

Level 7

# **Engineering Assessment Report**

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**MANAGERS** 

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DEVELOPMENT CONSULTANTS

12 Hercules Street, Hamilton QLD

**Prepared for: Leighton Properties** 

Project no: BR210689

Issue no: Rev 1











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#### **REVISIONS**

Revision	Date	Purpose	Prepared By	Approved By
DRAFT	04/04/2022	For Comments/Coordination	Alexander Tornatore	Roshan Khadka
Rev 1	07/04/2022	For Approval	Alexander Tornatore	Roshan Khadka

Review Panel		
Division/Office	Revision	Name
Civil / Brisbane, QLD	Rev 1	Roshan Khadka

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#### 1 Introduction

#### 1.1 Background

ACOR Consultants (QLD) Pty. Ltd. were engaged by Leighton Properties (Client) to prepare an Engineering Assessment Report (Report) for the proposed commercial office building located at 12 Hercules Street, Hamilton, QLD 4007 (Site).

#### 2 Scope

The following items will be addressed in this report;

- Comments on services (sewer, water supply, electricity, and telecommunication) for the development
- Lawful point of discharge for the development
- Proposed concept stormwater quantity management plan for the Site.
- Proposed concept stormwater quality management plan for the Site.

#### 3 Criteria

This report has been compiled based on:

- Existing site survey prepared by Bennett + Bennett (Surveyor) as of 23/03/2022
- Proposed development plans for the Site prepared by COX (Architect)
- Discussions with the Client and the consultant team
- Information obtained from Council's online mapping system



#### 4 Site Characteristics

#### 4.1 Location and Description

The proposed development is located at 12 Hercules Street, Hamilton, QLD 4007 over the lot described as Lot 2 on SP294952 (Site).

The Site has a total parcel area of approximately 0.234 hectares.

The Site is fronted by Kingsford Smith Drive along its northern boundary, Northshore Way along its eastern boundary and Hercules Street along its southern boundary. The adjoining the properties to the west are primarily commercial (office space) and residential buildings, and the property to the east across Northshore Way is a park area. The surrounding lots towards the south are also commercial buildings.



Figure 1 - Site Location

Source: ©NearMaps 2021



#### 4.2 Watercourses and Topography

The Site levels range between approximately 5.57m (Northern Site - Kinsford Smith Drive Batters) AHD and 3.0m AHD and, generally, falls towards South (Hercules Street).

The Brisbane River is approximately 180m away from the Site towards south-west.

Refer to Appendix A - for detailed survey of the Site.

#### 4.3 Existing Land Use and Proposed Development

The Site is currently being used as a car parking area.

The proposed development consists of a commercial office building with 11 office levels, atop 3 carparking levels, atop ground level lobby and a single carparking basement.

Refer to **Appendix B** - for the proposed Development Plans.



#### 5 Preliminary Engineering Assessment

#### 5.1 Water Reticulation

#### 5.1.1 Existing Infrastructure

Based on Dial Before You Dig (DBYD) search results and information obtained from Urban Utilities' online mapping system, there is an existing 150mm diameter water main within Hercules Street along the Site frontage.

Refer to Appendix E- for water information obtained from DYBD search results.

#### 5.1.2 Proposed Design

The proposed development is expected to be serviced by the existing infrastructure near the Site via a new water property connection. An application will be lodged with Urban Utilities to confirm the required connection details during detailed design phase.

Refer to Appendix C- for preliminary civil sketches.

#### 5.2 Sewer Reticulation

#### 5.2.1 Existing Infrastructure

Based on DYBD search results and information obtained from Urban Utilities' online mapping system, there is an existing 225mm diameter sewer main (concrete un-reinforced) within Hercules Street verge along the site frontage. The existing sewer connection prevalent near the Site does not extend to service the Site.

Refer to **Appendix E** - for sewer information obtained from DYBD search results.

#### 5.2.2 Proposed Design

The proposed development is expected to be serviced by the existing infrastructure near the Site via a new sewer road-crossing property connection. An application will be lodged with the Urban Utilities to confirm the required connection details during detailed design phase.

Refer to **Appendix C** - for preliminary civil sketches.

#### 5.3 Gas, Telecommunications & Electrical

Based on DBYD search carried out near the Site, there is existing gas, telecommunications and electrical infrastructure within Kingsford Smith Drive and Hercules Street road reserve along the Site frontages.

The existing infrastructure near the Site is expected to be extended to service the development. Capacity and suitability of existing infrastructure to service the development will need to be confirmed by suitably qualified engineers.

Refer to **Appendix E -** for DYBD search results.



#### 5.4 Earthworks and Retaining Walls

The proposed basement level as per the proposed development plans is 1mAHD. Therefore, the earthworks for the Site is expected to be excess in cut.

Refer to **Appendix A** – for detailed Site Survey and **Appendix B** for the proposed development plans.

Further details and drawings regarding basement excavation and required retaining walls design will be confirmed during detailed design by suitably qualified geotechnical and structural engineers after a detailed geotechnical assessment has been undertaken for the Site.

The proposed building foundations are anticipated to be constructed using pier-and-panel methodologies to avoid the use of soil anchors across the boundary. The final details of the basement retention wall system will be by a D&C contractor.

Refer to **Appendix F** - for concept Basement Retention Plans.

#### 5.5 Site Access

Access into the Site is proposed off Hercules Street. The access is proposed to be a shared access with the adjoining development along the western boundary.

Separate vehicular access into carparking areas and loading dock areas are proposed.

Refer to **Appendix B** – for the proposed development plans



#### 5.6 Stormwater Quantity Management

#### 5.6.1 Existing Stormwater Infrastructure

Run-off from the Site discharges to Hercules Street. There is an existing stormwater infrastructure pit and pipe network within the Hercules Street road reserve.

There is also an existing 1200mm diameter trunk stormwater drainage line within the Site along the western boundary. This line runs towards south and east. There is also an easement over this stormwater line.

Build over stormwater infrastructure and build over easement approvals are expected to be lodged for the lots effected and will be generally in accordance with EDQ development approval conditions.

Both stormwater lines eventually discharge into Brisbane River.

Refer to **Appendix A** - for detailed survey of the Site.

Refer to **Appendix F** - for concept build over stormwater strategy.

#### 5.6.2 Lawful Point of Discharge

The existing stormwater infrastructure within Hercules Street road reserve is considered as the lawful point of discharge for the development.

#### 5.6.3 Proposed design

The Site already has general fall towards Hercules Street. An internal underground drainage system is proposed capture and convey post development flows and discharge to the existing gully inlet pit within Hercules Street.

#### 5.6.3.1 Peak Flows

Pre- and post-development catchment parameters to be used in the hydrology calculations have been determined based on existing detailed survey data, aerial image of the site, information provided to us about the proposed development and methods outlined in QUDM.

Times of concentrations have been calculated based on survey contours and methods outlined in QUDM.

Aerial image and detailed survey of the site has been used to calculate the pre-development fraction impervious. Proposed site layout plans have been used to calculate the post-development fraction impervious for the Site.

Table 1 below, provides a summary of the pre- and post-development catchment characteristics used in the Rational Method calculations.

 Catchment
 Area
 F.I.
 Tc(min)

 Pre-development
 0.2340 ha
 59.6%
 5

 Post-development
 0.2340 ha
 95.7%
 5

Table 1 – Pre-Development Parameters

Hydrological analysis has been undertaken using the Rational Method from QUDM 2017 to estimate the peak flow rates from the site. The following table summarises the peak flows from the Site.



Table 2 - Comparison of Pre- and Post-Development Peak Flow Rates

Catchment Name	Design Disc	harge (m³/s)					
Name	<b>Q1</b> (63% AEP)	<b>Q2</b> (50% AEP)	<b>Q5</b> (20% AEP)	<b>Q10</b> (10% AEP)	<b>Q20</b> (5% AEP)	<b>Q50</b> (2% AEP)	<b>Q100</b> (1% AEP)
Pre- Development	0.049	0.067	0.094	0.111	0.134	0.171	0.198
Post- Development	0.055	0.075	0.105	0.124	0.149	0.187	0.207
Increase	0.006	0.008	0.011	0.013	0.015	0.015	0.009
increase	+12%	+12%	+12%	+12%	+12%	+9%	+4%

In accordance with Brisbane City Council's planning scheme section 7.5.2 Chapter 7, we consider that no onsite detention system is required for the development due to the following conditions:

- We consider the increase in post-development peak flow rates off the site to be negligible.
- The Site is situated within the bottom one-third of the Brisbane River catchment
- Increased flows from the development are not expected cause adverse flooding impacts to nearing properties, and existing infrastructure is expected to be maintained.
- Hercules Street is already inundated by 1% AEP Brisbane River flooding.
- The Site has an existing fraction impervious of approximately 60%.

Refer to **Appendix C** - for preliminary civil sketches.



#### 5.7 Stormwater Quality Management

#### 5.7.1 Operational Phase

The proposed development is required to meet or exceed the stormwater management design objectives under the State Planning Policy (SPP) and Council's planning scheme and guidelines.

These assessment benchmarks are outlined below in Table 1.

**Table 3 - Water Quality Objectives** 

SPP Assessment Benchmarks – Water Quality	Yes/No
Material change of use for urban purposes that involves a land area greater than 2500m² that:	No
Will result in an impervious area greater than 25% of the net developable area	
b) Will result in 6 or more dwellings	
Reconfiguring a lot for urban purposes that involves a land area greater than 2500m2 and will result in six or more lots:	No
Operational works for urban purposes that involve disturbing more than 2500m <sup>2</sup> of land	No

The proposed development does not trigger the requirements under the State Planning Policy or Council's Planning Scheme Policy for the post-construction (operational phase) stormwater management design objectives.

#### 5.7.2 Construction Phase

The following list summarises the minimum objectives required to be met during construction phase.

- Control measures to be put in place to protect downstream properties from nuisance flows.
- Maximum of 50mg/L of total suspended solids present in run-off discharged from the site during the construction stage, and a pH between 6.5 and 8.5
- Provide adequate erosion and sediment control measures

It will be the responsibility of the contractor to put in place the required erosion and sediment control measures on site until all disturbed areas are reinstated including maintenance of such measures.

The contractor is, at all times, responsible for the erosion and sediment control measures on-Site and to be in compliance with all relevant standards and legislations.



#### 5.8 Flooding

The Site is within Council's Brisbane River Flood Planning Area (FPA) and Coastal Hazard Overlay area for flooding.

According to the Council's FloodWise Property Report for the Site, the following table summarises the applicable flood levels for the Site:

**Table 4 Flood Level Summary** 

Description	Level (mAHD)	Source
20% AEP	1.9	Stormtide
5% AEP	2.1	Stormtide
2% AEP	2.2	Stormtide
1% AEP	2.5	Stormtide
1% AEP	2.2	Brisbane River
RFL	2.2	Brisbane River
DFL	2.5	Stormtide

The proposed development contains both class 5 and 6 BCA Building classifications on ground floor. In accordance with Brisbane City Council's Planning Scheme Policy table 8.2.6.3C and table 8.2.6.3D (Coastal Hazard Overlay Code), the minimum design levels for the development will be as follows:

**Table 5 Development Type Design Levels** 

Development Type	Flood Planning Level Criteria	Flood Planning Level	Source
Building Floor Level	Category C	3.1m AHD (1% AEP at 2100)	Stormtide
Vehicular Access and Manoeuvring Area	Category D	2.2m AHD (2% AEP level)	Stormtide
Basement Parking Entry	Category C	3.1m AHD (1% AEP at 2100)	Stormtide
Essential Electrical Equipment	Category A	3.6m AHD (1% AEP at 2100 + 0.5m)	Stormtide

In accordance with Brisbane City Council's Planning Scheme Policy table 8.2.11.3.K (Flood Hazard Overlay Code and Table 8.2.6.3.I (Coastal Hazard Overlay Code), the minimum flood planning levels for the development's driveway crossovers and access are as follows:



#### **Table 6 Road Access Design-Levels**

Road Name	Flood Planning Level Criteria	Flood Planning Level	Source
Hercules Street	Neighbourhood Road	2.2m AHD (2% AEP)	Storm Tide
Kingsford Smith Drive	Arterial Road	2.2m AHD (2% AEP)	Storm Tide

Refer to **Appendix D-** for Council's FloodWise Property Report.



#### 6 Conclusion

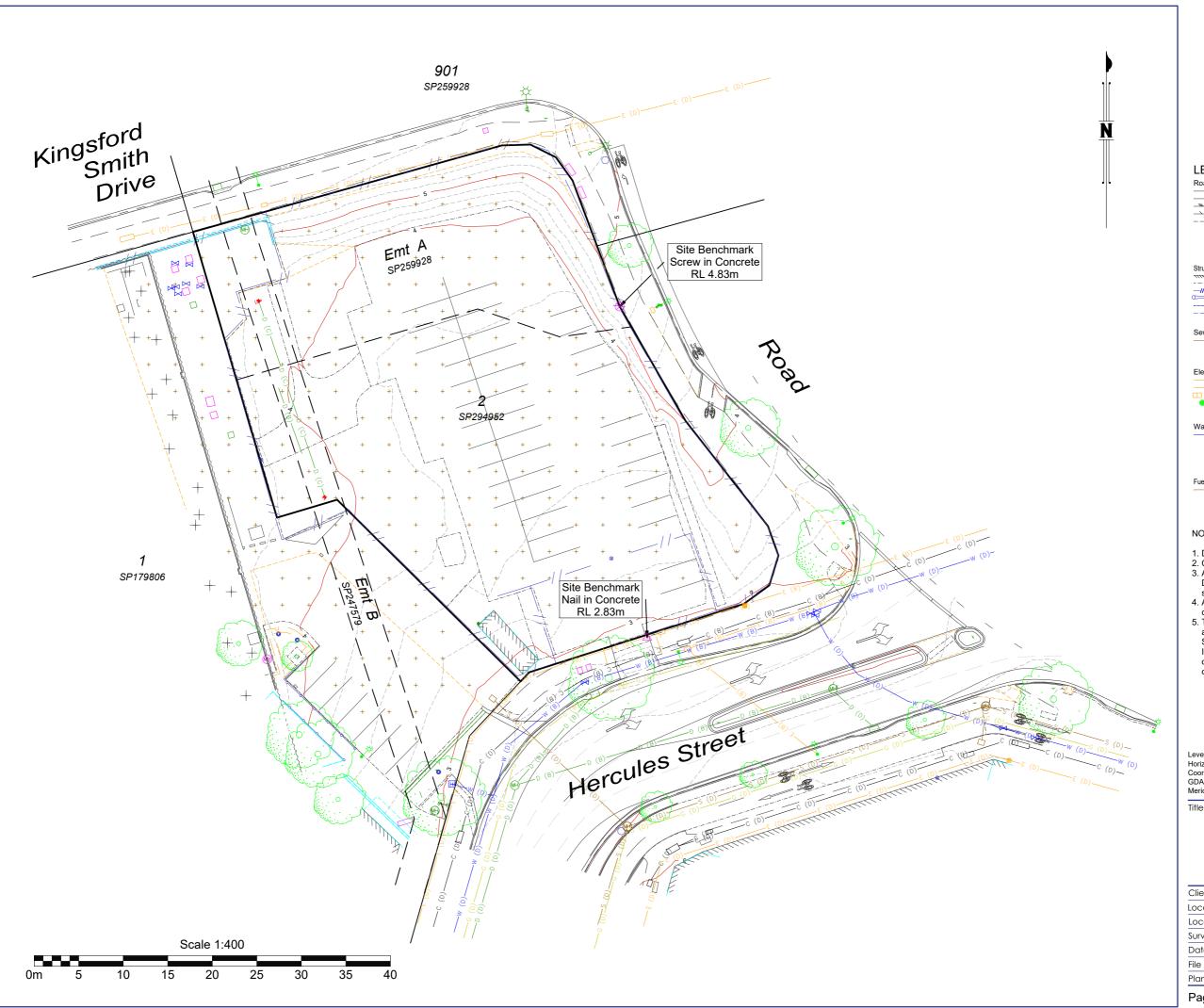
The following list summarises the preliminary engineering assessment undertaken for the development:

- The existing stormwater infrastructure within the Hercules Street Road reserve along the Site frontage is the lawful point of discharge for the development. No on-site detention system is proposed for the site. Operational phase water quality objectives specified in the SPP are not applicable for the Site.
- Minimum floor planning levels, as per Council's planning scheme policies, for the development have been identified. The proposed development levels are at or higher than the required minimum flood planning levels.
- The earthworks for the Site is expected to be excess in cut. Further details and drawings regarding basement excavation and required retaining walls design will be confirmed during detailed design.
- Access for the Site is proposed to be off Hercules Street. The access will be a shared access arrangement with the adjoining development along the western property boundary.
- There is sewer, water, electrical and telecommunications infrastructure within or near the Site. The existing infrastructure is expected to be extended to service the development. Capacity and suitability of existing infrastructure to service the development is expected to be assessed by suitably qualified engineers during detailed design.

Refer to **Appendix E** - for the preliminary civil sketches for the development.



## **Appendix A - Site Survey Plan**





PO Box 5021, GCMC QLD 9726 Ph: (07) 5631 8000 mail@bennettandbennett.com.au

Surveying, Town Planning & Spatial Services. GOLD COAST | BRISBANE | SUNSHINE COAST | IPSWICH

www.bennettandbennett.com.au

#### LEGEND:

Road		Terrain	
	Kerb Back		Driveway
	Kerb Invert		Footpath
	Edge of Bitumen		Slab Edge
$\rightarrow$	Edge of Gravel		Retaining Wall Base
	Road Crown		Retaining Wall Top
<b>♦</b>	Traffic Park Meter		Change of Grade
Ø	Traffic Light		Top of Bank
	Traffic Pit		Toe of Bank
-	Traffic Sign		Waterline
	Traffic Post Box		Garden Edge
Structures	D 1111 111		Creek Toe of Bank
<i></i>	Building Line		Creek Top of Bank Creek Invert
-////-	Roof Ridgeline		Creek Waterline
	Fence Line Gate	<b>6</b>	Tree
	Hand Rail		Tree Canopy
	Cattle Grid	Α ο	Control Point/PSM
0	Bollard		CONTROL FORTING SIN
Sewer		Drainage	Duningua lina
— \$(*)—	Sewer Line		Drainage line Open Drain
—ş(*)—	Valve	(MH)	Manhole
0	Inspection Opening		Field Inlet
(MH)	Manhole	-	Downpipe
Electrical	Mannoic	Communica	
— E(*)—	Electricity Line	— C(*)—	
——EOH——	Overhead Line		Overhead Line
	Pits/Manholes		Pits/Manholes
• • • • • • • • • • • • • • • • • • •	Pole	<b>-</b> ⊚	Pillar
•\$	Street Light	Gas	
.⇔ `	Light In-Ground	— G(*)—	Gas Line
Water	· ·	$\bowtie$	Valve
W(*)	Water Line	-	Marker
	Meter		
$\bowtie$	Valve		
H	Fire Hydrant		
Ø	Тар	Subsurface U	tility -QL
*	Sprinkler	*(A)	* Quality A (H±50mm,V±
Fuel		* (B)	* Quality B (H±300mm.)
P(*)	Fuel Line	*(C)	* Quality C (H±300mm,2
+	Fitting	— *(D) —	* Quality D (Exist Record

#### NOTES:

- Drawn to scale on an A3 sheet.
   Contour Interval... 0.25m
- All levels are in metres on the Australian Height Datum referred to PM7639 RL 5.614 AHD situated in Hants St, Hamilton.
   All Boundaries are vide title and subject to
- confirmation by survey.
- The Location of Underground services are in accordance with AS5488:2019, the Australian Standard for classification of Subsurface Utility Information (SUI). The exact nature and location of these services should be confirmed prior to

Level datum: AHD Derived (PM7639) Level datum: AFID Derived (PM7639)
Horiz datum: MGA Derived GNSS (PM7639)
Coord Origin: GNSS (9000NC)
GDA System: GDA2020 Coordinate System: Plane 1:1
Meridian: + 0°02'36" SP294952

### **VERIFICATION PLOT**

Lot 2 on SP294952 12 Hercules Street, Hamilton

Client:	Leighton Pro	perties	
Locality:	Hamilton		
Local Gov:	Brisbane City	Council	
Surveyed By:	GO	Approved:	CS
Date Created:	23/03/22	Scale:	1:400
File Ref:			220204
Plan No:	22020	4_001_VER   F	Rev: A



## **Appendix B - Proposed Development Plans**

## KINGSFORD SMITH DRIVE



CO

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HAMILTON HARBOUR KSD2
CRN KINGSFORD SMITH DRIVE &
NORTHSHORE WAY

1:500 @ A1

Date:

12/14/21

Revision:

10

Drawing Number:

DA-01



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Project

HAMILTON HARBOUR 
KSD2

CRN KINGSFORD SMITH DRIVE &

NORTHSHORE WAY

Drawing Title

Scale:

Pate:

Revision:

N HARBOUR 
KSD2
Date:

D SMITH DRIVE &
RTHSHORE WAY

BASEMENT

Drawing Number:

DA-02



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CRN KINGSFORD SMITH DRIVE & NORTHSHORE WAY

Drawing Title

GROUND FLOOR

12/14/21

DA-03

11



CO

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HAMILTON HARBOUR KSD2
CRN KINGSFORD SMITH DRIVE &
NORTHSHORE WAY

Drawing Title
PODIUM CARPARK P1 TO
P3

1:125 @ A1

Date:

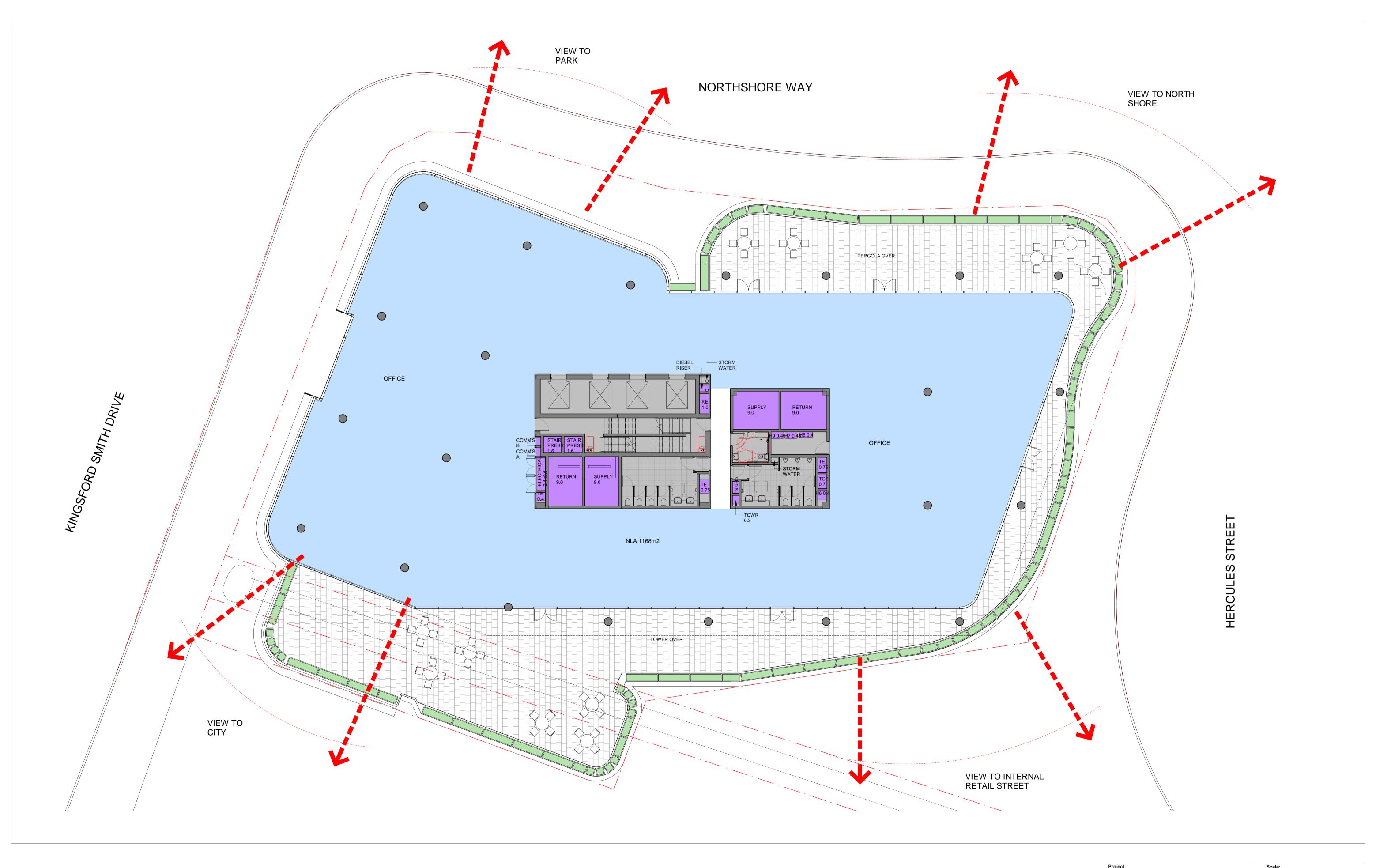
12/14/21

Revision:

12

Drawing Number:

DA-04



CO

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HAMILTON HARBOUR KSD2
CRN KINGSFORD SMITH DRIVE &
NORTHSHORE WAY

Drawing Title
PODIUM OFFICE LEVEL 4

Scale:

1:125 @ A1

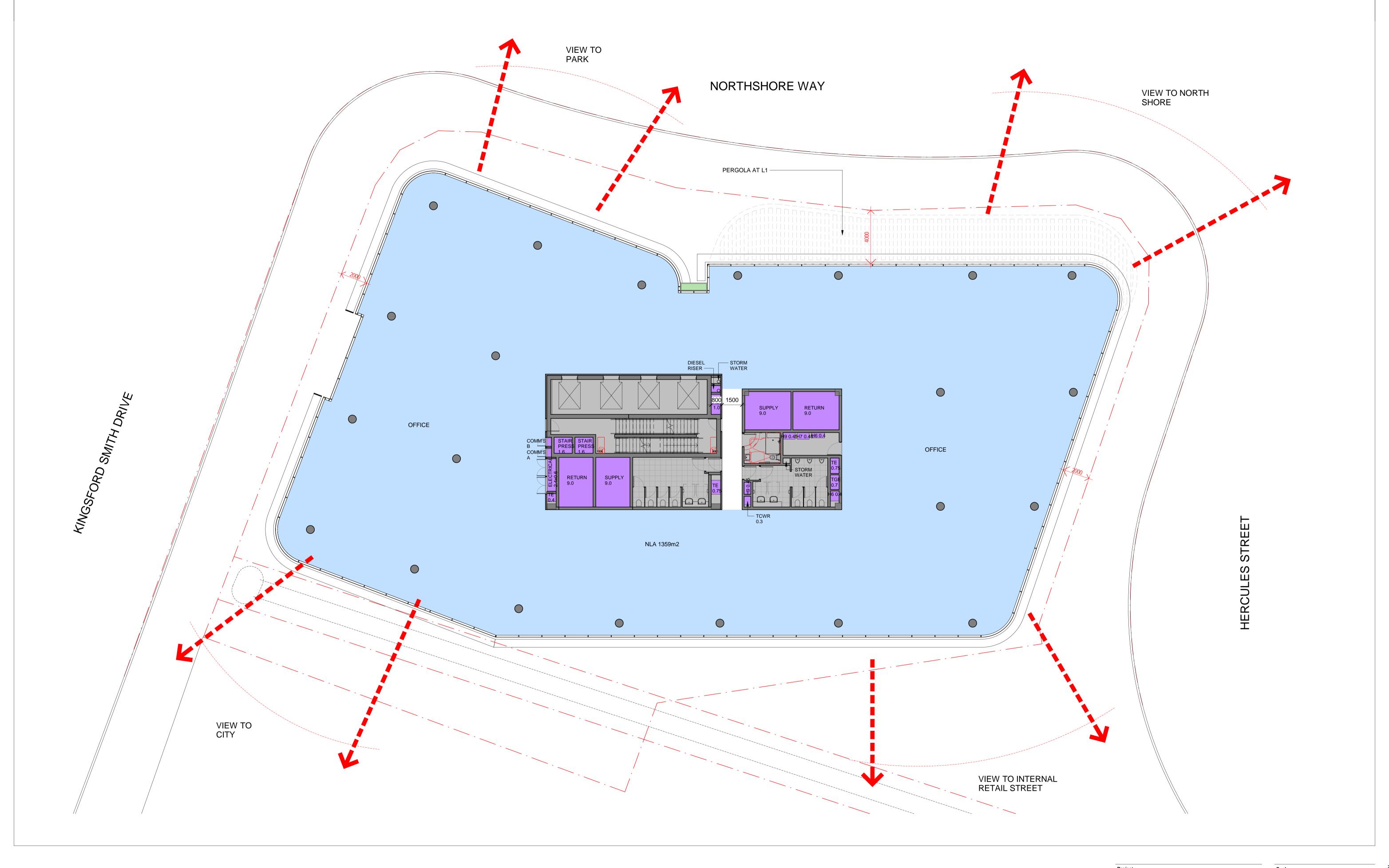
Date:

12/14/21

Revision:

12

Drawing Number:







HAMILTON HARBOUR KSD2
CRN KINGSFORD SMITH DRIVE &
NORTHSHORE WAY

Drawing Title

TOWER LEVEL 1 TO 8

Scale:

1:125 @ A1

Date:

12/14/21

Revision:

12

Drawing Number:

DA-06



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HAMILTON HARBOUR 
KSD2

CRN KINGSFORD SMITH DRIVE &

NORTHSHORE WAY

Drawing Title

N HARBOUR 
KSD2

RD SMITH DRIVE &
DRTHSHORE WAY

REvision:

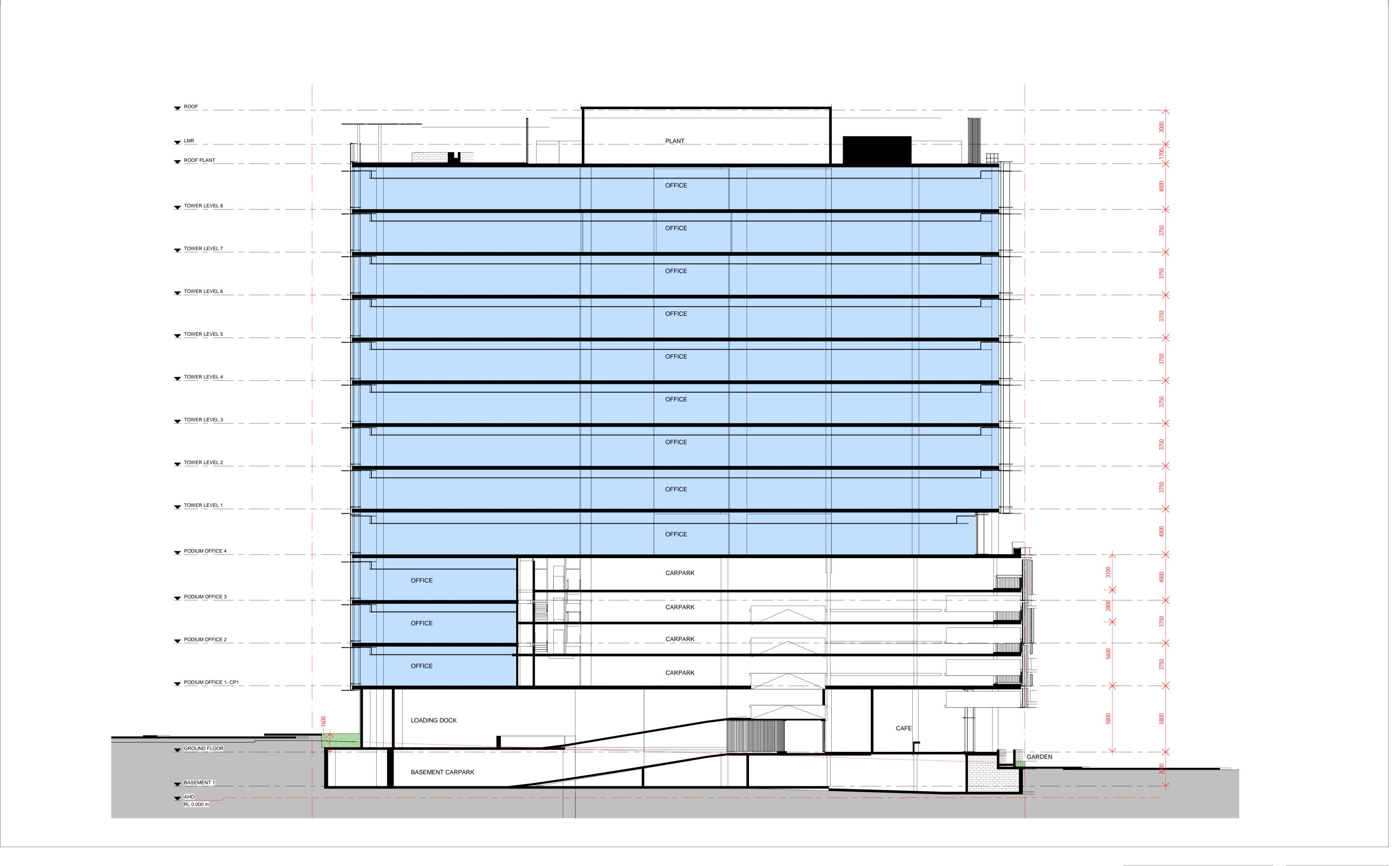
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02/03/22

Revision:

10

Drawing Number:



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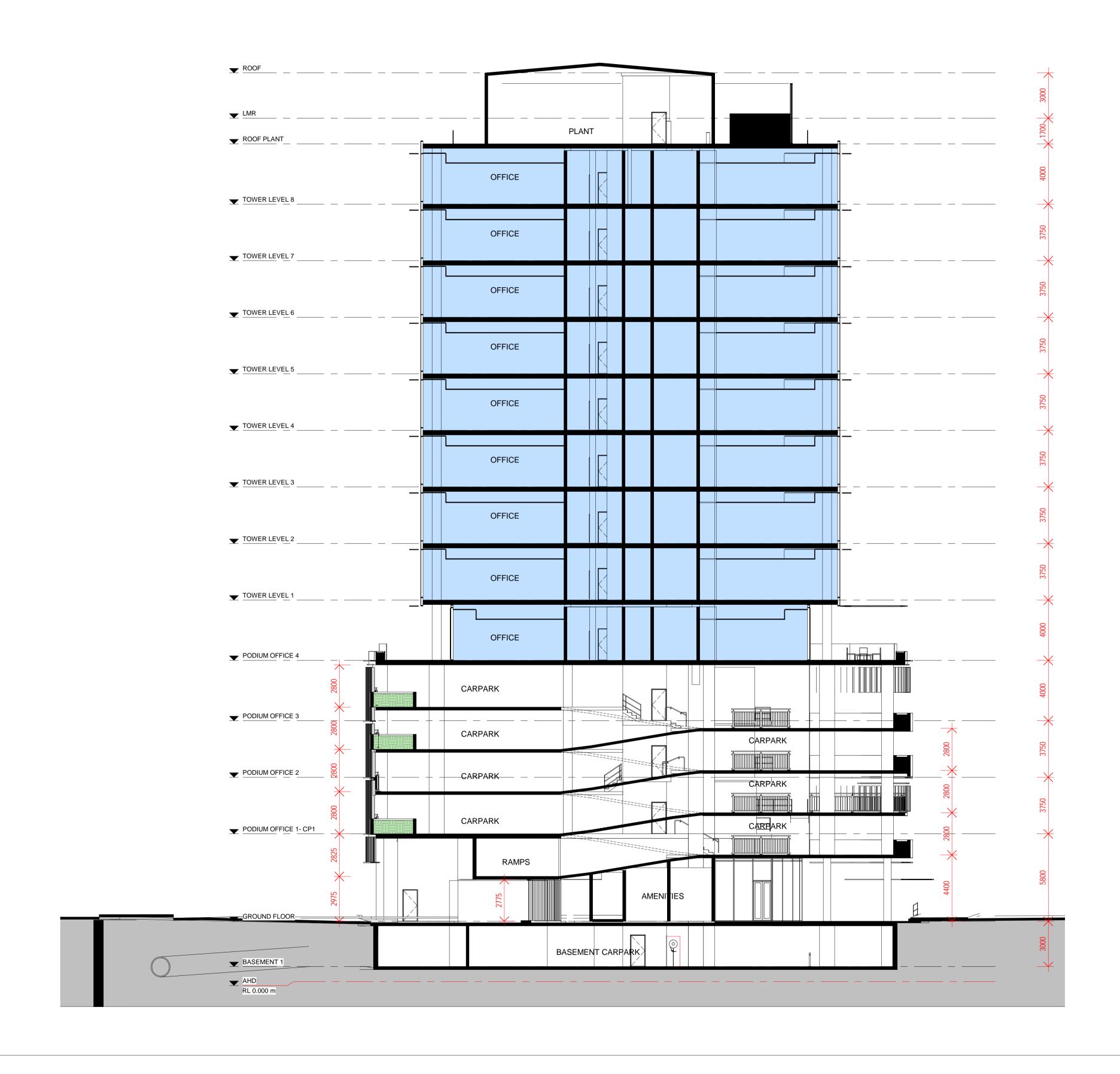
HAMILTON HARBOUR 
KSD2

CRN KINGSFORD SMITH DRIVE &

NORTHSHORE WAY

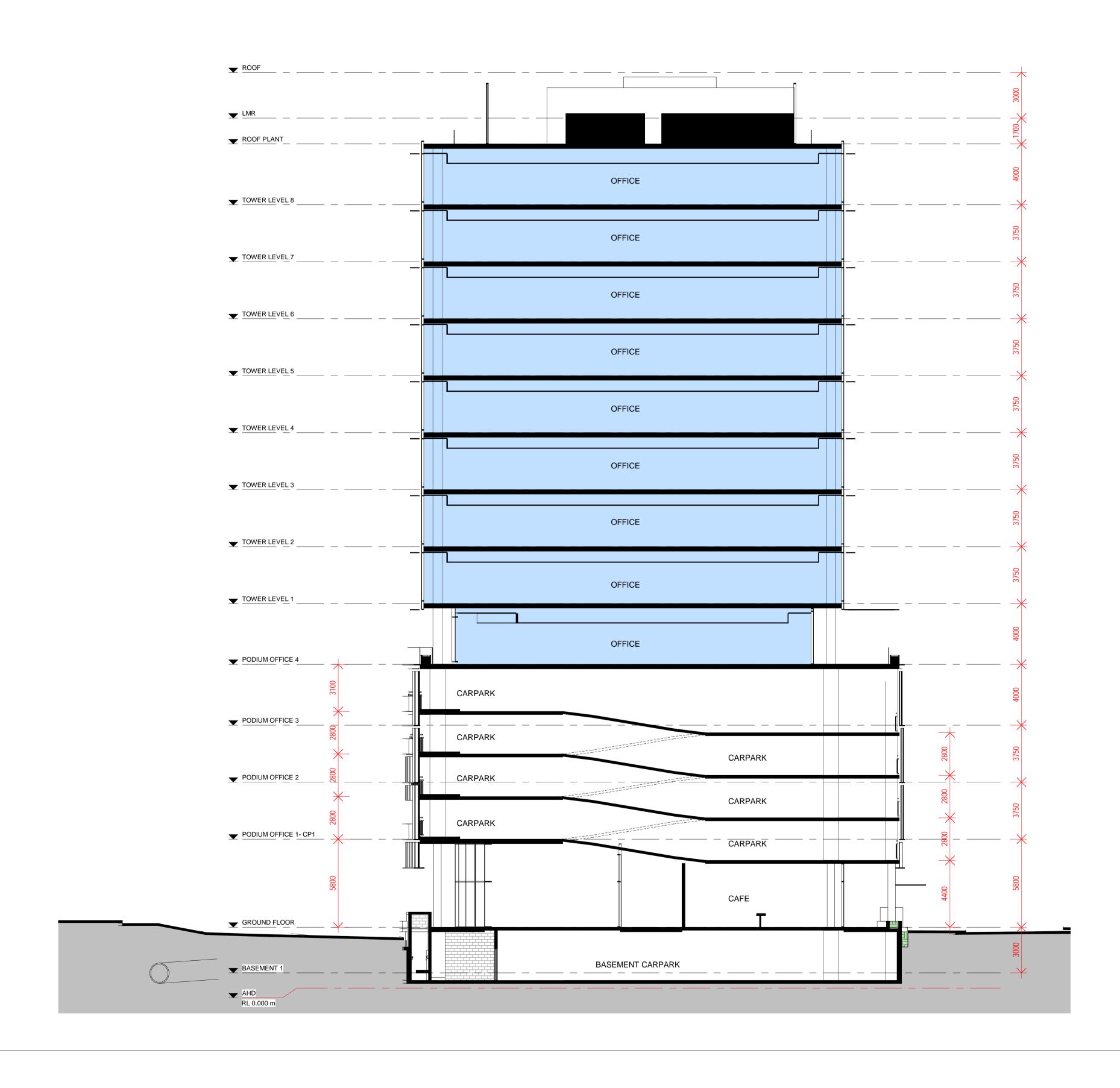
Revision: Drawing Title 

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02/02	
	Revision:
	Drawing Number:
DA-1	

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NORTHSHORE WAY

Drawing Title

Scale:

1:150 @ A1

Date:

02/03/22

Revision:

8

Drawing Number:

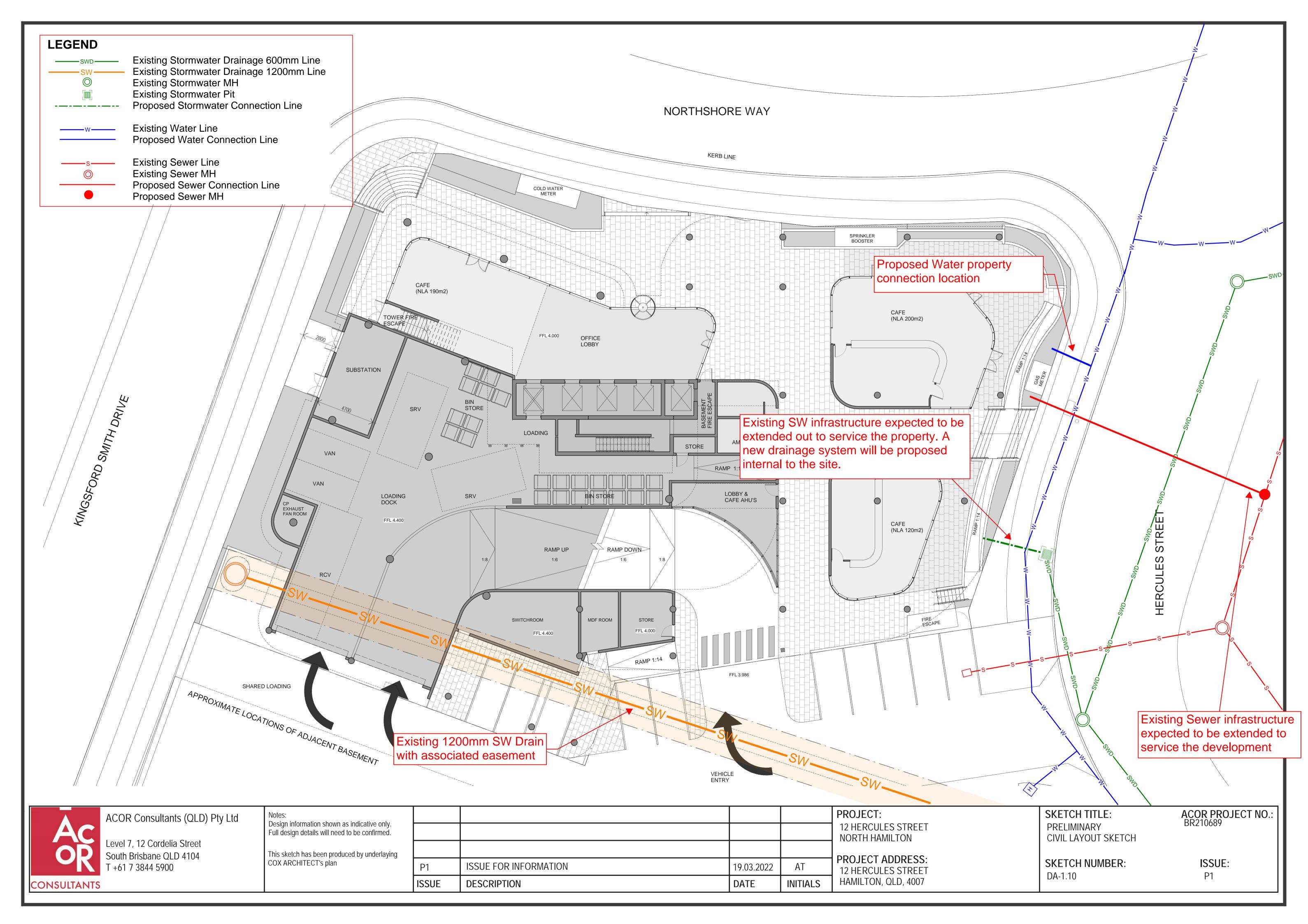
Drawing Number:

COX

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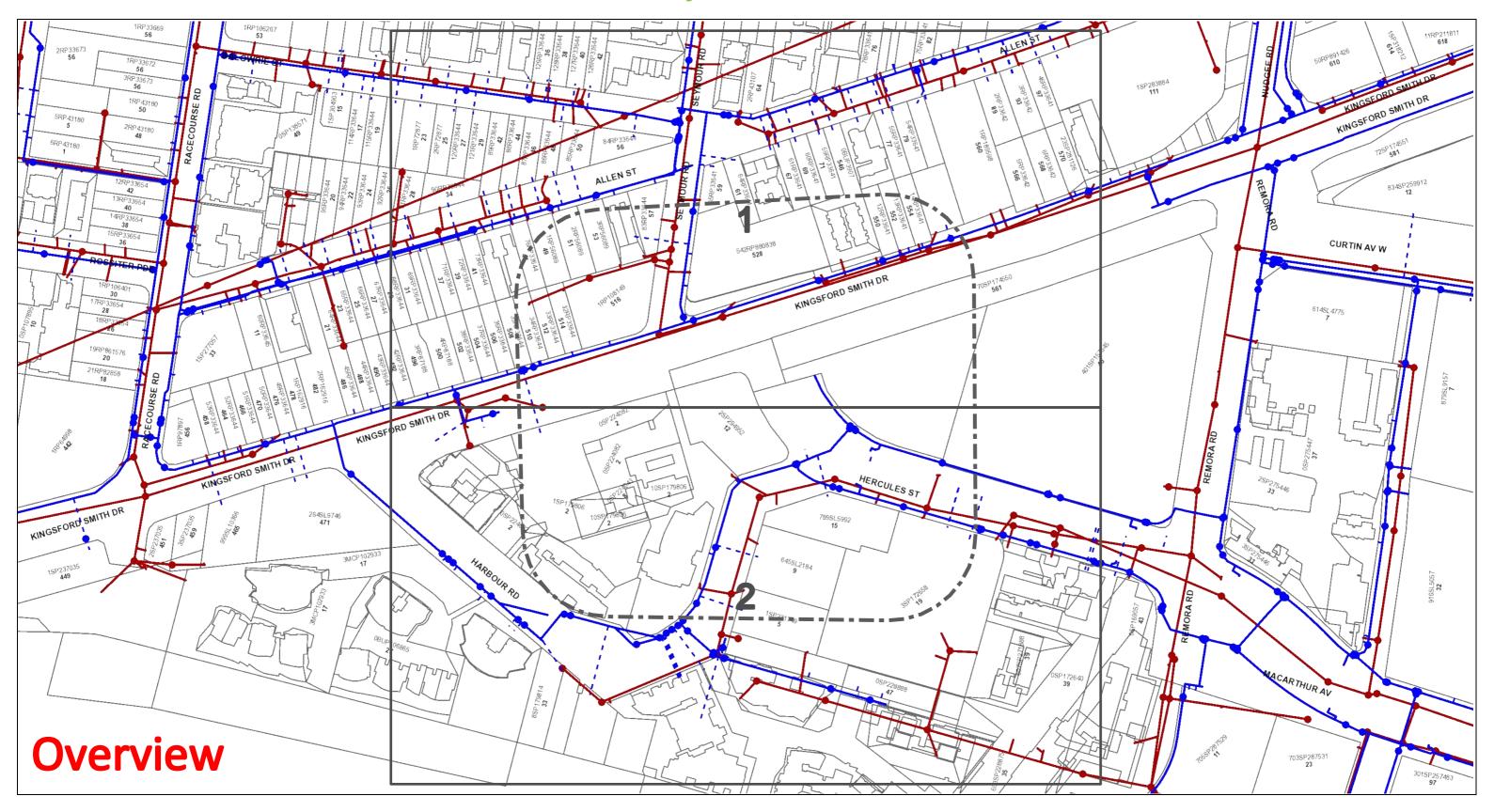
## **Appendix C - Preliminary Civil Sketches**





## **Appendix D - FloodWise Property Report**

## **Urban Utilities - Water, Recycled Water and Sewer Infrastructure**





Dial Before You Dig - Urban Utilities Water, Recycled Water and Sewer Infrastructure

DBYD Reference No: 207862533

Date DBYD Ref Received: 08/02/2022

Date DBYD Job to Commence: 09/02/2022

Date DBYD Map Produced: 08/02/2022

This Map is valid for 30 days Produced By: Urban Utilities

#### Sewer

la farata a tanan

Major Infrastructure

Network Pipelines

Network Structures

## Infrastructure

Water

Major Infrastructure

Network Pipelines

Network Structures

- - Water Service (Indicative only)



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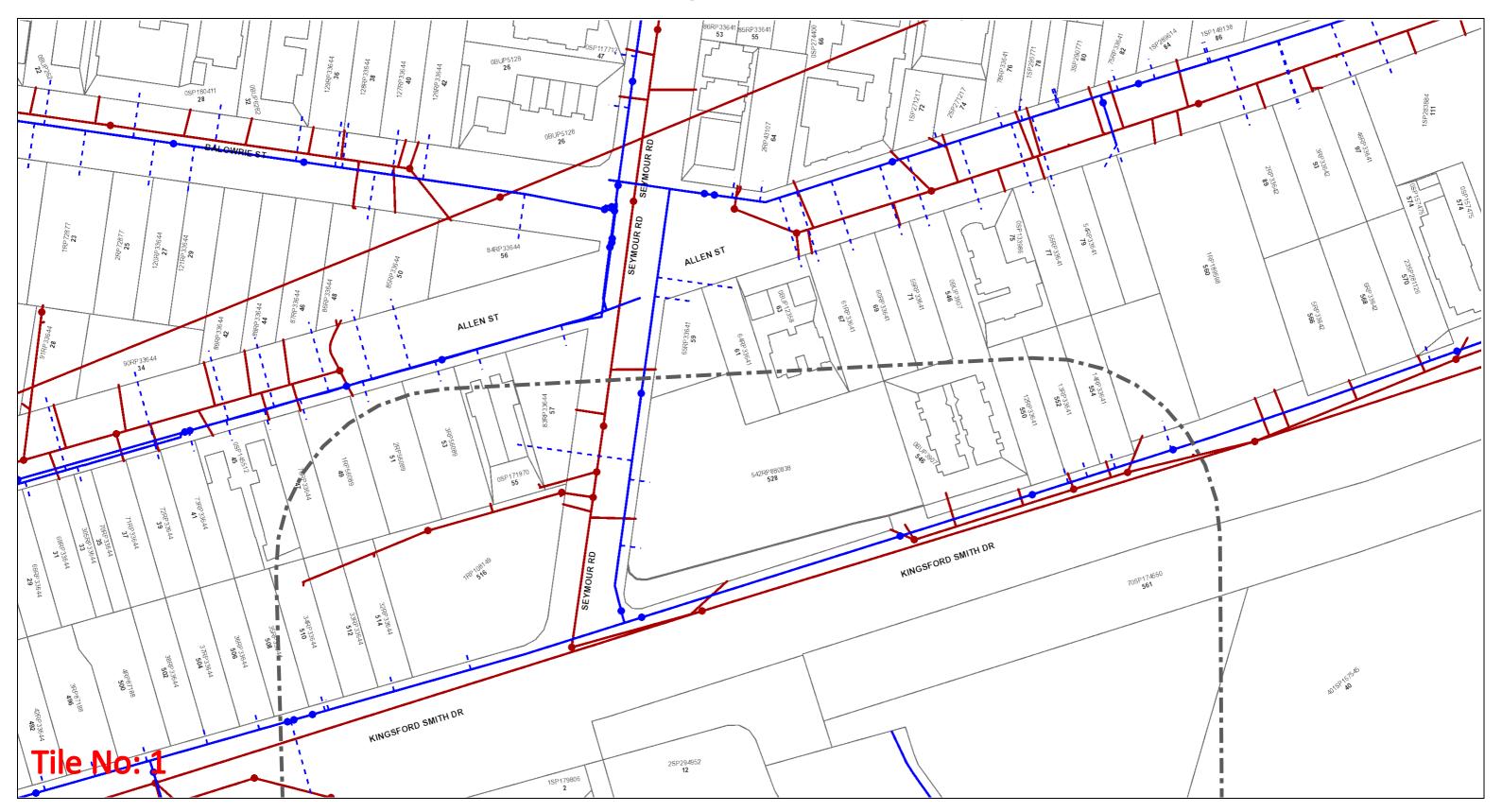
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For further information, please call Urban Utilities on 13 26 57 (8am-6pm weekdays). Faults and emergencies 13 23 64 (24/7).

ABN 86 673 835 01

## **Urban Utilities - Water, Recycled Water and Sewer Infrastructure**





Dial Before You Dig - Urban Utilities Water, Recycled Water and Sewer Infrastructure

**DBYD Reference No: 207862533**Date DBYD Ref Received: 08/02/2022

Date DBYD Job to Commence: 09/02/2022

Date DBYD Map Produced: 08/02/2022

This Map is valid for 30 days Produced By: Urban Utilities

#### Sewer

Infrastructure

Major Infrastructure

Network Pipelines

Network Structures

# Major Infrastructure Network Pipelines Network Structures - - Water Service (Indicative only)

Infrastructure

Water

Map Scale 1:1000 While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Urban Utilities nor PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

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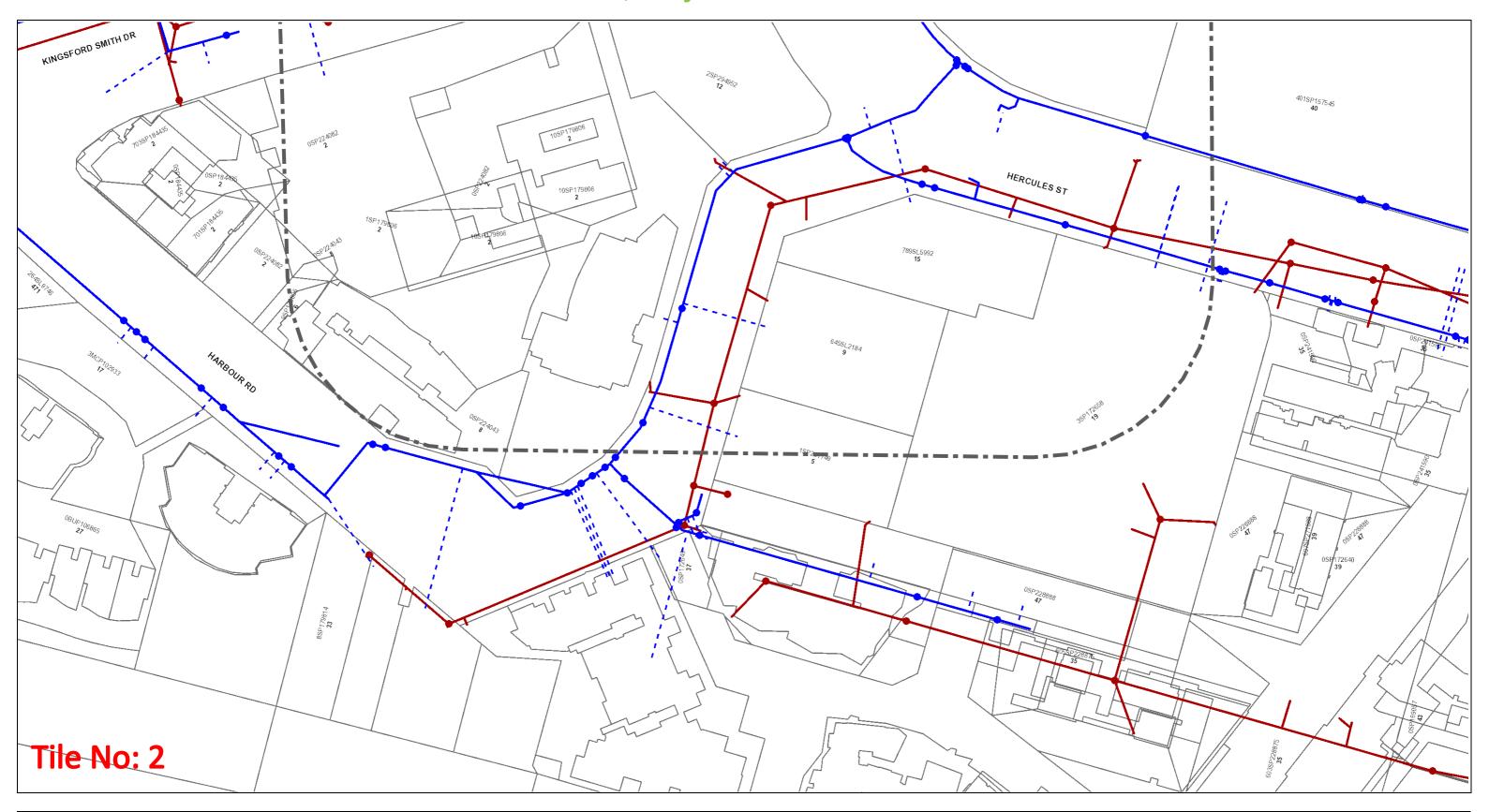
This plan should be used as guide only. Any dimensions should be confirmed on site by the relevant authority.

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For further information, please call Urban Utilities on 13 26 57 (8am-6pm weekdays). Faults and emergencies 13 23 64 (24/7).

www.urbanutilities.com.au ABN 86 673 835 0

## **Urban Utilities - Water, Recycled Water and Sewer Infrastructure**





#### Dial Before You Dig - Urban Utilities Water, Recycled Water and Sewer Infrastructure

DBYD Reference No: 207862533

Date DBYD Ref Received: 08/02/2022

Date DBYD Job to Commence: 09/02/2022

Date DBYD Map Produced: 08/02/2022

This Map is valid for 30 days Produced By: Urban Utilities

#### Sewer

Infrastructure

Major Infrastructure

Network Pipelines

Network Structures

#### Water

Infrastructure

Major Infrastructure

Network Pipelines

Network Structures

- - Water Service (Indicative only)

Map Scale 1:1000 While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Urban Utilities nor PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

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This plan should be used as guide only. Any dimensions should be confirmed on site by the relevant authority.

Based on or contains data provided by the State of Queensland (Department of Natural Resources and Mines) [2020]. In consideration of the State permitting the use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws. © State of Queensland Department of Natural Resources and Mines [2020]

For further information, please call Urban Utilities on 13 26 57 (8am-6pm weekdays). Faults and emergencies 13 23 64 (24/7).

ABN 86 673 835 01:

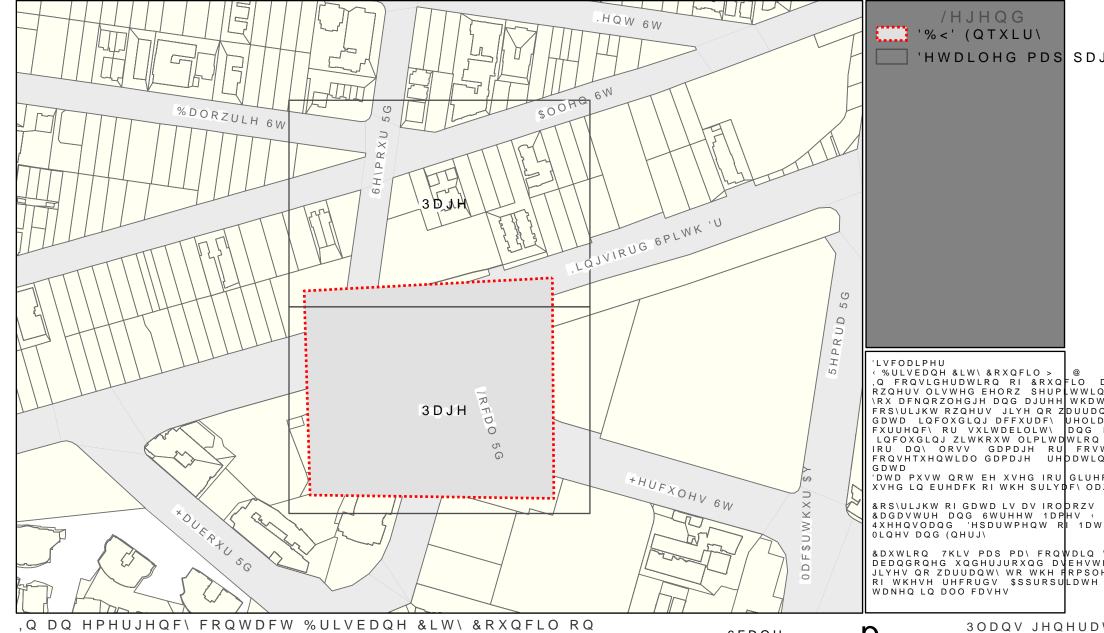


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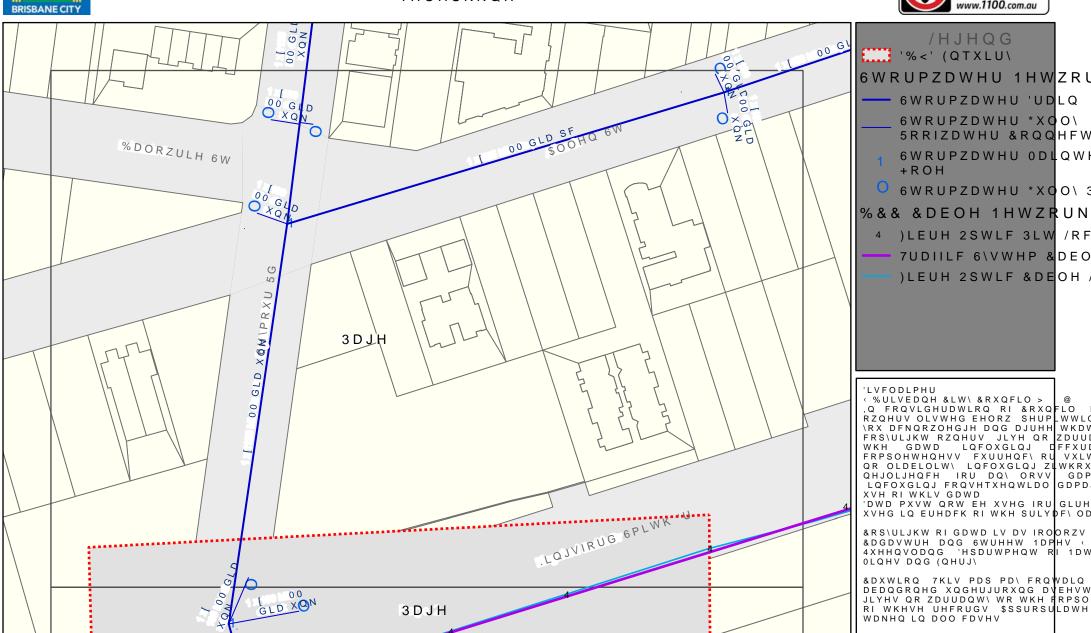
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7HOHSKRQH



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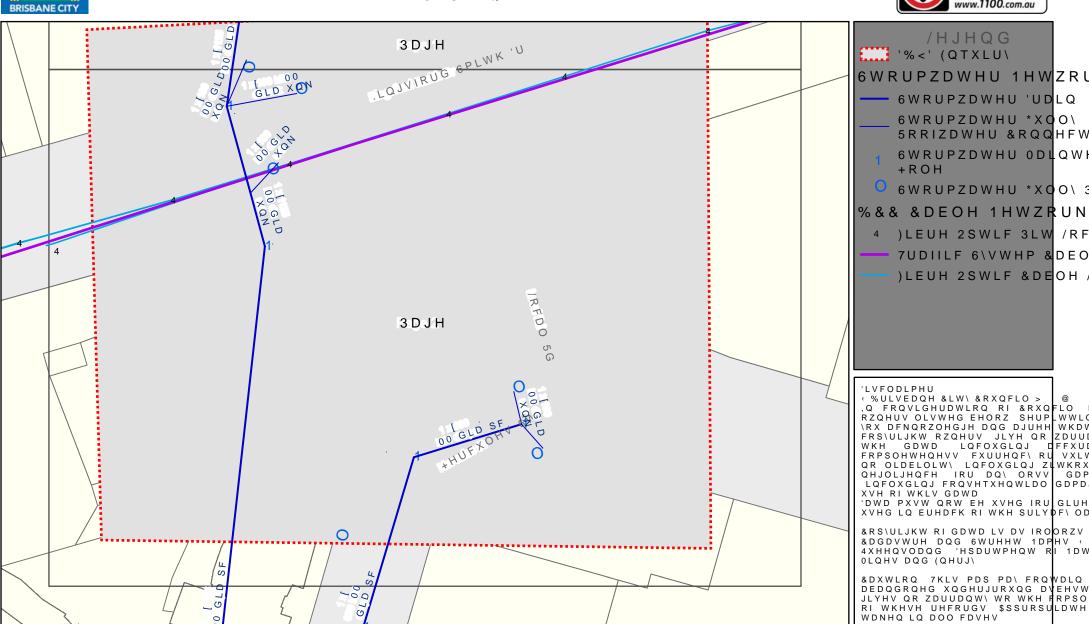
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YDOLG IRU





Site Address	12 Hercules Street Hamilton 4007		Sequence No	207862534
Name	Jacob Vogler			
Email	jvogler@acor.com.au			
Byron Street  Williars Alventing  When Street	Windermere Road  Balow  Bretts Whorf ferry terminol  Brisbone	Ment Street of S	Stevenson Street  Ion  Brisbane Cruse Terminal  Bolimbs  Hamilton	CityCat Br
Scale 1: 60	000	2	Enquiry Area	Map Key Area

APA Group does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group is not under any liability to the user for any loss or damage (including consequential loss or damage) which the resulting from the use of this map.





12 Hercules Street Site Address Sequence No 207862534 Hamilton Before you commence any works you are required to complete the attached 'Work In The Vicinity Of Critical Gas Assets' request form and forward this to APA as soon as 65 63 546 SEYMANIRABD 300ST 528 57 55 i.I 10057 51 516 512-514 GSFORE SMITH DR 110PE SMITHDR 3005T 110PF 110PE 160PE SDR11.0 63PE in 100Cl PIPE CODE / MATERIALS OBJECTS or TERMS PIPE AND BOUNDARIES Мар Кеу SERVICE (COLOUR BY PRESSURE) C2, CI Cast Iron VALVES CU BURIED VALVES LOW PRESSURES Copper MEDIUM PRESSURES N2, NY, NY11 GATE / REGULATORS (R) (8) HIGH PRESSURES P# (e.g. P6) Polyethylene (PE) GAS SUPPLIED = YES 1 TRANSMISSION PRESSURES -P6,P7,P9-P12 CP RECTIFIER UNIT Medium Density PE CP TEST POINT/ ANODE . / . PRIORITY MAIN (BEHIND PIPE) P2,P4,P8 High Density PE S PROPOSED (COLOUR BY PRESSURE) ST or S# Steel SYPHON \$6# (e.g. \$61) Steel Class 600 TRACE WIRE POINT • PIPELINE MARKER Ф ABANDONED \$3# (e.g. \$33) Steel Class 300 IDLE W2 or GAL Wrought Galv. Iron NOT TIED IN N.T.I. 🕣 COUPLING & END CAP SLEEVE W3 or PGAL Poly Coat Wrought Galv. Iron of | CASING / SPLIT (BEHIND PIPE) DEPTH OF COVER Pipe diameter in millimetres is shown before pipe UNKNOWN code e.g. 40P6 = 40mm nominal diameter EASEMENT/ JURISDICTION EXAMPLES 40mm High Pressure Medium Density Polyethylene in an 80mm Cast Iron Casing This map is created in colour and shall be printed in colour Line / Polygon Request 0.009km Scale 1:700

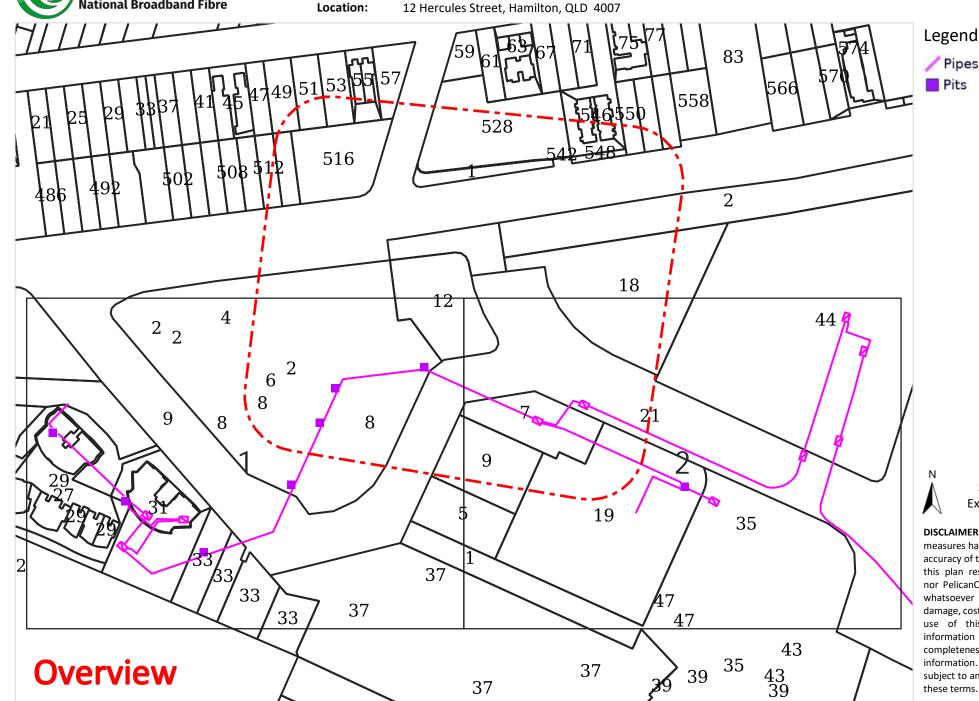


**Sequence No: 207862531** Job No: 31346735

12 Hercules Street, Hamilton, QLD 4007



The Essential First Step.



Scale: 1:2050 Expires: 08 Mar 2022

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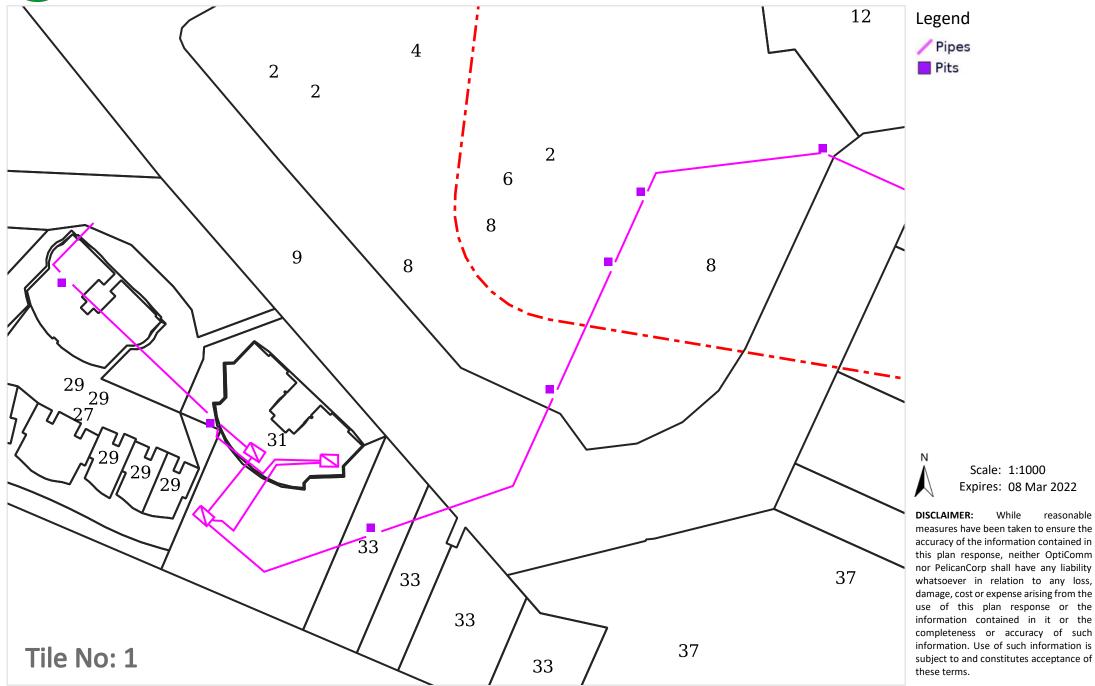


**Sequence No:** 207862531 **Job No:** 31346735

Location:

12 Hercules Street, Hamilton, QLD 4007

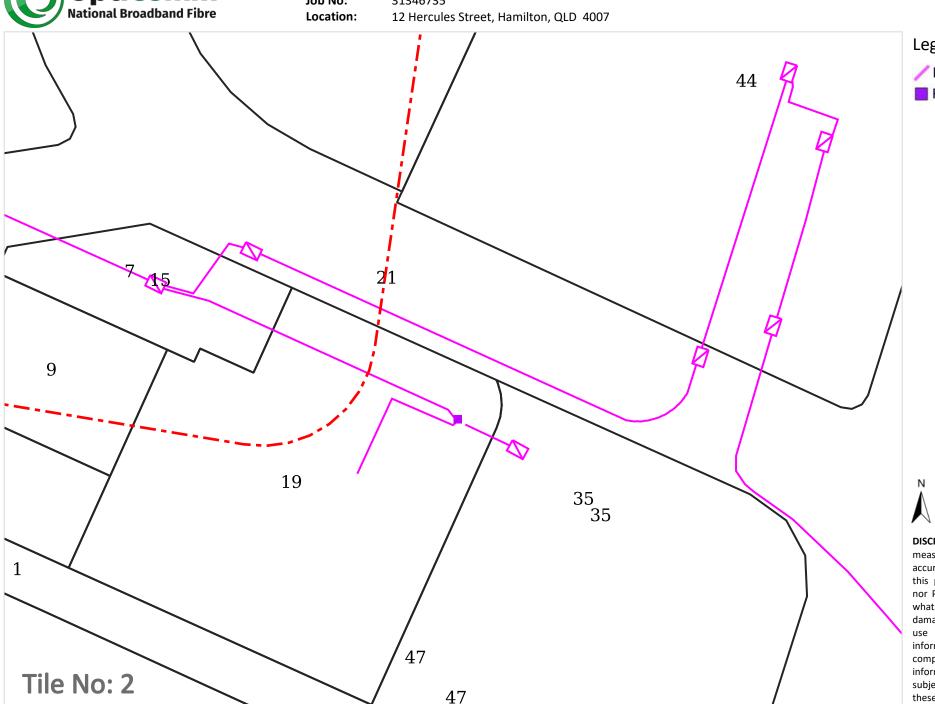






**Sequence No:** 207862531 **Job No:** 31346735





Legend

Pipes

Pits

Scale: 1:1000 Expires: 08 Mar 2022

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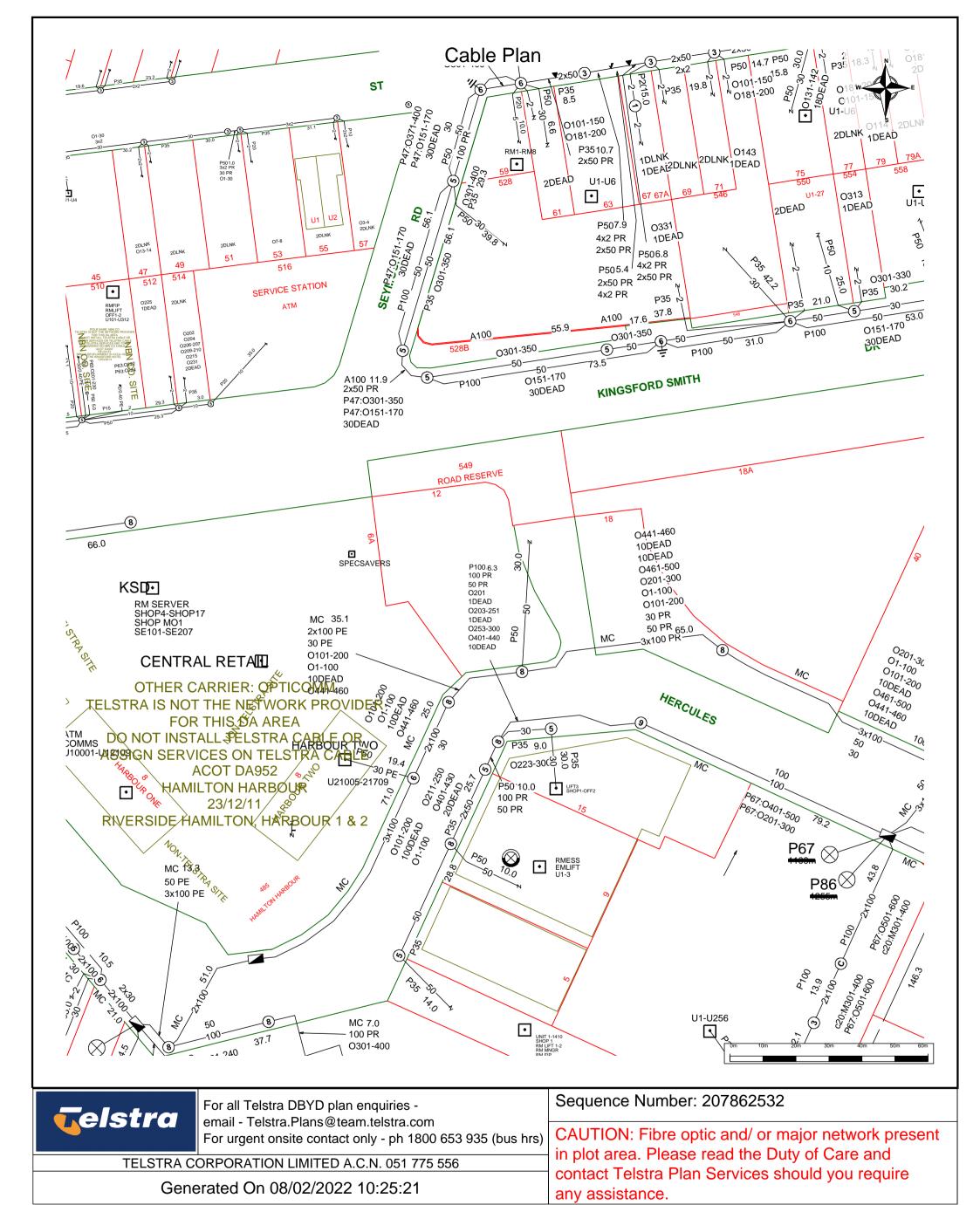
WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed, please raise a new enquiry.

Sequence Number: 207862530 Date Generated: 08 Feb 2022



For all Optus DBYD plan enquiries – Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





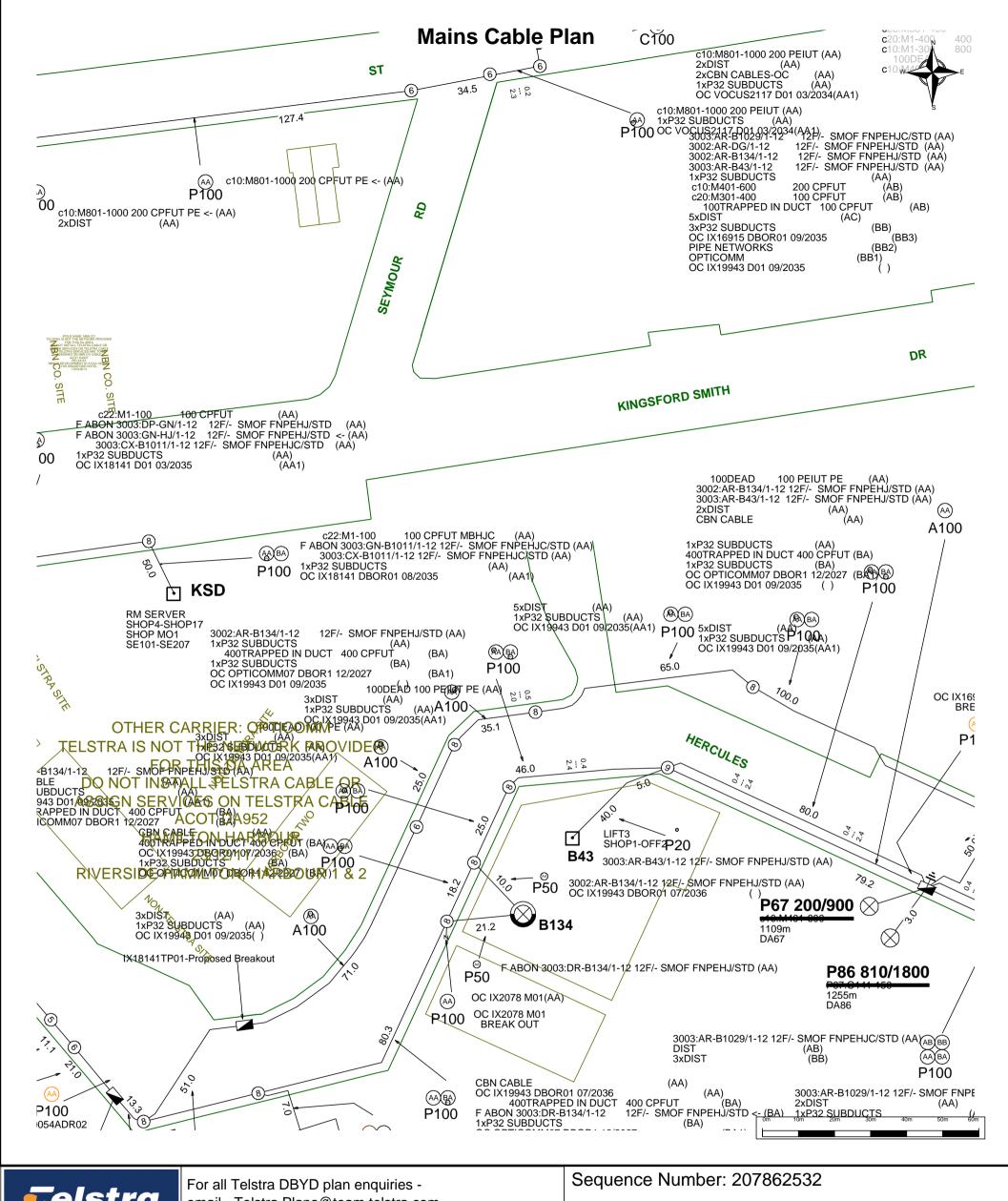
The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.



Telstra

email - Telstra.Plans@team.telstra.com

For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 08/02/2022 10:25:24

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

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Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.



### **Appendix E - DYBD Search Results**



Report Reference 1644465200145

10/02/2022 13:53:20

#### Dedicated to a better Brisbane

#### THIS REPORT IS FOR BUILDING AND DEVELOPMENT PURPOSES ONLY

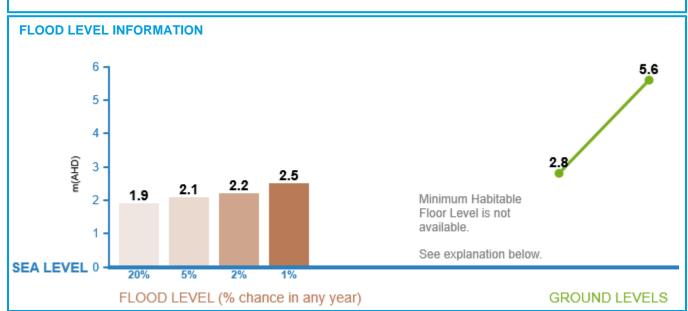
The FloodWise Property Report provides property or lot-based flood information for building and development requirements. This report provides information on estimated flood levels, habitable floor level requirements and more technical information on the four sources of flooding: river, creek / waterway, storm tide and overland flow. Refer to the Useful Definitions section for a glossary of terms.

To find out more about how the contents of this report may affect building or development on this property, please visit www.brisbane.qld.gov.au/planning-building.For more general information about understanding your flood risk and how to prepare your property, family or business for potential flooding visit www.brisbane.qld.gov.au/beprepared

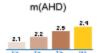
#### THIS IS A REPORT FOR:

Rateable Address: 12 HERCULES ST, HAMILTON QLD 4007

Lot Details: L.2 SP.294952



#### **EXPLANATION**



m(AHD) - Metres Australia Height Datum. The level of 0.0m AHD is approximately mean sea level.

*Flood Levels* - The Flood level bar chart above shows the possible flooding level and percentage chance of that level being reached or exceeded in any year. If an orange bar shows, it is the calculated January 2011 flood level at this address or lot. Refer to 'Useful Definitions' for further information.

Minimum Habitable Floor Level - Applies to residential development only. Please refer to Council's planning scheme to learn how this may affect you. If a property is in an overland flow path, or a large allotment, a minimum habitable floor level cannot be provided. Refer flood and planning development flags below.

*Ground Levels*- The green line above shows this property's approximate lowest and highest ground levels based on latest available information (2019 airborne laser survey) to Council. If you are building, please confirm with a surveyor.

For further information and definitions please refer to the Useful Definitions page

#### FLOOD AND PLANNING DEVELOPMENT FLAGS



This property may also be affected by one or more flood or property development overlays or flags. These include: LARGE ALLOTMENT

Please review the technical summary over page and refer to Council's planning scheme for further information.

Report Reference 1644465200145 10/02/2022 13:53:20

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#### 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. For more information about building and development in Brisbane please visit www.brisbane.qld.gov.au/planning-building or talk to a Development Assessment Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

#### THIS IS A REPORT FOR:

Rateable Address: 12 HERCULES ST, HAMILTON QLD 4007

Lot Details: L.2 SP.294952

#### **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)
Minimum Ground Level	2.8
Maximum Ground Level	5.6
Min Habitable Floor Level	Contact Council
Defined Flood Event Level	2.5
Defined Flood Event Level Source	STORMTIDE
Source of Highest Flooding	STORMTIDE
Flooding may also occur from	STORMTIDE,RIVER

#### **ESTIMATED PEAK FLOODING LEVELS**

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 Development Information.

Note that the overland flow flooding level maybe higher than the levels below from other sources.

DESCRIPTION	LEVEL (mAHD)	SOURCE
20% AEP	1.9	STORMTIDE
5% AEP	2.1	STORMTIDE
2% AEP	2.2	STORMTIDE
1% AEP	2.5	STORMTIDE
1% AEP	2.2	RIVER
RFL	2.2	RIVER

#### FLOOD PLANNING 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, which is available from www.brisbane.qld.gov.au/planning-building.

	FLOOD PLANNING AREAS (FPA)	
RIVER	CREEK/WATERWAY	OVERLAND FLOW
FPA4		Not Applicable

#### **COASTAL HAZARD OVERLAY CODE**

The coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new development. 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 the planning scheme, which is available from www.brisbane.qld.gov.au/planning-building.

#### **COASTAL HAZARD OVERLAY SUB-CATEGORIES**

Medium Storm Tide Inundation Area

NOTE: Where land is identified within one or more flood planning area on the Flood Overlay, or is identified within a Storm Tide Inundation area on the Coastal Hazard Overlay, the assessment criteria that provide 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, it is recommended you engage a Registered Professional Engineer of Queensland.

Report Reference 1644465200145

10/02/2022 13:53:20

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#### **Useful 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.

Defined Flood Level (DFL) - The DFL for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of  $6,800 \text{ m}^3/\text{s}.$ 

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

Minimum Habitable Floor Level - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family and rumpus rooms) must be constructed.

Council's Planning Scheme - The City Plan (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.

Residential Flood Level (RFL) - Residential flood level (RFL) for the Brisbane River flooding equates to the 1% Annual Exceedance Probability flood level.

Rateable Address - A Lot or Property may have more than one street address. The address shown on this report is the address used by Council for the Lot or property selected.

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.

#### Brisbane City Council's Online Flood Tools

Council provides a number of online flood tools:

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

#### Planning and Development Online Flood Tools

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

- 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 to talk to a Development Assessment Customer Liaison Officer
- visit www.brisbane.qld.gov.au/planning-building
- · visit a Regional Business Centre.

#### Helping residents and businesses be prepared for flooding

Council has a range of free tools and information to help residents and businesses understand potential flood risks and how to be prepared. This includes:

- Flood Awareness Map
- Flooding in Brisbane A Guide for Residents Flooding in Brisbane A Guide for Businesses
- Early Warning Alert Service. Visit www.brisbane.qld.gov.au/earlywarning to register for email, home phone or SMS severe weather alert updates.

Note: The Flood Awareness Map shows four levels of flood likelihood from high likelihood (flooding is very likely to occur) through to very low likelihood (very rare and extreme flood events).

For more information on Council's online flood tools for residents and business:

- · Visit www.brisbane.qld.gov.au/beprepared
- Phone (07) 3403 8888.

Report Reference 1644465200145

10/02/2022 13:53:20

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#### **Disclaimer**

- 1. Defined Flood Levels and Residential Flood Levels, and the Minimum Habitable Floor Levels are determined from the best available information to Council at the date of issue. These flood levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels.
- 2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property report. Council disclaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.



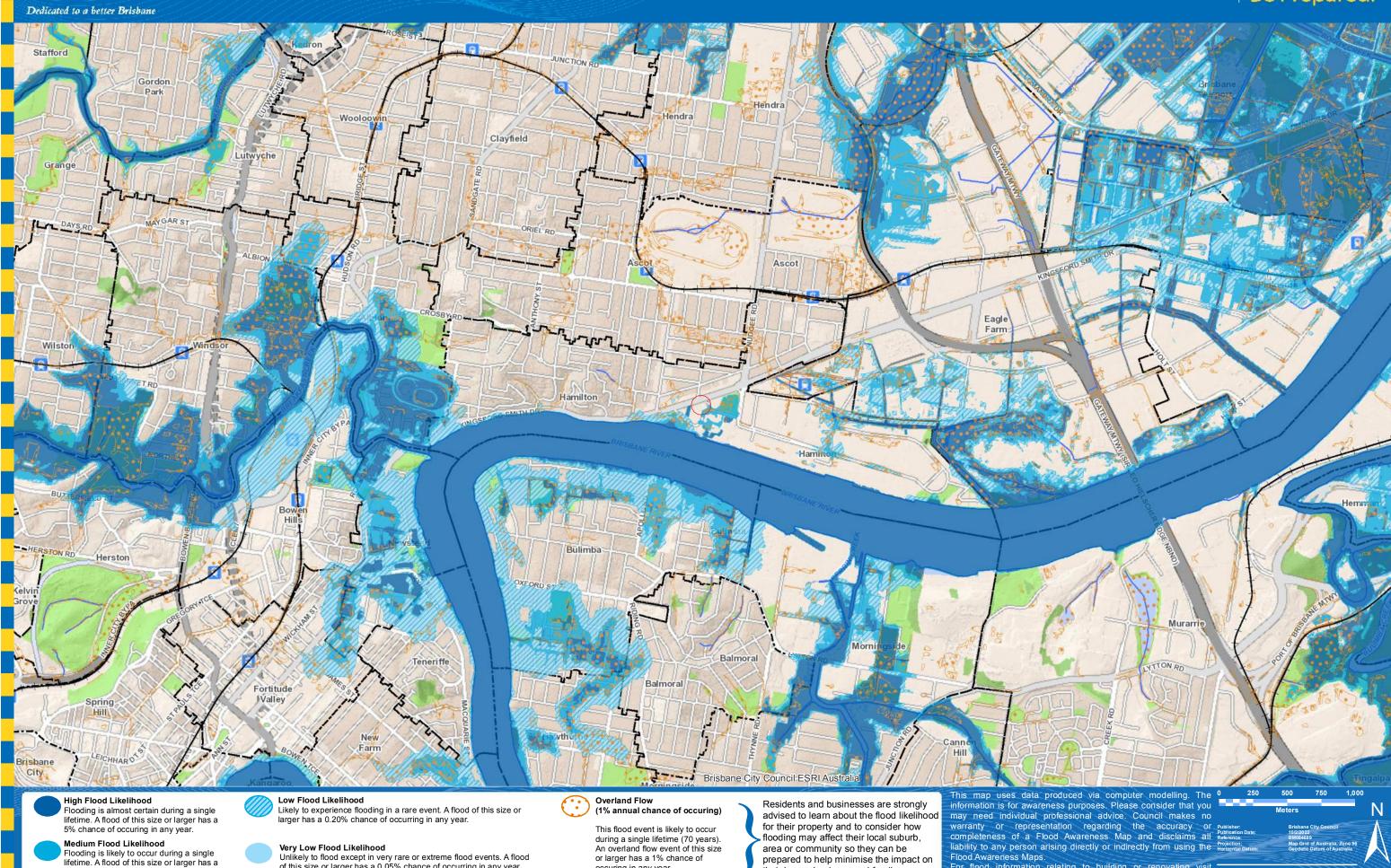
## Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit www.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.

HAMILTON Be Prepared.





or larger has a 1% chance of occuring in any year.

flooding may affect their local suburb,

their home, business and family.

area or community so they can be prepared to help minimise the impact on

For flood information relating to building or renovating visit

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

Very Low Flood Likelihood

Unlikely to flood except in very rare or extreme flood events. A flood of this size or larger has a 0.05% chance of occurring in any year.

5% chance of occuring in any year.

Flooding is likely to occur during a single lifetime. A flood of this size or larger has a 1% chance of occuring in any year.

Medium Flood Likelihood

## How to prepare for flooding

Council is working hard to reduce the impact of flooding but we all have a responsibility to understand our flood risk and how to be better prepared to minimise the impact on our homes and businesses. Once you have used Council's Flood Awareness Map to identify the flood likelihood for your property, use the tips in this table to put a plan in place for your home and family.

stro	ngly advised	advised
	mg.y creations	0.0.7.000
	Flood Likeli	hood
مايه: ۱	Madium	Vamila

	o table to part a pain in place for Joan noise and taining.		1 100d Elikelii100d		
		High	Medium	W Very low	
Brisbane's weather	• Sign up for Council's Severe Weather Early Warning Alert Service. www.brisbane.qld.gov.au/earlywarning.				
Understand Brisbane's climate	Pay attention to radio, television and online weather updates.				
and weather patterns	• Visit www.bom.gov.au for the latest weather updates.				
Flooding and your property Understand how water flows in and	<ul> <li>Observe where water flows from and to during heavy rain. This will indicate the path of potential floodwaters.</li> </ul>				
around your property and street	<ul> <li>Consider that properties near a river, creek, gully or tidal waterway are more likely to flood.</li> </ul>				
	<ul> <li>Consider how fast moving flood waters may damage your home and interfere with evacuation plans.</li> </ul>				
	<ul> <li>Consider loss of power, road closures and interruptions to public transport.</li> </ul>				
	<ul> <li>Consider how close your property is to bordering other Flood Awareness Map likelihood areas.</li> </ul>				
Building or renovating Check Brisbane's City Plan	<ul> <li>You must comply with City Plan planning requirements.</li> <li>Visit www.brisbane.qld.gov.au/planning-building.</li> </ul>		•		
	<ul> <li>Download a FloodWise Property Report for information about building and development for a specific property. Visit www.brisbane.qld.gov.au/planning-building.</li> </ul>				
Insurance Make sure you are appropriately insured	Talk to your insurer about flood insurance and your property.				
Have an evacuation plan	Prepare an emergency kit.				
Create an emergency plan and	Have emergency contact phone numbers easily accessible.				
emergency kit	<ul> <li>Consider your pets. They may need temporary to long-term alternative shelter away from your home during a flood.</li> </ul>				
	<ul> <li>Plan multiple evacuation routes. Some roads may be cut off by floodwaters.</li> </ul>				
Personal possessions Consider how and where to move	<ul> <li>Store valuables and possessions (jewellery, passports, financial statements etc) safely during a flood event.</li> </ul>				
valuables during a flood event	Consider where you can safely store your vehicle/s.				
Your local area Know your local area and talk with	<ul> <li>Consider how potential loss of power, road closures and interruptions to public transport could affect you.</li> </ul>		•		
your neighbours	<ul> <li>Talk to your neighbours. Those living in the area for a long time may have experience of previous flood events.</li> </ul>				
	<ul> <li>Consider how you can help your community. The elderly, disabled or families with young children may need your help to evacuate during a flood.</li> </ul>				

Flooding in Brisbane is natural and part of our environment therefore we need to be prepared for flooding and the impact it can have on our homes and families. Once you have used Council's Flood Awareness Map to identify the flood likelihood for your property use the tips in this table to put a plan in place. If you need an interpreter contact 131 450.

홍수는 브리스번에 일어나는 자연현상이며 지역환경의 한 특색입니다. 우리 생활과 가족에게 영향을 미치는 홍수와 그 피해에 대해 준비를 해 둘 필요가 있습니다. 시의회에서 마련한 홍수 인지 지도(Council's Flood Awareness Map)를 이용해 우리 가정이 피해 가능지역에 해당되는지 살펴보고 표에 나와 있는 실천방안을 이용해 계획을 세웁시다. 통역사가 필요하시면 131 450 번으로 연락해 도움을 받으실 수 있습니다.

Lũ lụt ở Brisbane là tự nhiên và cũng là một phần của môi trường của chúng ta. Vì vậy, chúng ta cần phải chuẩn bị sẵn sàng đón lũ và đối mặt với những ảnh hưởng nó có thể gây ra cho nhà cửa cũng như người thân trong gia đình. Khi quý vị đã sử dụng Bản đồ Nhận thức về Lũ lụt của Hội đồng Thành phố để nhận biết nguy cơ lũ lụt cho mảnh đất của mình, hãy sử dụng những mẹo ở trong bảng này để lập kế hoạch chuẩn bị. Nếu quý vị cần một thông dịch viên, xin liên hệ 131 450

布里斯本的洪水是一種自然現象,也是自然環境的一個組成部分。因此,我們不僅要為洪水來臨做好準備,也要為其對我們的住所和家人所造成的影響做好準備。當您使用布里斯本市政廳的洪水識別地圖確認您住所受洪水影響的可能性之後,您應使用表格中的建議與忠告設置一套可行計畫。若您需要口譯服務,請呼叫131 450。



Dedicated to a better Brisbane



## **Appendix F - Basement Retention Sketches and Build over Stormwater Strategy**

