



10-16 CAMPBELL STREET

BOWEN HILLS, QLD 4006

Civil Engineering Report

Site Based Stormwater Management &
Engineering Services

New Urban Villages Ltd Pty

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CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION	2
1.1 Background	2
1.2 Property Detail.....	2
2 EXISTING SITE	3
2.1 Existing Site Features	3
2.2 Existing Easement	4
3 ACID SULFATE SOILS	5
4 EARTHWORKS	6
4.1 Bulk Earthworks	6
5 ROADWORKS	7
5.1 Existing Infrastructure	7
5.2 Proposed Infrastructure.....	7
6 FLOODING	8
7 STORMWATER INFRASTRUCTURE	9
7.1 Existing Infrastructure	9
7.2 Lawful Point of Discharge (LPD)	9
7.2.1 Existing LPD	9
7.2.2 Proposed LPD	10
8 STORMWATER QUANTITY ASSESSMENT	11
8.1 Proposed Development and Associated Issues	11
8.2 Flow Rate Methodology	11
8.2.1 Design Storm Events	11
8.2.2 Rational Method for Peak Flow Rate	12
8.2.3 Catchment Area (A)	12
8.2.4 Co-efficient of runoff (C)	12
8.2.5 Time of Concentration	12
8.3 Pre-Development Hydrology	12
8.4 Post-Development Hydrology	13
9 STORMWATER QUALITY ASSESSMENT	13
9.1 Treatment Objectives	14
9.2 Erosion and Sediment Control	14
9.2.1 Erosion Hazard Assessment	14
10 WATER SUPPLY	16
10.1 Existing Infrastructure	16
10.2 Point Of Connection	16
11 SEWERAGE RETICULATION	17
11.1 Existing Infrastructure	17

11.2	Point Of Connection	17
12	ELECTRICAL SUPPLY	19
13	TELECOMMUNICATIONS	20
14	GAS	21
15	CONCLUSION	22

TABLES

Table 1 - Property Detail	2
Table 2 - Pre-development Catchment Details	13
Table 3 - Post-development Catchment Details	13

FIGURES

Figure 1 - Site Location (as accessed from BCC City Plan 2014 on 17.01.25)	2
Figure 2 - Site Location (as accessed from BCC City Plan 2014 on 17.01.25)	3
Figure 3 – Easement Location (accessed from BCC Community Maps on 17.01.25)	4
Figure 4 - Acid Sulfate Soils (accessed from BCC City Plan 2014 on 17.01.25)	5
Figure 5 – BCC Flood Awareness Map (accessed on 17.01.25)	8
Figure 6 – Stormwater Asset (accessed from BCC Community Maps on 20.01.25)	9
Figure 7 – BCC GIS Mapping – Water Infrastructure	16
Figure 8 – BCC GIS Mapping – Sewer Infrastructure	17

APPENDICES

Appendix A Site Survey Plan
Appendix B Preliminary Bulk Earthworks Plan
Appendix C Pre-Developed Catchment Plan
Appendix D Preliminary Post-Developed Catchment Plan
Appendix E Preliminary Civil Services Layout Plan
Appendix F BCC Code Response
Appendix G BCC Floodwise Property Report
Appendix H BCC Erosion Hazard Assessment
Appendix I Rational Method Calculation
Appendix J BYDA Information

EXECUTIVE SUMMARY

ADG Engineers (Aust.) Pty Ltd was engaged by **New Urban Villages Pty Ltd (NUV)** to prepare a Civil Engineering Report suitable for submission to Brisbane City Council for a site located at 10-16 Campbell Street, Bowen Hills. The proposed development is for a 26-storeys residential tower with one (1) level of semi-basement for car parking.

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, telecommunications, and gas.

Review of Brisbane City Councils Potential and Actual Acid Sulphate Soil Mapping Overlay suggests the site may contain acid sulphate soils. On-site testing will be undertaken during the detailed design phase to confirm if contaminated soils are present. An acid sulphate soils management plan will be prepared if deemed necessary following the on-site testing.

It is proposed to provide two new vehicle driveway crossovers to facilitate access to the proposed development (one from Hurworth Street and the other from the existing laneway). Existing redundant crossovers will be removed and reinstated as required. All proposed infrastructure is to be in accordance with the Brisbane City Council Planning Scheme Policy and Standard Drawings.

The stormwater quantity objective is to ensure that there is no increase in peak flow discharges from the subject site. No detention has been proposed as the site has an existing fraction impervious of 100%, stormwater is disposed to council's kerb and channel and piped stormwater system and calculations demonstrate that the development will not cause adverse impacts or actionable nuisance to surrounding properties. Furthermore, as the site area is less than 2,500 m², stormwater quality treatment is not triggered under the of the State Planning Policy.

Following review of available authority GIS mapping, Before You Dig Australia (BYDA) responses, as well as the detailed survey undertaken by **JW Surveys**, the subject site for the proposed development appears to be adequately positioned for utility coverage. Service connections for these utilities, including electricity, gas, telecommunication, water, and sewer are to be provided as part of detailed design by the developments consultant team in order to facilitate the development approval. These services will be designed in accordance with relevant design and construction standards, and to Brisbane City Council Planning Scheme Policy.

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

- Brisbane City Council Planning Scheme Policy (PSP) 2014
- Brisbane City Council Land Development Guidelines
- Brisbane City Council Standard Drawings
- Brisbane City Council Specifications
- Queensland Urban Drainage Manual (QUDM) 2017
- Australian Rainfall and Runoff Guideline (ARR).
- SEQ Sewer & Water Code
- Urban Utilities Guidelines
- Plumbing and Drainage Code AS3500.3.

1 INTRODUCTION

1.1 Background

ADG Engineers (Aust.) Pty Ltd was engaged by **New Urban Villages Pty Ltd (NUV)** to carry out a Civil Engineering Report suitable for submission to Brisbane City Council and any required referral agencies for a site located at 10-16 Campbell St, Bowen Hills. The proposed development is for a 26-storeys residential tower with one (1) level of semi-basement for car parking.

The purpose of this combined Engineering Servicing Report (ESR) and Site Based Stormwater Management Plan (SBSMP) is to provide advice on the proposed development with regard to earthworks, roadworks, stormwater drainage, sewerage and water supply, electricity, telecommunications, 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

Full Property Holding	Lot 3, 4, 5 on RP10074 and Lot 1 on RP144614
Full Street Address	10 – 16 Campbell Street, Bowen Hills QLD 4006
Total Site Area	2101 m ²

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



Figure 1 - Site Location (as accessed from BCC City Plan 2014 on 17.01.25)

2 EXISTING SITE

2.1 Existing Site Features

The subject site currently consists of two (2) commercial buildings and one vacant lot that was previously fully impervious commercial building, and associated carpark and driveways with a concrete surface finish. Although the building on 10 Campbell Street has been demolished, for a fair like-for-like comparison, the pre-demolished site conditions have been utilised.

▶ The site is bound by:

- Campbell Street to the North;
- Commercial building to the East;
- An asphalt laneway (unknown street name) to the South;
- Hurworth Street to the West.

This configuration reflects a highly urbanised setting, with the site fully built out and surrounded predominantly by commercial land uses and transport infrastructure

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

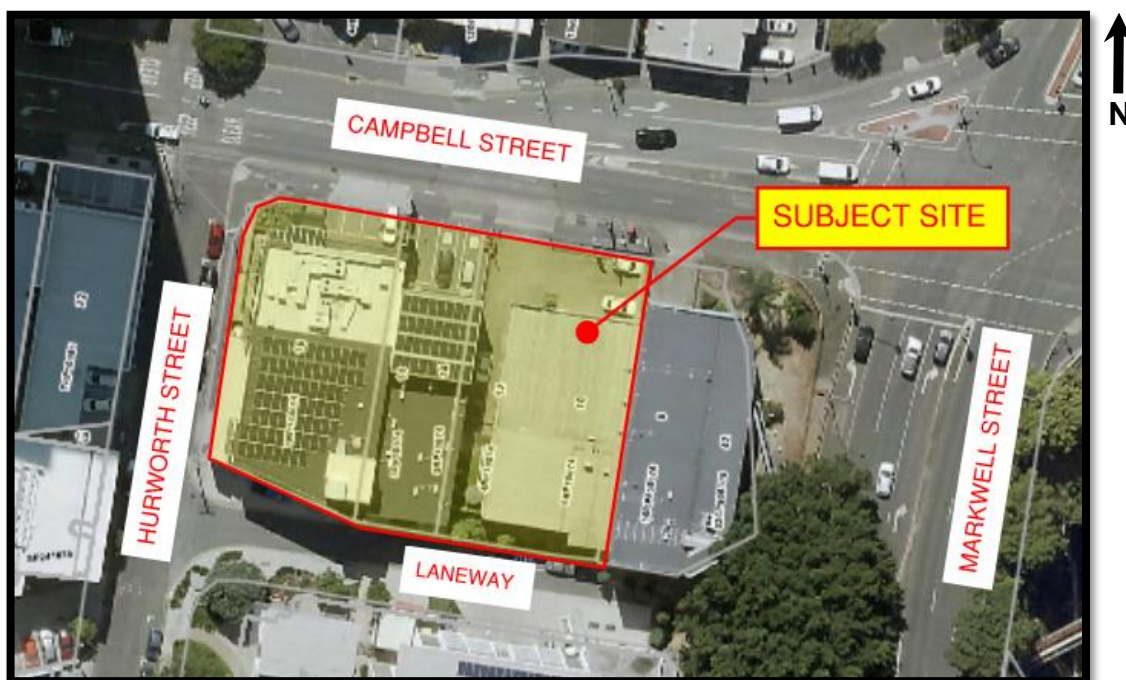


Figure 2 - Site Location (as accessed from BCC City Plan 2014 on 17.01.25)

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.

2.2 Existing Easement

BCC Community Maps reveals that there is an easement (ID: Emt A RP44589) over 10 – 14 Campbell Street as shown in magenta per **Figure 3**. The conditions of the easement are unknown as the council's interactive mapping does not provide further details.

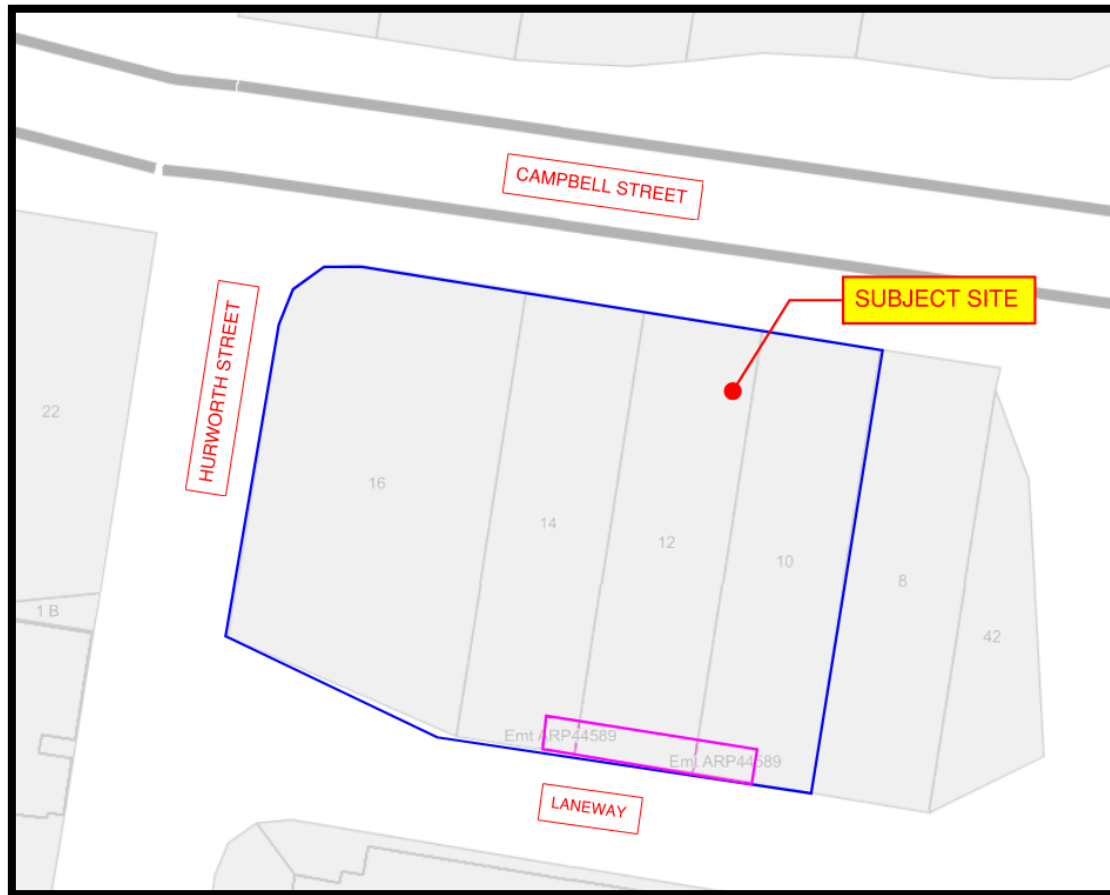


Figure 3 – Easement Location (accessed from BCC Community Maps on 17.01.25)

3 ACID SULFATE SOILS

The subject site may be affected by acid sulfate soil contamination. **Figure 4** 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 15.62m AHD to facilitate the construction of the lower ground floor. Therefore, this excavation may encounter acid sulfate soils. An acid sulphate soils management plan will be prepared if deemed necessary following the on-site testing. Refer to **Appendix F** for the Potential and Actual Acid Sulfate Soils Overlay Code.

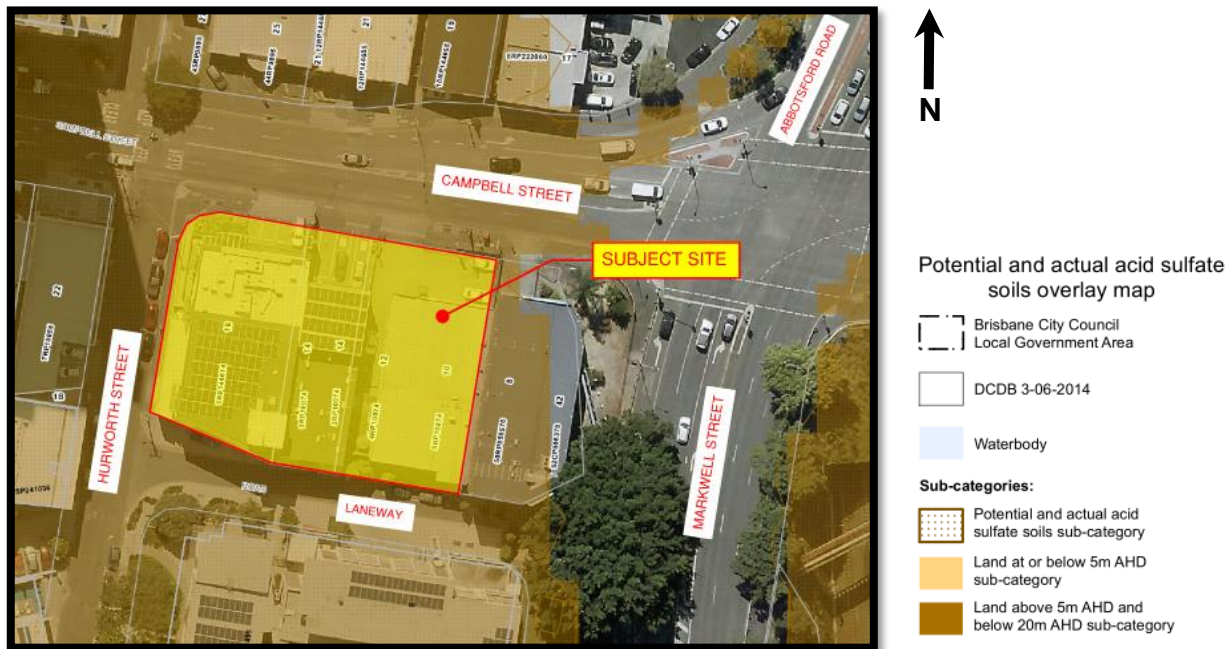


Figure 4 - Acid Sulfate Soils (accessed from BCC City Plan 2014 on 17.01.25)

4 EARTHWORKS

4.1 Bulk Earthworks

The subject site will require excavation to facilitate the construction of a semi-basement for car parking. Details of the earthworks quantities will be provided during the detailed design phase of the development.

Refer to **Appendix F** 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.
- ▶ Laneway (Local Road) to the south with mountable kerb on each side and a two-way crossfall.
- ▶ Hurworth Street – neighbourhood road to the west, with kerb and channel drainage on each side and a two-way crossfall.

The site is currently accessed via three (3) vehicle crossovers along Campbell Street, one (1) along Hurworth Street and one (1) along the Laneway.

5.2 Proposed Infrastructure

ADG anticipates that two (2) new vehicle crossovers, one on Hurworth Street and one on the Laneway, will be constructed as part of the proposed development. All existing vehicle crossovers are to be demolished and removed off-site as part of the construction works, with kerb, channel and footpath 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 F**.

6 FLOODING

Review of the available BCC Flood Awareness Map highlights that the two (2) stormwater gully pits located on Laneway are likely to surcharge causing ponding/overland flow as indicated in **Figure 5** below.

Individual FloodWise Property Reports for 10-16 Campbell St, Bowen Hills were generated from the BCC website. The reports indicate that no Defined Flood Levels (DFL) or Overland Flow flags for building and development purposes for this property had been identified. This suggests that the ponding highlighted on the mapping may not be significant enough to trigger individual flood lookups. ADG recommends further investigation to determine the extent of the ponding depth and area through flood modelling based on the catchment area. Refer to the BCC FloodWise reports within **Appendix G** for further information.

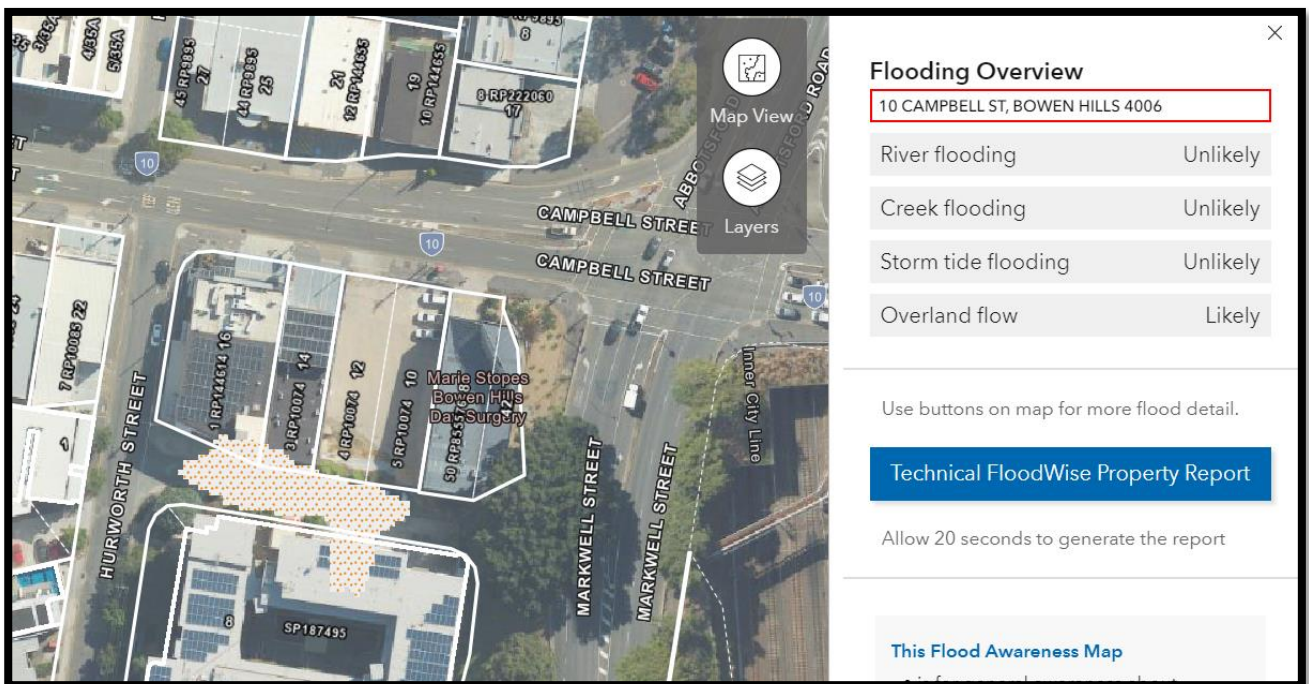


Figure 5 – BCC Flood Awareness Map (accessed on 17.01.25)

Non-roofed areas are observed to freely discharge as sheet flow towards Campbell Street and Hurworth Street. This flow is subsequently conveyed via the kerb and channel system to an existing stormwater gully pit measuring 900 x 600 mm (ID: K16164902) in the laneway.

The gully pit (ID: K16164902) serves as the ultimate stormwater point of connection, where all discharge from the subject lots is directed.

Two (2) existing LPDs are therefore identified for the existing subject site. Refer to drawing DA03 in **Appendix C** for the pre-development stormwater drainage catchment plan.

7.2.2 Proposed LPD

It is proposed that stormwater runoff, primarily roofwater, will be discharged via a pit located at two different locations.

- Proposed Catchment 1: pit discharging to proposed maintenance hole located in Campbell Street;
- Proposed Catchment 2: pit discharging to existing gully pit at the Laneway.

As the LPD 1 is proposed to discharge into the new stormwater main that services the upstream catchment via two gully pits located on Campbell Street, the diversion must be appropriately sized to convey flows from both the upstream catchment and the proposed Catchment 1 during a minor storm event.

LPD 2 is proposed to connect directly to the existing gully pit located in the laneway. Consequently, stormwater from LPD 1 and LPD 2 will converge at the ultimate discharge point, which is the gully pit in the laneway.

The existing stormwater infrastructure from each individual lot are to be demolished, removed and verge/road reinstated to council's standards.

Further details are provided in **Appendix D**.

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 (2017) minimum freeboard recommendations.

This section of the report should be read in conjunction with **Appendix I** which shows the values used to calculate the peak flow rate.

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 development, the development leads to no increase in impervious area, which implies there will be no increase in either discharge volume or flow rate.

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 Ration Method. The investigation undertaken within this section 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 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.
 - Conveyed by the proposed developments internal hydraulic drainage network to the proposed stormwater infrastructure.
 - To be conveyed by stormwater infrastructure proposed by Civil to the nominated Lawful Point of Discharge.
- Major Event: 1 in 50-year ARI (2% 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.
 - Stormwater flows in events up to and exceeding the nominated minor event (10% AEP) will surcharge from the designated drainage infrastructure and overland flow into Campbell Street, Hurworth Street and the laneway.

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 and post-development scenarios respectively.

$$Q = (2.78 \times 10^{-3}) C_y I_y A$$

Equation 1

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

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

A = Catchment area (ha)

I_y = 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 C** and **Appendix D** respectively.

8.2.4 Co-efficient of runoff (C)

Coefficient of runoff, C₁₀ values were determined using catchment-specific fraction impervious values, ¹I₁₀ 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

A standard inlet time of concentration (t_c) of 5 minutes was adopted for each catchment in accordance with QUDM Section 4.6.

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 I**.

The subject site has a total area of 2101 m² (0.2101 ha) and currently comprises of three multi-level commercial buildings. In recognition of the above, pre-development catchments EX1 and EX2 are detailed below in **Table 2** and are indicative of the assumed flows discharging to each existing lawful point of discharge. The Rational Method completed, and the results presented, and are indication of the expected total discharge from the site over the lawful points of discharge. Refer to **Table 2** below for the tabulated results.

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

Table 2 - Pre-development Catchment Details

Catchment I.D	Area (ha)	% Impervious	C ₁₀	Time of Concentration (t _c)	Q ₁₀ (m ³ /s)	Q ₅₀ (m ³ /s)
EX1	0.1860	100%	0.90	5	0.135	0.142
EX2	0.0241	100%	0.90	5	0.018	0.021
Total	0.2101				0.153	0.163

8.4 Post-Development Hydrology

The total land area considered for the post-development was 2028 m² (0.2028 ha) due to proposed verge resumption. A catchment plan for the post-developed site was determined based on preliminary architectural drawings, in which the site was divided into two separate catchments. The post-development catchment plan is attached within **Appendix D** 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 (C₁₀) 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. Rational Method calculations were performed, the results of which can be seen in **Table 3**.

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

Table 3 - Post-development Catchment Details

Catchment I.D	Area (ha)	% Impervious	C ₁₀	Time of Concentration (t _c)	Q ₁₀ (m ³ /s)	Q ₅₀ (m ³ /s)
C1	0.1019	100%	0.90	5	0.074	0.078
C2	0.1010	100%	0.90	5	0.073	0.077
Total	0.2028				0.147	0.155

The post-development conditions result in similar flow rates compared to the pre-development scenario for all storm-events, and as a result, they produce comparable impacts on the downstream infrastructure. As mentioned previously, the ultimate point of discharge, which is the common structure conveying all stormwater runoff to the downstream infrastructure, is the existing gully pit (ID: K16164902). Therefore, the post-development conditions will not have adverse impacts on the downstream infrastructure.

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 2,500m² of land that:
 - will result in an impervious area greater than 25% of the net developable area; or
 - will result in 6 or more dwellings
- A Reconfiguration of a Lot (ROL) for urban purposes that involves a land area greater than 2,500m² and will result in six or more lots; or
- Operational works for urban purposes that involve disturbing more than 2,500 m² of land.

In recognition of the above criteria, the proposed development will not trigger a 'high-risk' classification given the subject site does not encompass an area larger than 2,500 m²

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 'Medium' risk. Refer to the Erosion Hazard Form attached in **Appendix H**.

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) and newly constructed stormwater inlets
- Install construction entry and exit shakedown areas
- Sediment fences are to be installed on the downstream side of any stockpiles, batters, and boundaries of the subject site
- Implement dust control measures as required
- Stabilisation of all disturbed areas upon reaching the finished earthworks levels.
- Re-vegetation of all disturbed areas within two (2) weeks of completion.

All erosion and sediment control measures are recommended 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.

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.

10 WATER SUPPLY

10.1 Existing Infrastructure

Review of available GIS Mapping for Urban Utilities demonstrates that the proposed development is situated in an area serviced by existing water reticulation infrastructure. The subject site is immediately adjacent to various water main and connected via multiple property connections.

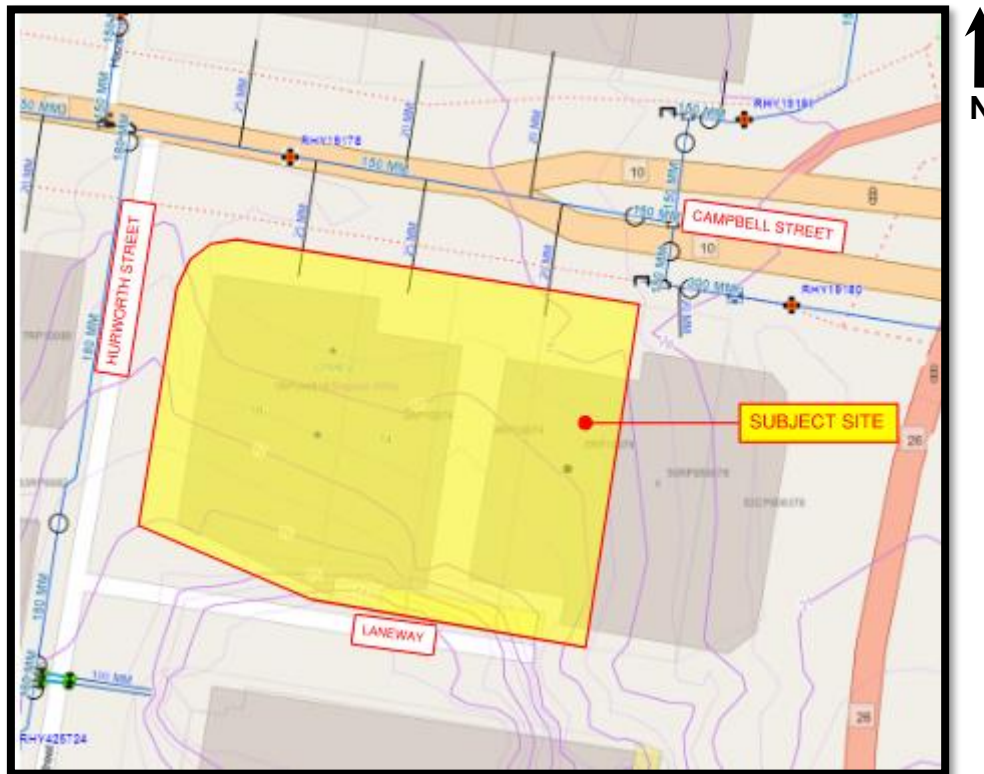


Figure 7 – BCC GIS Mapping – Water Infrastructure

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

10.2 Point Of Connection

To facilitate the proposed development, it is expected that a new water property connection will be connected into the 150mm water main along Campbell Street. This connection will be sized to facilitate the internal hydraulic requirements, with a suitably sized water meter arrangement installed within the development.

Additionally, all existing water connections, including associated water meters, will be decommissioned and removed from site as part of the development.

To confirm the above proposed strategy is aligned with Urban Utilities requirements, ADG has submitted to Urban Utilities a Service Advice Notice.

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

11 SEWERAGE RETICULATION

11.1 Existing Infrastructure

Review of available GIS Mapping for Urban Utilities demonstrates that the proposed development is situated in an area serviced by existing sewer reticulation infrastructure. The subject site is immediately adjacent to various sewer main, structures, and connected via multiple property connections.

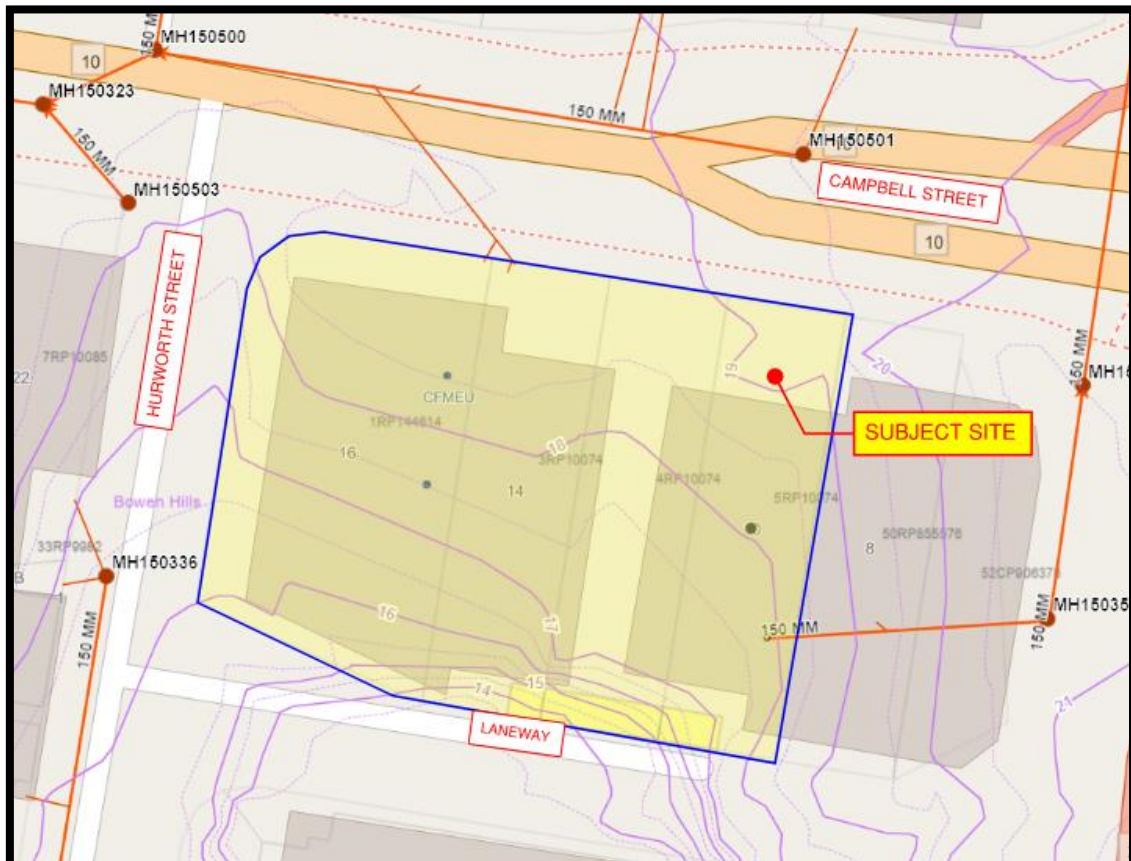


Figure 8 – BCC GIS Mapping – Sewer Infrastructure

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

11.2 Point Of Connection

To facilitate the proposed development, it is expected that a new sewer property connection will be connected into the 150mm sewer main along Campbell Street. This connection will be sized to facilitate the internal hydraulic requirements, with a suitable size maintenance hole installed on the sewer main.

ADG anticipates that the sewer property connection will require pumped sewerage from the semi-basement level to the property connection point. Due to the lack of infrastructure in the laneway, it is not feasible to locate the sewer at the lowest point of the development. In the absence of further survey data, ADG has opted to establish the property connection at Campbell Street. It is proposed that all existing sewer property connections, including associated maintenance hole, will be decommissioned and removed from site as part of the development.

To confirm the above proposed strategy is aligned with Urban Utilities requirements, ADG has submitted to Urban Utilities a Service Advice Notice.

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

12 ELECTRICAL SUPPLY

Review of available Google Map for Energex reveals that the site is currently serviced by overhead electrical cables. In addition, the BYDA information has identified that the following underground 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.

Given the presence of existing both overhead and below ground electrical infrastructure, the proposed development is well situated for potential points of connection to service the development. It is anticipated that an electrical consultant will be engaged as part of detailed design to provide an electrical network design for the proposed development as well as to liaise with Energex.

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

13 TELECOMMUNICATIONS

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 opposite side of the subject site along Campbell Street;
- › Underground Telstra conduit along the frontage of the subject site on Campbell Street;
- › Underground pipe network by Telecomm 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 J** for further details on the existing communications infrastructure.

14 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.
- Underground high-pressure gas pipeline running parallel to the above-mentioned pipeline.

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 J** for further details on the existing gas infrastructure.

15 CONCLUSION

The site appears to be well serviced by reticulated water, stormwater infrastructure, sewerage, telecommunications, gas and electricity. All the proposed property connections are to be connected during construction. Information discussed in this report is inferred from BYDA records, provided survey, and information gathered via desktop investigation.

This engineering report has provided a comprehensive assessment of the civil engineering considerations required to support the proposed development at 10-16 Campbell Street, Bowen Hills.

Site and Existing Conditions

- The site comprises three multi-level commercial buildings constructed to property boundaries, with no pervious areas or notable key features.
- Surrounding infrastructure includes Campbell Street to the north, commercial building to the east, an asphalt laneway to the south, and Hurworth Street to the West.
- Acid sulfate soils may be present, requiring compliance with Brisbane City Council's Acid Sulphate Soil Planning Scheme Policy.

Earthworks and Roadworks

- Earthworks cut is anticipated, with some verge reshaping and retaining structures required for lower ground floor levels.
- Two new vehicle access points will integrate with existing road infrastructure, subject to development approval conditions.

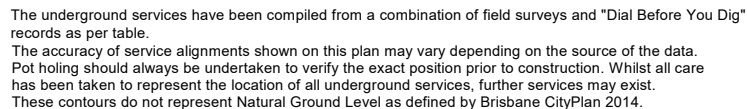
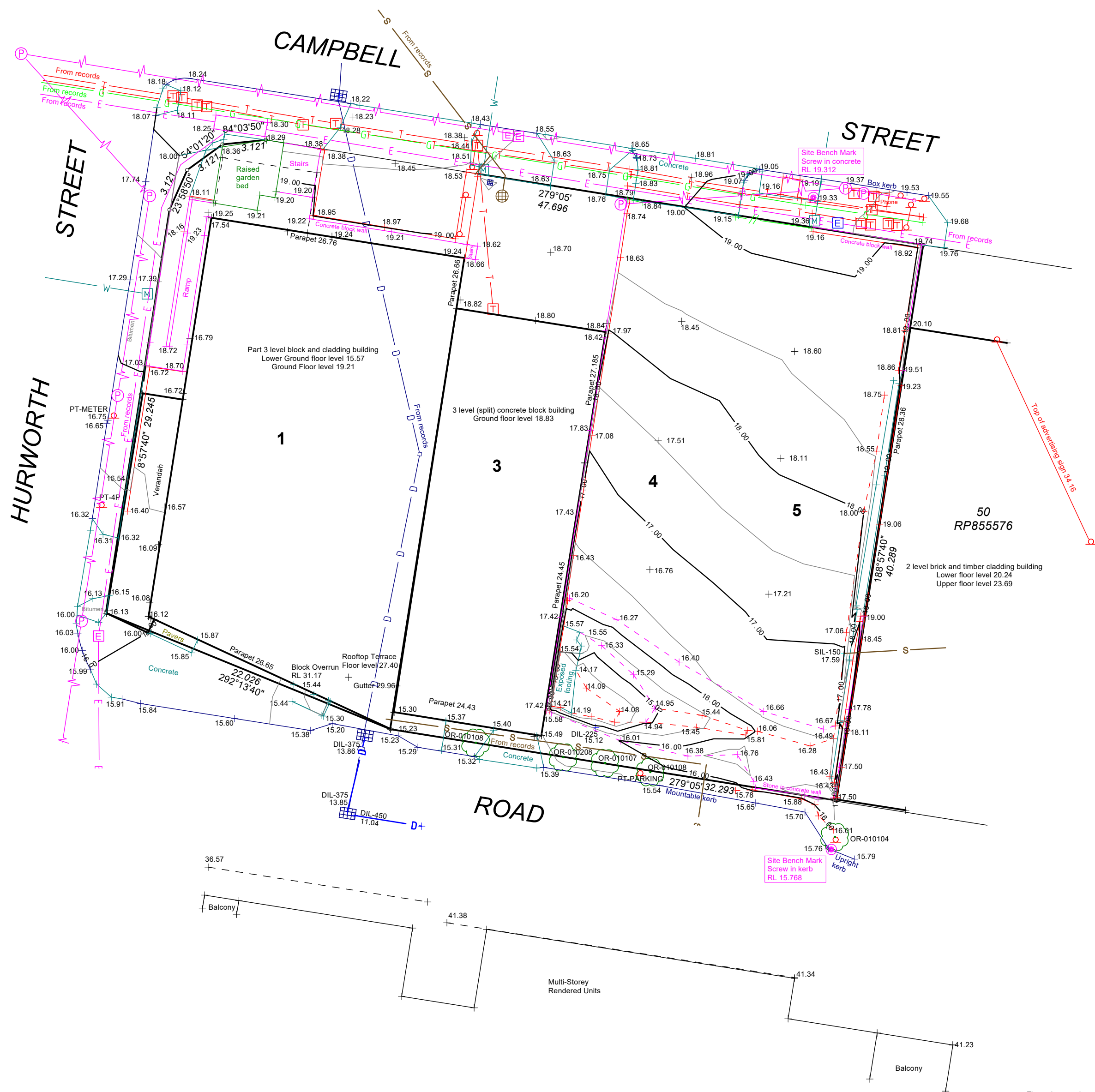
Stormwater and Flooding

- The stormwater management strategy involves two lawful point of discharge.
- No quantity mitigation is required as the site's impervious area remains unchanged post-development.
- The site is confirmed immune to potential flooding events by FloodWise, however, based on the BCC GIS mapping, existing gully pits in the Laneway are likely to surcharge depending on the storm event.

Utilities and Services

- **Water Supply:** A new property connection will connect to the existing 150mm water main on Campbell Street, with decommissioning of redundant services.
- **Sewerage:** A new property connection will connect to the existing 150mm sewer main on Campbell Street, with decommissioning of redundant services. The existing infrastructure will be discharged and receive pumped sewer due to proposed sewer location.
- **Electrical Supply:** Existing overhead and underground infrastructure are available to accommodate the development. An electrical consultant will liaise with Energex for detailed design.
- **Telecommunications:** Existing NBN conduits are available, and a telecommunications consultant will coordinate the design and service provider arrangements.
- **Gas:** Existing APA gas infrastructures are available to accommodate the development. A gas consultant will liaise with Energex for detailed design.

Appendix A Site Survey Plan




Coding for Trees

FIG=Fig Tree
GM=Gum Tree
IB=IronBark
J=Jacaranda
M=Mango Tree
OR=Ornamental Tree
PA=Palm Tree
PN=Pine Tree
SB=Stringy Bark
UTR=Unknown Tree
PO=Poinciana Tree

Type of Tree
DIA of Trunk 0.2m
Radial Spread of Canopy 3.0m
GM-0203

Tree Legend

1-0203
DIA of Trunk 0.2m
Radial Spread of Canopy 3.0m
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

Location _____

**10-16 Campbell Street
Bowen Hills**

Real Property Description

Lots 3-5 on RP10074 & Lot 1 on RP146146

Datum for Levels - AHD via GNS3







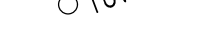
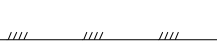








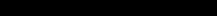
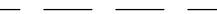





Contour & Detail Survey

Scale _____	When plotted at _____	1:21
Job No. _____	Drawing No. _____	Issued _____
23215	JW 743	

Appendix B

Preliminary Bulk Earthworks Plan

LEGEND

- | | |
|---|--|
|  | SITE BOUNDARY |
|  | EXISTING PROPERTY BOUNDARY |
|  | EXISTING EASEMENT BOUNDARY |
|  | EXISTING SURFACE CONTOURS |
|  | EARTHWORKS CONTOURS |
|  | EXISTING SURFACE LEVEL |
|  | FINISHED SURFACE LEVEL |
|  | EXISTING TOP OF WALL |
|  | FINISHED TOP OF WALL |
|  | EXISTING NOMINAL KERB LINE |
|  | EXISTING EDGE OF BITUMEN LINE |
|  | EXISTING ROAD CENTERLINE |
|  | EXISTING EDGE OF BUILDING |
|  | EXISTING STORMWATER DRAINAGE (RECORDS) |
|  | EXISTING SEWER (RECORDS) |
|  | EXISTING WATER (RECORDS) |
|  | EXISTING OVERHEAD ELECTRICITY |
|  | EXISTING GAS (RECORDS) |
|  | EXISTING TELECOMMUNICATIONS (RECORDS) |
|  | PROPOSED RETAINING SYSTEM (BY OTHERS) |
|  | PROPOSED EARTHWORKS PAD |
|  | PROPOSED EARTHWORKS CUT |
|  | PROPOSED EARTHWORKS FILL |

CUT/FILL LEGEND

- | | |
|--|--------------|
| | CUT CUT > 3m |
| | CUT 2m - 3m |
| | CUT 1m - 2m |
| | CUT 0m - 1m |
| | FILL 0m - 1m |
| | FILL 1m - 2m |
| | FILL 2m - 3m |
| | FILL > 3m |

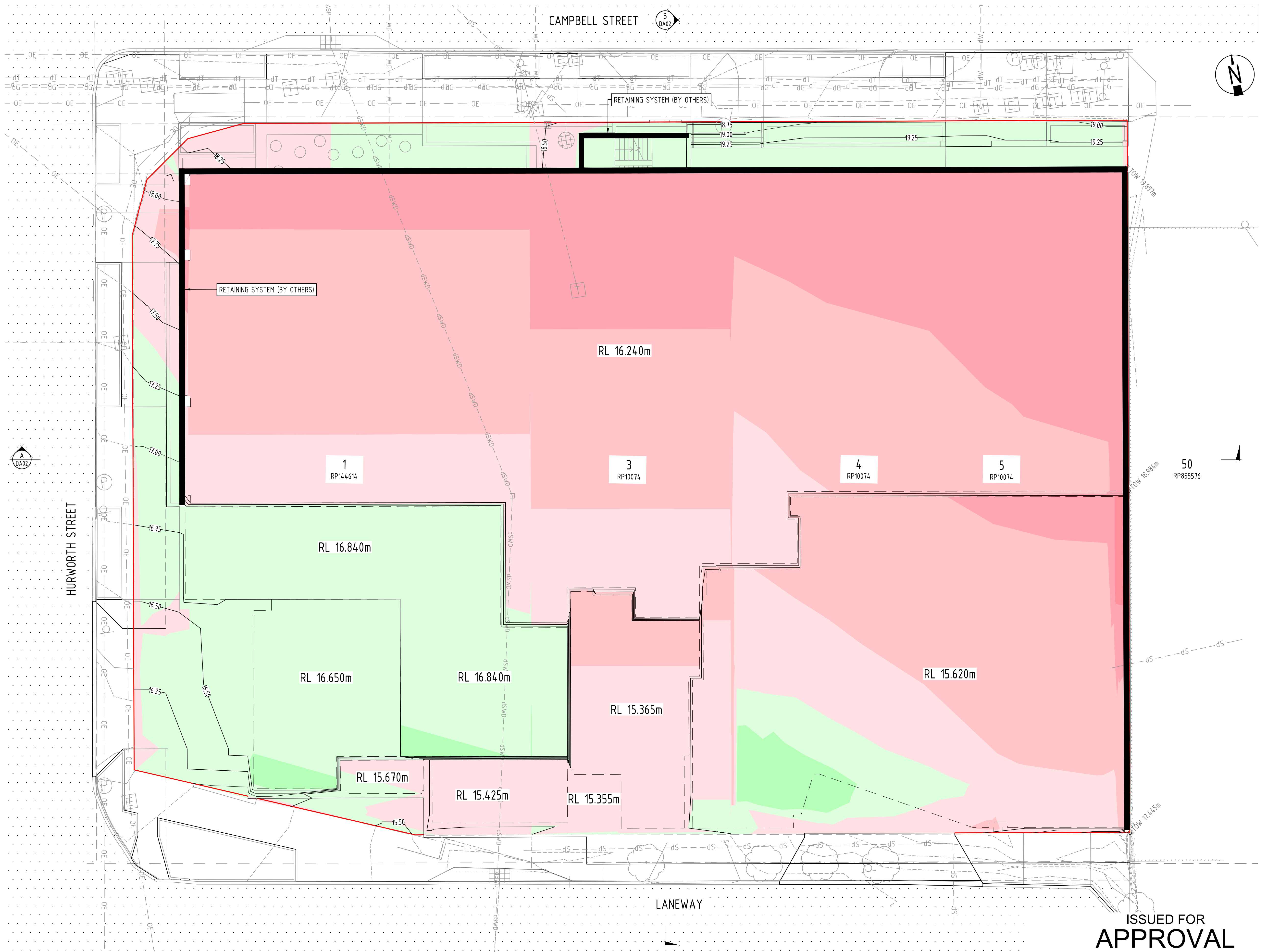
ALL DETAILS SHOWN ARE
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DETAILED DESIGN

NOTE

FOR SITE SECTIONS REFER DRG No. 28373 DA02

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.



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Rev	Date	Description	By	Chk



Client	New Urban Villages Pty Ltd
Project Name	CFMEU 10-16 CAMPBELL STREET BOWEN HILLS. QLD 4006

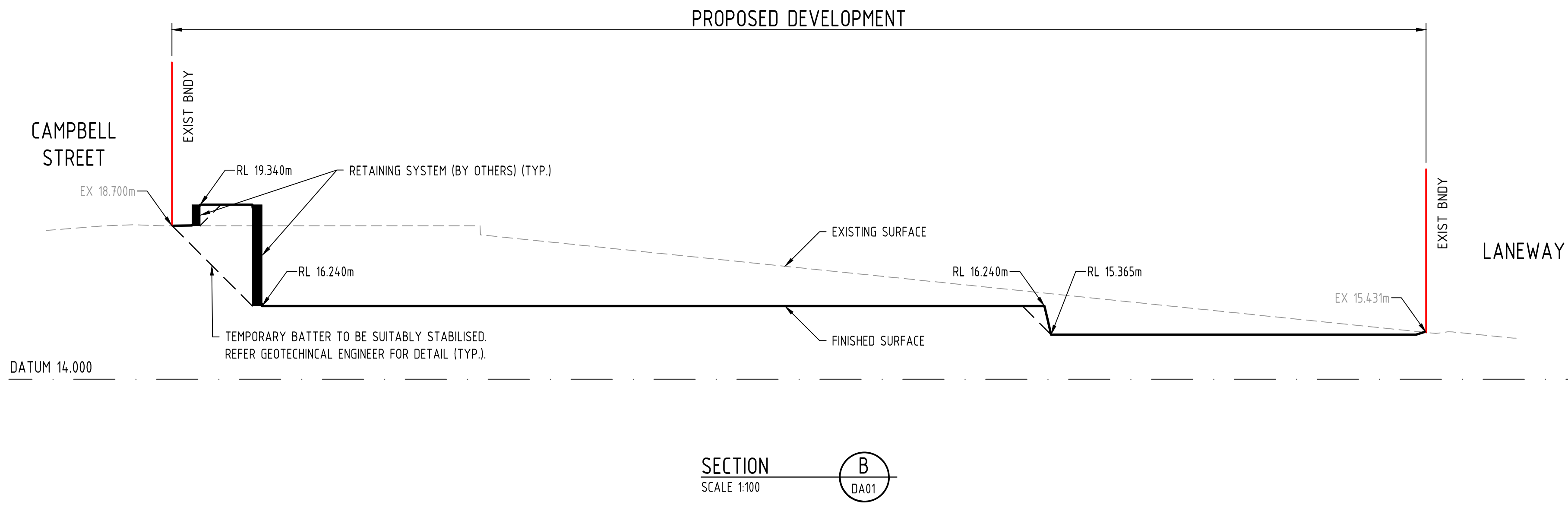
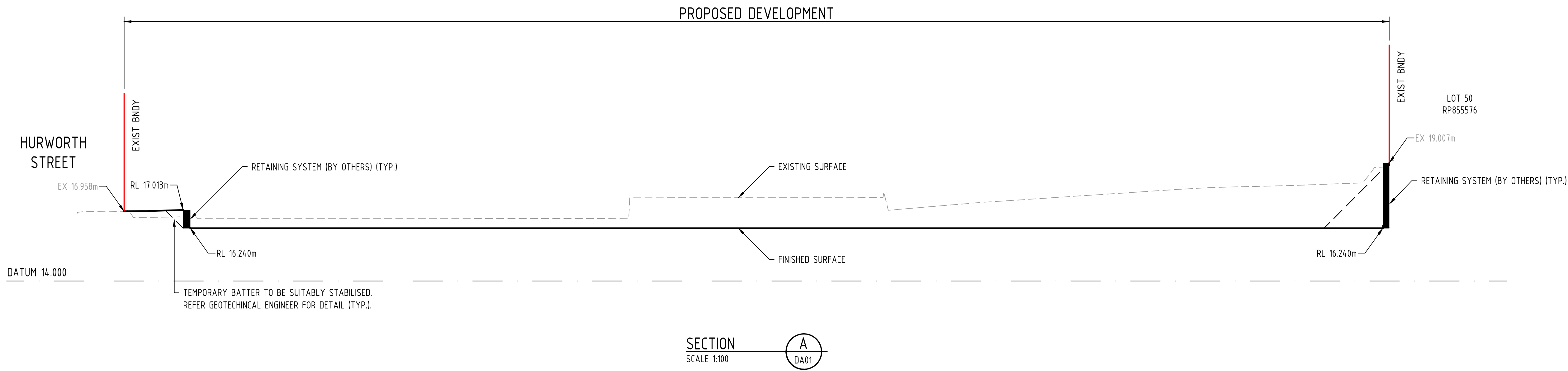
Discipline CIVIL	Status APPROVAL	
Designed By VK	Checked By RC	Approved By GVG
Project No. 28373	Drawn By VK	Scale at A1 1:100

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Title
PRELIMINARY EARTHWORKS
LAYOUT PLAN

Drawing No.
DA01

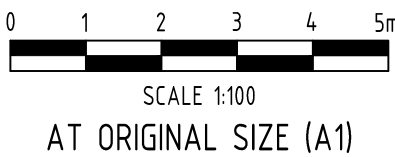
Revision	01
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T:1300 857 402

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Environmental Management ISO 14001:2015

Client New Urban Villages Pty Ltd		Discipline CIVIL		Status APPROVAL	
Project Name CFMEU 10-16 CAMPBELL STREET, BOWEN HILLS, QLD 4006		Designed By VK	Checked By RC	Approved By GVG	
		Project No. 28373	Drawn By VK	Scale at A1 1:100	
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					Revision 01

Appendix C

Pre-Developed Catchment Plan

LEGEND

- SITE BOUNDARY
- EXISTING PROPERTY BOUNDARY
- 12.0

EXISTING SURFACE CONTOURS
- EXISTING NOMINAL KERB LINE
- dSWD

EXISTING STORMWATER DRAINAGE (RECORDS)
- RWD

ASSUMED EXISTING ROOF WATER DRAINAGE
- dS

EXISTING SEWER (RECORDS)
- dW

EXISTING WATER (RECORDS)
- dE

EXISTING UNDERGROUND ELECTRICITY (RECORDS)
- OE

EXISTING OVERHEADS ELECTRICITY (RECORDS)
- dT

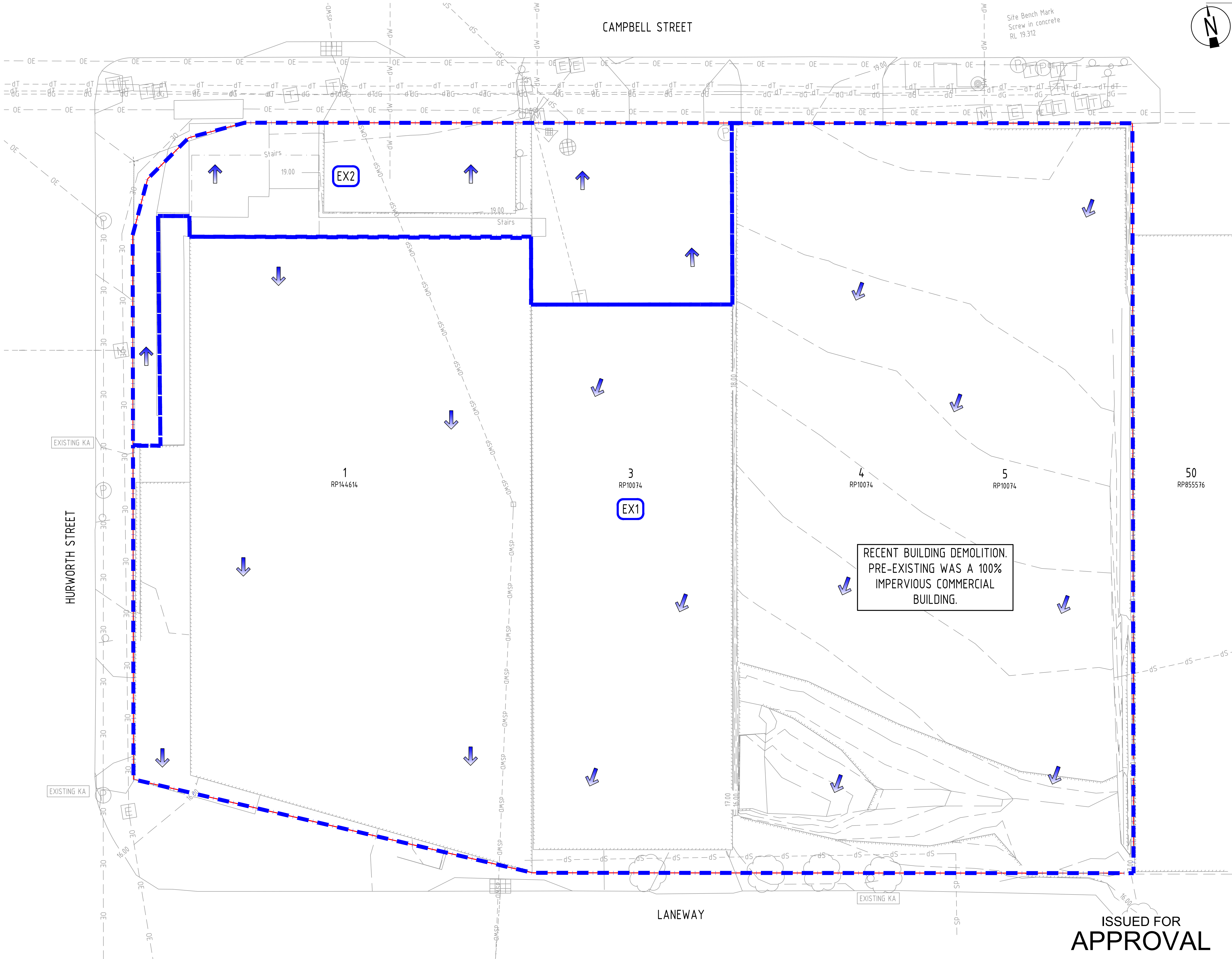
EXISTING TELECOMMUNICATIONS (RECORDS)
- dG

EXISTING GAS (RECORDS)
- x x x x

TO BE REMOVED SERVICE
- CATCHMENT BOUNDARY
- EX1

CATCHMENT LABEL
- CATCHMENT FLOW DIRECTION

CATCHMENT TABLE (PRE DEVELOPMENT)		
CATCHMENT NAME	AREA (ha)	FRACTION IMPERVIOUS
EX1	0.1860	1.00
EX2	0.0241	1.00



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Rev	Date	Description	By	Chk

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

ADG

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Quality Assurance ISO 9001:2015 | Work Health Safety ISO 45001:2018
E: info@adgco.com
Environmental Management ISO 14001:2015
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Client New Urban Villages Pty Ltd		Discipline CIVIL		Status APPROVAL	Title PRE DEVELOPMENT STORMWATER DRAINAGE CATCHMENT PLAN	
Project Name CFMEU 10-16 CAMPBELL STREET, BOWEN HILLS, QLD 4006		Designed By CC	Checked By RC	Approved By GVG		
		Project No. 28373	Drawn By CC	Scale at A1 1:100		
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					Drawing No. DA03	Revision 01

Appendix D

Preliminary Post-Developed Catchment Plan

LEGEND

- 12.0

SWD

dSWD

dS

dS

dW

dW

dE

dE

OE

dT

dT

dG

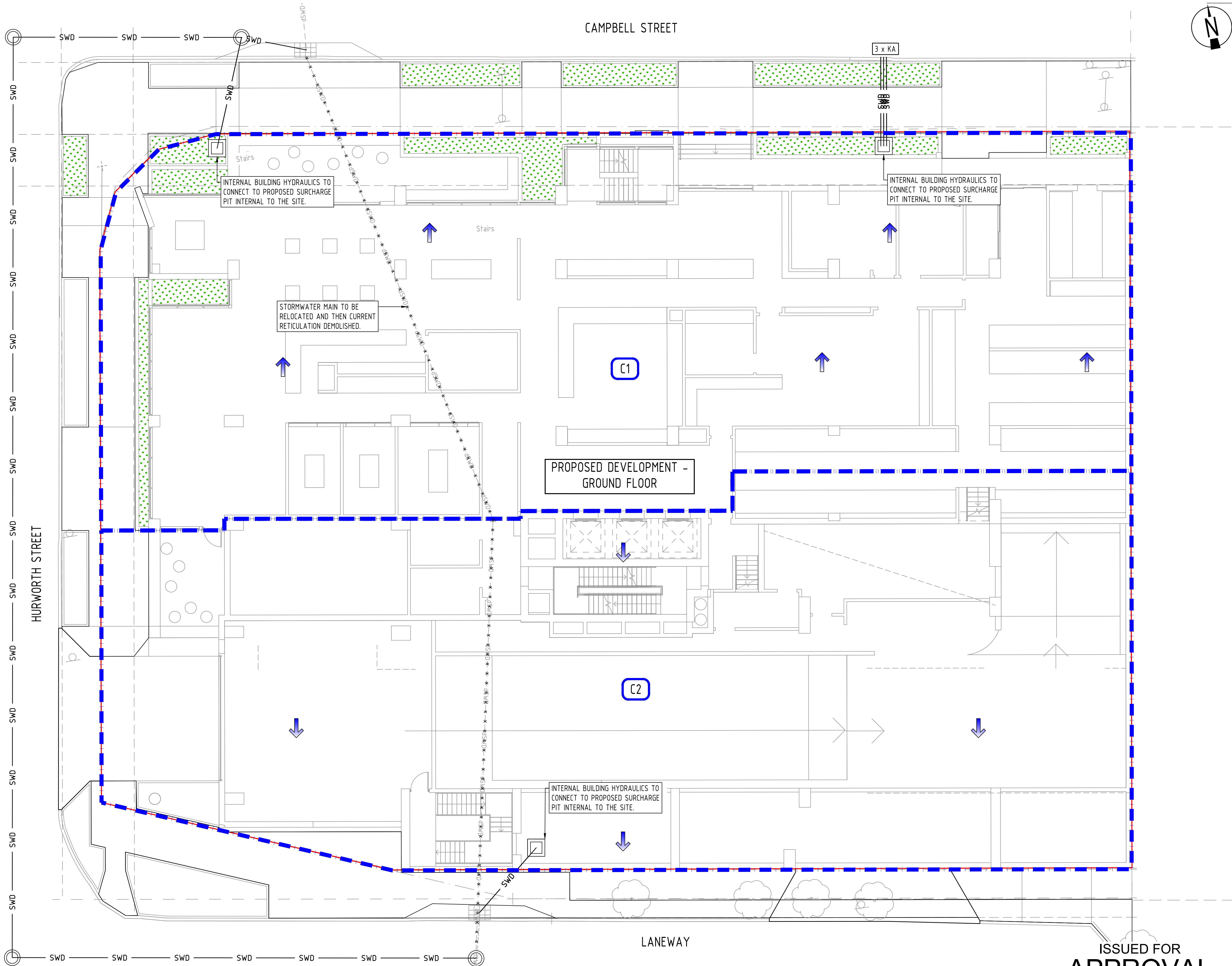
dG

x x x x x

SWD

C1
- FINISHED SURFACE CONTOURS
- LIMIT OF WORKS
- SITE BOUNDARY
- EXISTING PROPERTY BOUNDARY
- EXISTING NOMINAL KERB LINE
- EXISTING STORMWATER
- EXISTING STORMWATER (RECORDS)
- EXISTING SEWER (RECORDS)
- EXISTING WATER (RECORDS)
- EXISTING UNDERGROUND ELECTRICITY (RECORDS)
- EXISTING OVERHEADS ELECTRICITY (RECORDS)
- EXISTING TELECOMMUNICATIONS (RECORDS)
- EXISTING GAS (RECORDS)
- TO BE REMOVED SERVICE
- PROPOSED STORMWATER DRAINAGE
- CATCHMENT BOUNDARY
- CATCHMENT LABEL
- CATCHMENT FLOW DIRECTION

CATCHMENT TABLE (POST DEVELOPMENT)		
CATCHMENT NAME	AREA (ha)	FRACTION IMPERVIOUS
C1	0.1019	1.00
C2	0.1010	1.00



01	22.01.25	ISSUED FOR APPROVAL	CC	RC
Rev	Date	Description	By	Chk

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SCALE 1:100
AT ORIGINAL SIZE (A1)



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Project Name
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Discipline
CIVIL
Designed By
CC
Project No.
28373

Checked By
RC
Drawn By
CC

Status
APPROVAL
Approved By
GVG
Scale at A1
1:100

Title
POST DEVELOPMENT
STORMWATER DRAINAGE
CATCHMENT PLAN

Drawing No.
DA04

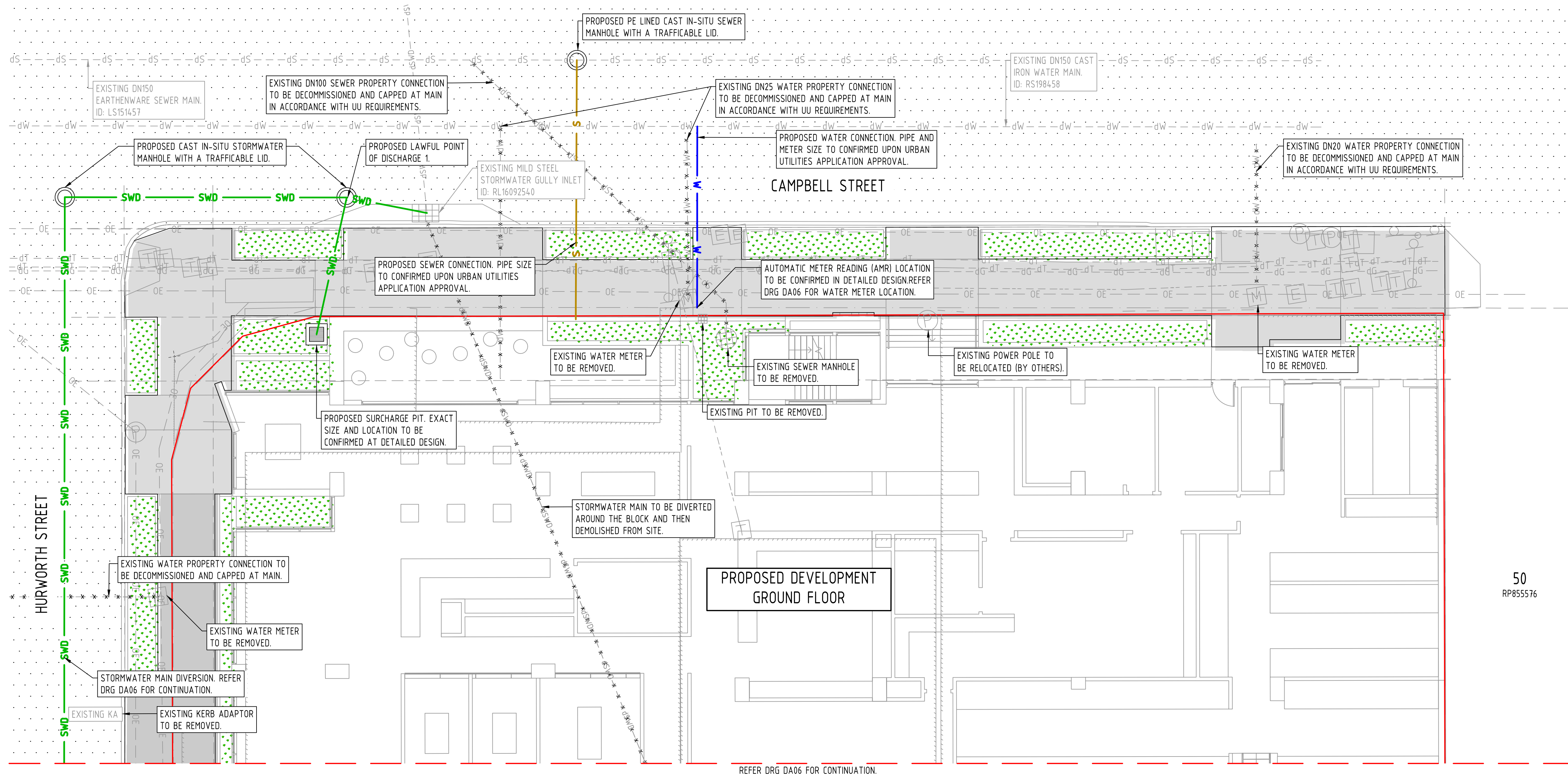
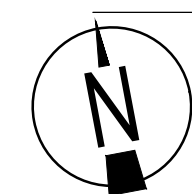
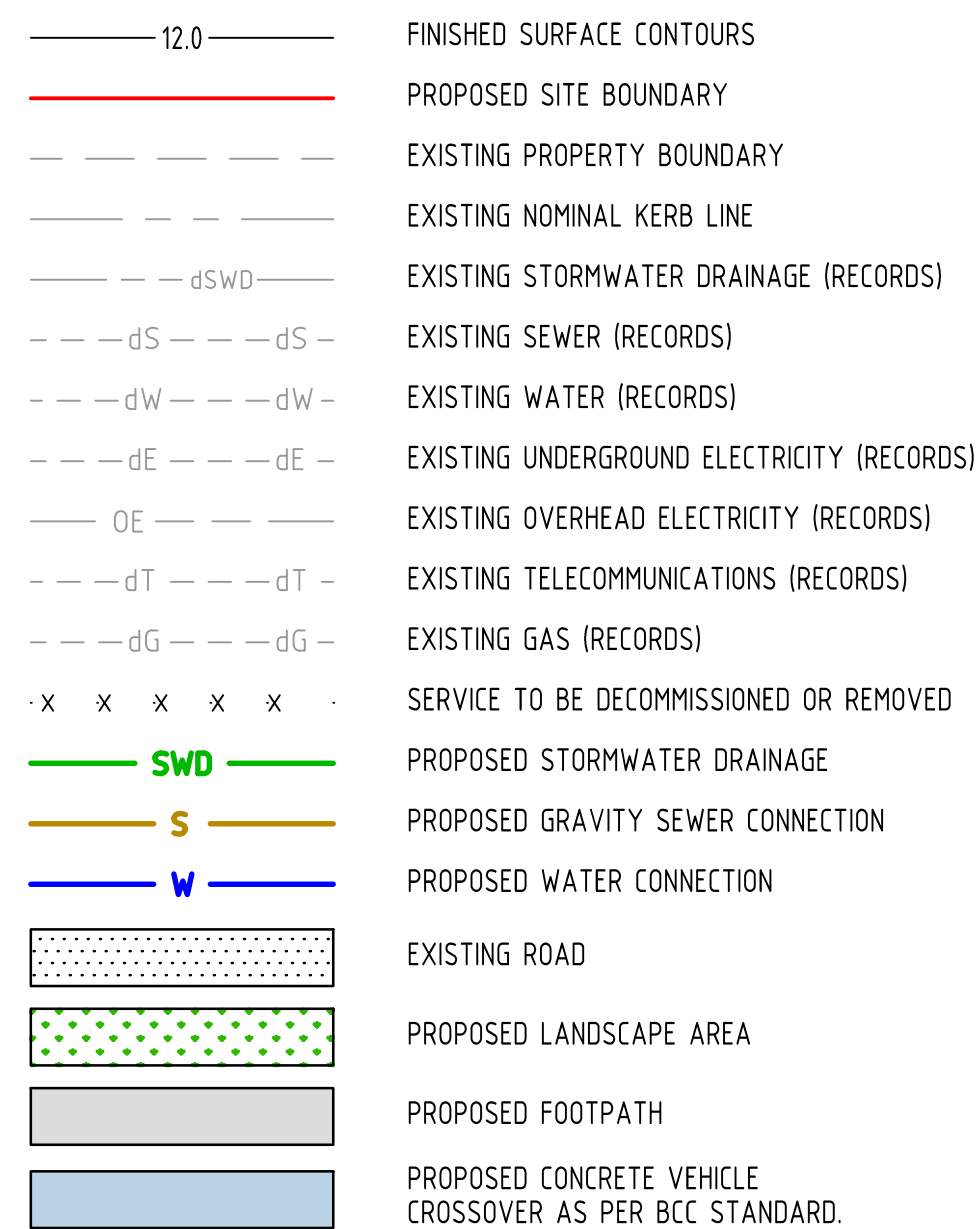
Revision
01

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

Appendix E

Preliminary Civil Services Layout Plan

LEGEND



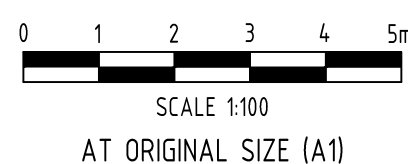
NOTE

ALL STORMWATER INLET PITS TO BE PROVIDED WITH SPEL "STORMSACKS".

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Client	Discipline	Status	Title
New Urban Villages Pty Ltd	CIVIL	APPROVAL	PRELIMINARY ENGINEERING SERVICES LAYOUT PLAN - GROUND FLOOR
Project Name	Designed By	Checked By	Approved By
CFMEU 10-16 CAMPBELL STREET, BOWEN HILLS, QLD 4006	CC	RC	GVG
	Project No.	Drawn By	Scale at A1
	28373	CC	1:100
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			DA05
			Revision
			01

PLOT DATE: 1/24/2025 9:05 AM FILENAME: \\ADGCLOCAL\PROJECTS\BWF\28000\28373\C\DWG\28373.DWG PRELIMINARY ENGINEERING SERVICES LAYOUT PLAN - GROUND FLOOR DWG

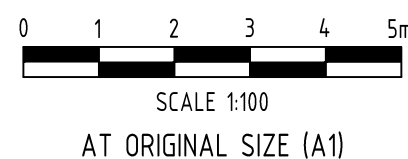
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Discipline CIVIL		Status APPROVAL
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Title
PRELIMINARY ENGINEERING SERVICES
LAYOUT PLAN - SEMI BASEMENT

Drawing No.	Revision
DA06	01

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

Appendix F

BCC Code Response

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.		

<p>PO1 Development provides a stormwater management system which achieves the integrated management of stormwater to:</p> <ul style="list-style-type: none"> 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. <p>Editor's note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.</p>	<p>AO1 Development provides a stormwater management system designed in compliance with the Infrastructure design planning scheme policy.</p>	<p>Acceptable Outcome. The proposed stormwater quantity and quality management system is designed in accordance with the infrastructure design planning scheme policy. Refer ADG Civil Engineering Report for further design details in relation to the stormwater management plan.</p>
<p>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.</p>	<p>AO2.1 Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises.</p> <p>AO2.2 Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	<p>Acceptable Outcome. The proposed stormwater management system is designed in compliance with the standards in the infrastructure design planning scheme policy. The development does not contain any defined flood level according to FloodWise Property reports.</p>
<p>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.</p>	<p>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.</p> <p>AO3.2 Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	<p>Acceptable Outcome. The proposed stormwater management system and lawful points of discharge are in compliance with the infrastructure design planning scheme policy.</p>
	<p>AO3.3</p>	

	<p>Development obtains a lawful point of discharge in compliance with the standards in the Infrastructure design planning scheme policy.</p> <p>AO3.4 Where on private land, all underground stormwater infrastructure is secured by a drainage easement.</p>	
<p>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.</p>	<p>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.</p> <p>AO4.2 Development provides sufficient area to convey run-off which will comply with the standards in the Infrastructure design planning scheme policy.</p>	<p>Acceptable Outcome. Developments provides a stormwater conveyance system which is designed to safely convey stormwater runoff in accordance with the infrastructure design planning scheme policy.</p> <p>Development provides sufficient area to convey runoff in accordance with the infrastructure design planning scheme policy.</p>
<p>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.</p>	<p>AO5 Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.</p>	<p>Not Application Not applicable</p>
<p>PO6 Development ensures that location and design of stormwater detention and water quality treatment:</p> <ul style="list-style-type: none"> a. minimises risk to people and property; b. provides for safe access and maintenance; c. minimises ecological impacts to creeks and waterways. 	<p>AO6.1 Development locates stormwater detention and water quality treatment:</p> <ul style="list-style-type: none"> a. outside of a waterway corridor; b. offline to any catchment not contained within the development. <p>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.</p>	<p>Acceptable Outcome. Not applicable. The development does not trigger detention or quality.</p>

<p>PO7 Development is designed, including any car parking areas and channel works to:</p> <ul style="list-style-type: none"> a. reduce property damage; b. provide safe access to the site during the defined flood event. 	<p>A07.1 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).</p> <p>A07.2 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.</p>	<p>Not Applicable. Development does not consist of any defined flood level according to FloodWise Property reports.</p>
<p>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.</p>	<p>A08.1 Development ensures natural waterway corridors and drainage paths are retained.</p> <p>A08.2 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.</p> <p>A08.3 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.</p> <p>A08.4 Development ensures that the design of modifications to the existing design of new stormwater channels, creeks</p>	<p>Acceptable Outcome. Not applicable</p>

	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. Development is proposed to maintain existing stormwater runoff flow rates as existing condition is 100% impervious area.
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. There is sufficient site area to accommodate an effective stormwater management system.
PO11 Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the: <ul style="list-style-type: none"> 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.	Performance Outcome. The development will ensure that the lawful point of discharge is capable to convey the proposed site's stormwater runoff for minor storm events and manage overland flows for major ones.
PO12 Development provides stormwater infrastructure which: <ul style="list-style-type: none"> 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. The stormwater management system is designed in compliance with the infrastructure design planning scheme policy.

<p>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:</p> <ul style="list-style-type: none"> a. the environmental values and water quality objectives of waters; b. waterway hydrology; c. the maintenance and serviceability of stormwater infrastructure. <p>Note—The Infrastructure design planning scheme policy outlines the appropriate measures to be taken into account to achieve the performance outcome.</p>	<p>AO13 No acceptable outcome is prescribed.</p>	<p>Performance Outcome. An erosion and sediment control plan will be designed at detailed design stage. Reasonable and practical measures will be taken to reduce any possible impacts to receiving waters and stormwater infrastructure during the design.</p>
<p>PO14 Development ensures that:</p> <ul style="list-style-type: none"> 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. 	<p>AO14 No acceptable outcome is prescribed.</p>	<p>Performance Outcome. All unnecessary disturbance to soil, waterways and drainage channels will be avoided. All soil surfaces remain will effectively stabilised against erosion in the short and long term.</p>
<p>PO15 Development does not increase:</p> <ul style="list-style-type: none"> 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. 	<p>AO15 No acceptable outcome is prescribed.</p>	<p>Performance Outcome. Development will be designed to minimize increases in run-off and total suspended solids or other contaminants in stormwater flows during construction.</p>
<p>Section B—Additional performance outcomes and acceptable outcomes which apply to high-risk development, being one or more of the following:</p> <ul style="list-style-type: none"> a. a material change of use for an urban purpose which involves greater than 2,500m² of land that: <ul style="list-style-type: none"> i. will result in an impervious area greater than 25% of the net developable area; or ii. will result in 6 or more dwellings. 		

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 <i>Environmental Protection Act 1994</i> . 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.	Not Applicable. Development involves less than 2,500m ² of land.
PO17 Development ensures that: <ul style="list-style-type: none"> 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.	Not Applicable. Development involves less than 2,500m ² of land.
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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. Development will not adversely impact on existing or future planned stormwater infrastructure and is in compliance with the standards of the infrastructure design planning scheme policy.

<p>c. the provision of long term, existing and planned infrastructure for the stormwater network which:</p> <ul style="list-style-type: none"> 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. <p>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.</p>	<p>c. the standards for stormwater drainage in the Infrastructure design planning scheme policy.</p>	
<p>PO19 Development provides for the payment of extra trunk infrastructure costs for the following:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. <p>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.</p>	<p>AO19 No acceptable outcome is prescribed.</p>	<p>Performance Outcome. The appropriate infrastructure costs in accordance with Council's infrastructure plans will be paid by the developer.</p>

Editor's note—See section 130 Imposing Development conditions (Conditions for extra trunk infrastructure costs) of the <i>Planning Act 2016</i> .		
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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
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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 <i>Electricity Act 1994</i>) 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.

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: <ol style="list-style-type: none"> a. 2.5m in a zone in the Industry zones category; b. 1m in all other zones, or if adjoining a sensitive zone. 	Acceptable Outcome. The proposed retaining walls and earthworks will not create adverse visual impacts to the surrounding properties.
PO2 Development of a retaining wall proposed as a result of filling or excavation: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. is wholly contained within the site; b. if the total height to be retained is greater than 1m, then: <ol style="list-style-type: none"> 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 	Acceptable Outcome. Retaining walls at the property boundary have been terraced where exceeding 1m in height. No significant vegetation is located in or near the subject site. Retaining wall finishes will be acceptable to Council standards. Clean fill will be used where required.

	<p>higher wall) is no less than 1m horizontally to incorporate planting areas.</p> <p>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.</p> <p>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.</p> <p>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.</p>	
<p>PO3 Development ensures that a rock anchor is designed and constructed to be fit for purpose.</p>	<p>AO3 Development ensures that a rock anchor:</p> <ul style="list-style-type: none"> 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. 	<p>Not Applicable. There are no rock anchors proposed as part of this development.</p>
<p>PO4 Development protects all services and public utilities.</p>	<p>AO4 Development protects services and public utilities and ensures that any alteration or relocation of services or</p>	<p>Acceptable Outcome. Construction of the development will take necessary precautions and actions to ensure the protection of existing services and public utilities.</p>

	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.	A05 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.	Acceptable Outcome. Acceptable surface drainage has been designed in accordance with the infrastructure design planning scheme policy. Appropriate subsoil drainage will be designed at the detailed design stage in accordance to the infrastructure design planning scheme policy.
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.	A06 Filling or excavation does not involve the construction of open drainage.	Acceptable Outcome. Filling and excavation do not involve the construction of open drainage.
PO7 Development for filling or excavation: <ul style="list-style-type: none"> 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. 	A07.1 Development for filling or excavation provides water quality treatment that complies with the stormwater drainage section of the Infrastructure design planning scheme policy. A07.2 Development provides erosion and sediment control standards that are in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	Acceptable Outcome. Water quality treatment has been designed in accordance with the infrastructure design planning scheme policy and the State Planning Policy. An erosion and sediment control plan will be designed at detailed design stage in accordance with the infrastructure design planning scheme policy.
PO8	A08.1	Acceptable Outcome. Erosion and sediment control measures will be implemented on site to ensure no dust emissions.

<p>Development for filling or excavation is conducted such that adverse impacts at a sensitive use due to noise and dust are prevented or minimised.</p> <p>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.</p>	<p>Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.</p> <p>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.</p>	
<p>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.</p> <p>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.</p>	<p>AO9 Development involving filling or excavation does not cause a ground-borne vibration beyond the boundary of the site.</p>	<p>Acceptable Outcome. Filling and excavation activities undertaken on site will ensure to not cause a ground-borne vibration beyond the boundary of the site.</p>
<p>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.</p>	<p>AO10 Development ensures that heavy trucks hauling material to and from the site:</p> <ol style="list-style-type: none"> occur for a maximum of 3 weeks; use a major road to access the site; 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. 	<p>Acceptable Outcome. Truck movements to and from site will be restricted as per BCC guidelines.</p>
<p>PO11 Development for filling or excavation protects the environment and community health and wellbeing from exposure to contaminated land and contaminated material.</p>	<p>AO11 Development does not involve:</p> <ol style="list-style-type: none"> excavation on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register; filling with material containing a contaminant. 	<p>Acceptable Outcome. The existing site is not expected to be listed on the contaminated land register, due to the existing nature of the site. Development will ensure to source materials free of contaminants.</p>
<p>PO12</p>	<p>AO12.1</p>	<p>Acceptable Outcome.</p>

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.	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.	Development to ensure that the provided landscaping will be designed in accordance to the Landscape design guidelines for water conservation planning scheme policy.
	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 involve either of the creation of canals or artificial waterways.

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
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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/s²) 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}
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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
<p>PO1 Development provides roads, pavement, edging and landscaping which:</p> <ul style="list-style-type: none"> 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. <p>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.</p>	<p>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.</p>	<p>Not Applicable. There is no roads, pavement, edging or landscaping proposed as part of the development.</p>
<p>PO2 Development provides road pavement surfaces which:</p> <ul style="list-style-type: none"> 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; 	<p>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.</p>	<p>Not Applicable. There is no road pavement proposed as part of the development.</p>

d. allows for reasonable travel comfort.		
PO3 Development provides a pavement edge which is designed and constructed to: <ul style="list-style-type: none"> 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. 	A03 Development provides pavement edges which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	Acceptable Outcome. Any required pavement edges will be designed in accordance with BCC Standard Drawings and the road corridor design standards in the Infrastructure design planning scheme policy at the detailed design stage.
PO4 Development provides verges which are designed and constructed to: <ul style="list-style-type: none"> 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. 	A04 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.	Acceptable Outcome. Development will provide verges that are designed and constructed in compliance with the road corridor design and streetscape locality advice standards in the infrastructure design planning scheme policy.
PO5 Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighbourhood plan which: <ul style="list-style-type: none"> 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. 	A05 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.	Acceptable Outcome. Lanes and laneways will be embellished in compliance with the streetscape locality advice standards in the Infrastructure Design planning scheme policy.
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: <ul style="list-style-type: none"> a. an effective, high-quality paved roadway; b. an effective, high-quality roadway kerb and channel. 	A06 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:	Acceptable Outcome. Infrastructure at the frontages of the site will be provided in accordance with BCC Standard Drawings and the road corridor design standards in the infrastructure design planning scheme policy.

<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	
<p>PO7 Development provides both cycle and walking routes which:</p> <ul style="list-style-type: none"> 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. <p>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.</p>	<p>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.</p>	<p>Acceptable Outcome. Not applicable</p>

<p>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.</p>	<p>AO8.1 Development provides refuse and recycling collection and storage facilities in accordance with the Refuse planning scheme policy.</p> <p>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.</p>	<p>Acceptable Outcome. Refuse and recycling collection and storage facilities will be provided by the development in accordance with the Refuse planning scheme policy and will not have any adverse impact including odor, noise or visual impacts on the amenity of land uses within or adjoining the development.</p>
<p>PO9 Development ensures that:</p> <ul style="list-style-type: none"> 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. 	<p>AO9.1 Development ensures that the reticulated water and sewerage distribution system for all services is in place before the first use is commenced.</p> <p>AO9.2 Development provides the lot with reticulated water supply and sewerage to a standard acceptable to the distributor–retailer.</p>	<p>Acceptable Outcome. Reticulated water supply and sewerage connections to Urban Utilities’ network will be provided by the development prior to use commencing. Refer to ADG Civil Engineering Report for the Preliminary Engineering Services Layout Plan.</p>
<p>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.</p>	<p>AO10.1 Development provides public utilities and street lighting which are located and aligned to:</p> <ul style="list-style-type: none"> 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. <p>Note—Guidance on the restoration of habitat is included in the Biodiversity areas planning scheme policy.</p> <p>AO10.2</p>	<p>Acceptable Outcome. Public utilities and street lighting location and alignment will be optimized to avoid significant native vegetation, minimize earthworks in accordance with the standards in the infrastructure design planning scheme policy.</p>

	<p>Development provides compatible public utility services and street-lighting services which are co-located in common trenching for underground services.</p> <p>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.</p>	
<p>PO11 Development ensures that land used for urban purposes is serviced adequately with telecommunications and energy supply.</p>	<p>AO11 Development provides land with the following services to the standards of the approved supplier:</p> <ul style="list-style-type: none"> a. electricity; b. telecommunications services; c. gas service where practicable. 	<p>Performance Outcome. Development is situated that it can be adequately serviced with electricity, telecommunications and gas.</p>
<p>PO12 Development ensures that major public projects promote the provision of affordable, high-bandwidth telecommunications services throughout the city.</p>	<p>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:</p> <ul style="list-style-type: none"> 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. <p>Editor's note—An accurate, digital 'as built' three-dimensional location plan is to be supplied for all infrastructure provided in a road.</p>	<p>Acceptable Outcome. Conduits will be provided where appropriate to enable the future provision of fibre optic cabling.</p>
<p>PO13 Development provides public art identified in a neighbourhood plan or park concept plan which:</p>	<p>AO13 Development provides public art identified in a neighbourhood plan or park concept plan which is sited</p>	<p>Not Applicable. No public art is proposed as part of this development.</p>

<ul style="list-style-type: none"> a. is provided commensurate with the status and scale of the proposed development; b. is sited and designed: <ul style="list-style-type: none"> 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. 	<p>and designed in compliance with the public art standards in the Infrastructure design planning scheme policy.</p>	
<p>PO14 Development provides signage of buildings and spaces which promote legibility to help users find their way.</p>	<p>AO14 Development provides public signage:</p> <ul style="list-style-type: none"> 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. <p><small>Editor's note—Signage is to be in accordance with Local Law Number 1 (Control of Advertisements Local Law).</small></p>	<p>Not Applicable. Public signage is not required as part of this development.</p>
<p>PO15 Development that provides community facilities which form part of the development is functional, safe, low maintenance, and fit for purpose.</p>	<p>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.</p>	<p>Not Applicable. No community facilities are proposed as part of this development.</p>
<p>PO16 Development provides public toilets which:</p> <ul style="list-style-type: none"> a. are required as part of a community facility or park; b. are located, designed and constructed to be: <ul style="list-style-type: none"> i. safe; ii. durable; iii. resistant to vandalism; 	<p>AO16 Development that provides public toilets is designed and constructed in compliance with the public toilets standards in the Infrastructure design planning scheme policy.</p>	<p>Not Applicable. No public toilets are proposed as part of this development.</p>

iv. able to service expected demand; v. fit for purpose.		
<p>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:</p> <ul style="list-style-type: none"> 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. <p><small>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.</small></p>	<p>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.</p>	<p>Not Applicable. No bridges, tunnels, elevated structures and water access structures are proposed as part of this development.</p>
<p>PO18 Development provides culverts which are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> 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. 	<p>AO18 Development that provides culverts is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	<p>Not Applicable. No culverts are proposed as part of this development.</p>

<p>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.</p>		
<p>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:</p> <ol style="list-style-type: none"> safety; an attractive appearance appropriate to the surrounding area; easy maintenance; minimal whole-of-life cost; longevity; minimal water seepage. <p>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.</p>	<p>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.</p>	<p>Acceptable Outcome. Batters and retaining walls will be designed and constructed in accordance with the structures standards in the infrastructure design planning scheme policy.</p>
<p>If for development with a gross floor area greater than 1,000m²</p>		
<p>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.</p>	<p>AO20 Development ensures that during construction:</p> <ol style="list-style-type: none"> the ongoing use of adjoining and surrounding parks and public spaces, such as malls and outdoor dining, is not compromised; adjoining and surrounding landscaping is protected from damage; safe, legible, efficient and sufficient pedestrian, cyclist and vehicular accessibility and connectivity to the wider network are maintained. 	<p>Acceptable Outcome. A construction management plan will be prepared prior to works commencing to ensure surrounding parks, public spaces and landscaping is protected during construction and that pedestrian, cyclist and vehicular movements can be managed effectively.</p>
<p>PO21 Development ensures that construction and demolition activities are guided by measures that prevent or minimise adverse impacts including sleep disturbance at</p>	<p>AO21.1 Development ensures that demolition and construction:</p> <ol style="list-style-type: none"> only occur between 6:30am and 6:30pm Monday to Saturday, excluding public holidays; 	<p>Acceptable Outcome. Demolition and construction works will be limited to the approved working hours.</p>

<p>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.</p>	<p>b. do not occur over periods greater than 6 months.</p> <p>AO21.2 Development including construction and demolition does not release dust emissions beyond the boundary of the site.</p> <p>AO21.3 Development construction and demolition does not involve asbestos-containing materials.</p>	<p>Dust will be managed during construction to ensure it is not blown beyond the property boundary.</p>
<p>PO22 Development ensures that:</p> <ul style="list-style-type: none"> 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. <p>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.</p>	<p>AO22 Development ensures that the nature and scale of construction and demolition do not generate noticeable levels of vibration.</p>	<p>Acceptable Outcome. Vibration levels will be effectively managed during demolition and construction works.</p>
<p>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</p>		
<p>PO23 Development ensures that fire hydrants are:</p> <ul style="list-style-type: none"> 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. 	<p>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.</p> <p>AO23.2 Fire hydrants are identified by:</p>	<p>Acceptable Outcome Proposed fire hydrant/s will be all private and to be confirmed during detailed design stage.</p>

	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.	Not Applicable. No private roads is proposed as part of this development.
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.	Not Applicable. No major electricity infrastructure or bulk water supply infrastructure was proposed as part of this development.
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: <ul style="list-style-type: none"> 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.	Performance Outcome. The development is sited and designed to avoid impacting on existing and future electricity and bulk water supply infrastructure.

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.
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Table 9.4.4.3.D—Recommended levels for continuous and impulsive vibration acceleration (m/s²) 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.

Appendix G

BCC Floodwise Property Report

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



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](#).

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

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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

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- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
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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.

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FloodWise Property Report

14 CAMPBELL ST, BOWEN HILLS 4006
Lot 3 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](#) web page. Find more information about [how to read a FloodWise Property Report](#).

This property has no flood levels

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 **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](#).



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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

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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	15.1	C
Maximum ground level	19.0	C

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

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Useful Flood Information Definitions

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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.

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FloodWise Property Report

16 CAMPBELL ST, BOWEN HILLS 4006
Lot 1 on RP144614



Dedicated to a better Brisbane


THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

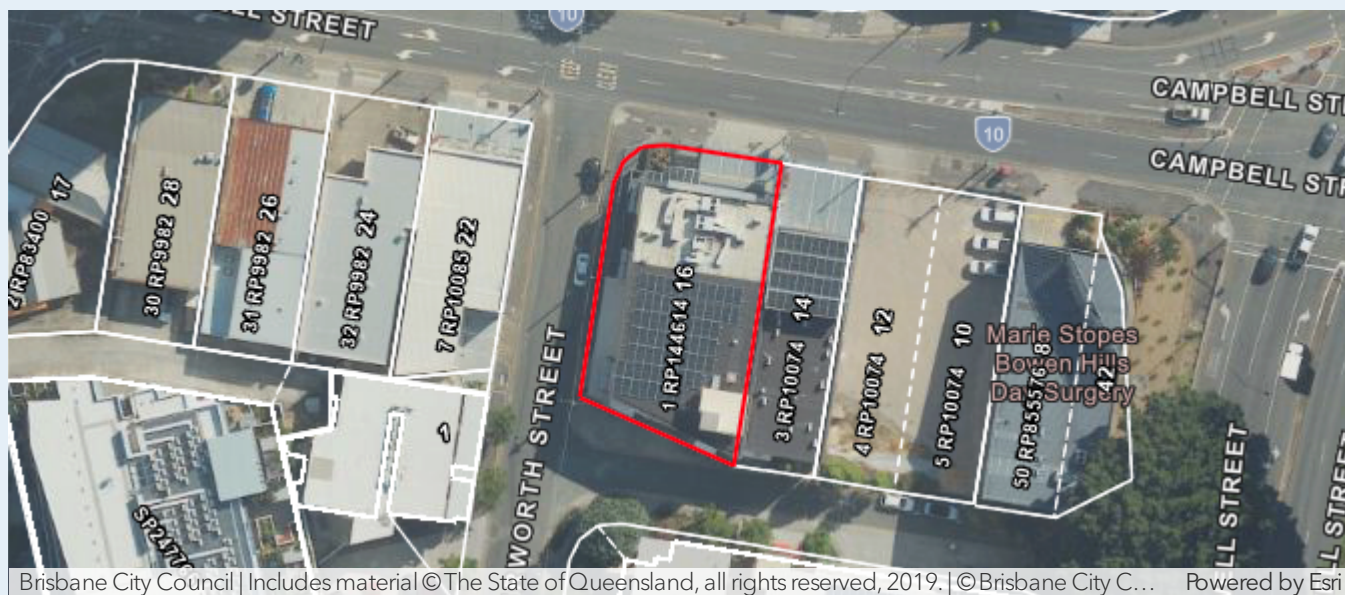
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Property Information Summary

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Maximum ground level	19.3	C
Indicative existing floor level	17.2	C

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Appendix H BCC Erosion Hazard Assessment

Erosion Hazard Assessment

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 side:

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 <https://waterbydesign.com.au/download/erosion-sediment-control-for-small-construction-sites>

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

Postcode

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)*

[illegible]

Certifier's signature

Shirley

Date _____

/	/
---	---

Assessment Table

Table 1: Low Risk Test

		Yes	No
1.1	is the area of land disturbance > 1000 m2?		
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?		

If you answered '**No**' to **ALL** of these questions, then the site is **low risk** with respect to erosion and sediment control.
(Do not continue to Table 2)

If you answered '**Yes**' to **ANY** of these questions, 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 the site is **medium risk** with respect to erosion and sediment control.
(Do not continue to Table 3)

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%?		

If you answered '**No**' to **ALL** of these questions, then the site is also **medium risk** with respect to erosion and sediment control.

If you answered '**Yes**' to **ANY** of these questions, then the site is **high risk** with respect to erosion and sediment control.

Appendix I

Rational Method Calculation

PROJECT DATA

Project number	28373	Designer	CC
Date	20.01.25	Verifier	GVG
Client	New Urban Villages		
Project area	10-16 Campbell Street, Bowen Hills QLD 4006		
Description	0		

RAINFALL INTENSITY TAKEN FROM BCC PSP TABLE 7.2.2.2.A

CALCULATIONS

Rational Method Based on ARR 2016 & ARR 1987 IFD Data

Catchment			Fraction Impervious			Coefficient of Discharge, C _r			Coefficient of Rain Discharge, C _r (ARR 2016)								Rainfall Depth (mm) (ARR 2016 IFD)								Rainfall Intensity, i _r (mm/h) (ARR 2016 IFD)								Peak Discharge Rate, Q _p (m ³ /s) (ARR 2016 IFD)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Catchment Label	Catchment Area A (ha)	Time of Concentration t _c (min)	Fraction Impervious f _i (decimal)	Rainfall Intensity, i ₁₀₀ (mm/h) /ARR 2016	Rainfall Intensity, i ₁₀₀ (mm/h) /ARR 1987	Coefficient of Discharge, C ₁₀ ARR 2016	Coefficient of Discharge, C ₁₀ ARR 1987	Urban or Rural Catchment	ARR 2016 C ₁ (F _r = 0.80)	ARR 2016 C _{1.44} (F _r = 0.822, interpolated)	ARR 2016 C ₂ (F _r = 0.85)	ARR 2016 C _{4.48} (F _r = 0.933, interpolated)	ARR 2016 C ₅ (F _r = 0.95)	ARR 2016 C ₁₀ (F _r = 1.00)	ARR 2016 C ₂₀ (F _r = 1.05)	ARR 2016 C ₅₀ (F _r = 1.15)	ARR 2016 C ₁₀₀ (F _r = 1.20)	Depth (mm) 63% AEP (1 EY) (1 Year ARI)	Depth (mm) 50% AEP (1.44 Year ARI)	Depth (mm) 39% AEP (0.5 EY) (2 Year ARI)	Depth (mm) 20% AEP (4.48 Year ARI)	Depth (mm) 18% AEP (0.2 EY) (5 Year ARI)	Depth (mm) 10% AEP (10 Year ARI)	Depth (mm) 5% AEP (20 Year ARI)	Depth (mm) 2% AEP (50 Year ARI)	Depth (mm) 1% AEP (100 Year ARI)	i _r (mm/h) 63% AEP	tciY (mm/h) 50% AEP	i _r (mm/h) 39% AEP	tciY (mm/h) 20% AEP	i _r (mm/h) 18% AEP	i _r (mm/h) 10% AEP	i _r (mm/h) 5% AEP	i _r (mm/h) 2% AEP	i _r (mm/h) 1% AEP	Q _p (m ³ /s) 63% AEP	Q _{1.44} (m ³ /s) 50% AEP	Q _p (m ³ /s) 39% AEP	Q _{4.48} (m ³ /s) 20% AEP	Q _p (m ³ /s) 18% AEP	Q _p (m ³ /s) 10% AEP	Q _p (m ³ /s) 5% AEP	Q _p (m ³ /s) 2% AEP	Q _p (m ³ /s) 1% AEP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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C10 FOR PRE-DEVELOPMENT
TAKEN FROM QUDM TABLE



C10 FOR POST-DEVELOPMENT
TAKEN FROM BCC PSP TABLE
7.3.3.1.A

Appendix J

BYDA Information



Legend

-  Transurban Asset Area
-  DBYD Search Area



© State of Queensland (Department of Natural Resources, Mines and Energy) 2020




Scale: 1:1000
Expires: 11 Nov 2024

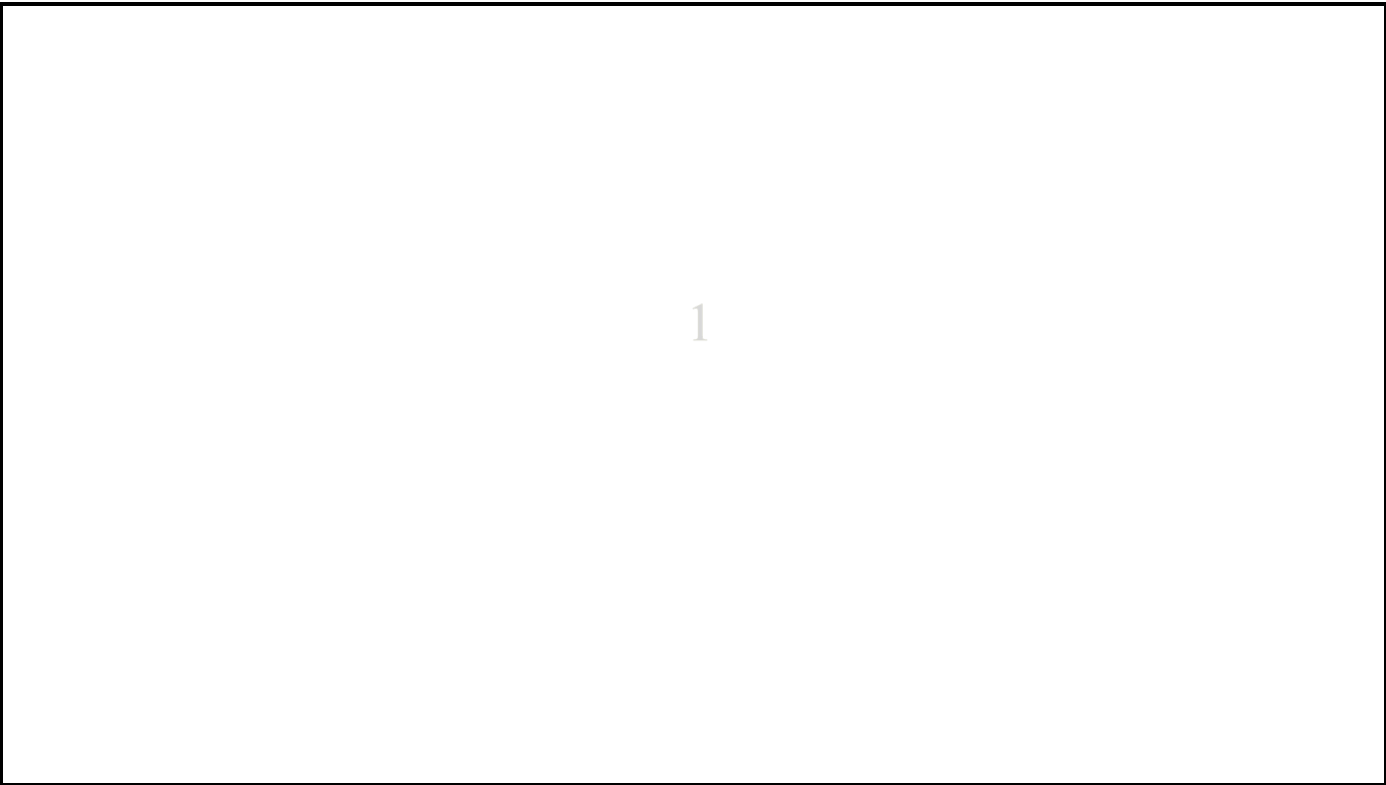
DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Transurban Queensland nor PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response 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.

Overview

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

Dial before you dig Job #:	37806899	 BEFORE YOU DIG <small>www.byda.com.au</small> Zero Damage - Zero Harm
Sequence #	245952919	
Issue Date:	14/10/2024	
Location:	10 - 16 Campbell Street , Bowen Hills , QLD , 4006	

Indicative Plans are tiled below to demonstrate how to layout and read nbn asset plans

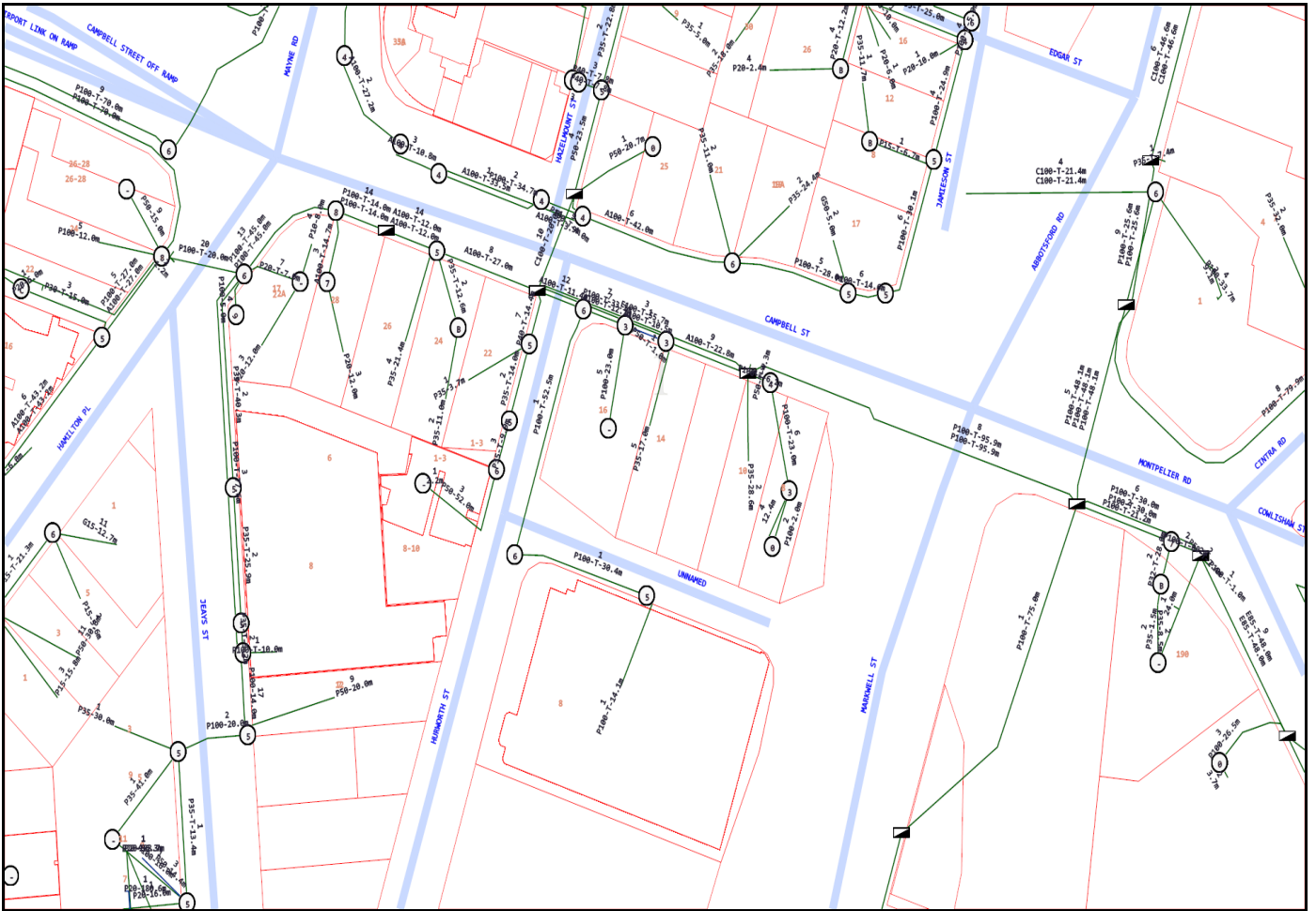




LEGEND




	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	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 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	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.

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

Dial before you dig Job #:	37806899	
Sequence #	245952919	
Issue Date:	14/10/2024	
Location:	10 - 16 Campbell Street , Bowen Hills , QLD , 4006	

Information

The area of interest requested by you contains one or more assets.

nbn™ Assets	Search Results
Communications	Asset identified
Electricity	No assets

In this notice **nbn™ Facilities** means *underground fibre optic, telecommunications and/or power facilities, including but not limited to cables, owned and controlled by nbn™*

Location of nbn™ Underground Assets

We thank you for your enquiry. In relation to your enquiry at the above address:

- **nbn's** records indicate that there **ARE nbn™** Facilities in the vicinity of the location identified above ("Location").
- **nbn** indicative plan/s are attached with this notice ("Indicative Plans").
- The Indicative Plan/s show general depth and alignment information only and are not an exact, scale or accurate depiction of the location, depth and alignment of **nbn™** Facilities shown on the Plan/s.
- In particular, the fact that the Indicative Plans show that a facility is installed in a straight line, or at uniform depth along its length cannot be relied upon as evidence that the facility is, in fact, installed in a straight line or at uniform depth.
- You should read the Indicative Plans in conjunction with this notice and in particular, the notes below.
- You should note that, at the present time, the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables. As such, consistent with the notes below, particular care must be taken by you to make your own enquiries and investigations to precisely locate any power cables and manage the risk arising from such cables accordingly.
- The information contained in the Indicative Plan/s is valid for 28 days from the date of issue set out above. You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™** Facilities during any activities you carry out on site).

We thank you for your enquiry and appreciate your continued use of the Dial Before You Dig Service. For any enquiries related to moving assets or Planning and Design activities, please visit the **nbn Commercial Works** website to complete the online application form. If you are planning to excavate and require further information, please email dbyd@nbnc.com.au or call 1800 626 329.

Notes:

1. You are now aware that there are **nbn™** Facilities in the vicinity of the above property that could be damaged as a result activities carried out (or proposed to be carried out) by you in the vicinity of the Location.
2. You should have regard to section 474.6 and 474.7 of the *Criminal Code Act 1995* (CoA) which deals with the consequences of interfering or tampering with a telecommunications facility. Only persons authorised by **nbn** can interact with **nbn's** network facilities.
3. Any information provided is valid only for **28 days** from the date of issue set out above.

Referral Conditions

The following are conditions on which **nbn** provides you with the Indicative Plans. By accepting the plans, you are agreeing to these conditions. These conditions are in addition, and not in replacement of, any duties and obligations you have under applicable law.

1. **nbn** does not accept any responsibility for any inaccuracies of its plans including the Indicative Plans. You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™** Facilities during any activities you carry out on site).
2. You acknowledge that **nbn** has specifically notified you above that the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables.
3. You should not assume that **nbn™** Facilities follow straight lines or are installed at uniform depths

along their lengths, even if they are indicated on plans provided to you. Careful onsite investigations are essential to locate the exact position of cables.

4. In carrying out any works in the vicinity of **nbn**™ Facilities, you must maintain the following minimum clearances:
 - 300mm when laying assets inline, horizontally or vertically.
 - 500mm when operating vibrating equipment, for example: jackhammers or vibrating plates.
 - 1000mm when operating mechanical excavators.
 - Adherence to clearances as directed by other asset owner's instructions and take into account any uncertainty for power cables.
5. You are aware that there are inherent risks and dangers associated with carrying out work in the vicinity of underground facilities (such as **nbn**™ fibre optic, copper and coaxial cables, and power cable feed to **nbn**™ assets). Damage to underground electric cables may result in:
 - Injury from electric shock or severe burns, with the possibility of death.
 - Interruption of the electricity supply to wide areas of the city.
 - Damage to your excavating plant.
 - Responsibility for the cost of repairs.
6. You must take all reasonable precautions to avoid damaging **nbn**™ Facilities. These precautions may include but not limited to the following:
 - All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs if present must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the likelihood of damage to the cable, for example: the blades of hand equipment should be aligned parallel to the line of the cable rather than digging across the cable.
 - If any undisclosed underground cables are located, notify **nbn** immediately.
 - All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.
 - The safety of the public and other workers must be ensured.
 - All excavations must be undertaken in accordance with all relevant legislation and regulations.
7. You will be responsible for all damage to **nbn**™ Facilities that are connected whether directly, or indirectly with work you carry out (or work that is carried out for you or on your behalf) at the Location. This will include, without limitation, all losses expenses incurred by **nbn** as a result of any such damage.
8. You must immediately report any damage to the **nbn**™ network that you are/become aware of. Notification may be by telephone - 1800 626 329.
9. Except to the extent that liability may not be capable of lawful exclusion, **nbn** and its servants and agents and the related bodies corporate of **nbn** and their servants and agents shall be under no liability whatsoever to any person for any loss or damage (including indirect or consequential loss or damage) however caused (including, without limitation, breach of contract negligence and/or breach of statute) which may be suffered or incurred from or in connection with this information sheet or any plans (including Indicative Plans) attached hereto. Except as expressly provided to the contrary in this information sheet or the attached plans (including Indicative Plans), all terms, conditions, warranties, undertakings or representations (whether expressed or implied) are excluded to the fullest extent permitted by law.

All works undertaken shall be in accordance with all relevant legislations, acts and regulations applicable to the particular state or territory of the Location. The following table lists all relevant documents that shall be considered and adhered to.

State/Territory	Documents
National	Work Health and Safety Act 2011
	Work Health and Safety Regulations 2011
	Safe Work Australia - Working in the Vicinity of Overhead and Underground Electric Lines (Draft)

	Occupational Health and Safety Act 1991
NSW	Electricity Supply Act 1995
	Work Cover NSW - Work Near Underground Assets Guide
	Work Cover NSW - Excavation Work: Code of Practice
VIC	Electricity Safety Act 1998
	Electricity Safety (Network Asset) Regulations 1999
QLD	Electrical Safety Act 2002
	Code of Practice for Working Near Exposed Live Parts
SA	Electricity Act 1996
TAS	Tasmanian Electricity Supply Industry Act 1995
WA	Electricity Act 1945
	Electricity Regulations 1947
NT	Electricity Reform Act 2005
	Electricity Reform (Safety and Technical) Regulations 2005
ACT	Electricity Act 1971

Thank You,

nbn DBYD

Date: 14/10/2024

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Working near **nbn**TM cables

nbn has partnered with Dial Before You Dig to give you a single point of contact to get information about **nbn** underground services owned by **nbn** and other utility/service providers in your area including communications, electricity, gas and other services. Contact with underground power cables and gas services can result in serious injury to the worker, and damage and costly repairs. You must familiarise yourself with all of the Referral Conditions (meaning the referral conditions referred to in the DBYD Notice provided by **nbn**).

Practice safe work habits

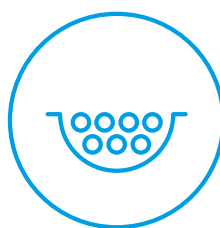
Once the DBYD plans are reviewed, the Five P's of Excavation should be adopted in conjunction with your safe work practices (which must be compliant with the relevant state Electrical Safety Act and Safe Work Australia "Excavation Work Code of Practice", as a minimum) to ensure the risk of any contact with underground **nbn** assets are minimised.



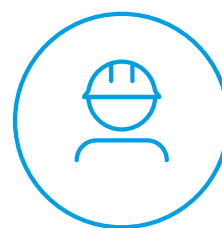
Plan: Plan your job by ensuring the plans received are current and apply to the work to be performed. Also check for any visual cues that may indicate the presence of services not covered in the DBYD plans.



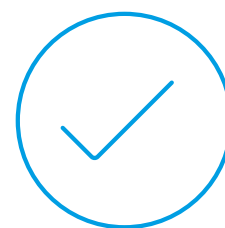
Prepare: Prepare for your job by engaging a DBYD Certified Plant Locator to help interpret plans and identify on-site assets. Contact **nbn** should you require further assistance.



Pothole: Non-destructive potholing (i.e. hand digging or hydro excavation) should be used to positively locate **nbn** underground assets with minimal risk of contact and service damage.

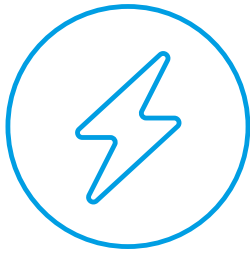


Protect: Protecting and supporting the exposed **nbn** underground asset is the responsibility of the worker. Exclusion zones for **nbn** assets are clearly stated in the plan and appropriate controls must be implemented to ensure that encroachment into the exclusion zone by machinery or activities with the potential to damage the asset is prevented.

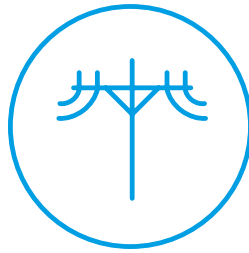


Proceed: Proceed only when the appropriate planning, preparation, potholing and protective measures are in place.

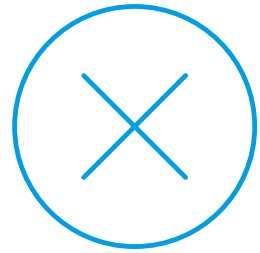
Working near **nbn**[™] cables



Identify all electrical hazards, assess the risks and establish control measures.



When using excavators and other machinery, also check the location of overhead power lines.



Workers and equipment must maintain safety exclusion zones around power lines.

Once all work is completed, the excavation should be re-instated with the same type of excavated material unless specified by **nbn**. Please note:

- Construction Partners of **nbn** may require additional controls to be in place when performing excavation activities.
- The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

Contact

All **nbn**[™] network facility damages must be reported online [here](#).
For enquiries related to your DBYD request please call 1800 626 329.

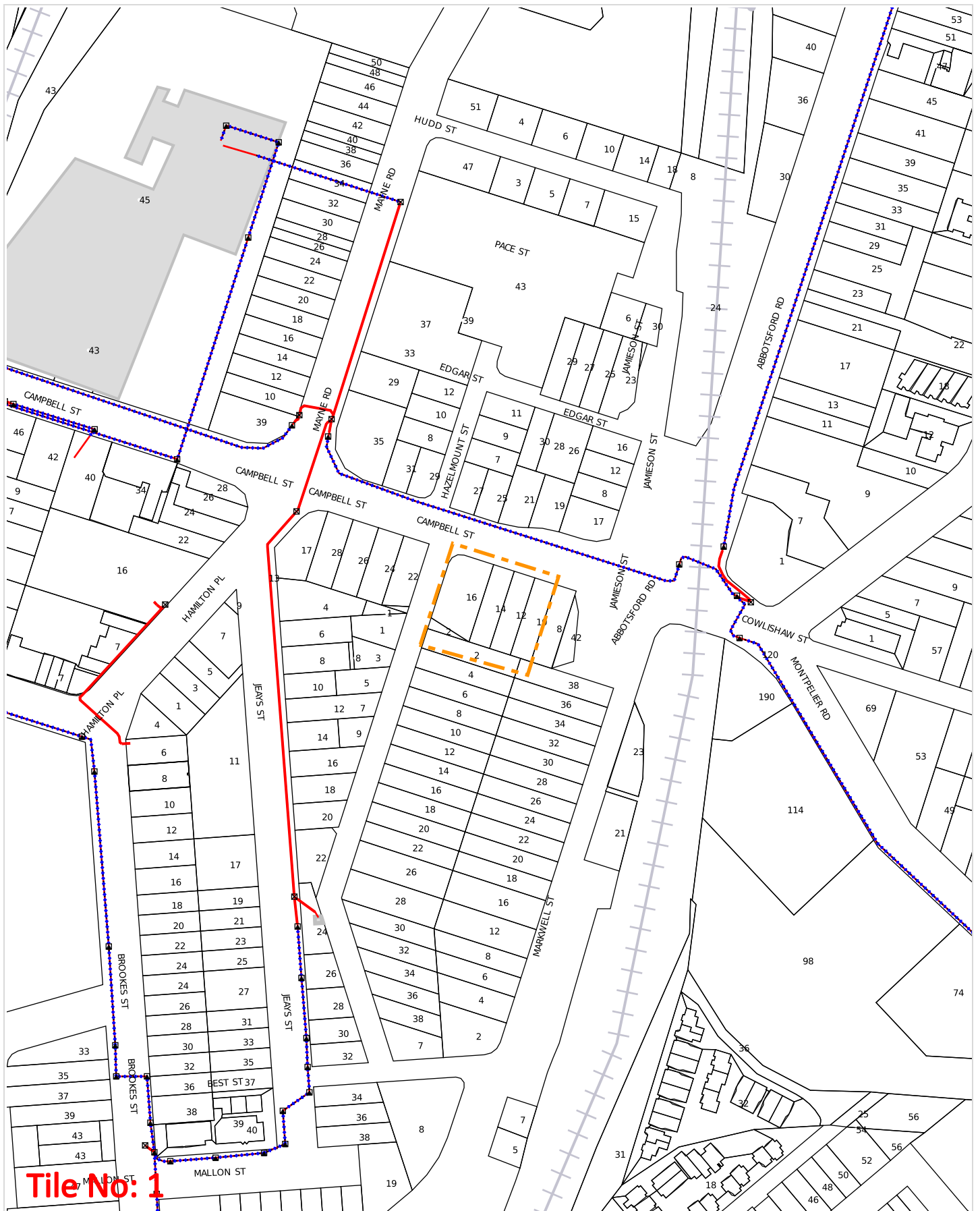
Disclaimer

This brochure is a guide only. It does not address all the matters you need to consider when working near our cables. You must familiarise yourself with other material provided (including the Referral Conditions) and make your own inquiries as appropriate.

nbn will not be liable or responsible for any loss, damage or costs incurred as a result of reliance on this brochure.

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Tile No: 1

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

Sequence Number: 245952920

Date Generated: 14 Oct 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



Date: 14 Oct 2024
To: Chanlyly Chea
Company: Not Supplied
Address: 596 Milton Road
Toowong, QLD 4066

ENQUIRY DETAILS

Location: 10 - 16 Campbell Street, Bowen Hills, QLD 4006
Sequence No.: 245952920
BYDA Reference: 37806899

In relation to your enquiry concerning the above location, Optus advises as follows:

Optus records indicate that there ARE underground Optus FIBRE OPTIC TELECOMMUNICATIONS ASSETS in the vicinity of the above location as per the attached drawing(s).

PLEASE NOTE that any interference with these assets may be considered an offence under the Criminal Code Act 1995 (Cth). Optus reserves the right to seek compensation for loss or damage to its assets including consequential loss.

This reply is valid for a period of 30 days from the date above.

IMPORTANT INFORMATION

Asset location drawings provided by Optus are reference diagrams and are provided as a guide only. The completeness of the information in these drawings cannot be guaranteed. Exact ground cover and alignments cannot be provided with any certainty as these may have altered over time. Depths of telecommunications assets vary considerably as do alignments. It is essential to identify the location of any Optus assets in the vicinity prior to engaging in any works.

All Optus assets in the vicinity of any planned works will need to be electronically located to ascertain their general location. Depending on the scope of planned works in the vicinity, the assets may also need to be physically located.

YOU MUST ENGAGE THE SERVICES OF ONE OF THE OPTUS ASSET ACCREDITED LOCATORS TO CARRY OUT ASSET LOCATION (REFER LIST OF ACCREDITED LOCATORS AT THE END OF THIS OPTUS RESPONSE).

Unless otherwise agreed with Optus, where an on-site asset location is required, the requestor is responsible for all costs associated with the locating service including (where required) physically exposing the Optus asset.

DUTY OF CARE

When working in the vicinity of telecommunications assets you have a legal "Duty of Care" and non-interference that must be observed.

It is your responsibility as the requesting party (as a landowner or any other party involved in the planned works) to design for minimal impact to any existing Optus asset. Optus can assist at the design stage through consultation.

It is also your, as the requesting party (or your representative's), responsibility to:

- Obtain location drawings (through the Before You Dig Australia process) of any existing Optus assets at a reasonable time before any planned works begin;
- Have an Optus Accredited Asset Locator identify the general location of the Optus asset and physically locate the asset where planned works may encroach on its alignment; and
- Contact Optus for further advice where requested to do so by this letter.

DAMAGE TO ANY OPTUS ASSET MUST BE REPORTED TO 1800 505 777 IMMEDIATELY

You, your head contractor, and any relevant subcontractor are all responsible for any Optus asset damage as a result of planned activities in the vicinity of Optus assets.

This applies where works commence prior to obtaining Optus drawings, where there is failure to follow instructions or during any construction activities.

Optus reserves the right to recover compensation for loss or damage to its assets including consequential loss. Also, you, your head contractor and any relevant subcontractor may also be liable for prosecution under the Criminal Code Act 1995 (Cth).

ASSET RELOCATIONS

You are not permitted by law to relocate, alter or interfere with any Optus asset under any circumstance. Any unauthorised interference with an Optus asset may lead to prosecution under the Criminal Code Act 1995 (Cth). Enquiries relating to the relocation of Optus assets must be referred to the relevant Optus Damages and Relocations Team (refer to "FURTHER ASSISTANCE").

APPROACH DISTANCES

On receipt of Optus asset location drawings and prior to commencing any planned works near an Optus asset, engage an Optus Accredited Locator to undertake a general location of the Optus asset.

Physical location of the Optus asset by an Optus Accredited Locator will also be required where planned works are within the following approach distances of the general location of the Optus asset:

- In built up metropolitan areas where road and footpaths are well defined by kerbs or other features a minimum clear distance of 1 meter must be maintained from the general location of the Optus asset.
- In non-established or unformed metropolitan areas, a minimum clear distance of 3 meters must be maintained from the general location of the Optus asset.
- In country or rural areas where wider variations may exist between the general and actual location of an Optus asset may exist, then a minimum clear distance of 5 meters must be maintained from the general location of the Optus asset.

If planned works are parallel to the Optus asset, then the Optus asset must be physically located by an Optus Accredited Locator at a minimum of 5 meter intervals along the length of the parallel works prior to work commencing.

Under no circumstances is crossing of any Optus asset permitted without physical location of the asset being carried out by an Optus Accredited Locator. Depending on the asset involved an Optus representative may be required onsite.

The minimum clearances to the physical location of Optus assets for the following specific types of works must be maintained at all times.

Note: Where the clearances in the following table cannot be maintained or where the type of work differs from those listed then advice must be sought from the relevant Optus Damages and Relocations Team (refer to "FURTHER ASSISTANCE").

Type of Works	Clearance to Physical Location of Optus Asset
Jackhammers / Pneumatic Breakers	Not within 1 meter.
Light duty Vibrating Plate or Wacker Packer type compactors (not heavy road construction vibrating rollers etc.)	500mm compact clearance cover before a light duty compactor can be used over any Optus conduit. No compaction permitted over Optus direct buried cable without prior approval from Optus.
Boring Equipment (in-line, horizontal and vertical)	Not within 5 meters parallel of the Optus asset location without an Accredited Optus Asset Locator physically exposing the Optus asset and with an Optus representative onsite. Not to cross the Optus asset without an Accredited Optus Asset Locator physically exposing the Optus asset and with an Optus representative onsite.

Type of Works	Clearance to Physical Location of Optus Asset
Heavy vehicle Traffic (over 3 tonnes)	<p>Not to be driven across Optus conduits with less than 600mm of cover.</p> <p>Not to be driven across Optus direct buried cable with less than 1.2 meters of cover.</p> <p>Once off crossings permitted, multiple crossing (e.g. road construction or logging) will require Optus approval.</p> <p>Accredited Optus Asset Locator to physically expose the Optus asset to verify actual depth.</p>
Mechanical Excavators, Farm Ploughing, Vertical Hole installation for water bore or fencing etc.	<p>Not within 1 meter.</p> <p>Accredited Optus Asset Locator to physically expose the Optus asset to verify actual location.</p>

ASSET CLEARANCES AFTER COMPLETION OF WORKS

All Optus pits and manholes must be a minimum of 1 meter from the back of any kerb, 3.5 meters of the road surface without a kerb or not within 15 meters of street intersection.

In urban areas Optus conduit must have the following minimum depth of cover:

- Footway 600mm;
- Roadway 1 meter at drain invert and at road centre crown.

In rural areas Optus conduit must have a minimum depth of cover of 1 meter and direct buried cable 1.2 meters.

In cases where it is considered that the above clearances cannot be maintained at the completion of works, advice must be sought from the relevant Optus Damages and Relocations Team (refer "Further Assistance").

FURTHER ASSISTANCE

Further assistance on asset clearances, protection works, or relocation requirements can be obtained by contacting the relevant Optus Damages and Relocations Team on the following email address:

NFODamages&RelocationsDropbox@optus.com.au

Further assistance relating to asset location drawings etc. can be obtained by contacting the Optus Network Operations Asset Analysis Team on 1800 505 777.

OPTUS ENGINEERING DRAWING SYMBOLS

	Optus underground cable		Optus manhole/pit
	Optus underground IOF cable		Other Utility manhole/pit
	Optus conduit		Optus marker post
	Optus cable in Other Utility conduit		Railway / Tram line
	Southern Cross conduit		Highway / Major Road
	Indigo conduit		Arterial Road
	Uecomm conduit		Council Road - minor
	Optus aerial fibre cable		

	Optus underground cable		Optus marker post number Depth of Optus cable Offset to Optus cable
	Optus cable buried jointly with third party utility		Optus cable depth (approx) Optus cable offset (approx)
	Optus cable in conduit with subducts		



Optus Accredited Asset Locators

Name	Company Name	Phone	Email	State	Region/Service Area
Drew Misko	Australian Subsurface Pty Ltd	0427 879 600	admin@australiansubsurface.com	ALL	ALL
Andrew Watson	Subsurface Mapping Solutions Pty Ltd	0408 839 723	admin@subsurfacems.com.au	ALL (Not TAS)	South East QLD + Aus wide
Chris Gordon	Heavy Construction Solutions	1300 859 027	chris.gordon@heavycs.com.au	VIC,NSW,QLD,SA TAS	All
Alan Cordner	Alcom Fibre Services Pty Ltd	0400 300 337	alcomfibre@bigpond.com	NSW	Sydney, NSW
Brad McCorkindale	Bradmac Locating Services	0434 157 409	info@bradmaclocating.com.au	NSW	NSW
Shane Buckley	Cable & Pipe Locations Pty Ltd	0408730430	shane@cableandpipelocations.com.au	NSW	North Coast , Mid North Coast, Central West, Northern Rivers
Annabelle Pegler	Down Under Detection Services (DUDS)	0418 267 964	apegler@duds.net.au	NSW	All
Bruce Whittaker	Optical Fibre Technologies	0402 354 322	opticaltek1@aol.com	NSW	Sydney/Wollongong
George Koenig	Downunder Locations	0438243856	downunderlocations@gmail.com	NSW	Tweed Heads/Gold Coast
Michael Grant	M&K Grant Bega Bobcats Pty Ltd	0427 260 423	zzbobcat@bigpond.net.au	NSW	Bega, Far South Coast
Antony Critcher	Geotrace Australia Pty Ltd	0417 147 945	antony@geotrace.com.au	NSW	All Areas, Sydney, Wollongong, Newcastle, ACT
Sarah Martin	Hydro Digga	0447 774 000	admin@hydrodigga.com	NSW	Mid North Coast
Nathan Ellis	Utility Locating Services	0404 087 555	nathan@uls.com.au	NSW	Sydney
Scott O'Malley	Coastal Cable Locators Pty Ltd	0427 975 777	skomalley@bigpond.com	NSW	South Coast- Snowy Mountains- Southern Highlands
Liam Bolger	Brandon Construction Services	0438 044 008	liam.bolger@hotmail.com	NSW	Sydney
Laura Elvery	Durkin Construction Pty Ltd	02 9712 0308	info@durkin.au	NSW	NSW

Shireen Sidhu	Locate & Map	(02) 8753 0049	admin@locateandmap.com.au	NSW	Sydney & Regional NSW only
Ken Browne	Riteway Traffic Control Pty Ltd	0419 212 969	kbrowne@ritewaytc.com.au	NSW	Central Coast, Hunter
Jean-Max Monty	Civilscan	1300 575 488	john@civilscan.com.au	NSW	Sydney, Central Coast, Newcastle, Wollongong, Hunter Valley, Blue Mountains
Scott Hunter	Hunter Ground Search	0409327345	admin@hunter-groundsearch.net.au	NSW	Hunter, Upper Hunter, Central Coast, Newcastle
Damien Black	Mid North Coast Hydro Digging & Service Locating P/L	0418 409 465	djblack1@bigpond.com	NSW	Mid North Coast
Michael Nicholls	Utility Mapping NSW	1300 627 746	sydney@utilitymapping.com.au	NSW	All NSW
Joseph Restuccia	ProLocate	0415 633 393	joe.restuccia@prolocate.com.au	NSW	NSW Wide
Barry Maloney	Online Pipe & Cable Locating	1300 665 384	Office@onlinepipe.com.au	NSW	Sydney, Central Coast, Canberra, Wollongong, Newcastle
Sam Romano	Locating Services	0403 065 510	sam.romano@locatingservices.com.au	NSW	NSW All
Scott Allison	Crux Surveying Australia	02 9540 9940	sydneyoffice@cruxsurveying.com.au	NSW	Sydney Metro & Surrounding Areas
Donna Wullaert	Commence Communications Pty Ltd	02 6226 3869	admin@commencecomms.com.au	NSW	Canberra/ Yass / Bungendore/ Goulburn and surrounding regional areas
Grant Pearson	Warrabinya Services	0423 651 615	sales@warrabinya.com.au	NSW	Sydney Metro & Surrounding Areas
Stephen Fraser	Advanced Ground Locations	(02) 4930 3195	steve_agl@hotmail.com	NSW	Newcastle, Hunter Valley, Central Coast, Taree & Surrounding Areas
Andrew Findlay/ Anthony Hart	LiveLocates	0429 899 777	info@livelocates.com.au	NSW	South Coast/ACT, Snowy Mountains
Graeme Teege	Armidale Electrical	02 6772 3702	office@armidale-electrical.com.au	NSW	Armidale
Samantha Guptill	Australian Locating Services	1300 761 545	admin@locating.com.au	NSW	Sydney / Central Coast
Clay Laneyrie	Laneyrie Electrical	0411142627	bindy@laneyrieelectrical.com.au	NSW	Illawarra, South Coast, Shoalhaven, Southern Highlands

Reece Gainsford	East Coast Locating Services	0431 193 111	eastcoastlocating@hotmail.com	NSW	Sydney, Maitland, Newcastle, Hunter, Port Stephens, Central Coast
Craig Vallely	Aqua Freeze & Locate Pty Ltd	0458 774 440	service@aquafreeze.com.au	NSW	Sydney only
Jason Vane	Smartscan Locators PTY Ltd	1300 778 923	Admin@sslocators.com.au	NSW	Sydney
Alex Farcash	Newcastle Locating Services Pty Ltd	0410698599	Admin@newcastlelocatings-services.com.au	NSW	Newcastle, Hunter Valley, Central Coast, Taree & Surrounding Areas
Amer El Chami	Site Scan Pty Ltd	0449 992 520	office@sitescan.net.au	NSW	All NSW
Ian Brown	A1 Locate Services	0400 484 828	Ian.brown@a1locate.com.au	NSW	All NSW
Paul Wallis	Beveridge Williams	0431 458 878	wallisp@bevwill.com.au	NSW	Newcastle Sydney Wollongong
Cameron Handley	Wombat Underground Services	0407477038	accounts@wombatunderground-services.com.au	NSW	ALL
Samantha Cupido	Geoscope Utility Detection Services Pty Ltd	1300 750 350	info@geoscopelocating.com.au	NSW	All regions
Laurence Mead	Astrea Pty Ltd	1300 009 346	admin@astrea.com.au	NSW	Sydney Only
Braydon Greenwood	City Coast Services	0422432813	braydon.greenwood@live.com.au	NSW	NSW
Jim Morrison	Absolute Utilities Pty Ltd	0429 496 375	jim@absoluteutilities.com.au	NSW	Mid North Coast
Declan Dowd	Dowds Pipe And Cable Locating	0434 635 134	accounts@pipeandcable.com.au	NSW	Sydney/Wollongong/South Coast / Highlands/Soth west Sydney
Nicholas Schneider	Subsurface Utility Solutions	0421157372	nick@subsurf.com.au	NSW	Sydney only
Ricky Evans	Riverina Cable Locating	0411444980	ricky@riverinacablelocating.com.au	NSW	Riverina, Murray
Adrian Ruane	Road and Rail Excavations Pty Ltd	0414 594 063	cody@roadandrailexcavations.com.au	NSW	Sydney only
Billy Cameron	Locate Down Under Pty Ltd	0431275034	info@locatedownunder.com.au	NSW	Central Coast/ Sydney
Daniel Hudson	Geosurv Locating Pty Ltd	1300 554 675	dan@geosurv.com.au	NSW	Sydney only
Roneel Chand	JDG Civil	0416506891	sadhunaam@gmail.com	NSW	Sydney only

Tim Briggs	Deetect Locating Services	0414630852	deetect.locating@outlook.com	NSW	ACT / NSW
Sean Ferriter	Utech Solutions Pty Ltd	1300 427 614	seanf@vaughancivil.com.au	NSW	Sydney only
Mark Restuccia	Direct Connect Locating PTY LTD	0400507690	info@dclocating.com.au	NSW	NSW only
Ali Chahine	Underground Industries	0406906787	info@undergroundindustries.com.au	NSW	Sydney only
Scott Copetti	Metiri	0435 710 399	scott@metiri.com.au	NSW	Newcastle & Hunter Region
Blake Richardson	VFT	0409 210 502	b.richardson@vftes.com	NSW	NSW
Brett Pickup	BAP Services Pty Ltd	0434006009	Brett@bapservices.com.au	NSW	All Areas, Sydney, Illawarra, Newcastle, ACT
Patrick Billingham	OzDetect Pty Ltd	0497700667	patrick@ozdetect.com.au	NSW	NSW
Euan Gow	Jurovich Surveying	1300 750 000	egow@jurovichsurveying.com.au	WA/NSW/SA	All state
Jason Steger	Steger & Associates Registered Land Surveyors	0400 008 641	jason.steger@steger.com.au	ACT/NSW	ACT & Surrounds
Samuel Hathaway	Landmark Surveys	02 6280 9608	admin@landmarksurveys.com.au	NSW/ACT	ACT & Sourthen NSW
Kaisar sefian	Australian Utility Search Pty Ltd	0424 841 888	kaisar@aususearch.com.au	NSW/ACT	All NSW, ACT
Daniel Fox	Epoca Environmental Pty Ltd	1300 376 220	daniel@epocaenvironmental.com.au	NSW & ACT	All NSW & ACT
Scott Tancred	SureSearch Underground Services	1300 884 520	Scott.Tancred@suresearch.com.au	NSW/ACT QLD	NSW, Sydney, Northern NSW, Canberra, QLD, South East QLD.
Justin Martinez	LCG GLOBAL PTY LTD	0401749007	J.martinez@lcsolutions.com.au	NSW, ACT, QLD, VIC	All regions
Troy Redden	On Point Utility Locating	1300 66 76 46	Troy@onpointlocating.com.au	NSW/QLD	Throughout both states
Geoff Campbell	CLS Locating	0450759497	geoffrey@campbellslocating.com.au	NSW/QLD	All QLD, Northern Rivers, NSW
Alexander Bogdanoff	Expert Service Locating	0420346477	info@expertservice locating.com.au	NSW/QLD	Brisbane, Gold Coast, Sunshine Coast Northern Rivers NSW
Patrick Popovic	Site And See Pty Ltd	0479 162 692	patrick@siteandsee.com.au	QLD/NSW	South East QLD & Northern NSW

Rhys Lambert	Provac / one find cables	1300 734 772	rhys@provac.net.au	QLD	South East QLD
Paul Beaton	Cairns Asset Locations	0448 157 227	paul.beaton@clarketrenching.com.au	QLD	FNQ to NT Border
Chris Hall	D C Locators Pty Ltd	0419 679 741	dcloc@powerup.com.au	QLD	Brisbane, Ipswich
Benji Lee	LADS	0478 915 237	benji@ladsqld.com.au	QLD	South East QLD
Ian Lambert	Lambert Locations Pty Ltd	07 5562 8400	admin@lambertlocations.com.au	QLD	South East QLD & Northern NSW
Ross Clarke	FNQ Cable Locators Pty Ltd	0428 775 655	onlineco@bigpond.net.au	QLD	QLD REGION
Col Greville	Bsure Locators	0488 520 688	admin@bsurelocators.com.au	QLD	Wide Bay & Burnett; Central and Western QLD; Western Downs
Matthew Carr	Pensar	0405609739	matty.carr@pensar.com.au	QLD	Brisbane
Jimmy Wilkins	GeoRadar Asutralia Pty Ltd	0425057722	jimmy@georadar.net.au	QLD	Emerald, Bundeaberg
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Toni O'Dell	Utility Location Services	1300 001 857	qldops@utilitylocation-services.com.au	QLD	South East QLD
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Brendon Smith	Advanced Locating PTY LTD	0424678823	admin@advancedlocating.com.au	QLD	Gold Coast
Samuel Hazel	Utility ID Underground Service Locators	0401 202 515	sam@utilityid.com.au	QLD	Darling Downs, South West QLD and South East QLD
Bruce Normyle	Dynamic Hydro Excava-tions	0434 731 933	admin@dynamicexcava-tion.com.au	QLD	QLD
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Michael Falla	ICUC Locating Services Pty Ltd	0410085365	michael.falla@icuclocatings-services.com.au	QLD	South East QLD
Ben Stephens	DTS Group TA Electros-can	0434 140 556	ben.s@electroscanqld.com.au	QLD	Queensland
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Roland Mollison	LandPartners Pty Ltd	0439 488 545	roland.mollison@landpartners.com.au	QLD	South East Queensland
Duncan McGrath	Abletech Underground Group	0418 511 767	duncan@abletechunderground.com.au	QLD	QLD Wide
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Tina Brereton	D-Tech Ground & Over-head	03 9544 8933	tina@d-tech.net.au	VIC	ALL
Josh Taylor	Advanced Locations Victoria Pty Ltd	0427846716	josh@advancedlocationsvic.com.au	VIC	All Victoria
Ben Minutoli	Geelong Cable Locations	1800 449 543	ben@geelongcablelocations.com.au	VIC	Melbourne, Geelong, Country Victoria
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Phi Nguyen	Asset Detection Services Pty Ltd	1300 300 100	Phi.nguyen@assetdetection.com.au	VIC	Melbourne/VIC
Maurice Tobin	Drain Solutions	0412 111600	info@drainsolutions.com.au	VIC	Melbourne Metro
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Chris Sandlant	Access Utility Engineering P/L	03 9799 8788	Chris.sandlant@accessue.com.au	VIC	Victoria & Regional
Shaun Stephen	STS Locating Services	0405 181 734	stslocatingservices@gmail.com	VIC	All VIC
Glen Foreman	Underground Services Detection Pty Ltd	0402 748 889	undergroundservices@big-pond.com	VIC	Victoria
Clinton Carver	Insight Underground Pty Ltd	0468 900 273	clinton@insightunderground.com.au	VIC	Victoria
Lindsay Botha	L B Underground Service Locations & Engineering	0499 658 677	lb.locations.engineering@gmail.com	VIC	Metro and Regional Victoria
Damien Nielsen	ELS Environmental Location Systems Pty Ltd	0499 499 137	bookings@elsvic.com.au	VIC	Victoria only
Tyler Blake	CHS Group	0409 437 750	tyler.blake@chsgroup.com.au	VIC	Horsham VIC
Craig Jackson	Survey Management Solutions	0400647299	craigj@surveyms.com.au	VIC	All Regions
Ashley Stevens	ABS HYDRO Pty Ltd	0422 798 476	ashley.stevens@abshydro.com.au	NSW/VIC	All of VIC, Regional NSW
Eddie Santos	Taylor's Development Strategists	0488 700 155	m.tasker@taylorstds.com.au	VIC/SA/TAS	Victoria
Taryn van Dyk	Trenchless Pipelaying Contractors (TPC)	08 8376 5911	tpc@trenchlesspipelaying.com.au	SA	All
Marc Rose	SADB	0488190699	marc@sadb.com.au	SA	Adelaide only
Matthew Lewis	Adelaide Pipeline Maintenance services	0431 870 471	matt.apms@gmail.com	SA	South Australia
Deninis Stray	Pinpoint Services Mapping	(08) 8130 1600	hello@pinpointsm.com.au	SA	SA and western VIC
Liam Gill	Michael Grear Surveys	08 82788732	ugsl@mgsurveys.com.au	SA	SA
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Liam Catchpole	APEX SERVICE LOCATING PTY LTD	0458 924 471	liam@apexvacolutions.com.au	SA	Adelaide
Bradley Gosling	Engineering Surveys	0433506880	bgosling@engsurveys.com.au	SA	Adelaide
Jason Revill	MME/Platinum Locating Services	08 94080625	jason.revill@platinumlocating.com.au	WA	Perth
Henry Westbrook	Cable Locates & Consulting	08 9524 6600	admin@cablelocates.com.au	WA	All WA

Cameron Swift	Mikcomm Communication	08 9337 1125	cswift@mikcomm.com.au	WA	All
Tobi Lawrence-Ward	Abaxa	08 9256 0100	enquiries@abaxa.com.au	WA	Perth, Southwest, Western Australia
Ben Upton	TerraVac Vacuum Excavation	0433 374 802	locations@terravac.com.au	WA	Perth
Dale Shearsmith	Subtera	1300 046 636	dale@subtera.com.au	WA	WA
Cheron Ingram	Bunbury Telecom Service Pty Ltd	08 9726 0088	cheron@btswa.com.au	WA	WA
Drew Monkhouse	Utility Mapping WA	1300 627 746	perth@utilitymapping.com.au	WA	All WA
Edel O'Connor	Kier Contracting	0456 190 910	edel@kier.com.au	WA	Perth Metro & greater region; Regional WA
Nigel Nunn	CCS Group / Utility Locating Solutions	08 9385 5000	enquiry@ccswa.com.au	WA	Perth
Jeremy Brown	Spotters Asset Locations Pty Ltd	0459 130 677	jeremy@spottersassetlocations.com.au	WA	All
Reece Topham	Prime Locate	0400 888 406	reece@primelocate.com.au	WA	All
Rhyce Murphy	RM Surveys	08 9457 7900	rhyce.murphy@rmsurveys.com.au	WA	All
James Horton	Westscan Pty Ltd	1300 858 404	westscan1@gmail.com	WA	All
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Josh Pool	Utility Mapping NT	1300 627 746	darwin@utilitymapping.com.au	NT	All NT
Stuart Speckman	FYFE	08 8944 7888	Stuart.Speckman@fyfe.com.au	NT/SA/NSW	NT/SA/NSW

Wayne Parslow	Danisam	0417 089 865	danisam@westnet.com.au	NT	Darwin NT and Surrounds
Scott Crerar	Paneltec Group	0400 895 637	scott@paneltec.com.au	TAS	All

Chanlyly Chea
To: Not Supplied
596 Milton Road
Toowong, QLD 4066



Uecomm Pty Limited
ABN 56 079 083 195

Building 8, 658 Church St,
Richmond, VIC 3121
Ph: (03) 9221 4100
Fax: (03) 9221 4193
Ah: 1800 707 447

LOCATION OF UNDERGROUND FIBRE OPTIC CABLE INFORMATION SHEET

IMPORTANT: PLEASE READ ALL INFORMATION AND CONDITIONS BELOW AND THE NOTICE ON THE REVERSE SIDE OF THE PLAN/S.

245952920

14 Oct 2024

"Before You Dig Australia" Sequence No
Customer ID

Issue Date: Optus and or Uecomm Qld
Issue By:

10 - 16 Campbell Street, Bowen Hills, QLD 4006

Location: 4201-1, 4201-2
Uecomm Asset Location No. 37806899
Before You Dig Australia Job No.

In relation to your enquiry at the above address, Uecomm advises as follows:

The records of Uecomm Limited disclose that there ARE underground FIBRE OPTIC / TELECOMMUNICATIONS cables in the vicinity of the above enquiry as per attached plan/s.

- The underground cables referred to in this advice are defined as the underground communications cables owned or controlled by Uecomm Pty Limited.
- The person/company responsible for submitting the inquiry should take care to ensure all plans listed above have been received. For any plan listed above but not received please contact **1800 707 447**.
- Any information provided is valid only for **30 days** from the date of issue set out above.
- If the work operations extend beyond this period, or if the designs are altered in any way, you are requested to resubmit your proposal for reassessment.
- Further assistance may be obtained if necessary, by telephoning **1800 707 447**.

PLEASE READ ALL INFORMATION AND DISCLAIMERS BELOW:

1. Due to the nature of underground cables and the age of some cables and records, it is impossible to conclusively ascertain the location of all cables. The accuracy and/or completeness of the information cannot be guaranteed and, accordingly, they are intended to be indicative only and, as a result, Uecomm does not accept any responsibility for any inaccuracies of its plans. They should not be solely relied upon when undertaking underground works. It is also inaccurate to assume that fibre optic cables follow straight lines and careful on-site investigations are essential to locate its exact position.
2. The following minimum clearances must be maintained:
 - 300mm when laying asset's inline, horizontal or vertical.
 - 500mm when operating vibrating equipment, e.g., jackhammers or vibrating plates.
 - 1000mm when operating mechanical excavators.
3. Due to the inherent dangers associated with excavation in the vicinity of underground cables, precautions should be taken in the undertaking of any underground works, including (but not limited to) the following:
 - All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs if present must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the likely hood of damage to the cable, e.g., blades of hand equipment should be orientated parallel to the line of the cable rather than digging across the cable.
 - If any undisclosed underground cables are located, Uecomm Limited should be notified immediately.
 - All personnel must be properly briefed, particularly those associated with the use of earthmoving equipment, trenching, boring and pneumatic equipment.
 - All excavations must be undertaken in accordance with the relevant legislation and regulations.

4. **DAMAGE. ANY DAMAGE TO UECOMM'S NETWORK MUST BE REPORTED IMMEDIATELY TO 1800 707 447.**
5. Uecomm recommends using Uecomm approved location contractors to provide on-site location services for Uecomm plant. You can arrange Uecomm on-site visits by calling Uecomm on 1800 707 447 and Uecomm or its approved representative will attend your site to provide guidance to the location of the Uecomm assets (the "Uecomm Asset Alignment"). **Uecomm requires 3 clear business days' notice to conduct an on-site location.** The initial on-site visit by Uecomm will not normally incur a charge, but at the discretion of Uecomm, subsequent site visits may incur a charge to be applied at an hourly rate.
6. Uecomm will hold the relevant party responsible for any damage to Uecomm plant and all expenses incurred by Uecomm as a result of asset damage.
7. Except to the extent that liability may not be capable of lawful exclusion, Uecomm Pty Limited and its servants and agents and the related bodies corporate of Uecomm Pty Limited and their servants and agents shall be under no liability whatsoever to any person for any loss or damage (including indirect or consequential loss or damage) however caused (including, without limitation, breach of contract negligence and/or breach of statute) which may be suffered or incurred from or in connection with this information sheet or any Plans attached hereto. Except as expressly provided to the contrary in this information sheet or the attached Plans, all terms, conditions, warranties, undertakings or representations (whether expressed or implied) are excluded to the fullest extent permitted by law.

We thank you for your enquiry and appreciate your continued use of the Before You Dig Australia and/or Uecomm Asset Analysis Service. If you require further information, please contact Uecomm on **1800 707 447**.

IMPORTANT *This document may be confidential and privileged. Unauthorised use is prohibited. If you have it in error, please notify us and shred this document. Thank you.*



Tile No: 1

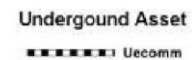
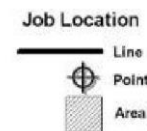
Uecomm Underground Cable

Scale: 1:2500

Printed on: 14 Oct 2024

Sequence Number: 245952920

Location: 10 - 16 Campbell Street, Bowen Hills, QLD 4006



This document is confidential and may also be privileged, and neither confidentiality nor privilege is waived lost or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission.

Plant Location Details

14/10/2024

Chanlyly Chea
Not Supplied
596 Milton Road
Toowong, 4066
Phone: +61451693495
Mobile: No longer supplied
Email: 5aas7kbp16m9mp.1a273szd8yonz7@smarterwx-mail.byda.com.au



Visionstream Pty Limited
ABN 80 062 604 193 20
Corporate Drive Heatherton,
Victoria 3202
T 1800 336 886

E reefbydadmin@visionstream.com.au

W www.visionstream.com.au

The following is a response to your Dial Before You Dig enquiry

Sequence No: 245952921
Location: 10 - 16 Campbell Street
Bowen Hills, QLD, 4006
Activity Description: Planning & Design
Planning and Design: Yes
Commencement Date: 21/10/2024

As a result of your inquiry and based on the description of work provided by you, Visionstream believes that there is a low risk that the works described will damage the Reef Network. To assist you in your work, Visionstream has enclosed a copy of the relevant plans of the network. You are reminded that this does not eliminate the need for you to take every possible care when conducting work close to the Reef Network.

I should also like to point out that Visionstream would seek full restoration for any damages to the Reef Network as a result of work undertaken by you or your representatives.

Should the scope of works supplied to Visionstream change, it is expected that you will seek further information from Visionstream for any proposed variations before they are to begin construction. Visionstream will provide onsite support, where required, for nominal rates.

Once again let me thank you for your interest and please do not hesitate to contact us again if we can be of service.

Yours faithfully

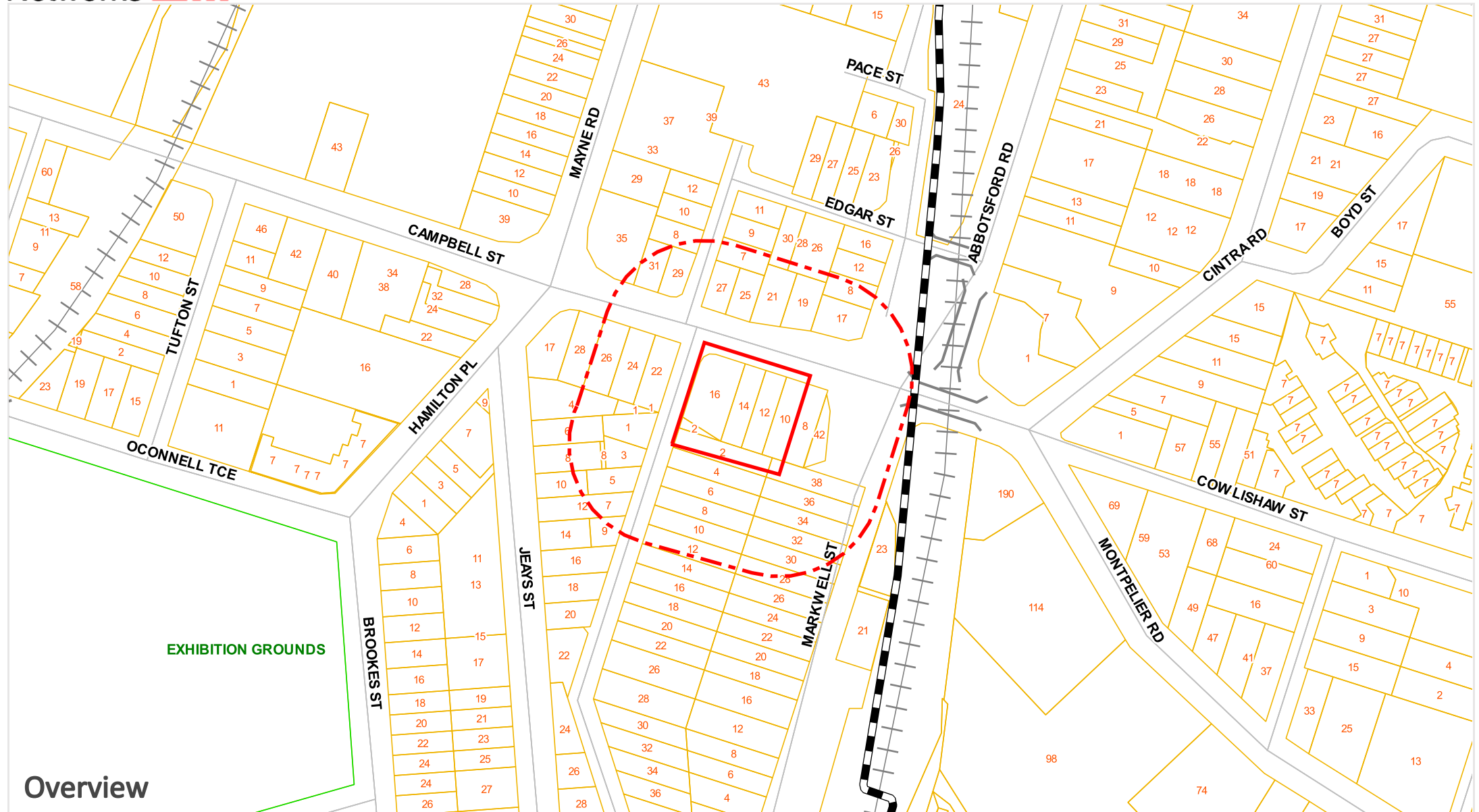
Jevat Jonuzi
for Mark Aguis

VISIONSTREAM PTY. LIMITED

WARNING - The accuracy and/or completeness of the information provided cannot be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Reef Networks does not warrant or hold out that its plans are accurate and accepts no responsibility for any accuracy shown on the plans. It is your responsibility to locate Reef Networks' underground plant by careful vacuum excavation/hand potholing prior to any excavation in the vicinity and to exercise due care during that excavation. Please read and understand the information provided. If you do not understand what your obligations are in respect to Duty of Care, please call 1800 336 886. REEF NETWORKS WILL SEEK COMPENSATION FOR LOSS CAUSED TO ITS PLANT. Reef Network's plans and information provided are valid for 28 days from the date of issue. If this timeframe has elapsed please reapply for plan



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.



Overview

Legend | Scale: 1:2500



Cable

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Date: 14/10/2024

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 245952922

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 - 16 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.

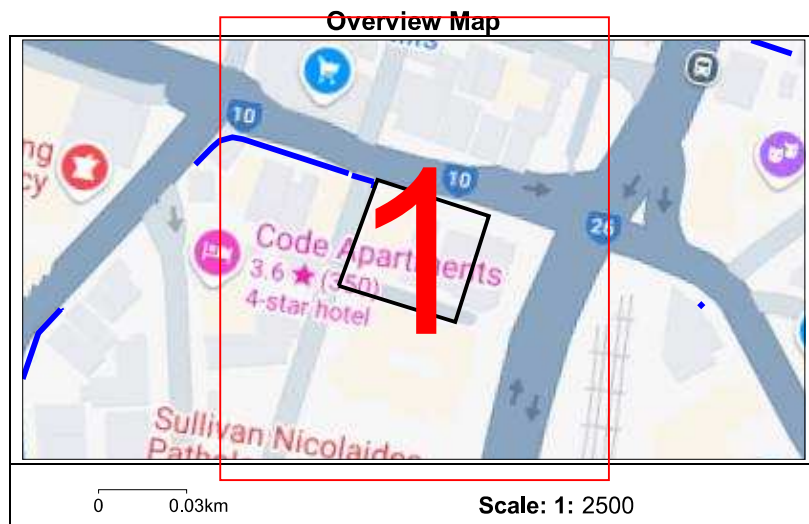
- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.
- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

Minimum assets clearance distances.

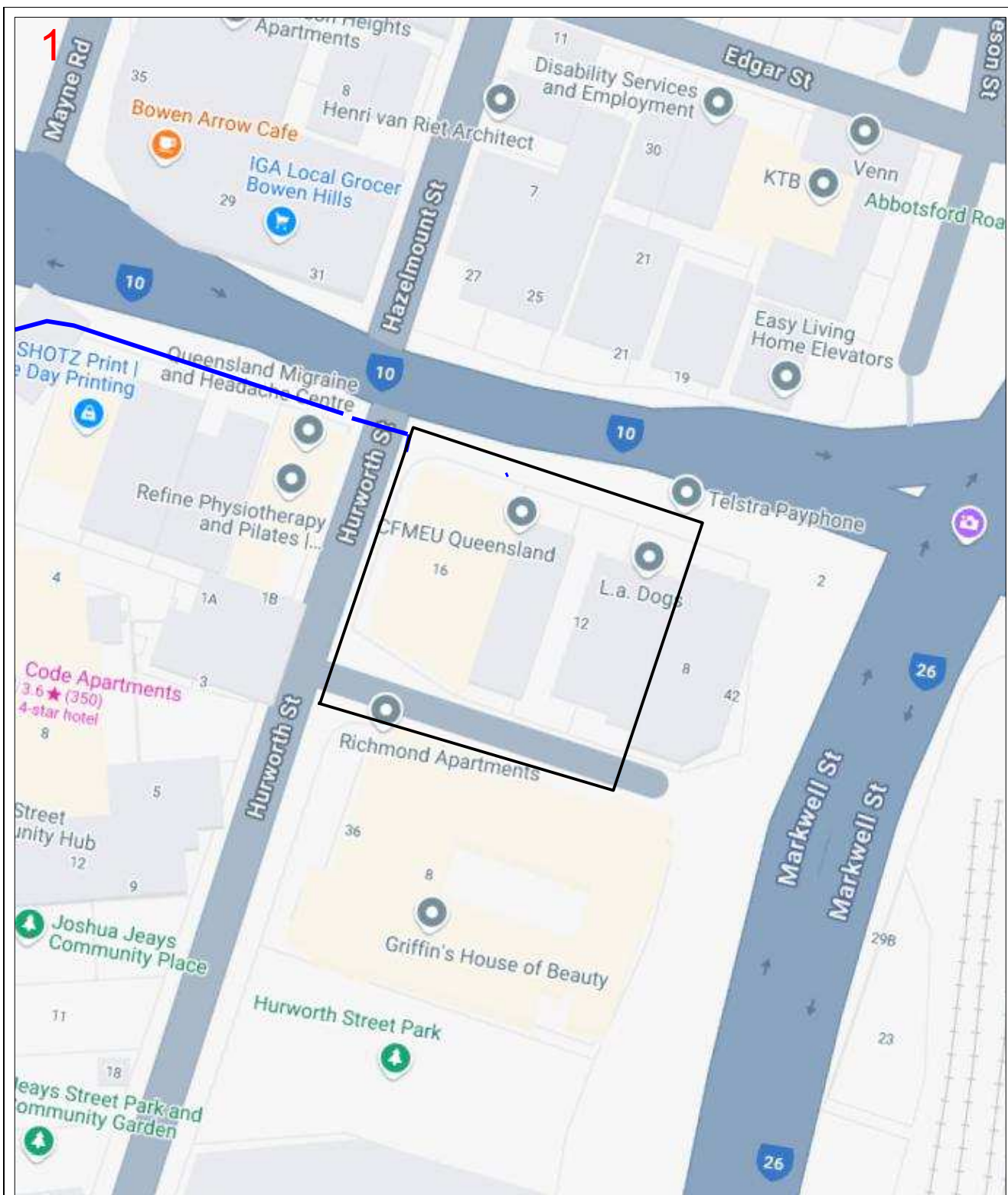
- 300mm when laying asset inline, horizontal or vertical.
 - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
 - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
 - 2000mm when performing directional bore in-line, horizontal 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.

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- 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.



TPG Telecom Limited



Enquiry Number: 245952922

Map Sheet: 1

Scale: 1: 750

0 0.008km



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



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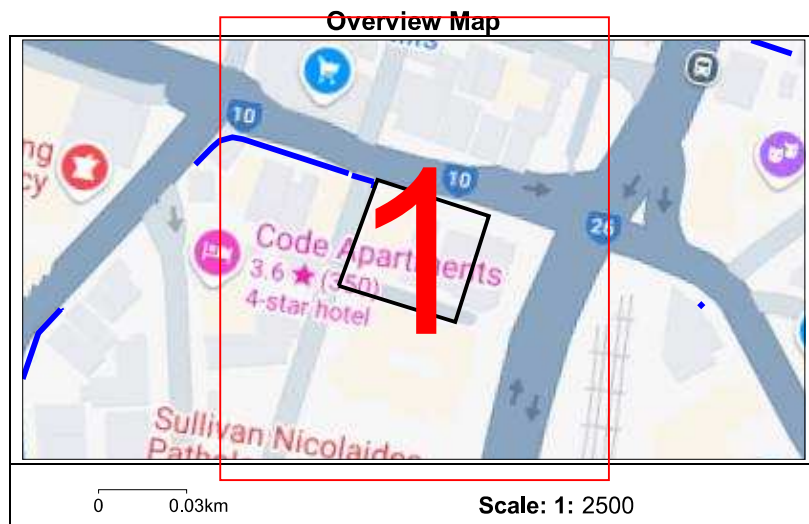
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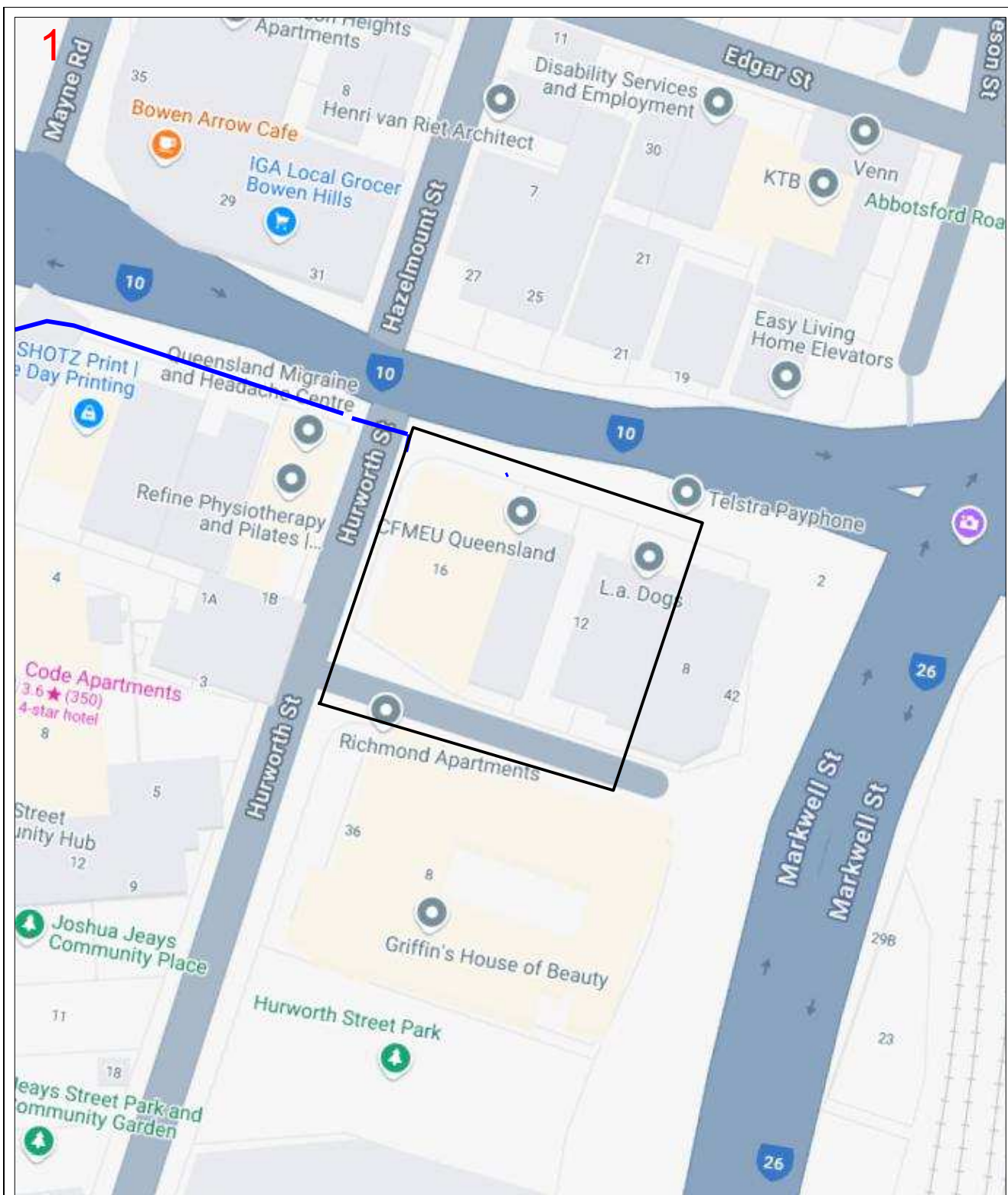
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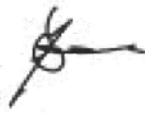
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Guidelines for Works Near Existing Gas Assets

400-STD-AM-0001

Revision 2

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APPROVAL DATE:	18/08/2023

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DOCUMENT CONTROL & APPROVAL INFORMATION

Summary of Changes

Below is a brief summary of the changes made to the document since the previous issued version.

Revision	Description	Date	Author
0.0	Issue for Use	29.06.2018	Matthew Read
1.0	Issued for Use – document periodic update / major overhaul	01.03.2022	Kahil Parsons
2.0	Removal of incorrect table 2 references to 1. proximity of HV cables 2. Updating separation distances to AS2885.3 BYDA reference update Table 4 Note	16.08.2023	Dale Russell

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Table of Contents

DOCUMENT CONTROL & APPROVAL INFORMATION	2
Summary of Changes	2
Printed Working Copy	2
Responsibility	2
Control.....	2
TERMS OF USE.....	5
1 INTRODUCTION.....	6
1.1 Scope of this Document	6
1.2 Asset Types.....	6
1.2.1 Natural Gas Transmission	6
1.2.2 Natural Gas Distribution	7
1.2.3 LPG Distribution	7
1.3 Damage and Emergencies	7
1.4 General Duty of Care and Responsibility to Obtain Information	8
1.4.1 Additional Transmission Pressure Pipeline Requirements	8
2 PROTECTION PROCESS	9
2.1 Assessment Information	9
3 PART 1 - APA NOTIFICATION AND AUTHORISATION REQUIREMENTS	11
3.1 BYDA Request	11
3.2 Provings and Site Identification	11
3.3 APA Notification and Authorisation Process	11
3.4 Commercial Agreement and Service Delivery	13
3.5 Decommissioned Gas Assets	13
4 PART 2 - DESIGN AND ASSET PROTECTION REQUIREMENTS	15
4.1 Standard Clearances.....	15
4.2 Third Party Assets and Structures.....	19
4.3 Landscaping Plans	19
4.4 Surface Levels and Conditions.....	21
4.5 Casings Vent Stacks	22
4.6 Earthing and Electrical Effects	23
4.7 Temporary and Permanent Vehicle Crossings	24
5 PART 3 - CONSTRUCTION AND LAND USE REQUIREMENTS	25
5.1 Land Use Change.....	25
5.2 Permits and Site Watch.....	25
5.3 Coating Surveys and Leakage Surveys	26
5.4 Pipeline Repairs, Recoating and Slabbing.....	26
5.5 Exposure of Buried Gas Assets	27
5.5.1 General.....	27

5.5.2	Physically Proving Gas Assets	27
5.5.3	Hydro-Vacuum Excavation	28
5.5.4	Mechanical Excavation	29
5.5.6	Protection During Exposure	30
5.5.7	Backfill and Reinstatement	31
5.6	Trenchless Excavation	31
5.7	Piles, Piers or Poles	32
5.8	Hot Works for Construction Activities	32
5.9	Vibration Limits	32
5.10	Compaction Limits	33
5.11	Blasting / Seismic Survey / Explosives	33
5.12	Suspended Materials above Gas Assets and No Go Zones for Cranes	34
5.13	Temporary Materials	34
6	PART 4 - ALTERATION OF EXISTING GAS ASSETS	34
7	GLOSSARY OF TERMS AND ABBREVIATIONS	35
8	DOCUMENT REFERENCES	40
	APPENDIX A GENERAL BYDA RESPONSE PROCESS	41

TERMS OF USE

The “Guidelines for Works Near Existing Gas Assets Standard” is used for APA Networks excavations or third party excavations near APA Network operated assets. This guideline must only be used by the person or entity who received it directly from APA (“You”) to ensure the latest version is used.

APA Networks has provided this document to You subject to the terms of use set out below. By retaining possession of this document, You acknowledge and agree to the following conditions;

1. The information contained in this document relates only to APA Networks operated assets (as defined in this document) and does not relate to any other utility assets owned or operated by APA, such as APA Gas Transmission Pipelines.
2. This Guidelines document is provided to You to assist in the development of design plans, construction and land use activities.
3. This Guidelines document does not override or supersede APA’s Permit to Work (**PTW**) or Excavation policies and procedures.
4. Any proposed works in the vicinity of APA Networks operated assets may also require approval from other utility providers or government agencies. APA Networks has no responsibility for, and makes no representation in relation to, any requirements that may be necessary to obtain such approvals.
5. This document does not relieve any person from the requirement to make appropriate Before You Dig Australia (**BYDA**) enquiries, and otherwise discuss any proposed works with APA Networks, either for initial or subsequent works.
6. You must not reproduce this document without APA Networks permission and must not alter or amend this document.
7. To ensure the latest version of this document is used only APA Networks can provide a valid copy of this document.
8. APA Networks reserves its right to modify, amend, supplement, delete or withdraw any part of this document or any reference contained in this document, at any time without notice.
9. You must make your own independent enquiries in relation to any works that are proposed to be undertaken in the vicinity of any APA Networks operated assets (including obtaining all necessary express written consents and approvals from APA Networks). The information contained within is intended as a guide only.
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12. You agree to release and indemnify APA Networks and its related bodies corporate, officers, employees, agents and Contractors against all reasonably foreseeable claims, costs, expenses, losses and liabilities (including legal costs on a full indemnity basis) suffered or incurred by them as a result or in connection with the use of this document by You.

The purpose of this document is to provide guidelines for third parties planning to install new infrastructure or conduct works near existing APA Networks (**APA**) operated assets.

It is intended that this document will be provided to third parties proposing works around existing gas assets for their use during the design and planning phase following initial planning BYDA enquiries. This document does not provide authorisation to undertake the works but provides APA requirements to ensure that any review and acceptance of proposed works is completed as quickly as possible.

1 INTRODUCTION

1.1 Scope of this Document

This document addresses APA's requirements for considering how a third party's proposed works and APA managed works may impact APA Networks operated assets under the following parts:

Part 1 – APA Notification and Authorisation Requirements

Part 2 – Design and Asset Protection Requirements

Part 3 – Construction and Land Use Requirements

Part 4 – Alteration of Existing Gas Assets

APA Networks acts as the asset operator on behalf of entities Australian Gas Networks (**AGN**), Allgas, APA, Origin and Queensland Nitrates (**QNP**) and operates in New South Wales, Northern Territory, Queensland, South Australia and Victoria. The criteria provided in this document only applies to the assets managed by APA Networks on behalf of these companies.

APA also owns and operates natural gas transmission infrastructure on all mainland states and territories of Australia. These assets are operated by a separate APA entity and are out of scope for this document.

A glossary of all terms and abbreviations used in this document is contained in **Section 7**.

A list of all relevant external standards and APA reference documents is contained in **Section 8**.

1.2 Asset Types

APA Networks' operated gas assets include buried pipe, above and below ground stations (e.g. pressure regulation, valves, meters), electrical cables, cathodic protection systems (e.g. test points, anode beds), pits and electrical cabinets. Depending on the gas type and the operating pressure, gas assets are classified as natural gas transmission, natural gas distribution and Liquefied Petroleum Gas (**LPG**) distribution as shown in **Figure 1**.

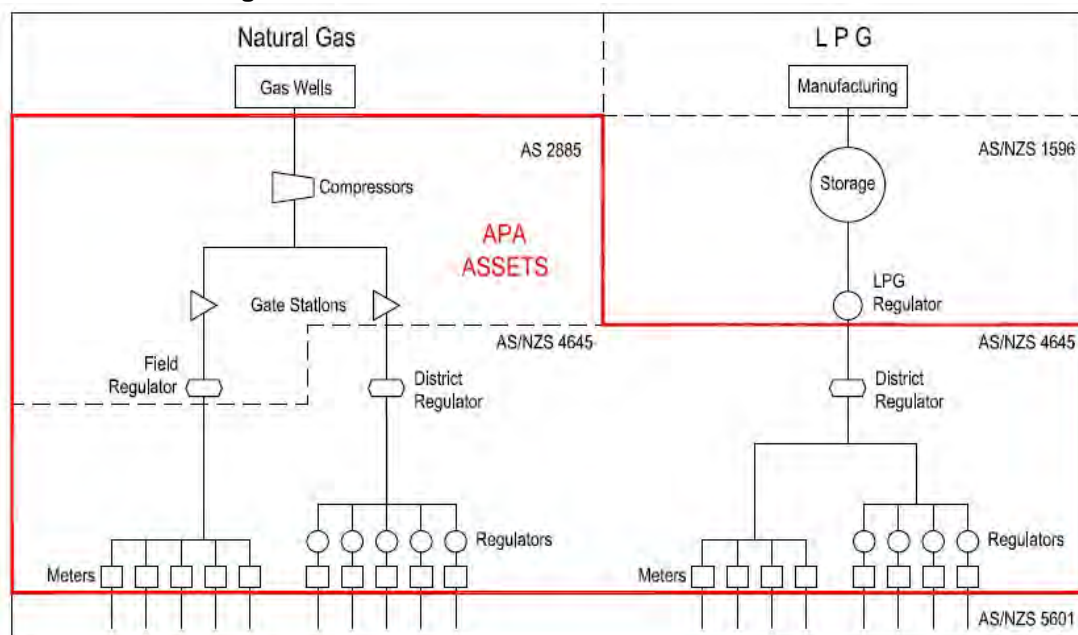


Figure 1 Asset Types and Standards Operated by APA Networks

1.2.1 Natural Gas Transmission

Natural gas transmission pressure assets operate at pressures above 1,050 kPag, and are generally used for transporting large quantities of gas across country. Design, construction and operation of these assets is governed by the AS 2885 suite of Australian Standards (**AS**).

Due to the higher pressure and energy density, there are severe safety, supply and environmental consequences which can result from third party interference. Hence, more stringent requirements and controls are applied to third party works in the vicinity of these assets.

Buried transmission pipelines are constructed from coated steel pipe where the appearance can vary depending on the year of construction, but will generally appear as yellow, black or grey when physically exposed.

1.2.2 Natural Gas Distribution

Natural gas distribution pressure assets operate at pressures below or equal to 1,050 kPag from offtakes of transmission pressure assets, and are generally used to supply consumers such as businesses and homes. Design, construction and operation of these assets is governed by the AS/NZS 4645 suite of Australian Standards.

Due to the lower energy density compared to transmission assets, less stringent requirements and controls are applied to distribution assets. Some distribution assets are deemed critical by APA Networks due to the safety and supply implications that may arise due to a third party strike. These critical distribution assets will be defined on BYDA responses, and some of the controls which are applied to transmission pressure assets (e.g. permit and site watch) will be required.

Buried distribution pressure pipes may be constructed from the following materials and physical appearances when exposed:

- Cast Iron (black);
- Polyethylene (PE) (yellow or black with yellow stripes);
- Steel coated or uncoated (generally yellow, black or grey); and
- Other plastic such as Polyvinyl Chloride (PVC) or nylon (yellow).

Some legacy materials such as cast iron and nylon may require additional protection during construction works due to the unpredictable nature of the materials.

1.2.3 LPG Distribution

LPG distribution pressure assets operate at pressures below 140 kPag from storage compounds and are generally used to supply consumers such as businesses and homes in parts of Queensland, South Australia and Northern Territory. Design, construction and operation of these assets is governed by the AS/NZS 4645 suite of Australian Standards.

Additional safety considerations are required in addition to the requirements for natural gas, as LPG is heavier than air and will pool at the leak point and can accumulate in a trench or excavation.

The same materials used for buried distribution pressure pipes (**Section 1.2.2**) may be used on LPG distribution networks.

1.3 Damage and Emergencies

If you smell gas or damage has occurred, or is suspected, on any gas asset call APA emergency number **1800 GAS LEAK (1800 427 532) or 1800 808 526 for LPG assets.**

Any unreported damage has the potential to escalate and endanger public safety.

Where damage has resulted in a release of gas, you are advised to take the following immediate action:

- Clear the area of all people. Do not under any circumstance re-enter the damage area;
- Where safe to do so, shut off or remove all ignition sources and devices in the area e.g. naked flames, vehicle engines, power tools, mobile phones;
- Do not attempt to stop the flow or repair the damage;
- Allow the gas to vent to air; and
- Once clear of the area, contact the emergency number **1800 427 532 or 1800 808 526 for LPG assets.**

The conditions in this document or as provided by APA Networks are intended to protect the gas assets as well as keep safe any construction crews or general public in the vicinity. Depending on the circumstances, some variation to the conditions in this document may be required or may be provided by an approved APA Networks site watch representative. It is legislated in all jurisdictions that the direction provided by APA is followed.

1.4 General Duty of Care and Responsibility to Obtain Information

Anybody working near a gas asset, or responsible for such work, has a duty of care to exercise caution, to maintain a safe working environment and to meet requirements of all relevant laws and Occupational Health and Safety legislation.

For general enquiries about results from BYDA please contact:

- DBYDNetworksAPA@apa.com.au for Northern Territory, South Australia, Southern New South Wales and Victoria, and;
- PermitsQLD@apa.com.au for Queensland and Northern NSW (incl. Tamworth).

The third party shall make contact with APA through the BYDA process if any clarification is required to determine the approval processes for any proposed land use changes (within the Measurement Length), design works and construction activities within 3 m of a gas asset or within a pipeline easement.

Any works proposed by the third party will only be authorised if APA is satisfied that the works will not affect the integrity of the APA Networks operated assets.

Any person undertaking work near an APA Networks operated asset, or responsible for such work, must ensure that they familiarise themselves with APA requirements.

Working around any gas asset, especially transmission pressure pipelines, without appropriate planning and controls as specified by APA Networks can be extremely dangerous. Damage to a gas asset could result in:

- Possible explosion and fire with the risk of loss of equipment, property, personal injury, and death;
- Loss of gas supply to thousands of customers;
- Substantial repair and gas restoration liability costs to the authority or principal responsible; and,
- Prosecution under the relevant laws governing pipeline and gas safety.

Prior to the commencement of any works within the Protected Zone of transmission pressure or critical gas assets, the Contractor performing the work must receive an Authority to Work Permit (ATWP).

Any works within the Protected Zone of critical assets must comply with any conditions attached to an ATWP and depending upon the nature of the asset and works supported by an approved construction methodology.

Written authorisation in the form of the ATWP must be kept on site at all times, and the holder of the authorisation must comply with all the conditions of the ATWP. The performance of any works near critical APA Networks operated assets without a valid ATWP and full compliance with its conditions will constitute a safety incident and may also result in an infringement notice and associated penalties issued by the regulator of the APA Networks asset.

1.4.1 Additional Transmission Pressure Pipeline Requirements

Where the works proposed by the third party may result in a change in land use within the Measurement Length for a transmission pressure pipeline (as defined in AS/NZS 2885.6 for Pipelines – Gas and Liquid Petroleum), such works may also be subject to formal approval requirements through APA Networks and applicable local and state government planning processes. This may also require a Safety Management Study (**SMS**) Report to be completed and approved by APA Networks. The SMS Report is generated from an SMS workshop involving an SMS facilitator, the third party and APA Networks. APA Networks is the owner of the SMS Report and any resulting recommendations/ actions must be implemented to the satisfaction of APA prior to the commencement of any physical works.

Certain categories of development/ land use change are not appropriate to be located within the Measurement Length of transmission pressure pipelines. In certain circumstances, the otherwise unacceptable risks associated with such developments may be alleviated with the aid of installing protective slabbing over the asset or undertaking other protection and mitigation measures.

2 PROTECTION PROCESS

APA is committed to working cooperatively with third parties to ensure that existing gas assets will be appropriately protected from any proposed works.

The process to be followed for any proposed works is outlined in **Table 1**. This table cross references the relevant section of this document which provides any specific requirements for each gas asset classification. The steps in this table are to be followed in conjunction with the process outlined by BYDA¹, a flow chart is also provided in **APPENDIX A**.

Table 1 Protection Process Summary

Section	Step	Purpose
3	Notification and Authorisation	<p>Identify and locate existing gas assets in the vicinity of any proposed works.</p> <p>Submit BYDA requests to obtain indicative plans of gas assets.</p> <p>Notify APA Networks and obtain approval to verify the exact position by physically proving the position of gas assets at the cost of the third party.</p>
4	Design and Protection Requirements	<p>Review APA Networks design and protection requirements for any proposed infrastructure near gas assets.</p> <p>If acceptable clearance is available in accordance with this section review impact of construction methodology on existing gas assets.</p> <p>If acceptable clearance is not available in accordance with this section and the proposed infrastructure cannot be modified, alteration or protection of the existing gas assets will be required at the cost of the third party.</p>
5	Construction and Land Use Requirements	<p>Review construction methodology for adverse impact to existing gas assets.</p> <p>Some additional protection measures may be required depending on the existing gas assets, the construction methodology and whether land use changes are required.</p> <p>If works meet the requirements of this document, submit work package to APA Networks for review and approval. If approval is given, then undertake works in accordance with APA Networks conditions/ permits. If approval is not given modify work package accordingly.</p> <p>If works do not meet the requirements of this document or APA Networks approval cannot be reached, alteration or protection of the existing gas assets will be required.</p>
6	Alteration	<p>Request alteration of existing gas infrastructure if there is insufficient clearance or construction methods will adversely impact existing gas assets.</p> <p>Alteration of existing gas assets are fully recoverable and may result in delays if not identified early.</p>

2.1 Assessment Information

Throughout the protection process, APA Networks assessment may be required to determine if the proposed works/ installation has sufficient separation or if work can be undertaken with a suitable construction methodology. If APA Networks assessment is required, the following information must be provided to enable an efficient and comprehensive review.

- Due dates or a work program;
- The location / address and extent of proposed works;

¹ BYDA process is available at <https://www.1100.com.au/safety-information/digging-safely/>

- Scope / description of the work impacting APA assets;
- A work package containing detailed design or construction issue drawings with the location of APA assets and the extent of works marked and / or georeferenced. Sufficient details must be provided on the plans to verify locations against APA information, which is typically measured from property boundaries. Plan and cross sectional drawings are typically required, including any proving locations;
- The proposed construction methodology (if available); and
- For critical assets only, a completed permit request form. This form is automatically provided in response to a BYDA enquiry when it is required, with direction for this form included in the BYDA response (refer to **Section 5.2**).

If the information provided is incomplete, or irrelevant information is provided, it may result in a delay of the assessment process and provision of a response. Due to the varying nature of potential works, it is not possible to develop a comprehensive listing of information that will be required for each work type, but the above is provided as a general guideline for what will normally be required.

3 PART 1 - APA NOTIFICATION AND AUTHORISATION REQUIREMENTS

3.1 BYDA Request

The fastest method for obtaining APA Network gas asset locations is to lodge a BYDA request. A response can be expected from APA within two business days, and may include one of three responses as outlined in **APPENDIX A**, depending on the location of the works in relation to existing APA operated gas assets in the vicinity.

For some BYDA requests, APA Networks may provide different responses to different assets affected by the proposed works. In all instances it is the responsibility of the third party to review and follow the direction of all BYDA responses.

The information provided by APA Networks in response to a BYDA request, along with any other plans or subsequent information provided by APA, show only the indicative location of the asset at the time and are a guide only. In most instances it will be necessary to prove the location of all buried assets within the proposed work area.

The following items must be considered when using asset information provided by APA Networks:

- Gas service lines from buried distribution pressure supply mains to consumers may not be shown on plans. Service lines are usually laid at right angles from main to a meter position, except where road conduits are provided; and
- Plans become rapidly outdated and so should be used within 30 days and then destroyed. It is the responsibility of the third party to contact APA Networks to seek the updated or renewal of any information after this time.

APA shall not be liable or responsible for the accuracy of any information supplied.

3.2 Provings and Site Identification

Electronic location (e.g. ground penetrating radar, pipe locators) of gas assets is required to verify the onsite locations and any plans that have been provided.

Physical proving of existing gas assets is required at key locations to verify that the separation and protection criteria provided in this document have been achieved. The location and quantity of provings will depend on the scope of proposed work, but provings will at least be required at infrastructure crossing points or where changes to surface level condition are planned.

Additional verifications are required for works parallel and in close vicinity to existing gas assets. Physical provings at maximum 10 m intervals along straight sections of pipe, along with all bends, branch lines and customer service offtakes to verify asset locations.

Note: Live service offtakes which no longer supply consumers may protrude from the gas asset and are not traceable or identifiable from records.

Note: The maximum physical proving intervals for straight sections of pipe may be adjusted based upon the discretion of APA personnel for extenuating circumstances.

The following items must be considered when proving the location of an existing gas asset:

- Provings must be conducted safely and in accordance with the requirements of **Section 5.5.2**. If damage to a gas asset does occur it should be reported immediately to APA as described in **Section 1.3**.
- Permit and site watch by an APA Networks representative may be required for some proving activities in accordance with **Section 5.2**.

3.3 APA Notification and Authorisation Process

Prior to the third party undertaking any works/ activities or as part of the planning and design phase, the third party shall ensure a BYDA request is submitted. The automated response received from the BYDA system will be tailored based on the criticality of the assets.

For assets operated at distribution pressures and not considered critical mains, a Duty of Care Notice is provided with the BYDA response for the third party to consider. Site watch may be necessary under a duty of care notice where additional protection or other integrity concerns require it.

In the event that works are conducted within the Protected Zone of a transmission pipeline and/ or critical distribution main, these works will require a review approval received from APA prior to commencement of works. Works subject to this requirement are deemed to include, but not limited to, the following activities that fall under **Table 3**;

- Non Destructive Digging (**NDD**);
- Mechanical excavation including trenchless excavation i.e. drilling (boring, horizontal direction drilling (**HDD**), pipeline bursting and tunnelling) for installing infrastructure such as the following;
 - o Roadways, driveways, railways, pavements;
 - o Electrical equipment (cables, overhead transmission lines, telecommunication cable or power poles);
 - o Installation of culverts/ pipes (water, drainage, sewer or reticulation);
 - o Landscaping.

APA will not approve certain activities and structures in the transmission pipeline easement (if applicable), including the following;

- Permanent storage;
- Installation of billboard structures;
- Use and storage for explosives, flammables or corrosives;
- Blasting;
- Structures forming part of any house, house extensions, carports or entertainment areas;
- Dams and other manmade water features. Locations of dams off the pipeline easement/ protected zone must not create run off or drainage towards the pipeline easement;
- Chemically treated effluent coming in contact with the pipeline easement/ protected zone;
- Garbage, sand fill, refuse disposal;
- Airstrips.

The Third Party must submit an enquiry to APA at the earliest possible stage to allow sufficient time for assessment. Submissions should include the following information;

- Land description and map identifying location of the proposed works;
- Types of works to be carried out;
- Intended future use of the land (where relating to change in land use)
- Type and weight of machinery that will be used;
- Any plans or diagrams of the works;
- Timeframe for the works.

The sequence of obtaining APA approval is as follows;

- a) Submit enquiry for Initial Review – The Third Party submits the request prior to works commencing and APA Networks will complete an 'Initial Review'. The third party must not progress any works on site until they receive a response from APA Networks. The two possible outcomes of this stage are a 'No Impact' response or;
- b) Enquiry Escalated for Standard Assessment – The request will be forwarded to APA Networks Field or System Operations personnel for a more detailed appraisal, which may involve contacting the third party, site visits, locating of assets of site, and/or request for additional information. The third party must not progress any work on site until they receive a response from APA Networks. The two possible outcomes of this stage are a 'No Objection under standard conditions' response or;
- c) Enquiry Escalated for Engineering Assessment – The request has been forwarded to the Integrity Third Party Engagement team for additional appraisal and determination of specific conditions. The third party must not progress any works on site until they receive a response from APA Networks. The two possible outcomes of this stage are a 'No Objection under special conditions response' or;

- d) Enquiry Escalated for Alteration – The Integrity Third Party Engagement team triggers the alteration process for this enquiry. The third party will be contacted for additional information and must not progress any work on site until they receive a response from APA Networks.
- e) No Impact – The third party receives a ‘No Impact’ response and can proceed with the works under appropriate APA Networks requirements e.g. Duty of Care, Authority to Work Permit and/or Site Watch.
- f) No Objection Under Conditions – The third party will receive a No Objection under standard or special conditions response and can progress with the planning of the works under the conditions specified in the response and appropriate APA Networks requirements e.g. Duty of Care, Authority to Work Permit and/or Site Watch.

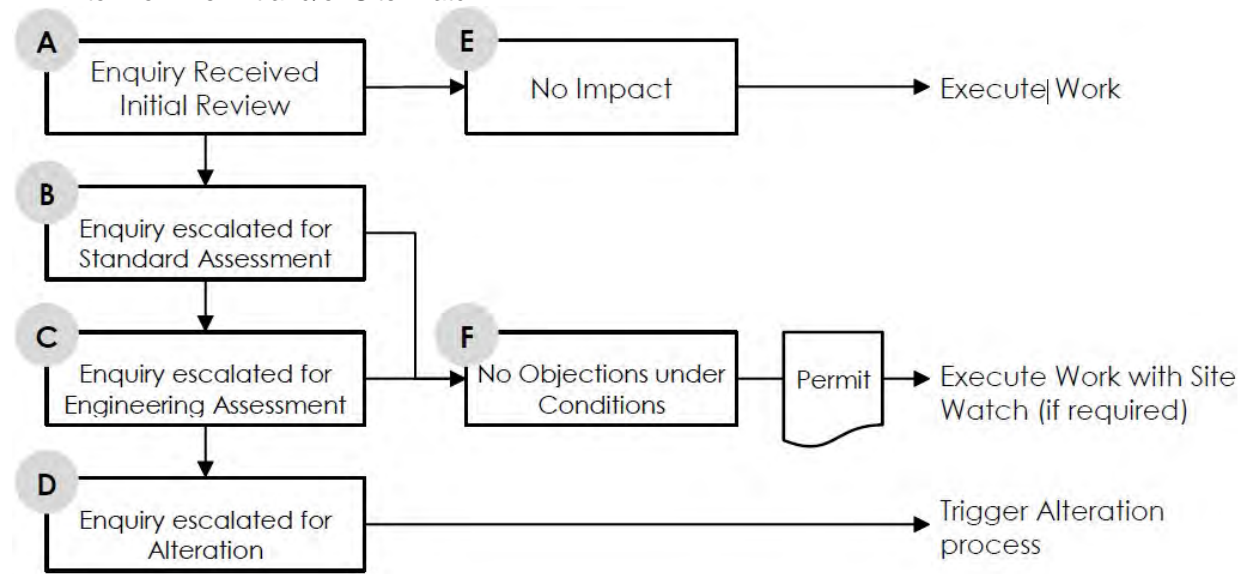


Figure 2 Stages for Third Party Works Authorisation Request

For works around APA Networks transmission pipelines or critical mains the documents take precedence in the following order;

- APA Authority to Work Permit (**ATWP**)
- APA accepted Third Party Construction Drawings
- APA accepted Third Party Construction Methodology
- APA Networks Guidelines for Works Near Existing Gas Assets (this document)
- APA accepted Third Party Safe Work Method Statement (**SWMS**) (if applicable)

3.4 Commercial Agreement and Service Delivery

APA will undertake a review of Third Party Works, as required. At APA's discretion cost recovery for these works may be required. Where APA Networks requires cost recovery a commercial service agreement in the form of a Works Agreement will be required.

Note: Any third party works requiring blasting, seismic and/or tunnelling work near APA Networks operated assets will not be considered “low risk” and cost recovery for detailed review maybe required.

3.5 Decommissioned Gas Assets

Decommissioned gas assets that remain in the ground are not always shown on BYDA plans.

Where unknown assets are identified or suspected on site but are not on APA plans, they must be treated as being live. In this instance, the third party must contact all utility owners and operators in the area of the BYDA and notify them of the findings.

Following review, if APA accepts that it is a decommissioned gas asset, the asset must be treated as per the requirements of this document. APA will take no further action where it is not considered to be a decommissioned gas asset.

In some cases, decommissioned gas assets are required for future use by APA (sometimes noted as “Idle” on APA plans). These assets must be treated as live using the same criteria outlined in this document, and must not be removed or altered without APA’s express written approval.

Where APA confirms there is no future use of a decommissioned gas asset (sometimes noted as “Abandoned” on APA plans), removal of the asset can be undertaken by the third party under the following conditions:

- For assets considered by APA to be decommissioned gas assets, APA must be engaged to verify that the asset is gas free;
- End caps must be permanently sealed, using an APA approved methodology, on any decommissioned sections that are to be left in place to prevent future water ingress into the remaining sections of the decommissioned gas asset;
- An as-built drawing must be submitted by the third party for any section(s) of a decommissioned gas asset removed by the third party or its sub-contractors to ensure BYDA can be updated accordingly; and
- Payment for costs associated with any verification or alteration activities must be provided prior to APA undertaking works.

4 PART 2 - DESIGN AND ASSET PROTECTION REQUIREMENTS

4.1 Standard Clearances

Minimum clearance dimensions outlined in this section must be met to allow for safe future maintainability and protection of existing gas assets. If separation clearances cannot be achieved, APA will review the proposed infrastructure on a case-by-case basis to determine whether a resolution can be achieved before alteration of any existing gas assets is considered. Authorisation of works by APA is still required, regardless of being able to achieve the required separation distances.

Clearances specified in **Table 2** are measured from the closest edges of the existing gas asset to the proposed infrastructure. Depending on the exact nature of proposed infrastructure, additional clearance may be required.

Note: Clearances specified herein are from gas assets, third party utilities may have their own standard separations that exceed APA's minimums specified in **Table 2**.

The future access zone required around a gas asset depends upon a number of factors such as size, operating pressure, depth and soil conditions, but typically this access zone is at least 1000 mm either side and 700 mm below the gas asset. As an aid for design and / or installation, the minimum clearances presented in **Table 2** are provided to allow for safe future access to gas assets. These minimum clearances assume that the asset have been proven and the location verified. There may be circumstances where additional clearances are required.

Table 2 Minimum Clearances

Clearance Type (Note 2, 9)	Minimum Transmission Pressure Asset Clearance	Minimum Distribution Pressure Asset Clearance
Any installation up to 0.6 metres wide which is crossing the gas asset	500 mm Vertical (Note 2)	300 mm Vertical (Note 2)
Any installation over 0.6 metres wide which is crossing the gas asset	500 mm Vertical	300 mm Vertical (Note 2)
Any installation laid by trenchless excavation e.g. HDD, boring, etc.	3000 mm Vertical	600 mm Vertical
	Refer to Section 5.6 for minimum horizontal separation distances	
Any installation laid parallel to a steel gas asset	600 mm Horizontal (Note 2, 3)	
Any installation laid parallel to any gas asset other than steel	N/A	300 mm Horizontal (Note 2, 3)
Trenching separation from edge of gas asset to edge of trench (Note 4)	500 mm Horizontal	300 mm Horizontal
Underground electrical cables laid parallel to any gas asset other than steel	N/A	300 mm Horizontal
Electrical conduits and cables (<11 kV) laid parallel to a steel gas asset	Engineering assessment required (Note 2, 3)	
Electrical conduits and cables (≥ 11kV) laid parallel to a steel gas asset	(Note 2, 3) Engineering assessment required (Note 7)	

Electrical earthing systems near a steel gas asset	High Voltage: Engineering Assessment Required Low Voltage: 300 mm Horizontal (Note 7)	
Electrical earthing system near any gas asset other than steel	N/A	300 mm Horizontal
Clearance Type (Note 2, 9)	Minimum Transmission Pressure Asset Clearance	Minimum Distribution Pressure Asset Clearance
Undisturbed cover from the top of the gas asset to the underside of trenching or road pavement boxing	500 mm Vertical	300 mm Vertical (Note 1)
Distance from predominant building line	3000 mm Horizontal Where applicable outside pipeline easement	Refer to Section 4.2
Distance from Sensitive Use Locations (Refer Section 7 for Glossary of Terms and Abbreviations)	APA Engineering Assessment Required (Note 8)	N/A
Canopies longer than 15 m parallel to the edge of the gas asset	3000 mm Horizontal (Note 10)	Refer to Table 4 (Note 10)
Any installation that could add excessive loads to the gas asset or restrict access to the gas asset	3000 mm Horizontal (Note 2)	
Any installations that may need require underpinning were APA to expose the gas asset	3000 mm Horizontal	
Any temporary stake, e.g. star picket	300 mm Horizontal	
Electrical poles including street lighting and traffic signals	3000 mm Horizontal Where applicable outside pipeline easement	1000 mm (Note 3, 5, 6, 7)
Fence post, including road safety barriers	3000 mm Horizontal when installed per APA requirements	500 mm Horizontal when installed per APA requirements
Pile or pier	3000 mm Horizontal when installed per APA requirements	500 mm Horizontal when installed per APA requirements
Permanent Heavy Vehicle Loads (Greater than 4.5T)	Refer to Section 4.7 Temporary and Permanent Vehicle Loads	
Tree Root Barrier	3000 mm Horizontal	1000 mm Horizontal Refer to Section 4.3 Landscaping Plans
Separation distances for vegetation	Refer to Section 4.3 Landscaping Plans	

Note 1: For distribution main crossings, where the vertical separation distance is less than 300 mm physical protective slabbing, e.g. HDPE or concrete, shall be installed where the other utility is crossing beneath the APA pipeline/distribution main.

HDPE or concrete, shall be installed where the other utility is crossing above the APA pipeline/distribution main.

No protective slabbing is required for utility crossings greater than 500 mm separation.

Note 2: Structures and large utilities crossing APA Networks operated assets need to be self-supporting so that future repairs or maintenance of the asset can occur as per **Section 4.2 Third Party Assets and Structures**.

Note 3: Horizontal separation includes utility surface access pits, thrust blocks and/ or footings.

Note 4: Additional horizontal separation may be required depending on the extent of the planned works, local soil conditions and trench stability of the existing gas asset. This is particularly relevant where works occur within the angle of repose of the existing gas asset (e.g. parallel trenching that is deeper than the existing gas asset) and may result in undermining.

Note 5: In accordance with 'AS/NZS 4853 – Electrical hazards on metallic pipelines' without further information and APA engineering assessment, no electrical power poles for 66kV or above are permitted within the following separation distances of steel gas assets;

- If the power line has an Overhead Earth Wire (**OHEW**) – 15 m;
- If power line does not have an OHEW – 100 m;

Note 6: Where electrical poles (including street lighting and traffic signals) are proposed which place the gas asset within the no dig zone specified by the electrical authority either of the following shall occur;

- a) The poles shall be designed with deeper foundations to be self-supporting if the gas asset needs to be excavated. Or;
- b) For non-metallic assets relocated into a conduit that extends past the no dig zone.

Note 7: Clearance for electrical cables and earthing systems from steel gas assets must be reviewed in accordance with **Section 4.6 Earthing and Electrical Effects**. Electrical cables, substations and/or earthing systems installed in the vicinity of steel gas assets require an Earth Potential Risk (**EPR**) and Low Frequency Induction (**LFI**) assessment to AS/NZS 4853.

Note 8: Requires a setback distance to stay away from the Measurement Length (refer to **Table 14 Glossary of Terms and Abbreviations**). Alternatively, the setback distance may be reduced if protection slabbing is installed along the Sensitive Use Location where interaction with the Measurement Length occurs. This may also be limited to the development area subject to APA engineering assessment.

Note 9: Pipeline protection needs to be assessed and shown on the design plans with design clearances. This includes recoating, bridge slab or asset strike protection slab.

Note 10: Clearance may be dependent on demonstrating that there is sufficient continuous ventilation.

For construction and land use activities around gas assets the minimum horizontal clearances referenced in **Table 3** must be followed.

Table 3 Minimum Clearances for Construction Works and Land Use Activities

Construction and Land Use Activities	Minimum Horizontal Clearance	
	Transmission Pressure & Critical Distribution Mains	Non-Critical Distribution Pressure Mains
Excavation without APA representative present (Note 1)	3000 mm	N/A
Trenchless Excavation (Note 1)	3000 mm Refer to Section 5.6	1000 mm Refer to Section 5.6
Temporary Heavy Vehicle Traffic (greater than 4.5T)	If the load has not been assessed, maintain a Horizontal separation of 3000 mm. APA engineering assessment must be completed if crossing asset. Refer to Section 4.7 Temporary and Permanent Vehicle Crossings	Refer to Section 4.7 Temporary and Permanent Vehicle Crossings
Installation of Piles, Piers or Poles	Refer to Table 2 and Section 5.7	
Hot Works from Construction Activities	Any hot works within 5000 mm of an open trench containing gas asset or where cover is less than 300 mm. Refer to Section 5.8. (Note 2)	
Compaction	Section 5.10 for Compaction Limits Maximum Compaction Limits	
Vibration Limits	No vibration within 3000 mm of the pipeline and greater distance to comply with Section 5.9	
Blasting, Seismic Survey or the use of Explosives	Approval required for works within 100m. Refer to Section 5.11.	
Lifting over exposed gas asset	Not permitted over the gas asset. Refer to Section 5.12 for Suspended Materials above Gas Assets and No Go Zones for Cranes.	
Clearance of crane outriggers to gas assets	Not permitted within 3000 mm of gas asset. Refer to Section 5.12 for Suspended Materials above Gas Assets and No Go Zones for Cranes.	
Clearance of temporary material from pipeline	Not permitted within 3000 mm of gas assets. Refer to Section 5.13 for Temporary Materials.	

Note 1: Excavation covers NDD, mechanical excavation and trenchless excavation (boring, HDD, pipeline bursting and tunnelling).

Note 2: Horizontal separation distance also applies to any pits or valve covers.

4.2 Third Party Assets and Structures

Structures, including but not limited to buildings, walls, canopies, footings, pile caps or retaining walls, must not transfer any load to or be installed over any gas asset.

The design of any third party asset or structure must take into account future safe access of any gas assets in the vicinity. The proposed third party asset or structure must be installed in a way that prevents the angle of repose from encroaching into the future access zone as specified in **Section 4.1** around the existing gas asset.

Any third party asset or structure installed within proximity to a transmission pipeline or critical distribution pressure main must be designed to be self-supporting and allow for a minimum excavation window 1m on either side of the asset and 700 mm below the edge of the asset, for maintenance of the asset. This self-supporting design information is required to be shown on the construction drawings supported by geotechnical data and calculations. Construction of structures on pipeline easements are not permitted without explicit consent from APA.

Distribution pressure gas mains must be offset from the expected predominant building line at a distance in accordance with **Table 4**. Transmission pressure gas assets shall be per **Table 2**.

Table 4 Minimum Building Offset Distances for Distribution Pressure Gas Mains

Diameter (DN)	MAOP (kPag)			
	≤210	>210 ≤ 420	>420 ≤ 600	>600
≤110	0.5 m	0.5 m	1.0m	3 m
>110 ≤ 160	0.5 m	0.5 m	3 m	5 m
>160	0.5 m	3 m	3 m	8 m

Gas assets may be located underneath curbing or strip footings for road safety barriers for short sections up to 10 m to allow for tapers. The integrity of the gas asset to be located underneath the curbing or strip footing may require inspection, repair, recoating and / or slabbing depending on the existing condition and extent of proposed works.

Posts or poles which are located in road reserve, or otherwise exposed to vehicle impact, must be designed such that there will be no damage to the gas asset in the event of a vehicle impact.

For works in Victoria, consent from the relevant State Minister is required under Section 120 of the *Pipelines Act 2005* (VIC) for the erection of structures or buildings within 3,000 mm of a transmission pressure asset. Ministerial consent must be arranged through Energy Safe Victoria (**ESV**) following review and acceptance of the proposed designs by APA Networks.

4.3 Landscaping Plans

Vegetation may limit line of site, access and passage along an existing gas asset alignment, while the associated roots may damage existing buried pipe, coating or other ancillary equipment (e.g. cables). Above ground gas infrastructure may also be exposed to hazards from falling vegetation and increased fire risk. Additionally, trees and tree roots may limit access to the gas asset in an emergency, during normal operations and when make new connections or modifications.

Landscaping plans which include vegetation should select tree species which do not have vigorous root activity and do not exceed above 5m in height when fully mature when planted within 3m of gas assets. The pre-selection of trees considered suitable for planting within road reserves and near gas assets should also consider interference with, or damage to, other underground and overhead services.

For all landscaping works within 3 m of transmission pressure or critical distribution pressure gas assets the following details must submitted to APA for review and approval prior to planting.

- Tree species – botanical and common name
- Mature tree buttress and canopy diameter
- Mature tree height

- Maximum root ball diameter
- Offset from gas asset
- Method of protection to gas asset

Trees to be planted within 3 m of transmission pressure or critical distribution pressure gas assets, should also adhere to **Table 5** below.

Note: Horizontal separation is measured from pipe edge to edge of mature trunk or mature drip line, whichever is the greater.

Strata cells are not considered an appropriate protection from tree roots. If strata cells are to be installed in the vicinity of existing buried gas assets, the controls identified in **Table 5** must be used for protection.

Table 5 Protection of Distribution Gas Assets from Vegetation

Vegetation Types	Requirements	Horizontal Separation from Pipe Edge to Vegetation			
		Greater than 3 m	1.5 to 3m	1.5 to 0.5 m	<0.5 m
Trees or Large Shrubs	Min. separation of 3 m is required between trees and pipe if no protection methods are utilised.				
Medium and Small Shrubs	Within 1.5 m – 0.5 m protection methods must be utilised.				
Ground cover and grasses	No protection methods required.				
Gas Protection Methods					
	No protection methods required, provided separation limits are followed.				
	<p>Within 3 m, tree species which have mature buttress diameters less than 0.15 m and do not have invasive or deep roots may be accommodated without protection methods after consultation with APA Networks (Note 1).</p> <p>For trees with mature buttress diameters greater than 0.15 m one of the following gas protection methods must be implemented;</p> <ol style="list-style-type: none"> 1. Lowering or relocation of the gas asset to a minimum of 1.2 m cover. 2. Installation of new gas conduit beyond the structural root zone (SRZ) of the mature tree species for future use. (Note 2) 3. Installation of a root barrier system. System to be 1 m deep or extend 250mm below the gas asset, whichever is the greater. 				
	<p>Within 1.5 m installation of a root barriers system is mandatory and gas protection methods are as follows;</p> <ol style="list-style-type: none"> 1. Installation of a robust root barrier system. System to be 1 m deep or extend 250 mm below the gas asset, whichever is the greater. <p>AND</p> <ol style="list-style-type: none"> 2. Lowering or relocation of the gas asset to a minimum of 1.2 m cover. <p>OR</p> <ol style="list-style-type: none"> 3. Installation of new gas conduit beyond the SRZ of the mature tree species for future use. (Note 2) 				
	Planting directly over gas assets is not permitted in any location, as it prevents emergency and maintenance access. Tree roots can damage gas asset resulting in gas leaks.				

Note 1: Refers to the minimum 1.5 m structural root zone for a mature buttress diameter less than 0.15 m mandated under AS 4970 – Protection of trees on development sites.

Note 2: Suitable protection method for PE mains only. Conduits to be recorded in Geographic Information System (GIS) for future referencing.

Note 3: On transmission pressure assets vegetation must not limit line of site along the buried gas assets alignment, all signage must remain each in sight of the other.

4.4 Surface Levels and Conditions

Decreases or increases to surface levels must consider depth of cover requirements for gas assets specified in **Table 6**. This is in addition to maintaining a minimum working cover from the top of the gas asset to the underside of trenching or road box out works during construction as specified in **Table 2**. Vehicles must not cross gas assets at covers less than those specified in **Table 6** unless in accordance with **Section 5.10** for Compaction Limits or **Section 4.7** for Temporary and Permanent Vehicle Crossings.

Where existing surfaces are to be modified, finished cover levels are not to be reduced to less than existing levels, unless meeting the minimum requirements of **Table 6**. The requirement for, and the extent of, protective slabbing over any APA Networks operated asset will be determined by APA at its sole discretion with adherence to minimum depth of cover without physical protection as the preference. Depending on the location, local councils and relevant road/ rail authorities may have minimum depth of cover requirements that APA are required to meet which are more stringent than those listed in **Table 6**. Depth of cover requirements for individual consumer offtakes (service connections) are also provided in **Table 7**.

Details of any additional fill proposed to be placed on or within 3 metres of a gas asset, or within any applicable easement, must be clearly shown on plans and must be approved by APA Networks in writing. A maximum depth of cover of 2,500 mm for transmission pressure assets and 2000 mm for distribution assets apply in all locations; however, it is preferred not to exceed 1500 mm for both types of assets.

Table 6 Minimum Depth of Cover Requirements for Pipelines and Mains

Asset Location	Minimum Depth of Cover (Note 3)	
	Transmission Pressure Asset	Distribution Pressure Asset
Under Minor Road Pavement (Note 1)	<ul style="list-style-type: none"> 1,200 mm 1,200 mm to 1,000 mm with physical protection slabbing and APA engineering load assessment 	<ul style="list-style-type: none"> 750 mm 750 mm to 600 mm with physical protection slabbing and APA engineering load assessment
Under Major Road Pavement (Note 2)	<ul style="list-style-type: none"> 1,200 mm 1200 mm to 1,000 mm with bridging slabs (Note 4) 	<ul style="list-style-type: none"> 1,200 mm 1200 mm to 750 mm with bridging slabs (Note 4)
In Road Reserve but not Under Road Pavement	<ul style="list-style-type: none"> 900 mm 900 mm to 750 mm with protective slabbing contingent upon pipeline location class 	<ul style="list-style-type: none"> 750 mm 750 mm to 600 mm with protective slabbing
Not in Road Reserve	<ul style="list-style-type: none"> 900 mm 750 mm with protective slabbing contingent upon pipeline location class 	<ul style="list-style-type: none"> 750 mm for > 210 kPa 600 mm for ≤ 210 kPa
Railway Reserve	2000 mm (Note 5)	
Large Open Drain or Major Water Crossing	2000 mm (Note 6)	

Note 1: Minor road pavements typically are owned by local councils.

Note 2: All roads owned by state and federal authorities are major roads. Roads owned by council may be major or minor roads. Covers less than 1200 mm may require dispensation from the relevant road authority.

Note 3: Protective slabbing must be installed where minimum depth of cover requirements cannot be met or are required to meet specific safety requirements. Bridging slabbing for transmission pressure assets may be replaced with protection slabbing following APA engineering assessment.

Note 4: The requirement for bridging slabs can be downgrade to physical protection slabbing where APA engineering assessment is completed and approved.

Note 5: Installation within railway reserve shall be in accordance with both AS 4799 and the respective operating standard for the gas assets i.e. AS 2885 and AS 4645.

Note 6: The minimum depth of cover of 2,000 mm shall consider future scour of the drain or waterway crossing. For man-made drains the depth of cover can be reduced to 1200 mm if sealed (i.e. concreted) and appropriately designed. For transmission pressure assets, waterway crossings shall be designed in accordance with AS 2885.1 – 2018 Clause 5.8.6.2. For all assets, as a minimum the following shall be considered;

- a) A hydrological investigation to determine the stream power under peak stream, watercourse or waterway flows. The investigation shall determine the 1 in 100 year flood and the probable maximum flood and intermediate (optional) flood conditions.
- b) A geotechnical investigation to determine the physical parameters of the crossings, and using the information from the hydrological investigation, the erosion potential. This assessment should also consider the meander potential of the watercourse so that the limits of special construction can be defined.

Table 7 Minimum Depth of Cover Requirements for Customer Offtakes (Services)

Asset Location	Customer Offtake size	
	≤ DN50	> DN50 and ≤ DN110 (Note 1)
Roadway	450 mm	600 mm
Private Property	300 mm	450 mm

Note 1: Customer offtakes (services) with diameters greater than DN110 shall have depth of cover in accordance with **Table 6**.

Changes to surface conditions (e.g. changing from nature strip to road pavement) or which place the gas asset in an inaccessible position (e.g. with excessive cover) may require slabbing, recoating and / or relocation. Changes to surrounding surface levels or conditions must also consider drainage and the potential to result in erosion of cover for gas assets. Additionally, gas fittings such as valves, stopple fittings or flanges must not be located underneath road pavement. An APA Engineering assessment will be required if this is not feasible, refer to **Section 6**.

Where a new hardstand surface is installed on non-metallic distribution pressure mains (e.g. a painted concrete driveway), consideration should be given to including a casing or enveloper pipe to APA requirements for insertion of future gas assets. This will ensure that the new hardstand surface is not modified as part of the future gas installation. Where a casing or enveloper pipe is installed for future insertion works surveyed as-constructed records are to be provided to APA Networks for incorporation into the GIS records.

For transmission pressure gas assets, any landscaping material should be level within the easement or a minimum of 3 m (but preferably 6 m) to each side of the pipeline, to permit excavating equipment to operate without having to destroy the adjacent landscaping.

4.5 Casings Vent Stacks

Casings provide mechanical protection and protection to gas assets from external loadings. Some cased crossings are sealed and fitted with a casing vent stack, which gas leaks are identified via.

The following APA requirements are to be applied for works near casing vent stacks:

- Casing vent stacks cannot be removed unless an alternative arrangement has been approved by APA Networks or they have been assessed as being redundant;
- Unfettered access is to be maintained to casing vent stacks; and
- Minimum distance from casing vent stack discharge point to any electrical installation or overhead structure must be 1000 mm.

4.6 Earthing and Electrical Effects

Steel gas assets are susceptible to adverse effects from electrical sources such as above and below ground cables, substations, transformers, earth rods, cathodic protection systems or electrified tram / train lines.

Without any further information or engineering assessment, earthing systems for distribution ($\geq 11\text{kV}$) and transmission ($\geq 66\text{kV}$) power lines must satisfy the Earth Potential Rise (**EPR**) Level 1 (Conservative) compliance of AS/NZS 4853 – 2012 Table 4.3 & 4.5 which specifies separation distances from pipe appurtenances (e.g. valves, regulators, isolation joints), access points or earth points (including cathodic protection test points). For the potential hazards to be accepted as low risk on the basis of a Level 1 assessment the separation between a conductive structure or substation and pipeline subject to EPR shall be greater than the values given in **Table 8** below.

Table 8 Separation Distances for Pipeline Subject to EPR from Power Lines (Level 1 Assessment)

Fault Current or Actual Current (A) (Note 2, 3)	Separation Required (m) - Note 1			
	Distribution ($\geq 11\text{kV}$)	Power Line	Transmission ($\geq 66\text{kV}$)	Power Line
	100 $\Omega\cdot\text{m}$	500 $\Omega\cdot\text{m}$	100 $\Omega\cdot\text{m}$	500 $\Omega\cdot\text{m}$
150	40	190	N/A	N/A
300	80	390	N/A	N/A
500	130	660	N/A	N/A
750	200	1,000	N/A	N/A
1,000	270	1,300	60	310
3,000	N/A	N/A	190	940
6,000	N/A	N/A	380	1,900
10,000	N/A	N/A	635	>3,500

Note 1: Earth resistivity of 500 $\Omega\cdot\text{m}$ shall be used for dry sand or rock and 100 $\Omega\cdot\text{m}$ for all other cases.

Note 2: If the fault current is unknown for a distribution power line ($\geq 11\text{kV}$), a fault current of 1000 A shall be used for the first pass assessment.

Note 3: If the transmission power line ($\geq 66\text{kV}$) uses an OHEW, uses values up to 3,000 A (this assumes a current split of 30% of 10 kA). For lines without an OHEW, use values up to 10,000 A for current going down the structure.

Without any further information or engineering assessment, distribution (≥ 11 kV) and transmission (≥ 66 kV) power lines parallel to steel gas assets must satisfy the Low Frequency Induction (LFI) Level 1 (Conservative) compliance of AS/NZS 4853 – 2012 Table 4.2 & 4.4 which specifies maximum acceptable power line to pipeline exposure length.

Per AS/NZS 4853 – 2012 the pipeline exposure length (average separation for the parallel section) under LFI conditions shall be less than the values given in **Table 9** below.

Table 9 Exposure Length for Pipeline Subject to LFI from Power Lines (Level 1 Assessment)

Power line to pipeline separation (m)	Exposure Length (m) – Note 1		
	Distribution Power Line (≥ 11 kV) – 100 Ω .m	Transmission Power Line (≥ 66 kV) – 100 Ω .m	
5	180	95	
10	210	110	
20	240	127	
50	310	165	
100	400	210	
200	550	290	
500	950	500	

Note 1: Without soil resistivity data, assessments are to be completed assuming 100 Ω .m. If soil resistivity data is available refer to AS/NZS 4853 – 2012.

Where AS/NZS 4853 Level 1 EPR or LFI requirements cannot be achieved a Level 2 and/or 3 assessment will be required.

The third party must provide to APA detailed plans of any source(s) of earthing and/ or electrical effects proposed to be located in the vicinity of steel gas assets, with an assessment report compliant with AS/NZS 4853 Electrical Hazards on Metallic Pipelines. This assessment report is to determine any effects to existing cathodic protection or induced voltage mitigation systems from these types of installations. The third party must address any relevant requirements and any recommendations and/or actions must be implemented to the satisfaction of APA Networks. All cost association with the study, and implementing its recommendations and/ or actions are to be borne by the third party. The third party must also complete validation testing upon completion of construction and provide all findings/ reports to APA Networks.

Hazards which may arise due to electrical systems located in the vicinity of steel gas assets include the following:

- Accidental contact between gas assets and electrical systems;
- Capacitive coupling;
- Conductive coupling;
- Electromagnetic induction;
- Low Frequency Induction (LFI);
- Earth Potential Rise (EPR), including due to fault current or lightning discharge; and,
- Adverse cathodic protection interference in excess of those allowed under AS 2832.1 or relevant state regulations

4.7 Temporary and Permanent Vehicle Crossings

Vehicle crossings over existing gas assets are limited to light vehicles (Gross Vehicle Mass not greater than 4.5 tonnes unless advised otherwise by APA Networks in writing) on unsealed surfaces or Heavy Vehicles (compliant General Access Vehicles) on established road pavements.

Any proposed new crossings must be assessed and authorised in writing by APA Networks.

A maximum surface pressure of 400 kPa is allowable directly above buried gas assets. However, any surface pressure exceeding this limit or where cover over the gas asset has been reduced from **Table 6** will require an APA Engineering Assessment and approval.

Where soil conditions exhibit poor compaction and load bearing characteristics, such as wet soil conditions, equipment is not permitted to cross the gas asset irrespective of weight without establishing a stable sealed surface or road plates.

Crane footings or bog mats must not be placed where the angle of repose can influence an existing gas asset without express written approval by APA. Where the existing gas asset is within the angle of response, the maximum surface pressure due to the crane must be provided.

5 PART 3 - CONSTRUCTION AND LAND USE REQUIREMENTS

Extreme care should be exercised at all times when working around existing gas assets, as repair works will be fully chargeable and may result in delays to any works. Refer to the duty of care outlined in **Section 1.4** and the requirements of this section when selecting construction methods.

5.1 Land Use Change

Where works proposed by a third party may result in a change in land use within the Measurement Length (as defined in AS/NZS 2885.6 for Pipelines – Gas and Liquid Petroleum) of transmission assets, such works may also be subject to formal approval requirements through APA Networks and applicable local and state government planning processes.

This may also require a Safety Management Study (SMS) report be completed and approved by APA Networks. This SMS report is generated from an SMS workshop involving an independent SMS facilitator, third party and APA Networks. APA Networks is the owner of the SMS report and any resulting recommendation/ actions must be implemented to the satisfaction of APA Networks prior to the commencement of any physical works.

Certain categories of development, such as Sensitive Use Locations (refer to **Table 14 Glossary of Terms and Abbreviations**), are not appropriate to be located with the Measurement Length. In certain circumstances, the otherwise unacceptable risks associated with such developments may be alleviated with the aid of installing protective slabbing over the transmission pipeline or undertaking other protection and mitigation measures.

Sensitive Use Locations near transmission pipelines are designated under AS/NZS 2885.6 and identify land where the consequences of a Failure Event may be increased because it is developed for use by sectors of the community who may be unable to protect themselves from the consequences of a pipeline Failure Event.

Sensitive uses are defined as follows;

- Schools, which includes colleges
- Hospitals and aged care facilities such as nursing homes, elderly people's homes
- Prisons and jails
- Sheltered housing
- Buildings with five or more stories
- Large community and leisure facilities, large open air gatherings
- Day care facilities
- Other potentially difficult to evacuate facilities
- Other structures as defined by relevant local councils.

For further information regarding the SMS process, refer to APA Networks Encroachment and Land Use Change SMS Trigger Procedure, **400-PR-L-0003**.

5.2 Permits and Site Watch

Transmission pressure assets and critical distribution pressure assets, must have a permit issued prior to proposed works in the vicinity of the existing assets, including any proving activities. Following the issue of a permit, a site watch inspector may be required to verify that the activities are carried out appropriately.

Other distribution pressure assets not considered critical will only require site watch as determined by APA Networks.

Where a permit is required, the response provided to the BYDA enquiry will include the relevant forms and process to be followed for submitting a permit request.

While BYDA recommends completing the request two business days prior to undertaking works, this is to ensure that the location information is obtained. This may not allow sufficient time for APA Networks to supply site watch. Further delays may be experienced if the proposed works are significantly complicated, do not meet the requirements of this document or if insufficient information is provided.

It is an offence in all jurisdictions to undertake activities in the vicinity of transmission pipelines without prior authorisation by the operator.

5.3 Coating Surveys and Leakage Surveys

Where proposed works have potential to indirectly damage pipe coating (i.e. due to compaction) or result in a leak of the gas asset (e.g. vibration of cast iron pipes), additional monitoring activities such as Direct Current Voltage Gradient (**DCVG**) or leakage surveys may be required.

If required, chargeable DCVG surveys will be conducted prior to works to establish any existing coating faults which exist on the gas asset. A subsequent DCVG survey will be conducted at the conclusion of works, and where new faults have developed on the gas asset, repairs shall be made with costs charged to the works owner. Surveys can be conducted prior to finalising road surfaces to avoid costly repairs.

A similar chargeable survey program can be applied where leakage surveys are required. However, additional surveys may be necessary throughout works to ensure work crews do not operate in a gaseous environment once leaks are caused.

5.4 Pipeline Repairs, Recoating and Slabbing

Buried steel assets operated by APA Networks are coated to provide protection from corrosion.

Where the surface conditions above a buried steel pipe are changed which may limit future access to the existing gas asset an assessment of the coating condition will likely be triggered.

The requirement for pipeline recoating is assessed by APA Networks on a case by case basis, based on the proposed works, but will generally be dependent on the following:

- The asset class;
- The existing coating type, age and condition;
- Increase in loading that can bring forward any pipeline anomalies; and,
- Changes limiting access to the existing asset(s), such as the installation of slabbing, road pavement, culverts, embankment ramps or any other feature.

A chargeable coating survey carried out in accordance with **Section 5.3** may be required to assess the condition of the existing gas asset coating.

Recoating and/ or associated slabbing works over any gas asset will be determined by APA Networks Engineering Assessments and any applicable risk assessments (Safety Management Study or Formal Safety Assessment).

Pipeline repairs, recoating and slabbing that form part of any third party commercial agreement will be charged to the third party.

The requirement for, and the extent of, slabbing over any APA Networks operated asset will be determined by APA at its sole discretion and may depend on factors other than only changes in depth of cover discussed in **Section 4.4**. Slabbing may be required for the following reasons:

- Removable protective slab to provide protection from third party mechanical excavation;
- Bridging slab to provide protection from external loadings e.g. insufficient depth of cover combined with vehicle traffic.

Slabbing must be installed with adequate separation from the pipe, which may impact the undisturbed cover requirement, and cannot be installed directly underneath road pavement or at surface level.

Any bridging slab designs prepared by a third party must be accompanied by certification from the registered practising structural engineer (Registered Professional Engineer Queensland (**RPEQ**) required for works in Queensland, and so on as required for other States and Territories) confirming that the design is adequate to prevent pipeline loading.

5.5 Exposure of Buried Gas Assets

5.5.1 General

Excavation works covers Non-Destructive Digging (**NDD**) and mechanical excavation. All such excavations must be completed in accordance with APA's direction.

The Third Party or its Contractor can perform exposure works on APA Networks operated assets via NDD using vacuum excavation and subsequent mechanical excavation works under the following conditions:

- **A current BYDA request is available for the works.**
- An approved Authority to Work Permit (**ATWP**) is issued for works near transmission pipelines or critical mains.
- APA Site Watch Officer is present for works near transmission pipelines or critical mains as outlined on the ATWP.
- The Third Party (or its Contractor) shall ensure they have their own SWMS, Risk Assessment, Environmental Management Plan, Tool Box Talk, Traffic Management and Pre-Start in line with their own corporate policy in place prior to works commencing.
- All underground assets have been identified by surface marking where within or close to the excavation area prior to proceeding with planned proving works (i.e. hand or NDD (e.g. Hydro-Vacuum Excavation). Any non-recorded assets should be identified prior to breaking ground (e.g. excavation or cutting).
- A check for gas leaks has been conducted prior to the commencement of work.
- If the mechanical excavation operator cannot see the spotter (where applicable, APA Site Watch Officer), he or she must stop moving immediately and not resume movement until contact has been established. Spotters must be aware of their surroundings and should never walk into the path of a vehicle, moving equipment or a swinging load. They need to scan the ground to become aware of any trip or fall hazards.
- If excavations are greater than 1.5 m or ground conditions are considered unstable benching/ battering/ shoring must be utilised. Additionally, appropriate ladders/ ramps or steps must be utilised to ensure safe access and egress.
- **Under no circumstances is mechanical equipment to be used within 300 mm of any gas asset.**

5.5.2 Physically Proving Gas Assets

Prior to mechanical excavation of the gas assets, the asset shall be physically proven by NDD or through the use of hand excavation. The method used will vary based on the criticality of the asset. The requirements in **Section 5.5.1** shall be implemented prior to physically proving the gas asset.

Technique 1 – Vacuum Excavation (Critical and Non-Critical Gas Assets)

A vacuum truck can be used to prove and expose the gas asset. Please ensure the requirements detailed in **Section 5.5.3** are adhered to.

Technique 2 – Hand Excavation (Critical and Non-Critical Gas Assets)

If the anticipated depth of cover of the gas asset is less than 1m (measured from the top of pipe) then hand excavation shall be used to expose the gas asset. The use of round edge shovels should be used to avoid damage to the pipe or coating. In the event that the anticipated depth of cover of the gas asset is greater than 1m then mechanical excavation can be undertaken in accordance with the requirements of **Section 5.5.4** but must stop when within 1m of the gas asset (i.e. 1.3m anticipated depth means that 300 mm of cover can be removed by mechanical excavation and the

remainder by hand excavation as described above. The anticipated depth shall be based on the shallowest result from BYDA or pipe locator.

Technique 3 – Hand + Excavation (Non-Critical Gas Assets ONLY)

If the gas asset is deemed non-critical then a combination of hand digging and excavation can be used. This technique requires the third party to hand excavate 300 mm then mechanically excavate the first 150 mm. In this technique the hand excavation shall always lead the mechanical excavation by 150 mm. Once within 300 mm of the gas asset then only hand excavation is allowed.

5.5.3 Hydro-Vacuum Excavation

Where hydro-vacuum excavation is used in the vicinity or to expose existing gas assets, the following conditions must be applied:

- Ensure the general requirements in **Section 5.5.1** are adhered to prior to the works commencing.
- Root cutting heads shall not be used at any time.
- When locating pipelines and mains, a maximum water pressure of 2500 PSI (17200 kPa) may be used to a depth no greater than 450 mm. Below this depth, the maximum water pressure shall be set in accordance with **Table 10** for the asset type in the vicinity.
- When locating customer offtakes (services), a maximum water pressure of 2500 PSI (17200 kPa) may be used to a depth no greater than 300 mm. Below this depth, the maximum water pressure shall be set in accordance with **Table 10** for the asset type in the vicinity.
- Where air is used in place of water the air pressure shall not exceed 175 PSI (1200 kPa).
- A minimum distance of 200 mm shall be maintained between the nozzle tip and subsoil and vertical movements avoided (i.e. nozzle shall not touch or be inserted into soil).
- The wand shall never remain motionless during excavation. Aiming directly at the gas asset shall be avoided at all times.
- NDD vacuum equipment must not come into contact (impact) with the pipe or coating.
- Once a gas asset has been exposed via hydro-vacuum methods, a visual check must be undertaken to ensure no damage has occurred to the pipe or its coating. Damage caused to the pipe coating by the third party will be chargeable.
- A dead man trigger or similar, shall be installed and used on the wand.
- If conduits are to be installed for identification of the gas assets location the conduit shall be offset to one side and recorded or a flexible conduit installed over the gas asset. The placement of PVC pipes directly on the gas asset may cause damage to the pipe coating and require repair at the contractor's expense.
- Vacuum excavated holes shall be cleaned of any rocks and debris and backfilled with a minimum 300 mm of sand.

Personnel operating NDD equipment shall monitor ground conditions to determine and adjust for the lowest water pressure setting and vacuum used to adequately expose the gas asset. The objective shall be to use the lowest possible pressure and vacuum required to adequately excavate in order to minimise risk of coating and/or pipe damage. **Table 10** provides the maximum water pressure to be used for various pipe and coating types.

Table 10 Maximum Water Pressure for Hydro-Vacuum Excavation

Pipe / Coating Type		Max. Water Pressure (PSI)	Pipe / Coating Type	Max. Water Pressure (PSI)
Steel	Coal Tar Enamel Coated	1,000	Steel – Mummified fittings (e.g. valves, flanges)	Not Permitted
	Polyethylene Tape Coated	1,000	Cast Iron	1,000
	Polyethylene Coated	2,000	Polyethylene	2,000
	Trilaminate Coated	2,000	Nylon or PVC	1,500
	FBE or HBE Coated	2,000	Unknown Material or Steel Pipe Coating	1,000
	Uncoated	2,500		

5.5.4 Mechanical Excavation

Prior to commencing any excavation works the general requirements in **Section 5.5.1** must be adhered to.

Where works are to be carried out within 3 m of the gas alignment and to 1 m of the known gas main depth, the contractor is required to pothole and expose the gas asset as outlined in **Section 5.5.5**.

Prior to the mechanical excavation commencing ensure the excavator is in working order and all pre-start equipment checks are completed.

Excavators with general purpose buckets (e.g. mud bucket, general purpose teeth) up to 30 tonnes are permitted to conduct mechanical excavations in the vicinity of existing APA gas assets in accordance with APA requirements. Any variation of excavator size or bucket type will require assessment and approval by APA Networks. Buckets with any type of tiger or penetration teeth are not permitted unless explicitly approved by APA Networks.

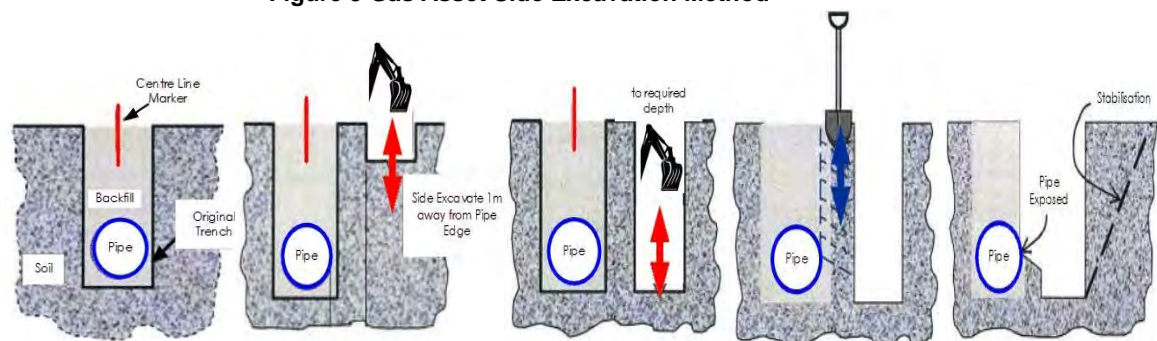
Critical Gas Assets

No mechanical equipment shall be used within 1 m of the potholed depth of the critical gas asset, except under explicit on site direction from an APA representative (i.e. APA Site Watch).

Under no circumstances is mechanical equipment to be used within 300 mm of any gas asset.

Once the gas asset has been positively proven, as outlined in **Section 5.5.2**, mechanical excavations can commence at a minimum of 300 mm offset from the outer edge of the pipe. The third party shall not mechanical excavate directly over a critical gas asset, with hand excavation only directly over the alignment or to expose the asset.

Figure 3 Gas Asset Side Excavation Method



Non-Critical Gas Assets

Mechanical excavation is permitted directly over the top of non-critical gas assets however **under no circumstances is mechanical excavation equipment to be used within 300 mm of any gas asset**. If the third party is in doubt with regards to the criticality of the gas asset, then the excavation method outlined for critical gas assets shall be used.

Prior to the mechanical excavation commencing, the asset shall be physically proved as outlined in **Section 5.5.2**. Once the depth has been physically proven the third party can proceed with excavating around the gas asset until within 300 mm. From this point hand excavation or NDD is required.

5.5.6 Protection During Exposure

Additional protection measures are required where an exposed gas asset may be subject to impact from construction activities, sagging of exposed pipe and trench instability. Any works requiring exposure and protection of the gas asset should have an accompanying methodology and approval by APA Networks.

Physical protection (e.g. structural steel protection, sandbags, wrapped with split PVC pipe) should be installed around the exposed gas asset when exposed, particularly when new infrastructure is planned to be installed crossing below the gas asset. If the gas asset is to be exposed for longer than one day or otherwise left unattended, suitable barricades, security fencing and/ or steel plates will be required to provide protection from vehicles, dropped objects (such as construction materials) or vandalism.

Unsupported exposed pipe lengths require protection from sagging by using suitable supports such as sandbags or slings. Where slings or other support types come into contact with the gas asset, protection methods must be employed (e.g. wrapped with split PVC pipe) to prevent damage to the existing pipe or coating. Exposed unsupported joints must also be identified and supported during works. The maximum allowable length of exposed pipe without support is provided in **Table 11**.

Table 11 Maximum Unsupported Lengths of Exposed Pipe

Gas Asset Diameter (mm)	Steel Maximum Unsupported Length (mm)	Polyethylene Maximum Unsupported Length (mm)	Other Material Maximum Unsupported Length (mm)
≤20	2,000	1,500	1,500 (Note 1)
>20 & ≤63	2,800	2,000	
>63 & ≤100	3,600	3,000	
>100 & ≤150	4,200		
>150 & ≤250	5,000		
>250	5,700		

Note 1: Particular care should be taken for other materials include cast iron, PVC or nylon due to the unpredictable nature of the joints.

Additional protection and support during trench or bell-hole excavation works to minimise ground instability may also be necessary to protect the integrity of existing gas assets during exposure works. Trenches are to be inspected prior to commencing works each day and monitored by the onsite party responsible for the excavation. APA shall be notified of any condition likely to affect the stability of trench.

Any deep excavations, within 3 m of a gas asset, shall be designed and constructed such that the effects of subsidence, collapse or extreme weather will not affect the gas asset. Any such excavations prepared by a third party must be accompanied by certification from a registered practising engineer (RPEQ required for works in Queensland, and so on as required for other States and Territories) confirming that the design is adequate to protect the gas asset.

5.5.7 Backfill and Reinstatement

Prior to backfilling, a minimum of 150 mm of bedding sand must be placed around all gas assets. Bedding sand shall be in accordance with APA specification **400-SP-L-0002**, which can be provided to third parties upon request. The bedding must be compacted in accordance with **Section 5.10**, including suitable compaction and backfill of the underside of the gas asset to prevent any further vertical movement during subsequent layers above the asset. APA may require geo-fabric installation between different trench reinstatement products to prevent sand migration in which nonwoven fabric is required and needs to extend 1000 mm past either side of the utility crossing.

The bedding material shall be clean, free from all sharp objects, sandbags, clay material, vegetable matter, building debris and disused road paving material to the specification provided by APA. Recycled bedding material and stabilised sand must not be used unless explicitly approved by APA.

The remainder of the excavation shall be backfilled and compacted in accordance with **Section 5.10**, at maximum increments of 300 mm to a density which is similar to the surrounding sub-grade material. Only clean fill material shall be used, preferably the same as the natural soil in the area, and free from ash, weeds and pest plants, salt or any chemicals which could harm the gas assets. Where required, concrete slabbing shall be installed in accordance with **Section 5.4**.

In all circumstances gas warning tape / marker board shall be installed in accordance with the following requirements:

- Gas warning tape installed at 300 mm below finished surface level.
- Gas marker board installed 300 mm above the top of the pipe.

Note, where gas warning tape cannot be installed 300 mm below the finished surface level due to road pavement box out, marker board is to be installed 50 mm below the box out work zone.

In situations where a physical protection slab or bridging slab has been utilised an additional layer of gas marker board must be installed 50 mm above the slabbing.

The excavated area is to be reinstated to the original condition or as approved by APA and the relevant local council, road authority or landowner as applicable. Any marker signs removed during excavation works must also be reinstated in original positions. Additional marker signs may be required at new infrastructure crossings as directed by APA.

5.6 Trenchless Excavation

Trenchless excavation covers horizontal directional drilling (**HDD**), boring, pipe bursting and tunnelling. These activities are considered high risk that require additional controls to prevent damage to existing gas assets. This includes proving the existing gas asset location and depth for all horizontal bores, as well as providing a witness trench to verify that the bore will pass the asset with sufficient separation.

A witness trench must be used in addition to live electronic tracking of the bore head. The witness trench must be prepared to the specification provided in **Table 12**. The progressive measurement of the length of the bore must also be made and plotted along its proposed direction to ensure the bore head has not missed the witness trench. The bore head must be exposed in the witness trench, when the crossing is above the existing gas asset.

For all assets installed via trenchless excavation a vertical separation aligning with the maximum borehole diameter (e.g. reamed diameter) shall be demonstrated. For transmission pressure and distribution pressure assets this vertical separation distance is 1000 mm and 600 mm, respectively.

If the works run parallel to a transmission pressure or critical gas assets a minimum separation distance of 3 m must be maintained. For non-critical gas assets, the minimum separation distance of 1 m must be maintained. For works running parallel to gas assets, proving of the actual location of the gas asset must occur every 4 m.

Note: It is expected that HDD operators working near gas assets hold the national competency RIICCM202 – Identify, location and protect underground service.

Table 12 Minimum Witness Trench Dimensions

Crossing Type	Witness Trench Depth	Witness Trench Dimensions
Crossing Above Existing Gas Asset	To bottom (invert) of gas asset	Witness trench shall be 1000 mm to 2000 mm in front of the gas asset on the approach side.
Crossing Below Existing Gas Asset	To bottom (invert) of gas asset plus 500 mm	Witness trench shall be min. 1500 mm long and 300 mm wide centred on bore centre line.

Dispensation may be considered where detailed long sections are provided for assessment by APA and where depths of existing gas assets or separation to the bore are greater than 2500 mm.

Pipe bursting is not permitted within 1000 mm of an existing gas asset.

5.7 Piles, Piers or Poles

No piling such as pile-driving, sheet-piling or hammer-piling is permitted within 15 m of an existing gas asset unless explicit consent has been provided by APA. In all instances, vertical bored (augured) piles, piers or poles are preferred.

Where installation of piles, piers or poles are proposed between 500 mm and 1000 mm clearance from a gas asset (distribution and transmission pressures, respectively), the area directly below the proposed pile, pier or post location must be excavated to a level equivalent to the bottom (invert) of the existing gas asset, and works started from that depth.

Note: Proving of the gas asset must be completed in accordance with the requirements set out in **Section 5.5.2** prior to the commencement of any works.

Temporary steel plates may also be installed between the gas asset and the proposed pile, pier or post used for vertical bore methods within this clearance to provide extra protection.

Note: Direct vibration monitoring on the gas main may be required depending upon the installation method utilised. Refer to **Section 5.9** for APA Networks vibration limits.

5.8 Hot Works for Construction Activities

Typical hot works include grinding, welding, thermal or oxygen cutting or heating, and other related heat producing or spark-producing operations. Heat sources or hot works must not impact gas assets, taking into consideration that the ground or adjacent structures may also be capable of transmitting heat.

In order to safely undertake hot works, response procedures in the event of fire or flammable gas detection must be prepared and monitoring for flammable gases must be undertaken during works.

APA must approve any hot works where there is less than 300 mm ground cover to buried gas assets, or within 5,000 mm of any exposed gas assets (including any pits or valve covers). A heat shield or barrier may be required to provide protection if it cannot be demonstrated that works can be undertaken without impacting the gas asset.

5.9 Vibration Limits

Significant vibration may arise from activities such as blasting, piling, tunnelling and HDD/boring.

To avoid damage to existing APA Networks operated pipes and coatings, the following vibration limits must not be exceeded at any point on the pipe:

- For cast iron mains: 5 mm/s maximum Peak Particle Velocity (**PPV**) measured on the pipe.
- For steel pipe with a coal tar enamel (**CTE**) coating or with poor coating health: 10 mm/s maximum PPV measured on the pipe.
- For non-coal tar enamel pipe coatings and other pipe materials (i.e. steel, PE, PVC or Nylon): 20 mm/s maximum PPV measured on the pipe.

- d) For blasting, the above vibration limits can be increased if supported by calculations in accordance with Design Guidelines for Buried Steel Pipeline – American Lifelines Alliance American Society of Civil Engineers (**ASCE**) and approved in writing by an APA Networks Integrity Engineer.

Note: Cast iron mains are particularly susceptible to damage by vibration. The PPV limit may not prevent leaks from cast iron and may require additional gas leakage survey activities during works in accordance with **Section 5.3**.

For vibration monitoring adopt an alarm at 80% of the acceptable PPV value and when the alarm is activated, the work must stop and be re-assessed. Short incursions up to 100% are acceptable, for sustained periods of vibration longer than 5 minutes, works must be stopped.

The zone of influence for vibration assessment undertaken by the third party is shown below;

- For compaction, refer to **Table 13**.
- For trenchless excavation (HDD/ boring), refer to **Section 5.6**.
- For piling refer to **Section 5.7**.
- For blasting refer to **Section 5.11**.

5.10 Compaction Limits

Compaction activities such as establishing a base course for a road pavement may result in damage to the pipes and coatings of existing gas assets. Compaction limits in the vicinity of existing gas assets are summarised in **Table 13**.

Table 13 Maximum Compaction Limits

Horizontal Separation (m)	Minimum Cover to Top of Gas Asset (mm)	Compaction Limits
≤3 (Note 1)	300	Small handheld compactor only
	500	Large handheld compactor Maximum 4 tonne tandem drum static roller
	750	Maximum 8 tonne tandem drum static roller
	1200	Maximum 10 tonne tandem drum static roller subject to APA approval
>3 & ≤10	All	Maximum 8 tonne tandem drum vibrating roller
>10 & ≤15	All	Maximum 10 tonne tandem drum vibrating roller
>15	All	Any compaction method

Note 1: Compaction within 3 m of gas assets is limited to static rollers. If vibration compaction is necessary a robust vibration assessment and construction methodology signed off by an RPEQ for works in Queensland, and so on as required for other States and Territories, will need to be produced by the third party for review and approval by an APA Networks Integrity Engineer.

5.11 Blasting / Seismic Survey / Explosives

Blasting, seismic survey or the use of explosives is not permitted within 100 m of a gas asset unless explicit approval is provided by APA Networks. The size and quantity of the explosives to be used will determine how close to the pipeline blasting will be permitted. In all cases, blasting methods must be arranged to limit ground vibrations so that the peak particle velocity does not exceed acceptable limits. At no stages will blasting be permitted within 3 m of the pipeline.

5.12 Suspended Materials above Gas Assets and No Go Zones for Cranes

Where gas assets are exposed, no cranes, excavators or backhoes are permitted to carry or suspend materials directly over or across a gas asset without an APA Networks approved lifting plan and SWMS.

Outriggers must be set up outside a 3 m radius from gas assets unless otherwise approved by APA Networks in writing.

5.13 Temporary Materials

In all instances it is preferred that temporary materials (e.g. soil, shipping containers) are not stored on top of transmission pressure and critical gas assets. Temporary material must not restrict access and should be placed at least 1,500 mm from the alignment of these assets unless otherwise approved by APA Networks.

6 PART 4 - ALTERATION OF EXISTING GAS ASSETS

Where the proposed third party works do not comply with the requirements of this document, and adequate additional controls or a specialised engineering solutions cannot be developed, alteration of the existing gas assets will be required.

Gas asset alterations will only be undertaken under a Recoverable Works Agreement (**RWA**) appropriate to the scope and extent of the works required.

An Early Works Agreement (**EWA**) may also be required where works are proposed which require proving, engineering design activities or purchase of long lead items. This will allow for completion of these items prior to execution of a RWA and avoid delaying works.

If either or both these agreements are required, then APA Networks will enter negotiations with the relevant third party and any costs will be payable by that third party.

7 GLOSSARY OF TERMS AND ABBREVIATIONS

Table 14 Glossary of Terms and Abbreviations

Term/ Abbreviation	Meaning
AGN	Australian Gas Networks
APA	Each entity that forms part of the APA Group
APA Engineering Assessment	Covers technical assessments which may involve field integrity assessments that may or may not include the use of specialist Consultants managed by APA.
APA Networks Operated Assets	APA Networks acts as the asset operator on behalf of entities Australian Gas Networks (AGN), Allgas, APA, Origin and Queensland Nitrates (QNP) and operates in New South Wales, Northern Territory, Queensland, South Australia and Victoria.
APA Permit Issuing Officer	The APA Permit Issuing Officer is responsible for opening the Permit To Work, validating APA Networks assets have been located and being the Site Watch for works within the gas Easement or Protected Zone.
AS	Australian Standard
ASCE	American Society of Civil Engineers
ATWP	Authority to Work Permit
CTE	Coal Tar Enamel
Damage	Physical damage to and interference with APA's assets. Damage includes reducing design life, coating damage, dents, scratches, rupture, cutting of cathodic protection cables. Damage can also include potential impacts that APA pipelines can have on third party assets.
BYDA	Before You Dig Australia (previously known as Dial Before You Dig (DBYD))
DCVG	Direct Current Voltage Gradient
Depth of Cover	Vertical distance from the existing natural ground surface to the top of the buried gas asset
EPR	Earth Potential Rise
ESV	Energy Safe Victoria
EWA	Early Works Agreement

Excavation	Excavation refers to manual digging or mechanised digging operation with plant or equipment which involves trenching and trenchless excavation. Trenchless excavation covers boring, Horizontal Directional Drilling (HDD), pipe bursting and tunnelling.
FBE	Fusion Bonded Epoxy
GIS	Geographic Information System
HBE	High Build Epoxy
HDD	Horizontal Directional Drilling
Hot Works	Hot works are defined as grinding, welding, thermal or oxygen cutting or heating, and other related heat-producing or spark-producing operations. Heat sources or hot works must not impact pipelines, taking into consideration that the ground or adjacent structures may also be capable of transmitting heat.
LFI	Low Frequency Induction
LPG	Liquefied Petroleum Gas
MAOP	Maximum Allowable Operating Pressure
Measurement Length	<p>The maximum length of pipeline route which presents an extended source of hazard on the basis that an event of failure could affect any part of the development or specific location relevant to the development.</p> <p>The maximum length corresponds to the heat radiation hazard associated with a 4.7 kW/m² heat radiation contour for an ignited full bore rupture calculated in accordance with AS/NZS 2885.6. If the pipeline is designed as a no rupture pipe, then the measurement length corresponds to a credible leak size.</p>
NDD	Non-Destructive Digging (NDD) refers to either hand digging or Non-Destructive Pot Holing using a vacuum pipe connected to a vacuum truck with either a water lance or air lance. Hydro-Vacuum Excavation consists of a water lance and vacuum truck and is used to physically prove existing assets.
OHEW	Overhead Earth Wire
PE	Polyethylene
Pipe Bursting	Pipe bursting refers to a pipe being inserted to a larger pipe that results in the larger pipe being damaged. For an example of pipe bursting, refer to the following You-Tube video: https://www.youtube.com/watch?v=HX5beh0ubGY
Pipeline Easement	The pipeline area shown on a survey plan and referenced on the property title.
Predominate Building Line	The expected predominate building line relates to the façade of the building, not necessarily the property boundary.
Protected Zone	A Protected Zone is an area extending both horizontally and longitudinally along a gas asset. It is the area where loads and/or any hot works may potentially cause damage to the gas asset.

	The Protected Zone refers to works near APA Networks gas assets or works within the vicinity of the gas assets that may cause an unacceptable risk to the asset in accordance with Table 2 Minimum Clearances or Table 3 Minimum Clearances for Construction Works and Land Use Activities
PTW	Permit to Work
PPV	Peak Particle Velocity
PVC	Polyvinyl Chloride
QNP	Queensland Nitrates Plant
RPEQ	Registered Profession Engineer Queensland
RWA	Recoverable Works Agreement
Sensitive Use Locations	<p>This is designated as Class “S” as per AS/NZS 2885.6 Pipelines - Gas and liquid petroleum - Pipeline safety management and refers to the sub location class. Sensitive Use Location Class (S) identifies land where the consequences of a FAILURE EVENT may be increased because it is developed for use by sectors of the community who may be unable to protect themselves from the consequences of a pipeline FAILURE EVENT.</p> <p>Sensitive uses are defined as follows:</p> <ul style="list-style-type: none"> • Schools which includes colleges • Hospitals • Aged care facilities such as nursing homes, elderly people’s homes • Prisons and jails • Convalescent homes • Sheltered housing • Buildings with five or more stories • Large community and leisure facilities, large open air gatherings • Day care facilities • Other potentially difficult to evacuate facilities • Other structures as defined by relevant local councils. <p>The Sensitive Use Location Class “S” must be assigned to any section of a gas transmission pipeline where there is a sensitive development within the applicable Measurement Length.</p>

Site Watch	<p>An APA Site Watch representative can be the Permit Issuing Officer for excavation work within a gas Easement or Protected Zone and is referred to as the primary spotter for excavation works.</p> <p>The secondary spotter is provided by the Contractor.</p> <p>The primary spotter has the ultimate decision regarding works within the gas Easement or Protected Zone which includes the method of excavation, starting and stopping excavation work.</p> <p>The APA Site Watch representative is the nominated competent person responsible for the following;</p> <ul style="list-style-type: none"> • Making themselves highly visible and everyone on the job site should be aware of the Site Watch's role; • Communication to personnel operating mobile plant and equipment ensuring minimum clearance to above and below ground assets is maintained and the construction methodology is adhered to and complies with APA Networks requirements. <p>Ensuring personnel do not encroach within the swing radius of the operating machinery.</p>
SMS	Safety Management Study
SMWS	Safe Work Method Statement used by APA or Contractors to execute field work. The risks and associated control measures risk assessments should be transferred to SWMS.
SRZ	Structural Root Zone
Structures	Structures refer to third party structures which includes, but is not limited to; temporary or permanent buildings, walls, canopies, footings, pile caps or retaining walls
Third Party	The person or entity and their agents or Contractors that propose to undertake work near APA assets.
Third Party Assets	Third Party Assets include roads, utilities and structures.
Third Party Excavation	Third Party Excavation which is not associated with APA (e.g. road works, utility installation, private development, fencing).
Third Party Works Classification	<p>The Third Party Work Classification as shown in Section 3.3 covers the following three work classifications:</p> <ol style="list-style-type: none"> 1. No Impact to gas assets 2. No Objection Under Conditions 3. Enquiry Escalated for Alteration
Transmission Pipeline	Gas transmission pipeline which includes all associated equipment such as cathodic protection, earthing grid, instrumentation and electrical cables.
Utilities	Includes water, wastewater, drainage, telecommunications cables, power poles and cables owned by individuals or organisations other than APA Networks.
Voltage	<p>Difference of potential normally between conductors or between conductors and earth as follows:</p> <ol style="list-style-type: none"> a) Extra-low voltage – Not exceeding 50V a.c. or 120 V ripple-free d.c. b) Low voltage – Exceeding extra-low voltage, but not exceeding 1000 V a.c. or 1500 V d.c.

	c) High voltage – Exceeding low voltage.
Works	The development of any type of buildings, structures and other obstructions (including residential buildings, pools, sheds, carports, major developments, transport infrastructure, services, stockpiles, trees), and any work that causes changes to the ground (including movement of heavy vehicles, blasting, tunnelling, pile driving, ground compaction, earthworks, open and trenchless excavations)

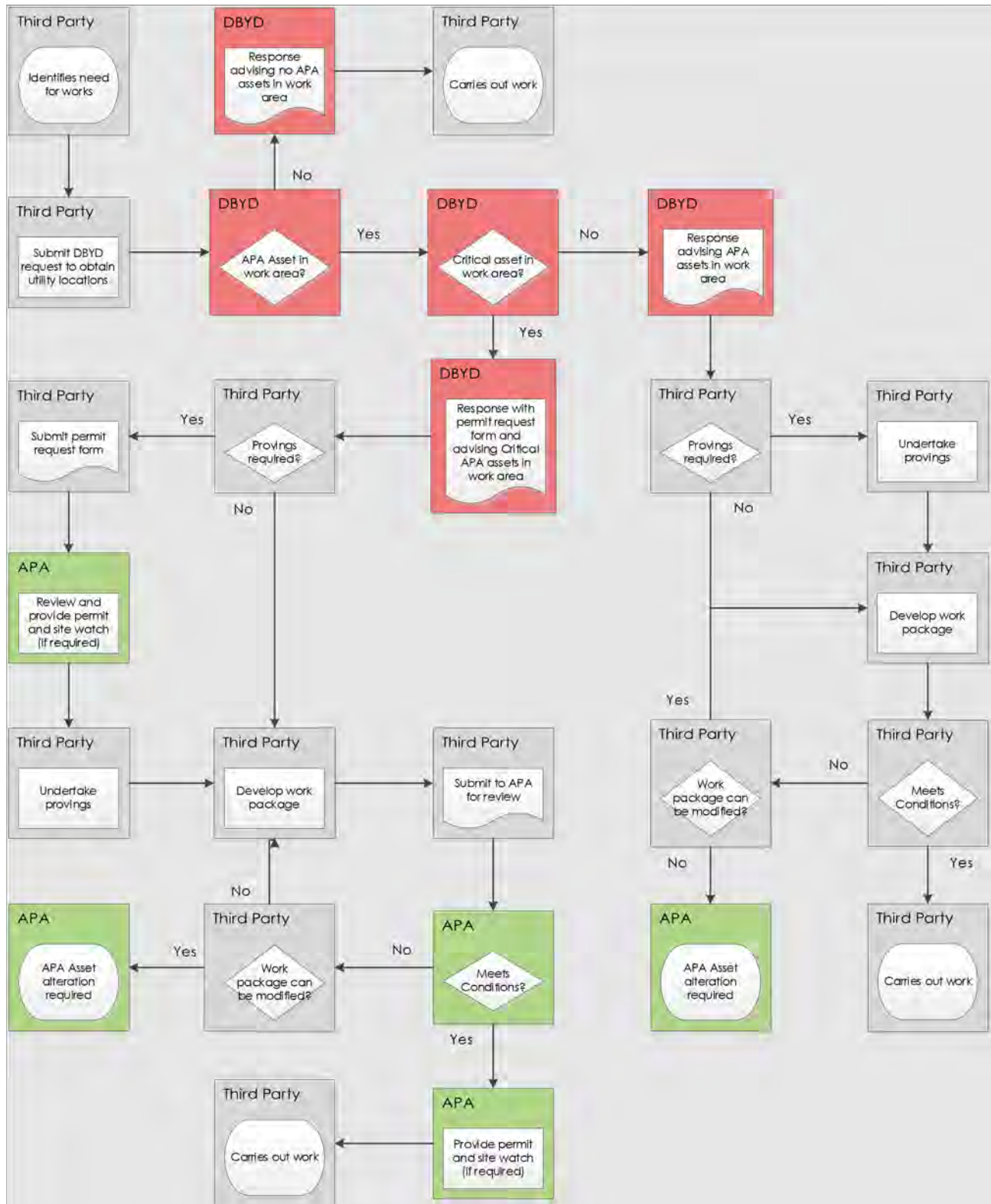
8 DOCUMENT REFERENCES

Table 15 Document References

External Standards	
API RP 1102	Steel Pipeline Crossing Railroads and Highways
AS 2832.1	Cathodic protection of metals: Pipes and cables
AS 2885.0	Pipelines – Gas and liquid petroleum: General requirements
AS/NZS 2885.1	Pipelines – Gas and liquid petroleum: Design and Construction
AS/NZS 2885.2	Pipelines – Gas and liquid petroleum: Welding
AS 2885.3	Pipelines – Gas and liquid petroleum: Operations and Maintenance
AS 2885.5	Pipelines – Gas and liquid petroleum: Field Pressure Testing
AS/NZS 2885.6	Pipelines – Gas and liquid petroleum: Pipeline safety management
AS/NZS 4645.1	Gas Distribution Networks - Network Management
AS/NZS 4645.2	Gas Distribution Networks - Steel Pipe Systems
AS/NZS 4645.3	Gas Distribution Networks - Plastics Pipe Systems
AS 4799	Installation of Underground Utility Services and Pipelines Within Railway Boundaries
AS 4827.1	Coating defect surveys for buried pipelines Part 1: Direct current voltage gradient (DCVG)
AS/NZS 4853	Electrical Hazards on Metallic Pipelines
AS 4970	Protection of trees on development sites
Standard Policies, Procedures, Specifications, Guidelines, Forms and Templates	
400-SP-L-0002	Networks Bedding Material Specification
400-PR-L-0003	Encroachment and Land Use Change SMS Trigger Procedure

APPENDIX A

GENERAL DBYD RESPONSE PROCESS



Before You Dig Australia

Think before you dig

This document has been sent to you because you requested plans of the Telstra network through Before You Dig Australia (BYDA).

If you are working or excavating near telecommunications cables, or there is a chance that cables are located near your site, you are responsible to avoid causing damage to the Telstra network.

Please read this document carefully. Taking your time now and following the steps below can help you avoid damaging our network, interrupting services, and potentially incurring civil and criminal penalties.

Our network is complex and working near it requires expert knowledge. Do not attempt these activities if you are not qualified to do so.

Disclaimer and legal details



*Telstra advises that the accuracy of the information provided by Telstra conforms to Quality Level D as defined in AS5488-2013.

It is a criminal offence under the Criminal Code Act 1995 (Cth) to tamper or interfere with telecommunications infrastructure.

Telstra will also take action to recover costs and damages from persons who damage assets or interfere with the operation of Telstra's networks.

By receiving this information including the indicative plans that are provided as part of this information package you confirm that you understand and accept the risks of working near Telstra's network and the importance of taking all the necessary steps to confirm the presence, alignments and various depths of Telstra's network. This in addition to, and not in replacement of, any duties and obligations you have under applicable law.

When working in the vicinity of a telecommunications plant you have a "Duty of Care" that must be observed. Please read and understand all the information and disclaimers provided below.

The Telstra network is complex and requires expert knowledge to interpret information, to identify and locate components, to pothole underground assets for validation and to safely work around assets without causing damage. If you are not an expert and/or qualified in these areas, then you must not attempt these activities. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers. Construction activities and/or any activities that potentially may impact on Telstra's assets must not commence without first undertaking these steps. Construction activities can include anything that involves breaking ground, potentially affecting Telstra assets.

If you are designing a project, it is recommended that you also undertake these steps to validate underground assets prior to committing to your design.

This Notice has been provided as a guide only and may not provide you with all the information that is required for you to determine what assets are on or near your site of interest. You will also need to collate and understand all information received from other Utilities and understand that some Utilities are not a part of the BYDA program and make your own enquiries as appropriate. It is the responsibility of the entities undertaking the works to protect Telstra's network during excavation / construction works.

Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose.

Telstra plans or other details are provided only for the use of the applicant, its servants, agents, or CERTLOC Certified Locating Organisation (CLO). The applicant must not give the plans or details to any parties other than these and must not generate profit from commercialising the plans or details.

Telstra, its servants or agents shall 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 Telstra against any claim or demand for any such loss or damage.

Please ensure Telstra plans and information provided always remains on-site throughout the inspection, location, and construction phase of any works.

Telstra plans are valid for 60 days after issue and must be replaced if required after the 60 days.

Data Extraction Fees

In some instances, a data extraction fee may be applicable for the supply of Telstra information. Typically, a data extraction fee may apply to large projects, planning and design requests or requests to be supplied in non-standard formats. For further details contact Telstra Planned Services.

Telstra does not accept any liability or responsibility for the performance of or advice given by a CERTLOC Certified Locating Organisation (CLO). Certification is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.

Neither the Certified Locating Organisation nor any of its employees are an employee or agent for Telstra. Telstra is not liable for any damage or loss caused by the Certified Locating Organisation or its employees.

Once all work is completed, the excavation should be reinstated with the same type of excavated material unless specified by Telstra.

The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

When using excavators and other machinery, also check the location of overhead power lines.

Workers and equipment must maintain safety exclusion zones around power lines

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. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. **FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK.** A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the assets are protected during construction works. The exact position of Telstra assets can only be validated by physically exposing them. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Privacy Note

Your information has been provided to Telstra by BYDA to enable Telstra to respond to your BYDA request. Telstra keeps your information in accordance with its privacy statement. You can obtain a copy at www.telstra.com.au/privacy or by calling us at 1800 039 059 (business hours only).

OPENING ELECTRONIC MAP ATTACHMENTS –

Telstra Cable Plans are generated automatically in either PDF or DWF file types.
Dependent on the site address and the size of area selected.
You may need to download and install free viewing software from the internet e.g.



DWF Map Files (all sizes over A3)
Autodesk Viewer (Internet Browser) <https://viewer.autodesk.com/> or
Autodesk Design Review <http://usa.autodesk.com/design-review/> for
DWF files. (Windows PC)



PDF Map Files (max size A3)
Adobe Acrobat Reader <http://get.adobe.com/reader/>



Telstra BYDA map related enquiries email
Telstra.Plans@team.telstra.com
1800 653 935 (AEST Business Hours only)



REPORT ANY DAMAGE TO THE TELSTRA NETWORK IMMEDIATELY
Report online - <https://www.telstra.com.au/forms/report-damage-to-telstra-equipment>
Ph: 13 22 03
If you receive a message asking for a phone or account number say:
“I don’t have one” then say “Report Damage” then press 1 to speak
to an operator.



Telstra New Connections / Disconnections
13 22 00



Telstra asset relocation enquiries: 1800 810 443 (AEST business
hours only).
NetworkIntegrity@team.telstra.com
<https://www.telstra.com.au/consumer-advice/digging-construction>




Telstra Aerial Assets Group (overhead network)
1800 047 909



CERTLOC Certified Locating Organisation (CLO)
certloc.com.au/locators/



	<p>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</p>	<p>Sequence Number: 245952924</p> <p>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.</p>
<p>TELSTRA LIMITED A.C.N. 086 174 781</p> <p>Generated On 14/10/2024 10:50:15</p>		

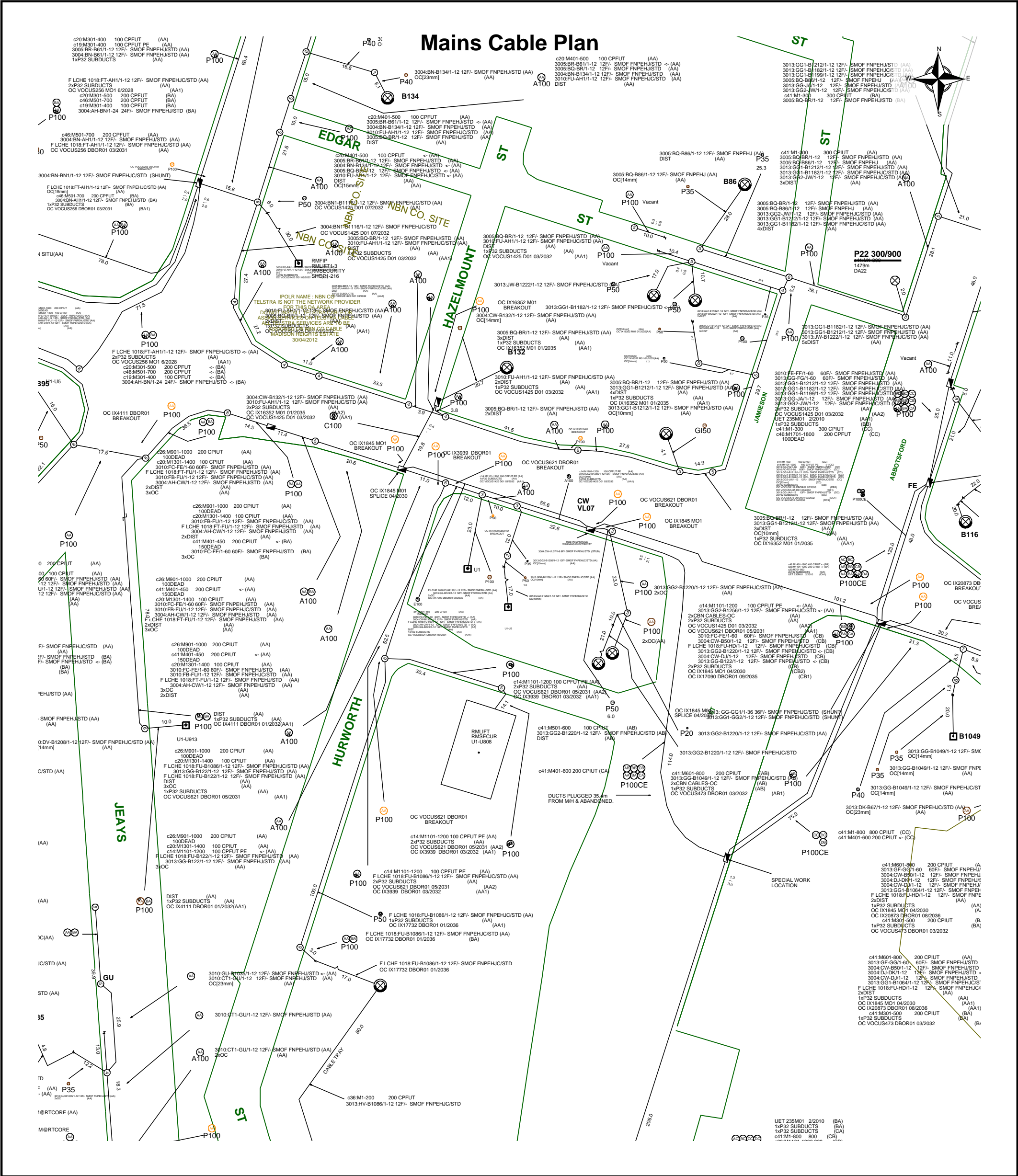
The above plan must be viewed in conjunction with the Mains Cable Plan on the following page


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.

Page 1 of 2





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: 245952924

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.

TELSTRA LIMITED A.C.N. 086 174 781

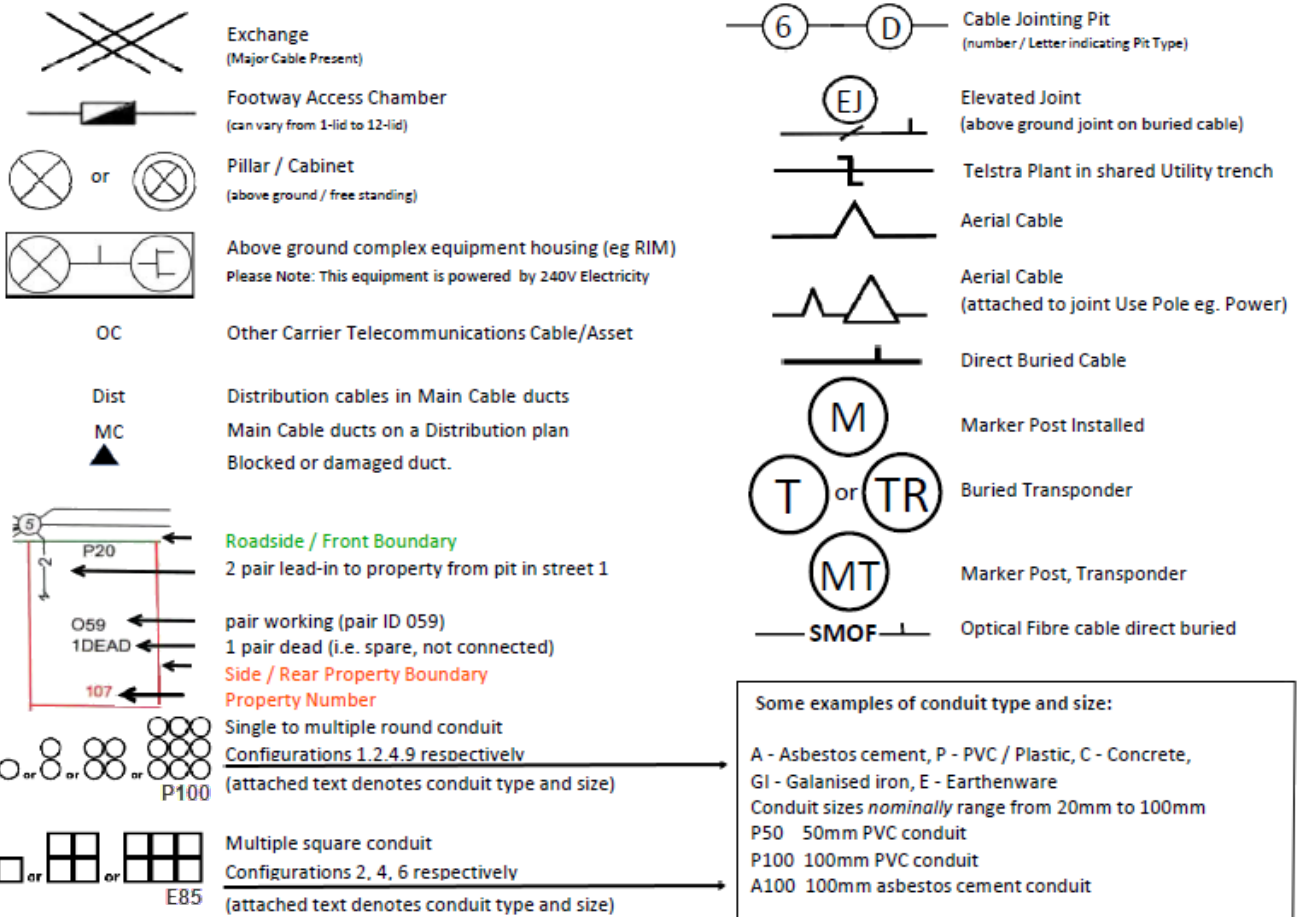
Generated On 14/10/2024 10:50:20

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.

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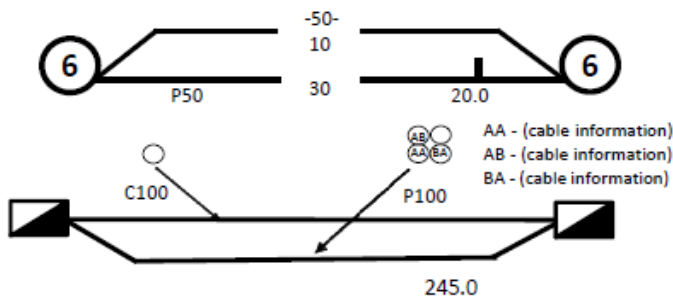
LEGEND



Some examples of conduit type and size:

A - Asbestos cement, P - PVC / Plastic, C - Concrete,
GI - Galvanised iron, E - Earthenware
Conduit sizes *nominally* range from 20mm to 100mm
P50 50mm PVC conduit
P100 100mm PVC conduit
A100 100mm asbestos cement conduit

Some Examples of how to read Telstra Plans



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, approximately 20.0m apart, with a direct buried 30-pair cable along the same route

Two separate conduit runs between two footway access chambers (manholes) approximately 245m apart A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along

Protect our Network:

by maintaining the following distances from our assets:

- 1.0m Mechanical Excavators, Farm Ploughing, Tree Removal
- 500mm Vibrating Plate or Wacker Packer Compactor
- 600mm Heavy Vehicle Traffic (over 3 tonnes) not to be driven across Telstra ducts or plant.
- 1.0m Jackhammers/Pneumatic Breakers
- 2.0m Boring Equipment (in-line, horizontal and vertical)

For more info contact a [CERTLOC Certified Locating Organisation \(CLO\)](#) or
Telstra Location Intelligence Team 1800 653 935

BYDA terms and conditions

Duty of care for everyone



Responsibilities – (When Working in the Vicinity of Energex Electrical Equipment)

Extreme care must be taken during non-mechanical or mechanical excavation as damage to Energex underground electrical equipment can lead to injury or death of workers or members of the public. Electrical equipment includes underground cables, conduits and other associated underground electrical equipment used for controlling, generating, supplying, transforming or transmitting electricity.

A person conducting a business or undertaking (PCBU) must ensure the person's business or undertaking is conducted in a way that is electrically safe. This includes:

- a) ensuring that all electrical equipment used in the conduct of the person's business or undertaking is electrically safe;
- b) if the person's business or undertaking includes the performance of electrical work, ensuring the electrical safety of all persons and property likely to be affected by the electrical work; and
- c) if the person's business or undertaking includes the performance of work, whether or not electrical work, involving contact with, or being near to, exposed parts, ensuring persons performing the work are electrically safe.

In addition, a PCBU at a workplace must ensure, so far as is reasonably practicable, that no person, plant or thing at the workplace comes within an unsafe distance of an underground electric line.

Workers and other persons must also take reasonable care for their own and other person's electrical safety. This includes complying, so far as is reasonably able, with any reasonable instructions given by Energex to ensure compliance with the [Electrical Safety Act 2002](#)

BYDA terms and conditions

Duty of care for everyone

The following matters must be considered when working near Energex electrical equipment:

The PCBU must ensure, so far as is reasonably practicable, that no person, plant or thing at the workplace comes within an unsafe distance of an underground electric line (see section 68 of the [Electrical Safety Regulation 2013](#))

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 protection of Energex electrical equipment.
2. It is the constructor's responsibility to:
 - a) Anticipate and request plans of Energex electrical equipment for a location at a reasonable time before construction begins.
 - b) Visually locate Energex electrical equipment by hand or vacuum excavation where construction activities may damage or interfere with Energex electrical equipment.
 - c) To notify Energex if the information provided is found to be not accurate or assets are found on site that are not recorded on the Energex BYDA plans.
 - d) Read and understand all the information and disclaimers provided.

Note: A constructor may include but not limited to a PCBU, Designer, Project Manager, Installer, Contractor or a Civil Contractor

3. Comply with applicable work health and safety and electrical safety codes of practice including but not limited to:
 - a) Working near overhead and underground electric lines – [Electrical safety codes of practice 2020](#)
 - b) Managing electrical risk in the workplace – [Electrical safety code of practice 2013](#)
 - c) Managing the risks of plant in the workplace – [Electrical safety code of practice 2013](#)
 - d) Excavation work – [Electrical safety code of practice 2013](#)

IMPORTANT NOTES:

- As the alignment and boundaries of roadways with other properties (and roads within roadways) frequently change, the alignments and boundaries contained within Energex 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 roadways have been added, the constructor should obtain confirmation of the actual position of Energex cables and pipelines under the roadways. In no case should the constructor rely on statements of third parties in relation to the position of Energex cables and pipelines. It is the applicant's responsibility to accurately locate all services as part of the design and/or prior to excavation.
- Energex does not provide information on private underground installations, including consumers' mains that may run from Energex mains onto private property. Assets located on private property are the responsibility of the owner for identification and location.
- Energex plans are circuit diagrams or pipe indication diagrams only and indicate the presence of plant in the general vicinity of the geographical area shown. Exact ground cover and alignments cannot be given with any certainty; as such levels can change over time.
- All underground conduits are presumed to contain asbestos. Refer to "Code of Practice for the Management and Control of Asbestos in the Workplace [NOHSC: 2018 (2005)] - https://www.safeworkaustralia.gov.au/system/files/documents/1702/codeofpracticeformanagementcontrolofasbestosintheworkplace_nohsc2018-2005
- Plans provided by Energex do not show the presence of any Overhead Network
- In addition to underground cables marked on attached plan there may be underground Earth Conductors in the vicinity of the nominated work area(s) that are not marked on the plans.
- There may also be other buried assets such as tanks for fluid filled cables that do not appear on GIS plots but are shown on detailed as constructed drawings.
- Being aware of your obligations in [s 304] Excavation work— underground essential services information under the [Work Health and Safety Regulation 2011](#), Chapter 6 Construction work, Part 6.3 Duties of person conducting business or undertaking. This includes but is not limited to taking reasonable steps to obtain the current information & providing this information to persons engaged to carry out the excavation work. For further information please refer to: - <http://www.legislation.qld.gov.au/LEGISLTN/SLs/2011/11SL240.pdf>
- Energex plans are designed to be printed in colour and as an A4 Landscape orientation

BYDA terms and conditions

Duty of care for everyone

Conditions – (When Working in the Vicinity of Energex Electrical Equipment)

Records:

The first step before any excavation commences is to obtain records of Energex plant in the vicinity of the work. For new work, records should be obtained during the planning and design stage. The records provided by Energex must 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.

Plans and or details provided by Energex are current for four weeks from the date of dispatch and should be disposed of by shredding or any other secure disposal method after use. A new BYDA enquiry must be made for proposed works/activities to be undertaken outside of the four-week period.

Energex retains copyright of all plans and details provided in connection with your request. Energex plans or other details are provided for the use of the applicant, its servants, or agents, and shall not be used for any unauthorised purpose. On receipt of BYDA plans and before commencing excavation work or similar activities near Energex's plant, check to see that it relates to the area you have requested and carefully locate this plant first to avoid damage. If you are unclear about any information contained in the plan, please contact Energex on the General Enquiries number listed above for further advice.

Energex, its servants or agents shall 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 Energex against any claim or demand for any such loss or damage.

The constructor is responsible for all plant damages when works commence prior to obtaining Energex plans, or failure to follow agreed instructions, or failure to demonstrate all reasonable measures were taken to prevent the damage once plans were received from Energex. Energex reserves all rights to recover compensation for loss or damage caused by interference or damage, including consequential loss and damages to its cable network, or other property.

NOTE: Where your proposed work location contains Energex 33kV or greater Underground cables please access the [Energex Working Near Underground Cables 33kV or Higher web page](#) for more information.

Location of Cables:

Examining the records is not sufficient, as reference points may change from the time of installation. Records must also be physically proven when working in close proximity to them. The exact location of plant likely to be affected shall be confirmed by use of an electronic cable and pipe locator followed by **careful hand or vacuum excavation to the level of cable protection cover strips or conduits**. When conducting locations, please be aware that **no** unauthorised access is permitted to Energex Assets– including Pits, Low Voltage Disconnection Boxes, Low Voltage Pillars or High Voltage Link Boxes.

Hand or vacuum excavation must be used in advance of excavators. In any case, where any doubt exists with respect to interpretation of cable records, contact Energex on the General Enquires number listed above for further advice.

If the constructor is unable to locate Energex underground assets within 5 metres of nominal plan locations, they should contact the Energex General Enquires number listed above for further advice.

If unknown cables or conduits (i.e. not shown on issued BYDA plans) are located during excavation:

1. Call the ELECTRICITY EMERGENCIES number listed above
2. Treat cables as if alive, post a person to keep all others clear of the excavation until Energex crew attend to make safe.
3. All work in the vicinity of damaged plant should cease and the area should be vacated until a clearance to continue work has been obtained from an Energex officer.

Electrical Cable Installation Methods:

Energex cables are installed with a variety of protection devices including:

- | | |
|---|---------------------------------------|
| 1. Clay paving bricks or tiles marked "Electricity" or similar (also unmarked) | 2. Concrete or PVC cover slabs |
| 3. PVC, A/C or fibro conduit, fibre reinforced concrete, iron or steel pipe | 4. Concrete encased PVC or steel pipe |
| 5. Thin plastic marker tape | 6. Large pipes housing multiple ducts |
| 7. Multiple duct systems, including earthenware or concrete 2-, 4-, and 6-way ducts and shamrocks | |

Note: Some cables are known to be buried without covers and cables may change depth or alignment along the route.

Excavating Near Cables:

For all work within 2.5 m of nominal location, the constructor is required to hand or vacuum excavate (pothole) and expose the plant, hence proving its exact location before work can commence.

Cable protection cover strips shall not be disturbed. Excavation below these cover strips, or into the surrounding backfill material is not permitted.

BYDA terms and conditions

Duty of care for everyone

Excavating Parallel to Cables:

If construction work is parallel to Energex cables, then hand or vacuum excavation (potholing) at least every 4 m is required to establish the location of all cables, hence confirming nominal locations before work can commence. *Generally, there is no restriction to excavations parallel to Energex cables to a depth not exceeding that of the cable. **Note: Cable depths & alignment may change suddenly.***

Separation from Cables:

Any service(s) must be located at the minimum separation as per the tables below:

Table 1. Minimum Separation Requirements for Underground Services Running Parallel with Energex Assets

(Minimum Separation required in mm)							
Voltage Level	Gas	Communication or TV	Water		Sanitary drainage		Storm Water
			≤DN 200	>DN200	≤DN 200	>DN 200	
LV	250	100	500	*1000	500	1000	500
HV		300					
*Contact Energex/council to obtain specific separation distances							

Table 2. Minimum Separation Requirements for Underground Services Crossing Energex Assets

(Minimum Separation required in mm)					
Voltage Level	Gas	Communication or TV	Water	Sanitary drainage	Storm Water
LV & HV	100	100	300	300	100

Where the above table does not list a separation requirement for a particular underground service then 300mm shall be used.

Excavating Across Cables:

The standard clearance between services shall be maintained as set down in Table 2 above. If the width or depth of the excavation is such that the cables will be exposed or unsupported, then Energex shall be contacted to determine whether the cables should be taken out of service, or whether they need to be protected or supported. In no case shall a cable cover be removed without approval. A cable cover may only be removed under the supervision of an Energex authorised representative. Protective cover strips when removed must be replaced under Energex supervision. Under no circumstances shall they be omitted to allow separation between Energex cables and other services.

Heavy Machinery Operation Over Cables:

Where heavy "Crawler" or "Vibration" type machinery is operated over the top of cables, a minimum cover of 450 mm to the cable protective cover mains must be maintained using load bearing protection whilst the machinery is in operation. For sensitive cables (i.e. 33 and 110kV fluid and gas filled cables), there may be additional constraints placed on vibration and settlement by Energex.

Directional Boring Near Cables:

When boring parallel to cables, it is essential that trial holes are carefully hand or vacuum excavated at regular intervals to prove the actual location of the conduits/cables before using boring machinery. Where it is required to bore across the line of cables, the actual location of the cables shall first be proven by hand or vacuum excavation. A trench shall be excavated one metre from the side of the cables where the auger will approach to ensure a minimum clearance of 500mm above and below all LV, 11kV, 33kV & 110/132kV cables shall be maintained.

Explosives:

Explosives must not be used within 10 metres of cables, unless an engineering report is provided indicating that no damage will be sustained. Clearances should be obtained from Energex's Planning Engineer for use of explosives in the vicinity of Energex cables.

Damage Reporting:

All damage to cables, conduits and pipes must be reported 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.

If any Damaged conductor is found:

1. Call the ELECTRICITY EMERGENCIES number listed above
2. Treat cables as if alive, post a person to keep all others clear of the excavation until Energex crew attend to make safe.
3. All work in the vicinity of damaged plant should cease and the area should be vacated until a clearance to continue work has been obtained from an Energex officer.

BYDA terms and conditions

Duty of care for everyone

Plant Solutions and Assistance:

If plant location plans or visual location of Energex plant by hand or vacuum excavation reveals that the location of Energex plant is situated wholly or partly where the developer or constructor plans to work, then Energex shall be contacted to assist with your development of possible engineering solutions.

If Energex relocation or protection works are part of the agreed solution, then payment to Energex for the cost of this work shall be the responsibility of the principal developer or constructor. Energex will provide an estimated quotation for work on receipt of the developer's or constructor's order number before work proceeds.

It will be necessary for the developer or constructor to provide Energex with a written Work Method Statement for all works in the vicinity of or involving Energex plant. This Work Method Statement should form part of the tendering documentation and work instruction.

Vacuum Excavations (Hydro Vac)

When operating hydro vac equipment to excavate in vicinity of underground electrical assets (cables/conduits):

Fitted with:

- Nonconductive (neoprene rubber or equivalent) vacuum (suction) hose.
- Oscillating nozzle on pressure wand with water pressure adjusted to not exceeding 2000 psi.

Maintain a minimum distance of 200mm between end of pressure wand and underground electrical assets. DO NOT insert the pressure wand jet directly into subsoil.

Ensure pressure wand is not directly aimed at underground electrical assets (cables/conduits).

Safety Notices (Underground Work)

There is no exclusion zone applicable for underground electrical assets – conduits, cables (unless cable is damaged, or conductors or terminations have been exposed) therefore there is **no requirement for a written Safety Advice** to be obtained provided the work location does not contain overhead electric lines or other exposed live parts.

Further information on Working Safely around Energex assets:

https://www.energex.com.au/_data/assets/pdf_file/0010/211231/Working-near-OH-UG-lines-BS001405R107ver2.pdf

Thank you for your interest in maintaining a safe and secure Electricity Distribution network. Energex welcomes your feedback on this document via email to dbyd@energex.com.au.

General enquiries (7am - 5pm Mon to Fri)

13 12 53

Life threatening emergencies only triple zero (000) or

13 19 62

E: custserve@energex.com.au

W: energex.com.au/lualmap

E: dbyd@energex.com.au

ABN: 40 078 849 055

To re-submit or change the nominated search area please visit www.BYDA.com.au



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



BYDA

Sequence: 245952926

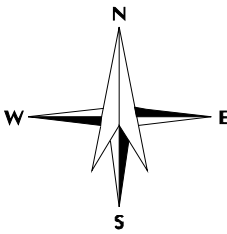
Date: 14/10/2024

Scale: 1:1025

OVERVIEW

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

AS5488 Category "D" Plan



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.

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.

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

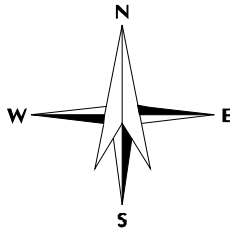


BYDA

Sequence: 245952926
Date: 14/10/2024
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



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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.

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

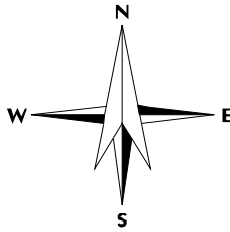


BYDA

Sequence: 245952926
Date: 14/10/2024
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



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.

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.



BYDA SYMBOLOLOGY LEGEND

	Cross Bonding Link Box - Critical		Planned Cross Bonding Link Box - New/Updated
	Disconnect Box - Critical		Planned Cross Bonding Link Box - Remove
	Ring Main Unit		Planned Disconnect Box - New/Updated
	Distribution Pad Substation		Planned Disconnect Box - Remove
	Earth		Planned Distribution Pad Substation - New/Updated
	Remote Earth		Planned Distribution Pad Substation - Remove
	Cable Marker		Planned Distribution Ground Substation - New/Updated
	Handhole		Planned Distribution Ground Substation - Remove
	Manhole		Planned Ring Main Unit - New/Updated
	Commercial Industrial Pillar		Planned Ring Main Unit - Remove
	Distribution Cabinet		Planned Earth - New/Updated
	Link Pillar		Planned Earth - Remove
	Service Pillar		Planned Cable Marker - New/Updated
	Feeder Pillar		Planned Cable Marker - Remove
	Pole		Planned Remote Earth - New/Updated
	Streetlight Column		Planned Remote Earth - Remove
	Communication Junction Pillar		Planned Underground Warning Post - New/Updated
	Communication Pit		Planned Underground Warning Post - Remove
	Fibre Patch Panel		Planned Pilot Cubicle - New/Updated
	Pilot Cubicle		Planned Pilot Cubicle - Remove
	Underground Asset 33kV and above		Planned Fibre Patch Panel - New/Updated
	Underground Asset below 33kV		Planned Fibre Patch Panel - Remove
	Underground Conduit with or without cable		Planned Commercial Industrial Pillar - New/Updated
	Pit		Planned Commercial Industrial Pillar - Remove
	Communication Boundary		Planned Distribution Cabinet - New/Updated
	Reserve (RE)		Planned Distribution Cabinet - Remove
	Water Resource (WR)		Planned Link Pillar - New/Updated
	Cadastral Parcels		Planned Link Pillar - Remove
	Planned Jointing Pit - New/Updated		Planned Service Pillar - New/Updated
	Planned Jointing Pit - Remove		Planned Service Pillar - Remove
	Planned Communication Boundary - New/Updated		Planned Pole - New/Updated
	Planned Communication Boundary - Remove		Planned Pole - Remove
	Planned Tunnel/Trench/Bore - New/Updated		Planned Manhole - New/Updated
	Planned Tunnel/Trench/Bore - Remove		Planned Manhole - Remove
			Planned Streetlight Column - New/Updated
			Planned Streetlight Column - Remove
			Planned Handhole - New/Updated
			Planned Handhole - Remove
			Planned Communication Junction Pillar - New/Updated
			Planned Communication Junction Pillar - Remove

Important Information

Disclaimer

All Urban Utilities' records, data and information supplied via BYDA ("**Data**") is **indicative** only. You agree that any Data supplied to you has been or will be provided only for your convenience and has not been and will not be relied upon by you for any purpose.

You also agree that Urban Utilities does not assume any responsibility or duty of care in respect of, or warrant, guarantee or make any representation as to the Data (including its accuracy, reliability, currency or suitability).

Because the location of Urban Utilities' infrastructure shown on the Data is approximate only, you must first physically locate the infrastructure by utilising relevant site detection methodologies prior to performing any works or undertaking any activities near or adjacent to infrastructure. Possible site detection methodologies include hand digging, potholing, trenching and/or probing. You are solely responsible for the selection of appropriate site detection methodologies at all times.

To the fullest extent permitted by law, Urban Utilities will not be liable to you in contract, tort, equity, under statute or otherwise arising from or in connection with the provision of any Data to you via BYDA.

Compliance with laws

There may be both indicated and unmarked hazards, dangers or encumbrances, including underground asbestos pipes and abandoned mains within your nominated search area. You are solely responsible for ensuring that appropriate care is taken at all times and that you comply with all mandatory requirements relating to such matters, including in relation to workplace health and safety.

Damaged Infrastructure

Please note that it is an offence under Section 192 of the *Water Supply (Safety and Reliability) Act 2008* to interfere with our infrastructure without Urban Utilities' written consent.

You may be liable to Urban Utilities for any loss of or damage to our infrastructure, together with any consequential or indirect loss or damage (including without limitation, loss of use, loss of profits or loss of revenue) arising from or in connection with any interference with Urban Utilities' infrastructure by you or any other person for which you are legally responsible.

Any damage to Urban Utilities' Infrastructure must be reported immediately to the (24 Hours) Faults and Emergencies Team on 13 23 64.

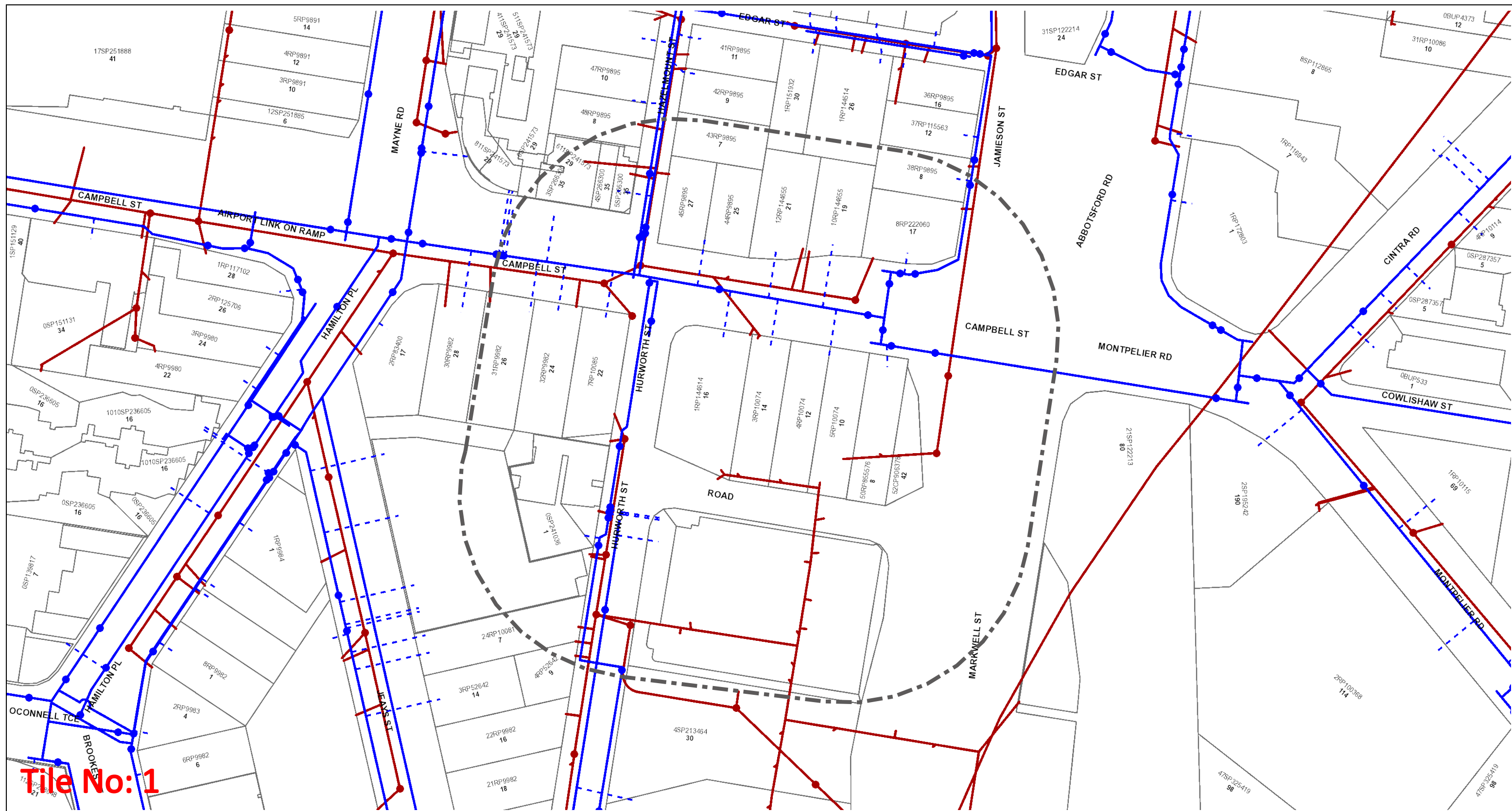
Links

Technical Standards: <https://urbanutilities.com.au/development/help-and-advice/standards-and-guidelines>

Copyright

All Data is copyright.

Urban Utilities - Water, Recycled Water and Sewer Infrastructure



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

BYDA Reference No: **245952927**

Date BYDA Ref Received: 14/10/2024

Date BYDA Job to Commence: 21/10/2024

Date BYDA Map Produced: 14/10/2024

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

Sewer

- Infrastructure
- ◆ Major Infrastructure
- Network Pipelines
- ▨ Network Structures

Water

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



Map Scale
1:1000

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

The plans are indicative and approximate only and provided without warranties of any kind, express or implied including in relation to accuracy, completeness, correctness, currency or fitness for purpose.

Urban Utilities takes no responsibility and accepts no liability for any loss, damage, costs or liability that may be incurred by any person acting in reliance on the information provided on the plans.

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

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

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

www.urbanutilities.com.au

ABN 86 673 835 011





Powerlink Queensland
33 Harold Street,
Virginia, Qld, 4014
Phone: (07) 3866 1313
14/10/2024

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

Email: cchea@adgce.com

Phone: +61451693495

Sequence No 245952928

Enquiry Location: 10 - 16 Campbell Street Bowen Hills

Enquiry Date: 14/10/2024 09:43

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

Powerlink Queensland
33 Harold Street, Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3866 1313
Emergencies all hours: 1800 353 031
www.powerlink.com.au



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 damage, 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:

<u>Region name</u>	<u>Contact’s name</u>	<u>Telephone number</u>	<u>Mobile number</u>
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 locator 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 work can commence. Generally, no restrictions are placed on excavations parallel to Powerlink's cables to a depth not 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 whether they 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 damage 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.

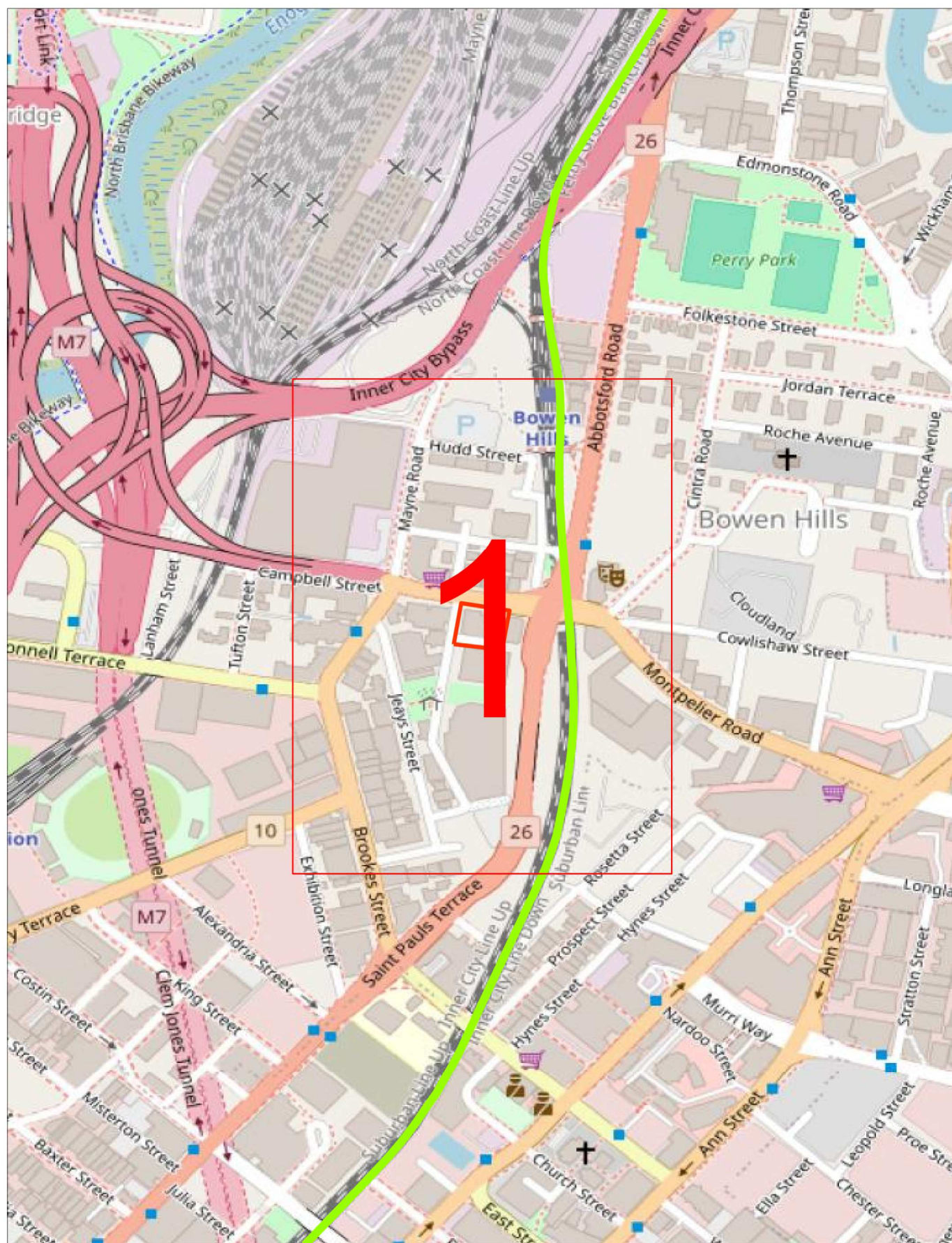
If detailed engineering assessment work, plant relocation, or protection works are part of the solution offered by Powerlink, then the cost of this work (the technical assessment and design, as well as the solution implementation cost) is recoverable by Powerlink from the principal developer or constructor. 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.



Overview Map

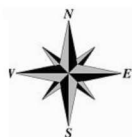
Enquiry No: 245952928

10 - 16 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:

0 0.05km

Imagery sourced from Open StreetMaps

1 Detail Map Area

Powerlink Substation

Other Substation

Possible Comms

High Voltage Cable

Pilot Cable

Optic Fibre

Decommissioned

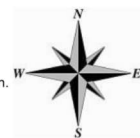
Affected BYDA Work Area Symbols





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.







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





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