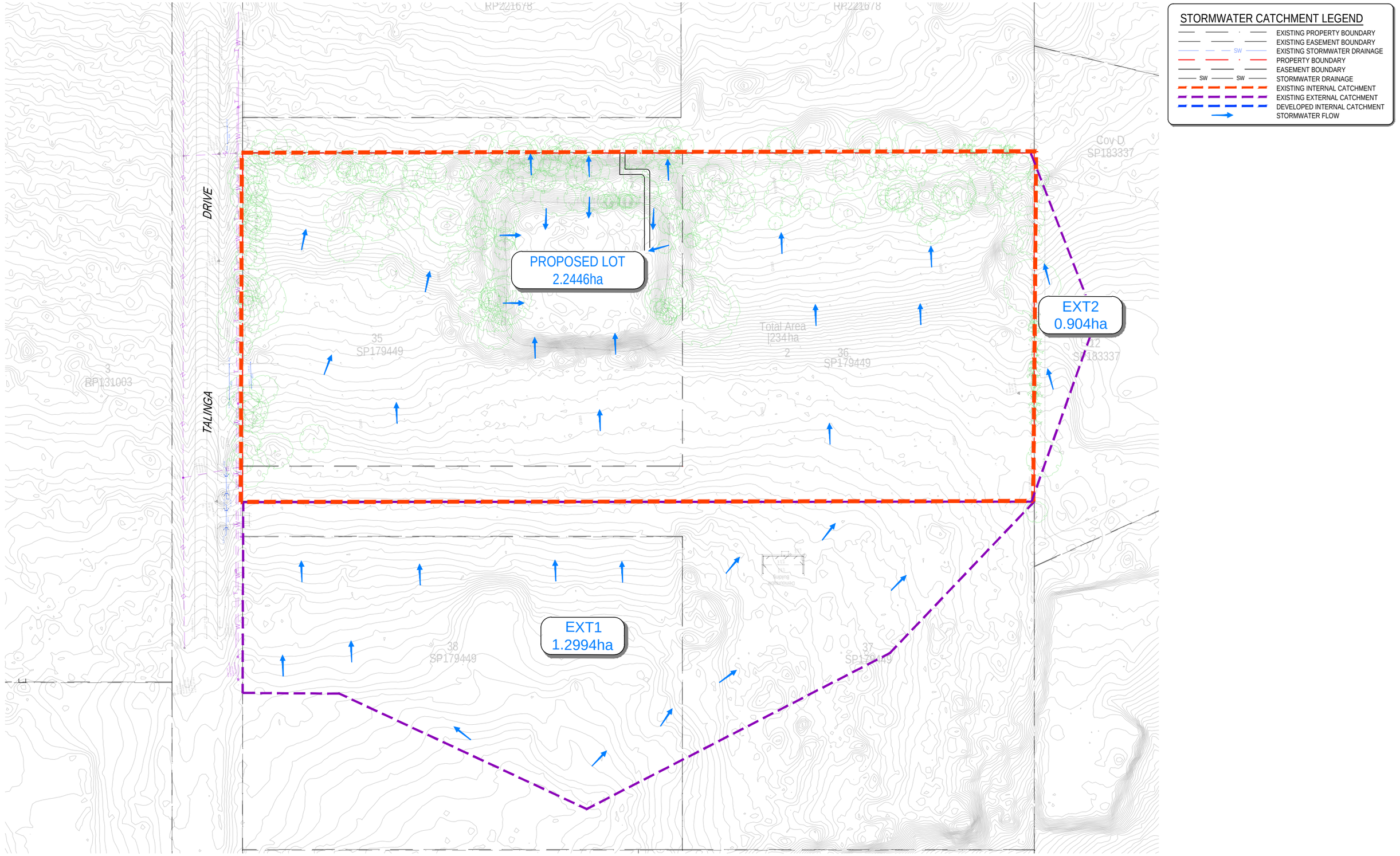

LAYOUT PLAN
SCALE 1:500

0 5 10 20 25
SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY STORMWATER PRE-DEVELOPMENT CATCHMENT PLAN

DRAWING No.: P320 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

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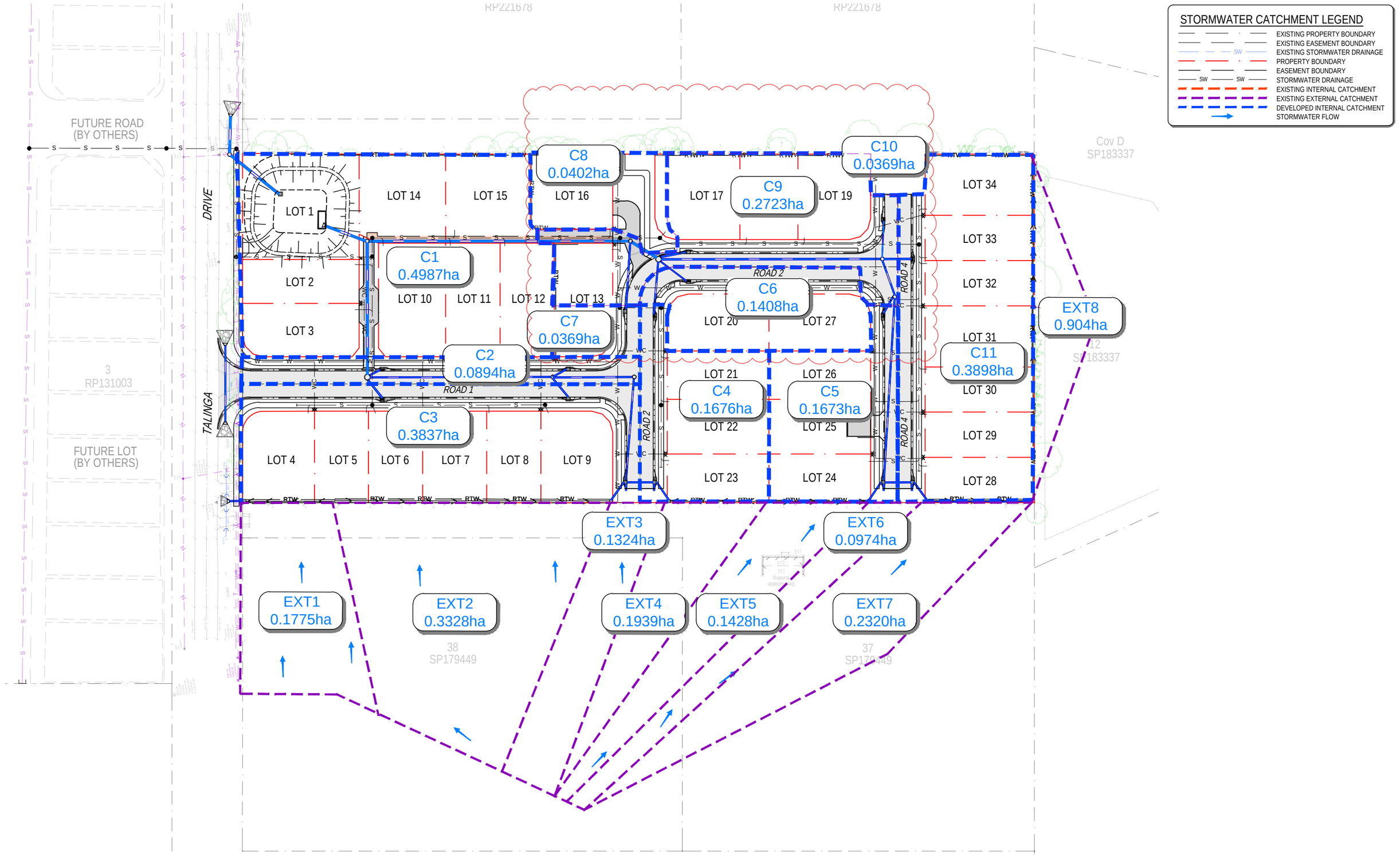

LAYOUT PLAN

SCALE 1:500

PLOTTED: 11.11.2024

0 5 10 20 25

SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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SCALE:	AS SHOWN
SHEET SIZE:	A1
DATUM:	AHD
DRAFTER:	ZK
DESIGNER:	KP
ENGINEER:	ML
APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

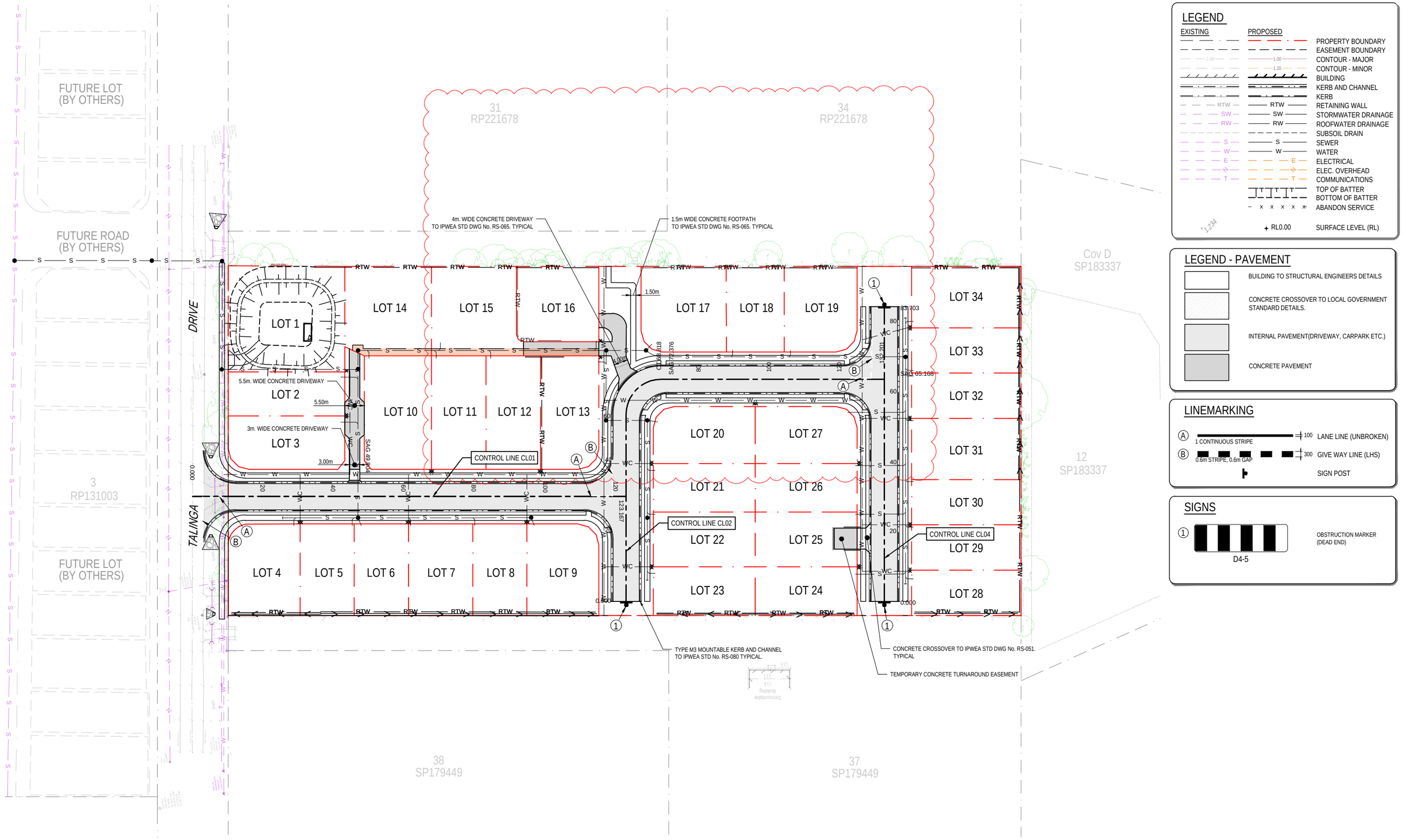
PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY STORMWATER POST-DEVELOPMENT CATCHMENT PLAN

DRAWING No.: P321 PRELIMINARY

REV.: B

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



LAYOUT PLAN
SCALE 1:500

LEGEND

EXISTING	PROPOSED	
		PROPERTY BOUNDARY
		EASEMENT BOUNDARY
1.00	1.00	CONTOUR - MAJOR
1.00	1.20	CONTOUR - MINOR
		BUILDING
		KERB AND CHANNEL
		KERB
RTW	RTW	RETAINING WALL
SW	SW	STORMWATER DRAINAGE
RW	RW	ROOFWATER DRAINAGE
		SUBSOIL DRAIN
S	S	SEWER
W	W	WATER
E	E	ELECTRICAL
		ELEC. OVERHEAD
T	T	COMMUNICATIONS
		TOP OF BATTER
		BOTTOM OF BATTER
		ABANDON SERVICE
+1.234	+ RL0.00	SURFACE LEVEL (RL)

LEGEND - PAVEMENT

- BUILDING TO STRUCTURAL ENGINEERS DETAILS
- CONCRETE CROSSOVER TO LOCAL GOVERNMENT STANDARD DETAILS.
- INTERNAL PAVEMENT(DRIVEWAY, CARPARK ETC.)
- CONCRETE PAVEMENT

LINEMARKING

- (A) 1 CONTINUOUS STRIPE — 100 — LANE LINE (UNBROKEN)
- (B) 0.6m STRIPE, 0.6m GAP — 300 — GIVE WAY LINE (LHS)
- SIGN POST

SIGNS

- (1) D4-5 — OBSTRUCTION MARKER (DEAD END)

SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
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A	22.10.24	ORIGINAL ISSUE	ZK	PR

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E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

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DATUM:	AHD	ENGINEER:	ML
APPROVED:			

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

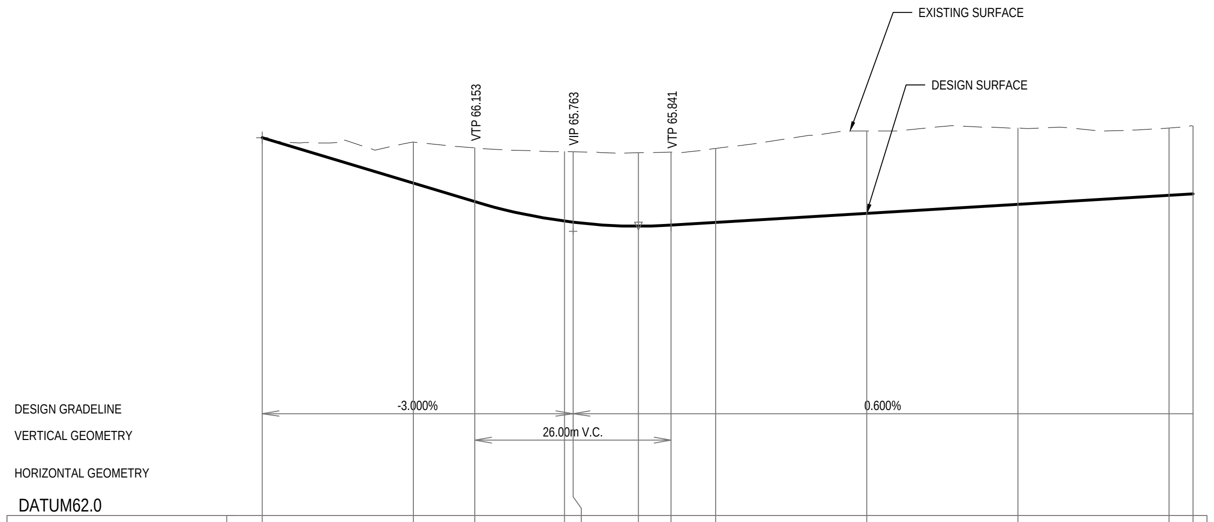
DRAWING TITLE: PRELIMINARY ROADWORKS AND SIGNS AND LINEMARKING LAYOUT PLAN

DRAWING No.: P400 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

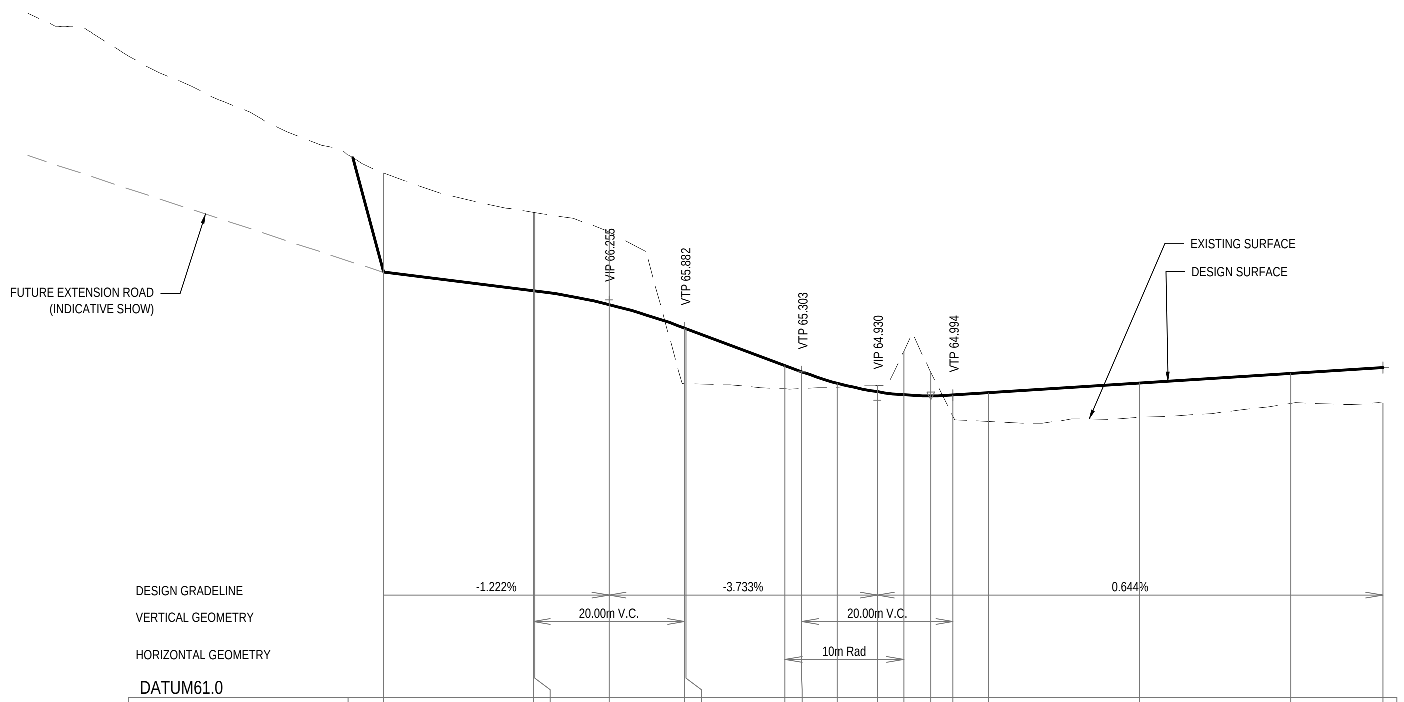
THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION



EXISTING SURFACE LEVEL	66.997	66.937	66.862	66.812	66.810	66.796	66.805	66.853	67.087	67.125	67.124	67.151
DESIGN SURFACE LEVEL	66.997	66.397	66.153	65.894	65.880	65.828	65.841	65.876	65.996	66.116	66.236	66.255
CHAINAGE	0.000	20.000	28.138	40.000	41.138	49.804	54.138	60.000	80.000	100.000	120.000	123.167

LONGITUDINAL SECTION - CL01

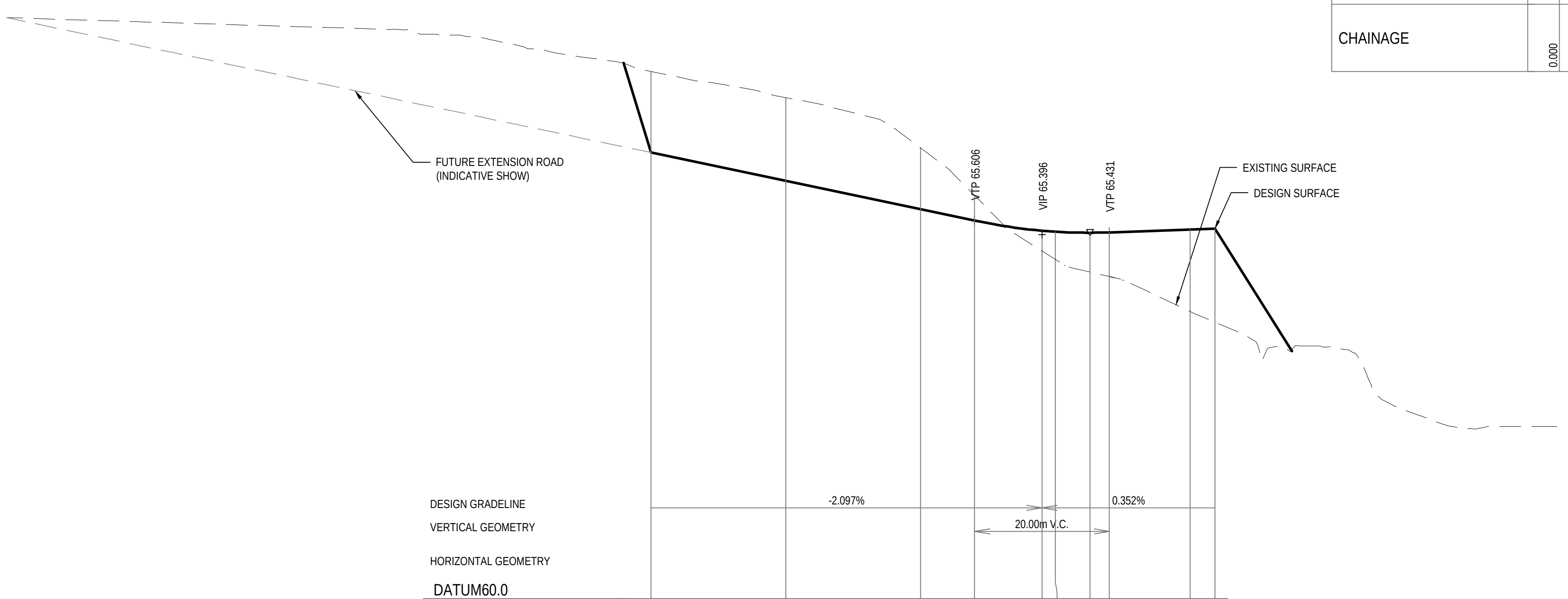
HORIZONTAL SCALE 1:500, VERTICAL SCALE 1:50



EXISTING SURFACE LEVEL	67.932	67.409	67.406	67.151	65.146	65.145	65.078	65.082	65.101	65.121	65.576	65.298	64.716	64.644	64.701	64.885	64.890
DESIGN SURFACE LEVEL	66.619	66.377	66.375	66.192	65.882	65.875	65.386	65.303	65.153	65.039	64.999	64.985	64.994	65.025	65.154	65.282	
CHAINAGE	0.000	19.827	20.000	29.827	39.827	40.000	53.110	55.321	60.000	65.321	68.818	72.376	75.321	80.000	100.000	120.000	132.201

LONGITUDINAL SECTION - CL02

HORIZONTAL SCALE 1:500, VERTICAL SCALE 1:50



EXISTING SURFACE LEVEL	67.815	67.429	66.685	65.978	65.153	65.029	64.842	64.775	64.256	64.095
DESIGN SURFACE LEVEL	66.613	66.194	65.774	65.606	65.457	65.442	65.426	65.431	65.473	65.486
CHAINAGE	0.000	20.000	40.000	48.042	58.042	60.000	65.168	68.042	80.000	83.703

LONGITUDINAL SECTION - CL04

HORIZONTAL SCALE 1:500, VERTICAL SCALE 1:100

SCALE 1:100 (0 1 2 3 4 5)

SCALE 1:500 (0 5 10 20 25)

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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A: PO Box 26, Carina QLD 4152
E: admin@vtce.com.au
Ph: 1300 185 737
W: vtce.com.au

CLIENT: Anjan Padavala

SCALE: AS SHOWN | SHEET SIZE: A1 | DATUM: AHD

DRAFTER: ZK | DESIGNER: KP | ENGINEER: ML | APPROVED:

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

DRAWING TITLE: PRELIMINARY ROADWORKS LONGITUDINAL SECTIONS

PROJECT No.: 24112

DRAWING No.: P410 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION

FOR CONTINUATION REFER TO DRAWING P501

PROPOSED SERWER TO BE CONSTRUCTED BY OTHERS

FOR CONTINUATION REFER TO DRAWING P501

FUTURE LOT (BY OTHERS)

FUTURE ROAD (BY OTHERS)

FUTURE LOT (BY OTHERS)

3 RP131003

31 RP221678

34 RP221678

Cov D SP183337

12 SP183337

38 SP179449

37 SP179449

PROPOSED SEWER PROPERTY CONNECTION TO SERVICE LOT 1 -34 TO SEQ WATER STD DWG No. SEQ-SEW-1104-1 AND SEQ-SEW-1105-1. TYPICAL

PROPOSED 2.00m SEWER AND DRAINAGE EASEMENT

PROPOSED SEWER AND PROPOSED WATER MIN 600mm VERTICAL CLEARANCE. TYPICAL

PROPOSED SEWER AND PROPOSED STORMWATER MIN 300mm VERTICAL CLEARANCE. TYPICAL

TYPICAL SEWER BEND TO SEQ STD DWG No. SEQ-SEW-1314-3

PROPOSED SEWER MANHOLE. TYPICAL

PROVIDE SEWER END CAP OF MAIN ARRANGEMENT FOR FUTURE DEVELOPMENT. TYPICAL

DRIVE

TALINGA

ROAD 1

ROAD 2

ROAD 4

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

LOT 6

LOT 7

LOT 8

LOT 9

LOT 10

LOT 11

LOT 12

LOT 13

LOT 14

LOT 15

LOT 16

LOT 17

LOT 18

LOT 19

LOT 20

LOT 21

LOT 22

LOT 23

LOT 24

LOT 25

LOT 26

LOT 27

LOT 28

LOT 29

LOT 30

LOT 31

LOT 32

LOT 33

LOT 34

LEGEND

EXISTING	PROPOSED
	PROPERTY BOUNDARY
	EASEMENT BOUNDARY
1.00	1.00 CONTOUR - MAJOR
	1.20 CONTOUR - MINOR
	BUILDING
	KERB AND CHANNEL
	KERB
RTW	RTW RETAINING WALL
SW	SW STORMWATER DRAINAGE
RW	RW ROOFWATER DRAINAGE
	SUBSOIL DRAIN
S	S SEWER
W	W WATER
E	E ELECTRICAL
	ELEC. OVERHEAD
T	T COMMUNICATIONS
	TOP OF BATTER
	BOTTOM OF BATTER
	ABANDON SERVICE
+1.234	+ RL0.00 SURFACE LEVEL (RL)

LAYOUT PLAN

SCALE 1:500

0 5 10 20 25

SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
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A: PO Box 26 Carina QLD 4152
E: admin@vtce.com.au
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W: vtce.com.au

CLIENT: Anjan Padavala

SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
APPROVED:			

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

DRAWING TITLE: PRELIMINARY SEWER LAYOUT PLAN - SHEET 1

PROJECT No.: 24112

DRAWING No.: P500 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION

PARK RIDGE ROAD

1 EX

PROPOSED SEWER TO BE CONNECTED TO EXISTING BAYLISS TRUNK SEWER MAIN BY OTHERS. TYPICAL

EXISTING BAYLISS TRUNK SEWER MAIN

PROPOSED SERWER TO BE CONSTRUCTED BY OTHERS

25
RP 219726

28
RP 94327

1
SP 210423

DA APPLICATION No.
COM/10/2022

1
RP 144541

3
RP 131003

4
RP 131003

3
RP 210935

4
RP 210935

1
RP 131003

1
RP 210935

2
RP 210935

PROPOSED SEWER MAIN (BY OTHERS).

PROPOSED SEWER MH ON EXISTING SEWER MAIN TYPICAL.

PROPOSED SEWER CONNECTION.

DA APPLICATION No.
COM/77/2023

TALINGA DRIVE

2
RP 210931

1
RP 210931

38
SP 179449

FOR CONTINUATION REFER TO P500

LAYOUT PLAN

SCALE 1:2000

LEGEND

EXISTING	PROPOSED	
		PROPERTY BOUNDARY
		EASEMENT BOUNDARY
1.00	1.00	CONTOUR - MAJOR
	1.20	CONTOUR - MINOR
		BUILDING
		KERB AND CHANNEL
		KERB
RTW	RTW	RETAINING WALL
SW	SW	STORMWATER DRAINAGE
RW	RW	ROOFWATER DRAINAGE
		SUBSOIL DRAIN
S	S	SEWER
W	W	WATER
E	E	ELECTRICAL
		ELEC. OVERHEAD
T	T	COMMUNICATIONS
		TOP OF BATTER
		BOTTOM OF BATTER
		ABANDON SERVICE
+1.234	+ RL0.00	SURFACE LEVEL (RL)

0 20 40 60 80 100
SCALE 1:2000

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY SEWER LAYOUT PLAN - SHEET 2

DRAWING No.: P501 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

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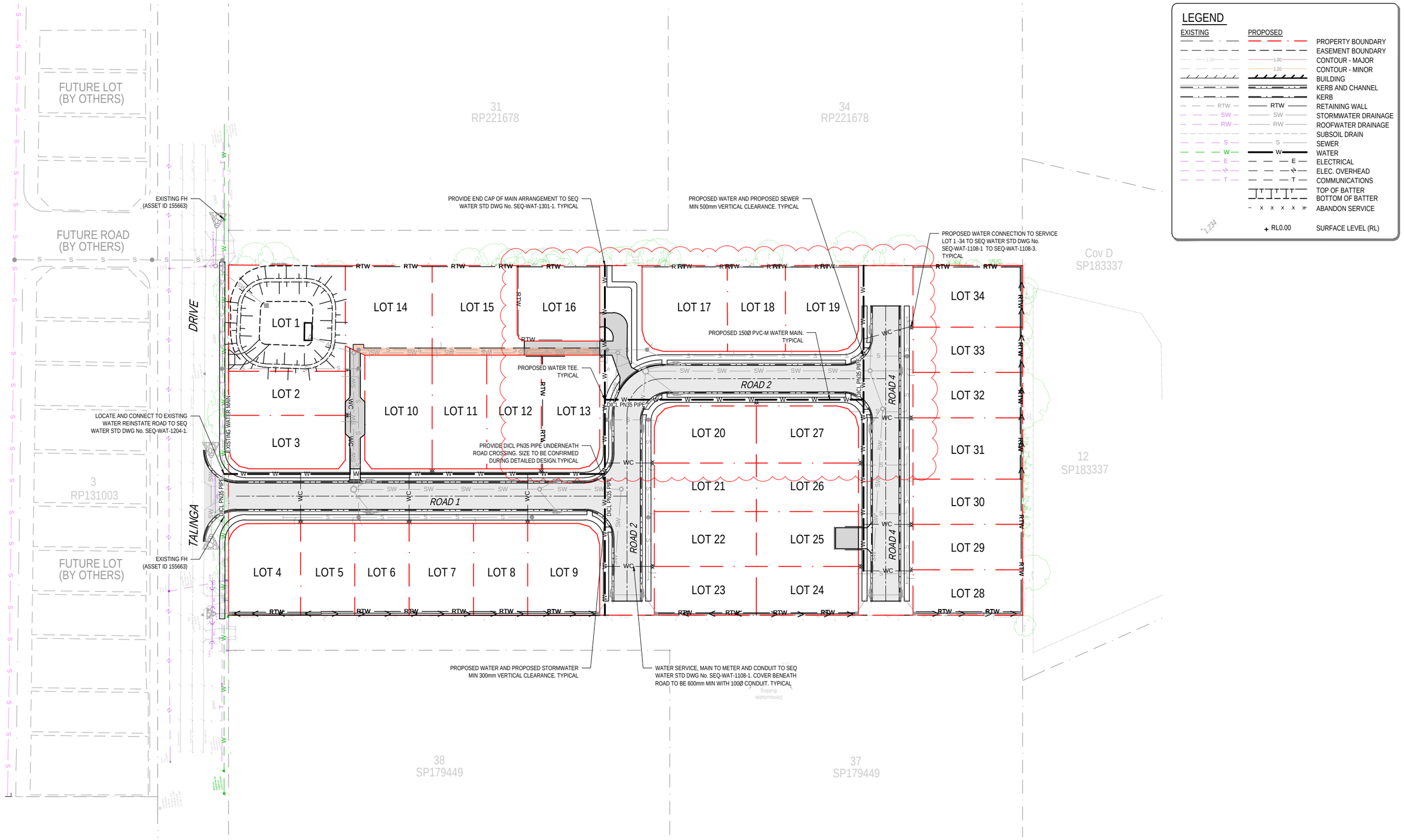

LAYOUT PLAN

SCALE 1:500

SCALE 1:500

REV.	DATE:	AMENDMENT:	BY:	CHK:
B	11.10.24	GENERAL AMENDMENTS	KP	PR
A	22.10.24	ORIGINAL ISSUE	ZK	PR

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SCALE:	AS SHOWN	DRAFTER:	ZK
SHEET SIZE:	A1	DESIGNER:	KP
DATUM:	AHD	ENGINEER:	ML
		APPROVED:	

PROJECT: RESIDENTIAL DEVELOPMENT
67&69-75 TALINGA DRIVE, PARK RIDGE QLD 4125

PROJECT No.: 24112

DRAWING TITLE: PRELIMINARY WATER LAYOUT PLAN

DRAWING No.: P510 PRELIMINARY

REV.: B

PLOTTED: 11.11.2024

THIS PLAN MUST BE PLOTTED IN COLOUR FOR CORRECT DESIGN PRESENTATION

Appendix B - Erosion and Sediment Control Hazard Assessment Form

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	**1**	**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	**4**	**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	**4**	**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		
• Involves disturbance to a constructed open drain or channel	1	**0**	**2**
• 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		
• more than 1% but not more than 5%	1	**0**	
• 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	**0**	
• Subsoils are likely to be exposed	2		
EXTERNAL CATCHMENTS [10]			
• No external catchment	0		
• External catchment diverted around the soil disturbance	1	**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]		**22**	

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.

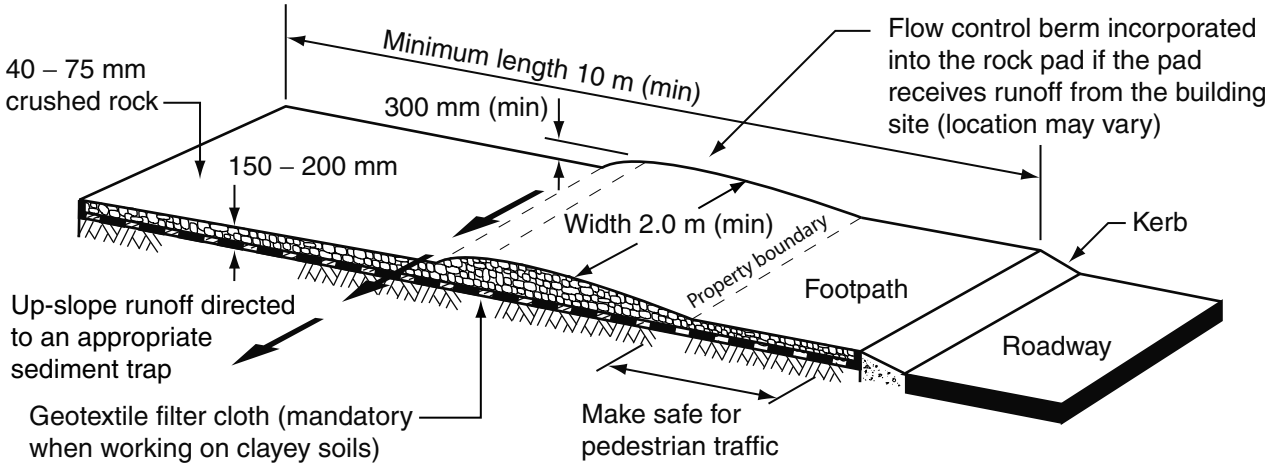
COMMENTS:
"On-road" sediment control devices are at best viewed as secondary or supplementary sediment control measures. Only in special cases and/or on very small projects (e.g. kerb and channel replacement) might these controls be considered as the "primary" sediment control measure.

[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*.

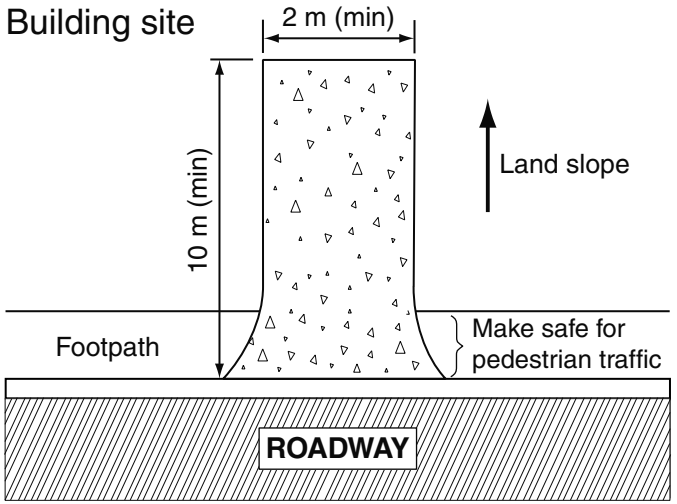
[13] **REQUIREMENTS:**
A preliminary ESCP must be submitted to the local government for approval during the planning phase for any development that obtains a total point score of 17 or greater or when any trigger value is scored or exceeded.

Appendix C - IECA (Australasia) Standard Drawings

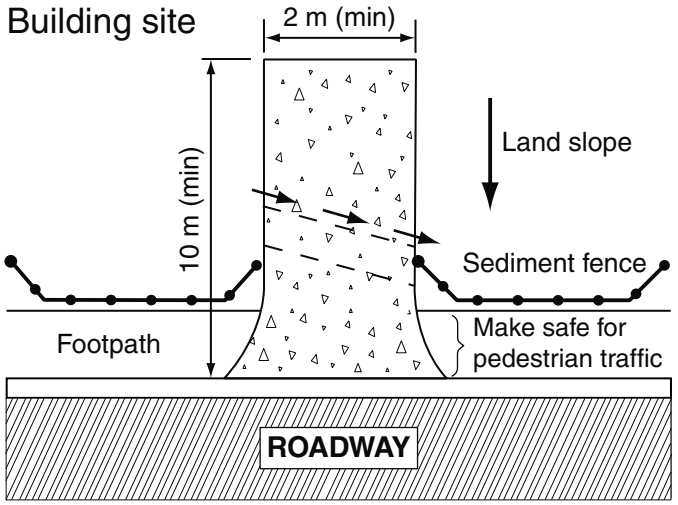
Available from: http://www.austieca.com.au/publications/book-6-standard-drawings



(a) Rock entry/exit pad for building sites



(b) Rock pad sloping away from road



(c) Rock pad sloping towards the road

CONSTRUCTION NOTES:

MATERIALS

ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 40 TO 75mm.

FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE (IF REQUIRED).

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

1. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.

6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

Drawn:	Date:		
GMW	May-10	Rock Pads for Building Sites	ESC-01

MATERIALS

FABRIC (LIGHT TRAFFIC AREAS):
HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A34 OR EQUIVALENT).

FABRIC (HEAVY TRAFFIC AREAS):
POLY-PROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN REINFORCED FABRIC. THE FABRIC WIDTH SHOULD BE AT LEAST 700mm, WITH A MINIMUM UNIT WEIGHT OF 140g/m^2. FABRICS SHOULD CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.

3. SELECT THE APPROPRIATE FABRIC FOR THE SITE CONDITIONS.

4. WRAP THE FABRIC AROUND OR OVER THE STORMWATER INLET GRATE IN SUCH A MANNER THAT PREVENTS ANY WATER ENTERING THE STORMWATER INLET WITHOUT PASSING THROUGH THE FABRIC.

5. ENSURE ALL OTHER FLOW ENTRY POINTS ARE COVERED WITH FABRIC SUCH THAT WATER CANNOT ENTER THE STORMWATER INLET WITHOUT PASSING THROUGH A SUITABLE FILTER.

6. TAKE ALL NECESSARY MEASURE TO MINIMISE SAFETY OR FLOODING RISK CAUSED BY OPERATION OF THE SEDIMENT TRAP.

MAINTENANCE

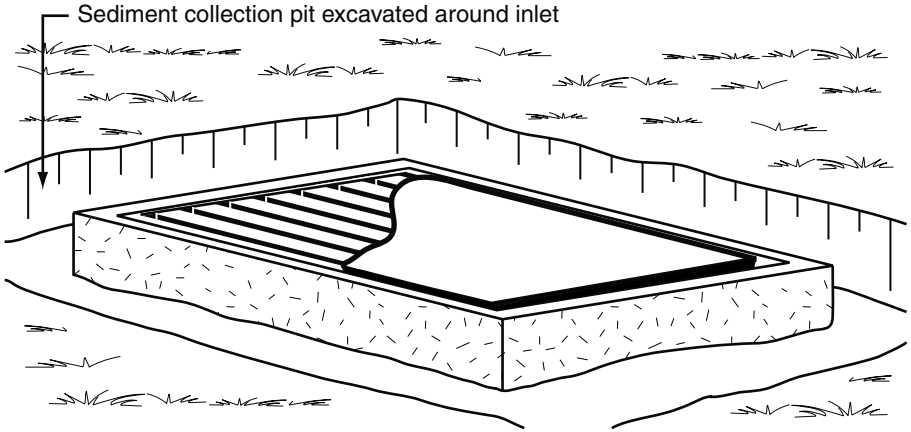
1. INSPECT THE BARRIER AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT AND MAKE REPAIRS AS NEEDED TO THE SEDIMENT TRAP.

2. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

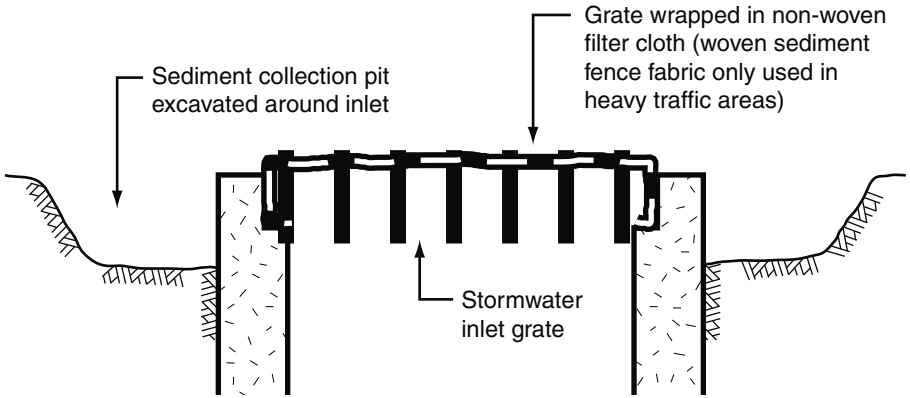
3. REPLACE THE FABRIC IF IT IS TORN OR DAMAGED.

4. SEDIMENT DEPOSITS SHOULD BE REMOVED IMMEDIATELY IF THEY REPRESENT A SAFETY RISK.

REMOVAL
1. WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILISED, REMOVE ALL MATERIALS INCLUDED DEPOSITED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.



(a) Fabric wrap drop inlet protection with trench



(b) Typical details of excavated sediment collection trench

Drawn:	Date:		
GMW	May-10	Grated Stormwater (Field) Inlet Sediment Trap	ESC-02

MATERIALS

SOCKS: MINIMUM 200mm DIAMETER SYNTHETIC OR BIODEGRADABLE TUBES MANUFACTURED FROM NON-WOVEN OR COMPOSITE FABRIC SUITABLE FOR THE 'FILTRATION' OF COARSE SEDIMENTS.

FILL MATERIAL: STRAW, CANE MULCH, COMPOSTED MATERIAL (AS4454), COARSE SAND, OR CLEAN AGGREGATE.

STAKES: MINIMUM 25 x 25mm TIMBER.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. ENSURE THE SOCKS ARE PLACED INDIVIDUALLY OR COLLECTIVELY (AS A SINGLE SEDIMENT TRAP) SUCH THAT:
(i) LEAKAGE AROUND OR UNDER THE SOCKS IS MINIMISED;
(ii) ADJOINING SOCKS ARE TIGHTLY BUTTED OR OVERLAPPED AT LEAST 450mm;
(iii) THE SURFACE AREA OF POTENTIAL WATER PONDING UP-SLOPE OF EACH SEDIMENT TRAP IS MAXIMISED;
(iv) TO THE MAXIMUM DEGREE PRACTICAL, ALL SEDIMENT-LADEN WATER WILL PASS THROUGH THE FORMED POND BEFORE FLOWING OVER THE DOWN-SLOPE END OF THE SEDIMENT TRAP.

3. WHEN PLACED ACROSS THE INVERT OF MINOR DRAINS, ENSURE THE SOCKS ARE PLACED SUCH THAT:
(i) THE CREST OF THE DOWNSTREAM SOCK IS LEVEL WITH THE CHANNEL INVERT AT THE IMMEDIATE UPSTREAM SOCK (IF ANY);
(ii) EACH SOCK EXTENDS UP THE CHANNEL BANKS SUCH THAT THE CREST OF THE SOCK AT ITS LOWEST POINT IS LOWER THAN GROUND LEVEL AT EITHER END OF THE SOCK.

4. IF STAKES ARE REQUIRED TO ANCHOR THE SOCKS, THEIR SPACING DOES NOT EXCEEDING 1.2m OR SIX TIMES THE SOCK DIAMETER (WHICHEVER IS THE LESSER). A MAXIMUM STAKE SPACING OF 0.3m APPLIES WHEN USED TO FORM CHECK DAMS.

MAINTENANCE

1. INSPECT ALL FILTER SOCKS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF PRODUCING STORMS OR OTHERWISE AT WEEKLY INTERVALS.

2. REPAIR OR REPLACE DAMAGED SOCKS.

3. THE BULK OF THE SEDIMENT COLLECTED BEHIND THE FILTER SOCKS SHOULD BE REMOVED BY SHOVEL AFTER EACH STORM EVENT.

4. REMOVE COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

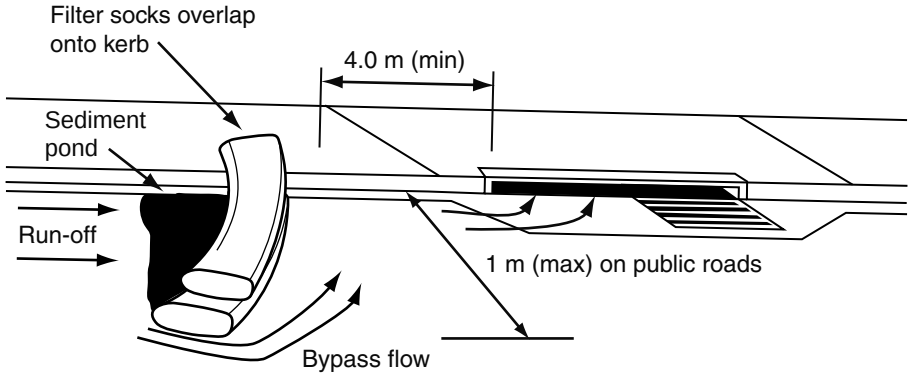
REMOVAL

1. ALL SAND, SOIL, SEDIMENT OR MUD MUST BE PHYSICALLY REMOVED FROM SEALED SURFACES, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

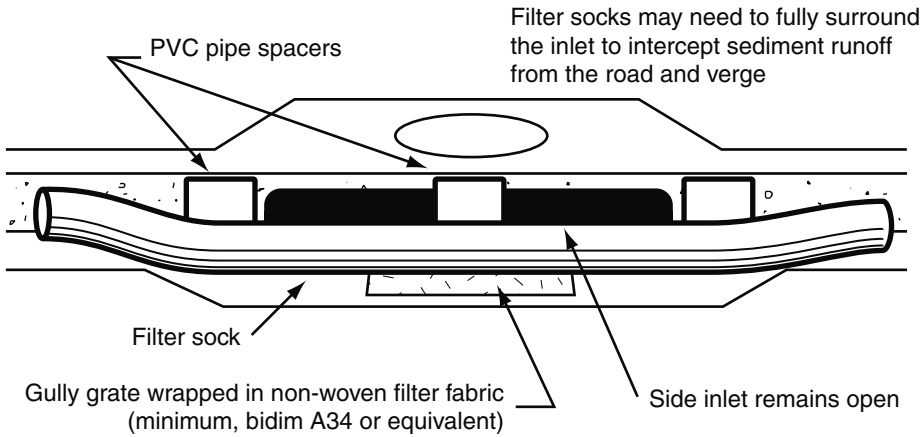
2. IF NECESSARY FOR SAFETY REASONS, THE SEALED SURFACE SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE SURFACE.

3. DISPOSE OF COLLECTED SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

4. ALL SYNTHETIC (PLASTIC) MESH OR OTHER NON READILY BIODEGRADABLE MATERIAL MUST BE REMOVED FROM THE SITE ONCE THE SLOPE OR DRAIN IS STABILISED, OR THE SOCKS HAVE DETERIORATED TO A POINT WHERE THEY ARE NO LONGER PROVIDING THEIR INTENDED DRAINAGE OR SEDIMENT CONTROL FUNCTION.

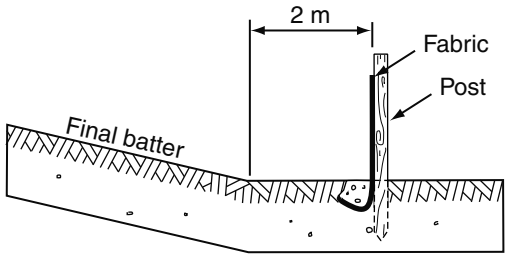


(a) On-grade kerb inlet sediment trap

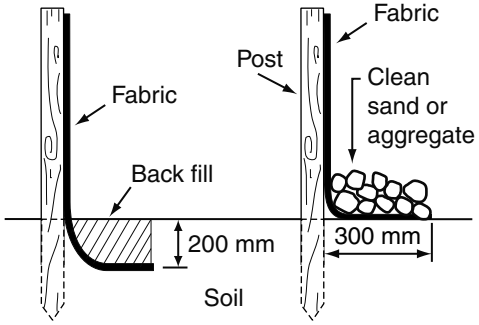


(b) Sag inlet sediment trap

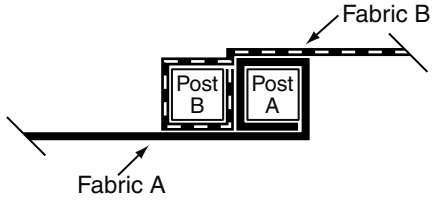
Drawn:	Date:		
GMW	Dec-09	Kerb Inlet Sediment Traps	ESC-03



(a) Location of fence relative to base of slope

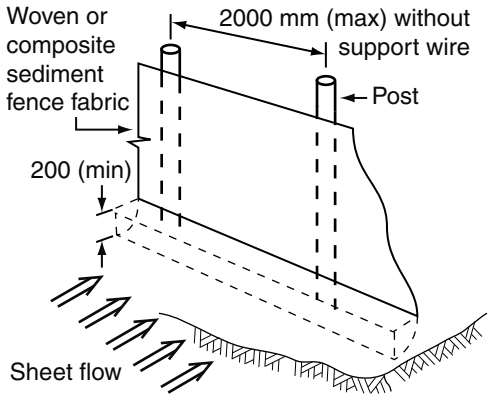


(b) Anchoring base of fabric

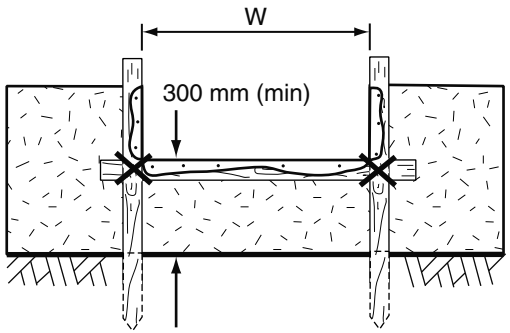


Fabric to fold around each stake one full turn.
Stake B to be drive tightly against Stake A.
The tops of both stakes to be secured with wire.

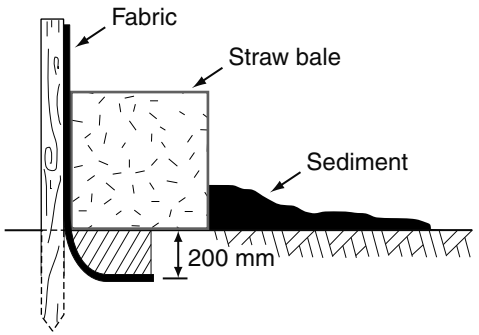
(c) Joining fabric - Method 1



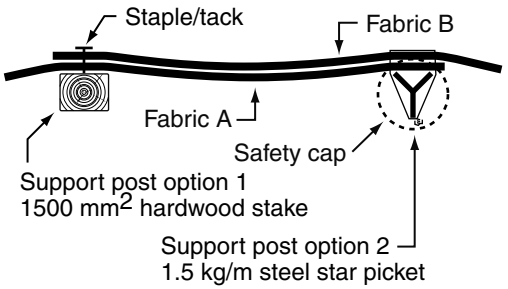
(d) Installation without backing support



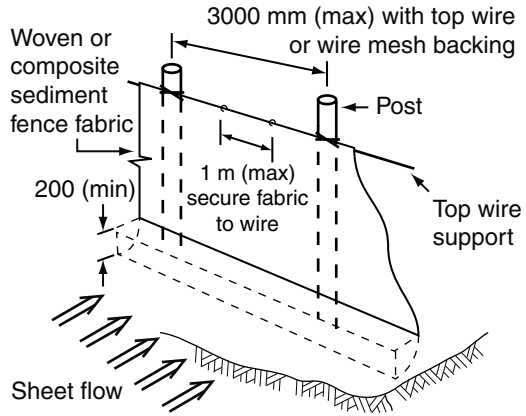
(e) Spill-through weir



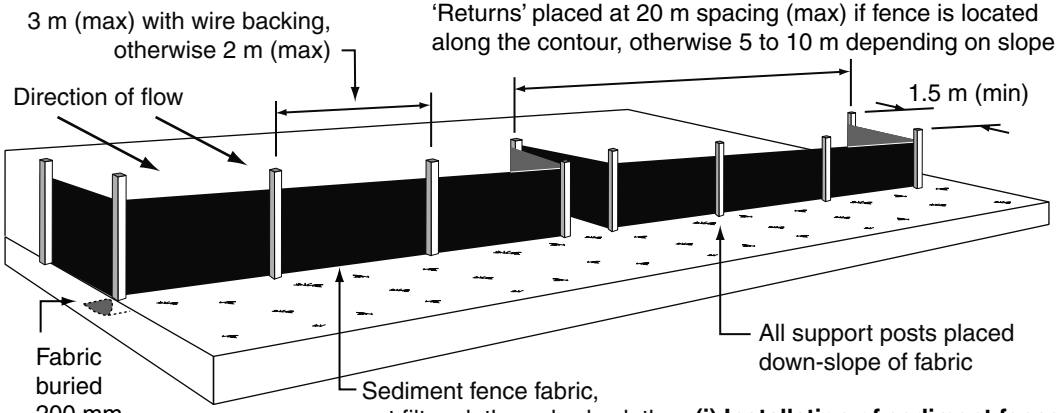
(f) Placement of up-slope straw bale



(g) Joining fabric - Method 2



(h) Installation with top wire support



(i) Installation of sediment fence

Notes:

1. Sediment fence to be installed along a line of constant ground elevation wherever practical.
2. Both end of the sediment fence to extend up the slope at least 1m.
3. Support post to be spaced a maximum 2m unless the fence is supported by a top wire or wire mesh backing, in which case 3m maximum spacing.
4. Fence 'returns' shall be installed at maximum 20m spacing if fence is installed along the contour, otherwise 5 to 10m maximum spacing.
5. Minimum 4 staples or tie wires per stake.

Drawn:	Date:		
GMW	Dec-09	Sediment Fence	ESC-04

MATERIALS

FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140g/m^2. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

FABRIC REINFORCEMENT: WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

SUPPORT POSTS/STAKES: 1500mm^2 (MIN) HARDWOOD, 2500mm^2 (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:
(i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;
(ii) ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
(iii) AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.

3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDING ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:
(i) V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
(ii) SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.

5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.

6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.

7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.

8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.

9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH. ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.

10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:
(i) ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH THE TWO STAKES TIED TOGETHER WITH WIRE; OR
(ii) OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.

11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.

12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.

13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THOUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.

14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.

2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.

3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/ STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.

4. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

MAINTENANCE

1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. REPLACE THE FABRIC IF THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6-MONTHS.

REMOVAL

1. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:	Date:		
GMW	May-10	Sediment Fence	ESC-05

Appendix D - Logan City Council Flood Report

CITY OF LOGAN

PROPERTY FLOOD REPORT

Property Details

Address: 67 Talinga Drive PARK RIDGE QLD 4125

Lot/Plan: Lot 36 SP 179449

Size/Area: 11,173 m^2

Property Key: 272691

Latest Flood Risk

The extract below comes from the flood risk map based on the latest (most recent) flood studies accepted by Council applicable for this property.

LEGEND

High	Floodwaters may be deep or fast flowing, or have a relatively high chance of occurrence (e.g. 80% chance in 30 years). Conditions may pose a risk to life and cause damage to buildings, possibly severe.
Moderate	Less frequently affected by flooding or if more frequent, with shallow or slower moving floodwater. Conditions may pose an unacceptable risk to people or property if not mitigated.
Low	Extremely unlikely chance of flooding (1% chance or less over a 30 year period) and/or relatively shallow or benign flooding conditions.
Very Low	Identifies the full floodplain under the largest flood that could conceivably occur.
Investigation area	Locations where a current flood study has not been delivered and information to determine flood risk is not available. The approximation of the floodplain in these areas is based on a citywide overland flow study. Further investigation is needed.

The flood studies this map is based on consider the impacts of climate change, as required by Queensland's planning legislation and policies. The map considers the whole floodplain for Logan and reflects a risk-based approach that takes into account:

- How likely a flood of a given size is in any given year, and
- What the impact or level of danger of that flood is.

Summary Flood Assessment

The table below presents the flood risks applicable to the selected property. There may be multiple studies and flood scenarios affecting the property, particularly for larger sites.

Assessment	Details
Risk area(s)	Not applicable
Investigation area	Not applicable
River flooding	Not applicable
Creek flooding	Not applicable
Overland flow	Applies. It is possible that flooding from a local waterway which has not yet been studied may also impact the property. Please contact Council for further advice. Overland flow is water (stormwater run-off) that travels over land during heavy rainfall events. It generally occurs quickly and for short durations.

Ground Levels

Ground levels are based on an aerial LiDAR (Light Detection and Ranging) survey, which uses millions of laser point measurements to build a model of the ground surface. The source of the data is displayed in the table below so that you know when the survey was conducted.

Ground level	Details
Minimum ground level	63.0 metres AHD
Maximum ground level	68.4 metres AHD

Source: 2021 Digital elevation model (1 metre grid)

Present Day (Insurance) Scenarios Map

This extract comes from the map showing flood affected areas **without** considering the impacts of climate change. This map represents modelled flooding under current conditions, and can be used for insurance purposes.

LEGEND

5% chance	The areas modelled to be impacted by a flood that has a 5% (or 1 in 20) chance of happening in any given year, or 80% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
1% chance	The areas modelled to be impacted by a flood that has a 1% (or 1 in 100) chance of happening in any given year, or 25% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
0.5% chance	The areas modelled to be impacted by a flood that has a 0.5% (or 1 in 200) chance of happening in any given year, or 15% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
0.05% chance	The areas modelled to be impacted by a flood that has a 0.05% (or 1 in 2000) chance of happening in any given year. This is an extremely unlikely flood event with a 1% chance of happening over a 30 year period, not including the impacts of climate change.
PMF	The PMF or probable maximum flood scenario represents the full extent of the floodplain, or the most serious flood that could be expected to occur. This is usually estimated based on the probable maximum rainfall, not including the impacts of climate change
Investigation area	Locations where a current flood study has not been delivered and information to determine flood risk is not available. The approximation of the floodplain in these areas is based on a citywide overland flow study. Further investigation is needed.

Historic Flood Events

Based on the best information available to Council, the table below indicates whether or not the selected property may have been impacted by significant historic flood events. It is possible that other creek flooding or overland flow, which is not included in Council's mapping of these events, may have impacted the property.

Flood event	Property impacted
1974	No
2017 (after ex Tropical Cyclone Debbie)	No
2022 (late February / early March)	No

Further Information

1. Floods are highly unpredictable and variable, and properties may be affected by other sources of potential flooding. Each flood and its impact is different. Areas that were not flooded previously may be affected by future events. Areas that have been previously flooded may be impacted in different ways. This online report cannot take all of this into account.
2. The flood mapping and levels in this report are based on data from flood studies undertaken at a particular time and are subject to change. For example, if the method for calculating flood levels is updated, industry guidelines are updated or more recent information becomes available, this may result in changes to the information in this report. In areas where development is ongoing, the flood mapping and levels may not reflect developed conditions.
3. Flood studies do not create risk. They help us to understand the risk, based on relevant legislation and Queensland Government policies and guidelines. Flood studies also consider a range of other factors such as rainfall and river level information from recent events, climate change and trends, the impacts of development, changes to catchment conditions, new technologies and industry best practice (which help to improve accuracy).
4. Flood studies and models are developed from the best information available at the time. They do not tell you how the flood waters might behave, how quickly they may rise, or how dangerous the flooding will be. The models also cannot represent changes that have occurred since they were developed which may impact flood behaviour, such as earthworks, new developments or road infrastructure.
5. This report is not a substitute for independent professional advice. You should engage the services of a Registered Professional Engineer of Queensland (RPEQ) to get site specific information regarding the flood risk to your property, and how that might affect any proposed building or development work.
6. While Logan City Council takes reasonable care in producing this report, it does not guarantee that the information is accurate, complete or current. Logan City Council does not accept any responsibility for any loss or damage (however it was caused) in connection with the use of or reliance on the information in this report.

Contact Information

Where to go for further information depends on the type of information you need. Please refer to the Flood Risk Fact Sheet or contact Council using the details below.

Topic	Contact Details
Flood studies and modelling information, and the flood risk on your property	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. Further information about flooding and flood studies is available on the Flood page on Council's website.
Planning and development enquiries or proposals	Contact Council on 07 3412 3412 or email development@logan.qld.gov.au. Before lodging a development application, pre-lodgement advice is recommended.
Building information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. You can also contact a private building certifier.
Properties in Priority Development Areas	Contact Economic Development Queensland. Council is not the planning authority for these properties.
Independent advice about flooding on your property	Contact a registered engineer through the Board of Professional Engineers of Queensland: Phone: 07 3210 3100 Email: admin@bpeq.qld.gov.au Web: Home - Board of Professional Engineers Queensland (bpeq.qld.gov.au)

CITY OF LOGAN

PROPERTY FLOOD REPORT

Property Details

Address: 69-75 Talinga Drive PARK RIDGE QLD 4125

Lot/Plan: Lot 35 SP 179449

Size/Area: 11,157 m^2

Property Key: 272690

Latest Flood Risk

The extract below comes from the flood risk map based on the latest (most recent) flood studies accepted by Council applicable for this property.

LEGEND

High	Floodwaters may be deep or fast flowing, or have a relatively high chance of occurrence (e.g. 80% chance in 30 years). Conditions may pose a risk to life and cause damage to buildings, possibly severe.
Moderate	Less frequently affected by flooding or if more frequent, with shallow or slower moving floodwater. Conditions may pose an unacceptable risk to people or property if not mitigated.
Low	Extremely unlikely chance of flooding (1% chance or less over a 30 year period) and/or relatively shallow or benign flooding conditions.
Very Low	Identifies the full floodplain under the largest flood that could conceivably occur.
Investigation area	Locations where a current flood study has not been delivered and information to determine flood risk is not available. The approximation of the floodplain in these areas is based on a citywide overland flow study. Further investigation is needed.

The flood studies this map is based on consider the impacts of climate change, as required by Queensland's planning legislation and policies. The map considers the whole floodplain for Logan and reflects a risk-based approach that takes into account:

- How likely a flood of a given size is in any given year, and
- What the impact or level of danger of that flood is.

Summary Flood Assessment

The table below presents the flood risks applicable to the selected property. There may be multiple studies and flood scenarios affecting the property, particularly for larger sites.

Assessment	Details
Risk area(s)	Not applicable
Investigation area	Not applicable
River flooding	Not applicable
Creek flooding	Not applicable
Overland flow	Applies. It is possible that flooding from a local waterway which has not yet been studied may also impact the property. Please contact Council for further advice. Overland flow is water (stormwater run-off) that travels over land during heavy rainfall events. It generally occurs quickly and for short durations.

Ground Levels

Ground levels are based on an aerial LiDAR (Light Detection and Ranging) survey, which uses millions of laser point measurements to build a model of the ground surface. The source of the data is displayed in the table below so that you know when the survey was conducted.

Ground level	Details
Minimum ground level	63.1 metres AHD
Maximum ground level	68.1 metres AHD

Source: 2021 Digital elevation model (1 metre grid)

Present Day (Insurance) Scenarios Map

This extract comes from the map showing flood affected areas **without** considering the impacts of climate change. This map represents modelled flooding under current conditions, and can be used for insurance purposes.

LEGEND

5% chance	The areas modelled to be impacted by a flood that has a 5% (or 1 in 20) chance of happening in any given year, or 80% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
1% chance	The areas modelled to be impacted by a flood that has a 1% (or 1 in 100) chance of happening in any given year, or 25% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
0.5% chance	The areas modelled to be impacted by a flood that has a 0.5% (or 1 in 200) chance of happening in any given year, or 15% chance over a 30 year period, which is the common term of a mortgage. This modelling is based on **current (present day) conditions** and does not take into account the impacts of climate change.
0.05% chance	The areas modelled to be impacted by a flood that has a 0.05% (or 1 in 2000) chance of happening in any given year. This is an extremely unlikely flood event with a 1% chance of happening over a 30 year period, not including the impacts of climate change.
PMF	The PMF or probable maximum flood scenario represents the full extent of the floodplain, or the most serious flood that could be expected to occur. This is usually estimated based on the probable maximum rainfall, not including the impacts of climate change
Investigation area	Locations where a current flood study has not been delivered and information to determine flood risk is not available. The approximation of the floodplain in these areas is based on a citywide overland flow study. Further investigation is needed.

Historic Flood Events

Based on the best information available to Council, the table below indicates whether or not the selected property may have been impacted by significant historic flood events. It is possible that other creek flooding or overland flow, which is not included in Council's mapping of these events, may have impacted the property.

Flood event	Property impacted
1974	No
2017 (after ex Tropical Cyclone Debbie)	No
2022 (late February / early March)	No

Further Information

1. Floods are highly unpredictable and variable, and properties may be affected by other sources of potential flooding. Each flood and its impact is different. Areas that were not flooded previously may be affected by future events. Areas that have been previously flooded may be impacted in different ways. This online report cannot take all of this into account.
2. The flood mapping and levels in this report are based on data from flood studies undertaken at a particular time and are subject to change. For example, if the method for calculating flood levels is updated, industry guidelines are updated or more recent information becomes available, this may result in changes to the information in this report. In areas where development is ongoing, the flood mapping and levels may not reflect developed conditions.
3. Flood studies do not create risk. They help us to understand the risk, based on relevant legislation and Queensland Government policies and guidelines. Flood studies also consider a range of other factors such as rainfall and river level information from recent events, climate change and trends, the impacts of development, changes to catchment conditions, new technologies and industry best practice (which help to improve accuracy).
4. Flood studies and models are developed from the best information available at the time. They do not tell you how the flood waters might behave, how quickly they may rise, or how dangerous the flooding will be. The models also cannot represent changes that have occurred since they were developed which may impact flood behaviour, such as earthworks, new developments or road infrastructure.
5. This report is not a substitute for independent professional advice. You should engage the services of a Registered Professional Engineer of Queensland (RPEQ) to get site specific information regarding the flood risk to your property, and how that might affect any proposed building or development work.
6. While Logan City Council takes reasonable care in producing this report, it does not guarantee that the information is accurate, complete or current. Logan City Council does not accept any responsibility for any loss or damage (however it was caused) in connection with the use of or reliance on the information in this report.

Contact Information

Where to go for further information depends on the type of information you need. Please refer to the Flood Risk Fact Sheet or contact Council using the details below.

Topic	Contact Details
Flood studies and modelling information, and the flood risk on your property	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. Further information about flooding and flood studies is available on the Flood page on Council's website.
Planning and development enquiries or proposals	Contact Council on 07 3412 3412 or email development@logan.qld.gov.au. Before lodging a development application, pre-lodgement advice is recommended.
Building information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. You can also contact a private building certifier.
Properties in Priority Development Areas	Contact Economic Development Queensland. Council is not the planning authority for these properties.
Independent advice about flooding on your property	Contact a registered engineer through the Board of Professional Engineers of Queensland: Phone: 07 3210 3100 Email: admin@bpeq.qld.gov.au Web: Home - Board of Professional Engineers Queensland (bpeq.qld.gov.au)

Appendix E - Logan City Council Development Codes

Acid Sulfate Soils Overlay Code

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	Response
Land in the Potential and actual sulfate soil area		
PO1 Development is 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.	**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 100m^3 or more of soil or sediment; or b) filling of land involving 500m^3 or more of material with an average depth of 0.5 of a metre or greater; or c) extracting ground water.	Proposed development complies. Proposed earthworks will not be below 5mAHD. Proposed excavation and fill for the residential reconfiguration of lot (1 into 2) will be minimal; entailing but not limited excavation for services and the reshaped surface of proposed Lot 2.
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.	**AO1.2** 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 100m^3 or more of soil or sediment at or below 5 metres AHD.	Development complies and will not involve excavating or removing 100m^3 or more of soil or sediment at or below 5mAHD.
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.	Where acid sulfate soils are identified on site, an acid sulfate soils management plan will be prepared in accordance with the current Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines.

Filling and Excavation Code

9.4.2.3 Criteria for assessment

Part A–Criteria for self-assessable and assessable development

Table 9.4.2.3.1–Filling and excavation code: self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Response
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.	Filling and excavation will be carried out in accordance with planning scheme policy 5 and the erosion and sediment control plan to ensure sediments and pollutants from filling or excavation do not adversely affect waterways or the stormwater network.
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.	Topsoil and spoil will be stockpiled and contained in accordance with Planning Scheme Policy 5 to ensure there are no adverse effects on natural processes and ecosystems.
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.	Fill material used will be stable, solid and clean earth free of organic and putrescible waste, rubbish and refuse material.
Protection of existing and planned infrastructure		
PO4 Filling or excavation works do not adversely affect infrastructure, including any services.	**AO4** Filling or excavation works comply with part 3.3– Filling and excavation standards in planning scheme policy 5–Infrastructure.	Filling and excavation on site will be designed and completed such that works do not adversely affect infrastructure, including any services.

Performance outcomes	Acceptable outcomes	Response
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.	Proposed filling an excavation on site will not adversely affect personal health and safety.
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.	Any proposed cut or fill on the site will not cause ponding, safety hazard or diversion or concentration of flow onto adjoining properties. Surface water drainage will comply with Planning Scheme Policy 5.
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 section 3.3.6– Batters and retaining walls in planning scheme policy 5–Infrastructure.	All proposed batters will be designed and constructed in accordance with Planning Scheme, Policy 5.
Retaining Walls		

Performance outcomes	Acceptable outcomes	Response
PO8 A retaining wall: a) Is not constructed of timber and are 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.	**AO8** A retaining wall is designed and constructed to comply with the standards specified in section 3.3.6.2–Retaining walls in planning scheme policy 5–Infrastructure.	All proposed retaining walls will be designed and constructed in accordance with Planning Scheme Policy 5.
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.	The dam filling will be carried out in accordance with the requirements specified in Part 3.3 – Filling and Excavation Standards of Planning Scheme Policy 5 – Infrastructure.

Infrastructure Code

9.4.3.3 Criteria for assessment

Part A–Criteria for self-assessable and assessable development

Table 9.4.3.3.1–Infrastructure code: self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Response
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.	Necessary infrastructure proposed for the development will be provided as shown on the design drawings prepared by vTCE.
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–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;	Development: a) connects to the water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code. b) not applicable c) connects to the waste water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code d) not applicable e) Stormwater infrastructure proposed is 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) Not applicable to this development h) Not applicable to this development i) provides electricity reticulation in accordance with part 3.8 of planning scheme policy 5–Infrastructure;

Performance outcomes	Acceptable outcomes	Response
	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.	j) Gas and telecommunications reticulation is provided by others. It will be in accordance with part 3.9 of planning scheme policy 5– Infrastructure. k) Proposed development is compliant with the general planning layouts in part 7.2 of the Planning scheme policy 5 – Infrastructure, where it is applicable.
Location of development		
PO3 Development is located to protect existing and planned infrastructure networks.	**AO3** Development is located outside: a) planned widening of a road or a new road identified in Table 7.3.1.1–Road encroachment maps of planning scheme policy 5—Infrastructure; b) planned public transport network identified on Figure 3.4.1.3.1—Public transport network in planning scheme policy 5— Infrastructure; c) a planned cycle network identified on Figure 3.4.1.2.1– Cycle network in planning scheme policy 5–Infrastructure; d) a planned park network identified in PIP map 09.00 Plan for trunk park infrastructure in Schedule 3–Priority infrastructure plans and mapping.	Development is located to protect existing and planned infrastructure network.
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 strata title unit access, which are private and under group or body corporate control.	**AO4** 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: a) Australian Standard (AS) 2419.1 - 2005 Fire hydrant installations; b) QFES: Fire Hydrant and vehicle access guidelines for residential, commercial and industrial lots.	Development provides necessary fire hydrant infrastructure and unimpeded access for emergency services vehicles.

Performance outcomes	Acceptable outcomes	Response
PO5 Development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for firefighting purposes.	**AO5** Development: a) Is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for firefighting purposes at all times with a minimum pressure and flow of 10 liters per second at 200kPa; or b) has an on-site water storage in accordance with Table 9.4.3.3.2—Water storage for firefighting, dedicated or retained for firefighting 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 tank water 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.	Not applicable to this development.
Disposal of trade waste		

Performance outcomes	Acceptable outcomes	Response
PO6 The disposal of trade waste in a sewerage supply service area does not adversely affect the sewerage network.	**AO6** 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 to this development.
Roof water drainage and surface water drainage		
PO7 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.	**AO7** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Proposed stormwater infrastructure will not cause any adverse hydraulic impacts or actionable nuisance to surrounding properties nor will it create a health and safety hazard.
Natural flow of surface water		

Performance outcomes	Acceptable outcomes	Response
PO8 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.	**AO8** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Development will not affect the natural flow of surface water so as to cause a risk to personal health and safety or damage to property nor an increase in intensity, velocity or frequency. The development will not cause surface water to be concentrated onto adjoining properties.
Water sensitive urban design		

Performance outcomes	Acceptable outcomes	Response
PO9 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 behavior 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.	**AO9** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Development incorporates water sensitive urban design principles and complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.
Movement network		
PO10 The projected traffic levels for a use do not adversely affect the planned standards of service for a road or intersection.	**AO10** Development does not cause or contribute to projected traffic levels: 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.	The projected traffic levels for the development will not adversely affect the planned standards of service in the area of the development.
Integrated movement concept report		
PO11 Development which generates more than 3,000 vehicle trips per average weekday is designed to integrate the movement network to minimize the transportation costs required to service the use.	**AO11** 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.	Not applicable to this development.

Performance outcomes	Acceptable outcomes	Response
Integrated movement concept report		
PO12 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) optimizes the walkable catchment to existing and future public passenger 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.	**AO11** Not acceptable outcome provided.	Not applicable to this development.

PO Box 26
Carina, QLD 4152
admin@vtce.com.au
vtce.com.au