CFMEU Auditorium Development

10 – 12 Campbell St, Bowen Hills, QLD 4006

Civil Engineering Report

Site Based Stormwater Management & Engineering Services

T&D Advisory and New Urban Villages

April 2024

Document Verification

Job Title 10 – 12 Campbell St, Bowen Hills QLD 4006

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Name	Signature	Date
Gregg Van Greuning		11.04.2024

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EXECUTIVE SUMMARY

ADG Engineers (Aust.) Pty Ltd was engaged by New Urban Villages acting on behalf of CFMEU to prepare a Civil Engineering Report suitable for submission to Brisbane City Council for a site located at 10-12 Campbell St, Bowen Hills. The proposed development is for a 400-seat auditorium and conference/meeting centre.

The purpose of this Civil Engineering Report is to provide advice on the proposed development as detailed in the Nettletontribe architectural drawings. The works described herein are subject to further approvals and cover works required to service the proposed development including earthworks, roadworks, stormwater drainage, sewerage and water supply, electricity, communications, and gas.

The stormwater quantity objective was to demonstrate that there is no increase in peak discharges from the subject site. This considered storm events up to and including the Q100 storm event. The purpose is to ensure that the existing infrastructure and/or downstream properties are not adversely affected.

Given the site is less than 2,500m^2, the site does not trigger the State Planning Policy for stormwater quality.

The site appears to be adequately serviced by reticulated water, sewerage, stormwater infrastructure, gas, telecommunications, and electricity. These services will need to be connected during development. Information discussed in this report is inferred from BYDA records and information gathered via site investigation.

All relevant standards and guidelines are addressed in this report including criteria from:

- BCC Planning Scheme Policy
- BCC Land Development Guidelines
- State Planning Policy (SPP) 2016
- Queensland Urban Drainage Manual (QUDM) 2013
- Plumbing and Drainage Code AS3500.3
- Australian Rainfall and Runoff Guideline (ARR)

1 INTRODUCTION

1.1 Background

ADG Engineers (Aust.) Pty Ltd was engaged by Tim Johnson of New Urban Villages acting on behalf of T&D Advisory to carry out a Civil Engineering Report suitable for submission to Brisbane City Council and any required referral agencies for a site located at 10-12 Campbell St, Bowen Hills. The proposed development is for a 400-seat Auditorium and Conference/Meeting Centre over one level of partially in ground carparking.

The purpose of this Civil Engineering Report is to provide advice on the proposed development with regards to earthworks, roadworks, stormwater drainage, sewerage and water supply, electricity, communications, gas, stormwater quality and quantity measures, and flooding. The required infrastructure will be subject to the conditions attached to the Development Approval to be provided by Brisbane City Council and any nominated referral agencies.

1.2 Property Detail

The details of the property for the proposed development can be seen in **Table 1** below.

Table 1 - Property Detail

Title	Lot 4 & Lot 5 on RP10074
Street Address	10-12 Campbell St, Bowen Hills QLD 4006
Site Area	866 m^2

The location of the proposed development is demonstrated in **Figure 1**.

Figure 1 - Site Location (as accessed from Nearmap 27/03/24)

2 EXISTING SITE

2.1 Existing Site Features

The subject site is a commercial building and associated carpark and driveway with a concrete surface finish.

- The site is bound by:
  - Campbell Street to the North;
  - Commercial building to the East;
  - An asphalt laneway (unknown street name) to the South;
  - CFMEU Queensland building to the West.

The existing site features can be seen in **Figure 2.**

Figure 2 - Site Layout (as accessed from Nearmap on 27/03/24)

The existing contours, surface levels and the location of the existing buildings are identified on the survey plan drawing as attached in **Appendix A** of this report.

3 ACID SULFATE SOILS

The subject site may be affected by acid sulfate soil contamination. **Figure 3** indicates that the site is between 5m AHD and 20m AHD and has the potential for acid sulfate contamination. The site will be excavated to approximately 15.6m AHD to facilitate the construction of the lower ground floor. Therefore, the site is expected to encounter acid sulfate soils. This contamination will be addressed in accordance with the Potential and Actual Acid Sulfate Soil Planning Scheme Policy by submitting an Acid Sulfate Soils Investigation Report and a full Acid Sulfate Soil Management Plan during detailed design. Refer to **Appendix C** for the Potential and Actual Acid Sulfate Soils Overlay Code.

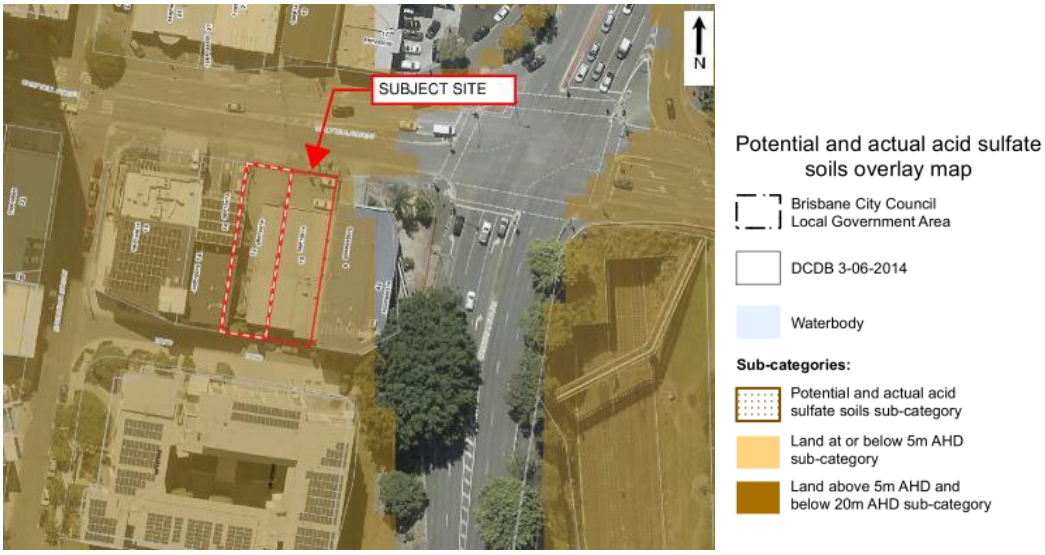


Figure 3 - Acid Sulfate Soils Overlay (as accessed from BCC eBIMAP2 on 27/03/2024)

4 EARTHWORKS

4.1 Bulk Earthworks

The subject site will require excavation to facilitate construction of a lower ground floor for car parking. Details of the earthworks quantities will be provided during the detailed design phase of the development. The development may require minor reshaping of the verge.

Refer to **Appendix C** for the BCC Filling and Excavation Code.

5 ROADWORKS

5.1 Existing Infrastructure

The subject site is adjacent to the following roads:

- Campbell Street – suburban road to the north, with kerb and channel drainage on each side and a two-way crossfall.
- Local road (laneway) to the south with kerb and channel drainage on each side and a two-way crossfall.

The site is currently accessed via one (1) vehicle crossover along Campbell Street.

5.2 Proposed Infrastructure

ADG anticipate that a new vehicle crossover to the laneway will be constructed as part of the proposed development. All existing vehicle crossovers are to be made redundant, demolished, and removed off-site as part of the construction works, with kerbs and footpaths to be reinstated to Council's standards.

Refer to the architectural drawings supplied in support of this report for further information. A copy of infrastructure design code has been completed and is provided in **Appendix C**.

6 FLOODING

A FloodWise Property Report for 10-12 Campbell St, Bowen Hills was generated from the BCC website. The report states that no Defined Flood Levels (DFL) or Overland Flow flags for building and development purposes for this property had been identified. The BCC FloodWise report is attached within **Appendix D** for further information.

7 STORMWATER INFRASTRUCTURE

7.1 Existing Infrastructure

A BYDA search identified the following stormwater infrastructure within the vicinity of the subject site:

- Two (2) gully inlet pits across from each other in front of 16 Campbell Street;
- Two (2) gully inlet pits across from each other in the laneway at the rear of 16 Campbell Street;
- A series of stormwater manholes at the east of the laneway;
- Stormwater mains connecting all the above-mentioned inlets and manhole.

Refer to the BYDA information in **Appendix G** for further information regarding the existing stormwater infrastructure.

7.2 Lawful Point of Discharge (LPD)

7.2.1 Existing LPD

Based on information gathered via survey and contour data, aerial imagery, and site investigation, it has been determined that the subject site discharges flow to existing Council infrastructure via kerb and channel. The existing building on the subject site is assumed to capture and discharge flow via existing kerb adaptors that discharges into the laneway at the rear of the property. The flow is then conveyed by kerb and channel to existing stormwater infrastructure.

One (1) existing LPD is therefore identified for the existing subject site.

7.2.2 Proposed LPD

In recognition of the above, the proposed lawful point of discharge for the development will be maintained. The new property connection will connect to the existing stormwater main of unknown size in the laneway via a 300mm stormwater pipe. The size of the existing stormwater main is to be determined in detailed design. Further details are provided in **Appendix B.**

8 STORMWATER QUANTITY ASSESSMENT

The aim of the stormwater quantity assessment is to ensure that the development shall impose no adverse effects on downstream properties or receiving water bodies and that the conveyance of flows will be in a safe manner with minimal risk of human endangerment as well as the following objectives:

- Address the need for stormwater quantity control measures.
- Ensure there is no increase in peak discharges from the subject site for events up to and including the 1 in 100-year ARI event.
- Ensure proposed quantity control measures detain and convey flows in accordance with QUDM minimum freeboard recommendations.

This section of the report should be read in conjunction with **Appendix F** which shows the values used to calculate the peak flow rate and preliminary detention volumes.

8.1 Proposed Development and Associated Issues

It is essential that there are no increases in volume and flow rate of stormwater runoff, and that any increases are mitigated such that post-developed peak flows do not exceed those for the pre-developed case. In this instance, the development leads to a very small increase in impervious area and therefore, there is a slight increase in flow rate in the post developed scenario. Further details are discussed in the next section.

8.2 Flow Rate Methodology

The following section provides an explanation of the methodology undertaken to determine the peak discharge flows for the pre-development and post-development scenarios using the Rational Method. The investigation undertaken within this section is in accordance with the requirements of Queensland Urban Drainage Manual (QUDM) and the Brisbane City Council Planning Scheme Policy (BCC PSP).

8.2.1 Design Storm Events

Based on recommendations within QUDM, in addition to the requirements outlined within the BCC PSP, the major and minor storm events for the proposed development were selected as follows:

- **Minor Event: 1 in 10-year ARI (10% AEP)**
  - Determined in accordance with BCC PSP Table 7.2.2.3.B, Design Standards for Drainage Systems, and in recognition of the development proposal.
  - Minor event conveyed by the proposed development's internal drainage network to the proposed stormwater infrastructure and eventually to the nominated LPD.
- **Major Event: 1 in 100-year ARI (1% AEP)**
  - Roof water capture system is to capture and pipe all flows up to and including the 1 in 100-year ARI through to the LPD.
  - Surface drainage overflows in events up to and including the 1 in 100-year ARI will not present a hazard to people or cause significant damage to property.

Pipe sizing will be performed during detailed design and increased as required to ensure a safe depth vs velocity is maintained at all times during the major event.

8.2.2 Rational Method for Peak Flow Rate

The peak flow rate for the site has been obtained using the Rational Method in accordance with ARR and QUDM. Summaries of the hydrology calculations can be seen in **Sections 8.3** and **8.4** for the pre-development and post-development scenarios respectively.

$$Q = (2.78 \times 10^{-3})\ Cy\ Iy\ A \qquad \textbf{Equation 1}$$

Q = Peak flow rate (m3/s) for average recurrence interval

Cy = Co-efficient of runoff for ARI of y years (dimensionless)

A = Catchment area (ha)

Iy = Average rainfall intensity (mm/hr) for a design duration of t hours and an ARI of y years

8.2.3 Catchment Area (A)

Catchment areas were measured using AutoCAD, contour surface data and known cadastral boundaries. Catchment boundaries and areas for both the pre-developed and post-developed scenarios can be seen in **Appendix B**.

8.2.4 Co-efficient of runoff (C)

Coefficient of runoff, C_{10} values, were determined using catchment-specific fraction impervious values, $^{1}I_{10}$ rainfall intensity, and QUDM Table 4.5.3 and Table 4.5.4. Corresponding C_y values for the remaining coefficients of runoff were derived using the frequency factors presented within QUDM Table 4.5.2. These values were altered as necessary to align with Table 7.3.3.1.A of the BCC PSP for the post-development scenario.

8.2.5 Time of Concentration

The time of concentration (t_c) for each catchment was calculated using a combination of methods, in accordance with QUDM Section 4.6.

Note: BOM 1987 IFDs have been adopted for the Rational Method. This is in accordance with BCC PSP Section 7.2.2 which specifies:

- IFD based on coefficients issued by the Bureau of Meteorology (Ref FN2615) for Latitude 27.4625S Longitude 153.0125E.

8.3 Pre-Development Hydrology

The hydrology of the pre-developed catchment has been assessed in accordance with Section 4.0 of QUDM 2017 using the Rational Method. From QUDM Section 4.0, the theoretical calculated peak discharge for storm events ranging from the 1 in 1-year to 1 in 100-year ARIs has been calculated and a summary of the results is presented in **Appendix F**.

The subject site has a total area of 866m^2 and currently comprises of a commercial building. As documented within **Section 7.2.1**, the existing development captures and discharges stormwater to one (1) lawful point of discharge.

The Coefficient of discharge (C_{10}) value for each catchment was derived from QUDM 2017 Table 4.5.3 and Table 4.5.4. F_y frequency factors were applied to determine runoff coefficients for various average recurrence interval (ARI) storm events in accordance with QUDM 2017 Table 4.5.2.

QUDM 2017 Section 4.6 was applied to determine a total time of concentration of 5 minutes. Rational Method calculations were performed, the results of which can be seen in **Table 2**.

Please refer to **Appendix F** for a summary of the Rational Method calculations and all parameters used.

Table 2 - Pre-development Catchment Details

Catchment I.D	Area (m^2)	% Impervious	C_{10}	C_{100}	Time of Concentration (t_c)	Q_{10} (m^3/s)	Q_{100} (m^3/s)
EX1	866	93%	0.886	1.00	5	0.046	0.078
Total	**866**	**93%**			**5**	**0.046**	**0.078**

8.4 Post-Development Hydrology

The total land area considered for the post-development was 866m^2. A catchment plan for the post-developed site was determined based on preliminary architectural drawings, in which the site was considered to have one catchment. The post-development catchment plan is attached within **Appendix B** for further information.

Based on preliminary architectural drawings, the area and fraction impervious of the various catchments were determined. Subsequently, 1 in 10-year coefficients of runoff (C_{10}) values were adopted in accordance with QUDM 2017 Table 4.5.3. F_y frequency factors were applied to determine runoff coefficients for various average recurrence interval (ARI) storm events in accordance with QUDM 2017 Table 4.5.2.

Similar to **Section 8.3,** QUDM 2017 Section 4.6 was applied to determine a total time of concentration of 5 minutes for catchment C1 respectively. Rational Method calculations were performed, the results of which can be seen in **Table 3**.

Please refer to **Appendix F** for a summary of the Rational Method calculations and all parameters used.

Table 3 - Post-development Catchment Details

Catchment I.D	Area (m^2)	% Impervious	C_{10}	C_{100}	Time of Concentration (t_c)	Q_{10} (m^3/s)	Q_{100} (m^3/s)
C1	866	100%	0.900	1.000	5	0.047	0.078
Total	**866**	**100%**			**5**	**0.047**	**0.078**

8.5 Recommendation

Based on the results tabulated in **Table 2** and **Table 3,** the flowrate increases by 0.001m^3/s in the minor Q10 event due an increase in impervious area in the post-developed scenario. It is concluded that the increase in flowrate is insignificant and will not affect or worsen the existing downstream stormwater infrastructure or cause any issues to downstream properties. Therefore, no detention system is proposed for this development.

9 STORMWATER QUALITY ASSESSMENT

9.1 Treatment Objectives

This assessment identifies issues relating to stormwater quality runoff and assesses possible methods of treatment if required. The aim of this section of the report is to determine practical approaches to achieving improvements in the quality of the stormwater run-off from the site that can be readily implemented.

The SPP proposes criteria which apply to 'high-risk' development for stormwater. The criteria include one or more of the following:

- A Material Change of Use (MCU) for an urban purpose which involves greater than 2,500m^2 of land that:
  - will result in an impervious area greater than 25% of the net developable area; or
  - will result in six (6) or more dwellings.
- A Reconfiguration of a Lot (ROL) for urban purposes that involves a land area greater than 2,500m^2 and will result in six (6) or more lots; or
- Operational works for urban purposes that involve disturbing more than 2,500m^2 of land.

The proposal does not include an MCU for land area greater than 2,500m^2. As a result, the development is classed as "low risk" for water quality. Therefore, best practice management is required to provide adequate stormwater quality treatment.

9.2 Erosion and Sediment Control

9.2.1 Erosion Hazard Assessment

The erosion risk has been assessed against the BCC Erosion hazard guidelines and found to be low risk. Refer to the Erosion Hazard Form attached in **Appendix E.**

9.2.2 Pre-Development Phase

Prior to construction commencing, the following erosion and sediment control measures will need to be installed around the subject site to minimise disturbance and ensure the quality of runoff discharging from the site is of an acceptable standard:

- Sediment barriers to be installed on all entrances to downstream stormwater infrastructure (i.e. gully pits);
- Install construction entry and exit shakedown areas;
- Sediment fences are to be installed on the downstream boundaries of the subject site; and
- Install dust control measures as required.

All erosion and sediment control measures are to be designed and installed in accordance with IECA Guidelines. Further details regarding the proposed erosion and sediment control measures will be provided during the detailed design phase of the development.

9.2.3 Bulk Earthworks Phase

During the bulk earthworks phase, the following erosion and sediment control measure will need to be installed in addition to the aforementioned measures (Pre-Development Phase) to ensure there is minimal disturbance to downstream receiving water bodies:

- Construction chutes to control runoff over earthworks batters;
- Construction of temporary bunds at the top of all earthworks batters to ensure runoff is directed away from exposed batters;
- Sediment basins to be constructed at low points within each stage of the proposed development;
- Construction of temporary diversion drains to divert water to sediment basins and around any stockpiles;
- Sediment fences to be installed on the downstream side of any stockpiles; and
- Stabilisation of all batters upon reaching the finished earthworks levels.

All erosion and sediment control measures are to be designed and installed in accordance with IECA Guidelines. Further details regarding the proposed erosion and sediment control measures will be provided during the detailed design phase of the development.

9.2.4 Construction Phase

During the construction phase of the development, there is a risk of sedimentation transport due to large areas of disturbed land. The following erosion and sediment control measure will need to be installed in addition to the aforementioned measures (Pre-Development and Bulk Earthworks Phases) to ensure there is minimal disturbance and the quality of runoff is maintained to an acceptable standard:

- Construction of temporary diversion drains to divert water to sediment basins;
- Construction of temporary diversion drains to divert water to protect bioretention and treatment devices as required;
- Sediment barriers to be installed on all entrances to newly constructed stormwater infrastructure (i.e. gully pits);
- Sediment fences to be installed on the downstream side of any stockpiles and batters; and
- Re-vegetation of all disturbed areas within two (2) weeks of completion.

All erosion and sediment control measures are to be designed and installed in accordance with IECA Guidelines. Further details regarding the proposed erosion and sediment control measures will be provided during the detailed design phase of the development.

9.2.5 Maintenance

All erosion and sediment control devices are to be maintained through the entire phase of the development leading up to the operational phase. Erosion and sediment control devices will need to be monitored closely throughout the entire project to ensure they are operating correctly and efficiently. No erosion and sediment control devices are to be removed, unless otherwise authorised by a suitably qualified engineer or the site superintendent.

9.3 Operational Phase Treatment Devices

Currently no stormwater quality management measures are in place for the subject site, and as the site area is less than 2,500m^2,no specific stormwater quality targets need to be achieved through the treatment train. Best-management practice for stormwater treatment measures is recommended for the development.

10 SEWERAGE & WATER DEMAND

As the subject site is located within a Urban Utilities (UU) service area, sewerage and water demands for the proposed development and their impacts on the current reticulation infrastructure will be calculated by QUU as part of the sewerage and water approval. Thus, no water or sewerage demand calculations have been provided as part of this report.

11 WATER SUPPLY

11.1 Existing Infrastructure

A BYDA search identified the following water infrastructure relevant to the subject site:

- An existing 20mm property connection from across Campbell Street adjacent to the north boundary of the subject site;
- An existing 150mm Cast Iron (CI) water main along the centre of Campbell Street.

Refer to the BYDA information in **Appendix G** for further information regarding the existing water infrastructure.

11.2 Point of Connection

ADG Engineers anticipate that the proposed development will be upgrading the existing 20mm water connection that connects into the 150mm CI water main along Campbell Street. Details and size of the proposed connection will be provided at detailed design.

To understand with greater certainty the requirements from Urban Utilities (UU) for this development, a Service Advice Notice Request has been prepared and lodged with UU.

For more information on the proposed connection, refer to the Preliminary Civil Services Layout Plan in **Appendix B.**

12 SEWERAGE RETICULATION

12.1 Existing Infrastructure

A BYDA search identified the following sewerage infrastructure relevant to the subject site:

- An endcap located in the subject site to the eastern RP boundary. This is the existing sewer connection for the property.
- A 150mm Asbestos Cement (AC) main at the eastern RP boundary that traverses neighbouring lot (8 Campbell Street) onto Markwell Street;
- A 150mm Earthenware (EW) main running along Campbell Street.

Refer to the BYDA information in **Appendix G** for further information regarding the existing sewerage infrastructure.

12.2 Point Of Connection

To service the proposed development, a private pump station and rising main is proposed to pump sewerage from the lower ground floor.

ADG Engineers anticipate that the proposed development will connect into the existing sewer endcap located at the eastern RP boundary. Details of the proposed connections will be subject to UU's approvals and provided at the detailed design stage.

To understand with greater certainty the requirements from Urban Utilities (UU) for this development, a Service Advice Notice Request has been prepared and lodged with UU.

For more information on the proposed connection, refer to the Preliminary Civil Services Layout Plan in **Appendix B.**

13 ELECTRICAL SUPPLY

The BYDA information has identified that the following infrastructure is present within the vicinity of the subject site:

- Underground electrical cables (less than 33kV) along Campbell Street along the frontage of the subject site;
- Underground electrical cables (less than 33kV) along laneway, Southern of the subject site; and
- Underground electrical cables (less than 33kV) along Hurworth Street.
- A pit in the corner of Campbell Street and Hurworth Street.

An electrical consultant will determine the extent of the upgrading and connection works that will be required to facilitate the required electrical reticulation for the proposed development at detailed design stage.

Refer to the BYDA Information in **Appendix G** for further details on the existing electrical infrastructure.

14 COMMUNICATIONS

The BYDA information has identified that the following infrastructure is present within the vicinity of the subject site:

- Underground Uecomm assets on the opposite side of the subject site along Campbell Street;
- Underground Optus cabling on the opposite side of the subject site along Campbell Street;
- Underground conduit owned by Telstra along the frontage of the subject site on Campbell Street;
- Underground pipe network by Telecom from Hurworth Street to the West.

It is proposed that the telecommunications consultant will negotiate with the relevant carriers regarding the requirements of the proposed development telecommunications connection and the extent of any upgrading and possible relocation works to the system if necessary.

Refer to the BYDA Information in **Appendix G** for further details on the existing communications infrastructure.

15 GAS

The BYDA information has identified the following APA Gas infrastructure within the vicinity of the subject site:

- Underground medium pressure gas pipeline beneath Campbell Street along the frontage of the subject site (1.7m from property boundary).
- Underground high-pressure gas pipeline running parallel to the above-mentioned pipeline (5.4m from property boundary).

It is proposed that the gas consultant will negotiate with the relevant carriers regarding the requirements of the proposed development gas connection and the extent of any up grading and possible relocation works to the system if necessary.

Refer to the BYDA Information in **Appendix G** for further details on the existing gas infrastructure.

16 PRIORITY INFRASTRUCTURE UPGRADES

Review of the BCC eBIMAP2 Priority Infrastructure Plan Maps indicates that no priority infrastructure upgrades are planned within close proximity to the subject site.

It is however noted in the pre-lodgement meeting between the consultants and Economic Development Queensland (EDQ) (Ref no. PRE2023/747, dated 23/01/2024) that the area of Campbell Street fronting the development is expected to undergo streetscape upgrades resulting in a verge width of at least 3.75m. The development proposes a land dedication along the frontage to facilitate the mentioned upgrades.

It also understood that the laneway located at the rear of the site is to achieve a minimum 2.5m verge width to be consistent with the streetscape hierarchy overlay. This was discussed during the pre-lodgement meeting with EDQ. The development proposes to provide a volumetric easement to facilitate the verge widening.

Please refer to the architectural drawings for further details pertaining the land dedication fronting Campbell Street and the volumetric easement at the rear of the development.

17 CONCLUSION

The site appears to be well serviced by reticulated water, stormwater infrastructure, sewerage, communications, gas, and electricity. These services will need to be connected during development. Information discussed in this report is inferred from BYDA records and information gathered via site investigation.

As outlined in **Section 8** of this report, despite the minor increase in impervious area in the post-development case, no detention storage has been proposed as the increased in flow rates in the Q10 storm is 0.001 m^3/s. This is considered negligible as it does not impact the existing infrastructure and downstream properties. Furthermore, the post developed case does not consider any provisions for landscaping on the site of which, when provided as part of detailed design, will provide additional pervious areas for consideration that will potentially improve the post developed case for stormwater quantity.

Based on criteria discussed in **Section 9.1**, the proposal includes a MCU of land area smaller than 2,500m^2. The site does not trigger the SPP 2016 for stormwater quality. As a result, the development is classed as “low risk” for water quality. Therefore, best management managements are considered adequate for stormwater quality treatment.

Detailed engineering diagrams and management requirements for the proposed development are to be submitted to Council for approval prior to any works commencing on site with design certification prepared by a qualified stormwater engineer or scientist.

Appendix A
Site Survey Plan

CAMPBELL STREET

ROAD

Site Bench Mark
Screw in concrete
RL 19.312

Site Bench Mark
Screw in kerb
RL 15.768

Part 3 level block and cladding building
Lower Ground floor level 15.57

1
RP144614

3 level (split) concrete block building
Ground floor level 18.83

3
RP10074

50
RP855576

2 level brick and timber cladding building
Lower floor level 20.24
Upper floor level 23.69

Rooftop Terrace
Floor level 27.40

Block Overrun
RL 31.17

Gutter 29.96

Parapet 26.66

Parapet 27.185

Parapet 24.45

Parapet 28.36

99°05'
21.529

279°05'
21.529

40.289
8°57'40"

188°57'40"
40.289

Concrete

Box kerb

Phone

Concrete block wall

From records

Exposed footing

Mountable kerb

Stone ie concrete wall

Upright kerb

SIL-150
17.59

DIL-450
13.81

DIL-225

OR-010208

OR-010107

OR-010108

OR-010104

PT-PARKING

0.0 2.5 5.0 7.5 10.0 12.5 25.0

The underground services have been compiled from a combination of field surveys and "Dial Before You Dig" records as per table.
The accuracy of service alignments shown on this plan may vary depending on the source of the data.
Pot holing should always be undertaken to verify the exact position prior to construction. Whilst all care has been taken to represent the location of all underground services, further services may exist.
These contours do not represent Natural Ground Level as defined by Brisbane CityPlan 2014.

Location of Services Table

Service	Above Ground Services	Invert Levels Measured	DBYD Records	Service Locator	Vacuum Potholing	Other
Sewer	Yes	Yes	Yes	No	No	
Drainage	Yes	Yes	No	No	No	
Water	Yes	No	Yes	No	No	
Elect	Yes	No	Yes	No	No	
Comms	Yes	No	Yes	Yes	No	
Gas	No	No	Yes	Yes	No	

Legend - Kerb Profiles

Field Shot Taken Here

Typical Box Kerb

Field Shot Taken Here

Typical Mountable Kerb

LEGEND

- Electricity Box
- Electricity Light Pole
- Electricity Pit
- Electricity Pole
- Fire Hydrant
- Gas
- Gully Pit (Backstone)
- Gully Pit (Centre of Grate)
- Inspection Opening
- Post
- Sewerage MH
- Stormwater MH
- Telstra Pit
- Tree
- Valve
- Water Meter

- Crown of Road
- Edge of Concrete
- Edge of Bitumen
- Fence
- Top of Bank
- Bottom of Bank
- Sewerage S
- Stormwater D
- Water W
- Electrical E
- Overhead Wires
- Comms T
- Gas G

Coding for Trees

OR=Ornamental Tree

Type of Tree
DIA of Trunk 0.2m
Radial Spread of Canopy 3.0m
Approx Height of Tree 5m

GM-020305

Tree Legend

JW Surveys

Cadastral Land Surveyors
Building and Civil Set Out Works
PO Box 39 Bald Hills QLD 4036
Info@jwsurveys.com.au

Client: CFMEU

Project / Location

10-12 Campbell Street
Bowen Hills

Real Property Description
Lots 4 & 5 on RP10074

Datum for Levels - AHD via GNSS

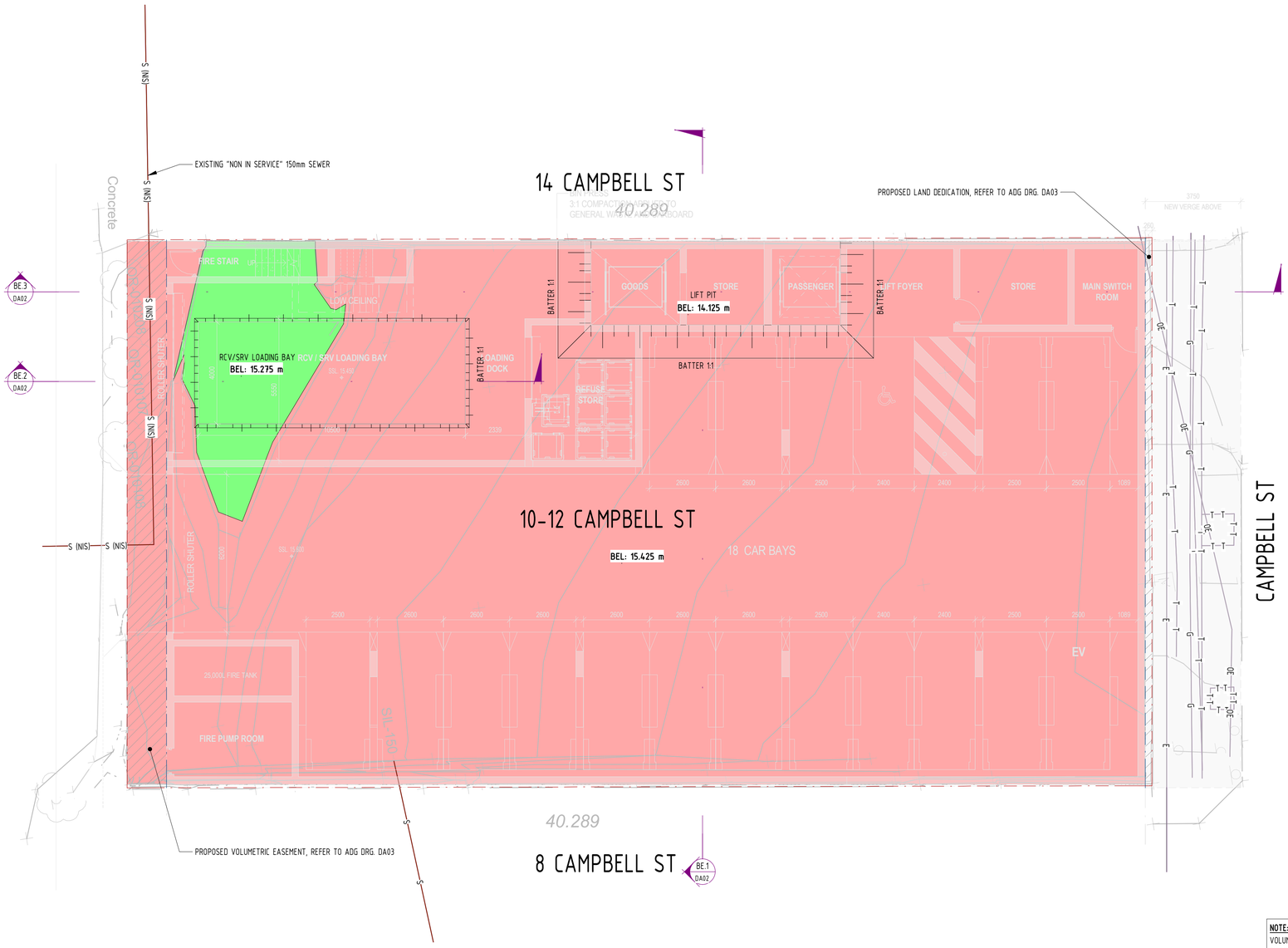
Contour & Detail Survey

Scale 1:250

Date - 20/03/2024 When plotted at A3

Job No.	Drawing No.	Issue
23215	JW 617	1

Appendix B
Preliminary Engineering Plans



BULK EARTHWORKS NOTES

1. REFER TO DRAWING SERIES XXXX FOR THE FOLLOWING:
   - GENERAL AND CONSTRUCTION NOTES
   - ABBREVIATIONS
   - NOTATIONS
   - SYMBOLOGY
2. FOR DETAILS OF R.L.s, DIMENSIONS AND SET OUT ETC. REFER TO LATEST ARCHITECT'S DETAILS. ENGINEER TO BE NOTIFIED OF ANY VARIATION TO THAT SHOWN ON ENGINEER'S DRAWINGS PRIOR TO THE COMMENCEMENT OF ANY WORKS.
3. **LEGEND**

PROPOSED EARTHWORKS CUT
PROPOSED BATTER
C—C DENOTES SERVICES - COMMUNICATIONS
E—E DENOTES SERVICES - ELECTRICAL UNDERGROUND
G—G DENOTES SERVICES - GAS
NBN—NBN DENOTES SERVICES - NBN
O—O DENOTES SERVICES - OPTUS
OE—OE DENOTES SERVICES - ELECTRICAL OVERHEAD
RM—RM DENOTES SERVICES - SEWER RISER MAIN
S—S DENOTES SERVICES - SEWER
S (NIS)S (NIS) DENOTES SERVICES - SEWER NOT IN SERVICE
SWD—SWD DENOTES SERVICES - STORMWATER DRAINAGE
T—T DENOTES SERVICES - TELECOMMUNICATIONS/TELSTRA
W—W DENOTES SERVICES - WATER
?—? DENOTES SERVICES - UNKNOWN SERVICES

ANY SERVICES PREFIXED WITH EX DENOTES EXISTING SERVICES TYPICAL

BULK EXCAVATION

1. CONTRACTOR TO ALLOW FOR ALL COSTS ASSOCIATED WITH ROCK EXCAVATION WITHIN CONTRACT RATES.
2. COMPACT THE EXPOSED SUBGRADE OR LOOSE TOP LEVEL MATERIAL TO A MINIMUM 98% STANDARD MAXIMUM DRY DENSITY TO AS1289 5.1.1. ANY 'SOFT SPOTS' IDENTIFIED BY THE PROOF ROLLING SHALL BE REMOVED AND REPLACED WITH A COMPACTED IMPORTED GENERAL FILL MATERIAL TO THE ABOVE COMPACTION REQUIREMENTS.
3. IMPORTED GENERAL FILL MATERIAL SHALL BE SUPPLIED AND COMPACTED WHERE NECESSARY TO OBTAIN SUBGRADE/PLATFORM LEVEL. IMPORTED GENERAL FILL MATERIAL SHALL BE CLEAN GRADED MATERIAL FREE OF ORGANIC MATTER AND STONES GREATER THAN 150mm AND CAPABLE OF BEING COMPACTED INTO COHERENT FILLING TO THE SPECIFIED STANDARD. THE MATERIAL SHALL HAVE A LINEAR SHRINKAGE NOT GREATER THAN 8% AND A MINIMUM C.B.R. OF 10%.
4. ANY PROPOSED RETAINING WALL WORKS MUST BE WHOLLY WITHIN THE PROPERTY BOUNDARY OF THE SUBJECT SITE, INCLUDING REAR OF RETAINING WALL DRAINAGE INFRASTRUCTURE FOR RETAINING WALLS IN CUT.
5. ALL RETAINING WALL STRUCTURAL DESIGN AND CONSTRUCTION CERTIFICATION BY MANUFACTURER / INSTALLER.
6. THE NOMINATED GEOTECHNICAL TESTING AUTHORITY SHALL PROVIDE CERTIFICATION THAT ALL GENERAL EARTHWORKS OPERATIONS HAVE BEEN CARRIED OUT IN ACCORDANCE WITH THE DRAWINGS.
7. CONTRACTOR TO UNDERTAKE ALL EARTHWORKS TESTING TO COMPLY WITH THE PROJECT SPECIFICATION AND LOCAL AUTHORITY REQUIREMENTS.
8. ALL EARTHWORKS TO BE CARRIED OUT AT +/- 2% OPTIMUM MOISTURE CONTENT.
9. ALL NEW WORKS TO MATCH NEATLY INTO EXISTING
10. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH APPROVED MANAGEMENT PLANS.
11. CONTRACTOR TO ENSURE SUITABLE EROSION CONTROL MEASURES ARE INSTALLED INCLUDING BUT NOT LIMITED TO SHAKE DOWNS, SILT FENCE ETC.
12. ADEQUATE SAFETY FENCING/BARRIERS TO BE APPLIED TO ALL BATTERS OR RETAINING WALLS (TEMPORARY OR PERMANENT) AS PER RELEVANT AUSTRALIAN STANDARDS AND LEGISLATION.
13. DUST CONTROL MEASURES ARE TO INCLUDE SPRAYING WATER ON UNPAVED ROADS, ACCESS TRACKS AND STOCKPILES AT A SUFFICIENT LEVEL TO SUPPRESS DUST GENERATION. ADDITIONALLY CONTRACTORS ARE TO COVER OR ENCLOSE STOCKPILES WHERE REASONABLY PRACTICAL TO RESTRICT DUST MOVEMENT.
14. PRIOR TO THE CONTRACTOR COMMENCING ANY WORKS DETAILED ON THIS DRAWING, THE CONTRACTOR IS TO NOTIFY ADG ENGINEERS (AUST) PTY LTD AND RECEIVE WRITTEN CONFIRMATION THAT WORKS CAN COMMENCE
15. ALL BATTERS TO BE KEYED/STEPPED INTO EXISTING MATERIAL AS DIRECTED BY GEOTECHNICAL ENGINEER. CONTRACTOR TO ALLOW FOR ALL KEYING/STEPPING AS REQUIRED.
16. ALL TEMPORARY AND FINAL BATTER SLOPES ARE TO BE INSPECTED AND APPROVED BY GEOTECHNICAL ENGINEER. CERTIFICATION OF LONG TERM STABILITY TO BE PROVIDED BY GEOTECHNICAL ENGINEER PRIOR TO PRACTICAL COMPLETION.
17. CONTRACTOR'S RPEQ GEOTECHNICAL ENGINEER IS TO CONFIRM THAT ALL CONSTRUCTED CUT/FILL BATTERS AND RETAINING STRUCTURES ON THE SITE HAVE ACHIEVED ADEQUATE STABILITY WITH A LONG-TERM FACTOR OF SAFETY GREATER THAN OR EQUAL TO 1.5 AGAINST GEOTECHNICAL FAILURES.
18. EARTHWORKS LEVELS SHOWN ARE BULK EARTHWORKS LEVELS.
19. FOR DETAILED GEOTECHNICAL INFORMATION, REFER DRAFT GEOTECHNICAL DRAFT INVESTIGATION REPORT BY BUTLER PARTNERS DATED 22 DECEMBER 2020. IT IS RECOMMENDED THAT THE GEOTECHNICAL CONSULTANT BE CONTACTED TO CONFIRM THE SOIL CONDITIONS PRIOR TO EARTHWORKS COMMENCING.
20. DETAILED EARTHWORKS LEVELS SHALL BE DETERMINED RELATIVE TO THE FINISHED SURFACE LEVELS. REFER ARCHITECTURAL DRAWINGS FOR SLAB LEVELS AND TO THE STRUCTURAL ENGINEERS DRAWINGS FOR BUILDING SLAB THICKNESSES.
21. CONTRACTOR TO REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR DETAILED SLAB THICKNESSES PRIOR TO CONSTRUCTION.

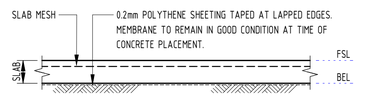
BASEMENT EXCAVATION
CUT TO SPOIL. NO STOCKPILE OF SOILS IS ALLOWED FOR. ALL EXCAVATION IS TO BE TAKEN OFF SITE AND DISPOSED IMMEDIATELY U.N.O

NOTE:
VOLUMES DENOTED BELOW IS DERIVED FROM EXISTING SURFACE (SURVEY) TO THE UNDERSIDE OF LOWER GROUND FLOOR SLAB.

CUT / FILL VOLUME

CUT	FILL	NET CUT/FILL
1830 m^3	28 m^3	-1803 m^3
1830 m^3	28 m^3	-1803 m^3

NOTE - EXCAVATION. CUT/FILL VOLUMES IN THESE SCHEDULES ARE AN APPROXIMATE TAKE OFF FOR INFORMATION PURPOSES ONLY, VOLUMES DO NOT MAKE ALLOWANCE FOR COMPACTION / SWELLING FACTORS OR TOP SOIL STRIPPING. ALL QUANTITIES SHOULD BE CHECKED & VERIFIED BY A QUALIFIED QUANTITY SURVEYOR.



SLAB ON GROUND SHALL BE FOUNDED ON 3% INSITU SUBGRADE. ALL SUBGRADE MATERIAL SHALL BE INSPECTED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER FOR 'SOFT' SPOTS, DETERMINED BY USE OF PROOF ROLLING. WHERE ZONES OF SOFT CLAYS ARE FOUND, THE CONTRACTOR SHALL ALLOW FOR ITS REMOVAL AND REPLACEMENT WITH TYPE 2.3 SUBBASE COMPACTED IN MAX 150MM LAYERS OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE USE OF GEOTECHNICAL BRIDGING LAYERS SHALL BE ASSESSED ON SITE BY A GEOTECHNICAL ENGINEER.

TYPICAL BEDDING/ BRIDGING DETAIL

SCALE 1:20

APPROVAL
NOT FOR CONSTRUCTION
PRINT IN COLOUR

0 1 2 3 4 5m
SCALE 1:100
AT ORIGINAL SIZE (A1)

Rev	Date	Description	By	Chk
1	12.04.24	DA APPROVAL	SC	CDM

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Quality Assurance ISO 9001:2015 | Work Health Safety ISO 45001:2018
Environmental Management ISO 14001:2015

Client
CFMEU

Project Name
BOWEN CENTRE - AUDITORIUM AND CONFERENCE CENTRE
10-12 CAMPBELL STREET, BOWEN HILLS

True North

Title
BULK EARTHWORKS PLAN

Discipline	Status
CIVIL	APPROVAL
Designed By	**Checked By**	**Approved By**
ETY	CDM	CMD
Project No.	**Drawn By**	**Scale**
27629	SC	1 : 100 (at A1)
Drawing No.	**Revision**
DA01	1

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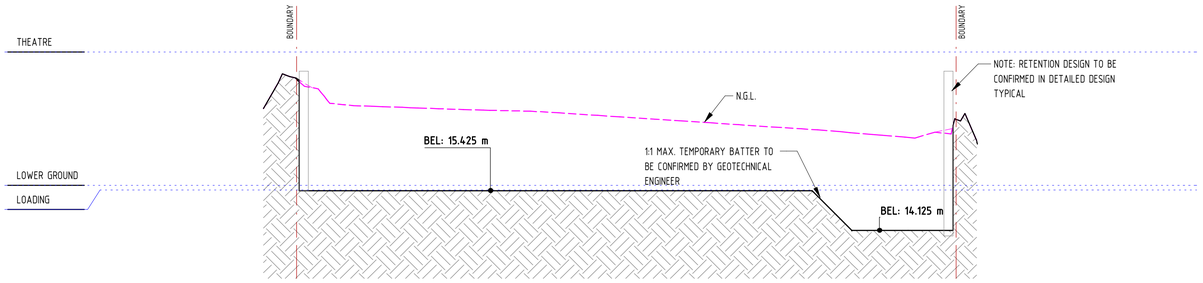
FULL SIZE ON ORIGINAL 0 10 20 30 40 50 60 70 80 90 100mm



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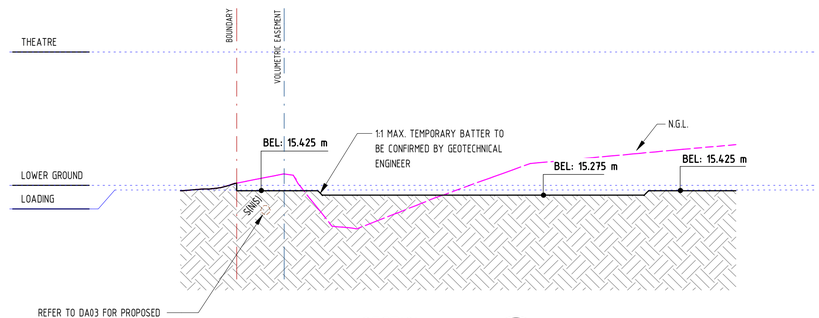

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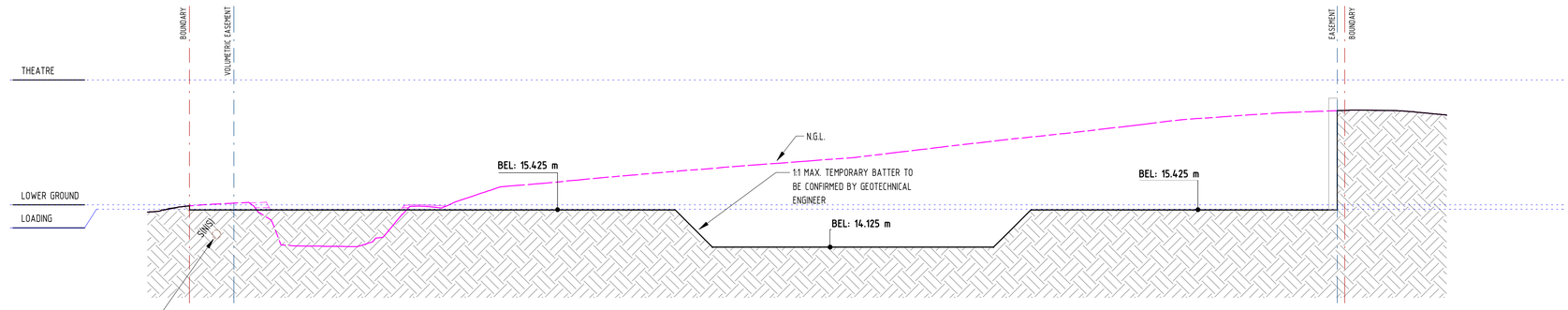

SECTION BE.3
SCALE 1 : 100 DA01

APPROVAL
NOT FOR CONSTRUCTION
PRINT IN COLOUR

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SCALE 1:100
AT ORIGINAL SIZE (A1)

Rev	Date	Description	By	Chk
1	12.04.24	DA APPROVAL	SC	CDM

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Quality Assurance ISO 9001:2015 | Work Health Safety ISO 45001:2018
Environmental Management ISO 14001:2015

Client
CFMEU

Project Name
BOWEN CENTRE - AUDITORIUM AND CONFERENCE CENTRE
10-12 CAMPBELL STREET, BOWEN HILLS

Title
BULK EARTHWORKS SECTONS
SHEET 01

Discipline		Status
CIVIL		APPROVAL
Designed By	Checked By	Approved By
ETY	ETY	GVG
Project No.	Drawn By	Scale
27629	SC	1 : 100 (at A1)
Drawing No.		Revision
DA02		1

FULL SIZE ON ORIGINAL 0 10 20 30 40 50 60 70 80 90 100mm

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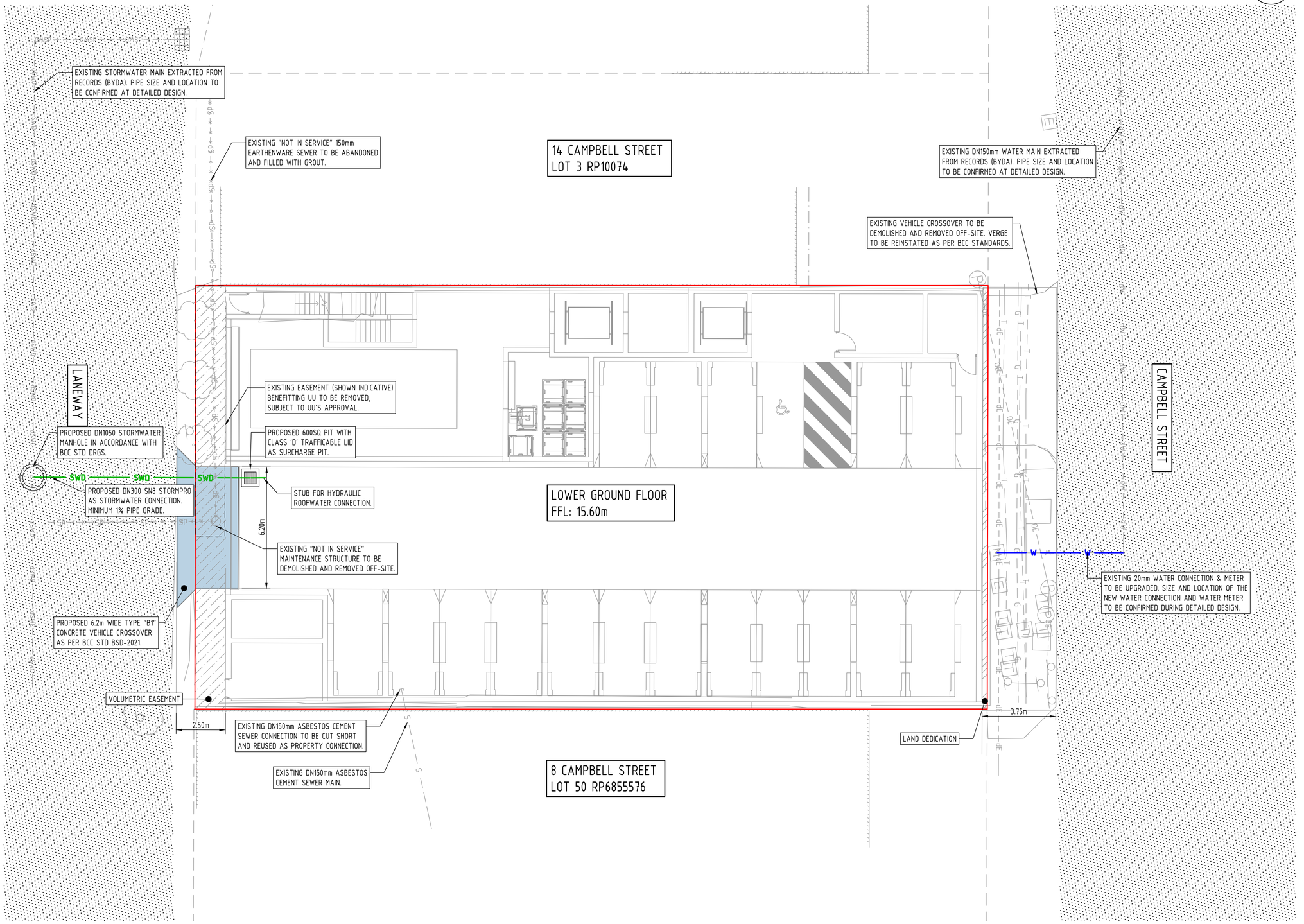
LEGEND

- 12.0 — FINISHED SURFACE CONTOURS
- SITE BOUNDARY
- EXISTING PROPERTY BOUNDARY
- EXISTING EASEMENT BOUNDARY
- EXISTING NOMINAL KERB LINE
- EXISTING ROAD CENTERLINE
- dSWD — EXISTING STORMWATER DRAINAGE (RECORDS)
- dS — EXISTING SEWER (RECORDS)
- S — EXISTING SEWER
- dW — EXISTING WATER (RECORDS)
- dE — EXISTING UNDERGROUND ELECTRICITY (RECORDS)
- T — EXISTING TELECOMMUNICATIONS
- G — EXISTING GAS
- ABANDONED SERVICE
- SWD — PROPOSED STORMWATER DRAINAGE
- W — PROPOSED WATER CONNECTION
- EXISTING ROAD
- VOLUMETRIC EASEMENT
- LAND DEDICATION
- PROPOSED TYPE "B1" CONCRETE VEHICLE CROSSOVER AS PER BCC STD BSD-2021.



NOTE

1. REFER TO ADG DRG DA04 FOR CATCHMENT AREAS.
2. ALL STORMWATER INLET PITS TO BE PROVIDED WITH OCEANGUARDS.
3. ALL INFORMATION CONTAINED WITHIN THIS PLAN IS SUBJECT TO DETAILED DESIGN.

ISSUED FOR
APPROVAL

Rev	Date	Description	By	Chk
01	12.04.24	ISSUED FOR APPROVAL	CC	CDM

SCALE 1:100
AT ORIGINAL SIZE (A1)

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Quality Assurance ISO 9001:2015 | Work Health Safety ISO 45001:2018
Environmental Management ISO 14001:2015

Client: CFMEU	Discipline: CIVIL		Status: APPROVAL
Project Name: BOWEN CENTRE - AUDITORIUM AND CONFERENCE CENTRE 10-12 CAMPBELL ST BOWEN HILLS QLD 4006	Designed By: ETY	Checked By: ETY	Approved By: CDM
	Project No.: 27629	Drawn By: CC	Scale at A1: 1:100

Title: PRELIMINARY CIVIL SERVICES LAYOUT PLAN

Drawing No.: DA03 | Revision: 01

PLOT DATE: 4/12/2024 3:14 PM FILENAME: J:\BNE\27000\27629\CIVIL\DWG\27629_DA03_PRELIMINARY CIVIL SERVICES LAYOUT PLAN.DWG

FULL SIZE ON ORIGINAL 0 10 20 30 40 50 60 70 80 90 100mm

LEGEND

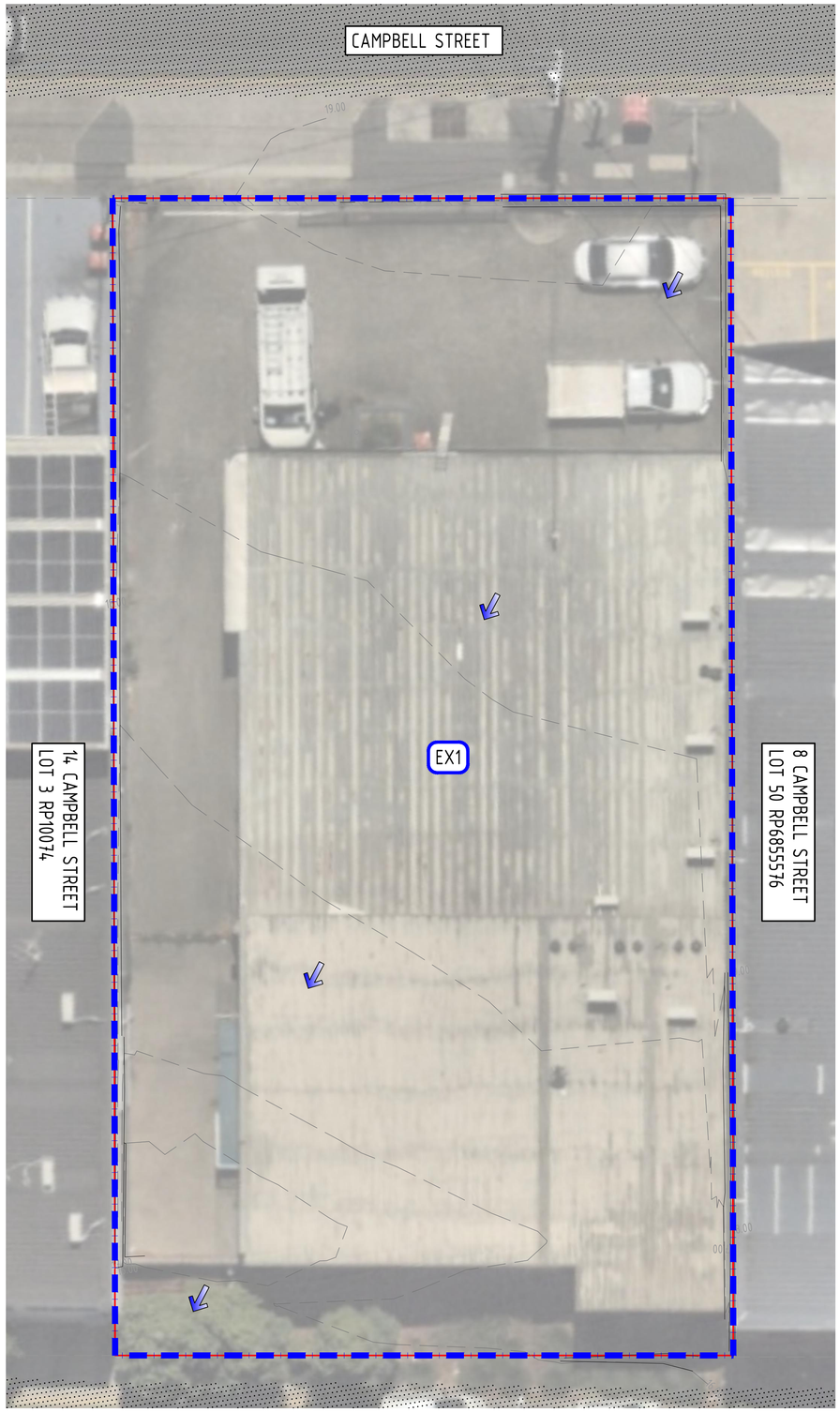
- SITE BOUNDARY
- EXISTING PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- 12.0 EXISTING SURFACE CONTOURS
- EXISTING NOMINAL KERB LINE
- SWD EXISTING STORMWATER
- dSWD EXISTING STORMWATER (RECORDS)
- CATCHMENT BOUNDARY
- EX1 CATCHMENT LABEL
- CATCHMENT FLOW DIRECTION

CATCHMENT TABLE (PRE DEVELOPMENT)

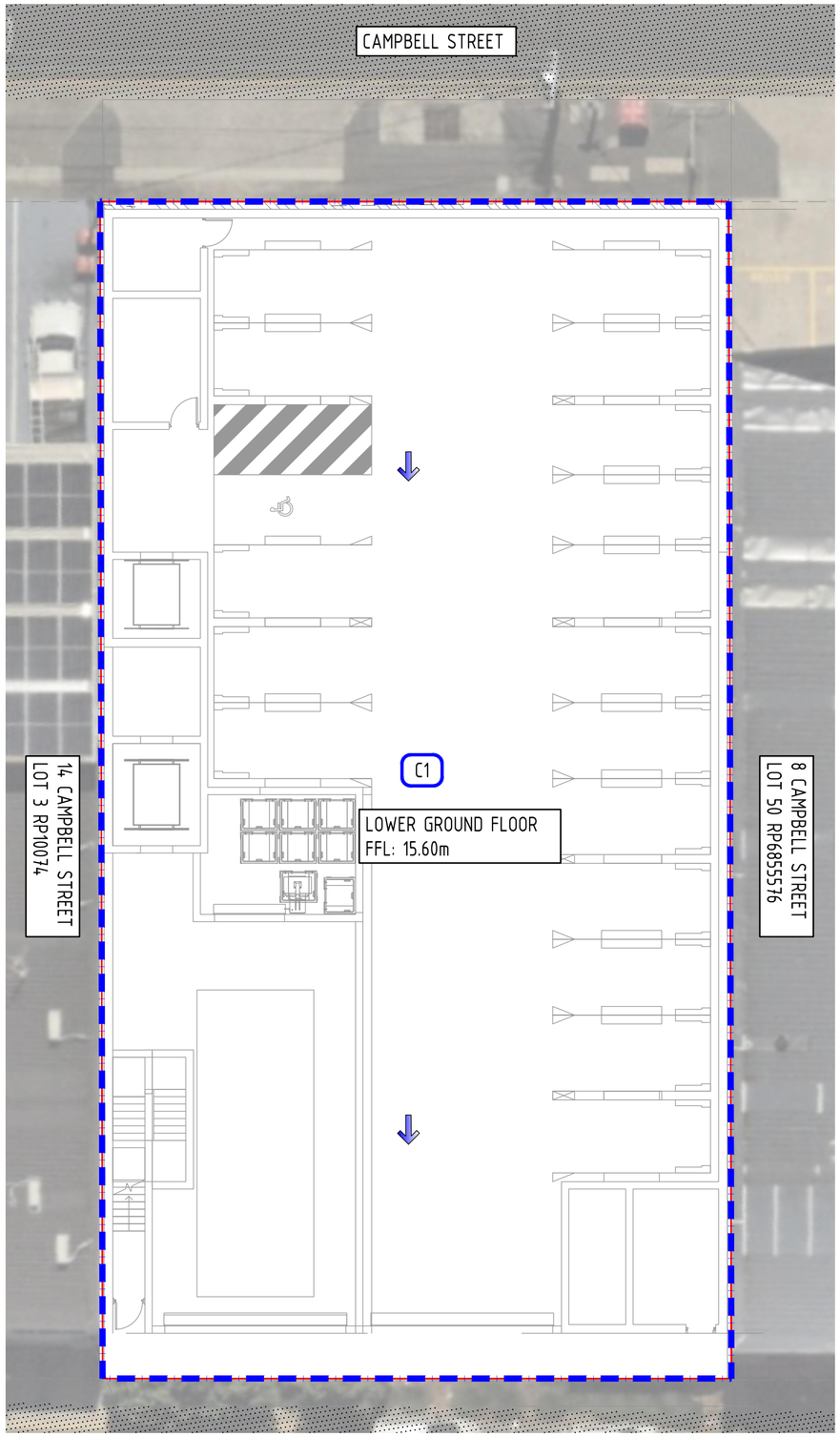
CATCHMENT NAME	AREA (ha)	FRACTION IMPERVIOUS
EX1	0.0866	0.93

CATCHMENT TABLE (POST DEVELOPMENT)

CATCHMENT NAME	AREA (ha)	FRACTION IMPERVIOUS
C1	0.0866	1.00



PRE-DEVELOPMENT CATCHMENT PLAN
SCALE 1:100



POST-DEVELOPMENT CATCHMENT PLAN
SCALE 1:100

ISSUED FOR
APPROVAL

Rev	Date	Description	By	Chk
01	12.04.24	ISSUED FOR APPROVAL	CC	CDM

0 1 2 3 4 5m
SCALE 1:100
AT ORIGINAL SIZE (A1)

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Quality Assurance ISO 9001:2015 | Work Health Safety ISO 45001:2018
Environmental Management ISO 14001:2015

Client: CFMEU

Project Name: BOWEN CENTRE - AUDITORIUM AND CONFERENCE CENTRE
10-12 CAMPBELL ST
BOWEN HILLS QLD 4006

Discipline		Status
CIVIL		APPROVAL
Designed By: ETY	Checked By: ETY	Approved By: CDM
Project No.: 27629	Drawn By: CC	Scale at A1: 1:100

Title: PRE-DEVELOPMENT AND POST-DEVELOPMENT STORMWATER CATCHMENT PLAN

Drawing No.: DA04
Revision: 01

PLOT DATE: 4/12/2024 3:14 PM FILENAME: J:\BNE\27000\27629\CVL\DWG\27629_DA04_PRE-DEVELOPMENT AND POST-DEVELOPMENT STORMWATER CATCHMENT PLAN.DWG

FULL SIZE ON ORIGINAL 0 10 20 30 40 50 60 70 80 90 100mm

Appendix C
BCC Code Response

8.2.15 Potential and actual acid sulfate soils overlay code

8.2.15.1 Application

1. This code applies to assessing development in the Potential and actual acid sulfate soils overlay, if:
   a. assessable development where this code is an applicable code identified in the assessment benchmarks column of a table of assessment for an overlay (section 5.10); or
   b. impact assessable development.

Note—Where the natural ground level is greater than 20m AHD, the Potential and actual acid sulfate soils overlay code does not apply.

Editor's note—Where the Potential and actual acid sulfate soils overlay code does not apply, it is recommended that acid sulfate soil be appropriately managed in other circumstances as well. For example, installing a piped drain may not disturb much soil but could result in a degraded asset.

2. Land in the Potential and actual acid sulfate soils overlay is identified on the Potential and actual acid sulfate soils overlay map and is included in the following sub-categories:
   a. Potential and actual acid sulfate soils sub-category;
   b. Land at or below 5m AHD sub-category;
   c. Land above 5m AHD and below 20m AHD sub-category.
3. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to acid sulfate soils, an acid sulfate soil investigation report, or an acid sulfate soil management plan, guidance is provided in the Potential and actual acid sulfate soils planning scheme policy.

8.2.15.2 Purpose

1. The purpose of the Potential and actual acid sulfate soils overlay code is to:
   a. Implement the policy direction in the Strategic framework, in particular Theme 2: Brisbane's outstanding lifestyle and Element 2.3 — Brisbane's healthy and safe communities.
   b. Provide for the assessment of the suitability of development in the Potential and actual acid sulfate soils overlay.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. Development ensures that the release of an acid and associated metal contaminant is avoided by not disturbing acid sulfate soils when excavating, removing soil or extracting groundwater or filling land.
   b. Development ensures that disturbed acid sulfate soils or drainage waters are treated and, if required, ongoing management practices are adopted that minimise the potential for environmental harm from acid sulfate soil and protect corrodible assets from acid sulfate soil.
   c. Development is located, designed and constructed to avoid the mobilisation and release of iron compounds for coastal algal blooms.

8.2.15.3 Performance outcomes and acceptable outcomes

Table 8.2.15.3—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
PO1 Development protects the environmental values and ecological health of receiving waters and does not subject assets to accelerated corrosion.	**AO1** Development ensures that: a. no potential or actual acid sulfate soils are disturbed; or Note—This can be demonstrated through the submission of an acid sulfate soil investigation report with reference to the Potential and actual acid sulfate soils planning scheme policy. b. the disturbance impacts in an area that hosts potential acid sulfate soils are appropriately managed, if less than 500m^3 of soil is disturbed and the watertable is not affected; or Note—This can be demonstrated through the submission of an acid sulfate soil investigation report and a preliminary acid sulfate soil management plan, with reference to the Potential and actual acid sulfate soils planning scheme policy. c. impacts are appropriately managed if 500m^3 or more of soil is disturbed or the watertable in an area that hosts potential or actual acid sulfate soils is affected. Note—This can be demonstrated through the submission of an acid sulfate soil investigation report and a full acid sulfate soil management plan, with reference to the Potential and actual acid sulfate soils planning scheme policy using levels of testing commensurate with the level of risk. If the investigation demonstrates that an acid sulfate soil management plan is not required, only an investigation report is required.	Acid Sulphate Soil Investigation Report to be prepared to confirm whether contaminated soil is present onsite. If present, acid sulphate soil management plan will be prepared and submitted. Acid sulphate soil management plan to be undertaken by an appropriately skilled consultant during detailed design.

9.4.3 Filling and excavation code

9.4.3.1 Application

1. This code applies to assessing:
    a. accepted development subject to compliance with identified requirements, where acceptable outcomes of this code are identified requirements in a table of assessment for an overlay (section 5.10); or
    b. operational work for filling or excavation which is assessable development if this code is an applicable code identified in the assessment benchmarks column of a table of assessment for operational work (section 5.8) or an overlay (section 5.10); or
    c. a material change of use or reconfiguring a lot if:
        i. assessable development where this code is identified as a prescribed secondary code in the assessment benchmarks column of a table of assessment for material change of use (section 5.5) or reconfiguring a lot (section 5.6); or
        ii. impact assessable development, to the extent relevant.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—This code does not apply to building work as defined in the Act.

Note—A development application involving a rock anchor within an adjoining site is submitted with proof of consent from an adjoining land and building owner.

Editor's note—Guidance on managing the spread of invasive species in filling or excavation activities is provided in Minimising Pest Spread Advisory Guidelines prepared for the Petroleum industry.

Editor's note—Where filling or excavation is conducted on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register, the relevant Queensland Government department should be contacted for advice and guidelines.

2. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to:

- air quality assessment, guidance is provided in the Air quality planning scheme policy;
- ecological assessment, koala habitat or development design, guidance is provided in the Biodiversity areas planning scheme policy;
- retaining wall construction, guidance is provided in the Infrastructure design planning scheme policy;
- landscape design, guidance is provided in the Landscape design guidelines for water conservation planning scheme policy;
- noise and dust impacts during construction and/or demolition, guidance is provided in the Management plans planning scheme policy;
- noise impact assessment, guidance is provided in the Noise impact assessment planning scheme policy;
- the selection of planting species, guidance is provided in the Planting species planning scheme policy;
- significant vegetation, guidance is provided in the Vegetation planning scheme policy.

Editor's note—For a proposal to be accepted development, subject to compliance with identified requirements, it must meet all the identified acceptable outcomes of this code and any other applicable code. Where it does not meet all identified acceptable outcomes, the proposal becomes assessable development and a development application is required. Where a development application is triggered, only the specific acceptable outcome that the proposal fails to meet needs to be assessed against the corresponding acceptable outcome or performance outcome and relevant overall outcomes. Other identified acceptable outcomes that are met are not assessed as part of the development application.

9.4.3.2 Purpose

1. The purpose of the Filling and excavation code is to assess the suitability of development for filling or excavation.
2. The purpose of the code will be achieved through the following overall outcomes:
    a. filling or excavation does not adversely affect the visual character and amenity of the site or the surrounding area and provides access for maintenance to any structure as a result of filling or excavation.
    b. filling or excavation does not adversely impact significant vegetation, water quality or drainage of upstream, downstream and adjoining land.
    c. filling or excavation effectively manages the impacts associated with the activity.
    d. filling or excavation and any retaining structure is designed and constructed to be fit for purpose and to protect services and utilities.

9.4.3.3 Performance outcomes and acceptable outcomes

Table 9.4.3.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
PO1 Development for filling or excavation minimises visual impacts from retaining walls and earthworks.	**AO1** Development ensures that the total height of any cut and fill, whether or not retained, does not exceed: a. 2.5m in a zone in the Industry zones category; b. 1m in all other zones, or if adjoining a sensitive zone.	N/A
PO2 Development of a retaining wall proposed as a result of filling or excavation: a. is designed and constructed to be fit for purpose; b. does not impact adversely on significant vegetation; c. is capable of easy maintenance. Editor's note—A retaining wall also needs to comply with the Building Regulation and embankment gradients will need to comply with the Building Regulation. Note—Guidance on the protection of native vegetation is included in the Biodiversity areas planning scheme policy.	**AO2.1** Development of a retaining structure, including footings, surface drainage and subsoil drainage: a. is wholly contained within the site; b. if the total height to be retained is greater than 1m, then: i. the retaining wall at the property boundary is no greater than 1m above the ground level; ii. all further terracing from the 1m high boundary retaining wall is 1 vertical unit:1 horizontal unit; iii. the distance between each successive retaining wall (back of lower wall to face of	Performance outcome. Refer to ADG's Preliminary Engineering Plans.

	higher wall) is no less than 1m horizontally to incorporate planting areas. **AO2.2** Development of a retaining wall over 1m in height protects significant vegetation on the site and on adjoining land and is designed and constructed in accordance with the structures standards in the Infrastructure design planning scheme policy and certified by a Registered Professional Engineer Queensland.	
	AO2.3 Development provides a retaining wall finish that presents to adjoining land that is maintenance free if the setback is less than 750mm from the boundary.	
	AO2.4 Development for filling only uses clean fill that does not include any construction rubble, debris, weed seed or viable parts of plant species listed as an undesirable plant species in the Planting species planning scheme policy.	
PO3 Development ensures that a rock anchor is designed and constructed to be fit for purpose.	**AO3** Development ensures that a rock anchor: a. is constructed in accordance with the standards in the Infrastructure design planning scheme policy; b. where it extends beyond the property boundary, is supported by a letter of consent from the adjoining land and building owners.	To be further detailed by an appropriately qualified consultant during detailed design as required.
PO4 Development protects all services and public utilities.	**AO4** Development protects services and public utilities and ensures that any alteration or relocation of services or	To be further explored and confirmed by an appropriately qualified consultant during detailed design.

	public utilities meets the standard design specifications of the responsible service authorities.	
PO5 Development provides surface and sub-surface drainage to prevent water seepage, concentration of run-off or ponding of stormwater on adjacent land.	**AO5** Development ensures all flows and subsoil drainage are directed to a lawful point of discharge of a surface water diversion drain, including to the top or toe of a retaining wall in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	To be further explored and confirmed by an appropriately qualified consultant during detailed design.
PO6 Development ensures that the design and construction of all open drainage works is undertaken in accordance with natural channel design principles, being the development of a stormwater conveyance system for major flows, by using a vegetated open channel or drain that approximates the features and functions of a natural waterway to enhance or improve riparian values of those stormwater conveyance systems. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.	**AO6** Filling or excavation does not involve the construction of open drainage.	Acceptable outcome. Proposed development does not include the implementation of open drainage.
PO7 Development for filling or excavation: a. does not degrade water quality or adversely affect environmental values in receiving waters; b. ensures site sediment and erosion control standards are best practice.	**AO7.1** Development for filling or excavation provides water quality treatment that complies with the stormwater drainage section of the Infrastructure design planning scheme policy. **AO7.2** Development provides erosion and sediment control standards that are in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	To be further explored and implemented by an appropriately qualified consultant during detailed design.

PO8 Development for filling or excavation is conducted such that adverse impacts at a sensitive use due to noise and dust are prevented or minimised. Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.	**AO8.1** Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site. **AO8.2** Development for filling or excavation activity only occurs between the hours of 6:30am and 6:30pm Monday to Saturday, excluding public holidays.	To be further explored and implemented by an appropriately qualified consultant during detailed design.
PO9 Development ensures that vibration generated by the filling or excavation operation does not exceed the vibration criteria in Table 9.4.3.3.B, Table 9.4.3.3.C, Table 9.4.3.3.D and Table 9.4.3.3.E. Note—A noise management report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.	**AO9** Development involving filling or excavation does not cause a ground-borne vibration beyond the boundary of the site.	To be further explored and confirmed by an appropriately qualified consultant during detailed design.
PO10 Development ensures that heavy trucks hauling material to and from the site do not affect the amenity of established areas and limits environmental nuisance impact on adjacent land.	**AO10** Development ensures that heavy trucks hauling material to and from the site: a. occur for a maximum of 3 weeks; b. use a major road to access the site; c. only use a minor road for the shortest-most-direct route that has the least amount of environmental nuisance if there is no major road alternative.	To be further explored and confirmed by an appropriately qualified consultant during detailed design.
PO11 Development for filling or excavation protects the environment and community health and wellbeing from exposure to contaminated land and contaminated material.	**AO11** Development does not involve: a. excavation on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register; b. filling with material containing a contaminant.	To be further explored and confirmed by an appropriately qualified consultant during detailed design.

PO12 Development provides for: a. landscaping for water conservation purposes; b. water sensitive urban design measures which are employed within the landscape design to maximise stormwater use and to reduce any adverse impacts on the landscape; c. stormwater harvesting to be maximised and any adverse impacts of stormwater minimised.	**AO12.1** Development provides landscaping which is designed using the standards in the Landscape design guidelines for water conservation planning scheme policy. **AO12.2** Development ensures that the design and requirements for irrigation are in compliance with the standards in the Landscape design guidelines for water conservation planning scheme policy.	To be further explored and confirmed by an appropriately qualified consultant during detailed design.
	AO12.3 Development provides areas of pavement, turf and mulched garden beds which are drained. Note—This may be achieved through the provision and/or treatment of swales, spoon drains, field gullies, sub-surface drainage and stormwater connections.	
PO13 Development ensures cutting and filling for the development of canals or artificial waterways avoids adverse impacts on coastal resources and processes.	**AO13** Development does not involve the creation of canals or artificial waterways.	Acceptable outcome. Development does not include the creation of a canal, waterway, or otherwise open conveyance of water.

Table 9.4.3.3.B— Recommended intermittent vibration levels for cosmetic damage

Type of building	**Peak particle velocity (mm/s)**		
Reinforced or framed structures; industrial and heavy commercial buildings	50mm/s at 4Hz and above		
Unreinforced or light-framed structures; residential or light-commercial type buildings	Below 4Hz	4Hz to 15Hz	15Hz and above
	0.6mm/s	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to

			50mm/s at 40Hz and above

Table 9.4.3.3.C— Recommended blasting vibration levels for human comfort

Type of building	Type of blasting operations	Peak component particle velocity (mm/s)
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Residences, educational establishments and places of worship	Operations lasting for less than 12 months or less than 20 blasts	10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Industry or commercial premises	All blasting	25 mm/s maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that do not adversely affect the equipment operation.

Table 9.4.3.3.D— Recommended levels for continuous and impulsive vibration acceleration (m/s^2) 1–80Hz for human comfort

Location	Assessment period(1)	Preferred values(3)		Maximum values(3)	
Continuous vibration		z-axis	x and y axes	z-axis	x and y axes
Critical areas(2)	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.01 m/s^2	0.0071 m/s^2	0.02 m/s^2	0.014 m/s^2
-	Night	0.007 m/s^2	0.005 m/s^2	0.014 m/s^2	0.01 m/s^2

Offices, educational establishments and places of worship	Day or night	0.02 m/s^2	0.014 m/s^2	0.04 m/s^2	0.028 m/s^2
Workshops	Day or night	0.04 m/s^2	0.029 m/s^2	0.08 m/s^2	0.058 m/s^2
Impulsive vibration					
Critical areas	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.3 m/s^2	0.21 m/s^2	0.6 m/s^2	0.42 m/s^2
-	Night	0.1 m/s^2	0.071 m/s^2	0.2 m/s^2	0.14 m/s^2
Offices, educational establishments and places of worship	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2
Workshops	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Table 9.4.3.3.E— Recommended vibration dose values for intermittent vibration ($m/s^{1.75}$) for human comfort

Location	**Daytime(1)**		**Night time(1)**	
	Preferred value	**Maximum value**	**Preferred value(3)**	**Maximum value(3)**
Critical areas(2)	0.1 $m/s^{1.75}$	0.2 $m/s^{1.75}$	0.1 $m/s^{1.75}$	0.2 $m/s^{1.75}$
Residences	0.2 $m/s^{1.75}$	0.4 $m/s^{1.75}$	0.13 $m/s^{1.75}$	0.26 $m/s^{1.75}$
Offices, educational establishments and places of worship	0.4 $m/s^{1.75}$	0.8 $m/s^{1.75}$	0.4 $m/s^{1.75}$	0.8 $m/s^{1.75}$

Workshops	0.8 $m/s^{1.75}$	1.6 $m/s^{1.75}$	0.8 $m/s^{1.75}$	1.6 $m/s^{1.75}$

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

9.4.4 Infrastructure design code

9.4.4.1 Application

1. This code applies to assessing a material change of use, reconfiguring a lot or building work if:
   a. assessable development where this code is identified as a prescribed secondary code in the assessment benchmarks column of a table of assessment for a material change of use (section 5.5), reconfiguring a lot (section 5.6),operational work (section 5.8), or an overlay (section 5.10); or
   b. impact assessable development, to the extent relevant.
2. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to:

- ecological assessment, koala habitat or development design, guidance is provided in the Biodiversity areas planning scheme policy;
- infrastructure design and construction works, guidance is provided in the Infrastructure design planning scheme policy;
- noise and dust impacts during construction and/or demolition, guidance is provided in the Management plans planning scheme policy;
- noise impact assessment, guidance is provided in the Noise impact assessment planning scheme policy;
- refuse and recycling, guidance is provided in the Refuse planning scheme policy;
- parking or servicing management during construction, guidance is provided in the Transport, access, parking and servicing planning scheme policy.

9.4.4.2 Purpose

1. The purpose of the Infrastructure design code is to assess the suitability of infrastructure for development.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. Development is provided with a safe, connected and efficient transport network for all modes that has a minimal whole-of-life cost.
   b. Development provides for public utilities and services to the standards acceptable to the Council and the reasonable expectations of service providers.
   c. Development involving infrastructure which is intended to become a Council asset is safe, aesthetically pleasing, functional, fit for purpose, durable, minimises environmental impacts and has minimal whole-of-life cost.
   d. Development provides for a public space to be safe and inviting, allowing high levels of pedestrian activity.
   e. Development ensures that the community and environment are not unreasonably disrupted or impacted by construction or demolition for the development.
   f. Development involving infrastructure is designed with consideration of, and to integrate with, other related and interfacing infrastructure components.
   g. Development accessed by common private title is provided with appropriate fire hydrant infrastructure and has unimpeded access for refuse vehicles and for emergency service vehicles to protect people, property and the environment.
   h. Development ensures major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System is not compromised.
   i. Development for major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System avoids or otherwise minimises adverse impacts on surrounding land uses.

9.4.4.3 Performance outcomes and acceptable outcomes

Table 9.4.4.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
PO1 Development provides roads, pavement, edging and landscaping which: a. are designed and constructed in accordance with the road hierarchy; b. provide for safe travel for pedestrians, cyclists and vehicles; c. provide access to properties for all modes; d. provide utilities; e. provide high levels of aesthetics and amenity, improved liveability and future growth; f. provide for the amelioration of noise and other pollution; g. provide a high-quality streetscape; h. provide a low-maintenance asset with a minimal whole-of-life cost. Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.	**AO1** Development provides roads and associated pavement, edging and landscaping which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A
PO2 Development provides road pavement surfaces which: a. are well designed and constructed; b. durable enough to carry the wheel loads of the intended types and numbers of travelling and parked vehicles; c. ensures the safe passage of vehicles, pedestrians and cyclists, the discharge of stormwater run-off and the preservation of all-weather access;	**AO2** Development provides road pavement surfaces which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A

d. allows for reasonable travel comfort.		
PO3 Development provides a pavement edge which is designed and constructed to: a. control vehicle movements by delineating the carriageway for all users; b. provide for people with disabilities by allowing safe passage of wheelchairs and other mobility aids.	**AO3** Development provides pavement edges which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A
PO4 Development provides verges which are designed and constructed to: a. provide safe access for pedestrians clear of obstructions and access areas for vehicles onto properties; b. provide a sufficient area for public utility services; c. be maintainable by the Council.	**AO4** Development provides verges which are designed and constructed in compliance with the road corridor design and streetscape locality advice standards in the Infrastructure design planning scheme policy.	To be further explored at detailed design by a suitably qualified consultant.
PO5 Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighbourhood plan which: a. allows equitable access for all modes; b. is safe and secure; c. has 24-hour access; d. is a low-speed shared zone environment; e. has a high-quality streetscape.	**AO5** Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighbourhood plan which is embellished in compliance with the streetscape locality advice standards in the Infrastructure design planning scheme policy.	N/A
PO6 Development of an existing premises provides at the frontage to the site, if not already provided, the following infrastructure to an appropriate urban standard: a. an effective, high-quality paved roadway; b. an effective, high-quality roadway kerb and channel;	**AO6** Development of an existing premises provides at the frontage of the site, if not already existing, the following infrastructure to the standard that would have applied if the development involved new premises as stated in the road corridor design standards in the Infrastructure design planning scheme policy:	To be further explored at detailed design by a suitably qualified consultant.

c. safe, high-quality vehicle crossings over channels and verges; d. safe, accessible, high-quality verges compatible and integrated with the surrounding environment; e. safe vehicle access to the site that enables ingress and egress in a forward gear; f. provision of and required alterations to public utilities; g. effective drainage; h. appropriate conduits to facilitate the provision of required street-lighting systems and traffic signals.	a. concrete kerb and channel; b. forming and grading to verges; c. crossings over channels and verges; d. a constructed bikeway; e. a constructed verge or reconstruction of any damaged verge; f. construction of the carriageway; g. payment of costs for required alterations to public utility mains, services or installations; h. construction of and required alterations to public utility mains, services or installations; i. drainage works; j. installation of electrical conduits.	
PO7 Development provides both cycle and walking routes which: a. are located, designed and constructed to their network classification (where applicable); b. provide safe and attractive travel routes for pedestrians and cyclists for commuter and recreational purposes; c. provide safe and comfortable access to properties for pedestrians and cyclists; d. incorporate water sensitive urban design into stormwater drainage; e. provide for utilities; f. provide for a high level of aesthetics and amenity, improved liveability and future growth; g. are a low-maintenance asset with a minimal whole-of-life cost; h. minimise the clearing of significant native vegetation. Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.	**AO7** Development provides cycle and walking routes which are located, designed and constructed in compliance with the road corridor design and off-road pathway design standards in the Infrastructure design planning scheme policy.	To be further explored at detailed design by a suitably qualified consultant.

PO8 Development provides refuse and recycling collection, separation and storage facilities that are located and managed so that adverse impacts on building occupants, neighbouring properties and the public realm are minimised.	**AO8.1** Development provides refuse and recycling collection and storage facilities in accordance with the Refuse planning scheme policy. **AO8.2** Development ensures that refuse and recycling collection and storage location and design do not have any adverse impact including odour, noise or visual impacts on the amenity of land uses within or adjoining the development. Note—Refer to the Refuse planning scheme policy for further guidance.	To be further explored at detailed design by a suitably qualified consultant.
PO9 Development ensures that: a. land used for an urban purpose is serviced adequately with regard to water supply and waste disposal; b. the water supply meets the stated standard of service for the intended use and fire-fighting purposes.	**AO9.1** Development ensures that the reticulated water and sewerage distribution system for all services is in place before the first use is commenced. **AO9.2** Development provides the lot with reticulated water supply and sewerage to a standard acceptable to the distributor–retailer.	To be further explored at detailed design by a suitably qualified consultant.
PO10 Development provides public utilities and street lighting which are the best current or alternative technology and facilitate accessibility, easy maintenance, minimal whole-of-life costs, and minimal adverse environmental impacts.	**AO10.1** Development provides public utilities and street lighting which are located and aligned to: a. avoid significant native vegetation and areas identified within the Biodiversity areas overlay map; b. minimise earthworks; c. avoid crossing waterways, waterway corridors and wetlands or if a crossing is unavoidable, tunnel-boring techniques are used to minimise disturbance, and a disturbed area is reinstated and restored on completion of the work. Note—Guidance on the restoration of habitat is included in the Biodiversity areas planning scheme policy. **AO10.2**	To be further explored at detailed design by a suitably qualified consultant.

	Development provides compatible public utility services and street-lighting services which are co-located in common trenching for underground services.	
	AO10.3 Development provides public utilities and street lighting which are designed and constructed in compliance with the public utilities standards in the Infrastructure design planning scheme policy.	
PO11 Development ensures that land used for urban purposes is serviced adequately with telecommunications and energy supply.	**AO11** Development provides land with the following services to the standards of the approved supplier: a. electricity; b. telecommunications services; c. gas service where practicable.	To be further explored at detailed design by a suitably qualified consultant.
PO12 Development ensures that major public projects promote the provision of affordable, high-bandwidth telecommunications services throughout the city.	**AO12** Development provides conduits which are provided in all major Council and government works projects to enable the future provision of fibre optic cabling, if: a. the additional expense is unlikely to be prohibitive; or b. further major work is unlikely or disruption would be a major concern, such as where there is a limited capacity road; or c. there is a clear gap in the telecommunications network; or d. there is a clear gap in the bandwidth available to the area. Editor's note—An accurate, digital 'as built' three-dimensional location plan is to be supplied for all infrastructure provided in a road.	To be further explored at detailed design by a suitably qualified consultant.
PO13 Development provides public art identified in a neighbourhood plan or park concept plan which:	**AO13** Development provides public art identified in a neighbourhood plan or park concept plan which is sited	To be further explored at detailed design by a suitably qualified consultant.

a. is provided commensurate with the status and scale of the proposed development; b. is sited and designed: i. as an integrated part of the project design; ii. as conceptually relevant to the context of the location; iii. to reflect and respond to the cultural values of the community; iv. to promote local character in a planned and informed manner.	and designed in compliance with the public art standards in the Infrastructure design planning scheme policy.	
PO14 Development provides signage of buildings and spaces which promote legibility to help users find their way.	**AO14** Development provides public signage: a. at public transport interchanges and stops, key destinations, public spaces, pedestrian linkages and at entries to centre developments; b. which details the location of the key destinations, public spaces and pedestrian linkages in the vicinity, the services available within the development and where they are located. Editor's note—Signage is to be in accordance with Local Law Number 1 (Control of Advertisements Local Law).	To be further explored at detailed design by a suitably qualified consultant.
PO15 Development that provides community facilities which form part of the development is functional, safe, low maintenance, and fit for purpose.	**AO15** Development that provides community facilities which form part of the development is designed in compliance with the community facilities standards in the Infrastructure design planning scheme policy.	N/A
PO16 Development provides public toilets which: a. are required as part of a community facility or park; b. are located, designed and constructed to be: i. safe; ii. durable; iii. resistant to vandalism;	**AO16** Development that provides public toilets is designed and constructed in compliance with the public toilets standards in the Infrastructure design planning scheme policy.	N/A

iv. able to service expected demand; v. fit for purpose.		
PO17 Development provides bridges, tunnels, elevated structures and water access structures that are designed and constructed using proven methods, materials and technology to provide for: a. safe movement of intended users; b. an attractive appearance appropriate to the general surroundings and any adjacent structures; c. functionality and easy maintenance; d. minimal whole-of-life cost; e. longevity; f. current and future services. Note—All bridges and elevated and associated elements must be designed and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.	**AO17** Development that provides bridges, tunnels, elevated structures and water access structures is designed and constructed in compliance with the standards in the Infrastructure design planning scheme policy.	N/A
PO18 Development provides culverts which are designed and constructed using proven methods, materials and technology to provide for: a. safety; b. an attractive appearance appropriate to the general surroundings; c. functionality and easy maintenance; d. minimal whole-of-life cost; e. longevity; f. future widening; g. current and future services; h. minimal adverse impacts, such as increase in water levels or flow velocities, and significant change of flood patterns.	**AO18** Development that provides culverts is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.	N/A

Note—All culverts and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.		
PO19 Development provides batters, retaining walls, and seawalls and river walls which are designed and constructed using proven methods, materials and technology to provide for: a. safety; b. an attractive appearance appropriate to the surrounding area; c. easy maintenance; d. minimal whole-of-life cost; e. longevity; f. minimal water seepage. Note—All retaining walls and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.	**AO19** Development that provides batters, retaining walls, seawalls and river walls is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.	N/A
If for development with a gross floor area greater than 1,000m^2		
PO20 Development ensures that construction is managed so that use of public spaces and movement on pedestrian, cyclist and other traffic routes is not unreasonably disrupted and existing landscaping is adequately protected from short- and long-term impacts. Note—The preparation of a construction management plan can assist in demonstrating achievement of this performance outcome. Note—The Transport, access, parking and servicing planning scheme policy provides advice on the management of vehicle parking and deliveries during construction.	**AO20** Development ensures that during construction: a. the ongoing use of adjoining and surrounding parks and public spaces, such as malls and outdoor dining, is not compromised; b. adjoining and surrounding landscaping is protected from damage; c. safe, legible, efficient and sufficient pedestrian, cyclist and vehicular accessibility and connectivity to the wider network are maintained.	N/A
PO21 Development ensures that construction and demolition activities are guided by measures that prevent or minimise adverse impacts including sleep disturbance at	**AO21.1** Development ensures that demolition and construction: a. only occur between 6:30am and 6:30pm Monday to Saturday, excluding public holidays;	N/A

a sensitive use, due to noise and dust, including dust from construction vehicles entering and leaving the site. Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.	b. do not occur over periods greater than 6 months. **AO21.2** Development including construction and demolition does not release dust emissions beyond the boundary of the site. **AO21.3** Development construction and demolition does not involve asbestos-containing materials.	
PO22 Development ensures that: a. construction and demolition do not result in damage to surrounding property as a result of vibration; b. vibration levels achieve the vibration criteria in Table 9.4.4.3.B, Table 9.4.4.3.C, Table 9.4.4.3.D and Table 9.4.4.3.E. Note—A vibration impact assessment report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.	**AO22** Development ensures that the nature and scale of construction and demolition do not generate noticeable levels of vibration.	N/A
If for a material change of use or reconfiguring a lot in an urban area (as defined in the Regulation) involving premises that is, or will be, accessed by common private title, where involving buildings, either attached or detached, that are not covered by other legislation mandating fire hydrants		
PO23 Development ensures that fire hydrants are: a. installed and located to enable fire services to access water safely, effectively and efficiently; b. suitably identified so that fire services can locate them at all hours.	**AO23.1** Above or below ground fire hydrants are provided on residential, commercial and industrial streets and private roads, at not more than 90m intervals, and at each street intersection. Note—On residential streets, above ground fire hydrants may be single outlet. On commercial and industrial streets above ground fire hydrants should have dual valved outlets. **AO23.2** Fire hydrants are identified by:	To be further explored at detailed design by a suitably qualified consultant.

	a. raised reflectorised pavement markers (RRPM) on sealed roads; b. marker posts at the fence line where on an unsealed road, as road (HR) or path (HP) hydrants.	
PO24 Development ensures road widths and construction within the development, are adequate for refuse vehicles and for fire emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether or not on-street parking spaces are occupied.	**AO24** Internal private roads have a minimum roadway clearance between obstructions of 3.5m wide and 4.8m high in addition to any width required for on-street parking.	N/A
Development for major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System where not in the Utility services zone precinct of the Special purpose zone		
PO25 Development avoids or otherwise minimises adverse impacts on surrounding land uses through the use of buffers and setbacks and the appropriate design and location of plant and operational areas within the site.	**AO25** No acceptable outcome is prescribed.	N/A
Development potentially impacting on major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System where the infrastructure is not in the Utility services zone precinct of the Special purpose zone		
PO26 Development is sited and designed to: a. avoid safety risks to people or property; b. minimise noise and visual impacts to people and property; c. ensure the physical integrity and operation, maintenance and expansion of the infrastructure is not compromised.	**AO26** No acceptable outcome is prescribed.	N/A

Table 9.4.4.3.B—Recommended intermittent vibration levels for cosmetic damage

Type of building	**Peak particle velocity (mm/s)**		
Reinforced or framed structures; industrial and heavy commercial buildings	50mm/s at 4Hz and above		
Unreinforced or light-framed structures; residential or light commercial type buildings	Below 4Hz	4Hz to 15Hz	15Hz and above
	0.6mm/s	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above

Table 9.4.4.3.C—Recommended blasting vibration levels for human comfort

Type of building	**Type of blasting operations**	**Peak component particle velocity (mm/s)**
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Industry or commercial premises	All blasting	25mm/s maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing

		equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that do not adversely affect the equipment operation.

Table 9.4.4.3.D—Recommended levels for continuous and impulsive vibration acceleration (m/s^2) 1–80Hz for human comfort

Location	**Assessment period(1)**	**Preferred values(3)**		**Maximum values(3)**	
Continuous vibration		z-axis	x and y axes	z-axis	x and y axes
Critical areas(2)	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.01 m/s^2	0.0071 m/s^2	0.02 m/s^2	0.014 m/s^2
-	Night	0.007 m/s^2	0.005 m/s^2	0.014 m/s^2	0.01 m/s^2
Offices, educational establishments and places of worship	Day or night	0.02 m/s^2	0.014 m/s^2	0.04 m/s^2	0.028 m/s^2
Workshops	Day or night	0.04 m/s^2	0.029 m/s^2	0.08 m/s^2	0.058 m/s^2
Impulsive vibration					
Critical areas	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.3 m/s^2	0.21 m/s^2	0.6 m/s^2	0.42 m/s^2
-	Night	0.1 m/s^2	0.071 m/s^2	0.2 m/s^2	0.14 m/s^2
Offices, educational establishments and places of worship	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2
Workshops	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Table 9.4.4.3.E—Recommended vibration dose values for intermittent vibration ($m/s^{1.75}$) for human comfort

Location	**Daytime(1)**		**Night time(1)**	
	Preferred value	**Maximum value**	**Preferred value(3)**	**Maximum value(3)**
Critical areas(2)	0.1 $m/s^{1.75}$	0.2 $m/s^{1.75}$	0.1 $m/s^{1.75}$	0.2 $m/s^{1.75}$
Residences	0.2 $m/s^{1.75}$	0.4 $m/s^{1.75}$	0.13 $m/s^{1.75}$	0.26 $m/s^{1.75}$
Offices, educational establishments and places of worship	0.4 $m/s^{1.75}$	0.8 $m/s^{1.75}$	0.4 $m/s^{1.75}$	0.8 $m/s^{1.75}$
Workshops	0.8 $m/s^{1.75}$	1.6 $m/s^{1.75}$	0.8 $m/s^{1.75}$	1.6 $m/s^{1.75}$

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

9.4.9 Stormwater code

9.4.9.1 Application

1. This code applies to assessing a material change of use, reconfiguring a lot or operational work if:
   a. assessable development where this code is identified as a prescribed secondary code in the assessment benchmarks column of a table of assessment for a material change of use (section 5.5), reconfiguring a lot (section 5.6) operational work (section 5.8) or an overlay (section 5.10); or
   b. impact assessable development, to the extent relevant.
2. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to infrastructure design and construction works, guidance is provided in the Infrastructure design planning scheme policy.

9.4.9.2 Purpose

1. The purpose of the Stormwater code is to assess the suitability of the stormwater aspects of development.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. Development achieves acceptable levels of stormwater run-off quality and quantity by applying water sensitive urban design principles as part of an integrated stormwater management framework.
   b. Development protects public health and safety and protects against damage or nuisance caused by stormwater flows.
   c. Development has a stormwater management system which maintains, recreates or minimises impact to natural catchment hydrological processes.
   d. Development ensures that the environmental values of the city's waterways are protected or enhanced.
   e. Development minimises run-off, including peak flows.
   f. Development maintains or enhances the efficiency and integrity of the stormwater infrastructure network.
   g. Development minimises the whole of life cycle cost of stormwater infrastructure.

9.4.9.3 Performance outcomes and acceptable outcomes

Table 9.4.9.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
Section A—If for a material change of use, reconfiguring a lot, operational work or building work Note—Compliance with the performance outcomes and acceptable outcomes in this section should be demonstrated by the submission of a site-based stormwater management plan for high risk development only.		

PO1 Development provides a stormwater management system which achieves the integrated management of stormwater to: a. minimise flooding; b. protect environmental values of receiving waters; c. maximise the use of water sensitive urban design; d. minimise safety risk to all persons; e. maximise the use of natural waterway corridors and natural channel design principles. Editor's note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.	**AO1** Development provides a stormwater management system designed in compliance with the Infrastructure design planning scheme policy.	Acceptable outcome. Refer to ADG Civil Reporting.
PO2 Development ensures that the stormwater management system and site work does not adversely impact flooding or drainage characteristics of premises which are up slope, down slope or adjacent to the site.	**AO2.1** Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises. **AO2.2** Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.	Acceptable outcome. Refer to ADG Civil Reporting.
PO3 Development ensures that the stormwater management system does not direct stormwater run-off through existing or proposed lots and property where it is likely to adversely affect the safety of, or cause nuisance to properties.	**AO3.1** Development ensures that the location of the stormwater drainage system is contained within a road reserve, drainage reserve, public pathway, park or waterway corridor. **AO3.2** Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy. **AO3.3**	Acceptable outcome. Refer to ADG Civil Reporting.

	Development obtains a lawful point of discharge in compliance with the standards in the Infrastructure design planning scheme policy.	
	AO3.4 Where on private land, all underground stormwater infrastructure is secured by a drainage easement.	
PO4 Development provides a stormwater management system which has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments.	**AO4.1** Development provides a stormwater conveyance system which is designed to safely convey flows in compliance with the standards in the Infrastructure design planning scheme policy. **AO4.2** Development provides sufficient area to convey run-off which will comply with the standards in the Infrastructure design planning scheme policy.	Acceptable outcome. Refer to ADG Civil Reporting.
PO5 Development designs stormwater channels, creek modification works, bridges, culverts and major drains to protect and enhance the value of the waterway corridor or drainage path for fauna movement.	**AO5** Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.	N/A
PO6 Development ensures that location and design of stormwater detention and water quality treatment: a. minimises risk to people and property; b. provides for safe access and maintenance; c. minimises ecological impacts to creeks and waterways.	**AO6.1** Development locates stormwater detention and water quality treatment: a. outside of a waterway corridor; b. offline to any catchment not contained within the development. **AO6.2** Development providing for stormwater detention and water quality treatment devices are designed in compliance with the standards in the Infrastructure design planning scheme policy.	Acceptable outcome. Refer to ADG Civil Reporting.

PO7 Development is designed, including any car parking areas and channel works to: a. reduce property damage; b. provide safe access to the site during the defined flood event.	**AO7.1** Development (including any ancillary structures and car parking areas) is located above minimum flood immunity levels in Table 9.4.9.3.B, Table 9.4.9.3.C, Table 9.4.9.3.D, Table 9.4.9.3.E and Table 9.4.9.3.F. Note—Compliance with this acceptable outcome can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a site-based stormwater management plan). **AO7.2** Development including the road network provides a stormwater management system that provides safe pedestrian and vehicle access in accordance with the standards in the Infrastructure design planning scheme policy.	N/A
PO8 Development designs stormwater channels, creek modification works and the drainage network to protect and enhance the environmental values of the waterway corridor or drainage path.	**AO8.1** Development ensures natural waterway corridors and drainage paths are retained. **AO8.2** Development provides the required hydraulic conveyance of the drainage channel and floodway, while maximising its potential to maximise environmental benefits and minimise scour. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.	N/A
	AO8.3 Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in compliance with the standards in the Infrastructure design planning scheme policy.	
	AO8.4 Development ensures that the design of modifications to the existing design of new stormwater channels, creeks	

	and major drains is in compliance with the standards in the Infrastructure design planning scheme policy.	
PO9 Development is designed to manage run-off and peak flows by minimising large areas of impervious material and maximising opportunities for capture and re-use.	**AO9** No acceptable outcome is prescribed.	Performance outcome. Refer ADG Civil Reporting.
PO10 Development ensures that there is sufficient site area to accommodate an effective stormwater management system. Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.	**AO10** No acceptable outcome is prescribed.	Performance outcome. Refer ADG Civil Reporting.
PO11 Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the: a. existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades; b. safe management of stormwater discharge from existing and future up-slope development; c. implication for adjacent and down-slope development.	**AO11.1** Development with up-slope external catchment areas provides a drainage connection sized for ultimate catchment conditions that is directed to a lawful point of discharge. **AO11.2** Development ensures that existing stormwater infrastructure that is undersized is upgraded in compliance with the Infrastructure design planning scheme policy.	Acceptable outcome. Refer ADG Civil Reporting.
PO12 Development provides stormwater infrastructure which: a. remains fit for purpose for the life of the development and maintains full functionality in the design flood event; b. can be safely accessed and maintained cost effectively; c. ensures no structural damage to existing stormwater infrastructure.	**AO12.1** The stormwater management system is designed in compliance with the Infrastructure design planning scheme policy. **AO12.2** Development provides a clear area with a minimum of 2m radius from the centre of an existing manhole cover and with a minimum height clearance of 2.5m.	Acceptable outcome. Refer ADG Civil Reporting.

PO13 Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect: a. the environmental values and water quality objectives of waters; b. waterway hydrology; c. the maintenance and serviceability of stormwater infrastructure. Note—The Infrastructure design planning scheme policy outlines the appropriate measures to be taken into account to achieve the performance outcome.	**AO13** No acceptable outcome is prescribed.	To be further explored at detailed design by an appropriately qualified consultant.
PO14 Development ensures that: a. unnecessary disturbance to soil, waterways or drainage channels is avoided; b. all soil surfaces remain effectively stabilised against erosion in the short and long term.	**AO14** No acceptable outcome is prescribed.	To be further explored at detailed design by an appropriately qualified consultant.
PO15 Development does not increase: a. the concentration of total suspended solids or other contaminants in stormwater flows during site construction; b. run-off which causes erosion either on site or off site.	**AO15** No acceptable outcome is prescribed.	To be further explored at detailed design by an appropriately qualified consultant.
Section B—Additional performance outcomes and acceptable outcomes which apply to high-risk development, being one or more of the following: a. a material change of use for an urban purpose which involves greater than 2,500m^2 of land that: i. will result in an impervious area greater than 25% of the net developable area; or ii. will result in 6 or more dwellings.		N/A

b. reconfiguring a lot for an urban purpose that involves greater than 2,500m^2 of land and will result in 6 or more lots; c. operational work for an urban purpose which involves disturbing greater than 2,500m^2 of land.		
PO16 Development ensures that the entry and transport of contaminants into stormwater is avoided or minimised to protect receiving water environmental values. Note—Prescribed water contaminants are defined in the *Environmental Protection Act 1994*. Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.	**AO16** Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.	N/A
PO17 Development ensures that: a. the discharge of wastewater to a waterway or external to the site is avoided; or b. if the discharge cannot practicably be avoided, the development minimises wastewater discharge through re-use, recycling, recovery and treatment. Note—The preparation of a wastewater management plan can assist in demonstrating achievement of this performance outcome. Editor's note—This code does not deal with sewerage which is the subject of the Wastewater code.	**AO17** No acceptable outcome is prescribed.	N/A
Section C—Additional performance outcomes and acceptable outcomes for assessable development for a material change of use or reconfiguring a lot		
PO18 Development protects stormwater infrastructure to ensure the following are not compromised: a. the long term infrastructure for the stormwater network in the Long term infrastructure plans; b. the existing and planned infrastructure for the stormwater network in the Local government infrastructure plan;	**AO18** Development protects stormwater infrastructure in compliance with the following: a. for long term infrastructure for the stormwater network, the Long term infrastructure plans; b. for existing and planned infrastructure for the stormwater network, the Local government infrastructure plan;	Acceptable outcome. Refer to ADG Civil Reporting.

c. the provision of long term, existing and planned infrastructure for the stormwater network which: i. is required to service the development or an existing and future urban development in the planning scheme area; or ii. is in the interests of rational development or the efficient and orderly planning of the general area in which the site is situated. Editor's note—A condition which requires a proposed development to keep permanent improvements and structures associated with the approved development clear of the area of long term infrastructure, may be imposed.	c. the standards for stormwater drainage in the Infrastructure design planning scheme policy.	
PO19 Development provides for the payment of extra trunk infrastructure costs for the following: a. for development completely or partly outside the priority infrastructure area in the Local government infrastructure plan; b. for development completely inside the priority infrastructure area in the Local government infrastructure plan involving: i. trunk infrastructure that is to be provided earlier than planned in the Local government infrastructure plan; ii. long term infrastructure for the stormwater network which is made necessary by development that is not assumed future urban development; iii. other infrastructure for the stormwater network associated with development that is not assumed future urban development which is made necessary by the development. Editor's note—The payment of extra trunk infrastructure costs for development completely inside the priority infrastructure area in the Local government infrastructure plan is to be worked out in accordance with the Charges Resolution.	**AO19** No acceptable outcome is prescribed.	N/A

Editor's note—See section 130 Imposing Development conditions (Conditions for extra trunk infrastructure costs) of the *Planning Act 2016*.		

Table 9.4.9.3.B—Categories of flood planning levels

Flooding type(1)	**Minimum design floor or pavement levels (m AHD)(2) (refer to Table 9.4.9.3.C for assignment of these categories)**				
	Category A	**Category B**	**Category C**	**Category D**	**Category E**
Waterway(A) or open channel	1% AEP flood level + 500mm	1% AEP flood level + 300mm	1% AEP flood level	1% AEP flood level	5% AEP flood level
Overland flow flooding(B)	2% AEP flood level +500mm	2% AEP flood level +300mm	2% AEP flood level	2% AEP flood level	5% AEP flood level

Notes—

(1) Where the site is subject to more than one type of flooding that is overland flow flooding, creek or waterway flooding or river flooding, the minimum flood immunity level is the highest level determined from these sources.

(2) Where flood levels are not available from Council's Floodwise Property Report such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note (A) A waterway, including any indicated on the planning scheme maps, is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks, typically with a catchment area greater than 30ha.

Note (B) 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. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 5% is the equivalent of a 20 year ARI flood event.

Note—The flood immunity level in some older inner-city areas is often controlled by local ponding.

Table 9.4.9.3.C—Flood planning level categories for development types

BCA building classification(1)	**Development types and design levels, assigned design floor or pavement levels**	**Category Refer to Table 8.2.11.3.L**

Class 1–4	Habitable room	Category A
	Non-habitable room including patio and courtyard	Category B
	Non-habitable part of a Class 2 or Class 3 building excluding the essential services(2) control room	Category B
	Parking located in the building undercroft of a multiple dwelling	Category C
	Carport(4), unroofed car park; vehicular manoeuvring area	Category D
	Essential electrical services(2) of a Class 2 or Class 3 building only	Category A(6)
	Basement parking entry(3)	Category C + 300mm
Class 5, Class 6, or Class 8	Building floor level	Category C
	Garage or car park located in the building undercroft(3)	Category C
	Carport(4) or unroofed car park	Category D
	Vehicular access and manoeuvring areas	Category D
	Basement parking entry(3)	Category C
	Essential electrical services(2)	Class 8 – Category C(6) Class 5 & 6 – Category A(6)
Class 7a	Refer to the relevant building class specified in this table	
Class 7b	Building floor level	Category C
	Vehicular access and manoeuvring area	Category D
	Essential electrical services(2)	Category C

Class 9	Building floor level	Category A
	Building floor level for habitable rooms in Class 9a or 9c where for a residential care facility	0.2% AEP flood
	Garage or car park located in the building undercroft(3)	Category C
	Carport(4) or unroofed car park	Category D
	Vehicular access and manoeuvring areas	Category D
	Essential electrical services(2)	Category A
Class 10a	Car parking facility	Refer to the relevant building class specified in this table
	Shed(5) or the like	Category D
Class 10b	Swimming pool	Category E
	Associated mechanical and electrical pool equipment	Category C
	Other structures	Flood immunity standard does not apply

Notes—

(1) Refer to the Building Code of Australia for definitions of building classifications.

(2) Essential services include any room used for fire control panel, telephone PABX, sensitive substation equipment including transformers, low voltage switch gear, high-voltage switch gear, battery chargers, protection control and communication equipment, low voltage cables, high-voltage cables and lift controls.

(3) Basement car parks must be suitably waterproofed and all air vents, air-conditioning ducts, pedestrian access and entry and exit ramps at the car park entrance have flood immunity in accordance with this table.

(4) A shelter for a motor vehicle, which has a roof and one or more open sides, and which can be built against the side of a building.

(5) A slight or rough structure built for shelter and storage; or a large strongly built structure, often open at the sides or end.

(6) Where essential services are proposed in a basement below the specified flood planning level, the flood immunity of all air vents, air-conditioning ducts, pedestrian access, lift shafts and entry/exit ramps at the basement entrance and any other openings into that basement must conform to Category A for Residential development, and the relevant basement entry level of all other uses. This will require a waterproof basement design to prevent floodwaters entering the basement to ensure flood immunity.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 0.2% is the equivalent of a 500 year ARI flood event.

Note—Where a building has a combination of uses that includes a component of class 2, 3 or 9, the essential services for that building shall comply with the requirements of the building class with the greatest flood immunity requirement.

Note—Use classes for residential development also include basement storage.

Table 9.4.9.3.D—Flood planning levels for a new road

Flooding type[1]	**Minimum design levels at the crown of the road (m AHD) [2]**	
	Residential development	**Industrial or commercial development**
Waterway[A] or open channel	1% AEP flood level	2% AEP flood level
Overland flow flooding[B]	2% AEP flood level	2% AEP flood level

Notes—

[1] Where the site is subject to more than 1 type of flooding, the minimum flood planning level is the highest level determined from these sources. It should be noted that the flooding planning level in some older areas is often controlled by local ponding.

[2] Where flood levels are not available from Council's Floodwise Property Report, such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note [A] A waterway including any indicated on the planning scheme maps is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks typically with a catchment area greater than 30ha.

Note [B] 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. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 5% is the equivalent of a 20 year ARI flood event.

Table 9.4.9.3.E—Flood planning levels for essential community infrastructure

Type of essential community infrastructure	**Minimum design levels**
Emergency services	0.2% AEP flood
Emergency services, where for an emergency shelter	0.5% AEP flood
Emergency services, where for police facilities	0.5% AEP flood
Hospital and health care service, where associated with a hospital	0.2% AEP flood

Community facility where involving storage of valuable records or items of historic or cultural significance (e.g. galleries and libraries)	0.5% AEP flood
State-controlled roads Major or minor electricity infrastructure not otherwise listed in this table Utility installation where for rail transport services Air service Telecommunications facility	No specific recommended level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency.
Power stations (as defined in the *Electricity Act 1994*) or renewable energy facility.	0.2% AEP flood
Major electricity infrastructure where a major switch yard	0.2% AEP flood
Substations	0.5% AEP flood
Utility installation where for a sewage treatment plant	DFE
Utility installation where for a water treatment plant	0.5% AEP flood

Note—A flood event with an AEP of 0.2% is the equivalent of a 500 year ARI flood event.

Note—A flood event with an AEP of 0.5% is the equivalent of a 200 year ARI flood event.

Table 9.4.9.3.F—Flood planning levels for reconfiguring a lot

Flooding type(1)	**Minimum lot levels (m AHD)(2)**	
	Residential	**Other than residential**
Waterway(A) or open channel	1% AEP flood level + 300mm	1% AEP flood level
Overland flow flooding(B)	1% AEP flood level + 300mm	2% AEP flood level

Notes—

(1) Where the site is subject to more than one type of flooding, the minimum flood immunity level is the highest level determined from these sources.

(2) Where flood levels are not available from Council's Floodwise Property Report such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note (A) A waterway including any indicated on the planning scheme maps is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks typically with a catchment area greater than 30ha.

Note [(B)] Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded or when the overland flow path is blocked. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Appendix D
BCC Floodwise Property Report

FloodWise Property Report

10 CAMPBELL ST, BOWEN HILLS 4006
Lot 5 on RP10074, Lot 4 on RP10074

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.

This property has no flood levels

Brisbane City Council has not assigned flood level information for this property however it may be affected by one or more flood or property development flags. Please refer to the Flood Planning and Development Information below for details. The property may have 0.2% AEP flood level which will appear on the Flood Planning Information table if applicable. For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

Visit the Be Prepared page to find more information on how to prepare your home or business for potential flooding.

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	15.4	C
Maximum ground level	19.1	C
Indicative existing floor level	18.6	C

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
There are currently no Coastal hazard overlay sub-categories that apply to this property.

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.

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.

Appendix E
BCC 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

10 - 12 Campbell St,Bowen Hills

Postcode 4006

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*

Certifier's signature

Date / /

Stock Code no. 262006

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

Appendix F
Rational Method Calculations

www.adgce.com

PROJECT DATA

Project number	27629	Designer	CC
Date	3/04/2024	Verifier	GVG
Client	New Urban Villages		
Project area	10-12 Campbell St		
Description	CFMEU Auditorium Development		

CALCULATIONS

RAINFALL INTENSITY TAKEN FROM BCC PSP TABLE 7.2.2.2.A

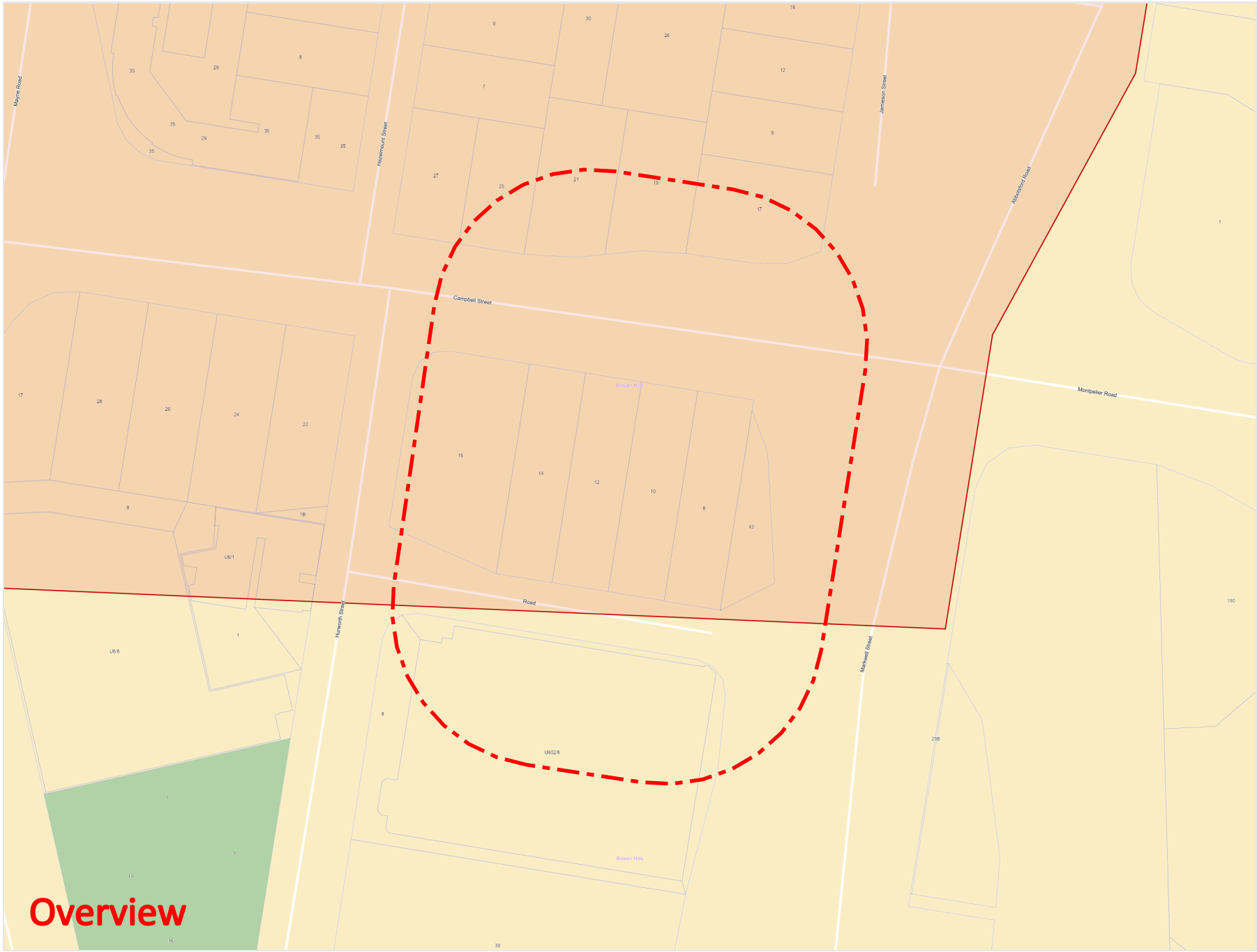
Rational Method Based on ARR 2016 & ARR 1987 IFD Data

Catchment			Fraction Impervious			Coefficient of Discharge, C_Y		Coefficient of Discharge, C_Y (ARR 1987)							Rainfall Intensity, $^{tc}I_Y$ (mm/h) (ARR 1987 IFD)							Peak Discharge Rate, Q_Y (m^3/s) (ARR 1987 IFD)						
Catchment Label	Catchment Area A (ha)	Time of Concentration t_c (min)	Fraction Impervious f_i (decimal)	Rainfall Intensity, $^1I_{10}$ (mm/h) ARR 2016	Rainfall Intensity, $^1I_{10}$ (mm/h) ARR 1987	Coefficient of Discharge, C_{10} ARR 1987	Urban or Rural Catchment	ARR 1987 C1 (FY = 0.80)	ARR 1987 C2 (FY = 0.85)	ARR 1987 C5 (FY = 0.95)	ARR 1987 C10 (FY = 1.00)	ARR 1987 C20 (FY = 1.05)	ARR 1987 C50 (FY = 1.15)	ARR 1987 C100 (FY =1.20)	$^{tc}I_Y$ (mm/h) 1 Year ARI	$^{tc}I_Y$ (mm/h) 2 Year ARI	$^{tc}I_Y$ (mm/h) 5 Year ARI	$^{tc}I_Y$ (mm/h) 10 Year ARI	$^{tc}I_Y$ (mm/h) 20 Year ARI	$^{tc}I_Y$ (mm/h) 50 Year ARI	$^{tc}I_Y$ (mm/h) 100 Year ARI	Q_1 (m^3/s) 1 Year ARI	Q_2 (m^3/s) 2 Year ARI	Q_5 (m^3/s) 5 Year ARI	Q_{10} (m^3/s) 10 Year ARI	Q_{20} (m^3/s) 20 Year ARI	Q_{50} (m^3/s) 50 Year ARI	Q_{100} (m^3/s) 100 Year ARI
Pre-Development																												
EX1	**0.0866**	**5**	**0.93**	64.5	70.3	**0.886**	**Urban**	0.709	0.753	0.842	0.886	0.930	1.000	1.000	117.0	151.0	191.0	215.0	248.0	291.0	325.0	**0.020**	**0.027**	**0.039**	**0.046**	**0.055**	**0.070**	**0.078**
Post-Development																												
C1	**0.0866**	**5**	**1.00**	64.5	70.3	**0.900**	**Urban**	0.720	0.765	0.855	0.900	0.945	1.000	1.000	117.0	151.0	191.0	215.0	248.0	291.0	325.0	**0.020**	**0.028**	**0.039**	**0.047**	**0.056**	**0.070**	**0.078**

Appendix G
BYDA Information

Sequence No: 237238818
Job No: 36346634
Location: 10 -12 Campbell Street, Bowen Hills, QLD 4006

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend

Transurban Asset Area

DBYD Search Area

N

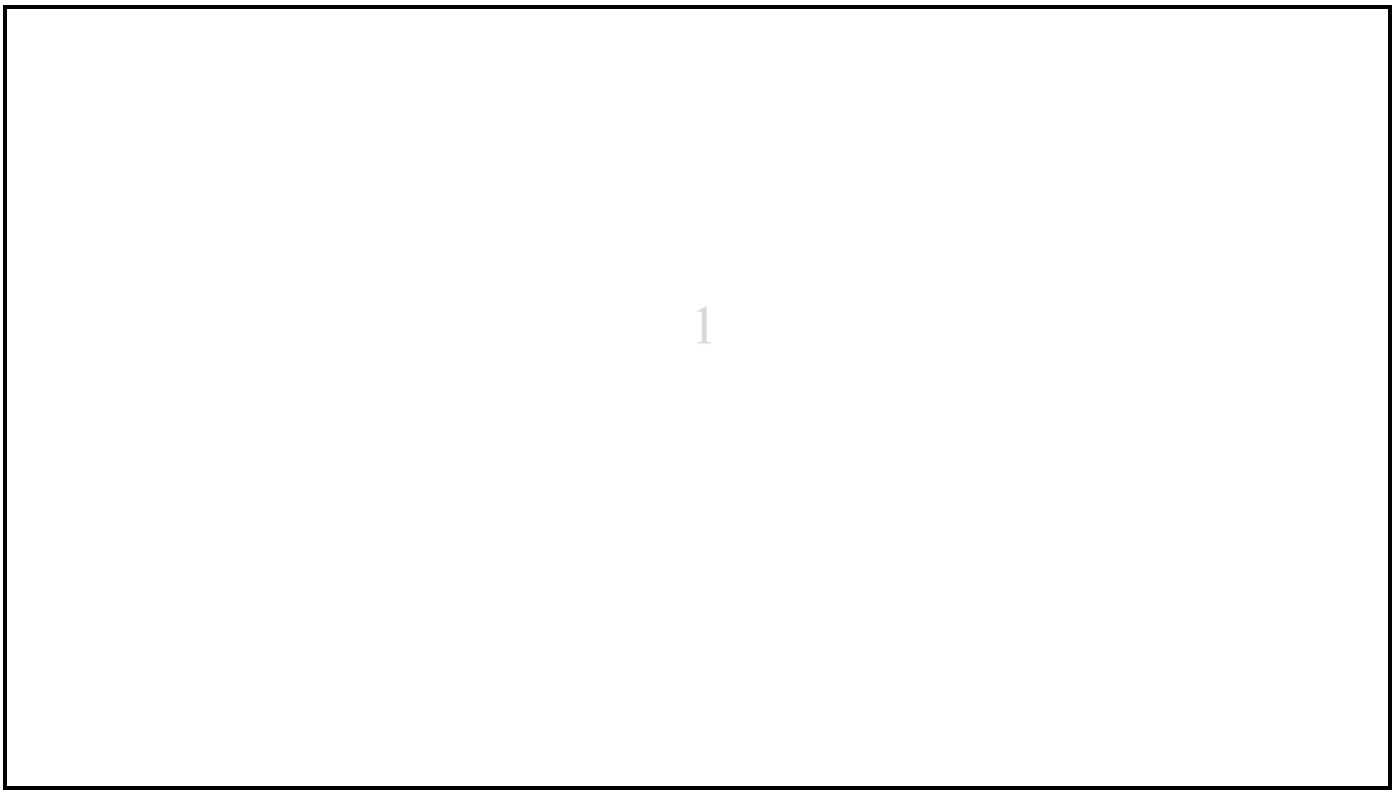
Scale: 1:1000
Expires: 24 Apr 2024

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Transurban Queensland 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.

To:	Chanlyly Chea
Phone:	Not Supplied
Fax:	Not Supplied
Email:	cchea@adgce.com

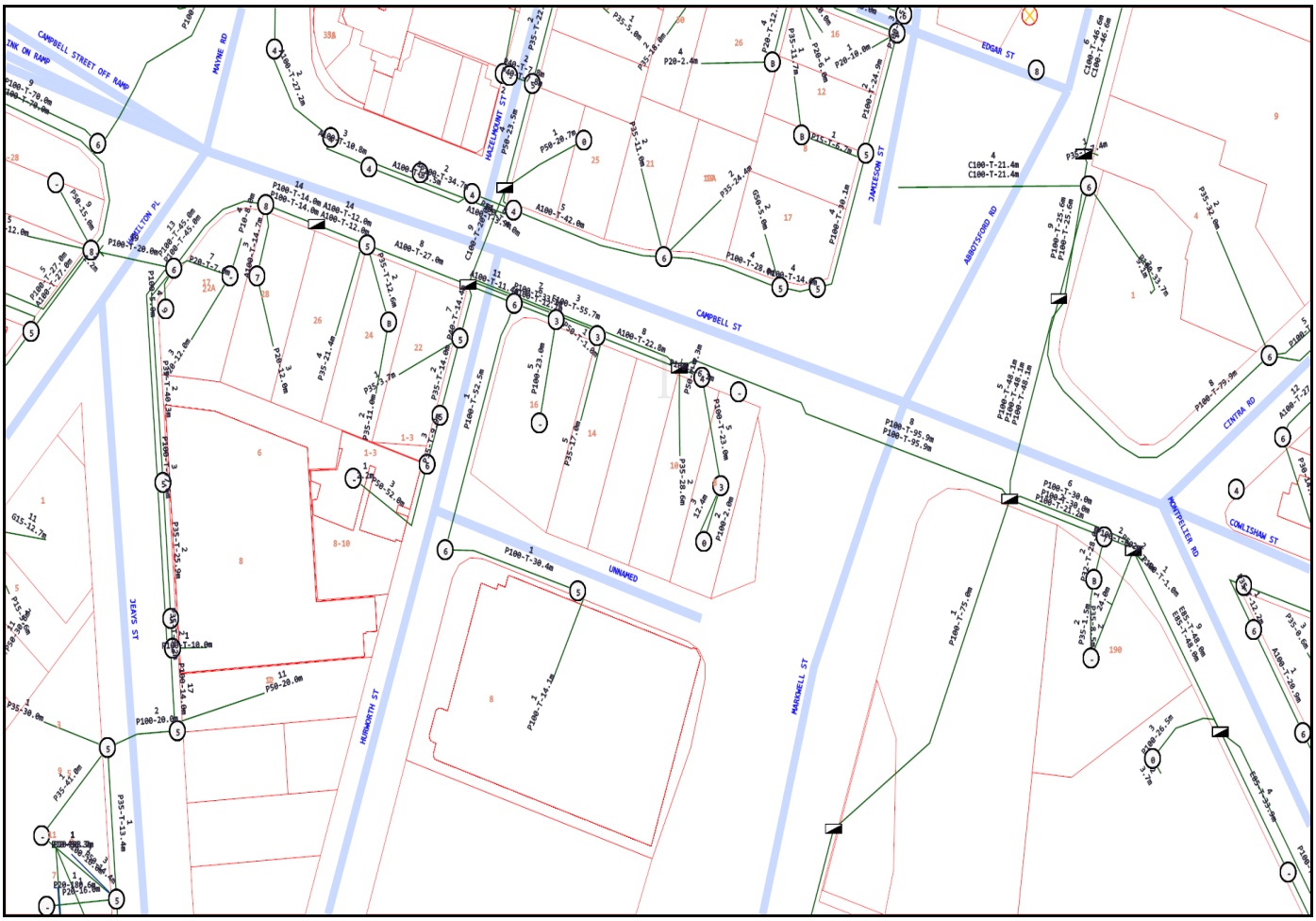
Dial before you dig Job #:	36346634	DIAL BEFORE YOU DIG www.1100.com.au
Sequence #	237238819	
Issue Date:	27/03/2024	
Location:	10 -12 Campbell Street , Bowen Hills , QLD , 4006	

Indicative Plans



LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Sequence Number: 237238820

Date Generated: 27 Mar 2024

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

Uecomm Underground Cable

Scale: 1:2500

Printed on: 27 Mar 2024

Sequence Number: 237238820

Location: 10 -12 Campbell Street, Bowen Hills, QLD 4006

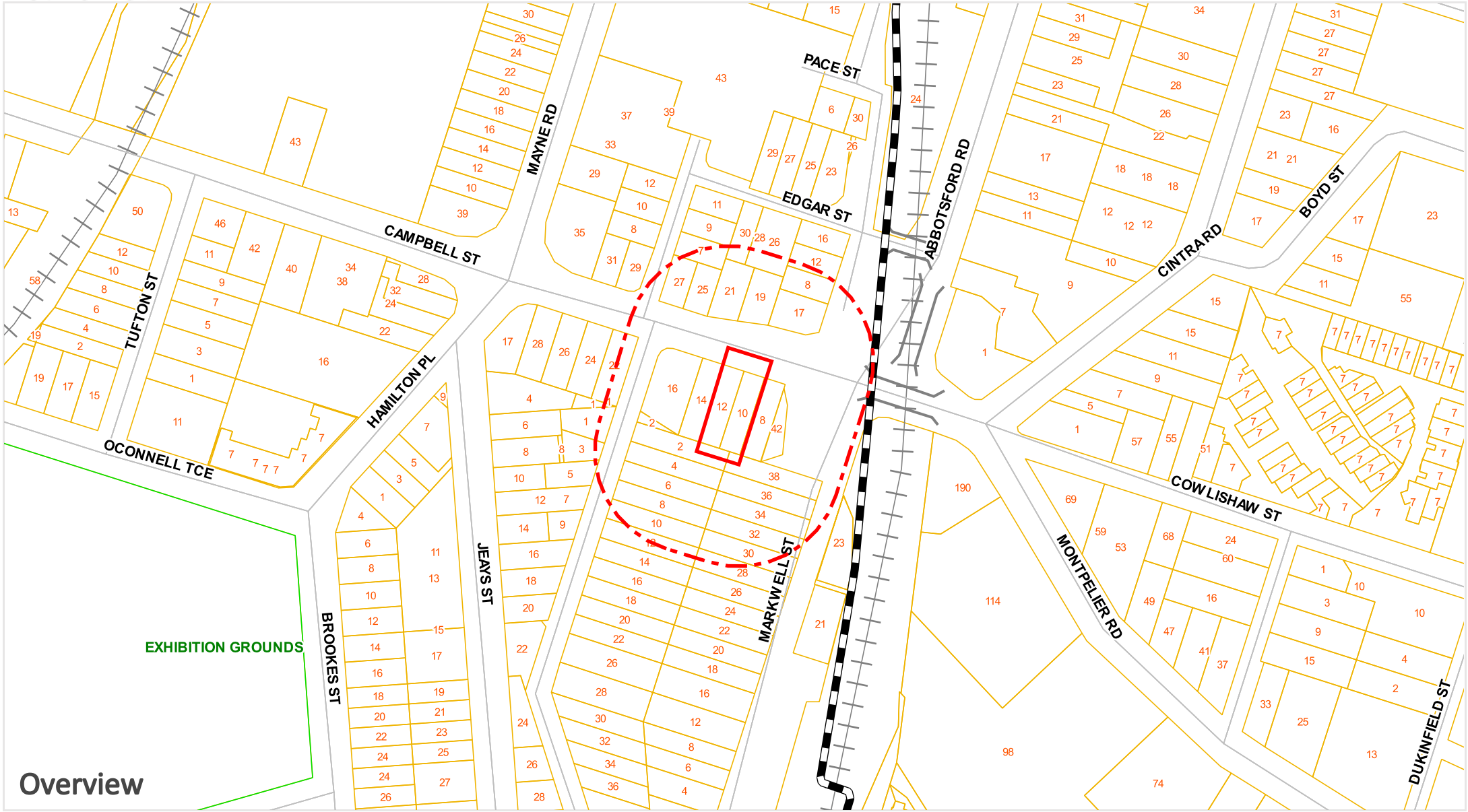
Job Location: Line, Point, Area

Undergound Asset: Uecomm

Reef Networks

Sequence No: 237238821
Job No: 36346634
Location: 10 -12 Campbell Street, Bowen Hills, QLD 4006

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend | Scale: 1:2500

N

Cable

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Visionstream or 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.

TPG Telecom Limited
ABN 76 096 304 620
Level 1, 177 Pacific Hwy
North Sydney NSW 2060
Phone: 1800 786 306 (24hrs)

Date: 27/03/2024

Enquirer Name:Chanlyly Chea
Enquirer Address:596 Milton Road
Email: cchea@adgce.com
Phone: +61451693495

Dear Chanlyly Chea

The following is our response on behalf of each of the TPG carriers (listed below) to your Before You Dig Australia enquiry – Sequence 237238822

It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected: 10 -12 Campbell Street Bowen Hills

Carriers (each a "TPG carrier") and assets affected:

PIPE Networks

Location:

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Before You Dig Australia on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED**. You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.

- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

  Minimum assets clearance distances.

  - 300mm when laying asset inline, horizontal or vertical.
  - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
  - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
  - 2000mm when performing directional bore in-line, horizontal and vertical.
  - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.

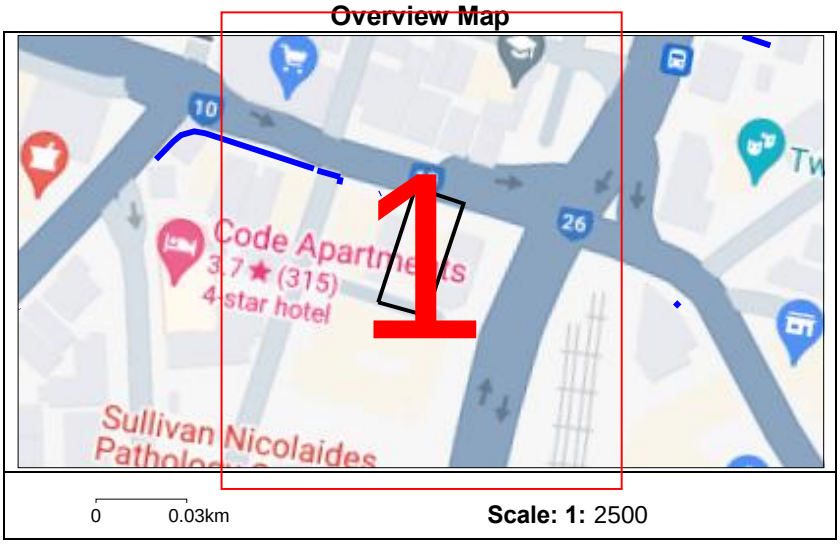
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

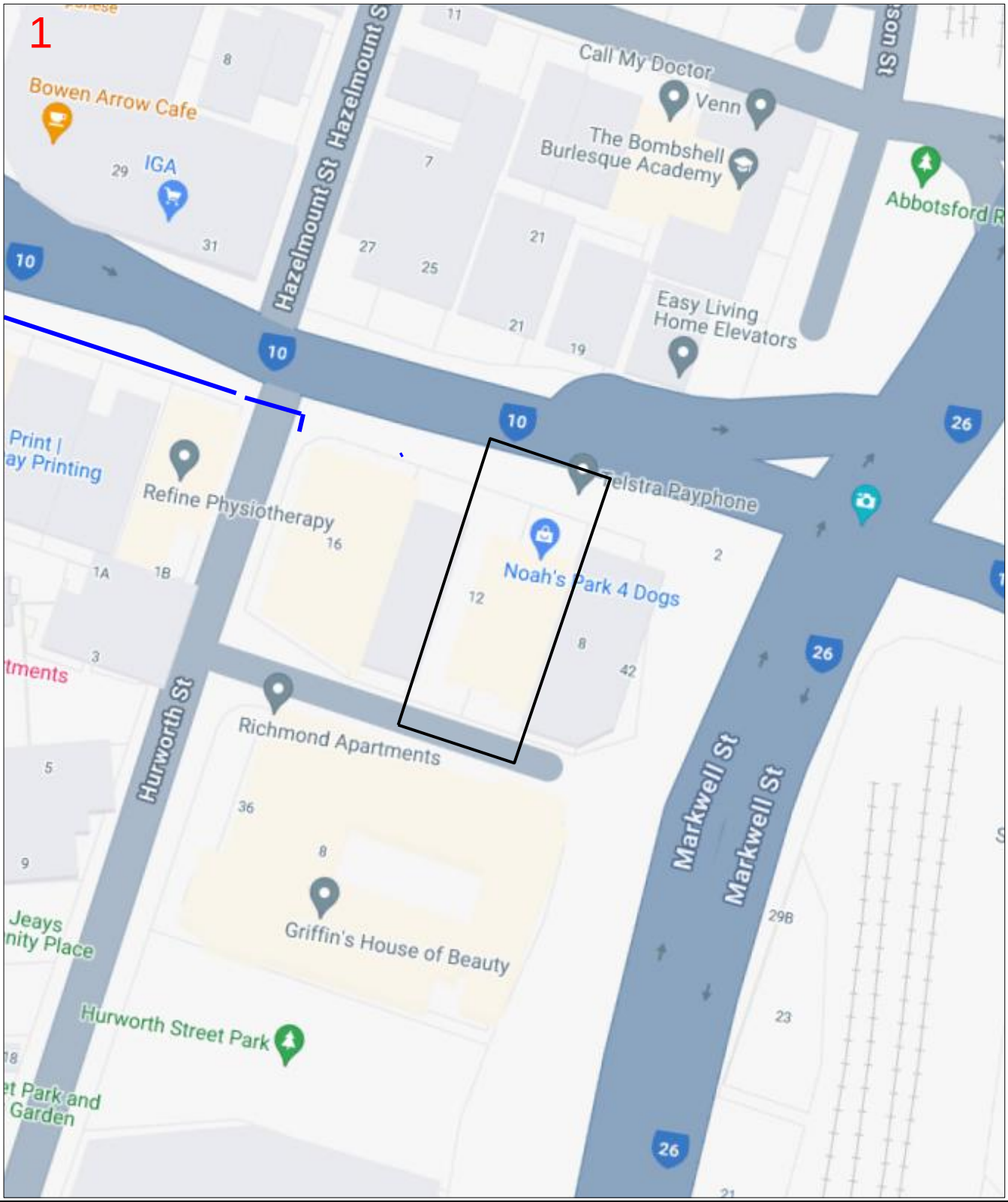
- Privacy Notice – Your information has been provided to us by Before You Dig Australia to respond to your Before You Dig Australia enquiry. We will keep your personal information in accordance with TPG's privacy policy, see www.tpg.com.au/about/privacy.

- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Before You Dig Australia enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.

Overview Map



TPG Telecom Limited



Enquiry Number: 237238822

Map Sheet: 1

Scale: 1: 750

0 0.008km

N

LEGEND

BYDA Work Area

AAPT/PowerTel Pit	TransACT Pit
AAPT/PowerTel Duct	TransACT Duct
DDA Pit	SOUL Pattinson Telecoms Pit
DDA Duct	SOUL Pattinson Telecoms Duct
Agile/Adam Pit	PIPE Networks Pit
Agile/Adam Duct	PIPE Networks Duct

APA Group
PO Box 6014 Halifax Street,
South Australia 5000

For your immediate information THERE IS A CRITICAL GAS PIPELINE OR INFRASTRUCTURE (Gas Assets) located in close vicinity to your works.

27/03/2024

Company:
Chanlyly Chea
596 Milton Road
Toowong
QLD 4066

cchea@adgce.com

Dear Chanlyly Chea

Sequence Number: 237238823
Worksite Address: 10 -12 Campbell Street
Bowen Hills
QLD 4006

Thank you for your Before You Dig enquiry regarding the location of Gas Assets.

We confirm there are CRITICAL Gas Assets located in close vicinity of the above location. Damage to gas assets may result in explosion, fire and personal injury.

You are hereby notified before you commence any works you are required to complete the Work In The Vicinity Of Critical Gas Assets request form and forward this to APA as soon as practicable.

Any work activity in vicinity of Critical Gas Assets operated by APA requires an **Authority to Work Permit** and may require attendance by an APA Site Watch representative whilst work is in progress. Please ensure you read and comply with all the relevant requirements contained in this response to your enquiry.

Contacts – APA Group	
Enquiry	**Contact Numbers**
General enquiries or feedback regarding this information or gas assets. QLD Only All other States	**APA - Before You Dig Officer** Phone: 1800 085 628 Email: PermitsQld@apa.com.au Phone: 1800 085 628 Email: DBYDNetworksAPA@apa.com.au
Gas Emergencies	Phone: 1800 GAS LEAK (1800 427 532)

Please find below the following information:

1. **Duty of Care** - If you are unclear of your obligations under these requirements please contact the Before You Dig officer for clarification.
2. **An overview map** highlighting the area of your intended works.
3. **Map(s) showing APA operated Gas Assets** within the area of your intended works.
4. **Work In The Vicinity Of Critical Gas Assets request form** - Please complete and forward to APA as soon as practicable via email DBYDNetworksAPA@apa.com.au or PermitsQld@apa.com.au (QLD only), or the address at the top of this document. **A minimum of three (3) business days in advance of any work commencement** is required to process Authority To Work Request applications and provide a response.
5. **Site Watch** – Following consideration of the information received by APA in the Work In The Vicinity Of Critical Gas Assets request form, we may require an APA Site Watch representative to be present on site whilst some or all of the proposed site works are undertaken. Refer information for Site Watch in the Duty of Care section of this document.

Important Information:

- This information is valid for 30 days from the date of this response.
- This information shall be available on site whilst conducting works.
- This information has been generated by an automated system based on the area highlighted in your BYDA request and has not been independently verified. Please check the maps represent the area you requested. If they do not, please contact the APA - Before You Dig officer.
- For some BYDA enquiries, you may receive two (2) responses from APA. Please read both responses carefully as they relate to different assets.

Yours Faithfully,

APA Group

Duty of Care - Working Around Gas Assets

General Conditions

- BYDA enquiries are valid for 30 days. If your works commence after 30 days from the date of this response a new enquiry is required to validate location information.

- The location information supplied in this document shall be used as a guide only. APA does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this information or maps.

- It is the responsibility of the excavator to expose all Gas Assets by hand digging**.** Gas Asset depths may vary according to ground conditions.

- Gas (inlet) Services connecting Gas Assets in the street to the gas meter on the property are not marked on the map. South Australia Only - If a meter box is installed on the property, a sketch of the gas service location may be found inside the gas meter box. APA does not guarantee the accuracy or completeness of these sketches.

- Road authorities, council's, and their authorised contractors and agents are responsible to pot-hole or use other suitable methods to verify the location and depth of all gas assets, including Gas (inlet) Services, prior to commencing any works.

- The location and depth of underground mains & services, including those in the road corridor and footpath, may vary in alignment and depth of cover, as a result of changes to road, footpath or surface levels subsequent to installation.

- Some Gas Assets may be installed inside a casing. Locations where a Gas Asset changes from being located within, to being located outside a casing may not be marked on the maps provided.

- The use of hydro-vacuum excavation in vicinity to Gas Assets is permitted under the following conditions:
  - Maximum water pressure of 1000psi unless otherwise advised.
  - A minimum distance of 100mm shall be maintained between the end of the pressure wand nozzle and gas assets.
  - Vertical movements of the pressure wand nozzle or inserting the nozzle in vicinity of the gas asset prohibited
  - The use of root cutting heads is prohibited.

  Where a gas asset has been exposed via hydro-vacuum excavation a visual check must be undertaken to ensure no damage has occurred to the pipe or it's coating. If any damage has occurred notify the APA Before You Dig Officer.

Critical Gas Assets - Conditions

It is your responsibility to follow these important conditions when working in vicinity of Critical Gas Assets

- A Work In The Vicinity Of Critical Gas Assets request form must be submitted to APA Group prior to any work commencing.

- Prior to any works commencing in the vicinity of Critical Gas Assets the person undertaking the work must receive from APA an Authority to work permit.

- The work in the vicinity of Critical Gas Assets will require attendance by an APA Site Watch representative whilst work is in progress unless stated otherwise on the Authority to work permit.

- Penalties apply to excavators commencing work in the vicinity of Critical Gas Assets prior to receiving an APA Group 'Authority to Work' permit and/or if an APA Site Watch representative is not in attendance where required.

Site Watch / Locate Services

Site Watch - A condition of an APA Authority To Work permit is for an APA Site Watch representative be present on site whilst conducting works. The purpose is to monitor works and protect gas assets in the vicinity from potential damage by the works.

Locate – This service is available on request, where an APA representative will visit your work site before work commencement to electronically locate and mark on the ground surface all gas assets in vicinity of the work site.

These services are provided under the following conditions:

- Contact APA - Before You Dig officer to make a booking. Contact details in the table above.
- The following rates are chargeable for these services:

Item	Rate (excl. gst)
Site Watch – Business Hours	$143.42 per hour
Site Watch - After Hours	$175.06 per hour
Electronic Locate – Business Hours	$143.42 per hour
Electronic Locate – After Hours	$175.06 per hour
Cancellation Fee	2 hrs Business Hours rate (where cancellations received after 12pm (midday) 1 business day prior to the booking)
Mains Proving	Quoted on request

Notes:

- 1hr minimum charge applies.
- A Cancellation Fee applies where cancellations are received after 12pm (midday) one(1) business day prior to the booked Site Watch / Locate service
- Contact APA - Before You Dig officer for state specific hours of business.

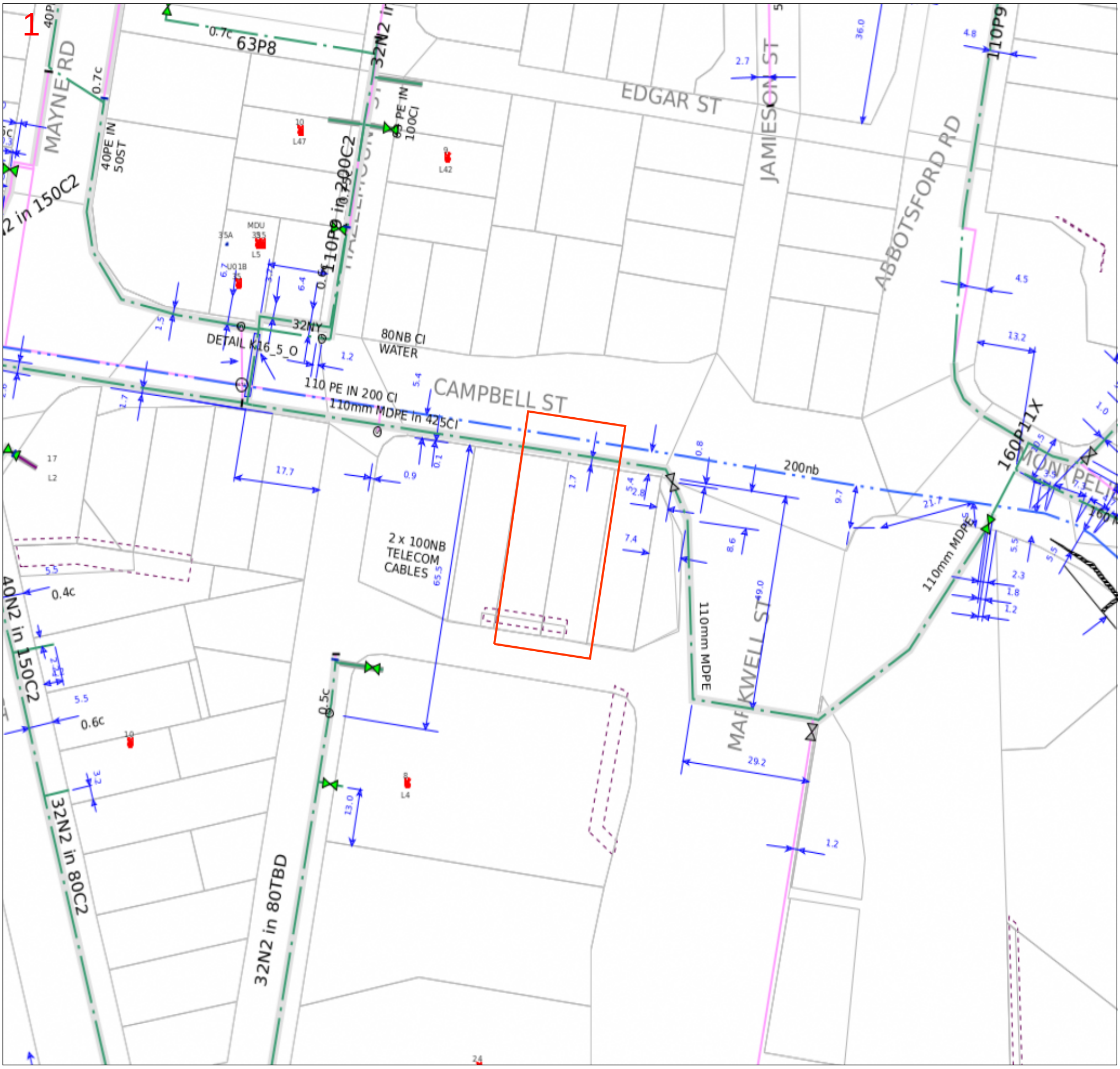
Site Address	10 -12 Campbell Street Bowen Hills 4006	**Sequence No**	237238823
Name	Chanlyly Chea		
Email	cchea@adgce.com		

Map Sources: Esri, Garmin, HERE, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Scale 1: 6000	N	Enquiry Area / Map Key Area

Site Address	10 -12 Campbell Street Bowen Hills 4006	Sequence No	237238823

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 practicable.



LEGEND

PIPE AND BOUNDARIES		PIPE CODE / MATERIALS		OBJECTS or TERMS	
LOW PRESSURES		C# *(e.g. C2)*	Cast Iron	VALVES	
MEDIUM PRESSURES		CU	Copper	BURIED VALVES	
HIGH PRESSURES		N2	Nylon	REGULATORS	
TRANSMISSION PRESSURES		P# *(e.g. P6)*	Polyethylene (PE)	GAS SUPPLIED = YES	
PRIORITY MAIN (BEHIND PIPE)		P6,P7,P9-P12	Medium Density PE	CP RECTIFIER UNIT	
PROPOSED (COLOUR BY PRESSURE)		P2,P4,P8	High Density PE	CP TEST POINT/ ANODE	T / A
LPG (COLOUR BY PRESSURE)		S# *(e.g. S8)*	Steel	SYPHON	S
ABANDONED		W2	Wrought Galv. Iron	TRACE WIRE POINT	
IDLE		W3	Poly Coat Wrought Galv. Iron	PIPELINE MARKER	
SLEEVE		*Pipe diameter in millimetres is shown before pipe code e.g. 40P6 = 40mm nominal diameter*		NOT TIED IN	N.T.I.
CASING / SPLIT (BEHIND PIPE)				DEPTH OF COVER	C
EASEMENT/ JURISDICTION				BACK / FRONT OF KERB	Bok Fok

EXAMPLES

40P6 in 80C2 — 40mm High Pressure Medium Density Polyethylene in an 80mm Cast Iron Casing

63S8 — 63mm Medium Pressure Steel

This map is created in colour and shall be printed in colour

Line / Polygon Request

Map Key

1

Scale 1:700

0 0.009km

N

REQUEST TO WORK IN THE VICINITY OF CRITICAL GAS ASSETS CONDITIONS

It is the proponent's* responsibility to read these conditions and complete the request form

1. **A minimum of three (3) business days** in advance of any work commencement is required to process Authority To Work Request applications and provide a response.
2. This request form must be accompanied by a detailed schedule of works.
3. For any gas leak related work this request form must include a detailed sequence of events, outlining all aspects of work. Work is not permitted to proceed until an APA Authority to Work permit has been issued.
4. When an APA Authority to Work permit is issued, the permit will provide any applicable conditions whilst conducting excavation or work in vicinity of the Gas Assets.
5. APA Group Site Watch may be required to be on site during the proposed excavation or work.
6. When an APA Authority to Work permit is issued, the proponent is responsible for complying with all permit conditions.
7. Where applicable, excavation or work must not commence until the requestor has received an APA Authority to Work Permit.
8. Where applicable, penalties apply to excavators commencing work in the vicinity of Critical Gas Assets prior to receiving an APA Group 'Authority to Work Permit'. For further information, as relevant, refer to:
    - NSW Gas Supply Act 1996 – Sec 64 C, Requirements in relation to carrying out of certain excavation work.
    - NSW Gas Supply Act 1996 Sec 50A, Excavation work affecting gas work.
    - Victoria: Pipelines Act 2005 – Section 118, Digging near pipelines and Section 119, Interference with pipeline.
    - South Australia: Gas Act 1997 – Section 83, Notice of work that may affect gas infrastructure.
    - Northern Territory: Energy Pipelines Act as in force at 14 October 2015 Section 66, Threat to pipeline.
    - QLD: Gas Supply Act 2003 – 90, 91 Requirement to consult if gas infrastructure affected.

** Person or company requesting to undertake works in proximity to critical gas assets.*

WORK IN THE VICINITY OF CRITICAL GAS ASSETS REQUEST FORM

Return this form to: DBYDNetworksAPA@apa.com.au or (QLD only) PermitsQld@apa.com.au

Enquiries: Contact APA Before You Dig officer - 1800 085 628

Work / Excavation Site Details

Number:	Street:
Suburb:	State:
Sequence Number / 237238823 :	
Requestors Name:	
Company Name:	
Name of Authorised Company Site Representative:	
Email:	
Phone:	Mobile:
Signature:	

Description of Work / Excavation

Activity/Excavation Details:			
Tick Applicable			
Excavation		Change to surface level	
Service crossing		Boring	
Proving		Other *(provide details)*	
Earthworks			
Excavator Size, Tooth Type & Tooth Size *(provide details)*			

Work / Excavation Drawings Attached (circle) Yes No

Proposed Work Dates and Times

From			To	
Excavation	**Date**	**Time**	**Date**	**Time**
	/ /	am/pm	/ /	am/pm
Backfill	**Date**	**Time**	**Date**	**Time**
	/ /	am/pm	/ /	am/pm

Work Classification Self-Assessment (circle)

Class 1		**Class 2**		**Class 3**	
Works crossing a critical gas asset		Works within 3m of a critical gas asset		Works involving large excavations, vibrations or blasting beyond 3m of the critical gas asset	

Insurer and Policy Details

Policy Number		**Policy Expiry Date**	
Insurance Cover – Current Level ($)			

*Requestor / Billing Details – Mandatory Information

Company / Requestor Name:	
Address:	
Purchase Order:	Email:
Phone:	
Requestor Name:	Requestor Signature:

Powerlink Queensland
33 Harold Street,
Virginia, Qld, 4014
Phone: (07) 3866 1313
27/03/2024

To: ('Applicant')
Chanlyly Chea
596 Milton Road
Toowong QLD 4066

Email: cchea@adgce.com **Phone:** +61451693495

Sequence No 237238824
Enquiry Location: 10 -12 Campbell Street Bowen Hills
Enquiry Date: 27/03/2024 09:12

Dear Chanlyly Chea

Thank you for your enquiry in relation to the Enquiry Location. Queensland Electricity Transmission Corporation Limited ACN 078 849 233 trading as Powerlink Queensland ("Powerlink") respond as follows:

Powerlink's records show that there **ARE** underground cables in the Enquiry Location.

A plan is attached showing the approximate location of Powerlink's assets in the vicinity of the Enquiry Location.

Should our response identify the presence of decommissioned Powerlink assets it should be noted that damage to these assets may result in an environmental hazard . As a precaution, all underground assets should be treated as live, and all necessary precautions should be taken to ensure that the cables are not damaged. Should damage occur, all work in the area surrounding the cables must be ceased immediately and Powerlink called on 07 3266 9410 to report the damage and get further advice.

Proposed works in close proximity to Powerlink's plant must undergo a detailed assessment by Powerlink. Please allow at least four to six weeks (more in complex situations) for Powerlink to process your application.

All work in close proximity to Powerlink's cables must be supervised by a Powerlink-appointed person and can be arranged by contacting Powerlink on (07) 3866 1313 at least seven days in advance.

The attached duty of care guidelines below must be observed at all times

Yours faithfully

Narelle Titman
Manager Property
Powerlink Queensland

Before You Dig Terms and Conditions

"Duty of Care" for Everyone

Responsibilities When Working in the Vicinity of POWERLINK'S Plant

Everyone has a legal duty of care that must be observed, particularly when working in the vicinity of electrical plant. "Electrical plant" includes underground cables, conduits and other associated underground equipment. It should be noted that the placing or removal of soil by excavation, digging or by any other means is not allowed in a Powerlink-easement without prior written consent from Powerlink. In most cases it is unlikely that consent will be granted.

When discharging this duty of care in relation to Powerlink's plant, the following points must be considered:

1. It is the responsibility of the architect, consulting engineer, developer and head contractor in the project planning stages to design for minimal impact and adequate protection of Powerlink's plant. Powerlink will provide free plans showing the presence of its underground plant to assist.
2. It is the developer or constructor's responsibility to:
    - investigate whether Powerlink's plant is present in a particular location and obtain the most up to date plans available from Powerlink before commencing construction.
    - visually locate Powerlink's plant by hand digging where construction activities may be in close proximity to or interfere with Powerlink's plant.
    - contact Powerlink's Property Services & Management Team on (07) 3866 1313 if Powerlink's plant is wholly or partly affected by planned development and construction activities.
3. As the alignment and boundaries of road ways with other properties (and roads within road ways) frequently change, the alignments and boundaries contained within Powerlink's plans and maps will frequently differ from present alignments and boundaries "on the ground". Accordingly, in every case where it appears that alignments and boundaries have shifted, or new road ways have been added, the constructor should obtain confirmation of the actual position of Powerlink's plant under or along the road ways. The constructor must never rely on statements made by third parties in relation to the position of Powerlink's plant.

Important Points to Note – Please Read

• Plans and details provided by Powerlink are current for one month from the Response Date and should be disposed of by shredding or any other secure disposal method after use.

• Powerlink's plans are diagrams only. They indicate the presence of underground plant in the general vicinity of the Enquiry Location. Exact ground cover and alignments cannot be given with any certainty, as such levels can change over time.

• To avoid damage or injury, Powerlink's plant must be carefully located under the supervision of a Powerlink-appointed person before excavation work or similar activities are undertaken near Powerlink's plant.

• Powerlink, its servants and agents will not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Powerlink against any claim or demand for any such loss or damage.

• Where work commences prior to obtaining Powerlink's plans, or Powerlink's instructions are not followed, the developer/constructor is responsible for all damages sustained to Powerlink's plant.

• Powerlink reserves all rights to recover compensation for loss or damage caused by interference or dam age, including consequential loss and damages to its cable network, or other property.

• All underground conduits and cover slabs must be presumed to contain asbestos. Refer to "Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005).]

• PCB (polychlorinated biphenyl) contamination may exist in some cables.

Remote or On-Site Location Assistance

If requested, Powerlink may provide either remote over –the-phone or on-site location assistance with locating Powerlink's plant. This assistance may include guidance on visually locating and protecting Powerlink plant when excavating. Please note that any markings or pegs placed on the site by Powerlink during any such visit are indications of approximate cable locations only. The constructor is responsible for all hand digging (potholing) to visually locate and expose POWERLINK'S plant.

If the constructor is unable to locate Powerlink's plant within five metres of indicative plan locations, they must contact Powerlink's Regional Officer for Local Security for further advice. Contact details are as follows;

Officers for Local Security:

Region name	Contact's name	Telephone number	Mobile number
Southern	Bruce Muhling	(07) 3860 2305	0417 294 210
Central	Jeff Anstey	(07) 4931 2718	0418 785 743
Northern	Steve Cazzulino	(07) 4789 5561	0418 875 137

When working in the vicinity of Powerlink's plant, please observe the following conditions:

Records
The first step before any excavation commences is to obtain records of Powerlink's plant in the vicinity of the work. For new work, records should be obtained during the initial planning and design stage. The records provided by Powerlink must also be made available to all construction groups on site. Where plant information is transferred to plans for the proposed work, care must be exercised to ensure that important detail is not lost in the process.

Location of Cables
Examining the records is not sufficient, as reference points may change from the time of installation. Records must also be validated when working in close proximity to underground plant. The exact location of plant that maybe affected must be confirmed by use of an electronic cable locater followed by careful hand excavation to the level of cover slabs or conduits. Hand excavation must be used in advance of excavators. If doubt exists with respect to interpretation of cable records, Powerlink's Regional Officer for Local Security must be contacted. Refer to the contact details above.

Electrical Cable Covers
Powerlink's cables have underground cable warning tapes installed above the cables with the wording 'high voltage cable' and some may also have additional mechanical protection. Please note that some cables are known to be buried without covers.

Supervision
Any work in close proximity (within cable easement or five metres from the cable) to Powerlink's cables will always require on site supervision arranged by Powerlink.

Proposed works
No placing or removal of soil by excavation, digging or by any other means is allowed in Powerlink's easement without prior specific written consent from Powerlink.

Excavating Near Cables
For all work within five metres of where the plant is shown on Powerlink's plans, the constructor is required to hand dig (pothole) and expose the plant to confirm its exact location before work can commence.

Excavating Parallel to Cables

If construction work is parallel to Powerlink's cables, then hand digging (potholing) at least every four metres is required to establish the location of all cables to confirm the exact location of Powerlink's plant before workcan commence. Generally, no restrictions are placed on excavations parallel to Powerlink's cables to a depthnot exceeding that of the cable and the entire excavation is located outside Powerlink's easement. If an excavation exceeds the depth of the cables and is within five metres of the edge of the easement (or within ten metres of the cable) it is likely that the covers or bedding material around the cables or conduits will move, and Powerlink must be contacted. Design for the installation of parallel infrastructure will need to take into account electrical issues, including induction and transferred potential. Please note that cable depths may change suddenly.

Excavating Across Cables

A minimum clearance of 150 mm above, below, and to the sides of cables must be maintained. A standard clearance between services must be maintained as set down by the individual authorities. If the width or depth of the excavation is such that the cable warning tapes are exposed or the cables being unsupported, then Powerlink must be contacted to determine whether the cables should be taken out of service, or whetherthey need to be protected or supported. In the case of high voltage cables, it is unlikely that Powerlink will be able to take the cables out of service, and is definitely not an option without a lead time of at least 12 months.A cable cover must never be removed without prior specific written approval. A cable cover and the warning tapes may only be replaced under the supervision of a Powerlink officer. Protective cover strips must never be omitted to allow separation between Powerlink's cables and other services.

Directional Boring Near Cables

When boring parallel to cables, it is essential that trial holes are carefully hand dug at regular intervals to validate the actual location of the Powerlink's conduits or cables before using boring machinery. Where it is required to bore across the line of cables, the actual location of the cables must first be proven by hand digging.A trench must be excavated one metre from the side of the cables where the auger will approach to ensure a minimum clearance of 150 mm from cables can be maintained.

Heavy Machinery Operation over Cables

If a heavy "crawler" or "vibration" type machinery is proposed to be operated over the top of cables, detailed engineering plans and supporting information must be submitted to Powerlink for its approval, or otherwise (in writing) prior to any on site work commencing.

Hot Work in Proximity to Exposed POWERLINK'S Plant and Underground Cables

Exposed underground electrical cables must be protected against the effects of heat by shielding or covering cables with a suitable material. Heating of exposed insulation is dangerous and must be avoided at all costs.

Explosives

Before using explosives in the vicinity of POWERLINK'S cables, clearances should be obtained from Powerlink's Design Engineer. If explosives are proposed to be used within 100 metres of cables, an engineering report demonstrating that no damage will be sustained to Powerlink's plant must be provided to Powerlink prior to using such explosives.

Damage Reporting

All damage to Powerlink's cables, conduits and pipes must be reported to Powerlink no matter how insignificant the damage appears to be. Even very minor damage to cable protective coverings can lead to eventual failure of cables through corrosion of metal sheaths and moisture ingress. Some cables contain oil, and dam-age may result in an oil leak which will seriously impact the performance of the cable and will be treated as an environmental incident. All work in the vicinity of any of Powerlink's plant that has been damaged should cease and the area should be vacated until a clearance to continue work has been obtained from an authorised Powerlink officer.

Please note that high voltage electrical cables, if damaged, can cause serious injury, or fatality. Extreme caution needs to be exercised at all times when working in close proximity to these cables.

Electricity emergencies all areas or after hours enquiries
24 Hours **1800 353 031**

Plant Solutions and Assistance

If Powerlink's plant location plans or visual location of Powerlink's plant by hand digging reveals that the location of this plant is situated wholly or partly where the developer or constructor plans to work, then Powerlink's Property Services & Management Team must be contacted on (07) 3866 1313 to discuss possible engineering solutions.

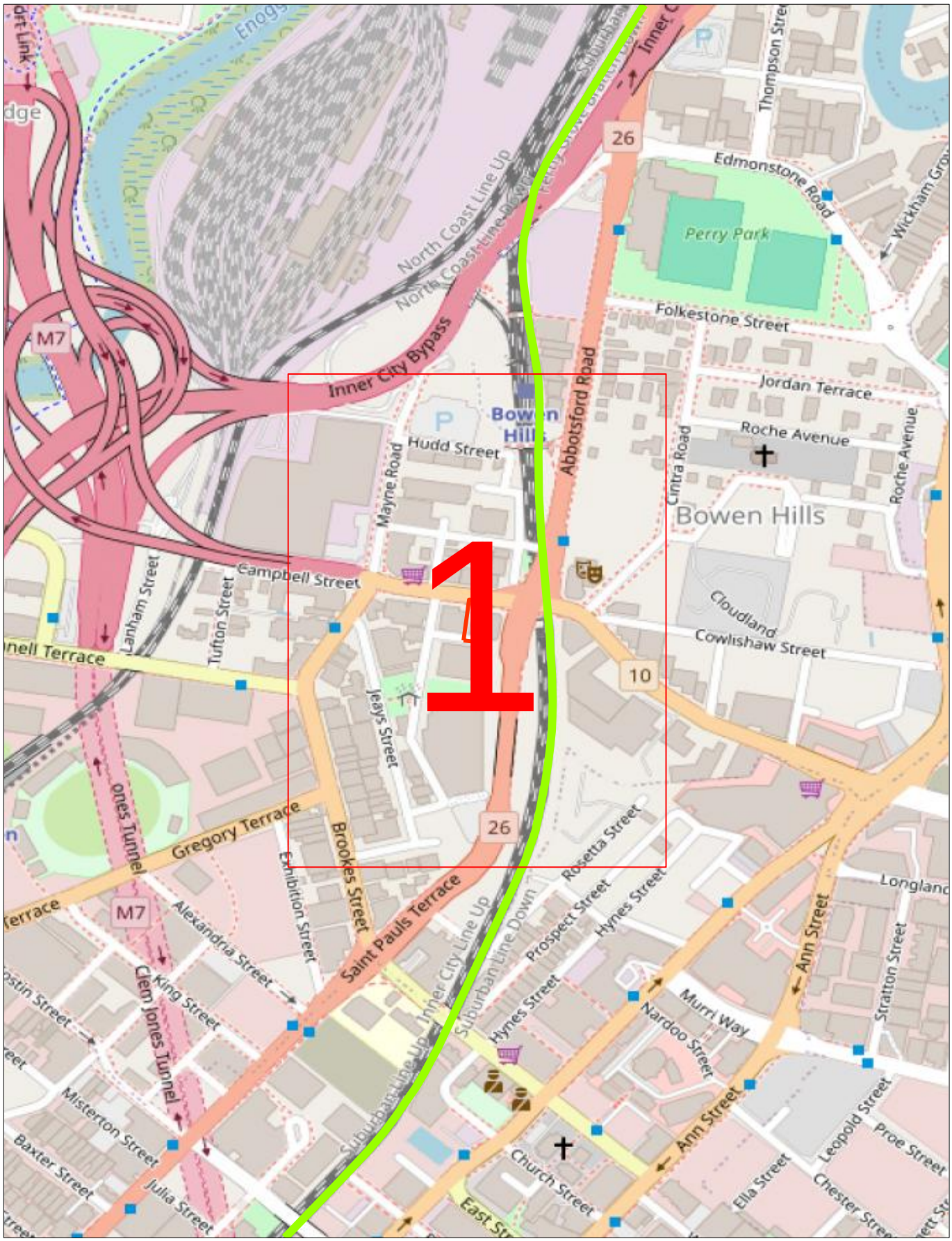
If detailed engineering assessment work, plant relocation, or protection works are part of the solution offered by Powerlink, then the cost of this work (the technical assessment and design, as well as the solution implementation cost) is recoverable by Powerlink from the principal developer or constructor. Powerlink will not commence work on the assessment and design until the developer or constructor provide a purchase order for these works. Powerlink will then provide a cost estimate for any proposed solution, and will not commence work on the solution until the developer or constructor provide a purchase order for the cost estimate.

Date: 27/03/2024

Overview Map

Enquiry No: 237238824

10 -12 Campbell Street Bowen Hills



Powerlink Queensland makes every effort that the information contained on this map is up to date and correct but accepts no responsibility for this information.

The information is provided as a guide only. For up to date and specific information you should contact our Virginia office on (07) 3866 1313.

LEGEND:

1 Detail Map Area	High Voltage Cable
Powerlink Substation	Pilot Cable
Other Substation	Optic Fibre
Possible Comms	Decommissioned

0 0.05km

Imagery sourced from Open StreetMaps

Affected BYDA Work Area Symbols

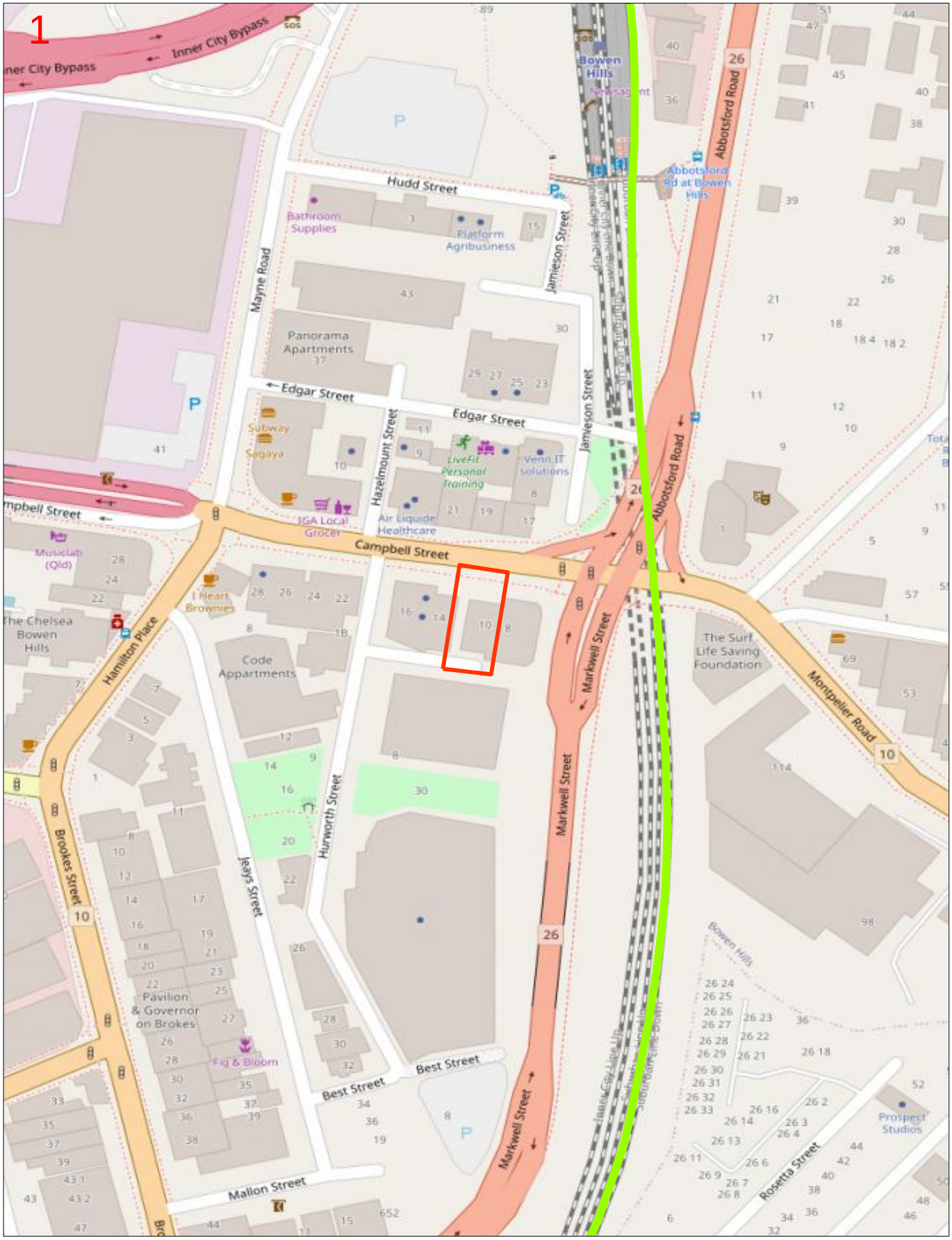
Powered by: dbydsuite

Date: 27/03/2024

Map 1

Enquiry No: 237238824

10 -12 Campbell Street Bowen Hills



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0 0.02km

Imagery sourced from Open StreetMaps

LEGEND:

- Powerlink Substation
- Other Substation
- Possible Comms
- High Voltage Cable
- Pilot Cable
- Optic Fibre
- Decommissioned

Affected BYDA Work Area Symbols

Powered by dbydsuite

Cable Plan

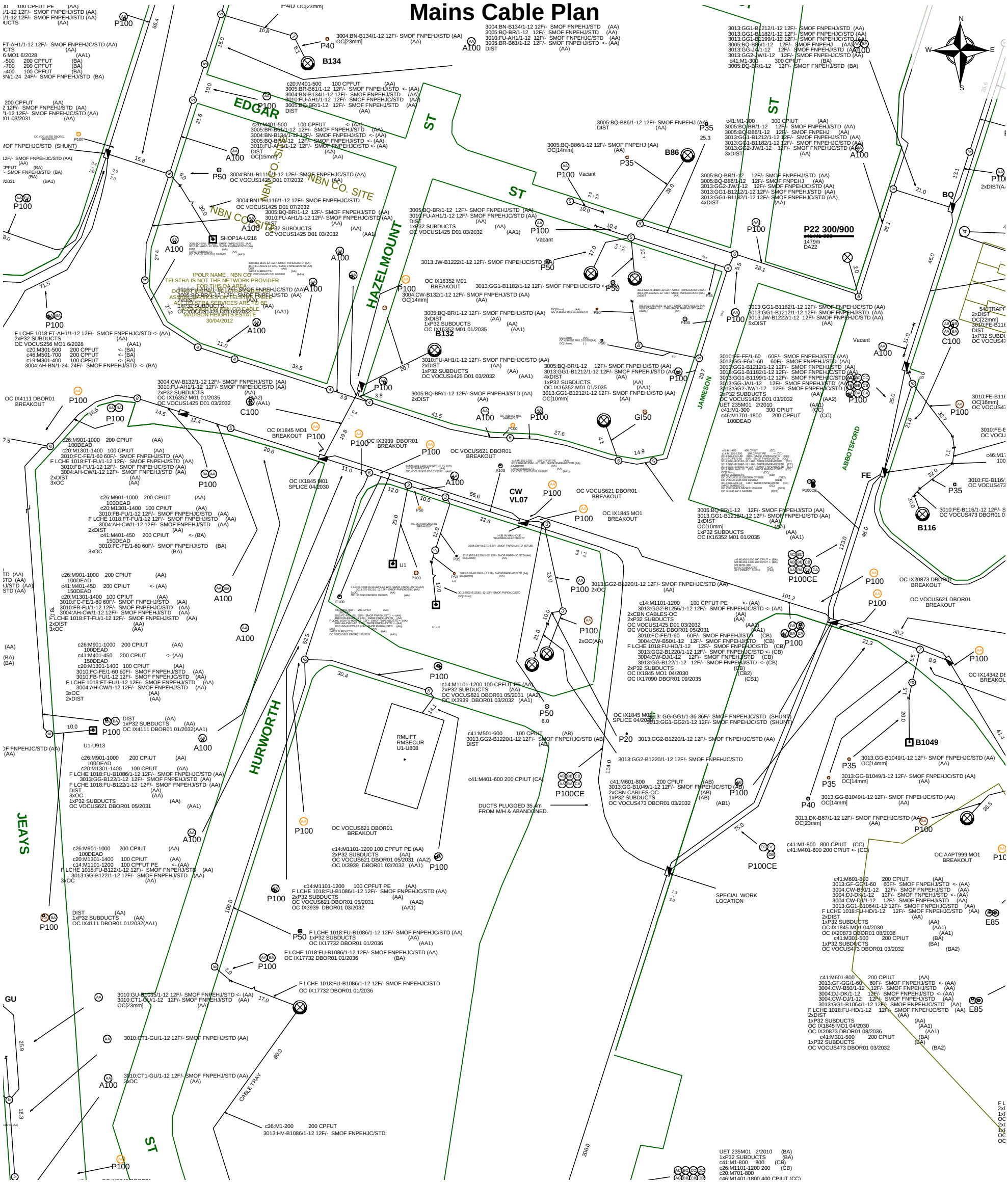
Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 237238825
TELSTRA LIMITED A.C.N. 086 174 781	CAUTION: 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.
Generated On 27/03/2024 10:19:00	

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

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.
As such,Telstra supplied location information is indicative only.Spatial accuracy is not applicable to Quality Level D.
Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.
Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.
A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

Mains Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA LIMITED A.C.N. 086 174 781

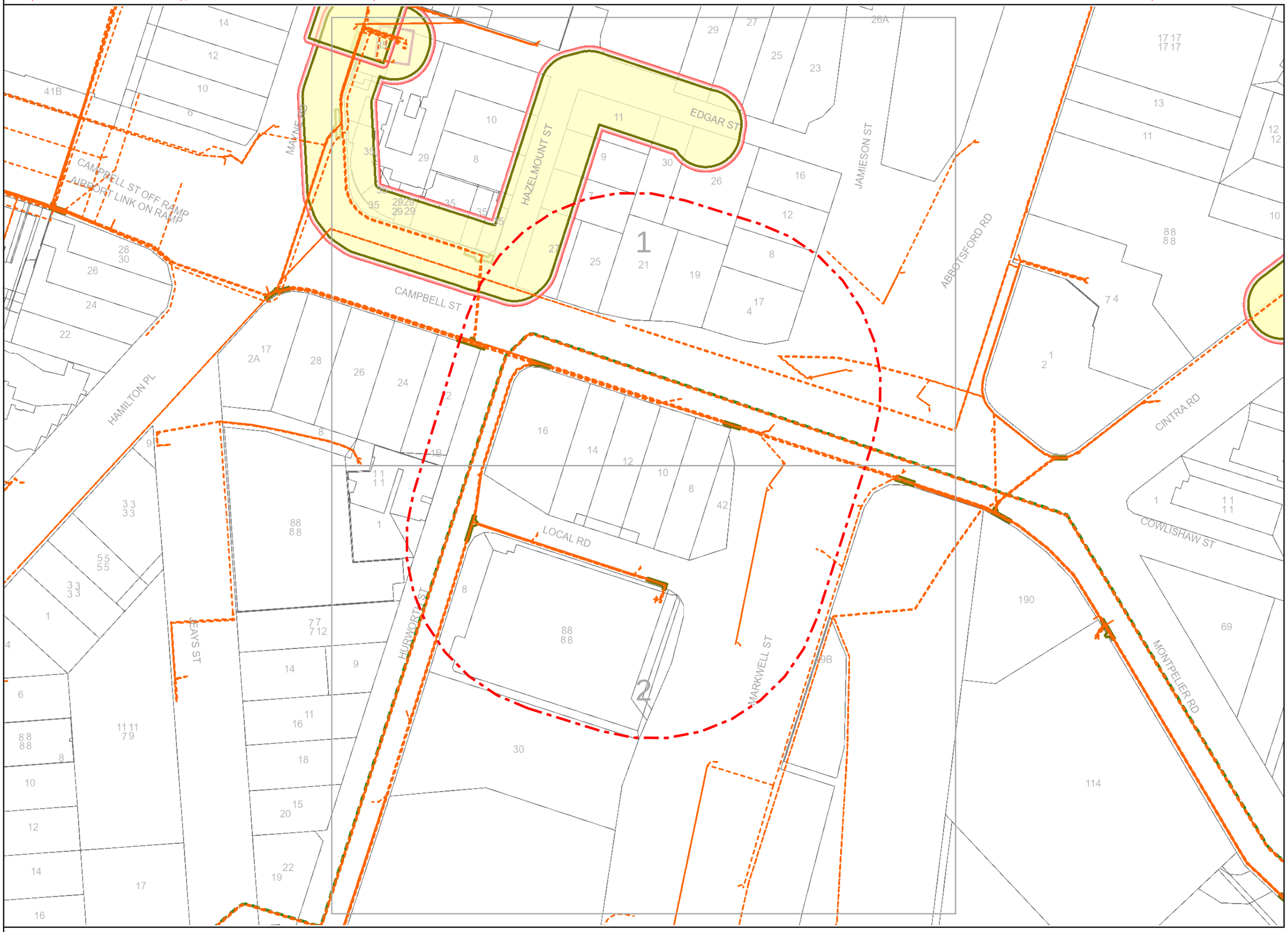
Generated On 27/03/2024 10:19:04

Sequence Number: 237238825

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.

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX BYDA map, then ENERGEX shall be contacted immediately.

For Emergency Situations please call 13 19 62



This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

energex

BYDA

Sequence: 237238827
Date: 27/03/2024

Scale: 1:1025

OVERVIEW

For a full list of Map Symbols, please refer to the supplied BYDA Symbology Legend page

AS5488 Category "D" Plan

N
W E
S

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Energex 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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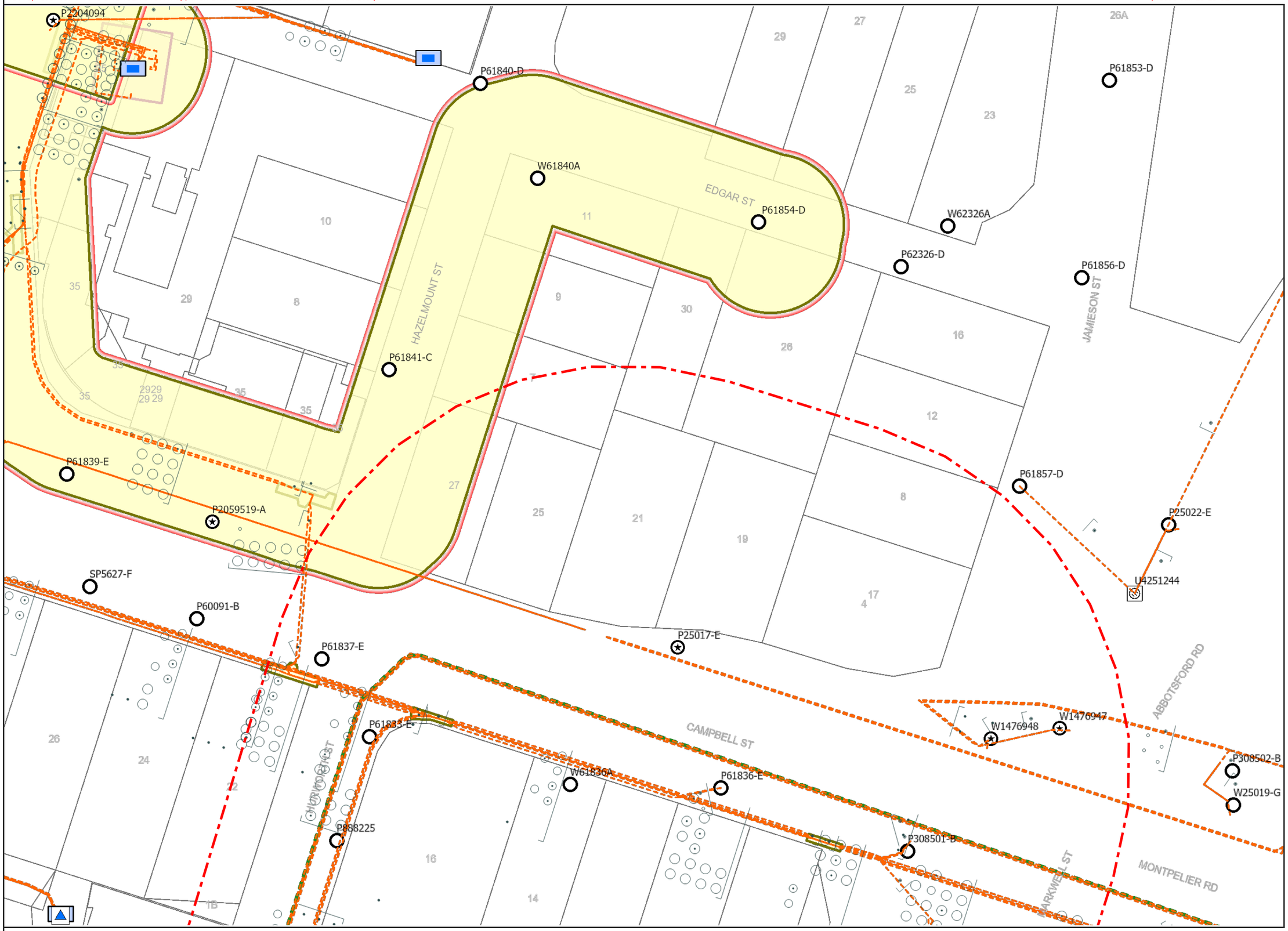

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BYDA

Sequence: 237238827
Date: 27/03/2024

Scale: 1:500
Tile No: 1

For a full list of Map Symbols, please refer to the supplied BYDA Symbology Legend page

AS5488 Category "D" Plan

N
W E
S

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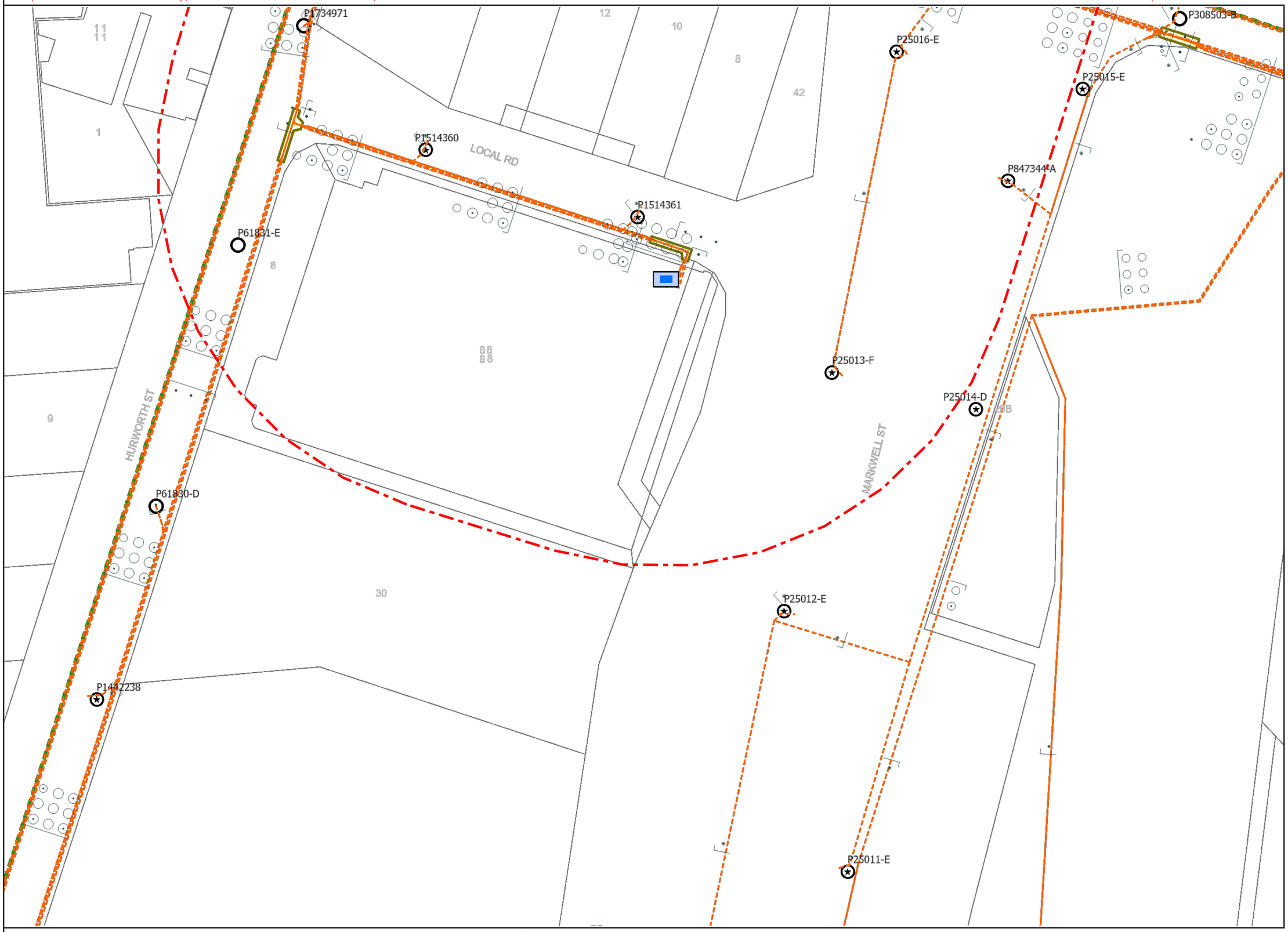
For Emergency Situations please call 13 19 62



This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

energex

BYDA

Sequence: 237238827
Date: 27/03/2024

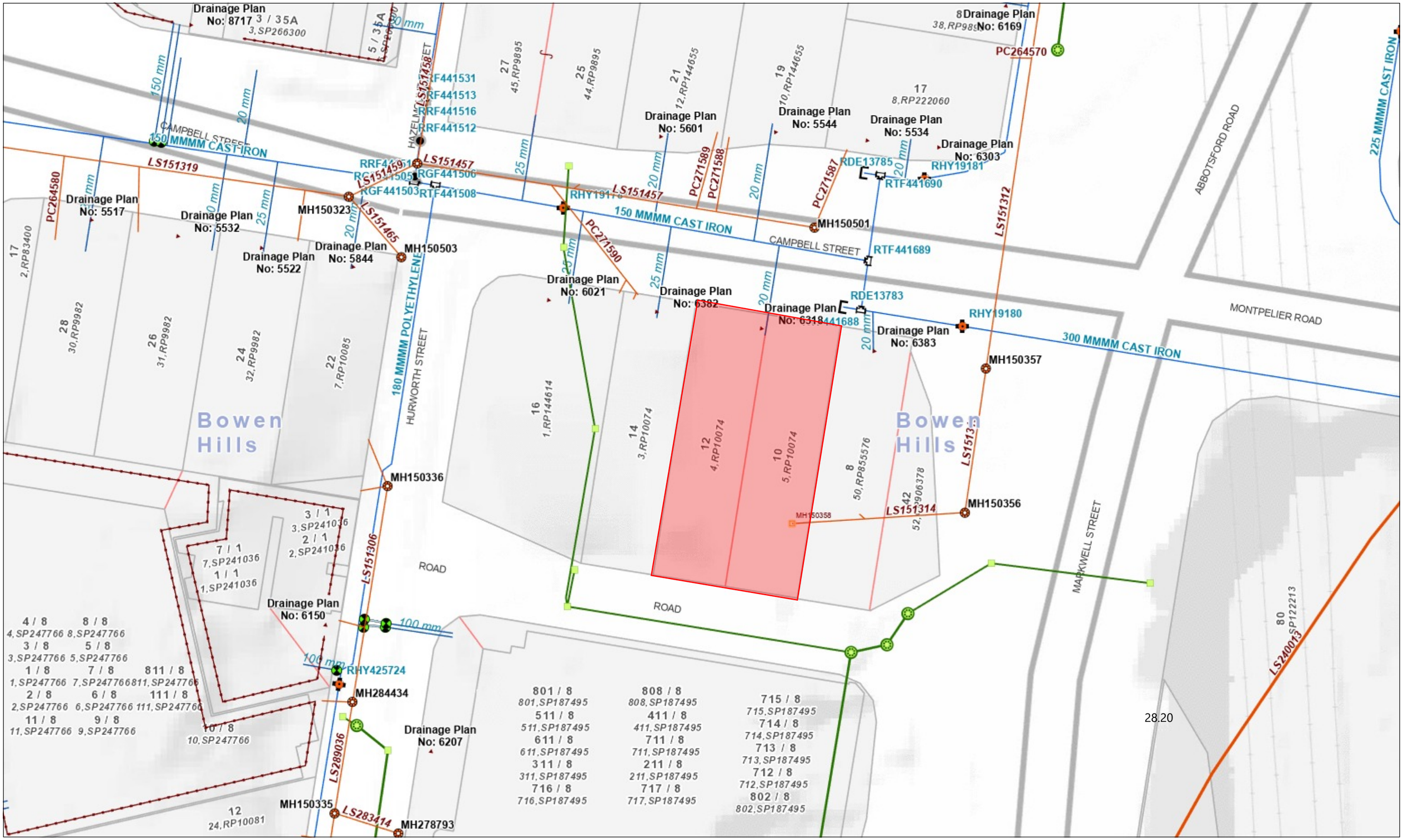
Scale: 1:500
Tile No: 2

For a full list of Map Symbols, please refer to the supplied BYDA Symbology Legend page

AS5488 Category "D" Plan

N
W
E
S

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Energex 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.



Print Date:
27/03/2024 - 2:57 PM

Projection:
Web Mercator Auxiliary Sphere

Notes:

N

BRISBANE CITY

Dedicated to a better Brisbane

Map Title

25.0 0 12.0 18.8 25.0

Metres

Scale: 1: 500

Legend

- Sewer Chamber
  - INLINE FLUSHING POINT
  - RODDING JOINT
  - WYE
  - INLET
  - PIPE BRIDGE
- Sewer Manholes
  - End
  - SCOUR
  - VACCUM - OFFLINE
  - BUTTERFLY
- Sewer Network Structure -Treatn
  - ODOUR CONTROL
- Sewer Pump Station
- Sewer Vertical Pressure Main
- Sewer Gravity Main - by Type
  - OVERFLOW MAIN
  - RETICULATION MAIN - OFFLINE
  - MODEL LINK
  - LOW PRESSURE MAIN - OFFLINE
- Sewer Drainage Plan Extension
  - Pipe End Outlet
- Gully Connect
  - Artesian Well
  - PRESSURE GAUGE
  - <all other values>
  - CROSS
  - REDUCER
  - SCOUR OUTLET
  - ANCHOR BLOCK
  - <all other values>
  - <all other values>
  - QUU
  - PRIVATE - NON POT
- Water Pump Stations
  - SEQWATER - OFFLINE
  - BOOSTER PUMP
  - LIFT PUMP - OFFLINE
  - Reticulation Main
  - MODEL LINK
- Parcel - Outside Brisbane
- CHAMBER
- OUTLET
- PROPERTY CONNECTION BOUNDA
- TEE
- OUTLET
- ANCHOR BLOCK
- MANHOLE
- Flume Pit
- VACCUM, AS CONSTRUCTED
- REFLUX - OFFLINE
- SEWER DOOR - OFFLINE
- TREATMENT PLANT, AS CONSTRUC
- WET WELL
- PUMP STATION
- Sewer Service
  - SYPHON
  - MODEL LINK
  - OVERFLOW MAIN - OFFLINE
  - LOW PRESSURE MAIN
  - RISING MAIN - OFFLINE
- Culvert
- Gully
- Foul Water and Roof Water
  - Detention Basin
  - LEVEL SENSOR
- Water Fitting
  - JOINT
  - WYE
  - CHEMICAL INJECTION POINT
  - PIPE BRIDGE
- Water Chamber
- Water Service Valve
  - SEQWATER
  - QUU - OFFLINE
  - QUU
  - PRIVATE - OFFLINE
  - BORE PUMP
- Water Vertical Pressure Main
  - Trunk Main
  - COMMON SERVICE
- CHAMBER - OFFLINE
- VACUUM LIFT
- JUNCTION
- REDUCER
- <all other values>
- HEAD WALL
- MANHOLE - OFFLINE
- Sewer Manhole Stub
  - REFLUX
- Sewer System Valve - by Type
  - GATE - OFFLINE
  - TREATMENT PLANT - OFFLINE
  - STORAGE FACILITY - OFFLINE
  - PUMP STATION - OFFLINE
  - Model Link
  - DISCHARGE
  - SYPHON - OFFLINE
  - MODEL LINK - OFFLINE
  - RISING MAIN
  - VACUUM MAIN - OFFLINE
- End Structure
- Junction
- SQID
  - Lake
  - FLOW METER - OFFLINE
  - BEND
  - GIBAULT JOINT
  - TEE
  - SAMPLING STATION
  - CONCRETE STOP
- Water Hydrant
  - Service Valve, CLOSED
  - PRIVATE
  - SEQ - OFFLINE
  - SEQWATER
  - <all other values>
  - LIFT PUMP
- Water Pressure Main - by Type
  - Scour Main
- Property Holding
- Sewer Fitting - Main Fittings
- Sewer Fitting - All Other Fittings
  - END CAP
  - GIBAULT JOINT
- Sewer Structure - by Type
  - PIER
  - <all other values>
- Sewer Control Valve - by Type
  - AIR - OFFLINE
  - SEWER DOOR
  - BUTTERFLY - OFFLINE
- Sewer Network Structure - All Fe
  - WET WELL - OFFLINE
- Sewer Network Structure Bounda
  - Service
  - TRUNK MAIN
  - DISCHARGE - OFFLINE
  - <all other values>
  - VACUUM MAIN
- Sewer Drainage Plan
  - End cap
- Manhole
- Surface Drain
- Water Device - All Other Assets
  - PRESSURE GAUGE - OFFLINE
  - PIGGING POINT
  - TAPPING BAND
  - RESERVOIR INLET
  - <all other values>
  - HEADWALL
  - PILLAR HYDRANT
  - Service Valve, OPEN
  - QUU - NON POT
  - PRIV - OFFLINE
  - PRIVATE
- Water Sampling Point
  - BOOSTER PUMP - OFFLINE
  - Water - Model Link
- Water Service
- Sealed Plan
- END FLUSHING POINT
- JOINT
- BEND
- CROSS
- CONCRETE STOP
- Sewer Support Structure Bounda
- Sewer Manhole -All Other Types
  - AIR
  - SCOUR - OFFLINE
  - GATE
  - <all other values>
- STORAGE FACILITY
- ODOUR CONTROL - OFFLINE
- Sewer Vertical Gravity Main
  - <all other values>
  - RETICULATION MAIN
  - TRUNK MAIN - OFFLINE
- Sewer Pressure Main - by Type
  - MODEL LINK - OFFLINE
- Sewer Drainage Plan Joiner
  - Flood Gate
- Drain
- Waterbody
  - FLOW METER
  - LEVEL SENSOR - OFFLINE
  - END CAP
  - TAPPING
  - RESERVOIR OUTLET
- Water Structures
  - PIER
  - INGROUND HYDRANT
- Water Network Structure - Reser
  - SEQ - NON POT
- Water Network Structure Bounda
  - QUU - OFFLINE
- Water Pumps
  - BORE PUMP - OFFLINE
  - Raw Water Main
  - SERVICE
- Parcel

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