

SECTION 4 – SPECIALIST REPORTS



60 Dutton Street, Coolangatta

Amended Statement of Landscape Intent
Civil Engineering Response Letter
Amended Stormwater Management Plan
Amended Engineering Services Report
Waste Response Letter

Amended Statement of Landscape Intent



60 Dutton Street, Coolangatta

60 Dutton Street

Coolangatta

Statement of Landscape Intent

July 2025

Meaningful- Grounded- Playful

Project Details & Contents

Project Details

Project Name:
Dutton Street

Client Name:
Lattimore

Architect Name:
Lightwave Architectural

Planner Name:
Enhance Urban Planning

Project Address:
60 Dutton Street Coolangatta QLD 4225

Project No.
2450

Revision:
A- 2025-04-29- Draft for Review
B- 2025-05-06- For Approval
C- 2025-05-07- For Approval
D- 2025-07-30- IR Response

Contents

1	Design Summary
2	Location & Context Plan
3	Key Design Principles
4	Landscape Concept Plan- Ground Level
5	Landscape Concept Plan- Level 2
6	Landscape Concept Plan- Level 3
7	Landscape Concept Plan- Level 4-6
8	Landscape Concept Plan- Level 7-8
9	Landscape Concept Plan- Level Roof
10	Planting Palette

Design Summary

The subject site located at 60 Dutton Street (Lot 2 on RP86756) in Coolangatta on the Gold Coast, comprising 703m2 approximate of medium density land within Division 14 of the City of Gold Coast.

The Landscape concept for the proposed residential development is based on the surrounding context, response to the proposed architectural layout and expression including the desired outcomes of the City of Gold Coast Council City Plan.

The design intent is to contribute positively to the image and overall quality of the proposed residential development by providing a contemporary, sensitive and appropriate landscape environment.

The key landscape design principles applied to the landscape concept comprise:

- Enhancing (Maximising planting opportunities and responding to local context)
- Connected (multiple access points and lines of movement)
- Diverse (a planting palette that provides variation of habit, form, colour, texture, mix of natives and exotics)
- Enduring (sustainable and resilient material selection)
- Comfortable (humanised scale. A space where you can be yourself)
- Vibrant (providing spaces for interaction and socialisation)
- Safe (open sight lines)

Location & Context Plan



Key Design Principles



Make it Local

- + Reflect local context, story and people
- + Reflect local planting communities
- + Provide a sense of place and locality
- + Promote local connectivity



Make it Human

- + Provide a human scale of design
- + Experience to be comfortable



Make it Social

- + Provide social amenities for the community
- + Provide options to gather and meet
- + Provide flexible spaces for socialisation



Make it Green

- + Create active zones for residents and visitors
- + Create interest for kids such as sensory planting and safe water interaction
- + Promote active connections to surrounding open space

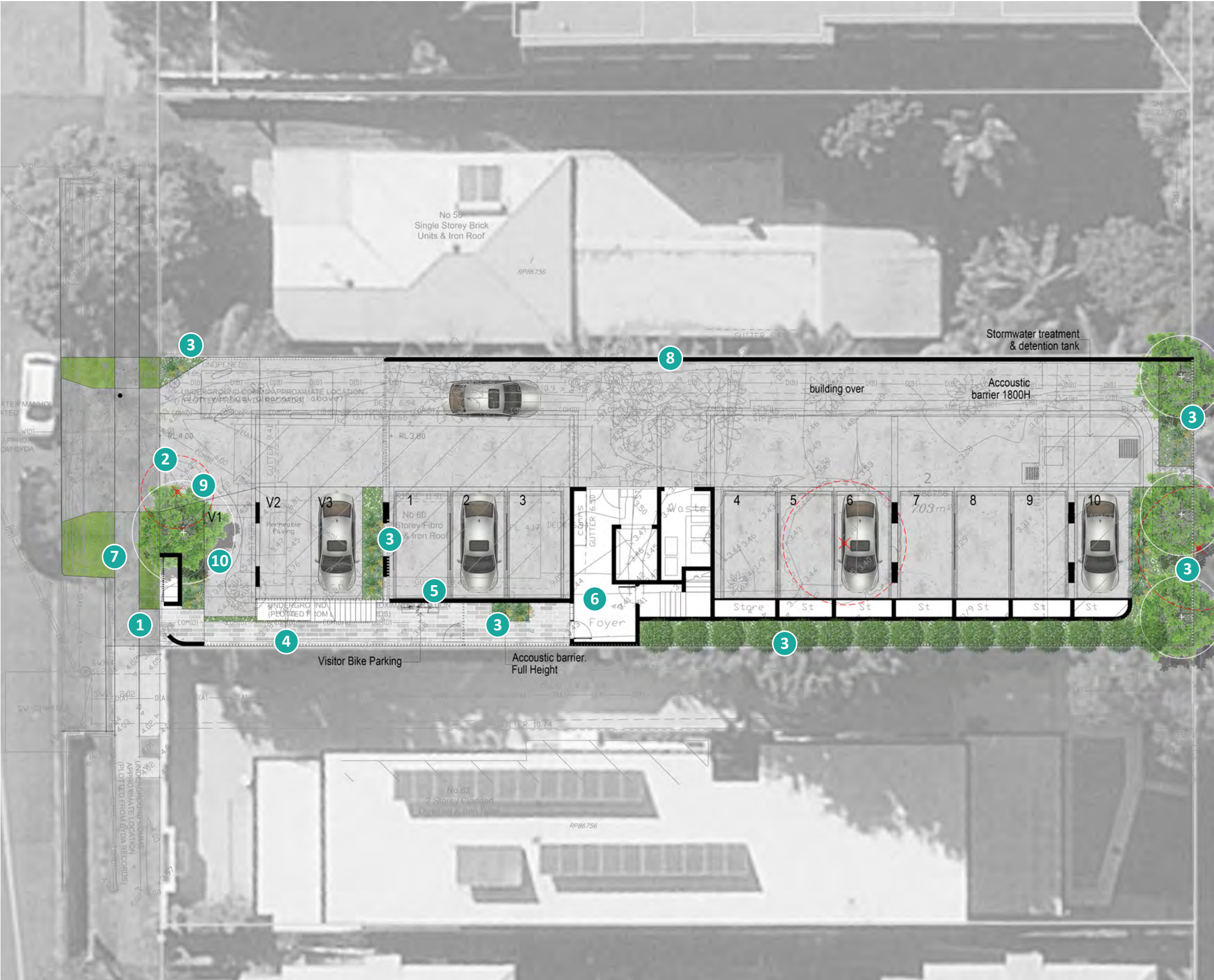
Overview

The Landscape Principles are based on best practice design, understanding the human needs, making it safe and enjoyable while designing spaces that encourage social outcomes, community spirit and a strong sense of place.

Landscape Concept Plan - Ground Floor

Legend

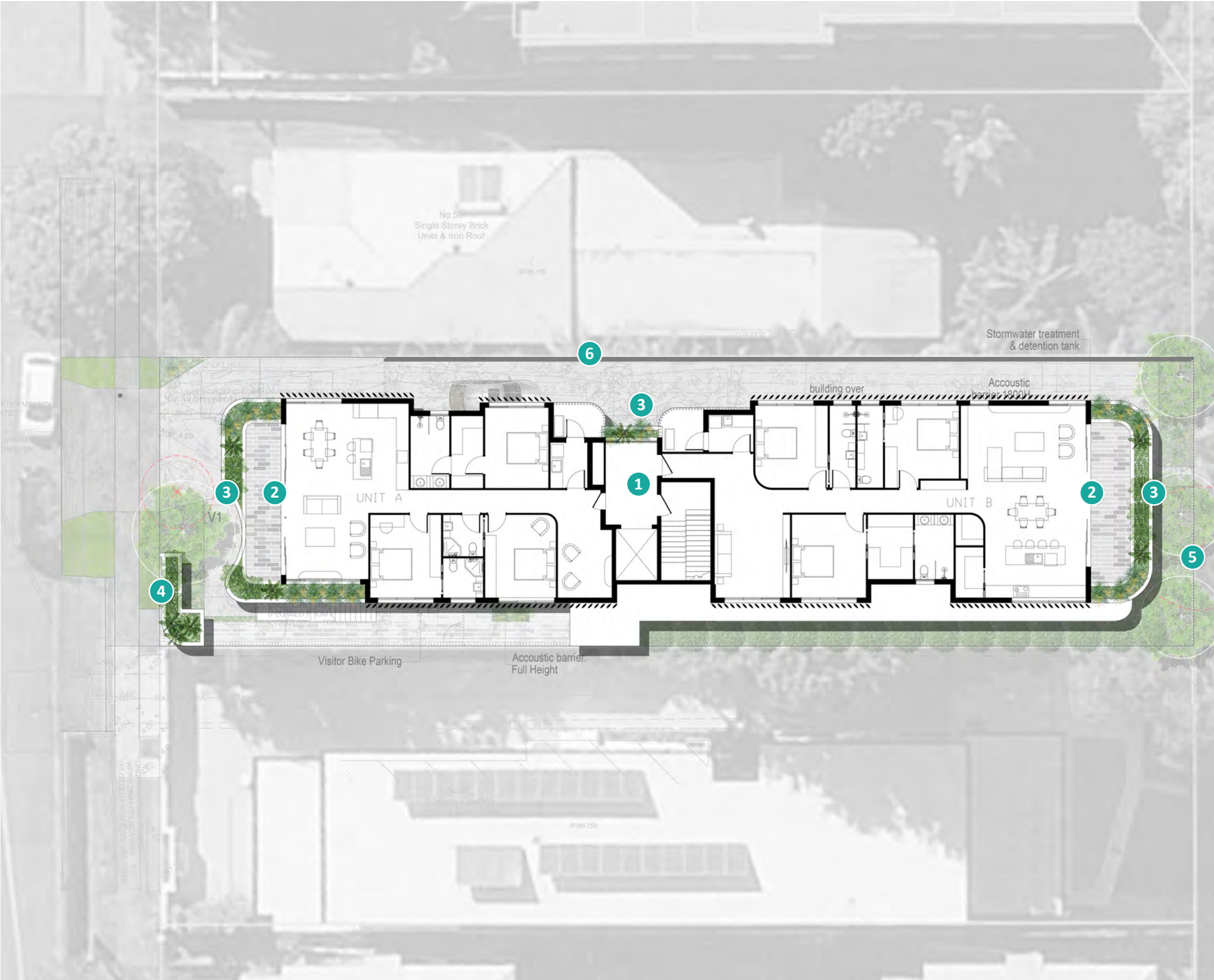
- 1 Pedestrian entry / exit
- 2 Vehicle entry / exit
- 3 Deep soil planting zone with screen shrub planting and accent palm / shrub / groundcover planting
- 4 Feature paving (to Architects details)
- 5 Visitor bike parking
- 6 Residential Lobby
- 7 Reinstated verge (footpath and turf)
- 8 Site Boundary
- 9 View triangle- Low level planting only
- 10 Columnar tree planting within deep soil planting zone



Landscape Concept Plan - Level 2

Legend

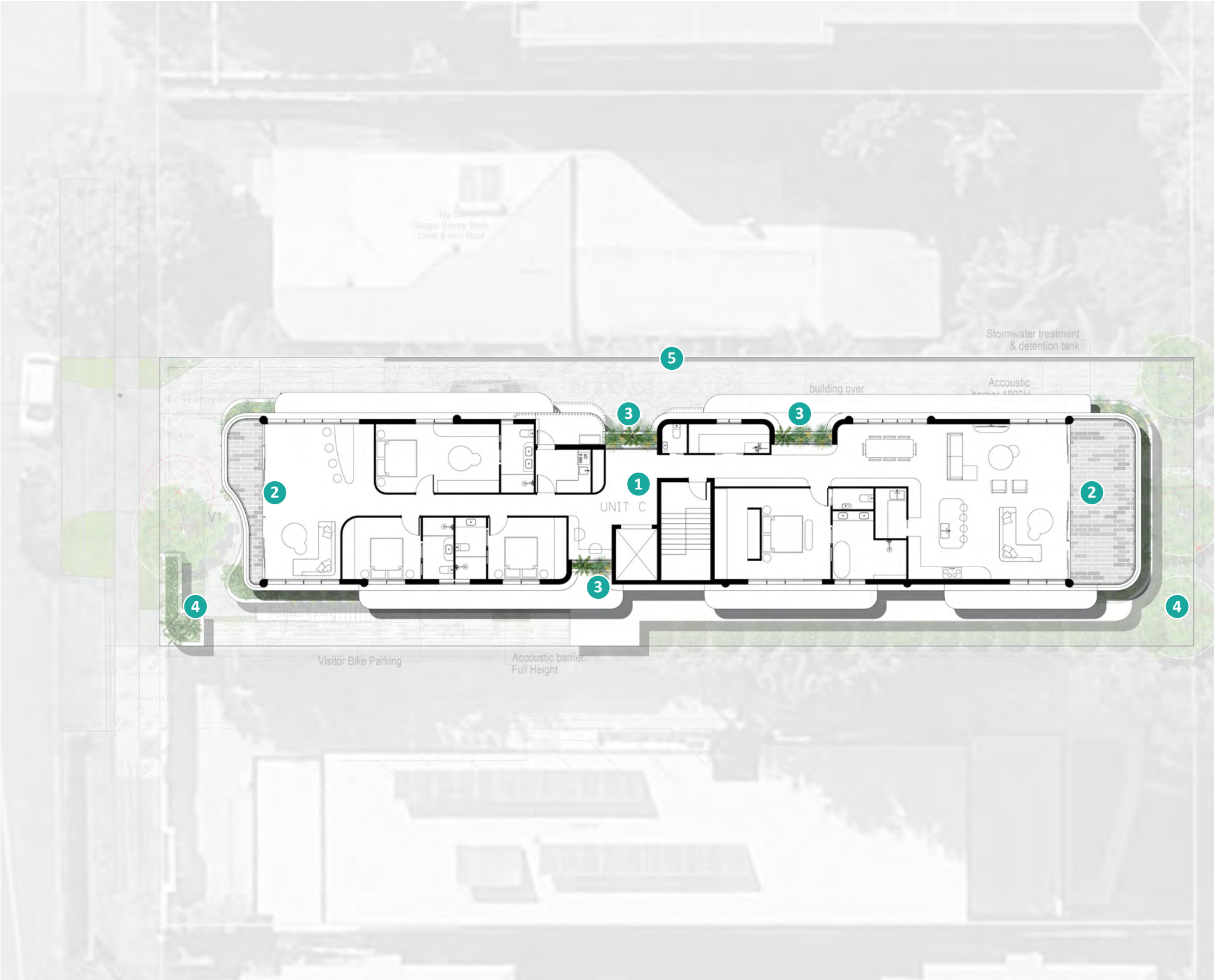
- 1 Lobby
- 2 BBQ / dining / gathering terrace
To Architects details
- 3 Raised planter 1m high with accent shrub,
groundcover and cascade planting
- 4 Raised planter to booster roof 600mm high
with accent shrub, groundcover and cascade
planting
- 5 Ground level landscape
- 6 Site Boundary



Landscape Concept Plan - Level 3

Legend

- 1 Lobby
- 2 BBQ / dining / gathering terrace
To Architects details
- 3 Raised planter 600mm high with accent shrub,
groundcover and cascade planting
- 4 Landscape below
- 5 Site Boundary



Project Name:
Dutton Street

Client Name:
Lattimore

Project No.
2450

Revision:
D

Date:
2025-07-30

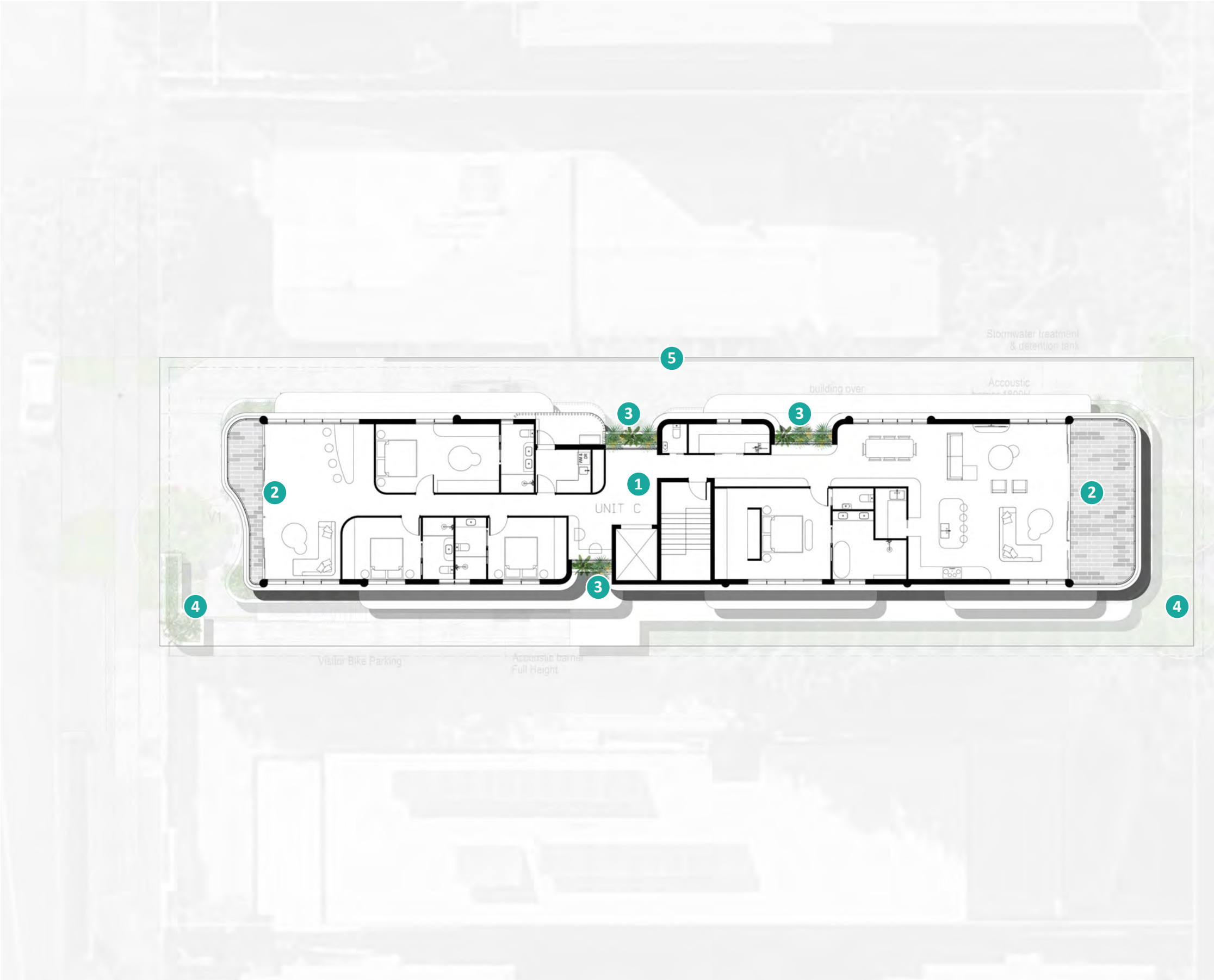
DWG No.
L006

shepherd
Urban Landscape Architecture

Landscape Concept Plan - Level 4-6

Legend

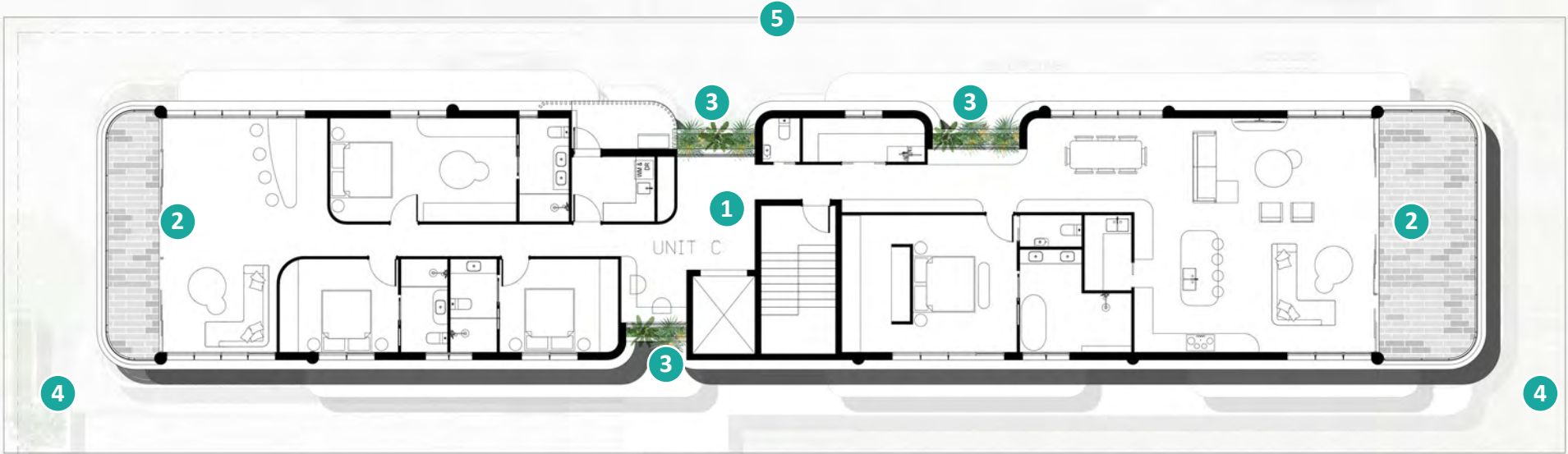
- 1 Lobby
- 2 BBQ / dining / gathering terrace
To Architects details
- 3 Raised planter 600mm high with accent shrub,
groundcover and cascade planting
- 4 Landscape below
- 5 Site Boundary



Landscape Concept Plan - Level 7-8

Legend

- 1 Lobby
- 2 BBQ / dining / gathering terrace
To Architects details
- 3 Raised planter 600mm high with accent shrub,
groundcover and cascade planting
- 4 Landscape below
- 5 Site Boundary



Project Name:
Dutton Street

Client Name:
Lattimore

Project No.
2450

Revision:
D

Date:
2025-07-30

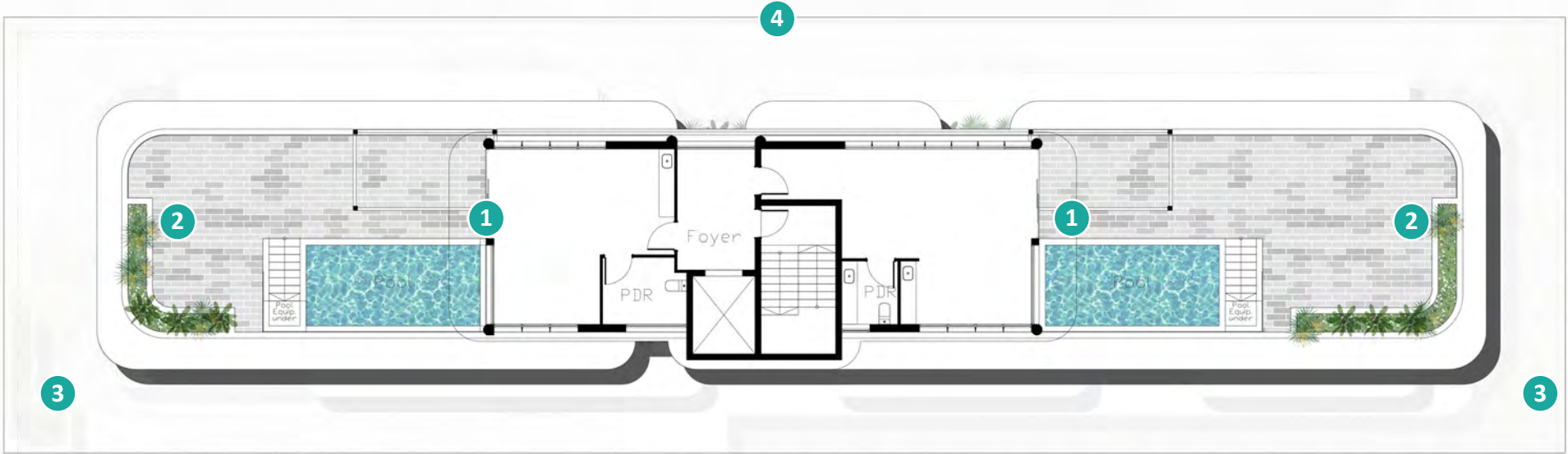
DWG No.
L008

shepherd
Urban Landscape Architecture

Landscape Concept Plan - Roof Level

Legend

- 1 BBQ / dining / spa / gathering terrace
To Architects details
- 2 1m high raised precast fibreglass / concrete planter with accent shrub, groundcover and cascade planting
- 3 Landscape below
- 4 Site Boundary



Planting Palette - Trees & Palms



Tuckeroo
Cupaniopsis anacardiodes



Eumundi Quandong
Elaeocarpus eumundi



Water Gum
Tristaniopsis 'Luscious'



Weeping Lilly Pilly
Waterhousea floribunda



Kentia Palm
Howea forsteriana



Foxtail Palm
Wodyetia bifurcata



Cabbage Tree Palm
Livistona australis



Screw Pine
Pandanus utilis

Tree
8 x 4m

Planting Palette - Shrubs



Miss Muffet
Pittosporum tobira
Shrub
1 x 1m



Giant Bird of Paradise
Strelitzia nicolai
Shrub
5 x 3m



Agave attenuata
Century Plant
AGA att



Big Red
Syzygium australe
Shrub
3 x 3m



Resilience
Syzygium australe
Shrub
3 x 2m



Dense Fence
Viburnum odoratissimum
Shrub
3 x 3m



Pink Diamond
Cordyline fruticosa
Shrub
2 x 1m



Cardboard Plant
Zamia furfuracea
Shrub
2 x 1m



Desert Star
Carissa grandiflora
Shrub
2 x 2m



Gynea Lily
Doryanthes excelsa
Shrub
2 x 2m



Silver Lady
Blechnum sp
Shrub
1 x 1m



Rojo Congo
Philodendron sp
Shrub
1 x 1m

Planting Palette - Groundcovers



Yareena
Myoporoum parvifolium
Groundcover
0.3 x 3m



Silver Leaf Gazania
Gazania tomentosa
Groundcover
0.3 x 2m



Blue Chalksticks
Senecio serpens
Groundcover
0.3 x 2m



Xanadu
Philodendron selloum
Groundcover
1 x 1m



Just Right
Liriope muscari
Groundcover
0.3 x 0.3m



Evergreen Giant
Liriope muscari
Groundcover
0.5 x 0.5m



Lime Tuff
Lomandra
Groundcover
0.5 x 0.5m



Matt Rush
Lomandra Hystrix
Groundcover
1.5 x 1.5m

Planting Palette - Cascading & Climbers



Cousin It
Casuarina glauca
Cascading
0.3 x 2m



Silver Falls
Dichondra repens
Cascading
0.3 x 2m



Golden Pothos
Epipermnum aureum
Cascading
0.3 x 2m



Waterfall Plant
Phyllanthus multiflorus
Cascading
0.3 x 2m



Climbing Fig
Ficus pumila
Climber
8 x 3m



Pink Mandevilla
Dipladenias
Climber
8 x 5m



Trachelospermum jasminoides
Star Jasmine
Climber
8 x 5m



Funky Bells
Pandorea jasminoides
Climber
8 x 5m

Civil Engineering Response Letter



60 Dutton Street, Coolangatta

Please quote Our Ref on all correspondence

Our Ref: L001-G24095
Application No: COM/2025/157

18 July 2025

To: City of Gold Coast
Attention: Luke Caldwell
Via email: mail@goldcoast.qld.gov.au

RE: Response to Information Request COM/2025/157

Dear Luke,

We have received your request for further information dated 19th of June 2025. In the paragraphs below we have presented each request for information as they were issued by you verbatim. Our response to each item follows with reference to further information provided in attachments, where necessary.

Hydraulics Assessment

9. Stormwater Easement

The Services Layout Plan drawing G24095-DA03, Revision 01 shows an assumed stormwater/drainage easement over the existing 1200 X 900 RCBC within the property. No stormwater/drainage easement exists according to Council property records. As such, the Applicant is requested to amend the drawing, nominating a stormwater/drainage easement in favour of Council in accordance with QUDM (2017) Section 3.12.4 Drainage easement dimensions in compliance with PO10 above.

The applicant may remove the "Assumed Stormwater Easement" and replace with "Proposed Stormwater Easement" amending the plan in accordance with the above.

Response

The Services Layout Plan (Dwg Ref: DA03-G24095-02) has been amended and the word "assumed" replaced with "proposed".

10. Plan of proposed internal stormwater network

It is unclear how surface stormwater from Catchment 4 (Driveway) are conveyed to the treatment tank. No plan supports the claim that surface stormwaters are conveyed to the treatment tank for final treatment by the Atlan filters. As such, the applicant is to provide a plan of the proposed internal stormwater network for Catchment 4 in connection to the treatment tank reflecting the submitted MUSIC model OR amend the MUSIC model with the Catchment 4-Driveways entirely bypass updating any results in compliance with PO3 above. The plans are required to clearly demonstrate a volumetric easement that is 1m wide from the finished floor level below the sewer to the soffit of the floor above as per section 3.3 of the Gravity Sewer Infrastructure In Basements Guideline.

The applicant may provide an Atlan FlowGuard at the end and across the driveway treating stormwater before discharge to the lawful point of discharge amending the MUSIC model accordingly updating any results in accordance with the above

Please provide an electronic copy of the amended MUSIC model for Council records.

Response

The Services Layout Plan (Dwg Ref: DA03-G24095-02) has been amended to include indicative internal stormwater infrastructure. Due to the sites existing topography, the stormwater runoff generated by the driveway will overland sheet flow towards the eastern boundary and will be collected via a grated trench inlet pit and conveyed towards the sites underground combined stormwater detention and treatment tank.

As the captured stormwater runoff does not bypass any of the site's detention or treatment, the MUSIC model is not required to be updated. The proposed internal stormwater infrastructure is indicative only and further details and design is to be completed at the detailed design stage of the development. Refer to the amended engineering drawings and reports prepared by Michael Bale & Associates Pty Ltd for more details on the proposed stormwater design.

11. Amended Services layout plan

It is unclear how surface stormwater from Catchment 4 (Driveway) is conveyed to the detention tank. No plan supports the claim that surface stormwaters are conveyed to the detention tank. As such, the applicant is to provide an amended Services Layout Plan drawing #G24095-DA03, Revision 01 of the proposed internal stormwater clearly demonstrating Catchment 4 in connection to the detention tank reflecting the submitted DRAINS model OR amend the DRAINS model with the Catchment 4-Driveway as entirely bypass updating any results in compliance with PO5 above.

The Applicant may provide a trench grate at the end and across the driveway diverting stormwater to the detention tank before discharge to the lawful point of discharge, amending the DRAINS model accordingly and updating any results in accordance with the above.

Please provide an electronic copy of the amended DRAINS model for Council records.

Response

The Services Layout Plan (Dwg Ref: DA03-G24095-02) has been amended to include indicative internal stormwater infrastructure. Due to the sites existing topography, the stormwater runoff generated by the driveway will overland sheet flow towards the eastern boundary and will be collected via a grated trench inlet pit and conveyed towards the sites underground combined stormwater detention and treatment tank.

As the captured stormwater runoff does not bypass any of the site's detention or treatment, the DRAINS model is not required to be updated. The proposed internal stormwater infrastructure is indicative only and further details and design is to be completed at the detailed design stage of the development. Refer to the amended engineering drawings and reports prepared by Michael Bale & Associates Pty Ltd for more details on the proposed stormwater design.

12. Stormwater Easement

Council will not accept the proposed lawful point of discharge. The proposed lawful point of discharge is within Goodwin Park which is State controlled land. Stormwater discharge to State controlled land cannot be permitted unless consent is granted by the State authority. As such, the applicant is required to amend the Services Layout Plan drawing #G24095-DA03, Revision 01 demonstrating a lawful point of discharge in accordance with City Plan Policy SC6.11 Land development guidelines 4.4.5 (Downstream drainage requirements).

The applicant may connect to the existing 1200 X 900mm RCBC (reinforced concrete box culvert) running through the property at the northern property determined to be a lawful point of discharge.

Response

The Services Layout Plan (Dwg Ref: DA03-G24095-02) has been amended to provide an LPOD in accordance with the SC6.11 Land development guidelines 4.4.5 (Downstream drainage requirements).

The LPOD is now proposed to discharge towards the existing reinforced concrete box culvert traversing the properties northern boundary via a proposed Ø300 stormwater pipe. Refer to the amended engineering drawings and reports prepared by Michael Bale & Associates Pty Ltd for more details on the proposed LPOD.

13. Overland flow paths and Stormwater drainage

The proposed residential dwellings will increase and extend hardstand area over the subject site, which is anticipated to alter existing stormwater overland flow arrangement.

It is noted that given the proposed minor drainage infrastructure (based on the minor drainage system service standard for RD5 residential zoning will have an approximate 10% AEP capacity, therefore for events larger than the 10% AEP (up to and including the 1% AEP) it is anticipated that flow from the western catchment flows will still 'overflow' towards the rear boundary.

Peak discharge across the rear of the property boundary is anticipated increase with runoff from the western catchment and the lot in its entirety may impact on peak flood flow rate, peak flood velocity and peak flood levels of the existing case considering the proposed development is within an identified overland flow path.

Based on the above, the applicant is requested to submit an updated stormwater management plan to address the issues below:

- a) The site is subject to an upstream external catchment to the south and a larger external upstream to the west. Provide detailed information for management of external catchments flows through the subject site during post developed condition to ensure no adverse impact external to the subject site.
- b) Demonstrate that the ground floor level driveway and garage entrances (hardstand) and other internal ground structures (retaining wall, garages, foyer, waste area, stairs etc) does not have any adverse impact external to the subject site and do not significantly alter the overland flow path extent for storm events up to the 1% AEP.
- c) Demonstrate that there is no worsening of the overland flow extent because of the development.
- d) Include a drainage layout plan identifying external catchments and runoff directions pre and post development.

Response

An overland flow assessment has been completed for the proposed development and surrounding area and is included within the Stormwater Management Plan (Report Ref: R001-G24095).

It has been demonstrated that the underlying stormwater piped network provides sufficient capacity to take the 1%AEP storm without overland flow conveyance through the development site. Detailed hydraulic Tuflow modelling results have been included in the updated report to

demonstrate that there have been no adverse impacts from the development, with Tuflow results for both the pre- and post-developed case provided within our report.

Refer to the amended Stormwater Management Plan prepared by Michael Bale and Associates Pty Ltd for more information on the detailed overland flow assessment.

Should you require any additional information we encourage you to contact us directly.

Kind regards,

MICHAEL BALE & ASSOCIATES PTY LTD

A handwritten signature in blue ink, consisting of the letters 'MB' in a stylized, cursive font.

Marcus Bleney
Civil Engineer

Amended Stormwater Management Plan



60 Dutton Street, Coolangatta

RESIDENTIAL DEVELOPMENT

60 DUTTON STREET, COOLANGATTA

STORMWATER MANAGEMENT PLAN

FOR: SOUTHERN CROSS PROPERTY HOLDINGS

REPORT NUMBER: R001-G24095



This document is copyright. Other than for the purposes and subject to the conditions prescribed under the Copyright Act 1968 (Commonwealth). No part of it may in any form or by any means (electronic, mechanical, micro-copying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission.

The information contained in this report has been prepared based on the information made available to Michael Bale and Associates at the time of preparation. This document, design parameters, and conclusions rely on external data sources, and the accuracy of this document is correct to the extent of the information provided to us.

This report has been prepared solely for the benefit of our client. We do not accept any liability for damage or loss resulting from reliance on this report, or any part of it, by any party other than the client (named on the front page of this report).

Document Control

Author:	Marcus Bleney	
Reviewer	Michael Bale	
Approver RPEQ	Michael Bale 15543	
Report Title	R001 – G24063 - Stormwater Management Plan	
Revision	02	Date 04/08/25

Revision History

Revision	Date	Author	Approver	Description
01	02/05/25	MTB	MB	Original Issue - Draft
02	20/05/25	MTB	MB	Original Issue
03	04/08/25	MTB	MB	Updated as per council RFI

Company Contact Details

- Address: Level 3, 18 Orchid Avenue, Surfers Paradise, 4217
- Mail Address: PO BOX 1715, Surfers Paradise, 4217
- Phone: (07) 5538 0431
- Email: reception@michaelbale.com.au

Client Contact Details

- Client: Southern Cross Property Holdings

CONTENTS

1.	Introduction	5
1.1	Related Reporting	5
2.	Property Description.....	6
2.1	Land Usage.....	7
2.2	Topography and Drainage.....	7
2.3	Upstream Catchment.....	7
3.	Proposed Development.....	7
4.	Lawful Point of Discharge	9
5.	Site Specific Hydrology.....	10
5.1	Introduction	10
5.2	Methodology.....	10
5.3	Catchment Definition.....	10
	Hydrologic Parameters.....	10
	Time of Concentration.....	10
	C10 Value.....	11
	Summary of Flow – Rational Method	11
5.4	Detention Design Process.....	11
	DRAINS Parameters.....	11
	Detention Design Parameters.....	12
	DRAINS Hydrologic Modelling Results.....	13
6.	Stormwater Quality.....	15
6.1	Introduction	15
6.2	State Planning Policy Assessment.....	15
6.3	Local Authority Assessment.....	15
6.4	Water Quality Objectives and Methodology	16
6.5	Catchment Areas & Source Nodes.....	16
6.6	Recorded Rainfall Data – Gold Coast South	16
6.7	Rainfall-Runoff Parameters	16
6.8	Pollutant Export Parameters	17
6.9	Proposed Treatment Device Details	17
	Proprietary Treatment Device (Atlan Environmental Products)	17
6.1	MUSIC Model Diagrams	19
6.2	MUSIC Modelling Results.....	19
7.	Conceptual Erosion and Sediment Control Plan.....	20
7.1	Introduction	21
7.2	General Erosion and Sediment Control Measures	21
7.3	Spoil and Stockpile Management Measures	21
7.4	Training Requirements.....	21

8. Conclusion.....	22
--------------------	----

FIGURES LIST

FIGURE 2.1 - SITE LOCALITY.....	6
FIGURE 5.1 – DRAINS MODEL SCREENSHOT 1% AEP	13
FIGURE 6.1: ATLAN STORMSACK GULLY INSERT PRE-TREATMENT FILTERS	18
FIGURE 6.2: ATLANFILTER CARTRIDGE FILTER.....	18
FIGURE 6-3: MUSIC MODELLING RESULTS.....	19

TABLES LIST

TABLE 5.1: CATCHMENT DEFINITION	10
TABLE 5.2: TIME OF CONCENTRATION SUMMARY	11
TABLE 5.3: C ₁₀ VALUES	11
TABLE 5.4: RATIONAL METHOD CALCULATION SUMMARY.....	11
TABLE 5.5: PRE-DEVELOPMENT RUNOFF CALCULATIONS COMPARISON	12
TABLE 5.6: DRAINS MODIFIABLE INPUTS.....	12
TABLE 5.7– DETENTION SYSTEM DESIGN PARAMETERS.....	13
TABLE 5.8 – DEVELOPMENT RUNOFF CALCULATIONS WITH DETENTION – DRAINS MODEL.....	14
TABLE 6.1: STATE PLANNING POLICY TRIGGER QUESTIONS	15
TABLE 6.2: CITY OF GOLD COAST TRIGGER QUESTIONS	15
TABLE 6.3-WATER QUALITY OBJECTIVES.....	16
TABLE 6.4-POLLUTANT EXPORT PARAMETERS	16
TABLE 6.5-MUSIC MODELLING PARAMETERS	17
TABLE 6.6-POLLUTANT EXPORT PARAMETERS	17
TABLE 6.7 - SITE SPECIFIC ATLAN TREATMENT TRAIN REQUIREMENTS.....	18

1. Introduction

This report has been prepared to support the lodgement of a development application involving the construction of a new development, comprising of a nine (9) storey residential development. The development is proposed to take place over the following parcel of land:

Property Address: 60 Dutton Street, Coolangatta

Property Description: Lot 2 on RP86756

Council: City of Gold Coast

Site Area: 703m²

The purpose of this report is to address the management of stormwater quantity and quality to ensure that the proposed development complies with all necessary state and local government policies.

This report intends to assess the likely impact of the proposed development in relation to stormwater quantity, and the adequacy of the existing stormwater infrastructure to accommodate the proposed development.

1.1 Related Reporting

This report is intended to be read in conjunction with the associated development submission documents, current as of the date of this report.

An Engineering Service Report (Ref: R002-G24095) has been prepared for the proposed development and should be read in conjunction with this report.

2. Property Description

The proposed development is situated on the existing lot located at 60 Dutton Street, Coolangatta described as Lot 2 on RP86756. The property is located within the City of Gold Coast Local Government Area.

The site is located in the suburb of Coolangatta and is in close proximity to local commercial and retail centres.

The proposed development site is bounded by Dutton Street to the west, existing residential allotments to the north and south and Goodwin Park to the east. The registered area of the existing allotment for this proposal is 703m².

A general locality plan is presented in Figure 2.1 below:



Figure 2.1 - Site Locality

2.1 Land Usage

The development site is currently occupied by a residential dwelling. The existing development contains impervious land uses, including roof, driveway, and other hardstand areas. The existing impervious areas have been estimated from the survey to cover approximately 57% of the site area, as displayed on the pre-developed catchment plan attached within Appendix A of this report.

The existing development is currently assessable via an existing VXO from Dutton Street.

2.2 Topography and Drainage

The detailed survey obtained for the project site indicates that majority of the surface grades towards the eastern boundary of the site towards Goodwin Park. A stormwater culvert traverses the proposed development site, running in parallel alignment with the northern boundary of the development site. Approximate levels on the site vary from 4.19m (AHD) in the northwest corner of the site to 2.99m (AHD) located in the southeast corner of the site. The average grade of the site has been calculated to be approximately 1.5%.

The development site contains existing internal stormwater infrastructure capturing runoff generated from the roof area, and discharges flows towards Goodwin Park to the east.

A copy of the detailed survey by Usher and Company has been attached within Appendix A of this report.

2.3 Upstream Catchment

The site survey indicates that the development site contains existing stormwater infrastructure that conveys an upstream catchment through the site. An assessment of this external catchment is detailed in Section 7.

3. Proposed Development

The proposed development consists of:

- The demolition of existing structures; and
- The construction of a new nine (9) storey residential tower; and
- The construction of access driveways and other hardstand surfaces associated with the proposed development.

A copy of the proposed architectural layout plans has been included in Appendix A of this report.

Additional works on site shall include the construction of water reticulation, sewer reticulation, electrical and telecommunications services and stormwater management works.

External works for the development will consist of verge works with Dutton Street to facilitate the construction of the vehicle crossover and service connections. No further external civil works are proposed as part of this development.

4. Lawful Point of Discharge

In the existing case, the majority of the stormwater runoff generated from the development site discharges towards the eastern boundary via overland sheet flow, towards Goodwin Park. Flows will enter council stormwater network via a stormwater headwall located within Goodwin Park. The captured stormwater runoff, discharges from the site without any on-site detention or water quality treatment.

In the developed case, it is proposed that the development site is to connect into the existing stormwater infrastructure located within Goodwin Park. The flows generated from the site are to be detained and treated within a combined belowground stormwater treatment and detention tank, and discharge to an existing council 1200x900 reinforced concrete box culvert via a proposed Ø300 stormwater pipe. Ultimately, flows discharge towards Goodwin Park via a council headwall. This arrangement is outlined in the Engineering Drawings attached within Appendix B.

The proposed discharge arrangement is considered to comply with the requirements of a lawful point of discharge and will be maintained following the development of the site. It is not anticipated that any stormwater will be directed towards any adjacent properties.

QUDM (2017) provides a three-part framework for the identification of a lawful point of discharge for a development site. The first assessment item is to consider if the proposed development will alter the site's stormwater discharge characteristics in a manner that may substantially damage a third-party property. As the proposed development is not considered likely to worsen the flows received by the stormwater infrastructure within Goodwin Park, the proposed point of discharge is considered to satisfy the requirements set out in Section 3.9.1 – Lawful Point of Discharge Test.

This compliance is further demonstrated in the following pages where it is shown that the proposed development will result in no worsening of peak flows from the development site.

.

5. Site Specific Hydrology

5.1 Introduction

The proposed development will involve the construction of a new residential apartment building, access driveway and other associated hardstand surfaces. These changes in site layout have the potential to change the coefficient of discharge for the site and thereby may affect the peak stormwater discharge rates of the development site.

This section of the report presents an assessment of the peak stormwater discharge resulting from the site and identifies whether attenuation measures are necessary to ensure “no-worsening” of the peak flows from the site.

5.2 Methodology

The methodology of the hydrologic analysis involves the use of both the Rational Method and DRAINS runoff-routing software. The Rational Method, as described by the Queensland Urban Drainage Manual (QUDM 2017), provides a simple means for the assessment of the peak discharge rate for design storms. The rational method does not provide a reliable basis for the determination of runoff volume or hydrograph shape.

DRAINS software (by Watercom) is a computer-based model that incorporates time-area routing processes to more accurately determine the volume and shape of the hydrograph during a storm event. DRAINS also includes storage-routing processes that can simulate the effect of stormwater detention systems.

The Rational Method is used in the hydrologic analysis to calibrate and verify the results of the DRAINS software modelling, in lieu of the availability of gauged information.

Once calibrated and verified, the DRAINS software modelling is used to calculate all the pre and post development hydrographs that are used in the assessment, and for the design of the proposed stormwater detention system.

5.3 Catchment Definition

In the existing case, the site has been modelled as singular catchment, with the Fraction Imperviousness measured from the site survey. In the developed case, the development site is represented by two (2) catchments, a highly developed catchment and a small bypass catchment with the fraction imperviousness measured from the current architectural plans. Table 5.1 below summarises the catchment properties used for the stormwater modelling.

Table 5.1: Catchment Definition

Catchment	Catchment Size	Fraction Impervious (f _i)
Pre-Developed Site	703m ²	0.57
Post-Developed Site	672m ²	0.92
Post-Developed (Bypass)	31m ²	0.10

Hydrologic Parameters

Time of Concentration

The time of concentration for the pre- and post-development catchments have been calculated in accordance with QUDM. The Friends sheet flow equation has been used to determine the time of concentration (t_c) for the ground catchments. The time of concentration for the catchment have been estimated using standard inlet times in combination with expected length of piped flows. Refer to Table 5.2 for the calculated time of concentration for each catchment.

Table 5.2: Time of Concentration Summary

Catchment	Catchment Size	Time of Concentration
Pre-Developed Site	703m ²	9.0 minutes
Post-Developed Site	672m ²	5.0 minutes
Post-Developed (Bypass)	31m ²	5.0 minutes

C10 Value

The C₁₀ values for the existing and proposed site conditions have been calculated in accordance with the Queensland Urban Drainage Manual (QUDM), Table 4.5.3: Table of C₁₀ values. A summary of the C₁₀ values adopted for the site are presented in Table 5.3 below.

Table 5.3: C₁₀ Values

	Area	Rainfall Intensity, ¹ I ₁₀ / Fraction Impervious	C ₁₀
Pre-development	703m ²	70.50mm/hr /57%	0.814
Post-development	672m ²	70.50mm/hr /92%	0.844
Post-Developed (Bypass)	31m ²	70.50mm/hr /10%	0.700

Summary of Flow – Rational Method

The Rational Method was used to calculate runoff from the site in the pre-developed and post developed scenario. The anticipated peak discharge is detailed in Table 5.4 below.

Table 5.4: Rational Method Calculation Summary

AEP	39% (m ³ /s)	18% (m ³ /s)	10% (m ³ /s)	5% (m ³ /s)	2% (m ³ /s)	1% (m ³ /s)
Pre-Developed	0.016	0.024	0.029	0.035	0.045	0.052
Post-Developed	0.018	0.028	0.034	0.042	0.054	0.062
Bypass	0.001	0.001	0.001	0.002	0.002	0.002
Flow Increase	+0.003	+0.005	+0.006	+0.009	+0.011	+0.012

Table 5.4 above shows that the development will result in an increase in peak estimated flow rates for all AEPs. As it has been demonstrated that the proposed development will result in increased flows from the development site, the development **will** need to provide on-site detention to mitigate peak flows.

5.4 Detention Design Process

DRAINS hydrologic software has been utilised to undertake the assessment of pre-development and post-development stormwater discharge for the purposes of the on-site detention specification process.

DRAINS version 2025.01 has been utilised in this assessment.

DRAINS Parameters

Calibration

The total pre-development flow has been calculated using DRAINS software and compared to the Rational Method Calculations. The times of concentration and fractions impervious used in DRAINS are identical to the ones used in the Rational Method calculations. The pre-development flow calculated in the DRAINS Model is presented in Table 5.5 below.

Table 5.5: Pre-Development Runoff Calculations Comparison

	39% (m ³ /s)	18% (m ³ /s)	10% (m ³ /s)	5% (m ³ /s)	2% (m ³ /s)	1% (m ³ /s)
Pre-development Rational Method	0.016	0.024	0.029	0.035	0.045	0.052
Pre-development DRAINS	0.019	0.024	0.030	0.035	0.042	0.047

As shown in Table 5.5 above, the peak flows determined by DRAINS generally compare well against the peak flows calculated by the Rational Method, with conservative values. Therefore, the DRAINS model is considered appropriate for this site.

Rainfall (Temporal Patterns)

Rainfall data used in the DRAINS model has been sourced from the Bureau of Meteorology for the Coolangatta region. The model has assessed all temporal patterns between 5 minutes and 120 minutes (2 hours) for all standard design storms.

Modifiable Inputs

The DRAINS software package has several inputs that can be used to manipulate the hydraulic behaviour of the model. The values adopted in this model are all default values, and are presented in Table 5.6 below:

Table 5.6: DRAINS Modifiable Inputs

Input	Modelled Value
Antecedent Moisture Condition	3
Paved Depression Storage (mm)	1
Supplementary Depression Storage (mm)	1
Grassed (Pervious) Depression Storage (mm)	5
Soil Type	3

Depression Storage values of 1mm for paved/supplementary and 5mm for grassed (pervious) areas were adopted in this model as is recommended in the DRAINS user manual.

An Antecedent Moisture Condition (AMC) of 3.0 has been adopted for this site. This is a default value for DRAINS. A soil type classification type of 3 is representative of soil with slow infiltration rates (may have layers that impede downward movement of water). This value is the default (conservative) value adopted by DRAINS and is considered to represent the existing site conditions well.

Detention Design Parameters

It is proposed to provide detention for the development site within a singular detention tank that is underneath the ground floor slab. The detention system is proposed to mitigate peak flows from the proposed development. Details of the proposed detention systems are presented in Table 5.7 below.

Table 5.7– Detention System Design Parameters

Detention Tank Parameters	
Detention Base	7.0m ²
Detention Height	1.0m
Total Detention Volume	7.0m³
Low-Flow Orifice Size/Level	Ø125mm @ Base
High-Flow Orifice Size/Level	Ø90mm @ 0.65m above Base
Emergency Overflow Weir	900 x 900 Grate @ Top of Tank
Outlet Size/Level	Ø300mm @ Base

Figure 5.1 below shows a screenshot of the DRAINS model used to represent the subject site.

Pre-Developed

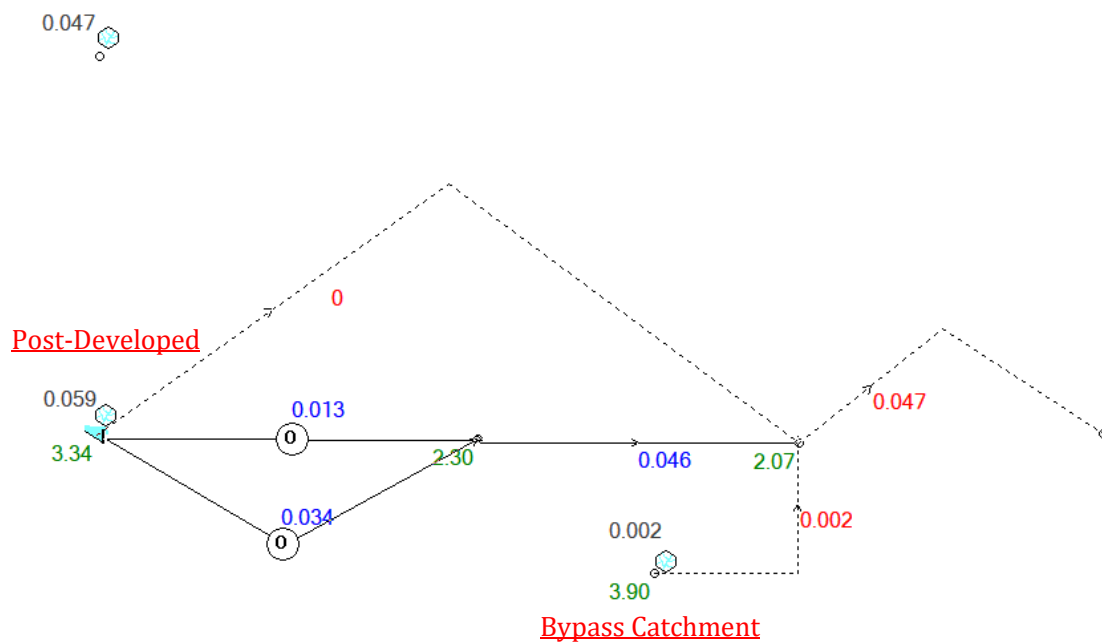


Figure 5.1 – DRAINS Model Screenshot 1% AEP

DRAINS Hydrologic Modelling Results

The on-site stormwater detention arrangement described in Table 5.7 has been designed to demonstrate that the proposed on-site detention strategy is effective in reducing developed peak stormwater discharge to a rate that is less than the existing, pre-development scenario.

The results of the assessment and confirmation of the achievement of the on-site detention objectives at all lawful points of discharge are provided in Table 5.8 below:

Table 5.8 – Development Runoff Calculations with Detention – DRAINS Model

	39% (m³/s)	18% (m³/s)	10% (m³/s)	5% (m³/s)	2% (m³/s)	1% (m³/s)
Q Pre-Developed (m³/s)	0.019	0.024	0.030	0.035	0.042	0.047
Q Detention (m³/s)	0.019	0.024	0.030	0.035	0.040	0.047
Peak Flow Reduction (m³/s)	0.000	0.000	0.000	0.000	-0.002	-0.000

The comparison of pre-developed and attenuated post-developed with detention conditions shows that non-worsening of peak discharges in the 39%, 18%, 10%, 20%, 50% and 1% AEP storm events is achievable with the detention system described in previous sections.

6. Stormwater Quality

6.1 Introduction

This section of the report aims to identify the requirements for stormwater quality management resulting from the proposed development and identify suitable stormwater treatment devices to comply with relevant requirements of the State Planning Policy and the City of Gold Coast City Plan Policy – Land Development Guidelines.

6.2 State Planning Policy Assessment

An assessment has been undertaken to determine whether the development proposal necessitates compliance with the State Planning Policy (SPP) objectives. The following trigger questions are used to determine whether SPP compliance is required.

Table 6.1: State Planning Policy Trigger Questions

Trigger Question	Development Response
Material Change of Use for Urban Purposes with a land area greater than 2,500m ² and:	No
a) Will result in an impervious area greater than 25% of the net developable area; or	N/A
b) Will result in 6 or more dwellings.	N/A
Reconfiguration of Lot for Urban Purposes that involves a land area greater than 2,500m ² , and will result in 6 or more lots	No

The above table indicates that the development does not trigger compliance with the SPP, and the proposed development will adopt local authority stormwater quality assessment.

6.3 Local Authority Assessment

As compliance with the SPP objectives has been shown not to be required, an assessment has been undertaken to determine whether the development proposal necessitates compliance with City of Gold Coast (CoGC) objectives. The following trigger questions are used to determine whether CoGC compliance is required.

Table 6.2: City of Gold Coast Trigger Questions

Trigger Question	Development Response
Greater than 850m ² of land and results in an increased number of allotments	No
3 or more dwellings (attached or detached)	Yes
Includes newly constructed road (previously unformed road) exceeding 30m in total length	No
Includes 200m ² or more uncovered new or refurbished car park area including parking bays and circulation driveway	No

As the above trigger questions are applicable to this development, the site **is** required to achieve the design objectives of the City of Gold Coast City Plan Policy.

6.4 Water Quality Objectives and Methodology

Table 6.2 indicates that the proposed development triggers the requirement for the development to achieve the Water Quality Objectives outlined in the State Planning Policy. As such, the development must demonstrate the following minimum reductions in mean annual pollutant loads from the unmitigated development:

Table 6.3-Water Quality Objectives

Pollutant	Minimum Reduction in Mean Load (%)
Total Suspended Solids (kg/yr)	80
Total Phosphorus (kg/yr)	60
Total Nitrogen (kg/yr)	45
Gross Pollutants (kg/yr)	90

To design and assess the achievement of these stormwater quality objectives the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Version 6.4.0 has been utilised to size suitable stormwater quality improvement devices as described in the following sections.

6.5 Catchment Areas & Source Nodes

The catchment areas used in the MUSIC model for the site are limited to the net developable area of the development site and are outlined in Table 6.4 below:

Table 6.4-Pollutant Export Parameters

Catchment	Area
Roof Area (100% Impervious)	474m ²
Landscape Area (100% Pervious)	54m ²
Hardstand Area (100% Impervious)	35m ²
Driveway Area (100% Impervious)	109m ²
Bypass Landscape Area (100% Pervious)	28m ²
Bypass Hardstand Area (100% impervious)	3m ²

The hardstand bypass area has been excluded from the modelling due to the size of the catchment area which would have minimal affected on the development.

6.6 Recorded Rainfall Data – Gold Coast South

Rainfall data for the site was taken from the City of Gold Coast (South) Elanora Treatment Plant (ID 40609) using the dates 1/1/1989 – 31/12/1998 in accordance with the Water By Design – MUSIC Modelling Guidelines (2010) using a 6 minute time step.

The mean average rainfall over the period is 1,436mm.

Rainfall over this time period was modelled using MUSIC to calculate the pollutant generation and treatment effectiveness of the proposed systems.

6.7 Rainfall-Runoff Parameters

Rainfall-runoff parameters were taken in accordance with the Water By Design – MUSIC Modelling Guidelines (2010) using *Urban Residential* land use, as tabulated in Table 6.5 below:

Table 6.5-MUSIC Modelling Parameters

Parameter	Value
Rainfall threshold (mm)	1.00
Soil storage capacity (mm)	500
Initial storage (%)	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

6.8 Pollutant Export Parameters

Pollutant export parameters were taken in accordance with Water By Design – MUSIC Modelling Guidelines (2010) using *Urban Residential* land use.

The split catchment approach was utilised for each surface type, with the input parameters shown in Table 6.6 below:

Table 6.6-Pollutant Export Parameters

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

6.9 Proposed Treatment Device Details

The proposed stormwater quality treatment train includes an Atlan Environmental cartridge system to treat stormwater flows from the development site. This system is to provide primary treatment of stormwater flows. Flows from majority of the development site are to be directed towards the treatment tank. The proposed development will contain a singular treatment chamber located towards the north boundary of the site, as shown on the engineering drawing attached within Appendix B.

Proprietary Treatment Device (Atlan Environmental Products)

The Atlan treatment train is a compact implementation of multiple stormwater treatment elements. It is comprised of Atlan Stormsack gully pit inserts which act as a pre-treatment device and AtlanFilter cartridge filters which provide primary treatment for the site. The Atlan treatment train is typically designed to provide stormwater treatment in ultra-urban environment by meeting water quality standard whilst increasing yield and hence cost effectiveness for developers.

ATLAN StormSack filtration solutions are water quality devices that are installed within stormwater inlet pits to capture contaminants close to the surface for ease of maintenance. ATLAN StormSack

filtration offers a decentralised approach to stormwater treatment which assists in achieving site water quality goals.

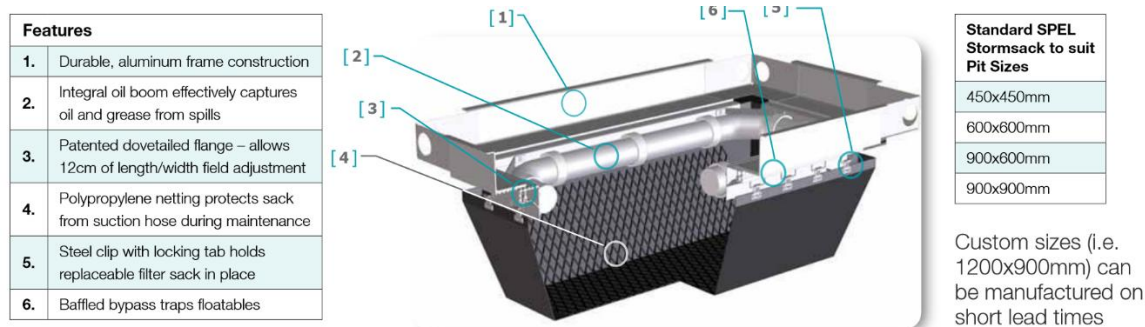


Figure 6.1: ATLAN Stormsack Gully Insert Pre-Treatment Filters

The AtlanFilter cartridge system provides a significantly greater surface contact area to footprint ratio than other filters. With a flow rate of 3.00L/s per cartridge and underground installation, the AtlanFilter provides excellent removal efficiency whilst maintaining site surface yield.

The high flow capacity and modular cartridge design means the AtlanFilter system can be effectively deployed in a variety of structures including manholes, precast vaults, or cast-in-place structures.



Figure 6.2: AtlanFilter Cartridge Filter

The Atlan Treatment Train system has proven compliance with the South-East Queensland Water by Design Music Modelling Guidelines requirements (2010) and has been accepted for use by the City of Gold Coast Council. The total requirement for treatment devices for the subject site is presented in Table 6.7 below:

Table 6.7 - Site Specific Atlan Treatment Train Requirements

Device Type	Treatment Tank
AtlanFilter Half Height Cartridges	2
Stormsack Inserts	1

The AtlanFilter cartridge is to be located within an underground tank that is to be constructed at the near the eastern boundary of the site alongside the Atlan Stormsack Insert which is to be constructed upstream of the treatment chamber.

6.1 MUSIC Model Diagrams

A diagrammatic layout of the MUSIC model interface used to model the proposed development with the proposed treatment devices incorporated for the development is presented in Figure 6.3 below:

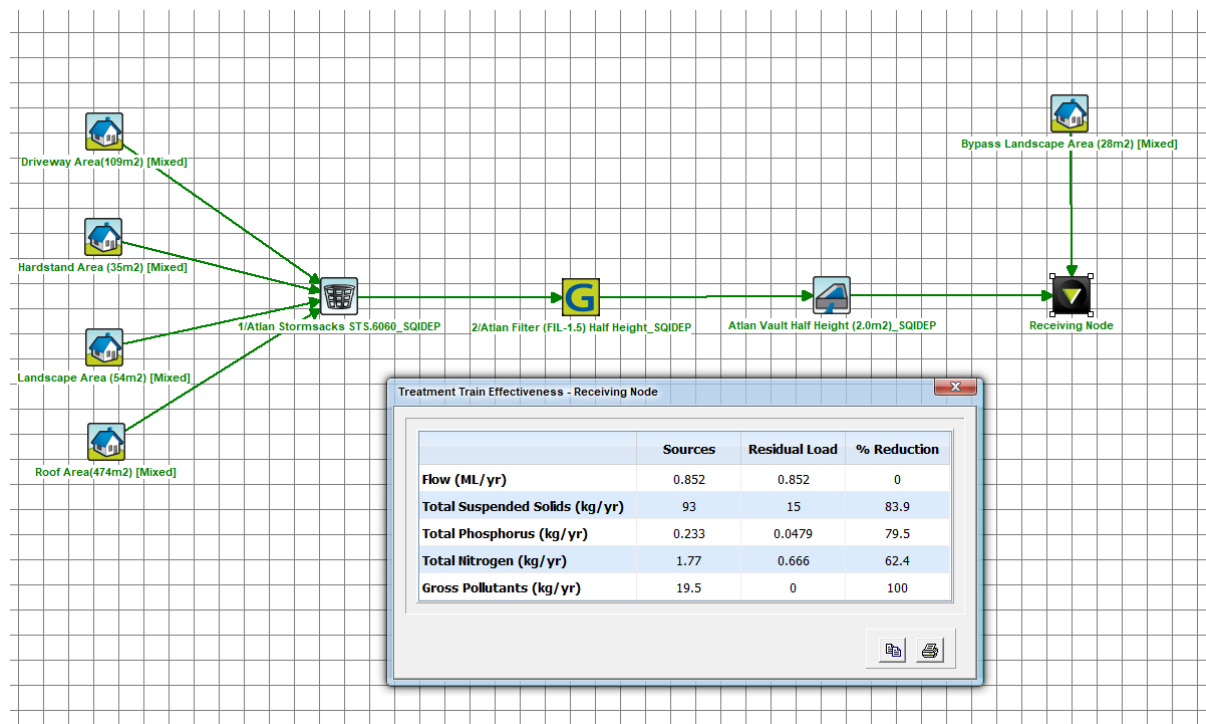


Figure 6-3: MUSIC Modelling Results

6.2 MUSIC Modelling Results

MUSIC was used to model the treatment train effectiveness in terms of the percentage of pollutants being removed from the system using the proposed treatment devices.

The results of the MUSIC modelling compared to the stated Water Quality Objectives (WQO's) are presented below:

Table 6.8: MUSIC Modelling Results

Potential Pollutant	Target WQO's	MUSIC Results
Total Suspended Solids (kg/yr)	80%	83.9%
Total Phosphorus (kg/yr)	60%	79.5%
Total Nitrogen (kg/yr)	45%	62.4%
Gross Pollutants (kg/yr)	90%	100%

The results indicate that the proposed treatment devices are efficient in achieving the water quality objectives and exceeds the minimum required pollutant reduction targets.

7. Overland Flow Assessment

7.1 Hydrologic

Hydrologic modelling of the external catchments was undertaken using WBNM with Storm injector (1.4.2). Sub-catchments were delineated from Council's stormwater network database and ALS (conducted 2018), as illustrated on Appendix C1. Current best practices were adopted to estimate design storm runoff, including the following:

- 65% impervious value (IPWEAQ, 2017), with the exception of C13, C29 & C30;
- 1.3 catchment lag factor;
- BoM 2016 design rainfall depths; and
- ARR (Ball, et al., 2019) temporal patterns and burst losses (initial loss – median pre-burst).

All 1% AEP, 5-180 minute durations and temporal ensembles were simulated, with box plots included in Appendix C.

7.2 Hydraulic

Hydraulic modelling was undertaken using Tuflow (2025.1.1), as summarised below.

- Model extent illustrated in Appendix C2, with boundaries set a suitable distance away from the site to eliminate undue boundary effects;
- Topography is based on ALS data (conducted 2018), and site ground survey (August 2024), with a 1 m model grid. Break lines and grid modifications were applied to critical areas for accuracy, consistency and stability;
- Manning's 'n' roughness, as illustrated in Figure C3:
 - Road reserve 0.025;
 - Open space 0.035;
 - Dense vegetation 0.18 (0.2 m) to 0.08 (3.5 m) (variable depth); and
 - Lots 0.1.
- Structure information was extracted from Council's digital stormwater database and site survey, with engineering judgement applied to missing or conflicting information.
- Constant tailwater boundary and initial water level set to 3.1 mAHD (5% AEP storm tide +0.8 m predicted seal level rise);
- Local inflows applied to applicable pits; and
- Map cut-off depth of 0.1 m.

7.3 Results

Figure C5 presents the predicted 1% AEP overland flow map, illustrating extensive flooding of Goodwin Park as a result of the adopted tailwater boundary condition. This backwater inundation extends into the lower elevation western boundary site areas. However, fill of the lower site areas inundated by storm tide will not affect local catchment storage.

The upstream Dutton Street inundation is generally contained to the street kerb, with the underlying stormwater network providing sufficient conveyance. No changes are proposed to the relevant trunk drainage. Hence the site development is not predicted to adversely impact overland flows external to the site. Furthermore, in the case of upstream stormwater network blockages, the proposed layout facilitates conveyance of severe storm overland flows via the proposed driveway to Goodwin Park.

8. Conceptual Erosion and Sediment Control Plan

8.1 Introduction

During construction, it shall be the responsibility of the Principal Contractor to ensure that the development complies with the relevant erosion and sediment control objectives, as outlined in the State Planning Policy and the City of Gold Coast Planning Scheme.

This section of the report provides suggested inclusions in an erosion and sediment control plan for the proposed development site. This plan includes recommendations for monitoring & reporting responsibilities and the construction of site-specific sedimentation and erosion control measures. Detailed drawings specifying the proposed erosion and sediment control measures are to be provided at the Operational Works stage of the development.

8.2 General Erosion and Sediment Control Measures

It shall be the responsibility of the Principal Contractor to ensure the following erosion and sediment control measures are implemented on site:

- Clean stormwater runoff from upstream allotments is to be directed away from the development site using earth bunds or cut-off drains, as deemed appropriate by a suitable supervisor;
- The prevention of sediment runoff towards other allotments via the effective implementation of silt fences, sediment basins or other mitigation devices as deemed appropriate by a suitable supervisor;
- Sediment runoff shall also be prevented from entering the Council stormwater drainage system via the implementation of control measures such as gully pit sediment barriers;
- Erosion shakedown points shall be established at all vehicular access points, with shakedown areas regularly swept clean and sediment removed; and
- Erosion and sediment control measures are not to be removed from the development site until the site is completely rehabilitated and the surface is capable of resisting erosion.

8.3 Spoil and Stockpile Management Measures

It shall be the responsibility of the Principal Contractor to ensure the following spoil and stockpile management measures are implemented on site:

- Where the stockpiling of spoil and excess earthworks is necessary on the development site, stockpiles shall be established as far away as possible from stormwater inlets and pipelines to reduce the likelihood of sediment runoff; and
- Stockpiles are to be established within a designated zone of fill material and should be surrounded with appropriate erosion and sediment control measures.

8.4 Training Requirements

It shall be the responsibility of the Principal Contractor to ensure the following training protocols are implemented on the development site:

- Site induction courses shall include details of an environmental management reporting system, through which personnel will be able to report perceived erosion and sediment control issues on site.

9. Conclusion

This report has been prepared to support the lodgement of a development application involving the construction of a new development, comprising of a nine (9) storey residential development. The development is proposed to take place over the following parcels of land:

Property Address: 60 Dutton Street, Coolangatta

Property Description: Lot 2 on RP86756

Council: City of Gold Coast

Site Area: 703m²

This report has addressed the management of stormwater quantity and quality to ensure that the proposed development complies with all necessary state and local government policies.

This report describes the design process for specifications of the following key infrastructure elements that will ensure the management of stormwater to achieve necessary standards.

- Stormwater detention for the proposed development,
 - The construction of a 7.0m² stormwater detention tank (refer to Section 5 of this report for outlet arrangements).
- Stormwater quality treatment for the proposed development,
 - The installation of a two (2) half height Atlan filters to be located within a 2.0m² treatment chamber to treat flows generated from the proposed development site.
 - The installation of one (1) Atlan Stormsack pit insert to be located within a pit upstream of the treatment tank to treat flows generated from the proposed development site.

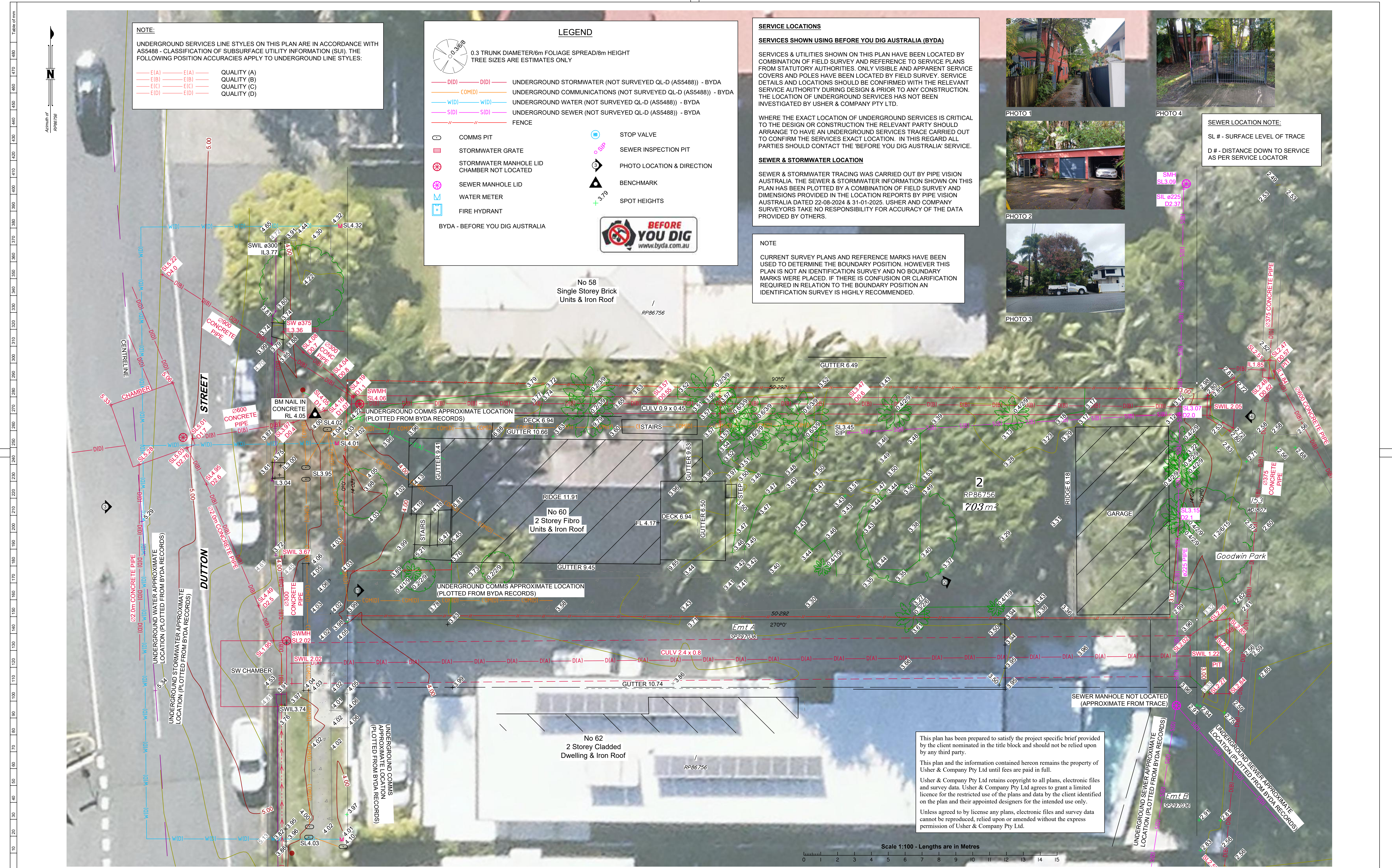
This report has addressed the management of stormwater quantity and demonstrated that no additional works are required to ensure that the proposed development complies with all necessary state and local government policies.

It is the opinion of this report that the proposed stormwater quantity management systems are suitable for a development of this scale and potential impacts.



Appendix A

Site Survey & Architectural Layout



NOTE:
UNDERGROUND SERVICES LINE STYLES ON THIS PLAN ARE IN ACCORDANCE WITH AS5488 - CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION (SUI). THE FOLLOWING POSITION ACCURACIES APPLY TO UNDERGROUND LINE STYLES:

LINE STYLE	QUALITY
---	QUALITY (A)
- - -	QUALITY (B)
---	QUALITY (C)
---	QUALITY (D)

LEGEND

0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT
TREE SIZES ARE ESTIMATES ONLY

D(D)	UNDERGROUND STORMWATER (NOT SURVEYED QL-D (AS5488)) - BYDA
COM(D)	UNDERGROUND COMMUNICATIONS (NOT SURVEYED QL-D (AS5488)) - BYDA
W(D)	UNDERGROUND WATER (NOT SURVEYED QL-D (AS5488)) - BYDA
S(D)	UNDERGROUND SEWER (NOT SURVEYED QL-D (AS5488)) - BYDA
---	FENCE
COMMS PIT	STOP VALVE
STORMWATER GRATE	SEWER INSPECTION PIT
STORMWATER MANHOLE LID CHAMBER NOT LOCATED	PHOTO LOCATION & DIRECTION
SEWER MANHOLE LID	BENCHMARK
WATER METER	SPOT HEIGHTS
FIRE HYDRANT	

BYDA - BEFORE YOU DIG AUSTRALIA

BEFORE YOU DIG AUSTRALIA
www.byda.com.au

SERVICE LOCATIONS

SERVICES SHOWN USING BEFORE YOU DIG AUSTRALIA (BYDA)

SERVICES & UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED BY COMBINATION OF FIELD SURVEY AND REFERENCE TO SERVICE PLANS FROM STATUTORY AUTHORITIES. ONLY VISIBLE AND APPARENT SERVICE COVERS AND POLES HAVE BEEN LOCATED BY FIELD SURVEY. SERVICE DETAILS AND LOCATIONS SHOULD BE CONFIRMED WITH THE RELEVANT SERVICE AUTHORITY DURING DESIGN & PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UNDERGROUND SERVICES HAS NOT BEEN INVESTIGATED BY USHER & COMPANY PTY LTD.

WHERE THE EXACT LOCATION OF UNDERGROUND SERVICES IS CRITICAL TO THE DESIGN OR CONSTRUCTION THE RELEVANT PARTY SHOULD ARRANGE TO HAVE AN UNDERGROUND SERVICES TRACE CARRIED OUT TO CONFIRM THE SERVICES EXACT LOCATION. IN THIS REGARD ALL PARTIES SHOULD CONTACT THE 'BEFORE YOU DIG AUSTRALIA' SERVICE.

SEWER & STORMWATER LOCATION

SEWER & STORMWATER TRACING WAS CARRIED OUT BY PIPE VISION AUSTRALIA. THE SEWER & STORMWATER INFORMATION SHOWN ON THIS PLAN HAS BEEN PLOTTED BY A COMBINATION OF FIELD SURVEY AND DIMENSIONS PROVIDED IN THE LOCATION REPORTS BY PIPE VISION AUSTRALIA DATED 22-08-2024 & 31-01-2025. USHER AND COMPANY SURVEYORS TAKE NO RESPONSIBILITY FOR ACCURACY OF THE DATA PROVIDED BY OTHERS.

NOTE

CURRENT SURVEY PLANS AND REFERENCE MARKS HAVE BEEN USED TO DETERMINE THE BOUNDARY POSITION. HOWEVER THIS PLAN IS NOT AN IDENTIFICATION SURVEY AND NO BOUNDARY MARKS WERE PLACED. IF THERE IS CONFUSION OR CLARIFICATION REQUIRED IN RELATION TO THE BOUNDARY POSITION AN IDENTIFICATION SURVEY IS HIGHLY RECOMMENDED.

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4

SEWER LOCATION NOTE:

SL # - SURFACE LEVEL OF TRACE

D # - DISTANCE DOWN TO SERVICE AS PER SERVICE LOCATOR

SMH SL3.09

SIL 6225 D2.37

SL3.07

SL3.15 D2.1

SL2.84

SL2.81

SL2.80

SL2.79

SL2.78

SL2.77

SL2.76

SL2.75

SL2.74

SL2.73

SL2.72

SL2.71

SL2.70

SL2.69

SL2.68

SL2.67

SL2.66

SL2.65

SL2.64

SL2.63

SL2.62

SL2.61

SL2.60

SL2.59

SL2.58

SL2.57

SL2.56

SL2.55

SL2.54

SL2.53

SL2.52

SL2.51

SL2.50

SL2.49

SL2.48

SL2.47

SL2.46

SL2.45

SL2.44

SL2.43

SL2.42

SL2.41

SL2.40

SL2.39

SL2.38

SL2.37

SL2.36

SL2.35

SL2.34

SL2.33

SL2.32

SL2.31

SL2.30

SL2.29

SL2.28

SL2.27

SL2.26

SL2.25

SL2.24

SL2.23

SL2.22

SL2.21

SL2.20

SL2.19

SL2.18

SL2.17

SL2.16

SL2.15

SL2.14

SL2.13

SL2.12

SL2.11

SL2.10

SL2.09

SL2.08

SL2.07

SL2.06

SL2.05

SL2.04

SL2.03

SL2.02

SL2.01

SL2.00

SL1.99

SL1.98

SL1.97

SL1.96

SL1.95

SL1.94

SL1.93

SL1.92

SL1.91

SL1.90

SL1.89

SL1.88

SL1.87

SL1.86

SL1.85

SL1.84

SL1.83

SL1.82

SL1.81

SL1.80

SL1.79

SL1.78

SL1.77

SL1.76

SL1.75

SL1.74

SL1.73

SL1.72

SL1.71

SL1.70

SL1.69

SL1.68

SL1.67

SL1.66

SL1.65

SL1.64

SL1.63

SL1.62

SL1.61

SL1.60

SL1.59

SL1.58

SL1.57

SL1.56

SL1.55

SL1.54

SL1.53

SL1.52

SL1.51

SL1.50

SL1.49

SL1.48

SL1.47

SL1.46

SL1.45

SL1.44

SL1.43

SL1.42

SL1.41

SL1.40

SL1.39

SL1.38

SL1.37

SL1.36

SL1.35

SL1.34

SL1.33

SL1.32

SL1.31

SL1.30

SL1.29

SL1.28

SL1.27

SL1.26

SL1.25

SL1.24

SL1.23

SL1.22

SL1.21

SL1.20

SL1.19

SL1.18

SL1.17

SL1.16

SL1.15

SL1.14

SL1.13

SL1.12

SL1.11

SL1.10

SL1.09

SL1.08

SL1.07

SL1.06

SL1.05

SL1.04

SL1.03

SL1.02

SL1.01

SL1.00

SL0.99

SL0.98

SL0.97

SL0.96

SL0.95

SL0.94

SL0.93

SL0.92

SL0.91

SL0.90

SL0.89

SL0.88

SL0.87

SL0.86

SL0.85

SL0.84

SL0.83

SL0.82

SL0.81

SL0.80

SL0.79

SL0.78

SL0.77

SL0.76

SL0.75

SL0.74

SL0.73

SL0.72

SL0.71

SL0.70

SL0.69

SL0.68

SL0.67

SL0.66

SL0.65

SL0.64

SL0.63

SL0.62

SL0.61

SL0.60

SL0.59

SL0.58

SL0.57

SL0.56

SL0.55

SL0.54

SL0.53

SL0.52

SL0.51

SL0.50

SL0.49

SL0.48

SL0.47

SL0.46

SL0.45

SL0.44

SL0.43

SL0.42

SL0.41

SL0.40

SL0.39

SL0.38

SL0.37

SL0.36

SL0.35

SL0.34

SL0.33

SL0.32

SL0.31

SL0.30

SL0.29

SL0.28

SL0.27

SL0.26

SL0.25

SL0.24

SL0.23

SL0.22

SL0.21

SL0.20

SL0.19

SL0.18

SL0.17

SL0.16

SL0.15

SL0.14

SL0.13

SL0.12

SL0.11

SL0.10

SL0.09

SL0.08

SL0.07

SL0.06

SL0.05

SL0.04

SL0.03

SL0.02

SL0.01

SL0.00

SL-0.01

SL-0.02

SL-0.03

SL-0.04

SL-0.05

SL-0.06

SL-0.07

SL-0.08

SL-0.09

SL-0.10

SL-0.11

SL-0.12

SL-0.13

SL-0.14

SL-0.15

SL-0.16

SL-0.17

SL-0.18

SL-0.19

SL-0.20

SL-0.21

SL-0.22

SL-0.23

SL-0.24

SL-0.25

SL-0.26

SL-0.27

SL-0.28

SL-0.29

SL-0.30

SL-0.31

SL-0.32

SL-0.33

SL-0.34

SL-0.35

SL-0.36

SL-0.37

SL-0.38

SL-0.39

SL-0.40

SL-0.41

SL-0.42

SL-0.43

SL-0.44

SL-0.45

SL-0.46

SL-0.47

SL-0.48

SL-0.49

SL-0.50

SL-0.51

SL-0.52

SL-0.53

SL-0.54

SL-0.55

SL-0.56

SL-0.57

SL-0.58

SL-0.59

SL-0.60

SL-0.61

SL-0.62

SL-0.63

SL-0.64

SL-0.65

SL-0.66

SL-0.67

SL-0.68

SL-0.69

SL-0.70

SL-0.71

SL-0.72

SL-0.73

SL-0.74

SL-0.75

SL-0.76

SL-0.77

SL-0.78

SL-0.79

SL-0.80

SL-0.81

SL-0.82

SL-0.83

SL-0.84

SL-0.85

SL-0.86

SL-0.87

SL-0.88

SL-0.89

SL-0.90

SL-0.91

SL-0.92

SL-0.93

SL-0.94

SL-0.95

SL-0.96

SL-0.97

SL-0.98

SL-0.99

SL-1.00

SL-1.01

SL-1.02

SL-1.03

SL-1.04

SL-1.05

SL-1.06

SL-1.07

SL-1.08

SL-1.09

SL-1.10

SL-1.11

SL-1.12

SL-1.13

SL-1.14

SL-1.15

SL-1.16

SL-1.17

SL-1.18

SL-1.19

SL-1.20

SL-1.21

SL-1.22

SL-1.23

SL-1.24

SL-1.25

SL-1.26

SL-1.27

SL-1.28

SL-1.29

SL-1.30

SL-1.31

SL-1.32

SL-1.33

SL-1.34

SL-1.35

SL-1.36

SL-1.37

SL-1.38

SL-1.39

SL-1.40

SL-1.41

SL-1.42

SL-1.43

SL-1.44

SL-1.45

SL-1.46

SL-1.47

SL-1.48

SL-1.49

SL-1.50

SL-1.51

SL-1.52

SL-1.53

SL-1.54

SL-1.55

SL-1.56

SL-1.57

SL-1.58

SL-1.59

SL-1.60

SL-1.61

SL-1.62

SL-1.63

SL-1.64

SL-1.65

SL-1.66

SL-1.67

SL-1.68

SL-1.69

SL-1.70

SL-1.71

SL-1.72

SL-1.73

SL-1.74

SL-1.75

SL-1.76

SL-1.77

SL-1.78

SL-1.79

SL-1.80

SL-1.81

SL-1.82

SL-1.83

SL-1.84

SL-1.85

SL-1.86

SL-1.87

SL-1.88

SL-1.89

SL-1.90

SL-1.91

SL-1.92

SL-1.93

SL-1.94

SL-1.95

SL-1.96

SL-1.97

SL-1.98

SL-1.99

SL-2.00

SL-2.01

SL-2.02

SL-2.03

SL-2.04

SL-2.05

SL-2.06

SL-2.07

SL-2.08

SL-2.09

SL-2.10

SL-2.11

SL-2.12

SL-2.13

SL-2.14

SL-2.15

SL-2.16

SL-2.17

SL-2.18

SL-2.19

SL-2.20

SL-2.21

SL-2.22

SL-2.23

SL-2.24

SL-2.25

SL-2.26

SL-2.27

SL-2.28

SL-2.29

SL-2.30

SL-2.31

SL-2.32

SL-2.33

SL-2.34

SL-2.35

SL-2.36

SL-2.37

SL-2.38

SL-2.39

SL-2.40

SL-2.41

SL-2.42

SL-2.43

SL-2.44

SL-2.45

SL-2.46

SL-2.47

SL-2.48

SL-2.49

SL-2.50

SL-2.51

SL-2.52

SL-2.53

SL-2.54

SL-2.55

SL-2.56

SL-2.57

SL-2.58

SL-2.59

SL-2.60

SL-2.61

SL-2.62

SL-2.63

SL-2.64

SL-2.65

SL-2.66

SL-2.67

SL-2.68

SL-2.69

SL-2.70

SL-2.71

SL-2.72

SL-2.73

SL-2.74

SL-2.75

SL-2.76

SL-2.77

SL-2.78

SL-2.79

SL-2.80

SL-2.81

SL-2.82

SL-2.83

SL-2.84

SL-2.85

SL-2.86

SL-2.87

SL-2.88

SL-2.89

SL-2.90

SL-2.91

SL-2.92

SL-2.93

SL-2.94

SL-2.95

SL-2.96

SL-2.97

SL-2.98

SL-2.99

SL-3.00

SL-3.01

SL-3.02

SL-3.03

SL-3.04

SL-3.05

SL-3.06

SL-3.07

SL-3.08

SL-3.09

SL-3.10

SL-3.11

SL-3.12

SL-3.13

SL-3.14

SL-3.15

SL-3.16

SL-3.17

SL-3.18

SL-3.19

SL-3.20

SL-3.21

SL-3.22

SL-3.23

SL-3.24

SL-3.25

SL-3.26

SL-3.27

SL-3.28

SL-3.29

SL-3.30

SL-3.31

SL-3.32

SL-3.33

SL-3.34

SL-3.35

SL-3.36

SL-3.37

SL-3.38

SL-3.39

SL-3.40

SL-3.41

SL-3.42

SL-3.43

SL-3.44

SL-3.45

SL-3.46

SL-3.47

SL-3.48

SL-3.49

SL-3.50

SL-3.51

SL-3.52

SL-3.53

SL-3.54

SL-3.55

SL-3.56

SL-3.57

SL-3.58

SL-3.59

SL-3.60

SL-3.61

SL-3.62

SL-3.63

SL-3.64

SL-3.65

SL-3.66

SL-3.67

SL-3.68

SL-3.69

SL-3.70

SL-3.71

SL-3.72

SL-3.73

SL-3.74

SL-3.75

SL-3.76

SL-3.77

SL-3.78

SL-3.79

SL-3.80

SL-3.81

SL-3.82

SL-3.83

SL-3.84

SL-3.85

SL-3.86

SL-3.87

SL-3.88

SL-3.89

SL-3.90

SL-3.91

SL-3.92

SL-3.93

SL-3.94

SL-3.95

SL-3.96

SL-3.97

SL-3.98

SL-3.99

SL-4.00

SL-4.01

SL-4.02

SL-4.03

SL-4.04

SL-4.05

SL-4.06

SL-4.07

SL-4.08

SL-4.09

SL-4.10

SL-4.11

SL-4.12

SL-4.13

SL-4.14

SL-4.15

SL-4.16

SL-4.17

SL-4.18

SL-4.19

SL-4.20

SL-4.21

SL-4.22

SL-4.23

SL-4.24

SL-4.25

SL-4.26

SL-4.27

SL-4.28

SL-4.29

SL-4.30

SL-4.31

SL-4.32

SL-4.33

SL-4.34

SL-4.35

SL-4.36

SL-4.37

SL-4.38

SL-4.39

SL-4.40

SL-4.41

SL-4.42

SL-4.43

SL-4.44

SL-4.45

SL-4.46

SL-4.47

SL-4.48

SL-4.49

SL-4.50

SL-4.51

SL-4.52

SL-4.53

SL-4.54

SL-4.55

SL-4.56

SL-4.57

SL-4.58

SL-4.59

SL-4.60

SL-4.61

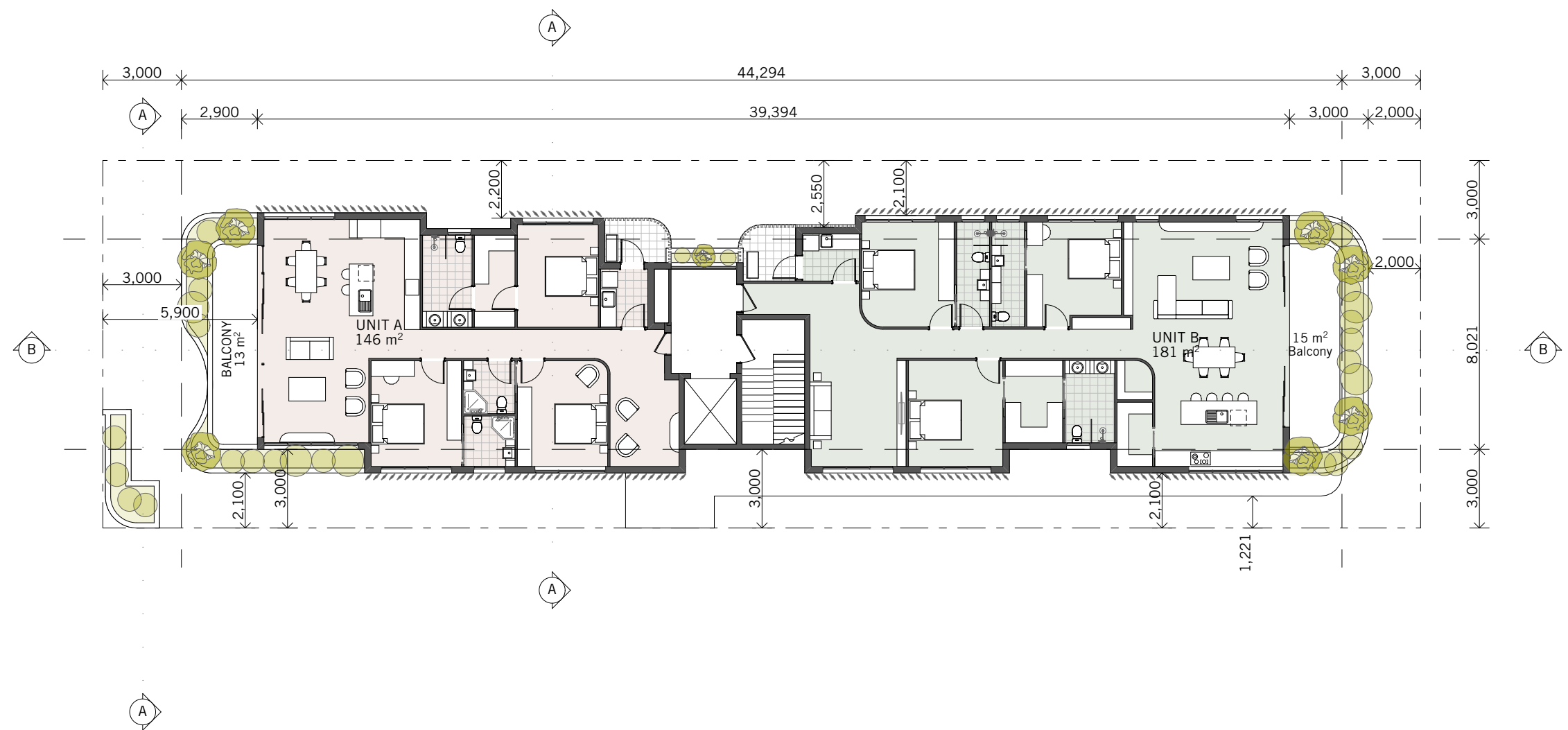
SL-4.62

SL-4.63

SL-4.64

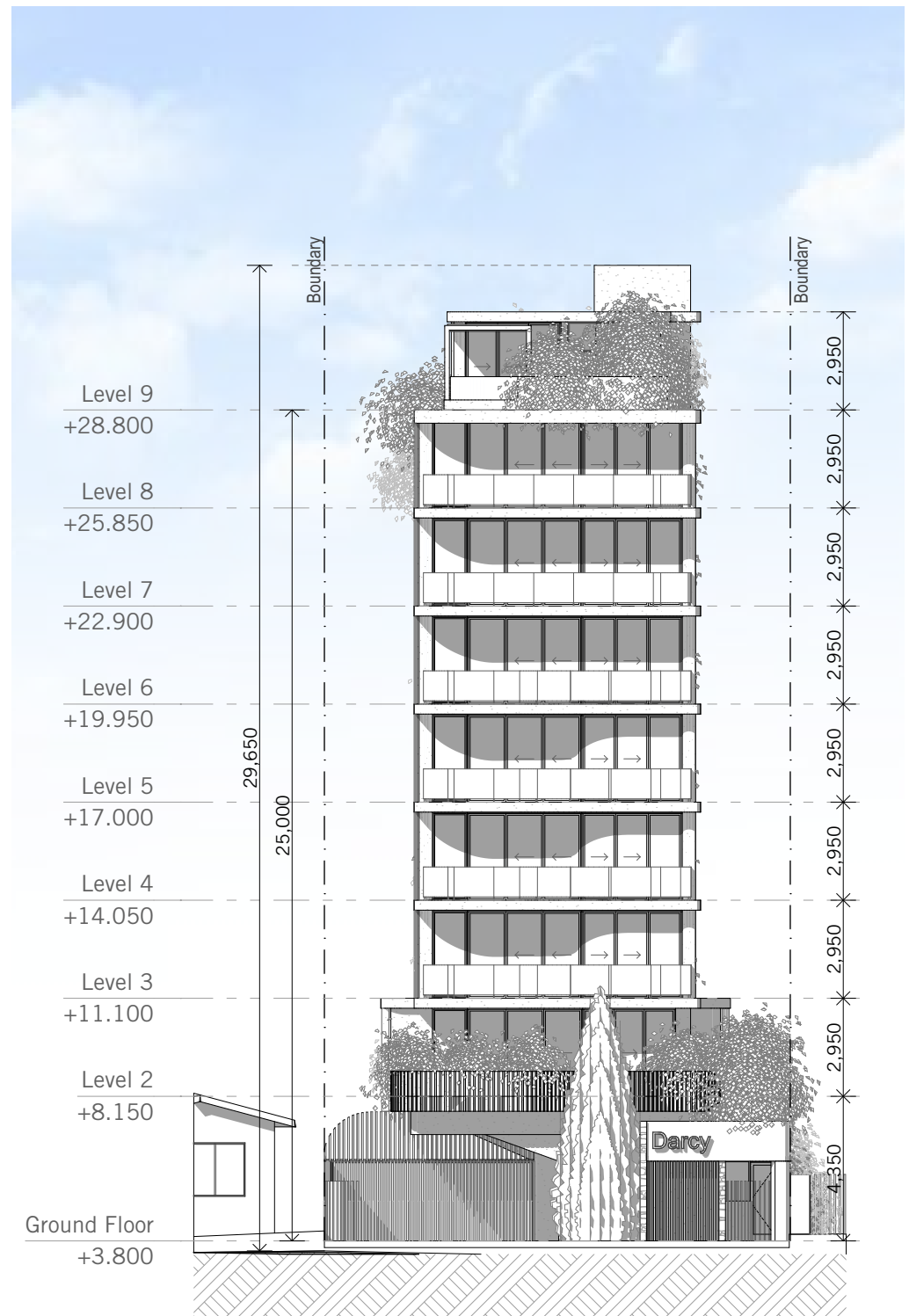
SL-4.65

<



Level 2 Site Plan
1:200 @ A3



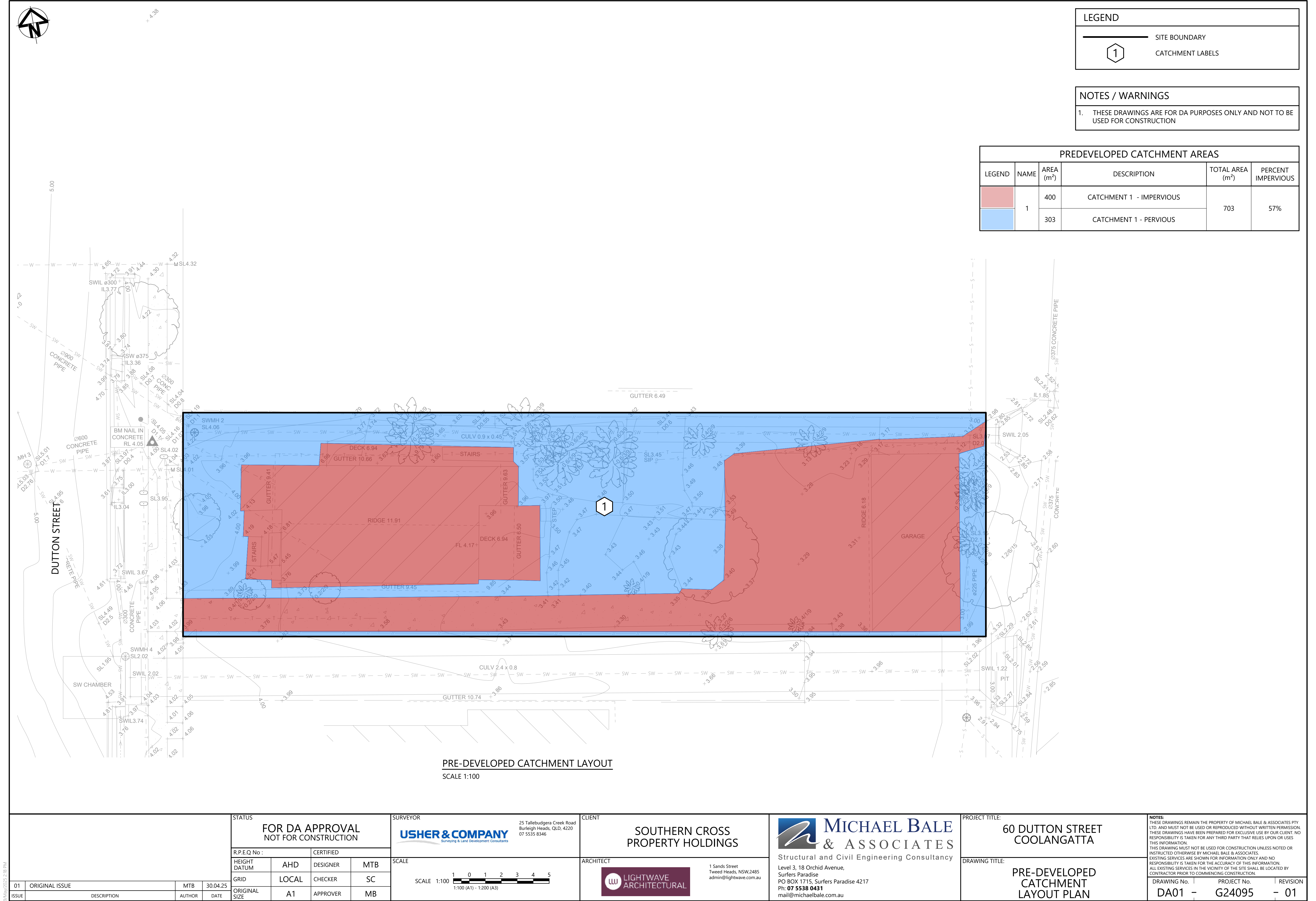


West Elevation
1:200 @ A3



Appendix B

Engineering Drawings



LEGEND

SITE BOUNDARY

1

CATCHMENT LABELS

NOTES / WARNINGS

1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

PREDEVELOPED CATCHMENT AREAS					
LEGEND	NAME	AREA (m²)	DESCRIPTION	TOTAL AREA (m²)	PERCENT IMPERVIOUS
	1	400	CATCHMENT 1 - IMPERVIOUS	703	57%
		303	CATCHMENT 1 - PERVIOUS		

PRE-DEVELOPED CATCHMENT LAYOUT
SCALE 1:100

STATUS			
FOR DA APPROVAL NOT FOR CONSTRUCTION			
R.P.E.Q No:	CERTIFIED		
HEIGHT DATUM	AHD	DESIGNER	MTB
GRID	LOCAL	CHECKER	SC
ORIGINAL SIZE	A1	APPROVER	MB

01	ORIGINAL ISSUE	MTB	30.04.25
ISSUE	DESCRIPTION	AUTHOR	DATE

SURVEYOR

USHER & COMPANY

Surveying & Land Development Consultants

25 Tallebudgera Creek Road
Burleigh Heads, QLD, 4220
07 5535 8346

SCALE

SCALE 1:100

1000

0

1

2

3

4

5

1:100 (A1) - 1:200 (A3)

CLIENT

SOUTHERN CROSS
PROPERTY HOLDINGS

ARCHITECT

LIGHTWAVE
ARCHITECTURAL

1 Sands Street
Tweed Heads, NSW 2485
admin@lightwave.com.au

MICHAEL BALE & ASSOCIATES

Structural and Civil Engineering Consultancy

Level 3, 18 Orchid Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: 07 5538 0431
mail@michaelbale.com.au

PROJECT TITLE:

60 DUTTON STREET
COOLANGATTA

DRAWING TITLE:

PRE-DEVELOPED
CATCHMENT
LAYOUT PLAN

NOTES:

THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION.
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES
EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION.
ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.

DRAWING No.

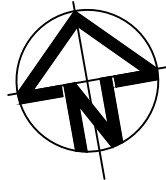
PROJECT No.

REVISION

DA01

G24095

01

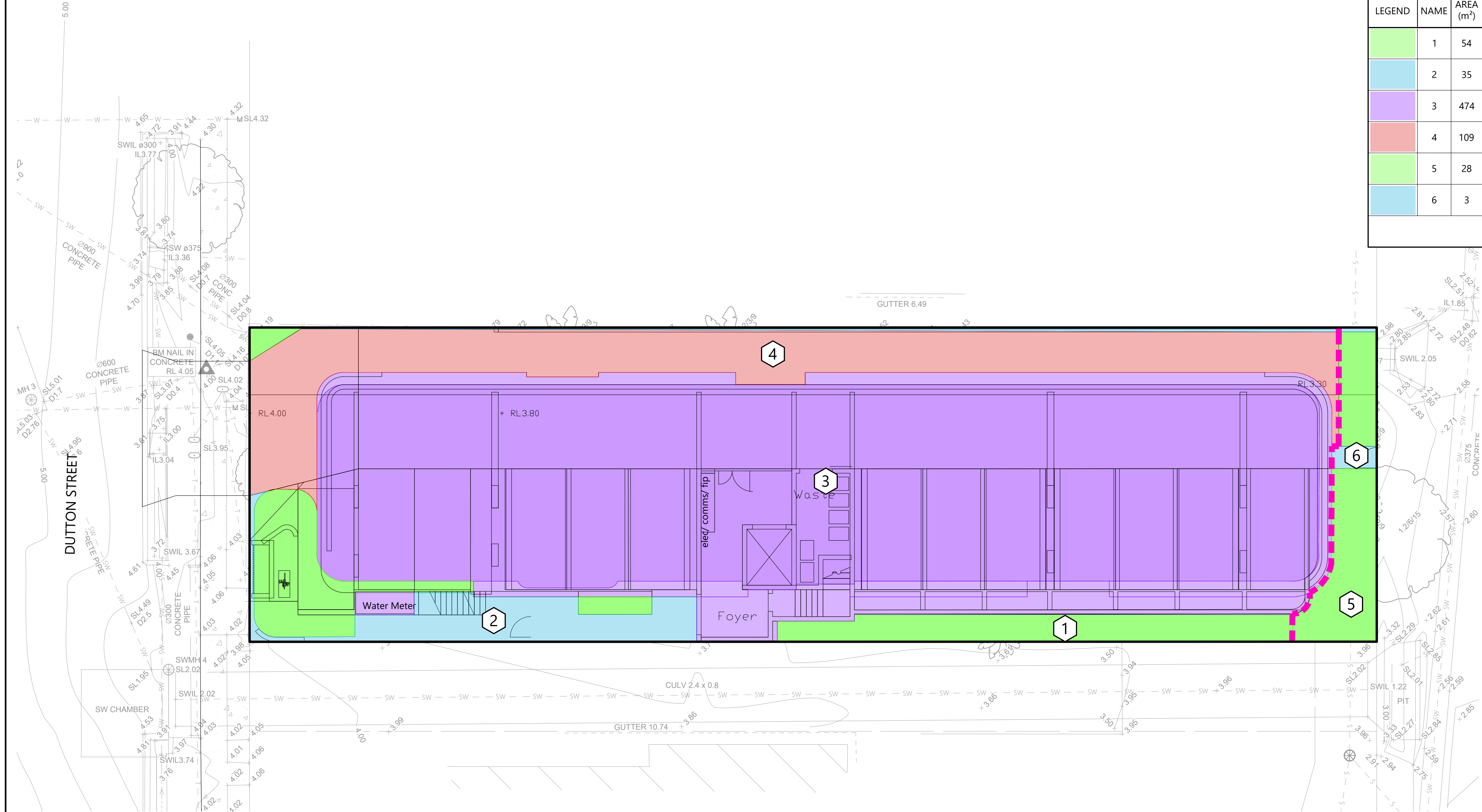


+ 4.38

LEGEND	
	SITE BOUNDARY
	POST-DEVELOPED CATCHMENT BOUNDARY
	CATCHMENT LABELS

NOTES / WARNINGS	
1.	THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

POST-DEVELOPED CATCHMENT AREAS					
LEGEND	NAME	AREA (m²)	DESCRIPTION	TOTAL AREA (m²)	PERCENT IMPERVIOUS
	1	54	CATCHMENT 1 - LANDSCAPING	672	92%
	2	35	CATCHMENT 1 - HARDSTAND		
	3	474	CATCHMENT 1 - ROOF		
	4	109	CATCHMENT 1 - DRIVEWAY	31	10%
	5	28	BYPASS - LANDSCAPING		
	6	3	BYPASS - HARDSTAND		
TOTAL				703	88%



POST-DEVELOPED CATCHMENT LAYOUT
SCALE 1:100

STATUS			
FOR DA APPROVAL NOT FOR CONSTRUCTION			
R.P.E.Q No.:	CERTIFIED		
HEIGHT DATUM	AHD	DESIGNER	MTB
GRID	LOCAL	CHECKER	SC
ORIGINAL SIZE	A1	APPROVER	MB

USHER & COMPANY
Surveying & Land Development Consultants

25 Tallebudgera Creek Road
Burleigh Heads, QLD, 4220
07 5535 8346

SCALE

SCALE 1:100

1:100 (A1) - 1:200 (A3)

**SOUTHERN CROSS
PROPERTY HOLDINGS**

ARCHITECT

1 Sands Street
Tweed Heads, NSW 2485
admin@lightwave.com.au

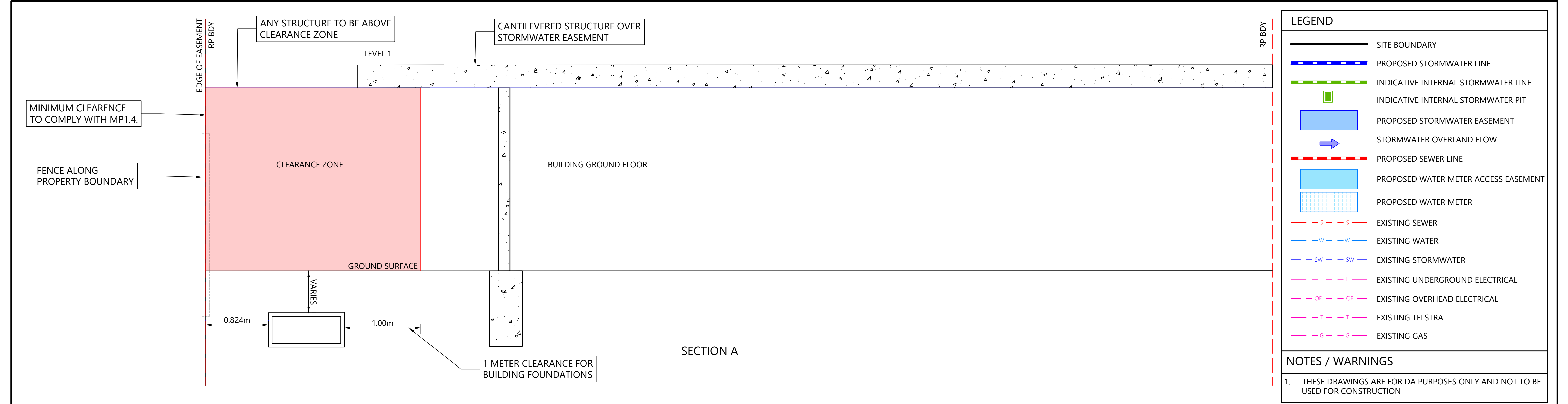
**MICHAEL BALE
& ASSOCIATES**

Structural and Civil Engineering Consultancy

Level 3, 18 Orchard Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: **07 5538 0431**
mail@michaelbale.com.au

PROJECT TITLE:	60 DUTTON STREET COOLANGATTA
DRAWING TITLE:	POSTDEVELOPED CATCHMENT LAYOUT PLAN

NOTES: THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES. EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.		
DRAWING No.	PROJECT No.	REVISION
DA02	G24095	- 01



LEGEND

SITE BOUNDARY

PROPOSED STORMWATER LINE

INDICATIVE INTERNAL STORMWATER LINE

INDICATIVE INTERNAL STORMWATER PIT

PROPOSED STORMWATER EASEMENT

STORMWATER OVERLAND FLOW

PROPOSED SEWER LINE

PROPOSED WATER METER ACCESS EASEMENT

PROPOSED WATER METER

EXISTING SEWER

EXISTING WATER

EXISTING STORMWATER

EXISTING UNDERGROUND ELECTRICAL

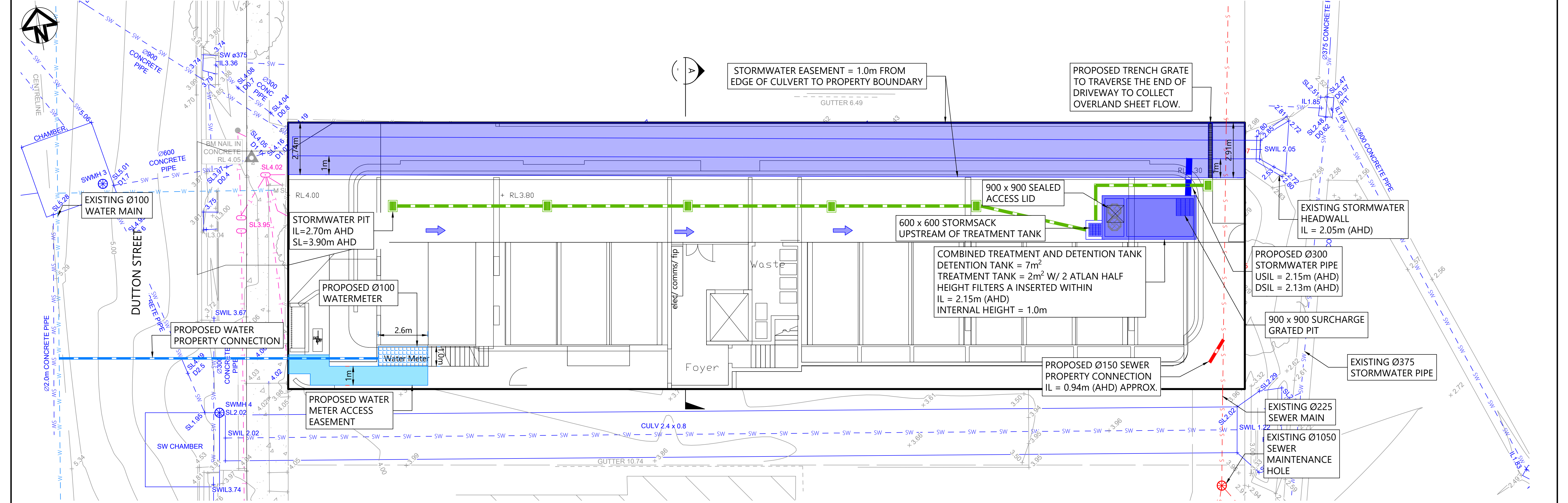
EXISTING OVERHEAD ELECTRICAL

EXISTING TELSTRA

EXISTING GAS

NOTES / WARNINGS

1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

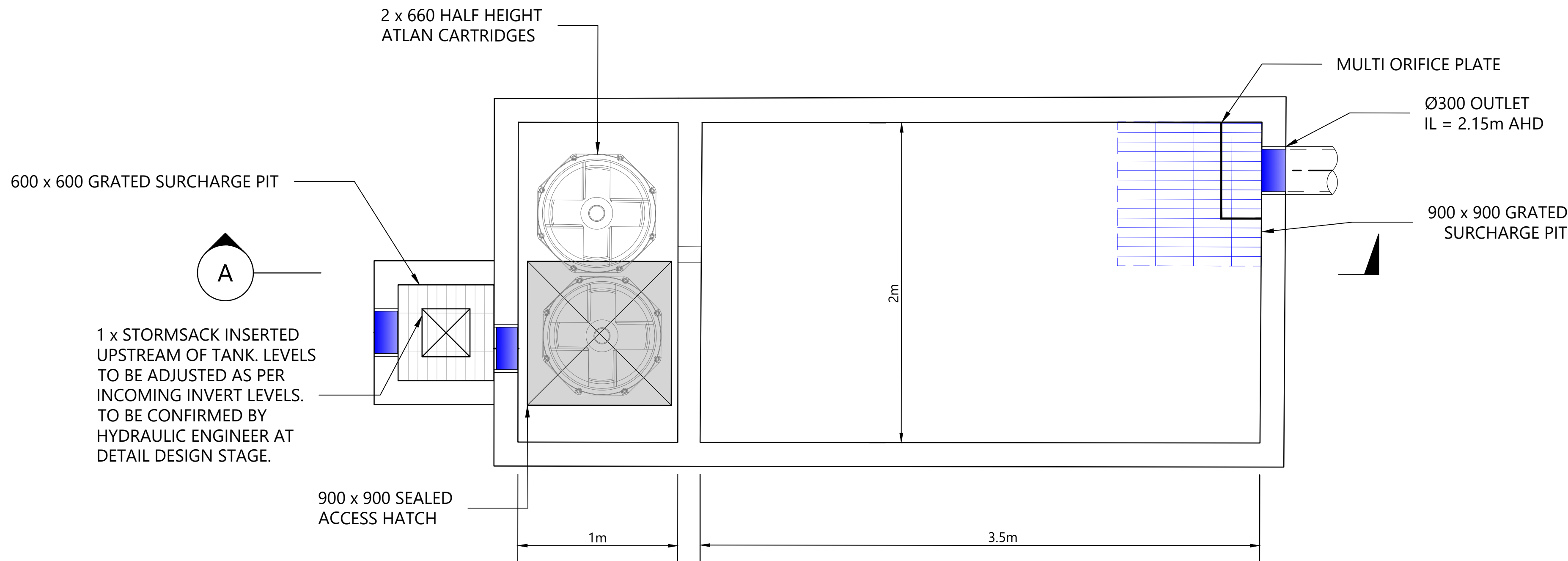


SERVICES LAYOUT PLAN
SCALE 1:100

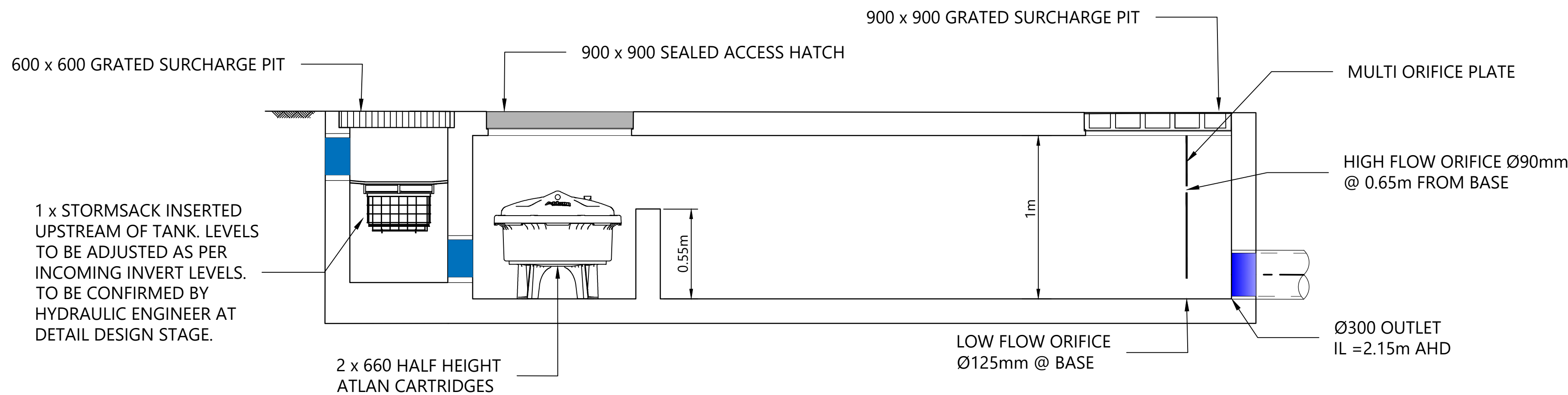
STATUS FOR DA APPROVAL NOT FOR CONSTRUCTION				SURVEYOR USHER & COMPANY Surveying & Land Development Consultants 25 Tallebudgera Creek Road Burleigh Heads, QLD, 4220 07 5535 8346		CLIENT SOUTHERN CROSS PROPERTY HOLDINGS		PROJECT TITLE: 60 DUTTON STREET COOLANGATTA		NOTES: THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES. EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.	
R.P.E.Q No: CERTIFIED				SCALE SCALE 1:100 1 0 1 2 3 4 5 1:100 (A1) - 1:200 (A3)		ARCHITECT LIGHTWAVE ARCHITECTURAL 1 Sands Street Tweed Heads, NSW 2485 admin@lightwave.com.au		DRAWING TITLE: SERVICES LAYOUT PLAN		DRAWING No. PROJECT No. REVISION	
02 UPDATED AS PER COUNCIL RFI MTB 04.08.25				01 ORIGINAL ISSUE MTB 02.05.25		DA03 G24095 02					
ISSUE DESCRIPTION				AUTHOR DATE		CHECKER SC		APPROVER MB			

NOTES / WARNINGS	
1.	THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

NOTE - PROVIDE MAXIMESH RH3030 FOR ORIFICES WITH A DIAMETER OF 100mm OR LESS, WITH A MINIMUM AREA OF 50 TIMES THE ORIFICE AREA AND WELDLOK F40/203 FOR ORIFICE WITH A 150mm DIAMETER OR MORE, WITH A MINIMUM AREA OF 20 TIMES THE ORIFICE AREA



PLAN VIEW



SECTION A

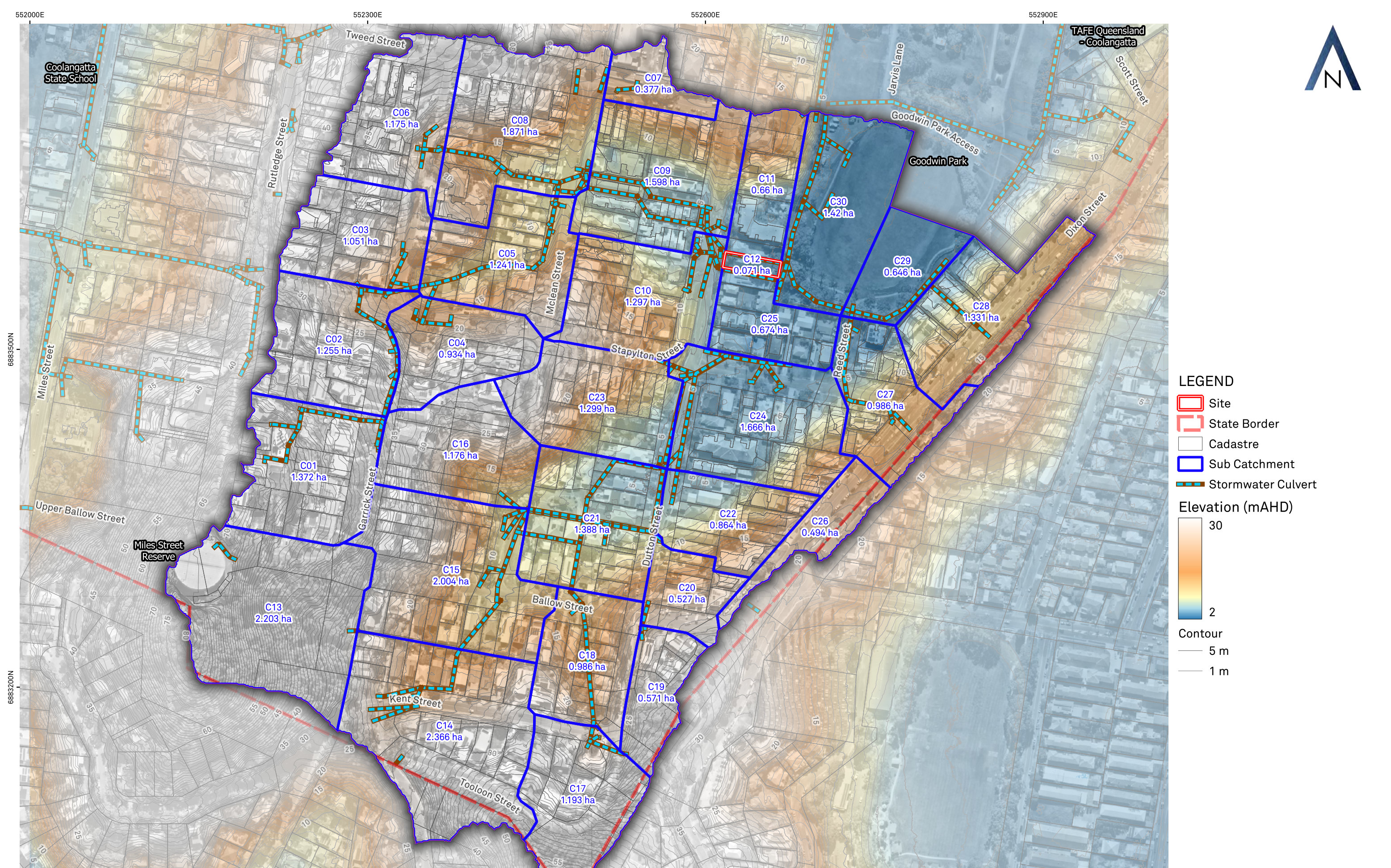
STORMWATER TANK PLAN
SCALE 1:20

				STATUS		FOR DA APPROVAL NOT FOR CONSTRUCTION		SURVEYOR		CLIENT		PROJECT TITLE:		NOTES:					
										25 Tallebudgera Creek Road Burleigh Heads, QLD, 4220 07 5535 8346		SOUTHERN CROSS PROPERTY HOLDINGS				60 DUTTON STREET COOLANGATTA		THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES. EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.	
				R.P.E.Q No :		CERTIFIED		SCALE		ARCHITECT		DRAWING TITLE:							
				HEIGHT DATUM		AHD		DESIGNER		MTB									
				GRID		LOCAL		CHECKER		SC									
				ORIGINAL SIZE		A1		APPROVER		MB									
								SCALE 1:20						1 Sands Street Tweed Heads, NSW 2485 admin@lightwave.com.au		Level 3, 18 Orchid Avenue, Surfers Paradise PO BOX 1715, Surfers Paradise 4217 Ph: 07 5538 0431 mail@michaelbale.com.au			
01				ORIGINAL ISSUE		MTB		09.05.25											
ISSUE				DESCRIPTION		AUTHOR		DATE											



Appendix C

Overland Flow Assessment



© Michael Bale & Associates. All Rights Reserved.
This document is produced by Michael Bale & Associates solely for the benefit of and use by the client in accordance with the terms of the retainer. Michael Bale & Associates does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance on the content of this document.
CRS GDA2020 / MGA zone 56
Aerial Imagery Copyright Nearmap, 2025.



DATE
02 August 2025

REFERENCE
J25030

SIZE
A3

SCALE
1:3,000

0 40 80 120 160 200 m

FIGURE C1
HYDROLOGIC MODEL LAYOUT
60 Dutton St, Coolangatta
Overland Flow Assessment
Southern Cross Property Holdings



© Michael Bale & Associates. All Rights Reserved.
This document is produced by Michael Bale & Associates solely for the benefit of and use by the client in accordance with the terms of the retainer. Michael Bale & Associates does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance on the content of this document.
CRS GDA2020 / MGA zone 56
Aerial Imagery Copyright Nearmap, 2025.



DATE
02 August 2025
REFERENCE
J25030

SIZE
A3
SCALE
1:1,200



FIGURE C2
HYDRAULIC MODEL LAYOUT
60 Dutton St, Coolangatta
Overland Flow Assessment
Southern Cross Property Holdings



LEGEND

- Site
- State Border
- Cadastre
- Model Features
 - Extent
- Roughness Class
 - Road Reserve
 - Open Space
 - Dense Vegetation
 - Lots



LEGEND

- Site
- Cadastre
- Model Features
 - Inlet
 - Manhole
 - Culvert
 - Connector
 - Grid Modification
 - Invert Forcing
- Elevation (mAHD)
 - 7.5
 - 2.5
- Contour
 - 1 m
 - 0.25 m

© Michael Bale & Associates. All Rights Reserved.
This document is produced by Michael Bale & Associates solely for the benefit of and use by the client in accordance with the terms of the retainer. Michael Bale & Associates does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance on the content of this document.
CRS GDA2020 / MGA zone 56
Aerial Imagery Copyright Nearmap, 2025.



DATE
02 August 2025

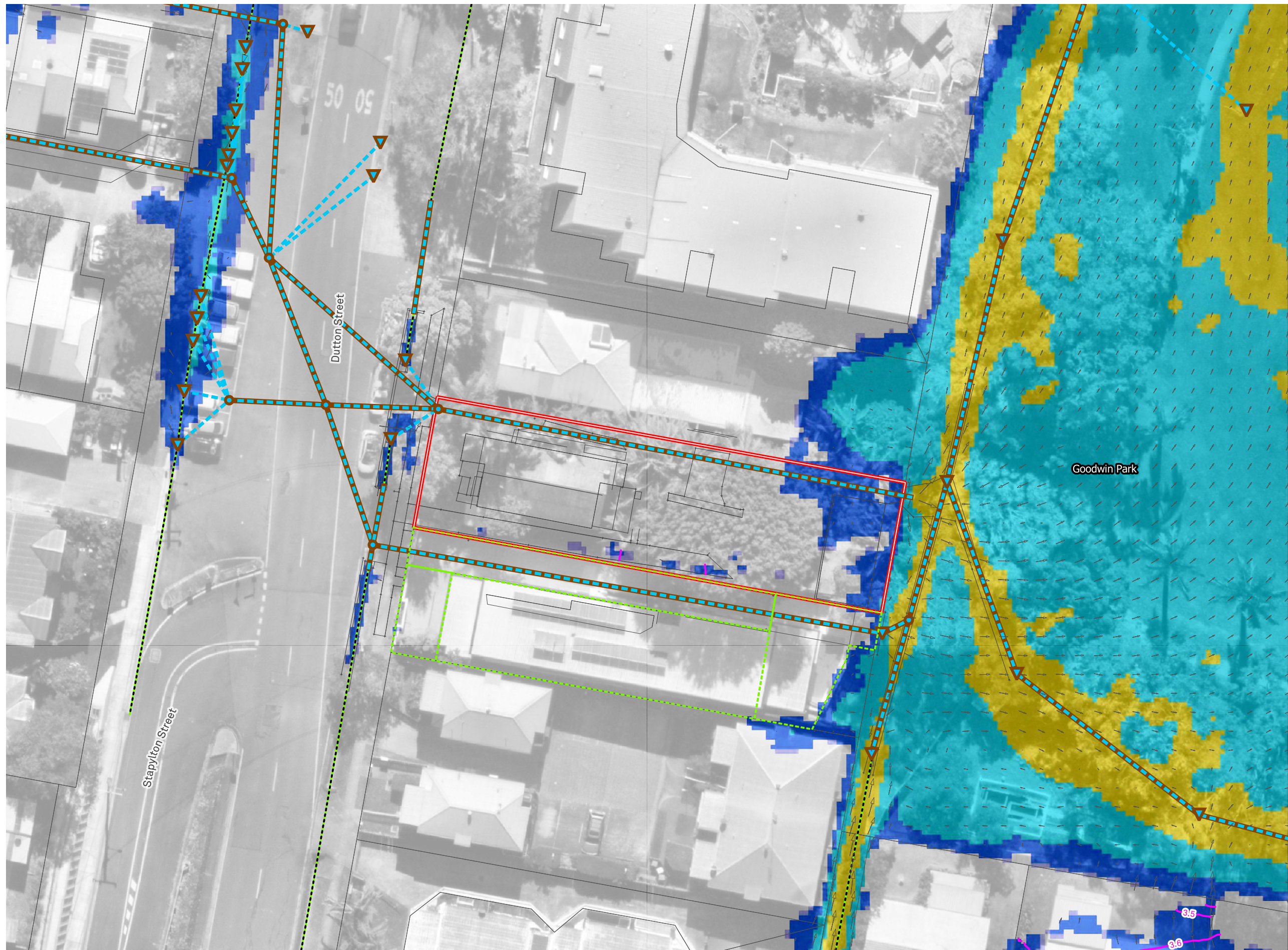
REFERENCE
J25030

SIZE
A3

SCALE
1:400

0 6 12 18 24 30 m

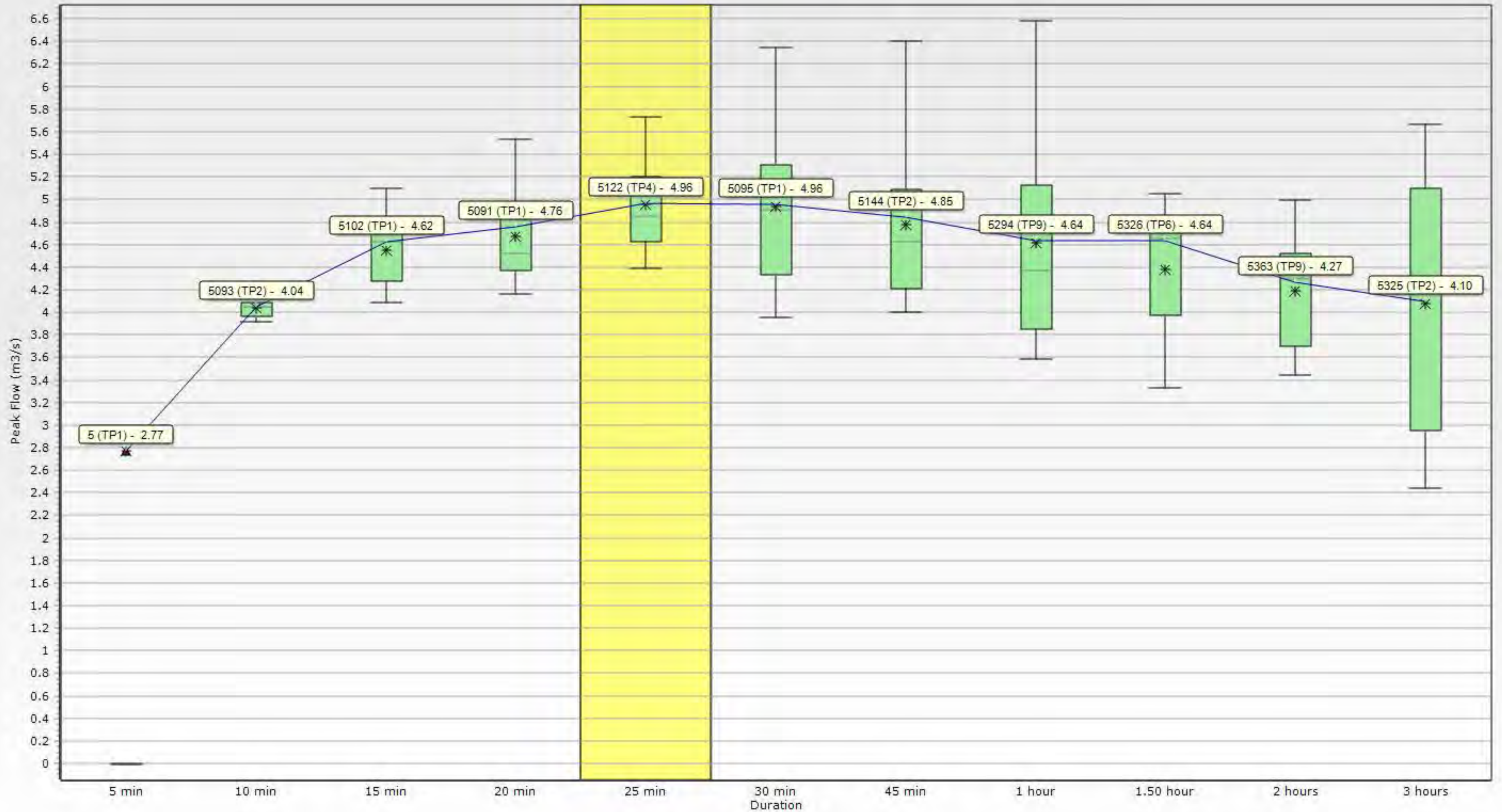
FIGURE C4
EXISTING SITE LAYOUT
60 Dutton St, Coolangatta
Overland Flow Assessment
Southern Cross Property Holdings



- LEGEND**
- Site
 - Cadastre
 - Model Features**
 - Culvert
 - Inlet
 - Manhole
 - Connector
 - Invert Forcing
 - Grid Modification
 - Flow Depth (m)**
 - 0.1 - 0.3
 - 0.3 - 0.6
 - 0.6 - 1.2
 - 1.2 - 2.0
 - Above 2.0
 - Flow Level Contour (mAHD)

Peak Flow (m3/s) Duration Analysis (1% AEP - C12)

☐ ● All Values ☒ * Mean Values ☒ — Adopted Temporal Pattern



Amended Engineering Services Report



60 Dutton Street, Coolangatta

RESIDENTIAL DEVELOPMENT

60 DUTTON STREET, COOLANGATTA

ENGINEERING SERVICES REPORT

FOR: SOUTHERN CROSS PROPERTY HOLDINGS

REPORT NUMBER: R002-G24095



This document is copyright. Other than for the purposes and subject to the conditions prescribed under the Copyright Act 1968 (Commonwealth). No part of it may in any form or by any means (electronic, mechanical, micro-copying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission.

The information contained in this report has been prepared based on the information made available to Michael Bale and Associates at the time of preparation. This document, design parameters, and conclusions rely on external data sources, and the accuracy of this document is correct to the extent of the information provided to us.

This report has been prepared solely for the benefit of our client. We do not accept any liability for damage or loss resulting from reliance on this report, or any part of it, by any party other than the client (named on the front page of this report).

Document Control

Author:	Marcus Bleney	
Reviewer	Michael Bale	
Approver RPEQ	Michael Bale 15543	
Report Title	R002 – G24095– Engineering Services Report	
Revision	02	Date 20/05/25

Revision History

Revision	Date	Author	Approver	Description
01	09/05/25	MTB	MB	Original Issue - Draft
01	20/05/25	MTB	MB	Original Issue

Company Contact Details

- Address: Level 3, 18 Orchid Avenue, Surfers Paradise, 4217
- Mail Address: PO BOX 1715, Surfers Paradise, 4217
- Phone: (07) 5538 0431
- Email: reception@michaelbale.com.au

Client Contact Details

- Client: Southern Cross Property Holdings

CONTENTS

1.	Introduction	4
1.1	Related Reports.....	4
2.	Property Description.....	5
2.1	Land Usage	6
2.2	Topography and Drainage.....	6
2.3	Upstream Catchment.....	6
3.	Proposed Development.....	7
3.1	Development Description.....	7
4.	Earthworks.....	8
5.	Erosion and Sediment Control	9
6.	Flooding.....	10
7.	Water and Sewer Connection and Capacity	11
7.1	Sewer Connection	11
7.2	Water Connection	11
7.3	Capacity Assessment.....	11
7.4	Summary.....	12
8.	Stormwater Drainage.....	13
9.	Conclusion.....	14

FIGURES LIST

FIGURE 2.1 - SITE LOCALITY.....	5
FIGURE 4.1: ACID SULFATE SOILS OVERLAY MAP (OM14)	8
FIGURE 6.1: POTENTIAL FLOODING INUNDATION OVERLAY MAP (OM17).....	10

TABLES LIST

TABLE 5.1: EROSION HAZARD ASSESSMENT.....	9
TABLE 7.1: PROPOSED DEVELOPMENTS EQUIVALENT PERSONS (EP)	11
TABLE 7.2: WATER AND SEWER CAPACITY SUMMARY	12

1. Introduction

This report has been prepared to support the lodgement of a development application involving the construction of a new development, comprising of a nine (9) storey residential development. The development is proposed to take place over the following parcel of land:

Property Address: 60 Dutton Street, Coolangatta

Property Description: Lot 2 on RP86756

Council: City of Gold Coast

Site Area: 703m²

The report describes the civil engineering issues associated with the development of the proposed land and includes discussion on the following engineering items;

- Earthworks;
- Erosion and Sediment Control;
- Flooding;
- Stormwater Drainage;
- Water Connection; and
- Sewer Connection.

This report demonstrates that the proposed development can be suitably serviced with all engineering services described and supports the type and scale of development that is proposed.

1.1 Related Reports

This report is intended to be read in conjunction with the associated development submission documents, current as of the date of this report.

A Stormwater Management Plan (Ref: R001-G24095) has been prepared for the proposed development and should be read in conjunction with this report.

2. Property Description

The proposed development is situated on the existing lot located at 60 Dutton Street, Coolangatta described as Lot 2 on RP86756. The property is located within the City of Gold Coast Local Government Area.

The site is located in the suburb of Coolangatta and is in close proximity to local commercial and retail centres.

The proposed development site is bounded by Dutton Street to the west, existing residential allotments to the north and south and Goodwin Park to the east. The registered area of the existing allotment for this proposal is 703m².

A general locality plan is presented in Figure 2.1 below:



Figure 2.1 - Site Locality

2.1 Land Usage

The development site is currently occupied by a residential dwelling. The existing development contains impervious land uses, including roof, driveway, and other hardstand areas. The existing impervious areas have been estimated from the survey to cover approximately 57% of the site area, as displayed on the pre-developed catchment plan attached within Appendix A of this report.

The existing development is currently assessable via an existing VXO from Dutton Street.

2.2 Topography and Drainage

The detailed survey obtained for the project site indicates that majority of the surface grades towards the eastern boundary of the site towards Goodwin Park. A stormwater culvert traverses the proposed development site, running in parallel alignment with the northern boundary of the development site. Approximate levels on the site vary from 4.19m (AHD) in the northwest corner of the site to 2.99m (AHD) located in the southeast corner of the site. The average grade of the site has been calculated to be approximately 1.5%.

The development site contains existing internal stormwater infrastructure capturing runoff generated from the roof area, and discharges flows towards Goodwin Park to the east.

A copy of the detailed survey by Usher and Company has been attached within Appendix A of this report.

2.3 Upstream Catchment

The site survey indicates that the development site contains existing stormwater infrastructure that conveys an upstream catchment through the site, it is proposed that this stormwater infrastructure will remain to convey the upstream catchment through the development site, and the proposed development will comply with MP1.4. As a result, this development is expected not to be impacted by an upstream catchment and no allowance for upstream catchment flows have been considered in this report.

3. Proposed Development

3.1 Development Description

The proposed development consists of:

- The demolition of existing structures; and
- The construction of a new nine (9) storey residential tower; and
- The construction of access driveways and other hardstand surfaces associated with the proposed development.

A copy of the proposed architectural layout plans has been included in Appendix A of this report.

Additional works on site shall include the construction of water reticulation, sewer reticulation, electrical and telecommunications services and stormwater management works.

External works for the development will consist of verge works with Dutton Street to facilitate the construction of the vehicle crossover and service connections. No further external civil works are proposed as part of this development.

4. Earthworks

The earthworks associated with the proposed development will predominantly involve minor earthworks and general lot shaping

The development is shown as being within a potential acid sulfate soils problem area in City of Gold Coast's Interactive Mapping, shown in Figure 4.1 below.

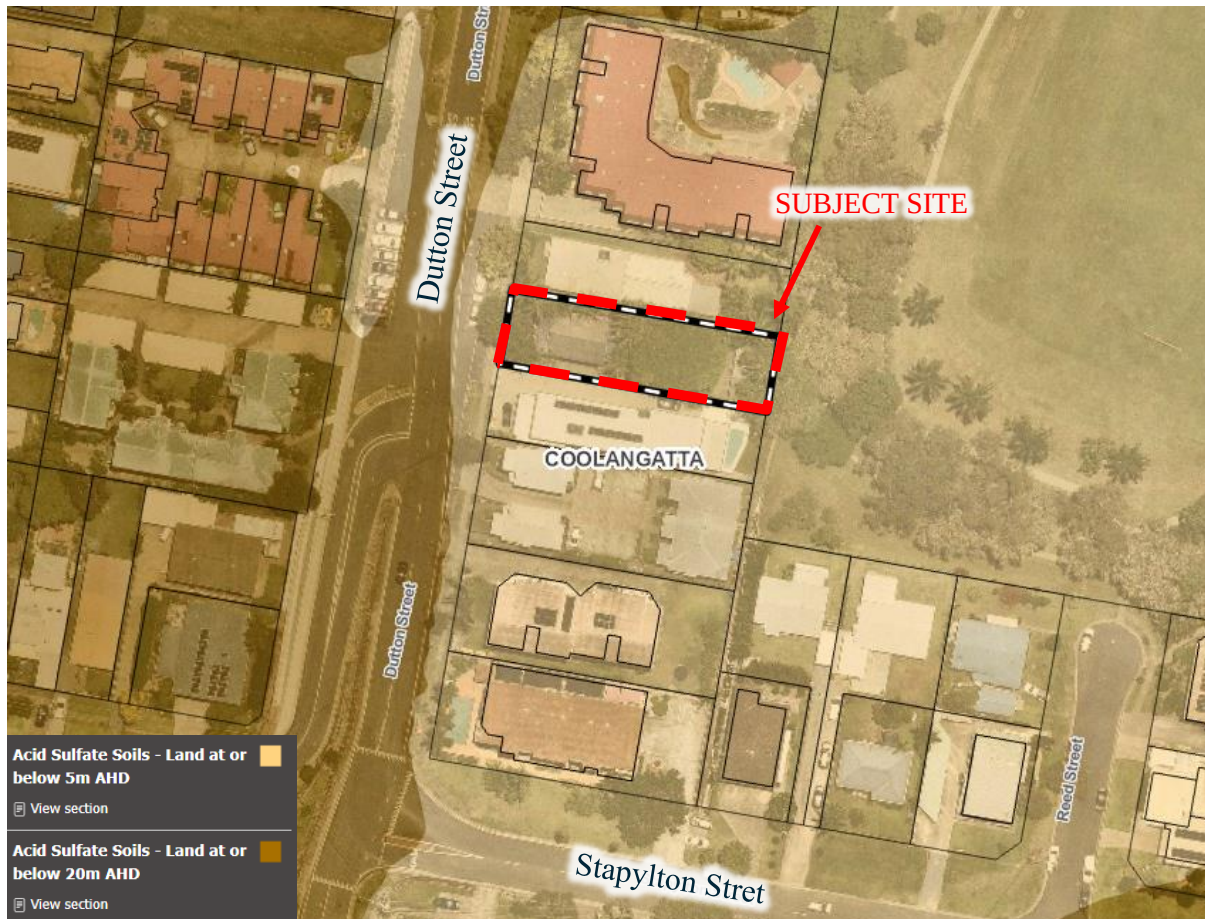


Figure 4.1: Acid Sulfate Soils Overlay Map (OM14)

A site-specific Acid Sulfate Soils assessment may therefore be required for the site. This is to be prepared by a suitably qualified geotechnical engineer. It is expected that the preparation of this report is to be included in the development application conditions, to be completed prior to construction of the development site.

5. Erosion and Sediment Control

The development has the potential to cause erosion and sedimentation runoff. The information presented in this section is relevant to the City of Gold Coast's Erosion Hazard Assessment table.

The average slope across the development site is estimated to be approximately 5%. Geoscience Australia Portal (GAP) data surrounding the subject site suggests that the soil type is a clay. The estimated duration of soil disturbance will likely be more than six months, considering the development type and average construction times.

The average rainfall for the Gold Coast area was taken from the bureau of meteorology for a three-month period from January to the end of March. This resulted in an expected mean rainfall of 186mm per month. There are currently no off-site sediment control measures serving the development site and analysis of the site survey and surrounding properties shows it is unlikely that stormwater from upstream catchments will discharge into the development area.

The results of the Erosion Hazard Assessment presented in City Plan / Part 9 Development codes / 9.4 Other development codes / 9.4.5 Healthy waters code / Table 9.4.5-3 of the City of Gold Coast City Plan are shown in table 5.1 below. If the development scores more than 11 points or greater, or five in any factor, a detailed erosion and sedimentation control plan will be required.

Table 5.1: Erosion Hazard Assessment

Controlling Factor	Result	Points
Average Slope	Slope less than 2%	0
Soil Type	Clay	3
Duration of Disturbance	More than 6 months	5
Rainfall Risk	High (101-225mm)	2
Off-Site Sediment Control	No	1
Run-off Entering the Site	No	0
Extent of Site Disturbance	Yes	2
	Total	12

As the total score for the proposed development is above 11 points and has scored 5 in a controlling factor, erosion and sediment control measures shall be undertaken in accordance with the Best Practice Erosion and Sediment Control: International Erosion Control Association. Detailed erosion and sediment control plans are to be prepared and lodged to Council during Operational Works phase of the development.

6. Flooding

The site has been identified on City of Gold Coast's mapping system as being unaffected by flooding levels, as shown in Figure 6.1 below.



Figure 6.1: Potential Flooding Inundation Overlay Map (OM17)

The development site is shown to not be flood affected by the flood overlay of the City of Gold Coast Flood Planning Map. Therefore, no further assessment of flood management is required for the proposed development site.

7. Water and Sewer Connection and Capacity

7.1 Sewer Connection

An existing Ø225 mm sewer main is located within the development site, located near the southern boundary. The precise location of the existing sewer property connection is currently unknown and will need to be identified and inspected as part of the development.

Subject to the findings of the inspection, it may be necessary to upgrade the existing sewer property connection. If required, the property connection will be upgraded to a new Ø150 mm sewer connection, which will directly tie into the existing Ø225 mm sewer main located within the development site.

Location of the proposed sewer property connection is detailed in the Engineering Drawings attached as Appendix B.

7.2 Water Connection

The development site is currently serviced via an existing ø100 water main located within the Dutton Street western verge. It is proposed the existing ø20 water property connection is to be decommissioned and removed and the existing water meter is to be returned to council.

It is proposed that the development site is to be serviced via a ø100mm above ground water meter and property connection, connecting directly into the existing ø100 water main located within the western verge of Dutton Street. The final size of the connection is to be confirmed by the hydraulic engineer at the detailed design stage. Location of the proposed water property connection is detailed in the Engineering Drawings attached as Appendix B.

7.3 Capacity Assessment

The proposed development has been assessed under the requirements of the Gold Coast City Plan and the South-East Queensland Code (SEQ Code), providing a comparison between the planned intent for the subject site and the proposed development with regards to sewer and water demand rates.

An estimation of the Equivalent Persons (EP) to be used for the water demand and effluent discharge calculations for the proposed development site are presented in Table 7.1.

The impact of the proposed development has been compared to the planned demand in the City of Gold Coast City Plan.

The resulting impact on the existing water and sewer infrastructure has been calculated using the CoGC Water and Sewerage Demand Table and is presented in Table 7.2.

Table 7.1: Proposed Developments Equivalent Persons (EP)

Development Schedule	Dwellings	EP/Dwelling	Equivalent Persons (EP)
Apartments/Attached Dwellings - 3+ Bedrooms	9	2.51	22.59
Total EP			22.59

Table 7.2: Water and Sewer Capacity Summary

	Current City Plan (RD5)	Proposed Development
<i>Demand Conversion</i>	206.00 EP/Ha	See above EP calc
<i>Demand EP</i>	14.48 EP	22.59 EP
Water Demand		
<i>Average Day Demand (240L/EP/d)</i>	3475.63 L/d	5,421.60 L/d
<i>Peak Conversion</i>	PH = 2.97AD M.Residential	PH = 2.97AD M.Residential
<i>Peak Hour Demand</i>	10,322.63 L/d - or	16,102.15 L/d - or
	0.12 L/s	0.19 L/s
Sewer Demand		
<i>Average Dry Weather Flow (210L/EP/d)</i>	3,186.00 L/d	4,969.80 L/d
<i>Peak Wet Weather Flow (5xADWF)</i>	15929.98 L/d - or	24,849.00 L/d - or
	0.18 L/s	0.29 L/s

7.4 Summary

Results from Table 7.2 indicate that the proposed development does increase the water and sewer demand flows beyond what has been allowed for within the City of Gold Coast City Plan.

Therefore, a detailed W&S capacity assessment may be required for the proposed development site. It is requested that Council confirm the requirement of this assessment.

8. Stormwater Drainage

In the existing case, the majority of the stormwater runoff generated from the development site discharges towards the eastern boundary via overland sheet flow, towards Goodwin Park. Flows will enter council stormwater network via a stormwater headwall located within Goodwin Park. The captured stormwater runoff, discharges from the site without any on-site detention or water quality treatment.

In the developed case, it is proposed that the development site is to connect into the existing stormwater infrastructure located within Goodwin Park. The flows generated from the site are to be detained and treated within a combined belowground stormwater treatment and detention tank, and discharge to an existing council headwall located within Goodwin Park via a proposed Ø300 stormwater pipe. This arrangement is outlined in the Engineering Drawings attached within Appendix B.

A separate report has been prepared for submission with this application to address stormwater drainage in specific detail.

The report prepared by Michael Bale & Associates (Ref: R001-G24063) describes the process of managing stormwater quality and quantity.

9. Conclusion

This report has been prepared to support the lodgement of a development application involving the construction of a new development, comprising of a nine (9) storey residential development. The development is proposed to take place over the following parcels of land:

Property Address: 60 Dutton Street, Coolangatta

Property Description: Lot 2 on RP86756

Council: City of Gold Coast

Site Area: 703m²

There are no apparent significant constraints on the execution of earthworks, sediment and erosion control, provision of vehicular access, or the drainage of stormwater from the site.

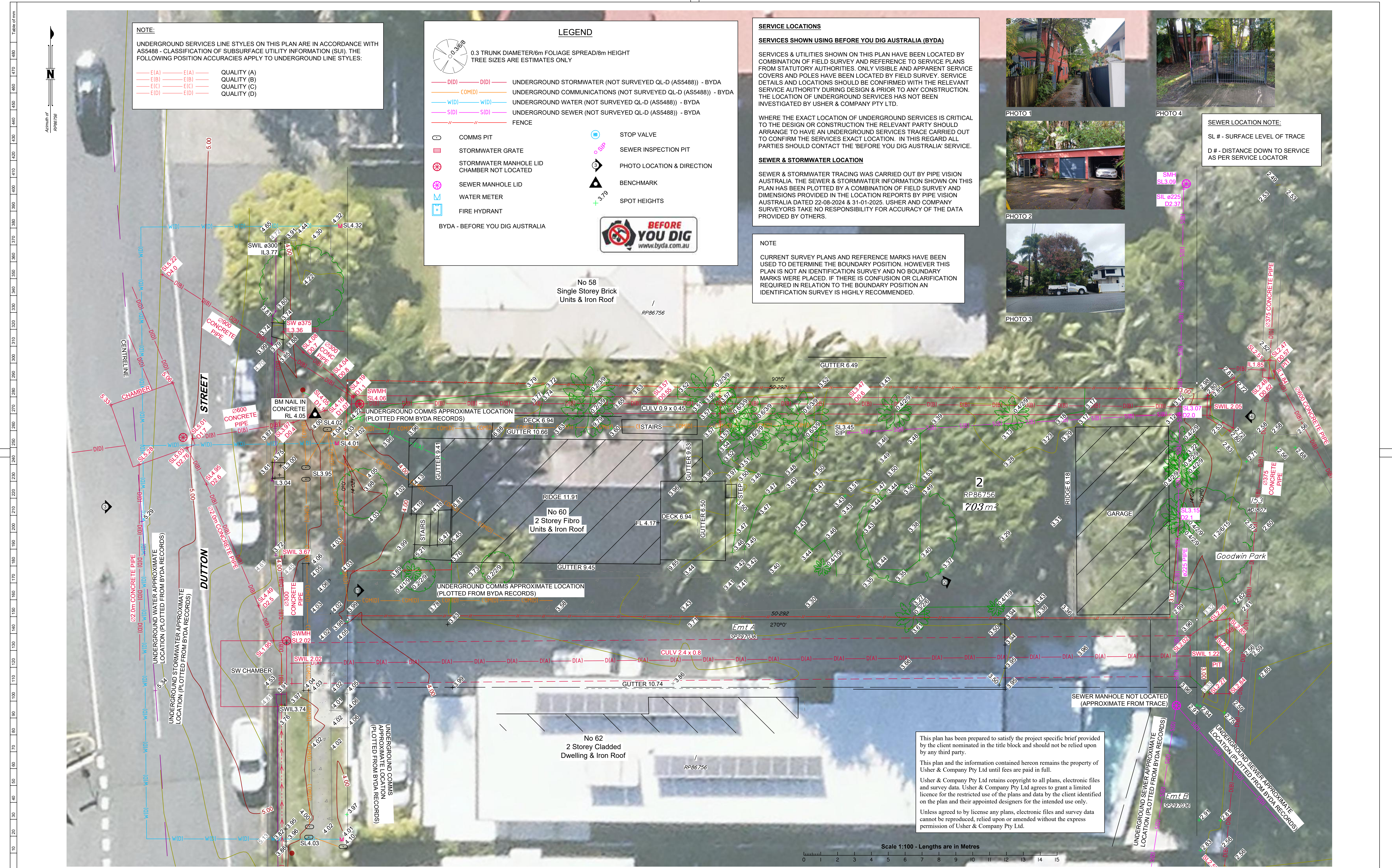
A summary of the proposed water and sewer connection strategy has been presented for Council's consideration. It has been assumed that surrounding infrastructure has sufficient capacity to service the proposed development.

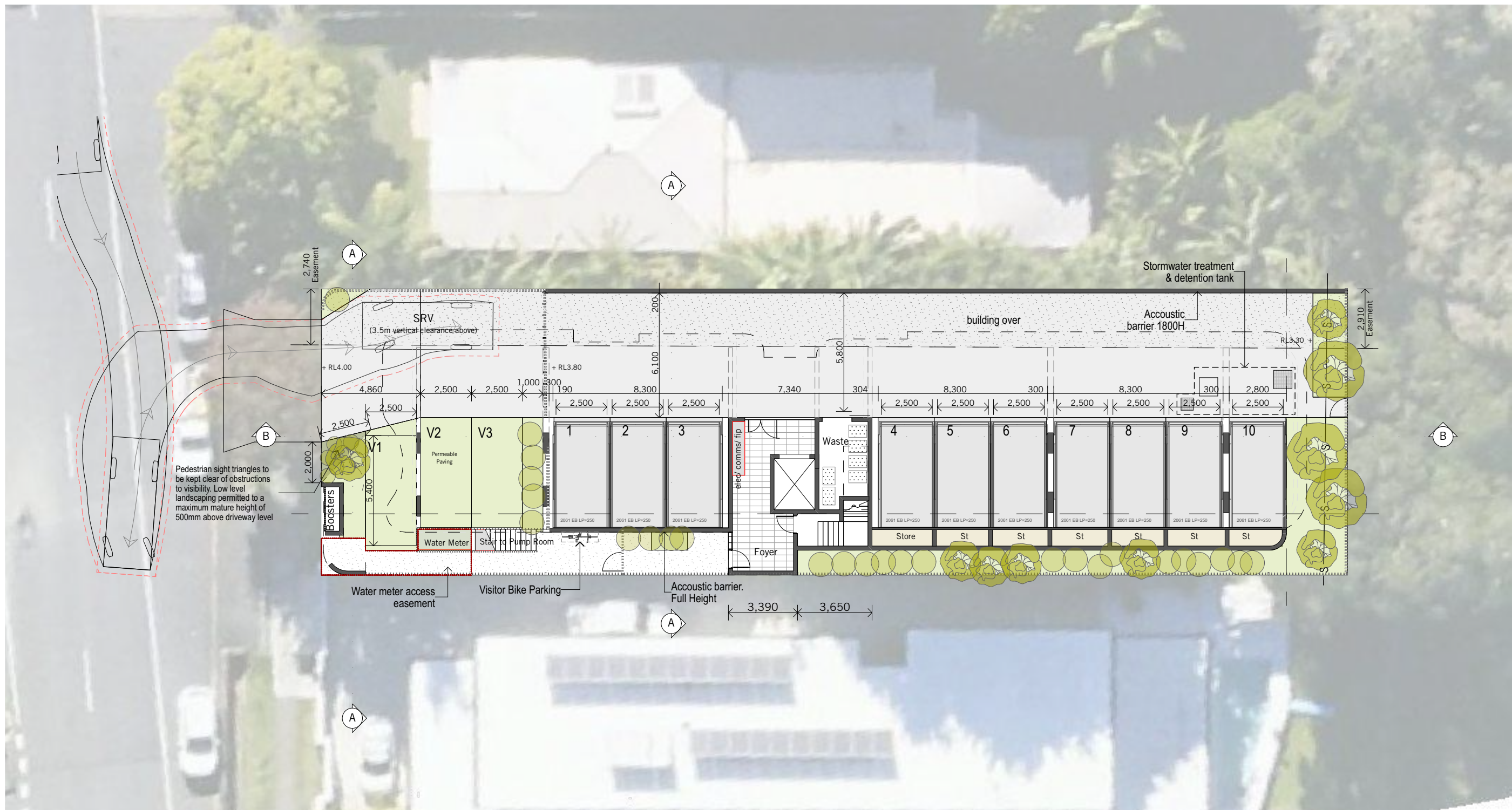
This report demonstrates that the proposed development can be suitably serviced with all engineering services described and supports the type and scale and development that is proposed.



Appendix A

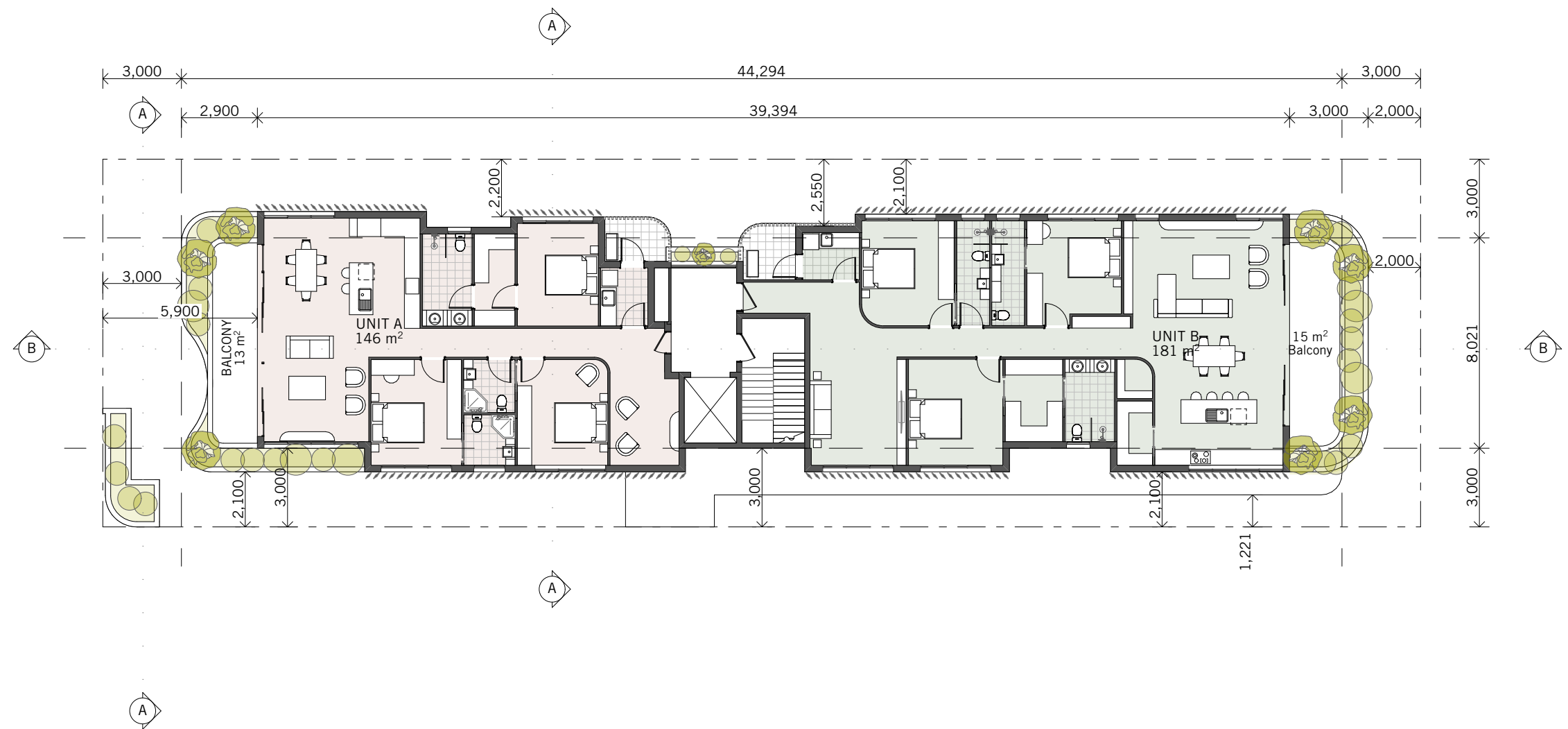
Site Survey & Architectural Plans





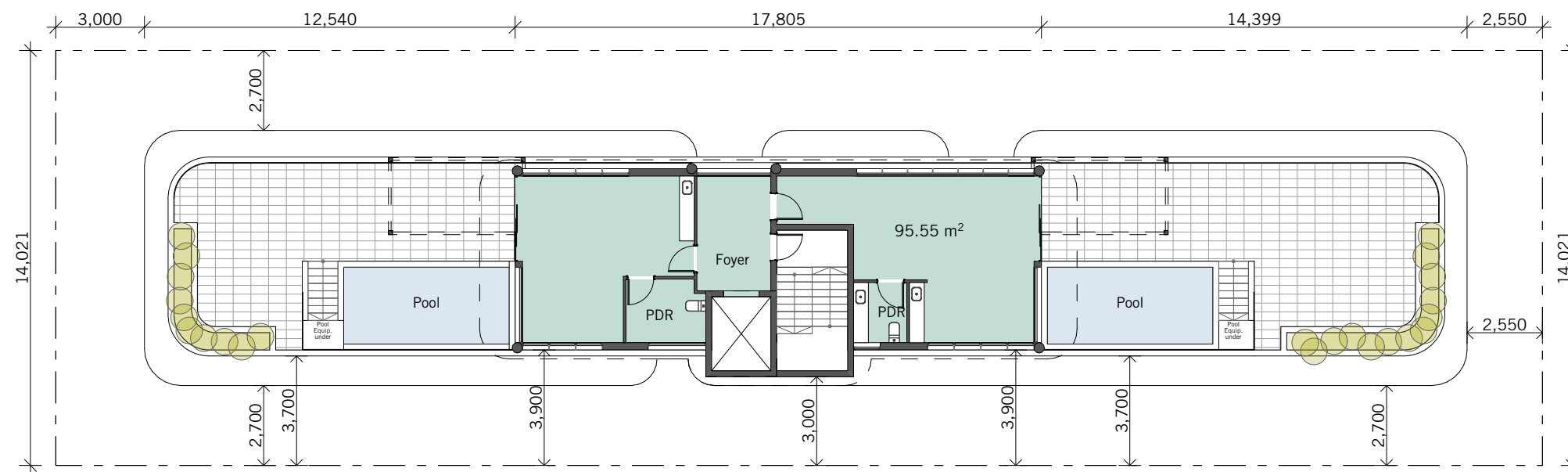
Site Plan
1:200 @ A3





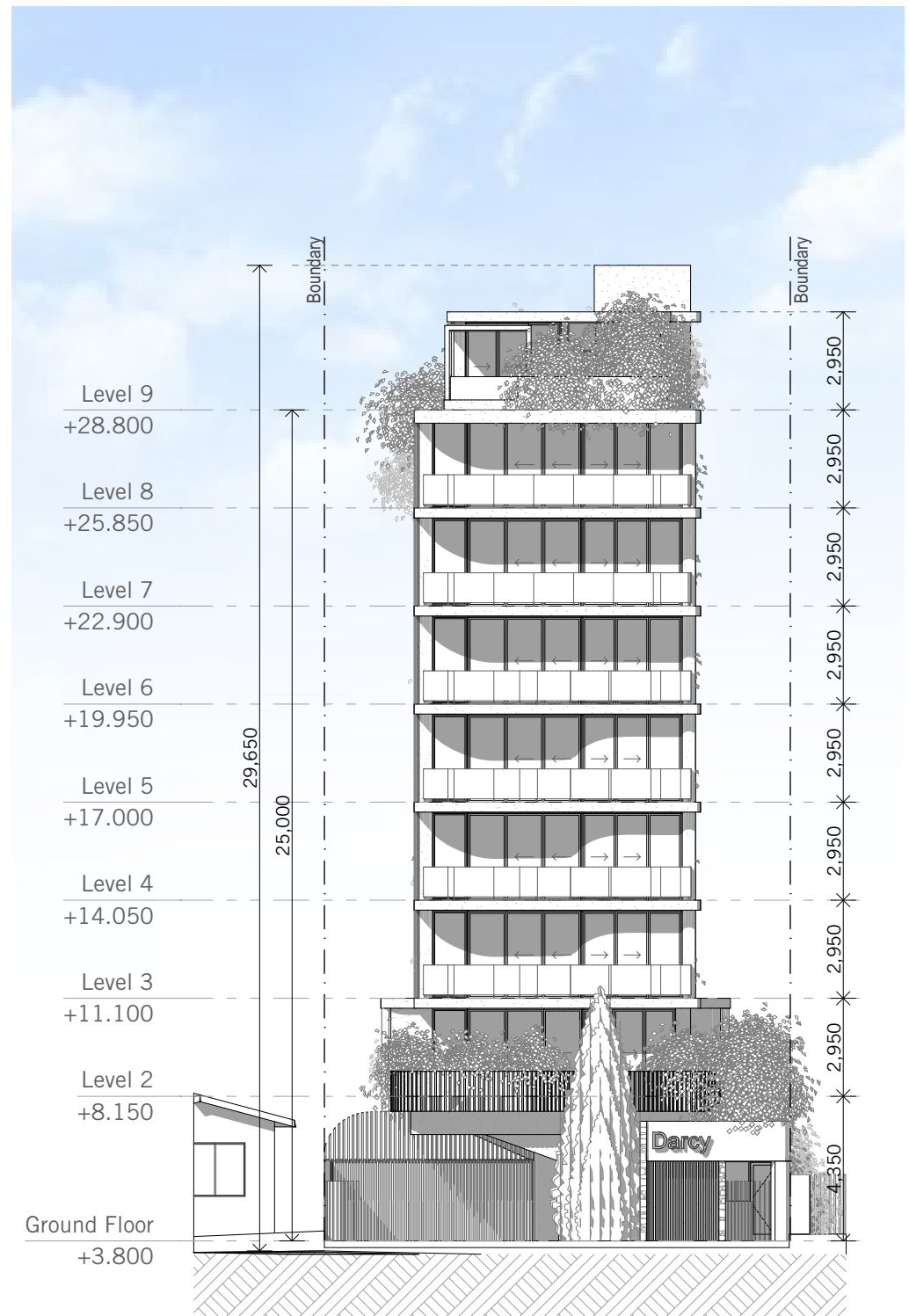
Level 2 Site Plan
1:200 @ A3





Roof - Site Plan
1:200 @ A3



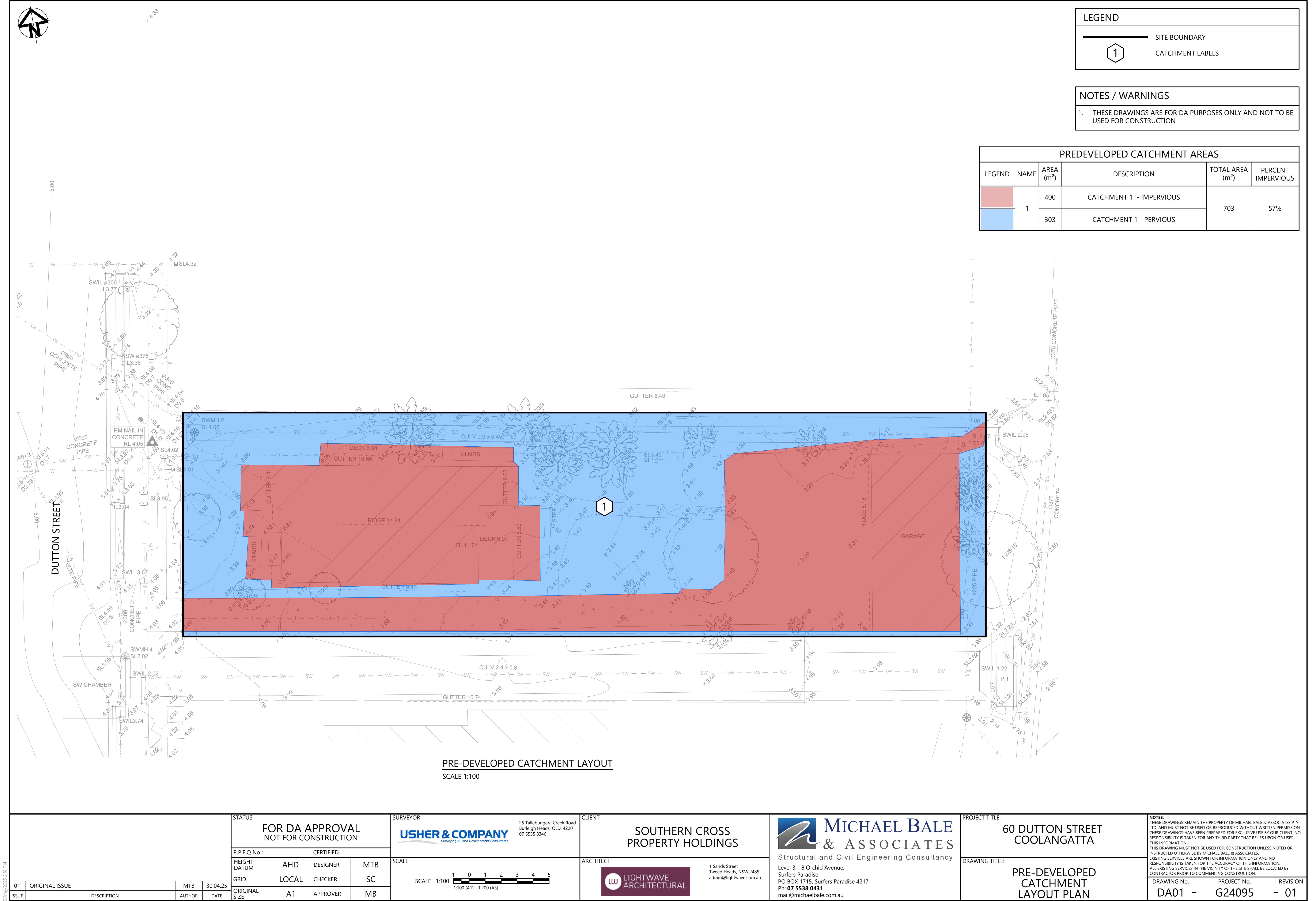


West Elevation
1:200 @ A3



Appendix B

Engineering Drawings



LEGEND

SITE BOUNDARY

1

CATCHMENT LABELS

NOTES / WARNINGS

1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

PREDEVELOPED CATCHMENT AREAS					
LEGEND	NAME	AREA (m²)	DESCRIPTION	TOTAL AREA (m²)	PERCENT IMPERVIOUS
	1	400	CATCHMENT 1 - IMPERVIOUS	703	57%
		303	CATCHMENT 1 - PERVIOUS		

PRE-DEVELOPED CATCHMENT LAYOUT
SCALE 1:100

01

ORIGINAL ISSUE

MTB

30.04.25

ISSUE

DESCRIPTION

AUTHOR

DATE

STATUS

FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No:

CERTIFIED

HEIGHT DATUM

AHD

DESIGNER

MTB

GRID

LOCAL

CHECKER

SC

ORIGINAL SIZE

A1

APPROVER

MB

SURVEYOR

USHER & COMPANY

Surveying & Land Development Consultants

25 Tallebudgera Creek Road
Burleigh Heads, QLD, 4220
07 5535 8346

CLIENT

SOUTHERN CROSS
PROPERTY HOLDINGS

ARCHITECT

LIGHTWAVE
ARCHITECTURAL

1 Sands Street
Tweed Heads, NSW 2485
admin@lightwave.com.au

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy
Level 3, 18 Orchid Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: 07 5538 0431
mail@michaelbale.com.au

PROJECT TITLE:

60 DUTTON STREET
COOLANGATTA

DRAWING TITLE:

PRE-DEVELOPED
CATCHMENT
LAYOUT PLAN

NOTES:

THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION.
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES
EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION.
ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.

DRAWING No.

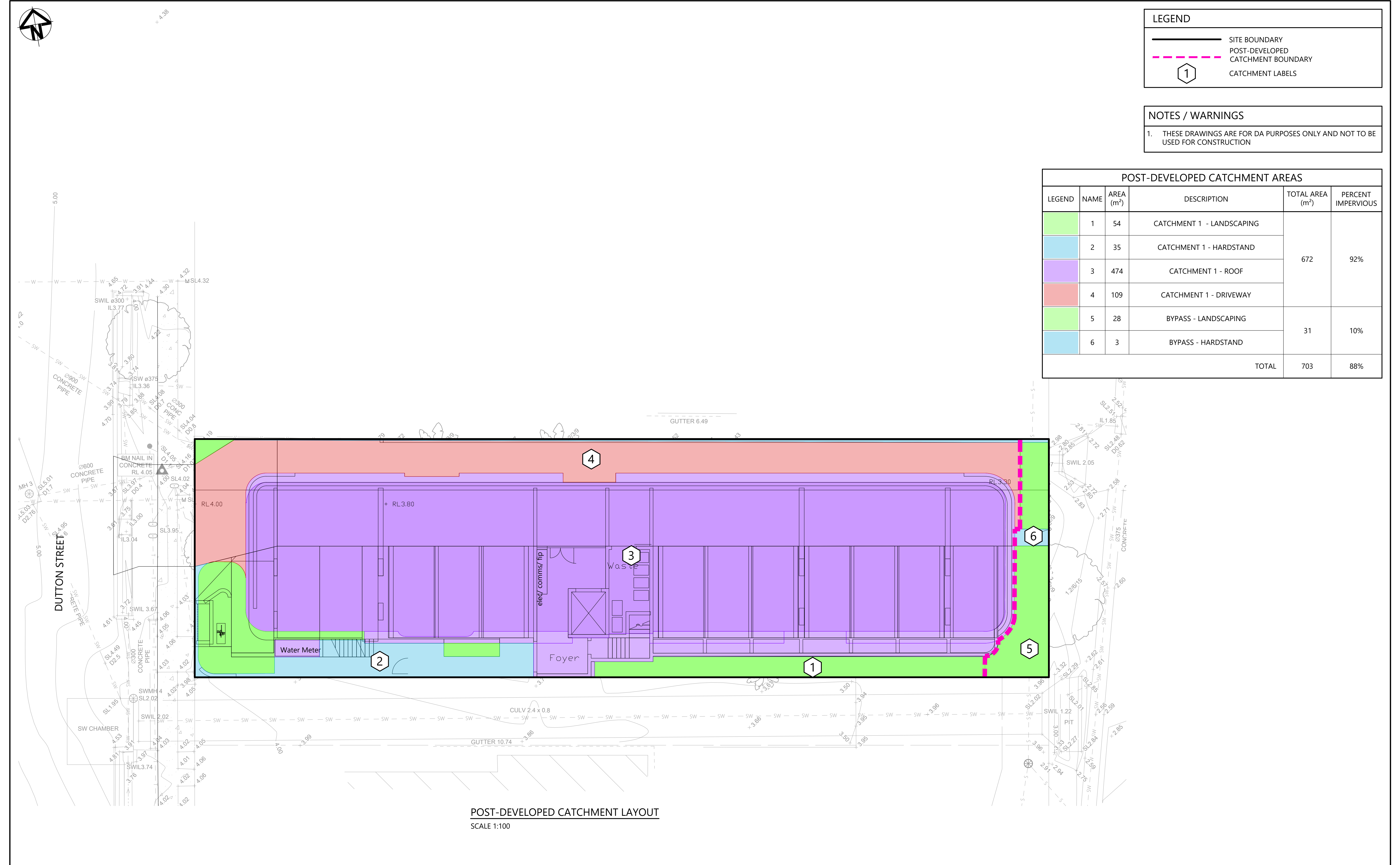
PROJECT No.

REVISION

DA01

G24095

- 01



LEGEND	
	SITE BOUNDARY
	POST-DEVELOPED CATCHMENT BOUNDARY
	CATCHMENT LABELS

NOTES / WARNINGS	
1.	THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

POST-DEVELOPED CATCHMENT AREAS					
LEGEND	NAME	AREA (m²)	DESCRIPTION	TOTAL AREA (m²)	PERCENT IMPERVIOUS
	1	54	CATCHMENT 1 - LANDSCAPING	672	92%
	2	35	CATCHMENT 1 - HARDSTAND		
	3	474	CATCHMENT 1 - ROOF		
	4	109	CATCHMENT 1 - DRIVEWAY		
	5	28	BYPASS - LANDSCAPING	31	10%
	6	3	BYPASS - HARDSTAND		
TOTAL				703	88%

POST-DEVELOPED CATCHMENT LAYOUT
SCALE 1:100

01

ORIGINAL ISSUE

MTB

09.05.25

ISSUE

DESCRIPTION

AUTHOR

DATE

STATUS

FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No :

CERTIFIED

HEIGHT
DATUM

AHD

DESIGNER

MTB

GRID

LOCAL

CHECKER

SC

ORIGINAL
SIZE

A1

APPROVER

MB

SURVEYOR

USHER & COMPANY

Surveying & Land Development Consultants

25 Tallebudgera Creek Road
Burleigh Heads, QLD, 4220
07 5535 8346

SCALE

1 0 1 2 3 4 5

SCALE 1:100

1:100 (A1) - 1:200 (A3)

CLIENT

SOUTHERN CROSS
PROPERTY HOLDINGS

1 Sands Street
Tweed Heads, NSW 2485
admin@lightwave.com.au

ARCHITECT

LW

LIGHTWAVE
ARCHITECTURAL

Level 3, 18 Orchard Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: 07 5538 0431
mail@michaelbale.com.au

Michael BALE & ASSOCIATES

Structural and Civil Engineering Consultancy

Level 3, 18 Orchard Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: 07 5538 0431
mail@michaelbale.com.au

PROJECT TITLE:

60 DUTTON STREET
COOLANGATTA

DRAWING TITLE:

POSTDEVELOPED
CATCHMENT
LAYOUT PLAN

DRAWING No.

PROJECT No.

REVISION

DA02 -

G24095

- 01

NOTES:

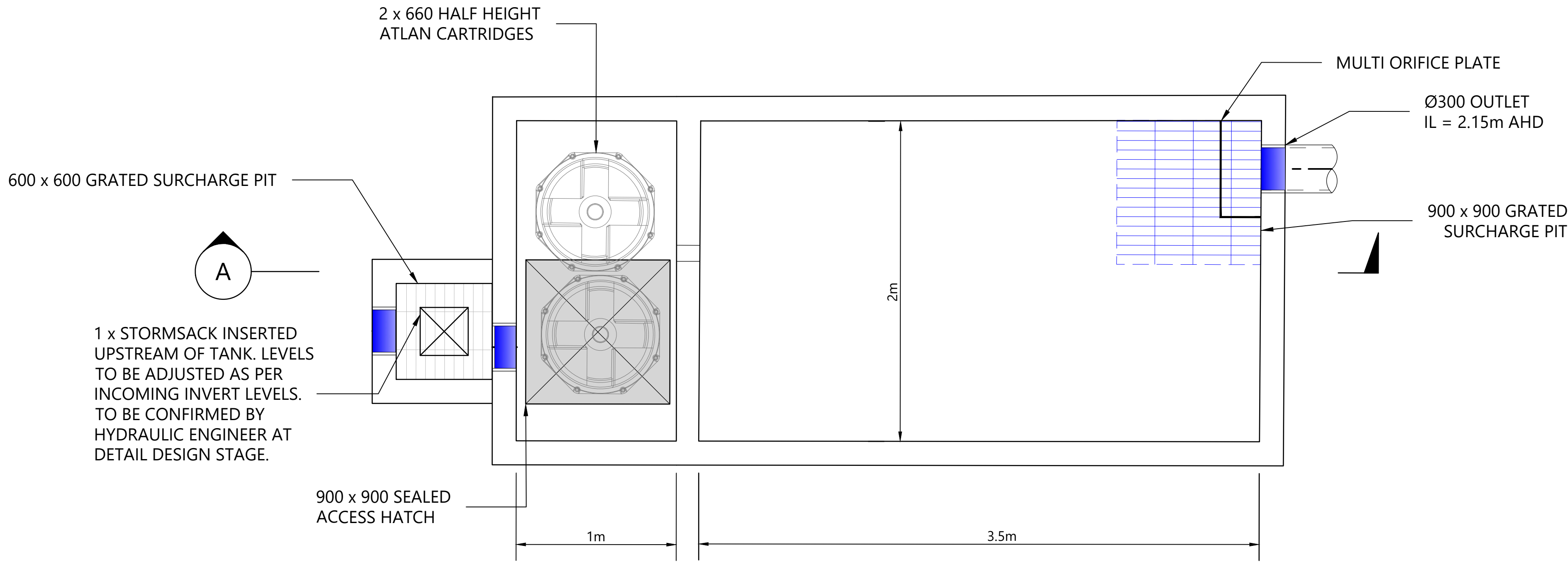
THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES. EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.

09/06/2023 2:18 PM

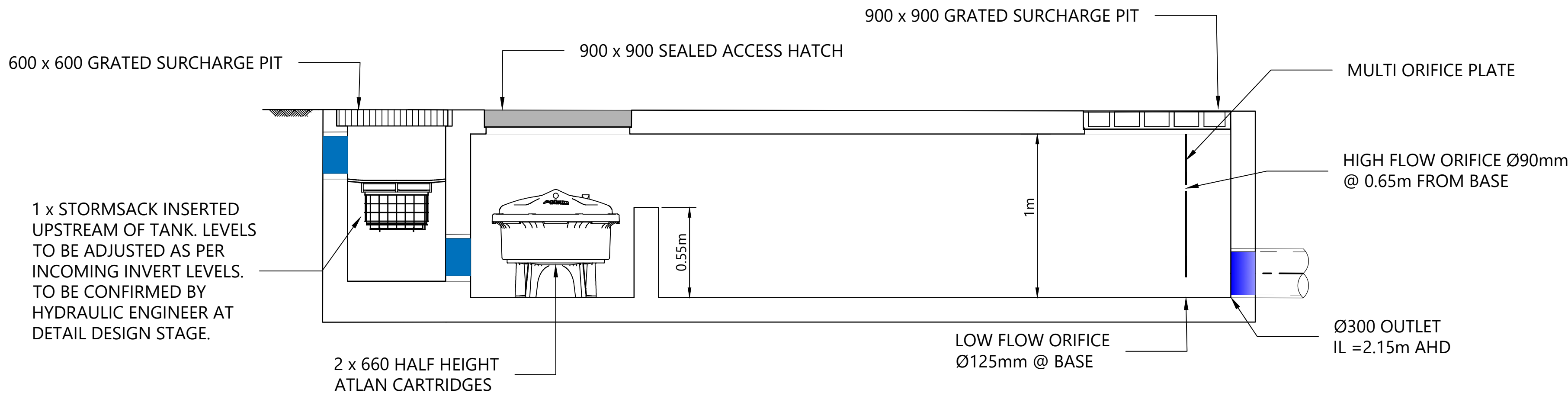
NOTES / WARNINGS

1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION

NOTE - PROVIDE MAXIMESH RH3030 FOR ORIFICES WITH A DIAMETER OF 100mm OR LESS, WITH A MINIMUM AREA OF 50 TIMES THE ORIFICE AREA AND WELDLOK F40/203 FOR ORIFICE WITH A 150mm DIAMETER OR MORE, WITH A MINIMUM AREA OF 20 TIMES THE ORIFICE AREA



PLAN VIEW



SECTION A

STORMWATER TANK PLAN
SCALE 1:20

9/May/2025 2:28 PM

				STATUS FOR DA APPROVAL NOT FOR CONSTRUCTION				SURVEYOR USHER & COMPANY Surveying & Land Development Consultants 25 Tallebudgera Creek Road Burleigh Heads, QLD, 4220 07 5535 8346				CLIENT SOUTHERN CROSS PROPERTY HOLDINGS				 MICHAEL BALE & ASSOCIATES Structural and Civil Engineering Consultancy				PROJECT TITLE: 60 DUTTON STREET COOLANGATTA				NOTES: THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS NOTED OR INSTRUCTED OTHERWISE BY MICHAEL BALE & ASSOCIATES. EXISTING SERVICES ARE SHOWN FOR INFORMATION ONLY AND NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF THIS INFORMATION. ALL EXISTING SERVICES IN THE VICINITY OF THE SITE SHALL BE LOCATED BY CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.			
								SCALE SCALE 1:20  1:20 (A1) - 1:40 (A3)				ARCHITECT  LIGHTWAVE ARCHITECTURAL 1 Sands Street Tweed Heads, NSW 2485 admin@lightwave.com.au				DRAWING TITLE: STORMWATER TANK PLAN											
01	ORIGINAL ISSUE		MTB	09.05.25	HEIGHT DATUM		AHD	DESIGNER	MTB																		
					GRID		LOCAL	CHECKER	SC																		
ORIGINAL SIZE					A1		APPROVER		MB																		
DESCRIPTION					AUTHOR		DATE																				

Waste Response Letter



60 Dutton Street, Coolangatta

Our ref: 50952-LT01-A
Your ref: COM/2025/157
Contact: James Goodman

5 August 2025

Coordinator Planning South
Council of the City of Gold Coast
PO Box 5042
Gold Coast MC QLD 9729
mail@goldcoast.qld.gov.au
Attention: Luke Caldwell

Dear Luke,

Response to Council Information Request – Application Number COM/2025/157 Proposed Multiple Dwelling Development – 60 Dutton Street, Coolangatta (Lot 2 on RP86756)

Reference is made to an Information Request dated 19 June 2025 from City of Gold Coast (**Council**) in relation to the abovementioned development application. The purpose of this letter is to provide a response to 'Water and Waste' Item 14 and 15 of the Information Request.

1. Response to items – Water and Waste

14. Waste chute system

PO1 – Solid waste management code

Performance outcome PO1 of the City Plan '*Solid Waste Management Code*' requires that the development provides waste and recycling storage facilities that are appropriate and adequate for the type and volume of waste generated by providing amended plans clearly depicting the location of the waste chute on each level, hoppers and separate waste storage room detailing all relevant dimensions.

Development with dwellings above the third storey must include an appropriate waste removal system which incorporates waste chutes, hoppers and a separate waste storage room consistent with section 17 of the '*City Plan Policy – Solid Waste Management*'. The development plan (DA10.01 – DA10.08) indicates that this type of waste removal system is not provided. Amended plans are therefore required to be submitted detailing the provision of this system consistent with Council Policy.

Response to Item 14.

PO1 of Council's *Solid Waste Management Code (V11)* does not mandate the inclusion of a waste chute for a development, but rather:

'Development provides waste and recycling storage and servicing facilities that are safe, convenient, efficient, appropriately sized for the type and volume of waste generated.'

For the proposed development, the requirements for waste management are balanced with other development outcomes, particularly, the removal of the waste chute allows for the use of wheelie bins to store waste and therefore removes the requirement for a temporary waste storage room near the Dutton Street road frontage where landscaping, civil services and visitor parking is required. While the building has nine storeys (refer to **Attachment A** for updated plans of development), lift and stair access to the ground floor level is provided within 60m walking distance. It is not considered unreasonable for residents to transfer waste from the units directly to the wheelie bins on the ground floor levels especially given residents will typically travel to the ground floor level car park when leaving the development site.

In total, five 360L wheelie bins including three 360L wheelie bins for general waste and two 360L wheelie bins for recycling waste are required to accommodate the expected waste generation of the development. This can be accommodated within the proposed waste storage room within the ground floor level car park and avoids the need for an additional temporary waste storage room near the Dutton Street road frontage where landscaping, civil services and visitor car parking are required. There is also sufficient kerbside area available to store five wheelie bins along the development's road frontage for collection, clear of the vehicle crossing.

For an 8-unit multiple dwelling development, use of 360L wheelie bins without a waste chute is considered practical and provides an appropriate outcome for the management of waste for a small multiple dwelling development. In addition, it is noted that other developments of similar height and scale have been approved without the use of a waste chute, e.g. MCU/2020/131, MCU/2021/295, MCU/2023/208, PDA/2024/8.

Based on the above, it is considered that use of wheelie bins for waste storage provides an outcome that is safe, convenient, efficient and appropriate for a development of this scale and nature. Therefore, compliance with *PO1* of Council's *Solid waste management code (V11)* is considered to be achieved.

15. Bulk bins required to service development

PO4 – Solid waste management code

Performance outcome PO4 of the '*Solid Waste Management Code*' requires that waste and recycling servicing points are appropriately located and designed to facilitate safe, unobstructed and efficient servicing of waste containers by providing amended plans detailing all relevant dimensions.

Assessment of the submitted information / plans has identified that provision of wheelie bins shall not be a safer outcome given the height of the proposed development. The development must therefore be serviced by a bulk bin service for general and recyclable waste.

Additional information is requested to be submitted, detailing the location of all proposed bulk bin storage and servicing points. The design and construction of all points must comply with sections 13 and 14 of the '*City Plan Policy – Solid Waste Management*'.

Response to Item 15.

As discussed under 'Response to Item 14' use of wheelie bins for waste storage provides an outcome that is safe, convenient, efficient and appropriate for a development of this scale and nature, consistent with *PO1* of Council's *Solid waste management code (V11)*.

Use of wheelie bins removes the requirement for a temporary waste storage room near the Dutton Street road frontage where landscaping, civil services and visitor parking are required. The other development outcomes mentioned will be compromised if a temporary waste storage room is provided. From a practical perspective, use of a temporary waste storage room to store bulk bins is considered onerous for a development of this nature and scale, given that the Dutton Street frontage has sufficient capacity to store the number of 360L wheelie bins required if each bin is allocated 1.0m at the kerbside.

PO4 of Council's *Solid waste management code (V11)* stipulates:

'Waste and recycling servicing points are appropriately located and designed to facilitate safe, unobstructed and efficient servicing of waste containers.'

On pre-arranged collection days, the site manager / members of the body corporate committee / residents will transport the five 360L wheelie bins from the waste storage room to the Dutton Street frontage of the site and then return the wheelie bins to the waste storage room upon completion of servicing. The subject site is currently occupied by a 4-unit multiple dwelling development which uses wheelie bins that are collected from the Dutton Street kerbside consistent with the above mentioned approach.

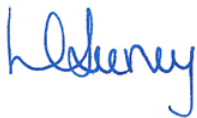
Being consistent with the existing waste management strategy for the subject site and based on the Dutton Street frontage having sufficient capacity to store the number of 360L wheelie bins required, it is considered that the proposed servicing point (Dutton Street kerbside) facilitates safe, unobstructed and efficient servicing of the waste containers. Therefore, compliance with *PO4* of Council's *Solid waste management code (V11)* is considered to be achieved.

2. Conclusion

As a result of the responses provided to the matters raised, we conclude that the proposed development addresses all water and waste related matters raised by Council in relation to the proposed development.

Should you have any questions or need anything clarified, please contact our office.

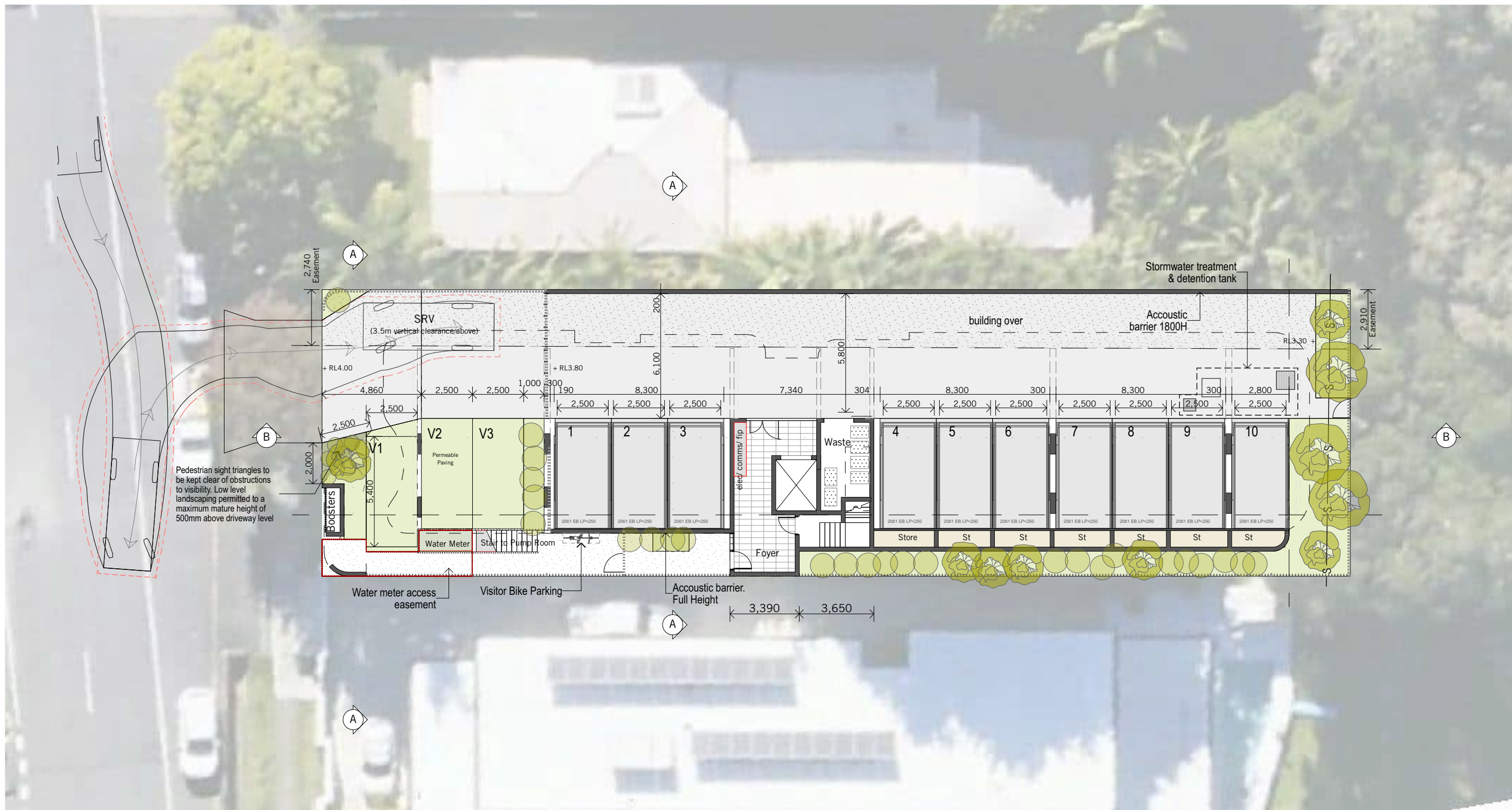
Yours sincerely



Luke Seeney, RPEQ 23542
Principal Engineer

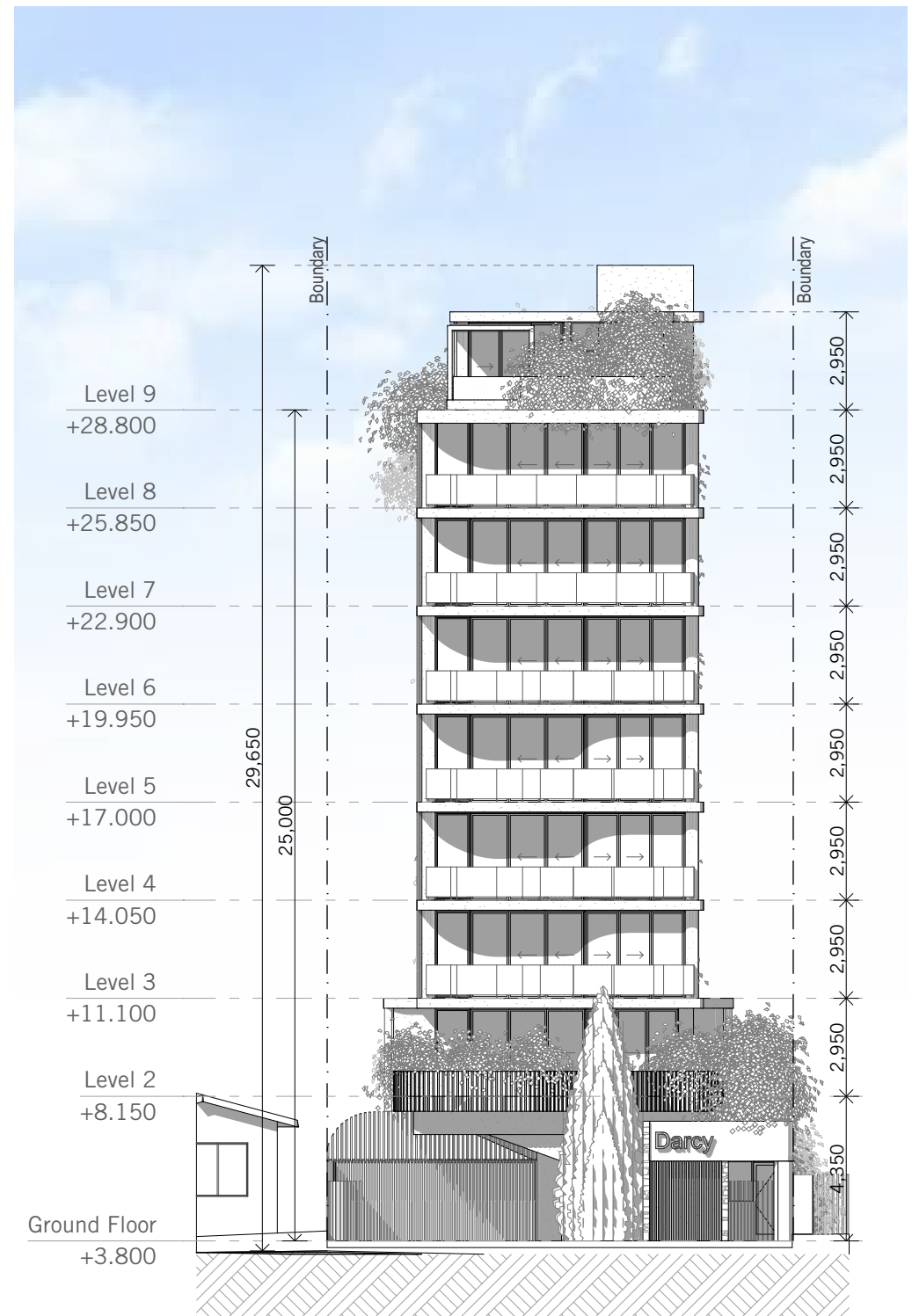
Attach.

Attachment A Updated plans of development



Site Plan
1:200 @ A3





West Elevation
1:200 @ A3