MICHAEL BALE & ASSOCIATES

Structural and Civil Engineering Consultancy

MIXED-USE DEVELOPMENT

11-23 MACARTHUR AVENUE, HAMILTON

CIVIL ENGINEERING REPORT

FOR: 5 POINT PROJECTS

REPORT NUMBER: R001-G23018A

INNOVATIVE ENGINEERING WITH PERSONAL SERVICE

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:	Salvatore Cautela		
Reviewer	Marcus Bleney		
Approver **RPEQ**	Michael Bale 15543		
Report Title	R001 – G24038A – Civil Engineering Report		
Revision	01	**Date**	06/08/2025

Revision History

Revision	Date	Author	Approver	Description
01	06/08/2025	SC	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: 5 Point Projects

CONTENTS

FIGURES LIST

TABLES LIST

1. Introduction

This report has been prepared to support the lodgement of a minor change development application to approve the construction of a new mixed-use development, comprising dual twenty-four storey residential build-to-rent towers, four levels of podium parking and three retail tenancies. The development is proposed to take place over the following parcels of land.

Property Address:	11–23 MacArthur Avenue, Hamilton
Property Description:	Lot 705 on SP287529 & Part of 703 on SP287531
Council:	Brisbane City Council
Registered Site Area:	6,574m^2

The site is located within a Priority Development Area (PDA) and, as such, falls under the planning and assessment jurisdiction of Economic Development Queensland (EDQ). This development application is subject to the provisions of the Northshore Hamilton PDA Development Scheme, rather than the local government planning scheme.

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

- Stormwater Management (Quantity & Quality)
- Earthworks;
- Erosion and Sediment Control;
- Flooding;
- 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.

1.2 Previous Approvals or Requests for Information

The development site forms part of a previously approved development application. The EDQ Approval Conditions as part of the previous approval (DA Ref: DEV2023/1402) and will be referred to within this report to ensure consistency with the proposed development.

2. Property Description

2.1 Site Locality

The proposed development is situated at 11-23 MacArthur Avenue, described as Lot 705 on SP287529 & Part of 703 SP287531. The property is located within the Northshore Hamilton Priority Development Area and is in close proximity to local commercial residential centres.

The proposed development is bounded by MacArthur Avenue to the north, Wharf Street to the east, residential and commercial developments surround the south and west site boundaries. The total registered area of the existing allotments contained in this proposal is 6,574m^2. It is noted that this is the only area to be used as the basis of the pre-developed catchment area within the report.

Full details of the site topography and existing features are shown on the detailed site survey included in Appendix A.

A general locality plan is presented in Figure 2.1 below:

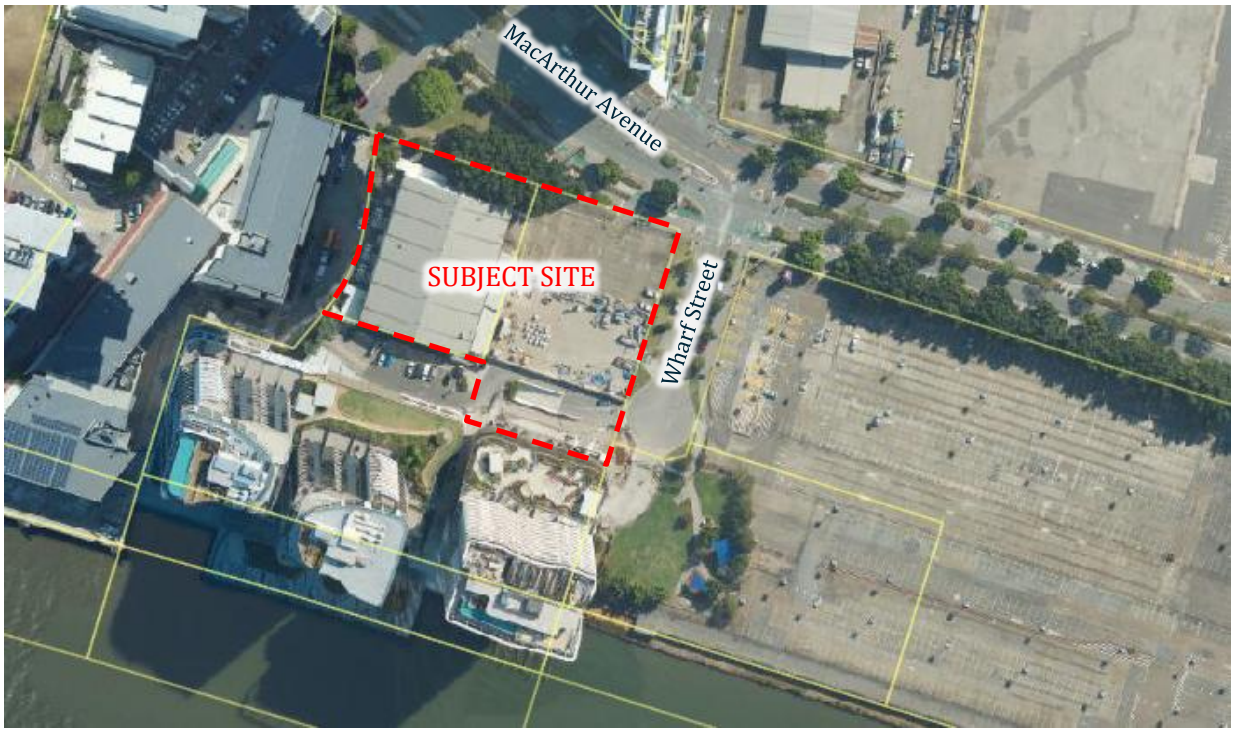


Figure 2.1: Site Locality

2.2 Land Usage

The site is presently occupied by a previously existing commercial cruise ship terminal building and a large on grade car parking area. The existing impervious area of the development has been measured from the site survey to cover approximately 99% of the site area, as displayed on the Pre-Developed Catchment plan attached within Appendix B of this report.

The site accessible via three (3) existing vehicle crossovers along MacArthur Avenue and two (2) existing vehicle crossovers along Wharf Street.

2.3 Topography and Drainage

The detailed survey data for the project site indicated that the existing site grades south-east, with majority of flows from Lot 705 draining towards the carparking area within Lot 703. Flows are expected to discharge via overland sheet flow through Lot 703 ultimately discharging towards the Brisbane River via existing Council Stormwater Infrastructure within Wharf Street. Approximate level of the highest point on the development site is 3.60m (AHD) which is located at the north-western corner of the site. Lowest point onsite is 3.10m (AHD) located at the south-western vehicle crossover. The average grade of the site has been calculated to be approximately 0.4%.

A copy of the detailed site survey by RPS and Bennett & Bennett has been attached to this report within Appendix A of this report.

2.4 Upstream Catchment

The surrounding sites are highly developed, with their flows discharging directly into their respective lawful point of discharge. The development site is therefore not expected 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 and removal of existing structures.
- The construction of a new development, comprising dual, twenty-four storey residential apartment towers, a podium communal area, shared gymnasium facilities and three retail tenancies.
- The construction of four (4) podium carparking levels, an access driveway and other hardstand surfaces associated with the proposed development.

The impervious areas of the proposed development have been measured to cover approximately 47% of the development site.

Construction works for the site will consist of bulk earthworks and general lot shaping.

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

External works for the development will consist of verge works the construction of service connections. No further external civil works are proposed as part of this development.

4. Lawful Point of Discharge

In the existing case, majority of site is expected to discharge flows towards the southeast site boundary ultimately conveyed towards the existing Council Stormwater Infrastructure within Wharf Street without any form of on-site detention or water quality treatment.

In the developed case, it is proposed that flows will be captured and treated internally and discharged towards the existing infrastructure within Wharf Street road reserve. It is proposed that the development will connect into the Council Infrastructure via a proposed Ø750 stormwater pipe into a proposed Ø1500 manhole which is to be constructed within the south east corner of the site. A proposed Ø600 stormwater pipe is to connect the newly constructed manhole to the existing Ø2100 manhole located within the Wharf Street road reserve. Ultimately flows from the entirety of the site are to discharge towards the Brisbane River located south of the development site.

The proposed arrangement is outlined in the Engineering Drawings attached within Appendix B. The proposed LPOD is compliant with the Northshore Hamilton Development Scheme as the proposed development ensures that stormwater runoff at the site's boundaries does not exceed that which presently exists, and there is 'no-net worsening' of flood conditions at the site's boundaries.

The proposed discharge arrangement is also 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 other adjacent properties that would cause actionable nuisance.

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 existing infrastructure located within Wharf Street, 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 two (2) residential apartment towers, three (3) multi-storey townhouses and a commercial retail tenancy. The development will also include podium and basement carparking areas and other associated hardstand surfaces. The construction of these hardstand surfaces will alter the flow characteristics of the development site. This includes the time of concentration and the volume of rainfall converted to runoff.

This section of the report addresses peak stormwater discharge resulting from the site, identifies whether attenuation measures are necessary to ensure "no-worsening" of the peak flows from the site and provides sizing information for any required attenuation measures.

5.2 On-site Stormwater Detention Assessment

Stormwater Quantity management for the Northshore Hamilton PDA is designed to comply with the Brisbane City Plan Infrastructure planning scheme. Brisbane City Council provides exceptions to the requirement of stormwater detention under Schedule 6.16 Infrastructure Design Planning Scheme Policy. The following site-specific exceptions are as follows:

- SC6.16/7.5.2.1 – Stormwater detention is less likely to be required at the bottom one-third of the catchment.
- SC6.16/7.5.2.3 – If the development site has an existing actual impervious fraction greater than 60%.

As the development is located within the bottom one-third of the Brisbane River Catchment and has an existing impervious surface of greater than 60% it is anticipated that the above will apply to the proposed development. Therefore, on-site detention will not be required as part of the development.

5.3 Wharf Street Lawful Point of Discharge

The post-developed site is proposed to discharge the entirety of the development flows towards the existing stormwater infrastructure located within Wharf Street. Despite the site not requiring stormwater detention, a hydrological analysis of the pre- and post-development peak flows is required to demonstrate no-worsening of peak flows into the Council Stormwater Infrastructure and causes no adverse impacts or actionable nuisance to surrounding properties.

5.4 Methodology

The Rational Method has been utilised to estimate the peak flow of event hydrographs for both the existing and developed case scenarios.

The results of the Rational Method calculations are used in the following sections to:

i) Evaluate the impact of the proposed development on the surrounding infrastructure, and;

ii) Quantify the discharge of stormwater from the site and surrounding catchments for the proposed future development.

5.5 Site Specific Rational Method Calculations

Catchment Definition

In the existing case, the site has been modelled as a single highly developed catchment, with the Fraction Imperviousness measured from the site survey. In the developed case, the site is also represented by a single highly developed catchment, with the Fraction Imperviousness measured

from the current architectural plans. Table 5.1 below summarises the catchment properties used for stormwater modelling.

Table 5.1: Catchment Definition

	Catchment Size	Fraction Impervious (f_i)
Pre-developed Catchment	6,574m²	0.99
Post-developed Catchment	6,574m²	0.47

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 roof catchments have been estimated using standard inlet times in combination with expected length of piped flows. Refer to Table 5.2 below for the calculated time of concentration for each catchment.

Table 5.2: Time of Concentration

	Catchment Size	Time of Concentration
Pre-developed Catchment	6,574m²	5.00 minutes
Post-developed Catchment	6,574m²	5.00 minutes

C10 Value

The C_{10} values for the existing site conditions and developed site conditions have been calculated in accordance with the Queensland Urban Drainage Manual (QUDM), Table 4.5.3: Table of C_{10} values. A summary of the C_{10} values adopted for the site are presented in Table 5.3 below.

Table 5.3: C_{10} Values

	Area	Rainfall Intensity, $^1I_{10}$/ Fraction Impervious	C_{10}
Pre-developed Catchment	6,574m²	65.00mm/hr / 99%	0.898
Post-developed Catchment 1	6,574m²	65.00mm/hr / 47%	0.774

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: Development Runoff Calculations

	39% (m^3/s)	18% (m^3/s)	10% (m^3/s)	5% (m^3/s)	2% (m^3/s)	1% (m^3/s)
Q $_{Pre\text{-}Developed}$ (m^3/s)	0.179	0.273	0.338	0.407	0.506	0.563
Q $_{post\text{-}Developed}$ (m^3/s)	0.154	0.235	0.292	0.351	0.451	0.523
Peak Flow Reduction (m^3/s)	**-0.025**	**-0.038**	**-0.047**	**-0.056**	**-0.056**	**-0.040**

Table 5.4 above shows that the development will result in a reduction in peak estimated flow rates for all AEPs. As it has been demonstrated that the proposed development will result in reduced flows from the development site, the proposed development will **not** need to provide on-site detention to mitigate peak flows.

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 Brisbane City Council Planning Scheme.

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:	-
a) Will result in an impervious area greater than 25% of the net developable area; or	**Yes**
b) Will result in 6 or more dwellings.	**Yes**
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

As the above trigger questions are applicable to this development, the site **is** required to achieve the design objectives of the State Planning Policy.

6.1 Water Quality Objectives and Methodology

Table 6.1 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 6.2: 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.

6.2 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 6.3 below:

Table 6.3: Pollutant Export Parameters

Catchment	Area
Landscape (100% Pervious)	254m^2
Hardstand Area (100% Impervious)	524m^2
Roof Area (100% Impervious)	1,442m^2
Driveway Area (100% Impervious)	20m^2
Podium Landscape (100% Pervious)	3,260m^2
Podium Hardstand Area (100% Impervious)	1,074m^2

6.3 Recorded Rainfall Data – Brisbane City Council (East)

Rainfall data for the site was taken from the Brisbane Regional Office Station (ID 40214) using the dates 1/1/1980 – 31/12/1989 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 1,178mm.

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

6.4 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 6.4 below:

Table 6.4: MUSIC Modelling Parameters

Parameter	Value
Rainfall threshold (mm)	1
Soil storage capacity (mm)	500
Initial storage (%)	10
Field capacity (mm)	200
Infiltration capacity coefficient a	211
Infiltration capacity exponent b	5
Initial depth (mm)	50
Daily recharge rate (%)	28
Daily baseflow rate (%)	27

6.5 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 6.5 below:

Table 6.5: Pollutant Export Parameters

Flow Type	Surface	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

6.6 Proposed Treatment Device Details

The proposed stormwater quality treatment train includes an Atlan Environmental cartridge system to treat stormwater flows from the buildings. This system is to provide primary treatment of stormwater flows. The proposed development will contain one treatment chamber. Majority of flows captured are proposed to be directed towards the treatment tank. The treatment devices for the development are to be located within the proposed underground treatment tank located along at the site boundary traversing Wharf Street, as shown on the engineering drawings 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 an Altan Stormsack gully pit insert which acts 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.

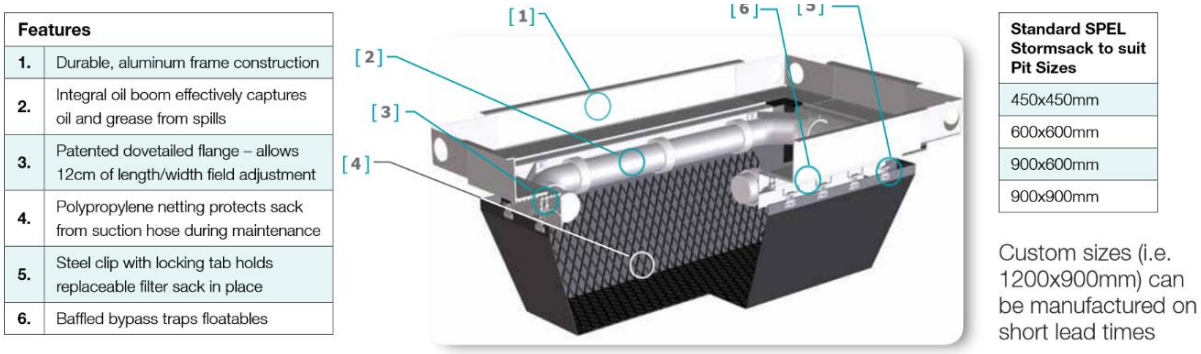


Figure 6.1: ATLAN Stormsack Gully Insert Pre-Treatment Filters

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 Brisbane City Council. The total requirement for treatment devices for the subject site is presented in Table 6.6 below:

Table 6.6: Site Specific Atlan Treatment Train Requirements

Device Type	Required Stormwater Quality Devices
AtlanFilter Cartridges	10
Stormsack Inserts	1

The AtlanFilter cartridges are to be located within the underground tank that is to be constructed towards the eastern boundary within the basement.

6.7 MUSIC Model Diagram

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

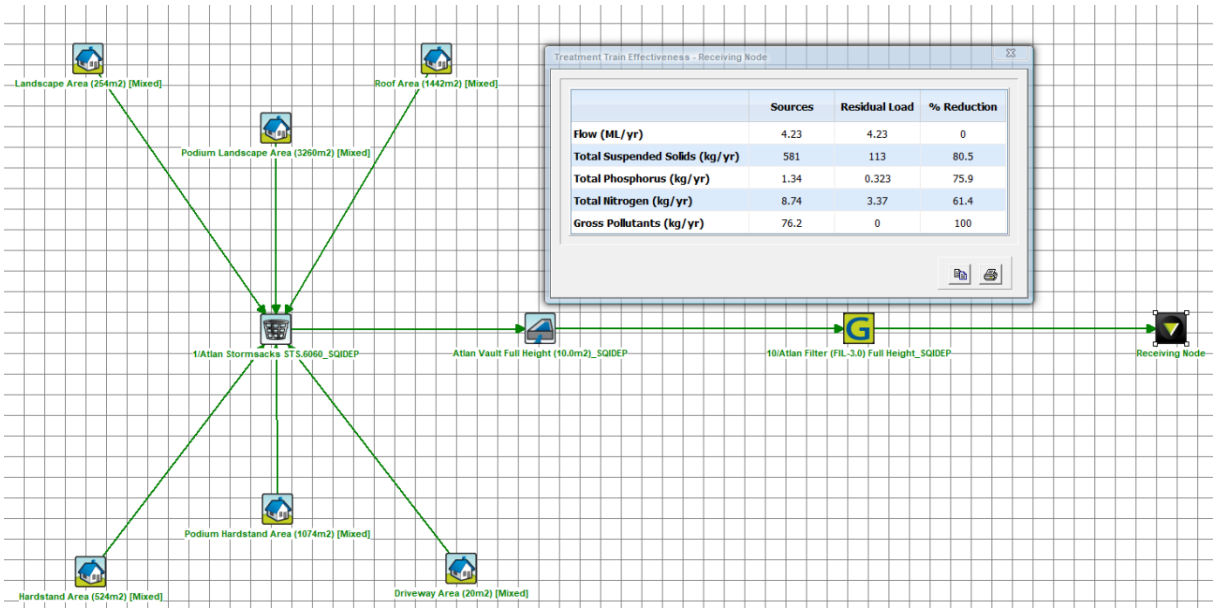


Figure 6.3: MUSIC Model Results

6.8 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 state's Water Quality Objectives (WQO's) are presented in Table 6.7 below:

Table 6.7: MUSIC Modelling Results

Potential Pollutant	Target WQO's	Results
Total Suspended Solids (kg/yr)	80%	**80.5%**
Total Phosphorus (kg/yr)	60%	**75.9%**
Total Nitrogen (kg/yr)	45%	**61.4%**
Gross Pollutants (kg/yr)	90%	**100%**

The results indicate that the proposed treatment devices are efficient in achieving the Water Quality Objectives (WQO's) and exceeds the minimum required pollutant reduction targets.

7. Conceptual Erosion and Sediment Control Plan

7.1 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 Brisbane City Council 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.

7.2 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.

7.3 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.

7.4 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.

8. Engineering Constraints

8.1 Earthworks

The earthworks associated with the proposed development will predominately involve general lot shaping, infrastructure trenches and a shared access driveway for the proposed development.

The development site is shown as being potentially affected by Acid Sulfate Soils on Brisbane City Council's ePlan Mapping service, as shown in Figure 8.1 below:

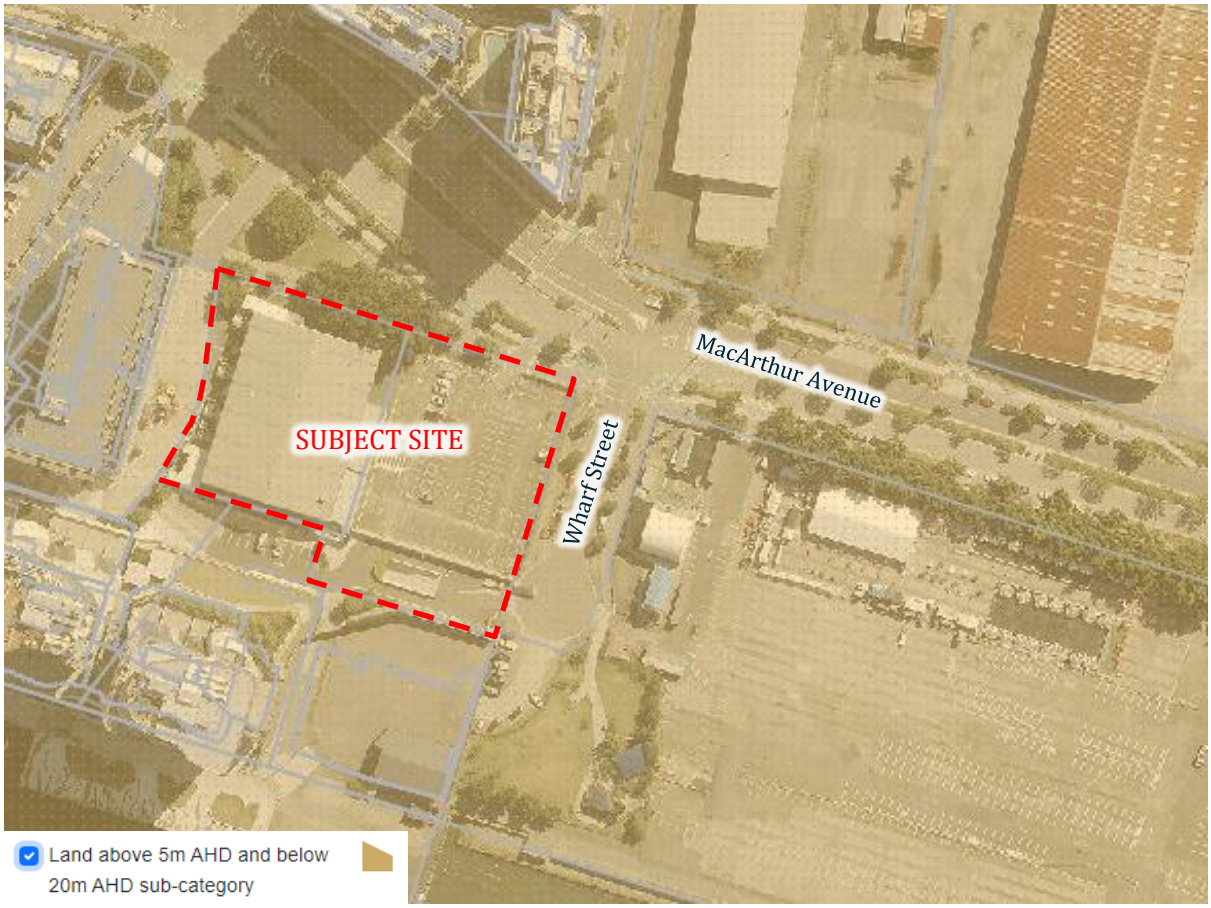


Figure 8.1: Excerpt from BCC's ePlan – Potential Acid Sulfate Soils

Given that the proposed development will disturb greater than 500m^3 of soil, a site-specific Acid Sulphate 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 be included in the development application conditions, to be completed prior to construction of the development site.

8.2 Erosion and Sediment Control

During earthworks operations, there will inevitably be areas of exposed earth, stripped areas, and stockpiles. It is essential to implement appropriate methods to manage this process effectively, ensuring minimal impacts on surrounding properties, infrastructure, and receiving waters.

The current Brisbane City Council Erosion Hazard Assessment form is attached in Appendix C of this report.

The resulting hazard risk rating is **medium** risk.

Subsequently, the development necessitates the preparation of an Erosion and Sediment Control Program and Plan, accompanied by supporting documentation. These documents must be certified by

a Registered Professional Engineer or Certified Professional in Erosion and Sediment Control. It is anticipated that the development conditions will include these requirements, mandating compliance before construction commences.

8.3 Vehicular Access and External Verge Works

External works will be required within the Council verge to facilitate stormwater connections to the proposed development within the Wharf Street road reserve as well as landscaping and streetscape works.

Internal driveways and parking facilities must adhere to AS2890.1:2004 standards, with relevant private certification included as part of the building works.

Verge upgrades will be subject to detailed design by a qualified registered landscape architect, with as-constructed drawings provided to Council upon completion of the works.

8.4 Flooding

Per the Brisbane City Plan Interactive Mapping, the development site is affected by Brisbane River flood constraints, as shown within Figure 8.2 and Figure 8.3 below:

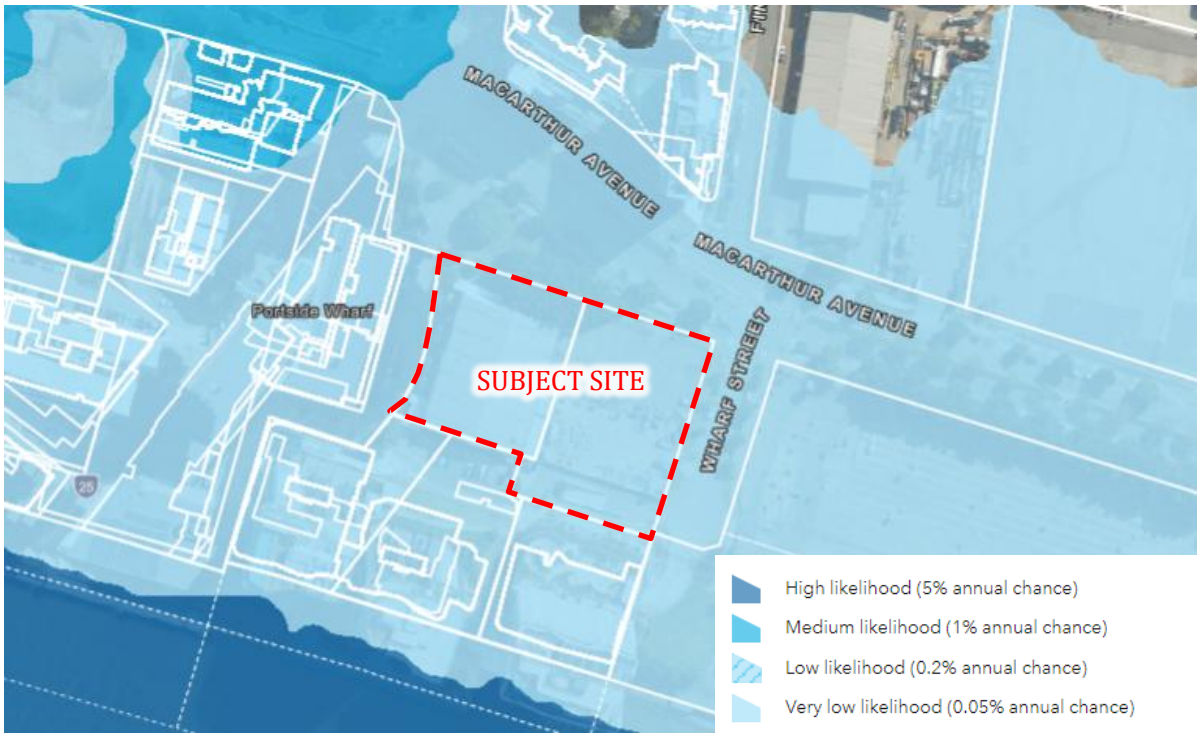


Figure 8.2: Brisbane City Council River Flood Planning Areas (Source: Brisbane City Council)

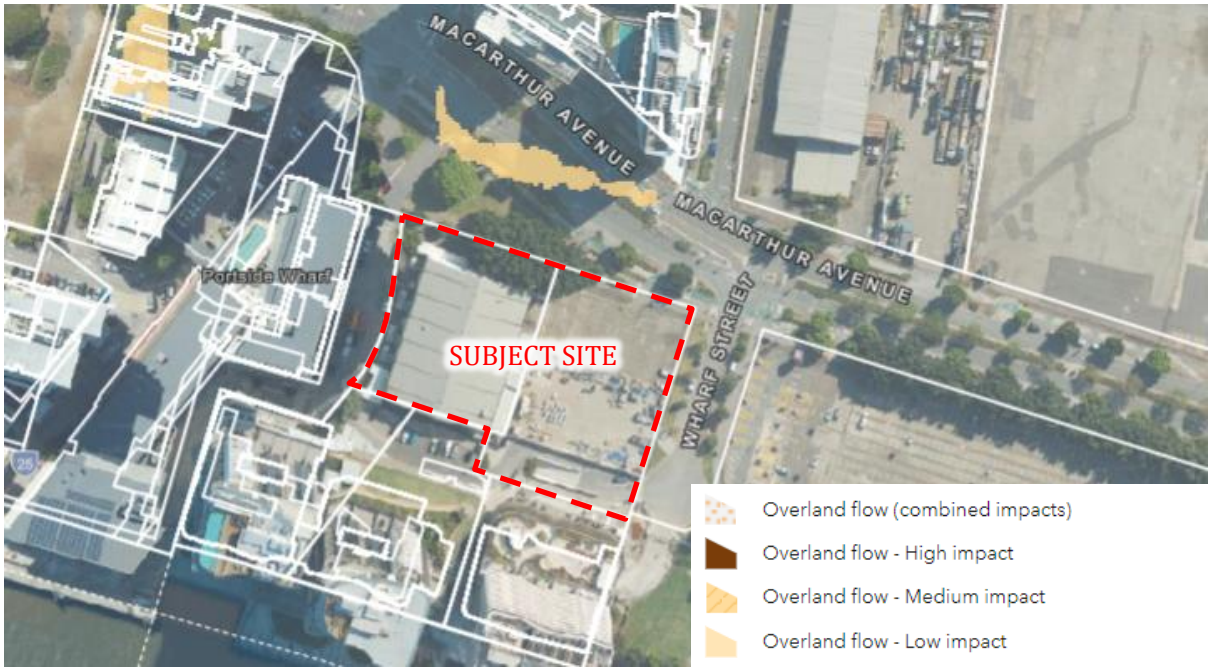


Figure 8.3: Brisbane Overland Flow Flood Planning Areas (Source: Brisbane City Council)

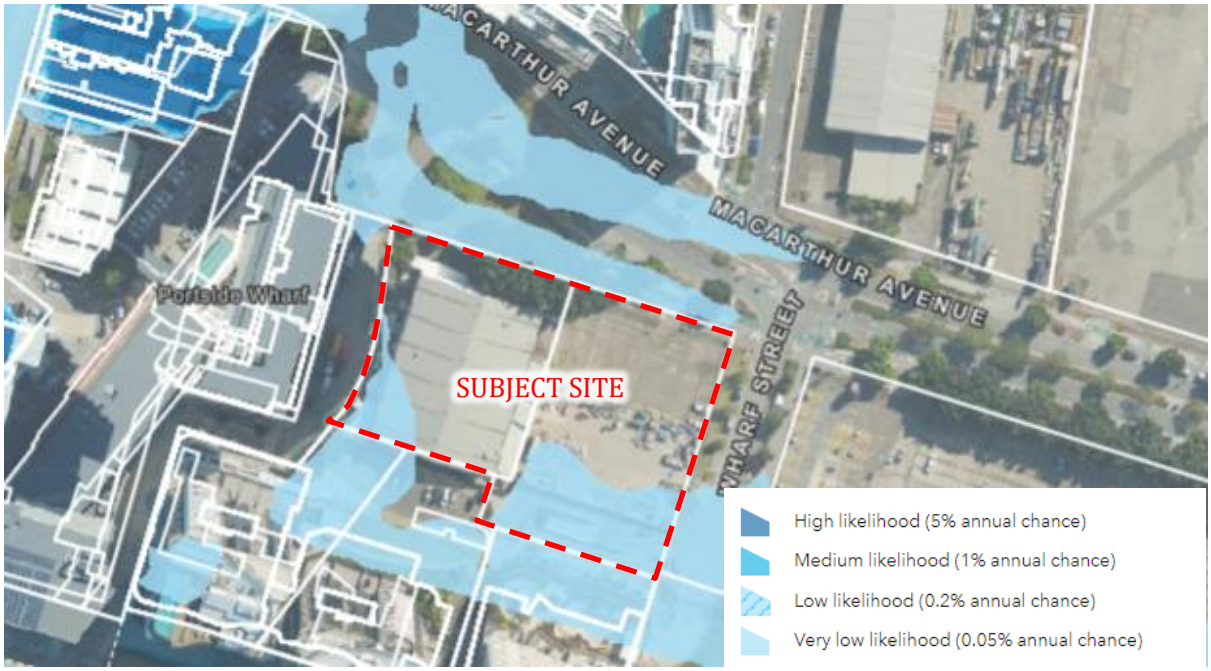


Figure 8.4: Brisbane Storm Tide Flood Planning Areas (Source: Brisbane City Council)

The proposed development is not located within the 1% AEP Brisbane River Flood or Overland Flow Planning Area. Per the Brisbane Flood Wise Property Report for 23 MacArthur Avenue, the 1% Annual Exceedance Probability (AEP) storm-tide inundation levels reach a height of 2.5m(AHD). Table 8.2.6.3.C within the BCC City Plan indicates that all habitable rooms are to be set at or above 3.1m (AHD) + 500mm freeboard. All non-habitable rooms are to be set at or above 3.1m(AHD) + 300mm freeboard.

The ground floor is proposed at 4.70m(AHD) and indicates the site will not be affected by any source of flooding. These floor levels comply with Section 2.5.8 of the Northshore Hamilton PDA Development Scheme and the BCC City Plan. The proposed design also remains in line with the previous development approval (DA Ref: DEV2023/1402) and demonstrated that no further flood mitigation and reporting is required for the proposed site.

Refer to the Flood Wise Property reports attached within Appendix D of this report for more details on site-specific flood information.

8.5 Water and Sewer Connection and Capacity

Sewer Connection

The site features an existing Ø225 sewer main traversing the front of the site that services only the proposed development via a Ø150 sewer property connection. A Ø160 sewer property connection currently services the carpark allotment via a Ø250mm sewer main located within Wharf Street road reserve.

The development proposes to decommission and remove the existing property connections as well as the existing Ø225 sewer line traversing the property and will be capped at the western property boundary. It is proposed that the site is to be serviced via the existing remaining Ø225 sewer line which is to be converted to a property connection to the west of the site subject to CCTV review.

Urban Utilities provided a response to the submitted Service Advice Notice (SAN) Application confirming the proposed connections are feasible and mains have adequate capacity to service the proposed development. Refer to the SAN Response (Ref No. 23-SAN-65864) attached as Appendix E for more details.

The final size and location of the sewer property connection is to be confirmed by the hydraulic engineer at the detailed design stage.

Water Connection

In the existing case, the site is currently serviced via a Ø100 water property connection connecting into an existing Ø150 water main within the adjacent verge at the northwestern corner of the subject site The existing water property connection is to be decommissioned and removed.

The proposed development will be serviced via a singular Ø100 water property connection and an above ground Ø80 domestic water meter and a Ø100 large fire service arrangement, connecting into the existing Ø150 water main shown to be traversing western site boundary. It is believed that this water main has already been diverted to the road alignment in a previous stage however if potholing confirms the location as demonstrated on the survey, an external diversion is likely required.

Urban Utilities provided a response to the submitted Service Advice Notice (SAN) Application confirming the proposed connections are feasible and mains have adequate capacity to service the proposed development. Refer to the SAN Response (Ref No. 23-SAN-65864) attached as Appendix E for more details.

The final size and location of the water property connection is to be confirmed by the hydraulic engineer at the detailed design stage.

9. Conclusion

This report has been prepared to support the lodgement of a development application to approve the construction of a new mixed-use development comprising dual, twenty-four storey residential build-to-rent towers, four levels of podium parking and three retail tenancies. The development is proposed to take place over the following parcels of land:

Property Address:	11-23 Macarthur Avenue, Hamilton
Property Description:	Lot 705 on SP287529 & Part of Lot 703 on SP287531
Council:	Brisbane City Council
Registered Site Area:	6,574m^2

This report has addressed the management of stormwater quality and sized the stormwater devices required 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,
    - Detention is **not** required for the proposed development.
- Stormwater quality treatment for the proposed development,
    - The installation of a ten (10) Atlan filter cartridge system within a 2.0m^2 treatment chamber, alongside an Atlan Stormsack gully insert positioned upstream, to treat flows from the proposed development

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

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

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

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy

Appendix A
Site Survey and Architectural Drawings

LINEWORK / SYMBOLS

LINEWORK			SYMBOLS
Subject lot boundary	Communications	Roofwater	Electricity Pit
Adjoining lot	Comms from records	Roofwater from records	Telstra Pit
Easement	High voltage electricity	Sewer	Optus Pit
Contour major	HV Elect from records	Sewer from records	Stormwater Manhole
Contour minor	Overhead powerlines	Sewer rising main	Water Meter
Bottom of bank	OH power from records	Sewer RM from records	Bench Mark
Change of grade	Underground electricity	Stormwater line	Electricity Manhole
Top of bank	UG Elect. from records	Stormwater from records	Telstra Manhole
Gully	Fire Service	Underground Telstra cable	Gas Valve
Edge of Bitumen	Fire from records	Overhead Telstra wires	Gully Trap
Concrete	Gas	OH Telstra from records	Tap
Eave	Gas from records	Telstra from records	Tree
Edge of vegetation	Irrigation	Water reticulation	Electricity Pillar
Fenceline	Irrigation from records	Water from records	Telstra Pillar
Kerb	Optus	IL20.12 Invert level (measured)	Fuel Filler-Cap
Traffic signal cable	Optus from records	IL20.12 Invert level (from records)	Field Inlet
			Water Valve
			Shrub
			Power Pole
			D.O.T. Pit
			Sewer Manhole
			Traffic Sign
			Fire Hydrant
			Palm Tree
			Light Pole
			Traffic Light
			Inspection Opening
			Sign
			Fence Post/Bollard

PROJECT
PORTSIDE EAST

LEVEL DATUM: AHD
SCALE: 1:200 @ A0
ORIGIN: PM 20375 3.082 HERCULES ST
Date: 24/10/2017
Surveyed: NWM/AVL/DJW
Comp by: NWM/AVL/DJW
FB: 392 LB: -
DWG: 6121_ES_DET-A.DWG

CLIENT
BROOKFIELD RESIDENTIAL PROPERTIES

CONTOUR & DETAIL SURVEY
LOT 61 & 62 ON SP231794 & LOT 1 ON SP224040
MACARTHUR AVENUE, EAGLE FARM

Parish: TOOMBUL
Local Authority: BRISBANE CITY COUNCIL
Job Ref: J1111749

RPS
RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 762
743 Ann Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3237 8899
F +61 7 3237 8833
W rpsgroup.com.au

Reference: 6121-248-SHEET 1
Rev: A

TREE DETAILS

ID	SPECIES	DIAMETER	SPREAD	HEIGHT
1062	FIG	0.25	4	5
1063	LEOPARD	0.05	3	5
1067	LEOPARD	0.05	2	3
1068	LEOPARD	0.05	2	3
1074	LEOPARD	0.05	3	3
1091	FIG	0.15	3	5
1092	FIG	0.15	4	5
1283	UNKNOWN	0.05	3	4
1284	UNKNOWN	0.05	2	3
1285	UNKNOWN	0.05	2	4
1286	UNKNOWN	0.05	3	4
3156	FIG	0.50	17.0	12.0
3164	FIG	0.25	8.0	10.0
3165	FIG	0.20	6.0	8.0
2442	BOX	0.08	2.0	3.0
2443	BOX	0.08	2.0	3.0
2474	FIG	0.50	15.0	15.0
2513	FIG	0.08	1.0	2.0
2520	FIG	0.08	1.0	3.0
2802	BOX	0.08	2.0	3.0
2807	BOX	0.08	2.0	3.0

Kerb Profile A — NOT TO SCALE
Kerb Profile B — NOT TO SCALE
Kerb Profile C — NOT TO SCALE
Kerb Profile D — NOT TO SCALE

WARNING NOTES

SUPPLIED ASCONSTRUCTED DWG

The position of the supplied dwg H010–AC–AS CONSTRUCTED.dwg has been attached as a xref and was aligned to the newly constructed walkway.

The position of service alignments shown on this plan must not be relied upon when designing services or buildings that will be constructed in close proximity to them. If existing service positions are critical for design or construction purposes, the service location must be accurately determined by pot holing or verification on site by the relevant service authority prior to commencement of design or construction.

PROPERTY BOUNDARIES

The subject property boundaries shown on this plan are plotted from SP231794 completed by RPS in February 2010 and SP224040 completed by RPS in December 2008. The adjoining property boundaries plotted to the East of the subject site are plotted from DP257483 and are subject to this plan becoming registered with the Department of Natural Resources and Mines (DNRM).

Boundary corners were not marked at the time of this survey.

Subject property boundary and easement dimensions have been omitted from this plan for clarity. Please refer to SP231794 and SP224040

SERVICES

Only the visible surface features of services (manholes, pits, valves, fittings etc.) have been located accurately during this survey. The position of all underground service alignments and underground features shown on this plan are approximate only and were plotted from records in conjunction with the surveyed locations of visible surface features. Numerous service surface features were found in this survey that do not appear on any of the records searched. The true position of any underground service can only be determined by pot-holing or remote detection.

The position of service alignments shown on this plan must not be relied upon when designing services or buildings that will be constructed in close proximity to them. If existing service positions are critical for design or construction purposes, the service location must be accurately determined by pot holing or verification on site by the relevant service authority prior to commencement of design or construction.

In accordance with the Workplace Health and Safety Act, manholes have not been entered to obtain invert levels. The invert levels shown are derived from approximate field measurements and existing records.

The shapes depicting services are symbolic representations, and whilst they are accurately positioned, they are not to scale.

Service alignments and attributes have been derived from the following sources only:
– Brisbane City Council
– Energex
– Telstra
– Queensland Urban Utilities
– Origin

VEGETATION

Whilst all care has been taken by the field surveyor to correctly identify the species and type of trees located during this survey, they are only estimates to assist with identification on site. If accurate identification of tree types is to be relied upon for any purpose, then all trees listed will require on site verification by a suitably qualified expert. The dimensions of trees located during the 2007 survey may be incorrect due to tree growth. If tree sizes are critical then further variation will be needed.

Tree heights are approximate only.

CONTOURS

The contours shown represent the site as it was at the time of survey. This is not necessarily the "natural surface" or "ground level" as defined by some councils and thus cannot be used to calculate compliance with some council's building height limits.

Minor Contour Interval: 0.5m

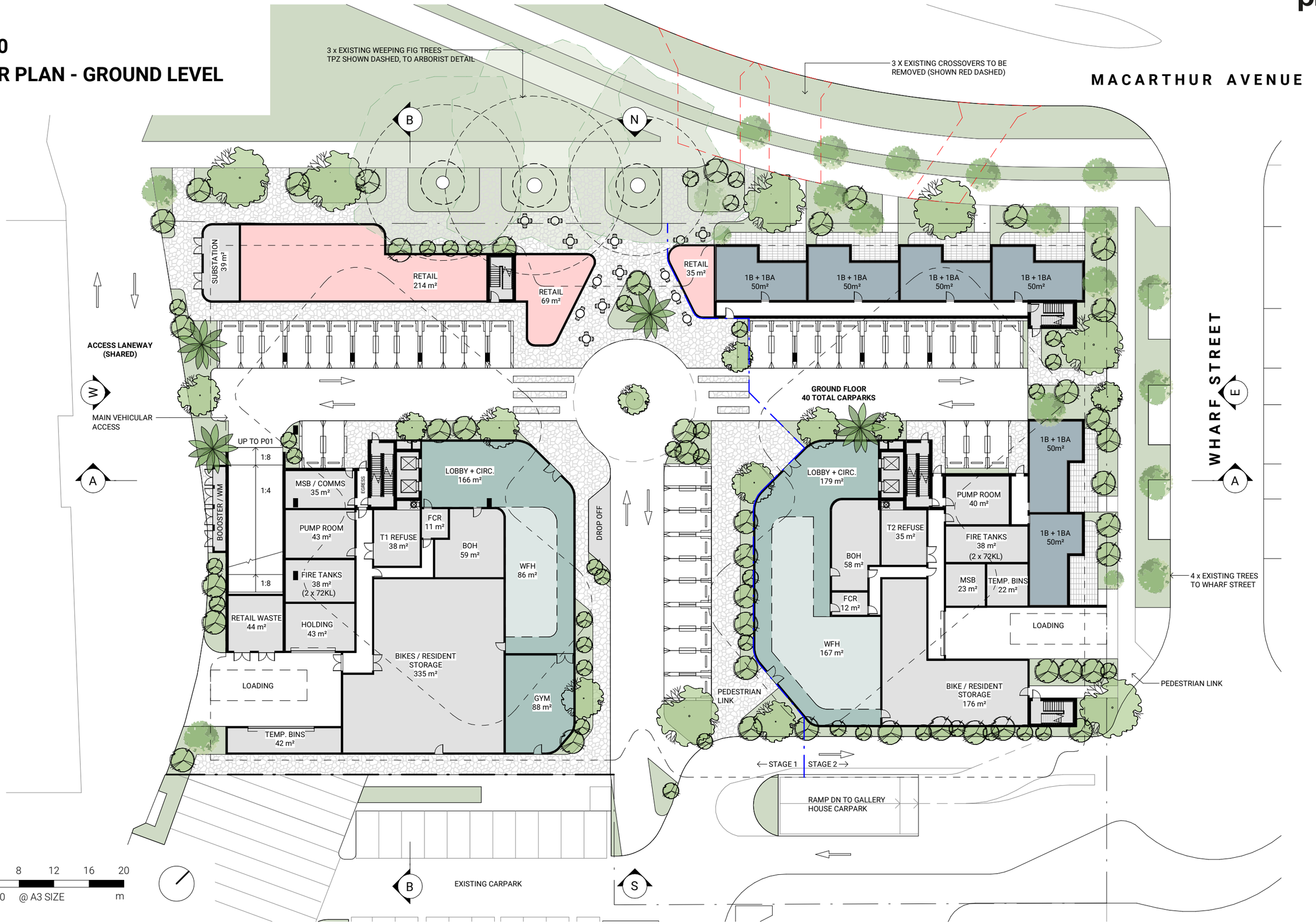
SURVEY DATA

This plan contains survey data from three different surveys completed by RPS in May 2007, May 2013, and Oct 2017. The different data sets can be identified by the prefix of layer names as well as being demarcated by the orange line on the plan face.

NOTE – It is likely that some survey data from May 2007 and May 2013 is out of date due to works occurring.

plus architecture

DA100
FLOOR PLAN - GROUND LEVEL



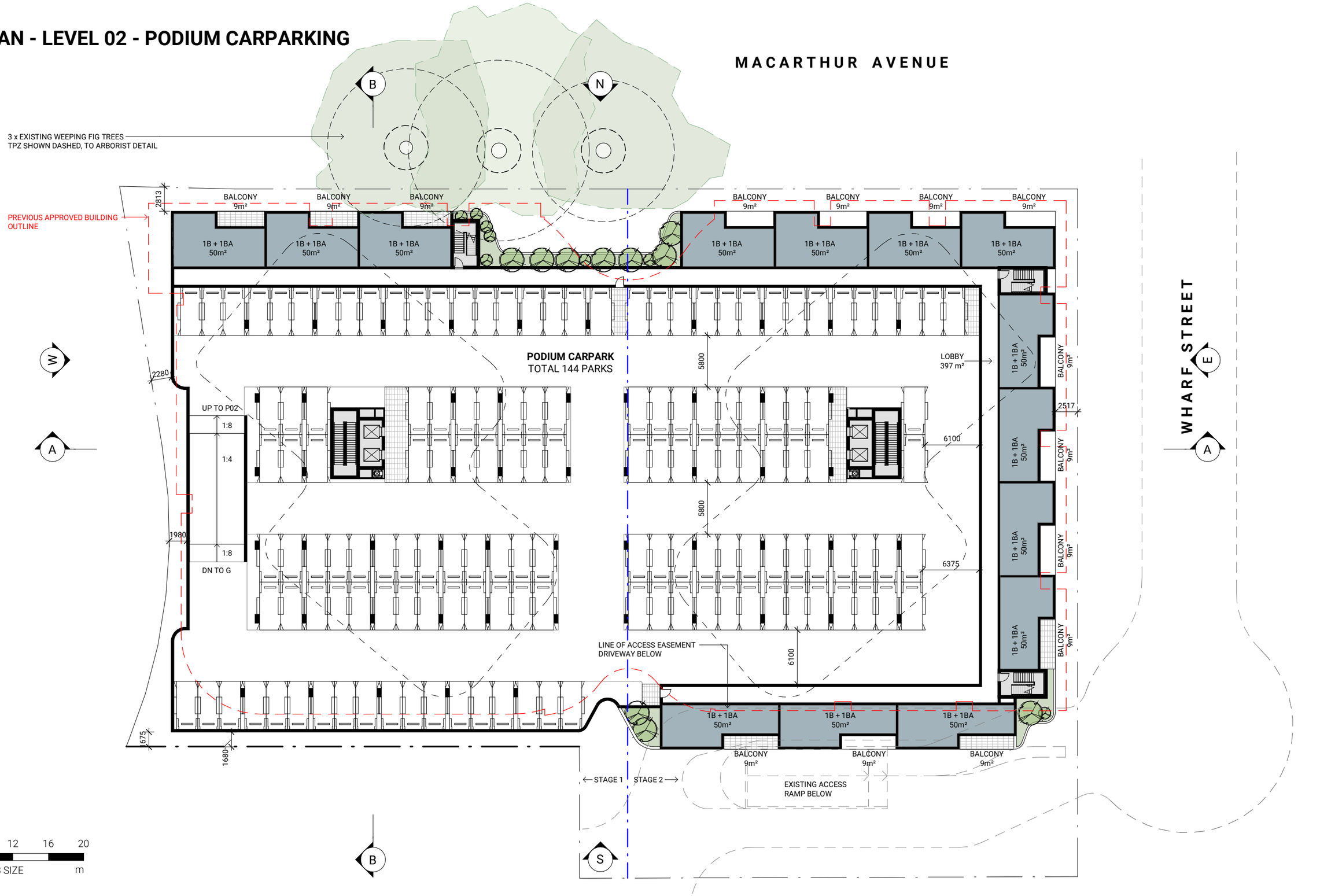
0 4 8 12 16 20

SCALE 1:400 @ A3 SIZE m

ISSUE 1
Date of Issue | 25.07.2025

plus architecture

DA101
FLOOR PLAN - LEVEL 02 - PODIUM CARPARKING



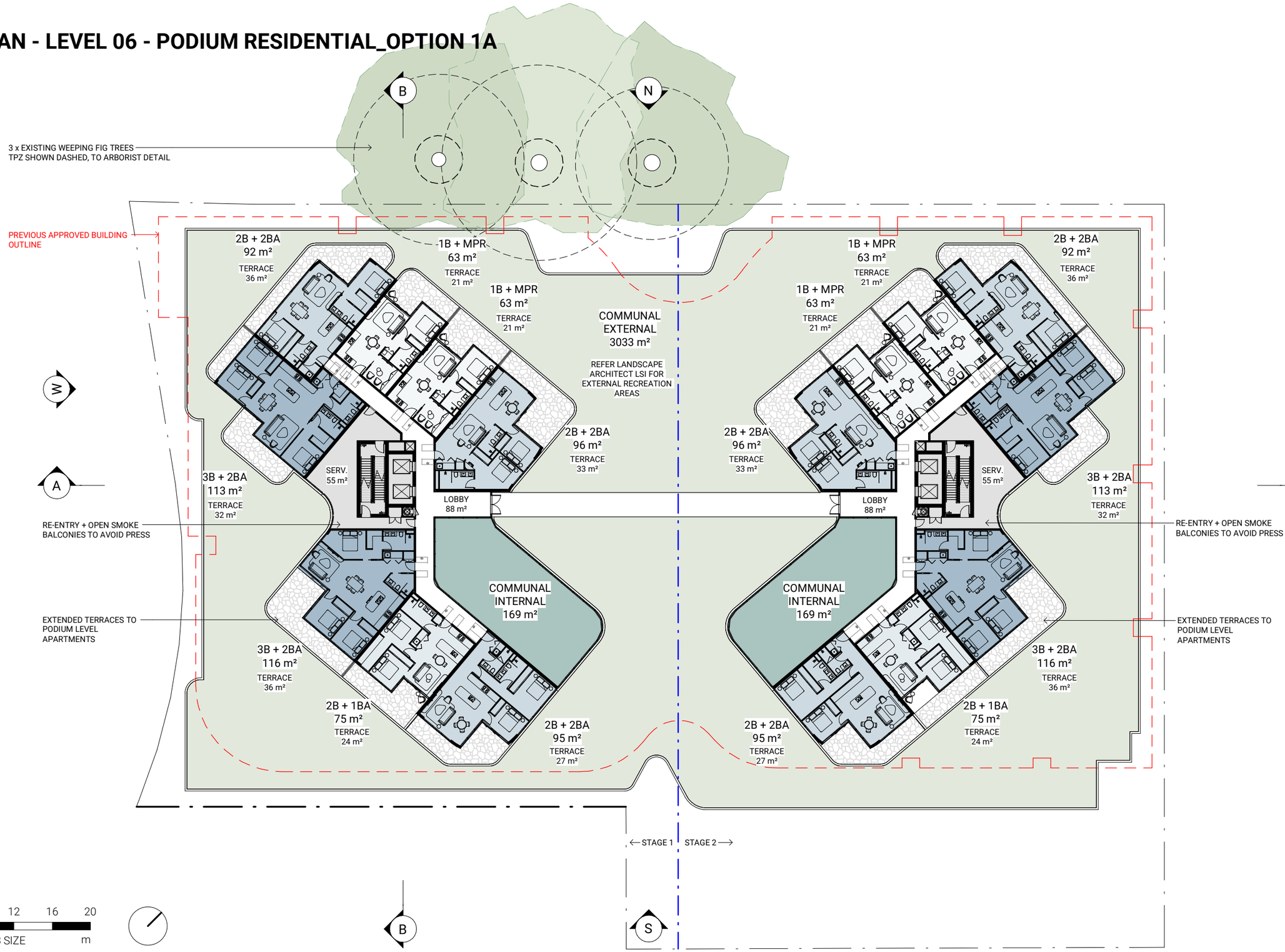
0 4 8 12 16 20

SCALE 1:400 @ A3 SIZE m

ISSUE 1
Date of Issue | 25.07.2025

plus architecture

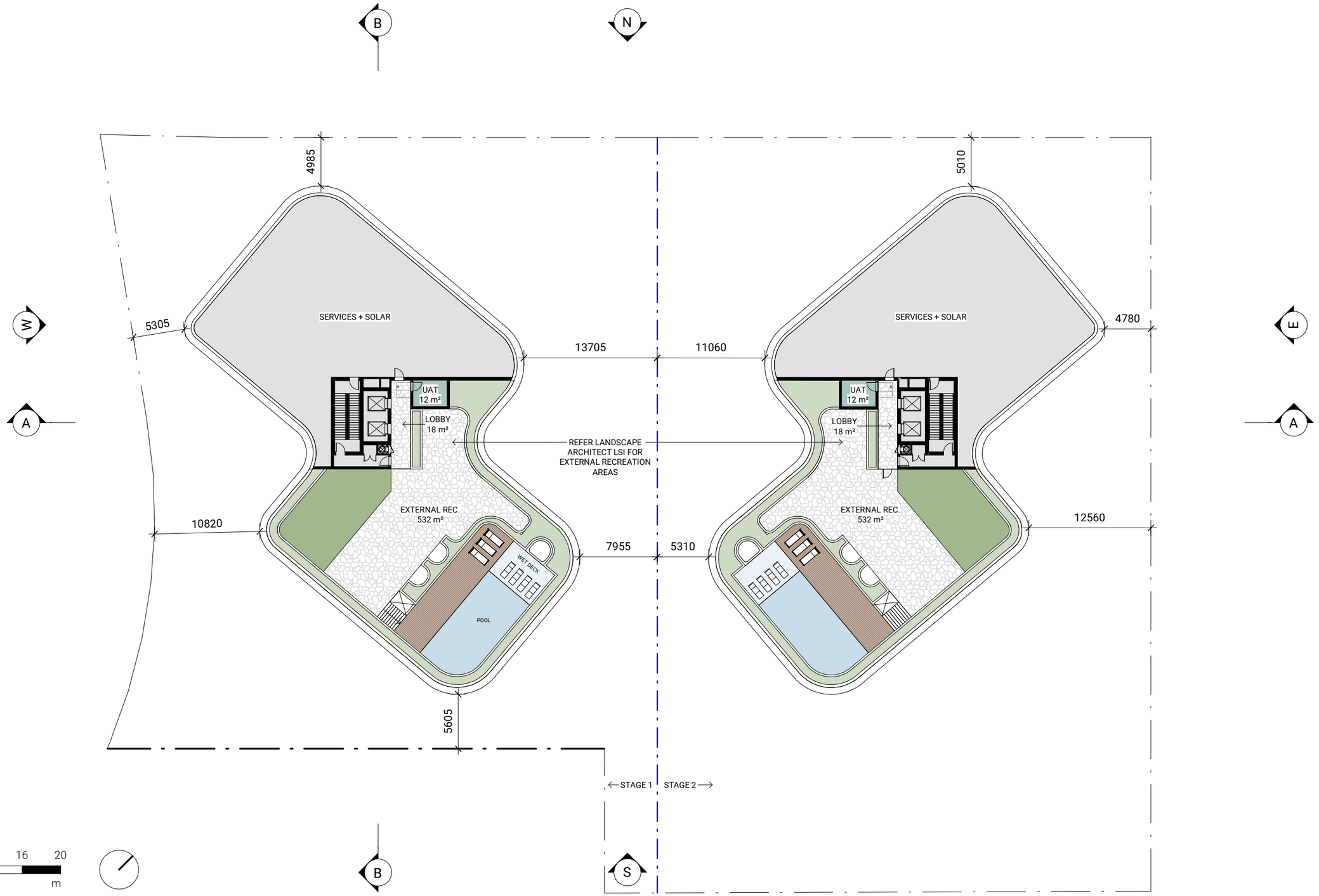
DA103
FLOOR PLAN - LEVEL 06 - PODIUM RESIDENTIAL_OPTION 1A



ISSUE 1
Date of Issue | 25.07.2025

plus architecture

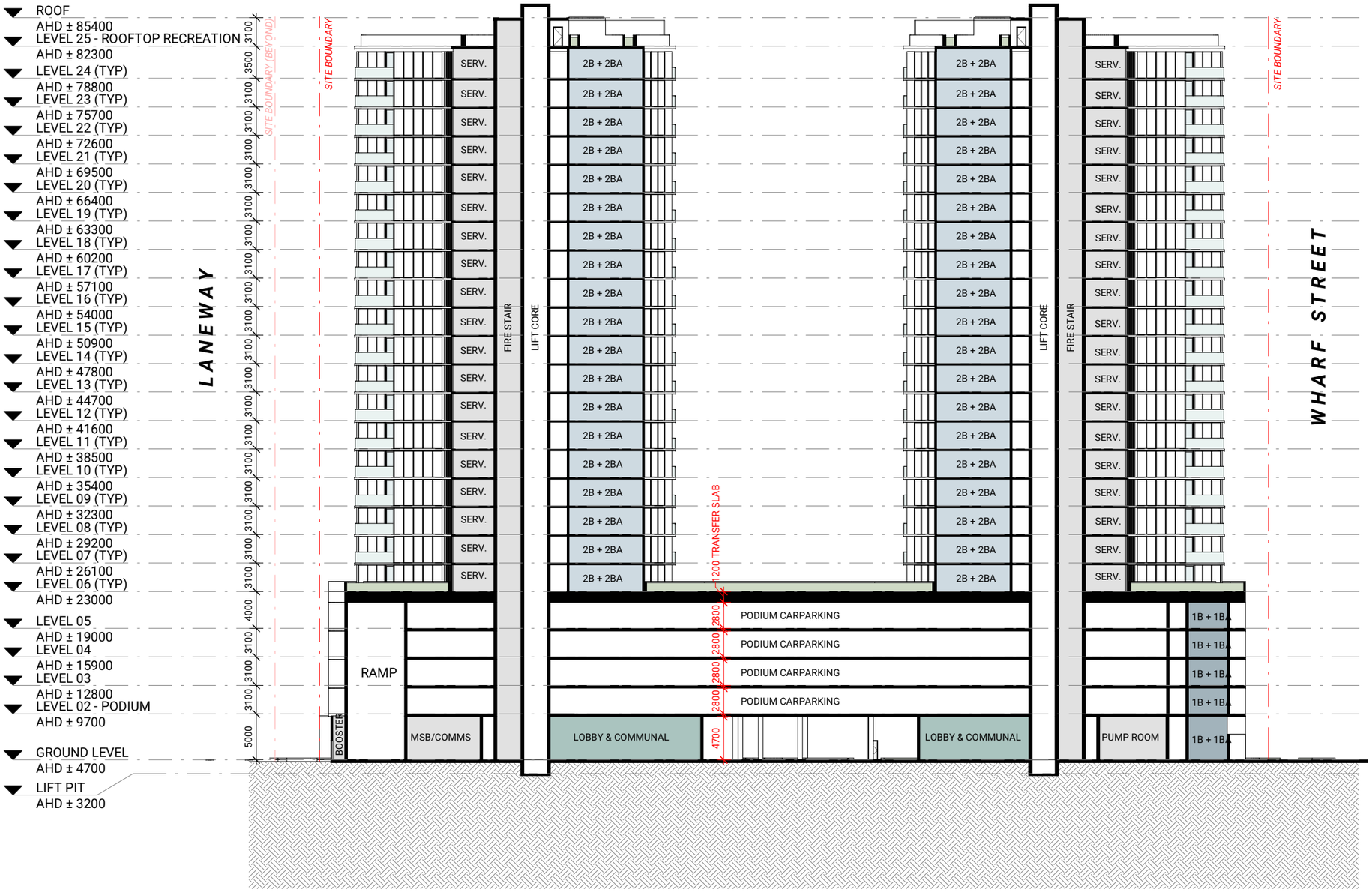
DA105
FLOOR PLAN - LEVEL 25 - ROOFTOP RECREATION

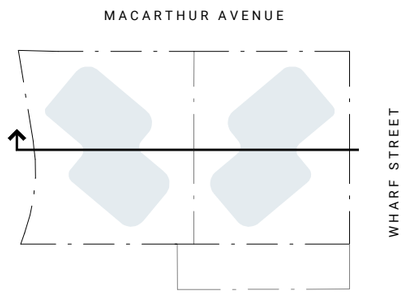


ISSUE 1
Date of Issue | 25.07.2025

plus architecture

DA300
BUILDING SECTION A





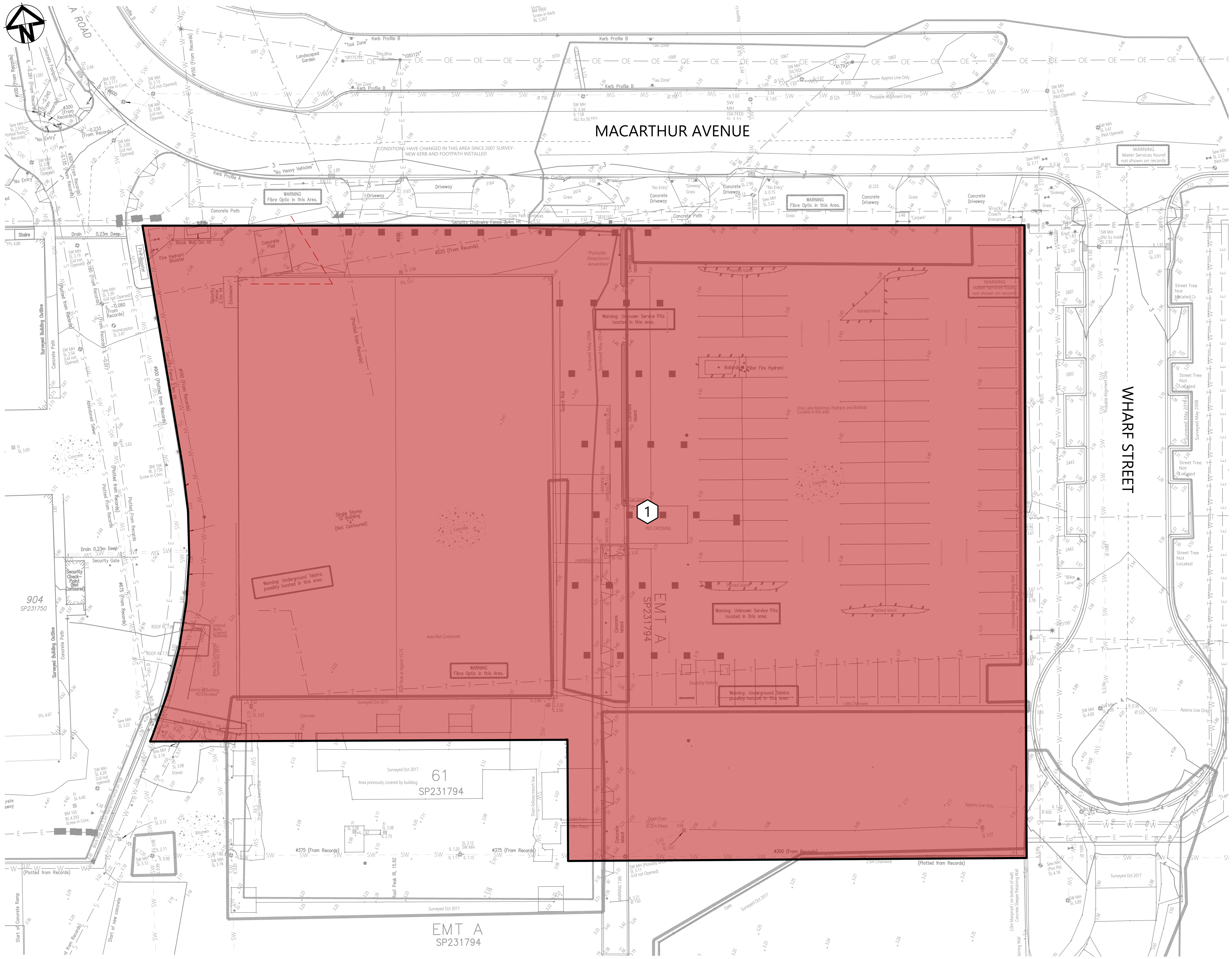
0 5 10 15 20 25

SCALE 1:500 @ A3 SIZE m

ISSUE 1
Date of Issue | 25.07.2025

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy

Appendix B
Engineering Drawings



PRE-DEVELOPED CATCHMENT LAYOUT

SCALE 1:250

LEGEND

(line)	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	6574	CATCHMENT 1 - IMPERVIOUS	6574	99%

ISSUE	DESCRIPTION	AUTHOR	DATE
01	ORIGINAL ISSUE	SC	05.08.25

STATUS
FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No :		CERTIFIED	
HEIGHT DATUM	AHD	DESIGNER	SC
GRID	LOCAL	CHECKER	MTB
ORIGINAL SIZE	A1	APPROVER	MB

SURVEYOR

SCALE
SCALE 1:250 — 5 0 5 10
1:250 (A1) - 1:500 (A3)

CLIENT
5POINT PROJECTS
PO BOX 1541
BROADBEACH, QLD, 4218
PH: 1300 576 468

ARCHITECT
plus architecture
S223/17 ELIZABETH AVENUE
BROADBEACH, QLD, 4218
PH: 07 3067 3599

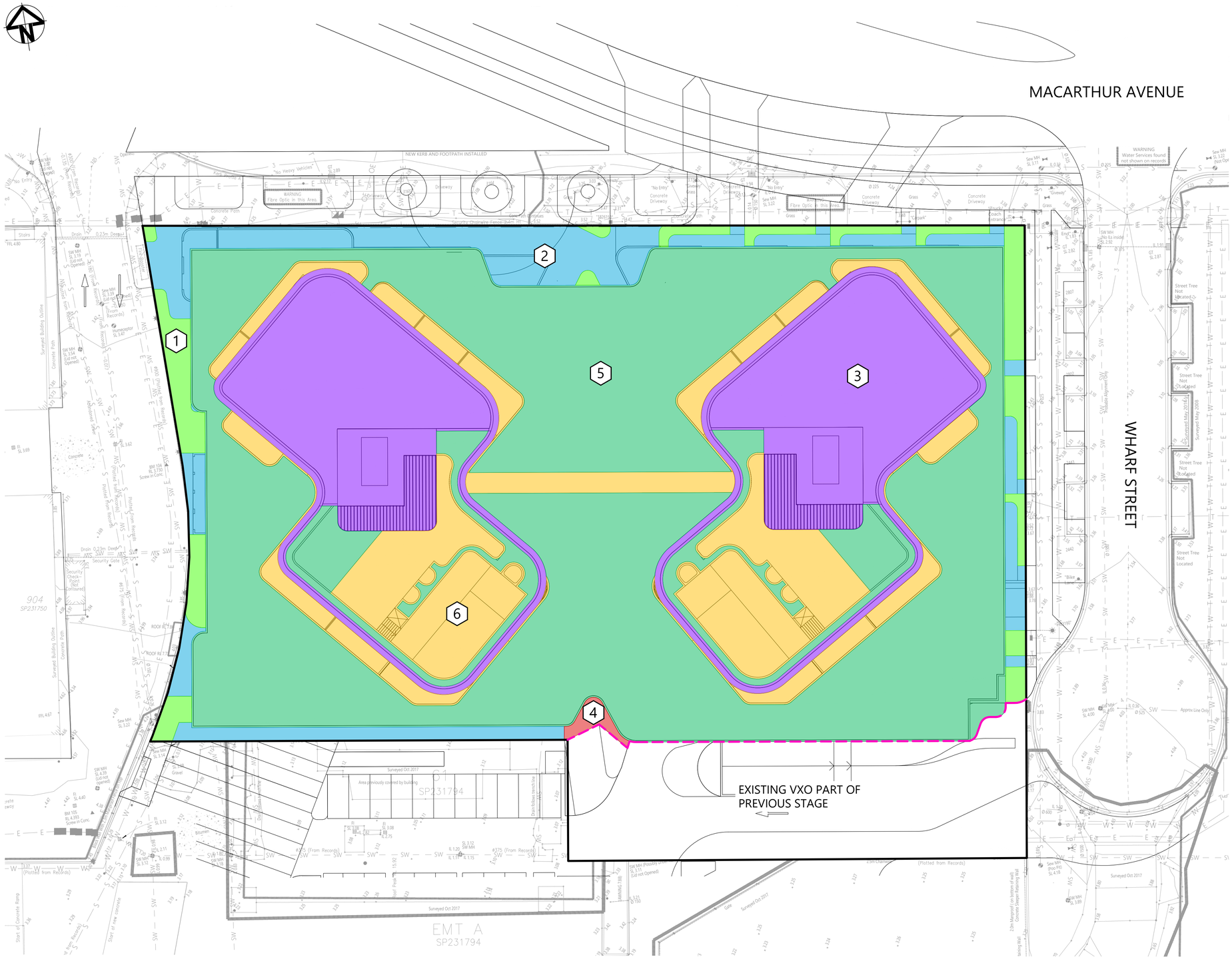
MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy
Level 3, 18 Orchid Avenue,
Surfers Paradise
PO BOX 1715, Surfers Paradise 4217
Ph: **07 5538 0431**
mail@michaelbale.com.au

PROJECT TITLE:
11-23
MACARTHUR AVENUE
HAMILTON

DRAWING TITLE:
PRE-DEVELOPED
CATCHMENT
LAYOUT PLAN

DRAWING No.	PROJECT No.	REVISION
DA01 -	G23018A	- 01

5/Aug/2025 5:43 PM



LEGEND

- SITE BOUNDARY
- CATCHMENT BOUNDARY
- (1) 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 (m^2)	DESCRIPTION	TOTAL AREA (m^2)	PERCENT IMPERVIOUS
	1	254	CATCHMENT 1 - LANDSCAPING	6574	47%
	2	524	CATCHMENT 1 - HARDSTAND		
	3	1442	CATCHMENT 1 - ROOF		
	4	20	CATCHMENT 1 - DRIVEWAY		
	5	3260	CATCHMENT 1 - PODIUM LANDSCAPE		
	6	1074	CATCHMENT 1 - PODIUM HARDSTAND		

POST-DEVELOPED CATCHMENT LAYOUT

SCALE 1:250

ISSUE	DESCRIPTION	AUTHOR	DATE
01	ORIGINAL ISSUE	SC	06.08.25

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No : | CERTIFIED

HEIGHT DATUM	AHD	DESIGNER	SC
GRID	LOCAL	CHECKER	MTB
ORIGINAL SIZE	A1	APPROVER	MB

SURVEYOR

SCALE: 1:250 (5 0 5 10) 1:250 (A1) - 1:500 (A3)

CLIENT: 5POINT PROJECTS
PO BOX 1541
BROADBEACH, QLD, 4218
PH: 1300 576 468

ARCHITECT: plus architecture
S223/17 ELIZABETH AVENUE
BROADBEACH, QLD, 4218
PH: 07 3067 3599

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

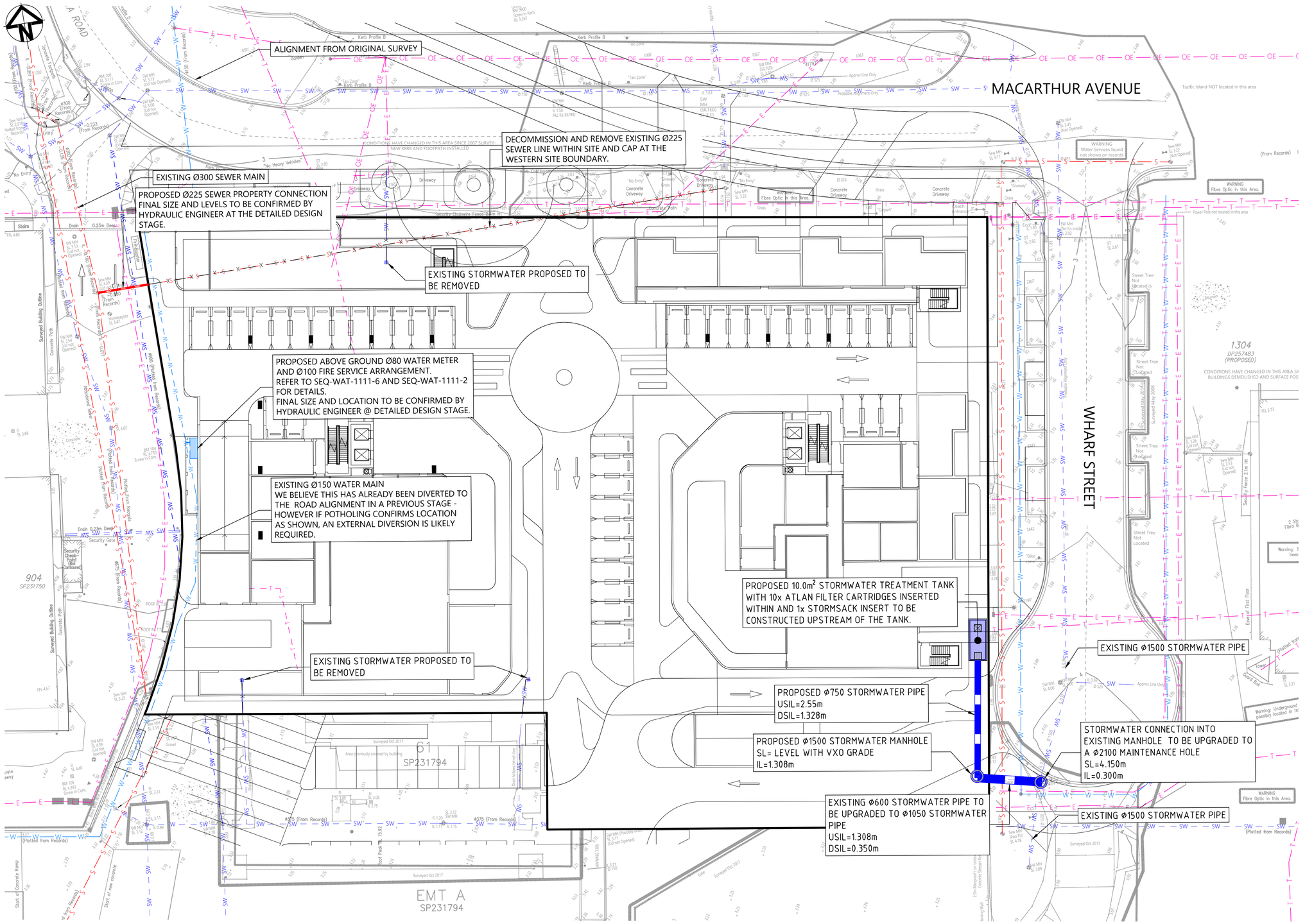
PROJECT TITLE:
11-23
MACARTHUR AVENUE
HAMILTON

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	G23018A	01

5/Aug/2025 5:44 PM



LEGEND

- SITE BOUNDARY
- PROPOSED TO BE REMOVED
- PROPOSED STORMWATER LINE
- PROPOSED TREATMENT TANK
- PROPOSED SEWER LINE
- PROPOSED WATER PROPERTY CONNECTION
- 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

ISSUE	DESCRIPTION	AUTHOR	DATE
01	ORIGINAL ISSUE	SC	05.08.25

6/Aug/2025 10:41 AM

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No :		CERTIFIED	
HEIGHT DATUM	AHD	DESIGNER	SC
GRID	LOCAL	CHECKER	MTB
ORIGINAL SIZE	A1	APPROVER	MB

SURVEYOR

SCALE: 1:250 (5 0 5 10) 1:250 (A1) - 1:500 (A3)

CLIENT: 5POINT PROJECTS
PO BOX 1541
BROADBEACH, QLD, 4218
PH: 1300 576 468

ARCHITECT: plus architecture
S223/17 ELIZABETH AVENUE
BROADBEACH, QLD, 4218
PH: 07 3067 3599

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

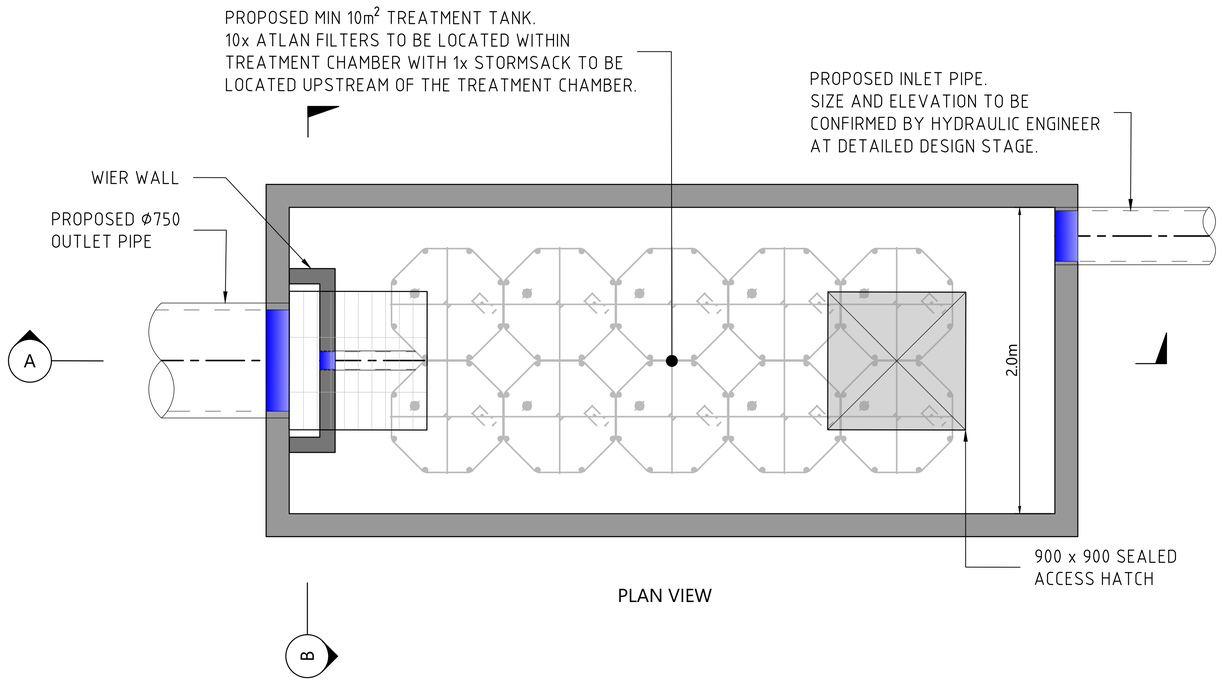
PROJECT TITLE:
11-23
MACARTHUR AVENUE
HAMILTON

DRAWING TITLE:
SERVICES
LAYOUT PLAN

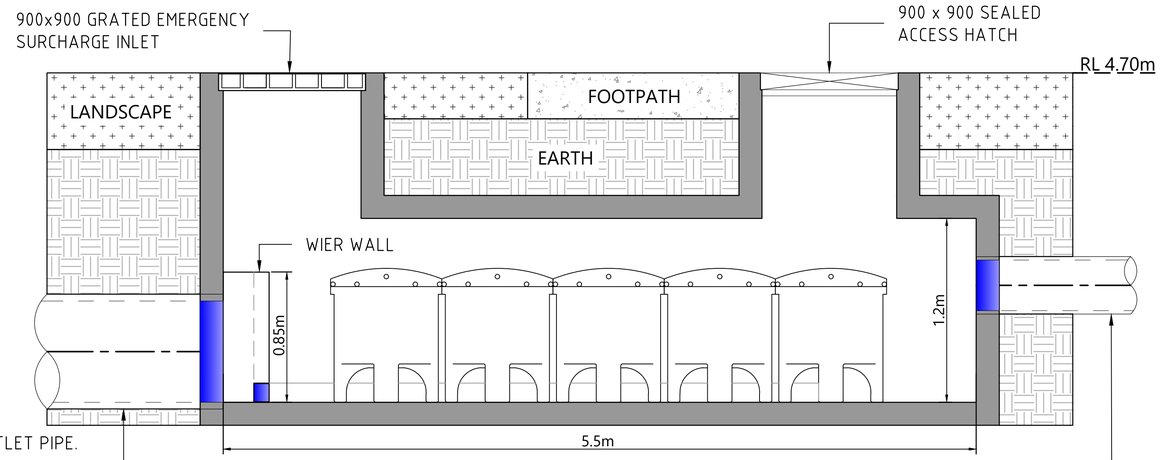
NOTES:
THESE DRAWINGS REMAIN THE PROPERTY OF MICHAEL BALE & ASSOCIATES PTY LTD. AND MUST NOT BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION. THESE DRAWINGS HAVE BEEN PREPARED FOR EXCLUSIVE USE BY OUR CLIENT. NO RESPONSIBILITY IS TAKEN FOR ANY THIRD PARTY THAT RELIES UPON OR USES THIS INFORMATION.
THIS 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
DA03	G23018A	01

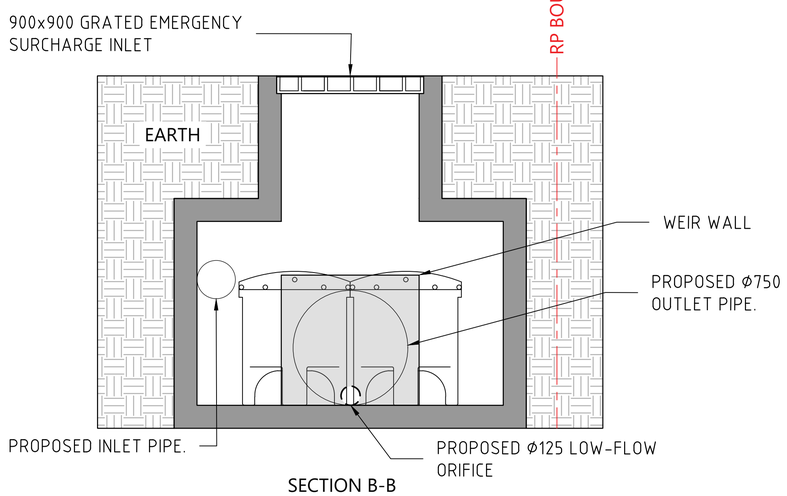
NOTES / WARNINGS
1. THESE DRAWINGS ARE FOR DA PURPOSES ONLY AND NOT TO BE USED FOR CONSTRUCTION



PLAN VIEW



SECTION A-A



SECTION B-B

STORMWATER TANK PLAN

SCALE 1:20

ISSUE	DESCRIPTION	AUTHOR	DATE
01	ORIGINAL ISSUE	SC	05.08.25

STATUS: FOR DA APPROVAL
NOT FOR CONSTRUCTION

R.P.E.Q No : | CERTIFIED

HEIGHT DATUM	AHD	DESIGNER	SC
GRID	LOCAL	CHECKER	MTB
ORIGINAL SIZE	A1	APPROVER	MB

SURVEYOR

SCALE: SCALE 1:20 0.2 0 0.2 0.4 0.6 0.8 1.0 — 1:20 (A1) - 1:40 (A3)

CLIENT: 5POINT PROJECTS
PO BOX 1541
BROADBEACH, QLD, 4218
PH: 1300 576 468

ARCHITECT: plus architecture
S223/17 ELIZABETH AVENUE
BROADBEACH, QLD, 4218
PH: 07 3067 3599

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:
11-23
MACARTHUR AVENUE
HAMILTON

DRAWING TITLE:
STORMWATER
TANK PLAN

DRAWING No.	PROJECT No.	REVISION
DA04 -	G23018A	- 01

6/Aug/2025 10:48 AM

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy

Appendix C
Erosion Hazard Assessment

BRISBANE CITY COUNCIL ABN 72 002 765 795

Erosion Hazard Assessment - June 2014

Brisbane City Council (BCC), *Erosion Hazard Assessment* form must be read in conjunction with the *Erosion Hazard Assessment- Supporting Technical Notes* (June 2014 or later version) for explanatory terms and Certification information.

What is an Erosion Hazard Assessment?
Soil erosion and sediment from urban development, particularly during construction activities, is a significant source of sediment pollution in Brisbane's waterways. The Erosion Hazard Assessment determines whether the risk of soil erosion and sediment pollution to the environment is 'low' , 'medium' or 'high'.

When is the EHA required?
An *Erosion Hazard Assessment* form must be completed and lodged with BCC for any Development Application (ie MCU or ROL) that will result in soil disturbance OR Operational Works or Compliance Assessment Application for 'Filling' or Excavation.

Failure to submit this form during lodgement of an application may result in assessment delays or refusal of the application.

Privacy Statement
The personal information collected on this form will be used by Brisbane City Council for the purposes of fulfilling your request and undertaking associated Council functions and services. Your personal information will not be disclosed to any third party without your consent, unless this is required or permitted by law.

Assessment Details

1 Please turn over and complete the erosion hazard assessment.

2 Based on the erosion hazard assessment overleaf, is the site:

☐ ***A 'low' risk site***

Best practice erosion and sediment control (ESC) must be implemented but no erosion and sediment control plans need to be submitted with the development application. Factsheets outlining best practice ESC can be found at http://www.waterbydesign.com.au/factsheets

☒ ***A 'medium' risk site***

If the development is approved, the applicant will need to engage a Registered Professional Engineer (RPEQ) or Certified Professional in Erosion and Sediment Control (CPESC) to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy.

☐ ***A 'high' risk site***

If the development is approved, the applicant will need to engage a RPEQ and CPESC to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy. The plans and program will need to be certified by a CPESC.

3 Site Information and Certification

Application number (if known)

Site address

Lot 703 on SP287531 and 705 on SP287529

Postcode 4007

I certify that:

☒ I have made all relevant enquiries and am satisfied no matters of significance have been withheld from the assessment manager.

☒ I am a person with suitable qualifications and/or experience in erosion and sediment control.

☒ The Erosion Hazard Assessment was completed in accordance with the Erosion Hazard Assessment Supporting Technical Notes and the BCC Infrastructure Design Planning Scheme Policy.

☒ The Erosion Hazard Assessment accurately reflects the site's overall risk of soil erosion and sediment pollution to the environment.

☒ I acknowledge and accept that the BCC, as assessment manager, relies, in good faith, on this certification as part of its development assessment process and the provision of false or misleading information to the BCC constitutes an offence for which BCC may take punitive steps/ action against me/ enforcement action against me.

Certified by *Print name*

Salvatore Cautela

Certifier's signature

Date

06 / 08 / 2025

Assessment Table

Table 1: Low Risk Test

		Yes	*No*
1.1	is the area of land disturbance > 1000 m^2	☒	☐
1.2	does any land disturbance occur in a BCC mapped waterway corridor	☐	☒
1.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 5%	☐	☒
1.4	does any land disturbance occur below 5 m AHD	☒	☐
1.5	does development involve endorsement of a staging plan	☒	☐
1.6	is there an upstream catchment passing through the site > 1 hectare	☐	☒

Have you answered 'yes' to any of the questions in Table 1?	*Yes*	*No*	
	☒	☐	**If '*No*' then site is <u>low risk</u> with respect to erosion and sediment control**

If '*Yes*' then proceed to Table 2

Table 2: Medium Risk Test

		Yes	*No*	
2.1	is the area of land disturbance > 1 hectare	☐	☒	**If '*No*' then site is <u>medium risk</u> with respect to erosion and sediment control**

If '*Yes*' then proceed to Table 3

Table 3: High Risk Test

		Yes	*No*
3.1	is there an upstream catchment passing through the site > 1 hectare	☐	☐
3.2	does any land disturbance occurs in a BCC mapped waterway corridor	☐	☐
3.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 15%	☐	☐

Have you answered 'yes' to any of the questions in Table 3?	*Yes*	*No*	
	☐	☐	**If '*No*' then site is <u>medium risk</u> with respect to erosion and sediment control**

If '*Yes*' then site is <u>high risk</u> with respect to erosion and sediment control

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy

Appendix D
Floodwise Property Reports

FloodWise Property Report

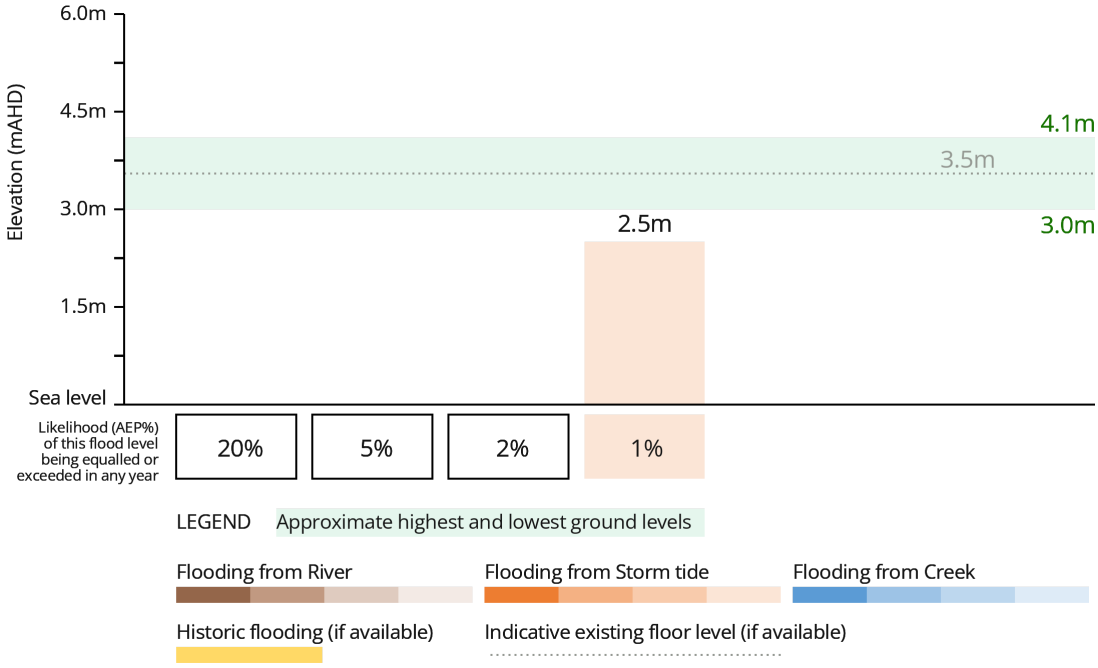
11 MACARTHUR AVE, HAMILTON 4007
Lot 705 on SP287529

Dedicated to a better Brisbane

THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report **provides technical flood planning information** including estimated flood levels, habitable floor level requirements and more. **This report uses the adopted flood planning information in Brisbane City Plan 2014**, that guides how land in Brisbane is used and developed for the future. Find out more about planning and building. To understand how to be **resilient and prepare for floods**, visit Council's Be Prepared webpage. Find more information about how to read a FloodWise Property Report.

Graph showing only the highest source/type of flooding for 1%, 2%, 5% and 20% likelihoods. Also shows historic flood levels. Other flood types and levels may be present and will be listed in the Flood Planning Information table below. This graph does not include overland flow flooding. If applicable, overland flow information is shown in the Planning and Development Information section below.
NOTE: See Useful Definitions section to explain terminology.



Combined 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014.
Read more about Brisbane City Plan 2014.

Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at **brisbane.qld.gov.au/beprepared**
- Visit bom.gov.au for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies **000** Police/fire/ambulance (mobiles **000** and **112**)

State Emergency Service (SES) **132 500**
Energex **13 19 62**
Brisbane City Council **3403 8888**

Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about planning and building in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	3.0	C
Maximum ground level	4.1	C
Indicative existing floor level	3.5	C
Source of highest flooding	Storm tide	

Flood Planning Information

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning and Development Information section below for further information.

Note this table does not include overland flow. If overland flow is applicable to this property, refer to the Flood Planning and Development section below for further information.

Likelihood / Description	Level (mAHD)	Source
20%	N/A	
5%	N/A	
2%	N/A	
1%	2.5	Stormtide (Moreton Bay)
0.2%	N/A	
Minimum Habitable Floor Level (dwelling house)	N/A*	

* Council may not have this data available. Customers are recommended to engage a Registered Professional Engineer of QLD (RPEQ) for further advice. For information on seeking Planning Advice, please visit www.brisbane.qld.gov.au/planning-and-building.

Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in **Council's planning scheme**.

Flood planning areas (FPA)		
River	**Creek / waterway**	**Overland flow**
		Not Applicable

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review **Council's Flood Planning Provisions**.

Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's **planning scheme**.

Coastal hazard overlay sub-categories
Medium storm-tide inundation area

Note: Where land is identified within one for more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

Property development flags
Large allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

Useful Flood Information Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

Defined Flood Level (DFL) - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m/s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

Flood planning area (FPA) - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. **Find more information here**.

Maximum and minimum ground level - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum habitable floor level (dwelling house) - The minimum level in metres AHD at which habitable areas of development (generally induding bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

Indicative existing floor level - The approximate level in metres AHD of the lowest habitable floor in the existing building (exduding apartments). The data is sourced from a range of sources with varying accuracy levels.

Property - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

Residential flood level (RFL) - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit **Brisbane City Council's Flood Information Hub**

Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes indude:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit brisbane.qld.gov.au/planning-building

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Disclaimer

1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disdaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit brisbane.qld.gov.au/planning-building

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.

FloodWise Property Report

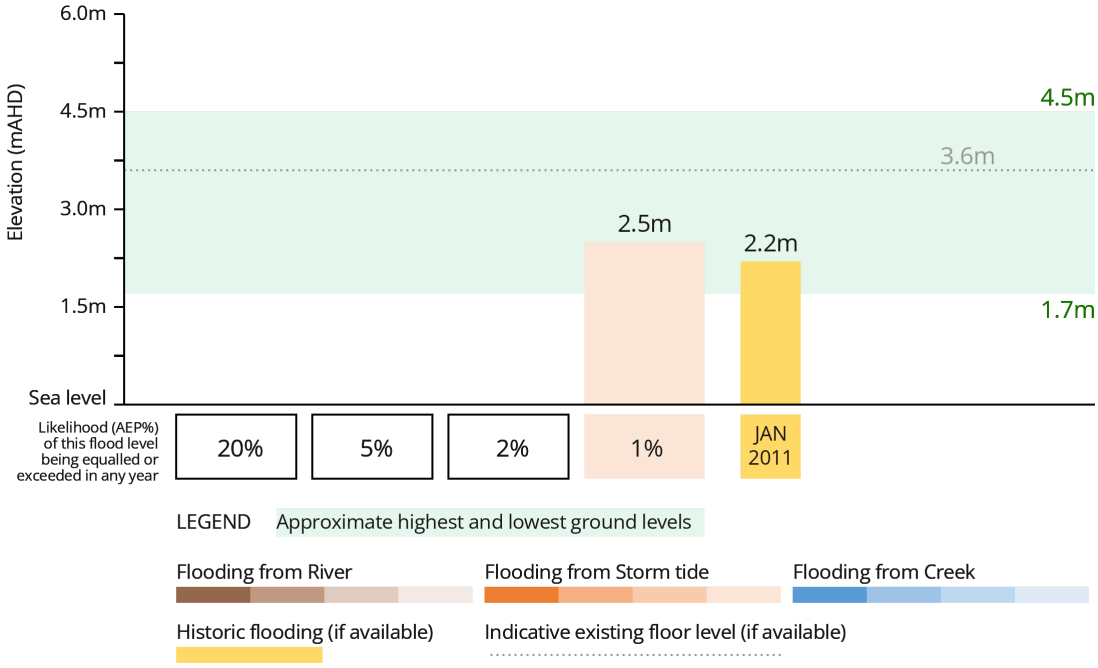
23 MACARTHUR AVE, HAMILTON 4007
Lot 703 on SP287531

Dedicated to a better Brisbane

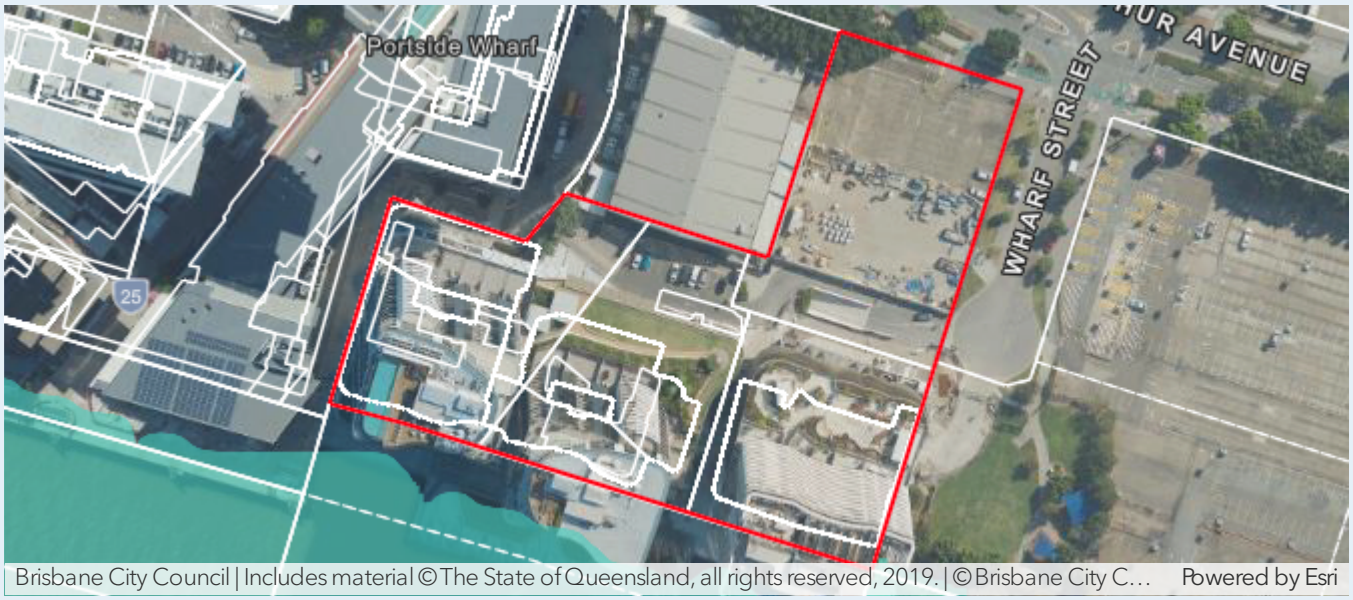
THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report **provides technical flood planning information** including estimated flood levels, habitable floor level requirements and more. **This report uses the adopted flood planning information in Brisbane City Plan 2014**, that guides how land in Brisbane is used and developed for the future. Find out more about planning and building. To understand how to be **resilient and prepare for floods**, visit Council's Be Prepared webpage. Find more information about how to read a FloodWise Property Report.

Graph showing only the highest source/type of flooding for 1%, 2%, 5% and 20% likelihoods. Also shows historic flood levels. Other flood types and levels may be present and will be listed in the Flood Planning Information table below. This graph does not include overland flow flooding. If applicable, overland flow information is shown in the Planning and Development Information section below.
NOTE: See Useful Definitions section to explain terminology.



Combined 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014.
Read more about Brisbane City Plan 2014.



Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at **brisbane.qld.gov.au/beprepared**
- Visit bom.gov.au for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies **000** Police/fire/ambulance (mobiles **000** and **112**)

State Emergency Service (SES) **132 500**
Energex **13 19 62**
Brisbane City Council **3403 8888**

Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about planning and building in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	1.7	C
Maximum ground level	4.5	C
Indicative existing floor level	3.6	C
Source of highest flooding	Storm tide	

Flood Planning Information

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning and Development Information section below for further information.

Note this table does not include overland flow. If overland flow is applicable to this property, refer to the Flood Planning and Development section below for further information.

Likelihood / Description	Level (mAHD)	Source
20%	N/A	
5%	N/A	
2%	N/A	
1%	2.5	Stormtide (Moreton Bay)
0.2%	N/A	
January 2011	2.2	River (Brisbane River)
Defined Flood Level (DFL)	2.1	River (Brisbane River)
Minimum Habitable Floor Level (dwelling house)	N/A*	

* Council may not have this data available. Customers are recommended to engage a Registered Professional Engineer of QLD (RPEQ) for further advice. For information on seeking Planning Advice, please visit www.brisbane.qld.gov.au/planning-and-building.

Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in **Council's planning scheme**.

Flood planning areas (FPA)		
River	**Creek / waterway**	**Overland flow**
		Applicable

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review **Council's Flood Planning Provisions**.

Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's **planning scheme**.

Coastal hazard overlay sub-categories
Erosion prone area - coastal erosion
Medium storm-tide inundation area

Note: Where land is identified within one for more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

Property development flags
Waterway corridor - This property may also be located within a mapped waterway corridor as identified in the Waterway corridors overlay map of Council's planning scheme. Please consider this in conjunction with Council's planning scheme requirements.
Overland flow path - Mapping indicates this property may be located within an overland flow path. Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. It is recommended you consult a Registered Professional Engineer of Queensland (RPEQ) to determine this property's habitable floor level and flooding depth. Please refer to Council's planning scheme for further information.
Large allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

Useful Flood Information Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

Defined Flood Level (DFL) - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m/s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

Flood planning area (FPA) - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. **Find more information here**.

Maximum and minimum ground level - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum habitable floor level (dwelling house) - The minimum level in metres AHD at which habitable areas of development (generally induding bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

Indicative existing floor level - The approximate level in metres AHD of the lowest habitable floor in the existing building (excluding apartments). The data is sourced from a range of sources with varying accuracy levels.

Property - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

Residential flood level (RFL) - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit **Brisbane City Council's Flood Information Hub**

Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes indude:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit brisbane.qld.gov.au/planning-building

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Disclaimer

1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disdaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit brisbane.qld.gov.au/planning-building

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.

MICHAEL BALE & ASSOCIATES
Structural and Civil Engineering Consultancy

Appendix E
Service Advice Notice (SAN)
Urban Utilities Response

Urban Utilities
GPO Box 2765
BRISBANE QLD 4001
Phone: 07 3432 2200
www.urbanutilities.com.au/development

29 June 2023

Ms Chanel Handel
Michael Bale & Associates Pty Ltd
PO Box 1715
Surfers Paradise, QLD 4217

Via Email: chanelh@michaelbale.com.au

Dear Ms Chandel,

Urban Utilities Services Advice Notice

Urban Utilities application number:	23-SAN-65864
Applicant name:	Ms Chanel Handel Michael Bale & Associates Pty Ltd
Street address:	11 Macarthur Avenue, Hamilton
Real Property Description:	Lot 705 SP28729; Lot 703 SP28731

Proposed service connection/alteration/disconnection type:

Drinking water	☑
Non-drinking water/recycled water	☐
Wastewater	☑

Urban Utilities provides this Services Advice Notice in response to the request received on 16.05.2023. In accordance with section 99BRAC(3) of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009,* this Services Advice Notice provides advice about the proposed connection having regard to the connections policy in the Urban Utilities Water Netserv Plan, the charges and conditions that may apply to the connection and other relevant matters about the connection. All terms used in this Services Advice Notice are defined by reference to the Urban Utilities Water Netserv Plan.

Further, infrastructure information may not be verified, and Urban Utilities provides no warranty or assurance that this information is correct. Independent on-location site inspections are recommended to verify the location, condition and size of any infrastructure.

This Services Advice Notice does not constitute an application for connection, is not an approval to connect to the Urban Utilities network(s) and does not bind any future Urban Utilities' decision if the applicant applies for a connection.

Urban Utilities understands that the proposed development will consist of 560 residential units, 142 m^2 of commercial space. As per the request for a Service Advice Notice submitted, a material change of use will be applied for as part of this development. Based on your proposal and discussion with Urban Utilities officers, the following advice is provided:

Urban Utilities Services Advice

Infrastructure and Design

The project site is within the Northshore Hamilton Priority Development Area (PDA). Development applications for priority development areas are assessed by Economic Development Queensland (EDQ).

The infrastructure funding framework within each PDA is also prescribed and managed by EDQ under an Infrastructure Charges Offset Plan (ICOP). The developer should review the current ICOP and development scheme to understand the broader infrastructure obligations specific to this site.

Water

Urban Utilities GIS mapping suggests that the existing properties are serviced via 100mm connection into 150mm cast iron water main in the adjacent verge at the north-western corner of the subject site.

Figure 1 below provides a spatial presentation of the existing water supply and wastewater network within the immediate proximity of the subject site.

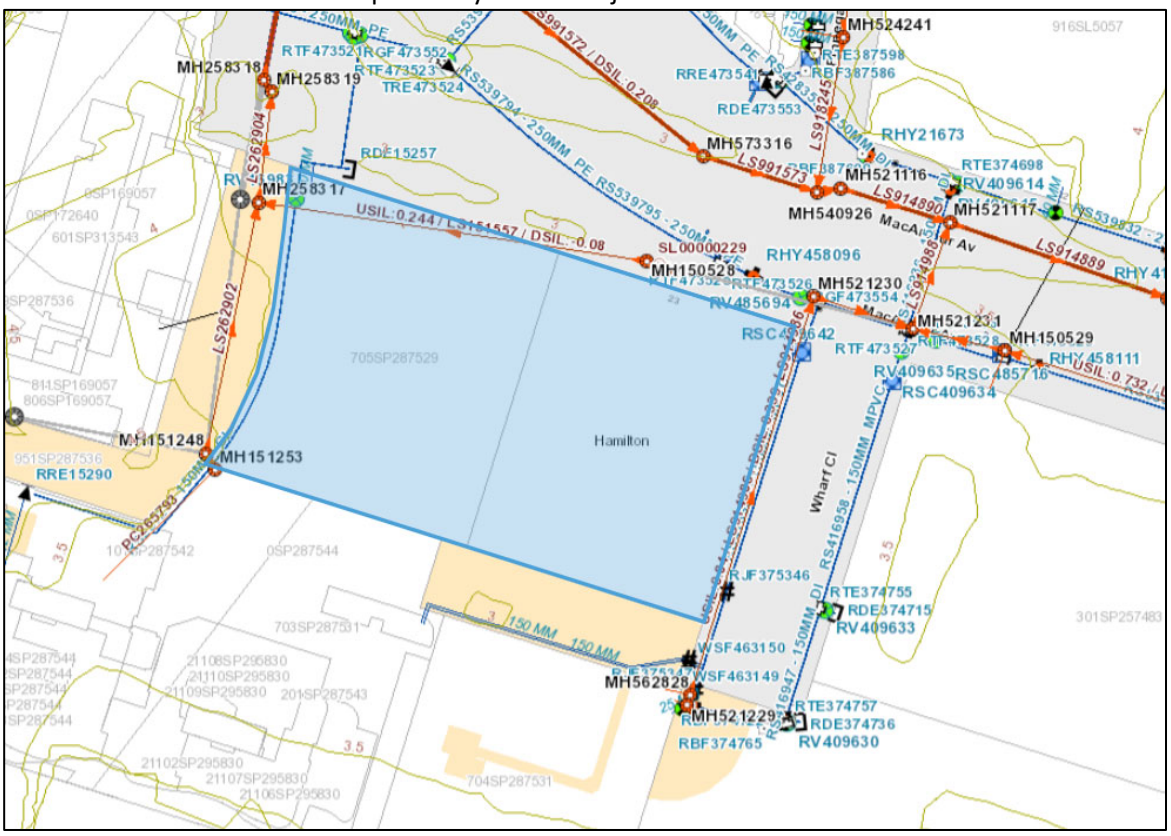


Figure 1: Existing infrastructure within the vicinity of the subject site

The applicant has not advised the location of the future water service for the proposed development. Urban Utilities can advise the water service (i.e the pipework up to the boundary) must be located within public road reserve.

In relation to the proposal the relocate the existing 150mm CI running along the site's western boundary into the adjacent lane/car parking area:

- Urban Utilities GIS mapping provides indication of assets' location, not their exact location. The exact location needs to be verified onsite via potholing

- The adjacent lane/car parking area is a private property encumbered with an easement. Negotiations with the property's and the easement's owners will have to be held to allow for the relocation works
- Comprehensive information about the current and proposed alignments needs to be provided in order to determine whether the proposal is acceptable

The water meter design and arrangement must meet URBAN UTILITIES's contemporary requirements, and all redundant water services must be sealed at the main.

Please refer to ***Urban Utilities Metering Guidelines*** and ***Standard Water Meter Arrangement Drawings*** for detailed guidance.

Wastewater

Urban Utilities GIS mapping suggests that the existing facility is serviced via:

- 150mm property connection into 225mm unreinforced concrete sewer main traversing the subject site through its north-western corner
- DN160mm PE property connection into DN250 PE sewer main in Wharf Close

It has been proposed to remove the said 225mm sewer main within the site and convert the section immediately upstream of the manhole MH258317 into the property connection for the proposed development.

Urban Utilities does not object to the proposed wastewater service arrangement, provided an investigation is undertaken to confirm absence of any upstream connections.

Note that the water/wastewater infrastructure required for the proposed development is to be provided in accordance with URBAN UTILITIES requirements, including but not limited to the *SEQ Water Supply and Sewerage Design and Construction Code* (SEQ WS&S D&C Code, 2013), or current equivalent.

Network Demand and Capacity

Water

An assessment of the water supply available at the site, including computational hydraulic modelling of the network under peak demand and fire flow conditions, has been completed.

The analysis assumes a Peak Hour Demand of 8.31 L/s (corresponding to 1065 EP of the proposed development).

The assessment indicates that the existing water supply has sufficient capacity to service the proposed development in accordance with the *SEQ Water Supply and Sewerage Design and Construction Code, 2013 (SEQ WS&S D&C Code).*

Indicative flow and pressure advice for the existing mains in Macarthur Ave is provided in Table 1, below.

Table 1: Indicative Flow and Pressure Advice

Assumed Connection Main	Estimated RL Connection (m AHD)	Hydraulic Grade Line (m AHD)			Pressure (kPa) [1]		
		0 L/s	10 L/s	20 L/s	0 L/s	10 L/s	20 L/s
150mm (cast iron) constructed in 1970	3.2	72.2	71.2	70.2	677	667	657

250mm PE constructed in 2020	3.3	71.3	71.3	70.3	667	667	657

Notes:

[1] Modelled pressure in supply main, relative to the estimated connection RL (m AHD).

[2] Designers are required to adjust the Hydraulic Grade Line/Pressure model results for site/building RL differences and calculate the extra hydraulic losses from point of connection with the main.

[3] Field performance of cast iron spun (or cement) lined mains can be variable. Field testing to ascertain actual pressure drops may be advisable.

[4] Indicative flow and pressure results assume a background demand of 2/3 Peak Hour has been applied throughout the network.

Disclaimer

Information provided by Urban Utilities is based on hydraulic modelling ("Hydraulic Modelling Information"). Model results are for the anticipated performance. ***The Hydraulic Modelling Information has not been verified by field measurements and may be inaccurate due to field conditions.***

As such, users relying on Hydraulic Modelling Information do so at their own risk and should make their own independent investigations to verify model outputs.

The Hydraulic Modelling Information does not state nor imply a guaranteed level of service. Designers are referred to Urban Utilities' Customer Charter and Customer Service Standards for facility hydraulic service considerations. ***Urban Utilities does not provide a service of minimum flows and pressures to private fire-fighting systems.***

Due to changing operational circumstances, pressure and flows delivered to a service may vary. Designers are advised to make adequate provisions within the fire system installation for the pressure, flow and reliability requirements, for the life of the system.

Designs incorporating flows above the maximum rates specified will have a detrimental impact on other properties in the area and are not supported by Urban Utilities.

Wastewater

A hydraulic assessment of the sewerage network servicing the site under peak wet weather flow conditions has been completed.

The analysis assumes a Peak Wet Weather Flow from the development of 12.94 L/s (corresponding to 1065 EP of the proposed development).

The assessment indicates that the existing wastewater network downstream of the subject site has sufficient capacity to service the proposed development.

As per standard advice, Urban Utilities recommends that the minimum fitting levels within the development be 500mm above the surface level of the downstream manholes.

Land and Easements

Sewer Main in Private Properties

Please refer to following link for easement requirements at:
https://urbanutilities.com.au/development/our-services/easements

Water Main in Private Properties

Please refer to table 5.2 and clause 5.4.4 of *SEQ WS&S D&C Code* for easement requirements.

Infrastructure Charges (as at 1 July 2022)

Infrastructure Charges will be levied in accordance with the Urban Utilities' Water Netserv Plan (Part A) Charges Schedule applicable at the time the water approval application is lodged.

Further information is available at:
www.urbanutilities.com.au/development/help-and-advice/water-netserv-plan

Trade Waste

The **proposed development** (the subject of this Services Advice Notice) has been identified as a potential generator of Trade Waste. Trade Waste is water-borne waste from business, trade or manufacturing premises excluding domestic sewerage, stormwater, and prohibited substances. It is an offence under section 193(1) of the ***Water Supply (Safety and Reliability) Act 2008*** to discharge trade waste into Urban Utilities' infrastructure without a Trade Waste Approval.

To obtain a Trade Waste Approval, the proponent for the proposed development must apply to Urban Utilities, who will assess and decide the application. Any Trade Waste Approval granted by Urban Utilities will be subject to Trade Waste Approval conditions and the Urban Utilities Trade Waste Environmental Management Plan (**TWEMP**).

The TWEMP and an online application form are available on the Urban Utilities website:

www.urbanutilities.com.au/business/business-services/trade-waste

For advice on the suitability of waste for discharge to sewer, and likely Trade Waste Approval conditions, you may contact Urban Utilities on **13 26 57**.

Proposed trade waste drainage solutions will be assessed for compliance with plumbing and drainage regulations and the requirements of the TWEMP at the time of plumbing compliance assessment. Proposed trade waste solutions that do not meet the requirements in the TWEMP and plumbing and drainage regulations may result in delays to the plumbing compliance process and the issue of a Trade Waste Approval.

Further information is available at the following website:
www.urbanutilities.com.au/business/business-services/trade-waste

Connection Application Process

A formal assessment as to whether your application qualifies as a Standard Connection, Minor Works Approval, or Major Works Approval will be resolved on application for a Water Approval. For the purposes of preliminary advice, and based on the information provided, it is expected that the following applications will be required to assess the ability to connect to Urban Utilities networks:

Minor Works (Wastewater)

1. **Network and/or Property Service Connection – Non-Standard Connection (Minor Works)**

The Water Approval will require connection works to be undertaken. These works are expected to be available under the Endorsed Consultant Certification Scheme for Non-Standard Connection (Minor Works). You will be able to choose a Urban Utilities Endorsed Consultant and a contractor to appoint to design and construct the works, including live works in most cases (Network Access Permit -NAP required)) and then maintain the works for a specified period (usually 12 months) in accordance with the conditions stated in your Water Approval (including compliance with the *SEQ WS&S D&C Code*). Further information regarding the Endorsed Consultant Certification Scheme for Minor Works is available at: **www. urbanutilities.com.au/development**

Major Works (Water)

1. **Network and/or Property Service Connection – Non-Standard Connection (Major Works)**

The Water Approval will require connection works to be undertaken. You will be able to choose which consultants and contractors to appoint to design and construct the works, including live works (in most cases) and then maintain the works for a specified period (usually 12 months) in accordance with the conditions stated in your Water Approval.

Please note that the information provided within this section is subject to the specific aspects of the development and water application.

Fees and Charges

Urban Utilities fees and charges are stated in the Urban Utilities' Water Netserv Plan (Part A) Charges Schedule. The fees and charges that are likely to be associated with these applications are outlined below:

1. Application Phase – per service

Base Application Fee – Network (1 to 10 lots)

2. Design, Construction and Maintenance Phases

Non Standard Connection (Minor Works) – per service
Audit and Compliance Fee – Minor Works

Non Standard Connection (Major Works)- per service
Audit and Compliance Fee – Major Works

Non Standard Connection (Design Approval Fee) – Reticulation per service

Property Service Connection
Network Connection (1 to 10 lots)

Re-checking Amended Plans Fee

Re-checking Amended Plans Fee (per plan page, technical report or other document)
Non Standard Connection (Inspection)

Works Inspection Fee – Reticulation per inspection

Works Inspection Fee - Reticulation
Works Re-inspection Fee - Reticulation

Notes:

1. The customer may incur additional fees and charges during the approval and works phase, including but not limited to, fees levied by the RPEQ and construction contractor, fees associated with the provision of maintenance/uncompleted works bond(s), re-checking amended plans fees, re-inspection of works fees and infrastructure agreement preparation fees;
2. Reticulation comprises infrastructure with a diameter of 300mm and below and complex assets comprise treatment, storage, pump facilities and infrastructure with a diameter greater than 300mm.
3. The above estimates are indicative only and are subject to review of the detailed application upon lodgement; and
4. Please refer to the Urban Utilities Water Netserv Plan and Developer Customer Price List at www.urbanutilities.com.au/development

Time Frames for Assessment

Non-Standard Connection Assessments (for applications other than Standard Connection)

To be completed within 20 business days of receipt of a properly made application (including payment of the relevant assessment fee), or within a further 20 business days of receipt of requested information (unless extended by agreement).

Design Phase
For Minor Works (Sewer)
Typically, for an application which is classified as **minor works**, no assessment of the design phase is expected to be required from Urban Utilities.

However, Urban Utilities may audit a selection of certified designs based on its assessment of the risk of non-compliance

For Major Works (Water)
Typically for an application classified as **major works**, the assessment of the design phase is to be completed within 20 business days of receipt of all designs.

Other Guidance

Urban Utilities network is protected by the Development Code MP1.4 Building Over or Near Infrastructure (QDC MP1.4). Please confirm with your Building Certifier/RPEQ Engineer whether a Build Over Asset application (BOA) is required.

Further information regarding the BOA/COA requirements is available at:
https://urbanutilities.com.au/development/our-services/build-or-construction-over-or-nearpipes-or-easements

This Services Advice Notice is current for a period of twelve (12) months from the date of issue. Should you wish to proceed with applying for a service connection please lodge your application via Urban Utilities Developer Applications Portal at **www.urbanutilities.com.au/development**. Please include your Services Advice Notice reference number in your application.

If you have any questions in relation to this Services Advice Notice, please do not hesitate to contact your account manager, Gleb Spivak on 07 3855 6211 or gleb.spivak@urbanutilities.com.au.

Alternatively, please email DevelopmentEnquiries@urbanutilities.com.au.

Yours sincerely,

Nghiep Nguyen
Senior Engineer
Urban Utilities