NORTHROP



CIVIL ENGINEERING REPORT: STORMWATER, INFRASTRUCTURE & SERVICES

1677 Beenleigh Road Mixed Use Development

1677 Beenleigh Road, Underwood

PREPARED FOR
VIMG
Level 13, 46 Edward St
BRISBANE CITY QLD 4000

Ref: BN191596
Rev: D
Date: 04.12.2019

Disclaimer

This report has been prepared on behalf of VIMG and for the exclusive use of and is subject to and issued in accordance with the agreement between VIMG and Northrop Consulting Engineers. Northrop Consulting Engineers accepts no liability or responsibility whatsoever for it in respect of any use of or reliance upon this report by any third party. Copying this report without the permission of VIMG and Northrop Consulting Engineers is not permitted.

Document Control

Parameter	Description
Prepared for:	VIMG
Project Name:	1677 Beenleigh Road Mixed Use Development
Site Address:	1677 Beenleigh Road, Underwood
File Reference:	BN191596_CER001_D_1677 Beenleigh Road
Revision:	D
Date:	04.12.2019
Approved By:	Mitch Blyth
Approver Signature:	

Revisions

Rev	Date	Description	Prepared	Reviewed	Approved
A	16/09/2019	DRAFT for discussion	SD	CP	-
B	17/09/2019	DRAFT for discussion	SD	CP	-
C	17/09/2019	DRAFT for discussion	SD	CP	-
D	04/12/2019	For Preliminary Approval	AT	CP	MB
-	-		-	-	-

Table of Contents

Glossary 5

Code Response Tables 5

Executive Summary 6

1. Introduction 8

1.1. Related Reports and Documents 8

2. Site Context and Existing Characteristics 9

3. Proposed Development / Lot Configuration 10

4. Earthworks 11

4.1. Bulk Earthworks 11

4.2. Fire Ant Assessment 11

4.3. Acid Sulphate Soils Assessment 12

5. Roads and Access 13

6. Stormwater Drainage 15

6.1. Existing Stormwater Drainage Scheme 15

6.2. Proposed Stormwater Management Objectives 15

6.3. Proposed Stormwater Management Strategy 15

6.3.1. Stormwater Quantity 16

6.3.2. Stormwater Quality 16

6.4. Flood Management 17

7. Water Supply 18

7.1. Existing Water Supply Infrastructure 18

7.2. Proposed Water Supply Infrastructure 18

7.2.1. Internal Water Network 18

7.2.2. Fire System 19

8. Sewerage Reticulation 20

8.1. Existing Sewer Reticulation 20

8.2. Proposed Sewer Reticulation 20

9. Electrical Supply 21

10. Gas Supply 22

11. Telecommunications 23

12. Conclusion 24

Figures

Figure 2-1 - Site Locality (Wolter Consulting Group, 2019) 9
Figure 3-1 - Proposed Lot Uses 10
Figure 4-1 Landslide Hazard and Steep Slope Area Overlay Map (Logan City Council PD Hub, 2019) 11
Figure 5-1 Preliminary Stage Site Access (GTA Consultants) 13
Figure 5-2 Stage 2 Internal Road Layout (GTA Consultants) 14
Figure 5-3 - Proposed Site Access and Final Internal Road Layout (GTA Consultants) 14
Figure 6-1 - Schematic of Stormwater Management Strategy 16
Figure 7-1 Proposed internal water main 18
Figure 8-1 Internal Sewer Reticulation 20

Tables

Table 1-1 - Property Details 8
Table 6-1 - Summary of Water Quality Offset Contributions 17

Appendices

Appendix A – Civil Engineering Plans 26
Appendix B – Architectural Drawings 27
Appendix C – As Constructed Plans 28
Appendix D – Detailed Survey 29
Appendix E – Dial Before You Dig Information 30
Appendix F – Floodwise Property Report 31
Appendix G – Code Response Tables 32
Appendix H – Logan City Council Correspondence 33

Glossary

Term	Definition
ARI	Average Recurrence Interval
CER	Civil Engineering Report
ESCP	Erosions and Sediment Control Plan
LCC	Logan City Council
LPOD	Lawful Point of Discharge
QUDM	Queensland Urban Drainage Manual
SQID	Stormwater Quality Improvement Device
UAR	Urbane Access Road
WBD	Water By Design

Code Response Tables

The site is subject to several property constrains as identified in Councils overlay zoning (Refer to Appendix F). Below is a summary of the overlay constraints identified for the site relevant to this report. Code response table is included in Appendix E

Overlay Maps Category	Comment
Acid Sulfate Soils	Refer to Section 4.
Filling and Excavation Code	Refer to Section 4.1.
Stormwater Code	Refer to Section 6
Infrastructure Design Code	Refer to Section 3, 5, 6, 7, 8, 9, 10 and 11.

Executive Summary

Northrop Consulting Engineers Pty Ltd (Northrop) have been engaged by VIMG to prepare a Civil Engineering Report (Stormwater, Infrastructure & Services) for a Preliminary Approval submission to Logan City Council (Council) and any nominated referral agency. The Mixed-Use Development is located at 1677 Beenleigh Road, Underwood (the site) and proposes to reconfigure the site into five mixed-use superlots, open space and internal access road corridor, with associated services & access easements (as required).

This Civil Engineering Report supports the application for Preliminary Approval also including a variation request for the site. The works described within addresses the concept design for access (roadworks) as well as civil services requirements to connect the proposed development to the external network in accordance with authority guidelines.

The Preliminary Approval also including a variation request envisages the site be redeveloped for the following uses:

- Hotel inclusive of short-term accommodation
- Health care service (Medical centre)
- Shop (Chemist)
- Food and drink outlet (Café)
- Multiple dwellings (Townhouses)
- Residential facility
- Retirement aged facility

For further information, preliminary yield data for each use and details for variation requests seeking changes from the planning scheme (for the subject site), please refer to town planning report by Mecone and architectural drawings by Arkhefield. Following Preliminary Approval, and once layouts for each use are developed, future Material Change of Use (MCU) applications for each development lot will need to consider the recommendations within this Civil Engineering Report as well as future Engineering studies and designs suitable to support future MCU Development Applications.

Key outcomes from the Civil Engineering study completed by Northrop during development of this Civil Engineering Report are;

- The site is not impacted by sources of Flooding (River nor Overland Flow)
- The site, in the existing condition, features primary access onto Beenleigh Road. Refer to Traffic Management Plan by GTA for traffic modelling and intersection upgrade requirements in relation to the development of the site
- Access to lots will be via an internal driveway (common property) featuring a concrete pavement, with kerb and channel and 2-way crossfall
- The proposed future use for the site will require filling /excavation and associated retaining. Concept earthworks & retaining plans are shown within Appendix A, though works will be subject to future Development Application assessment as well as subsequently Operational Works assessment
- The site features large existing retaining walls on the eastern boundary. These retaining walls are proposed to be kept as part of the future development sites that interfaces with the eastern boundary though will be subject to future structural engineering investigation/study to inform any rectification requirements
- The existing site features multiple Lawful Points of Discharge (LPODs) connecting to in-ground drainage infrastructure in the north (Beenleigh Road) and east (existing commercial site). In the developed case we have maintained both LPODs, with the primary LPOD discharging to Beenleigh Road infrastructure via proposed in-ground drainage infrastructure running under the access driveway – refer to Concept

Servicing Plans as shown within Appendix A. A Preliminary DRAINS model has been completed, which nominates a Site Storage Requirement (SSR) per hectare for all superlots. Future MCU applications will need to perform their own study of the drainage network to ensure non-worsening at the Beenleigh Road corridor.

- Water Quality treatment objectives in relation to the developed site will be satisfied via payment of the contribution payment to local Council in lieu of implementing runoff treatment devices
- Sewer and Water, in the existing condition, connect to Beenleigh Road. In the proposed case, all lots will connect to Council water & sewer reticulation that will be extended into the site (within associated authority easements) in the common property corridor – refer to concept servicing plans as shown within Appendix A.
- Future MCU applications, once layout and associated yield data is known, may require sewer & water network analysis modelling and reporting to be completed to ascertain scope of external sewer/water network upgrades (if any).
- Connection to existing electrical infrastructure surrounding the site will be made via underground cables on Beenleigh road.
- Existing gas infrastructure in the vicinity of the site was not encountered in the preliminary investigations informing this report.
- Connection to existing telecommunications infrastructure surrounding the site will be made via underground cables on Beenleigh Road.

1. Introduction

Northrop Consulting Engineers Pty Ltd (Northrop) have been engaged by VIMG to develop a Civil Engineering Report (Stormwater, Infrastructure & Services) in support of a Preliminary Approval submission to Logan City Council (Council) and any nominated referral agencies. The proposed Mixed-Use Development is located at 1677 Beenleigh Road, Underwood, the full site details are located in Table 1-1 below. The development proposes to reconfigure the site into five mixed-use superlots, open space and internal access road corridor.

The purpose of this report is to provide advice on the engineering servicing strategy for the proposed development regarding earthworks, roadworks, stormwater management (quality, quantity and flooding), sewerage, water supply, electricity, communications and gas. The required infrastructure will be subject to the conditions attached to the Development Approval to be provided by Council and any nominated referral agencies.

Table 1-1 - Property Details

Category	Description
Site Address	1677 Beenleigh Road, Underwood
Lot Title	Lot 8 on RP157306
Total Site Area	97,830 m^2
Proposed Land Use	Mixed-Use Development

1.1. Related Reports and Documents

This report is to be read in conjunction with the following supporting and reference documents:

- Civil Design Drawings by Northrop within Appendix A
- Architectural Drawings by Arkhefield within Appendix B
- Detailed Survey by Wolter Consulting Group within Appendix D
- Planning Report by Mecone

2. Site Context and Existing Characteristics

The subject site is located at 1677 Beenleigh Road, Underwood. The site is currently bound by:

- Beenleigh Road to the North
- An existing Commercial development to the East
- Residential properties along the Western and Southern boundary

The site is currently developed, comprising primarily of warehouses with associated loading zones, car parking and some vegetation. The site generally falls north with slopes varying from 1-10%. Figure 2-1 below illustrates the site location and existing site characteristics.



Figure 2-1 - Site Locality (Wolter Consulting Group, 2019)

3. Proposed Development / Lot Configuration

The Mixed-Use Development proposes to reconfigure the site into five mixed-use superlots, open space and internal access road corridor. The proposed Plan of Subdivision shown in Figure 3-1 proposes the following uses within the proposed development for the Preliminary Approval:

- Hotel inclusive of Short-term Accommodation
- Health care service (Medical centre)
- Shop (Chemist)
- Food and drink outlet (Café)
- Multiple dwellings (Townhouses)
- Residential facility
- Retirement aged facility

For further information, preliminary yield data for each use and details for Variation Requests seeking changes from the Planning Scheme (for the subject site), please refer to Town Planning Report by Mecone and Architectural Drawings by Arkhefield. Following Preliminary Approval, and once layouts for each use are developed, future Material Change of Use (MCU) applications for each development lot will need to consider the recommendations within this Civil Engineering Report as well as future engineering studies.

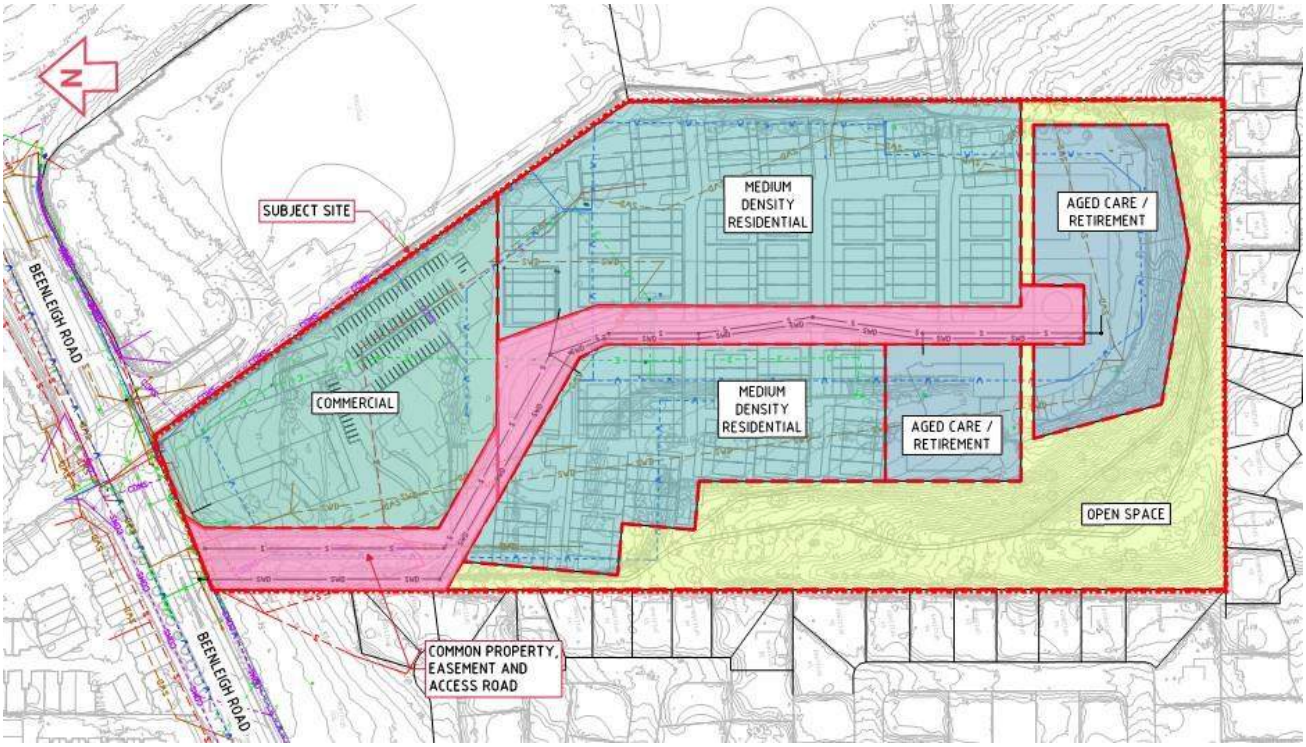


Figure 3-1 - Proposed Lot Uses

4. Earthworks

4.1. Bulk Earthworks

The development will require bulk earthworks cut/fill operations to achieve the desired surface levels to accommodate for the development and ensure it interfaces with the existing road reserves and adjacent properties.

The southern and western extents of the site are largely covered by the Landslide Hazard and Steep Slope Overlays on the LCC Overlap maps (see Figure 4-1 below). The area shaded below falls within Landslide hazard and steep slope area of '*Equal to or greater than 15 percent slope hazard*'. A geotechnical report will be required in the areas where works are proposed in the overlay areas on the site.

A maximum retaining wall height of 3.0m, incorporating 1.0m benching will be considered in accordance with the LCC Planning Scheme Policy 5.

Further preliminary bulk earthworks & retaining designs will be complete as part of future MCU applications and detailed bulk earthwork & retaining modelling will be undertaken as part of future Operational Works (OPW) applications.



Figure 4-1 Landslide Hazard and Steep Slope Area Overlay Map (Logan City Council PD Hub, 2019)

4.2. Fire Ant Assessment

The development has been mapped in Zone 2 according to the Queensland Government's Bio-Security QLD mapping. This is a high level of risk, and any soils or cleared vegetation leaving the site will have to comply with Biosecurity Queensland's requirements. Queensland Government can be contacted on 13 25 23 for further information in relation to Fire Ant Management.

4.3. Acid Sulphate Soils Assessment

Logan's City Council's Acid Sulphate Soils mapping indicate there is a small area of acid sulphate soils on the site. This is expected to be an anomaly since there is no acid sulphate soils surrounding and the site is not below 5m AHD.

5. Roads and Access

The development proposes to expand the existing access from Beenleigh Road currently servicing the site. The first stage of development will maintain the existing access to the site and utilise the existing internal circulation road while the ultimate pavement for future stages will be constructed (shaded in red below in Figure 5-1).

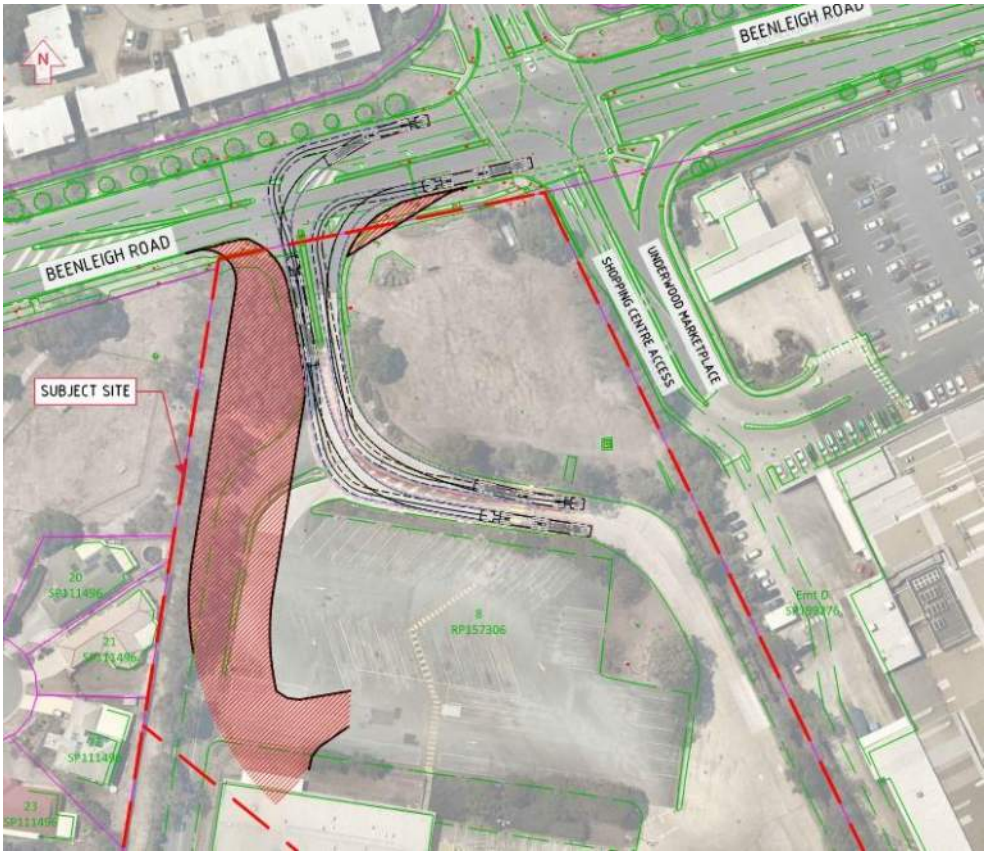


Figure 5-1 Preliminary Stage Site Access (GTA Consultants)

The existing western circulation road will be used to provide B-Double access for Stage 2 of the development. The design vehicle swept path and internal layout for stage 2 is shown in Figure 5-2. The final primary access layout is shown in Figure 5-3. The new access will be designed in accordance with section 3.4 of Planning Scheme Policy 5 and will provide minimum pavement widths, verge profile, etc. in accordance with the standard. The access arrangement will also ensure the verge width is maintained for the site frontage along Beenleigh Road.

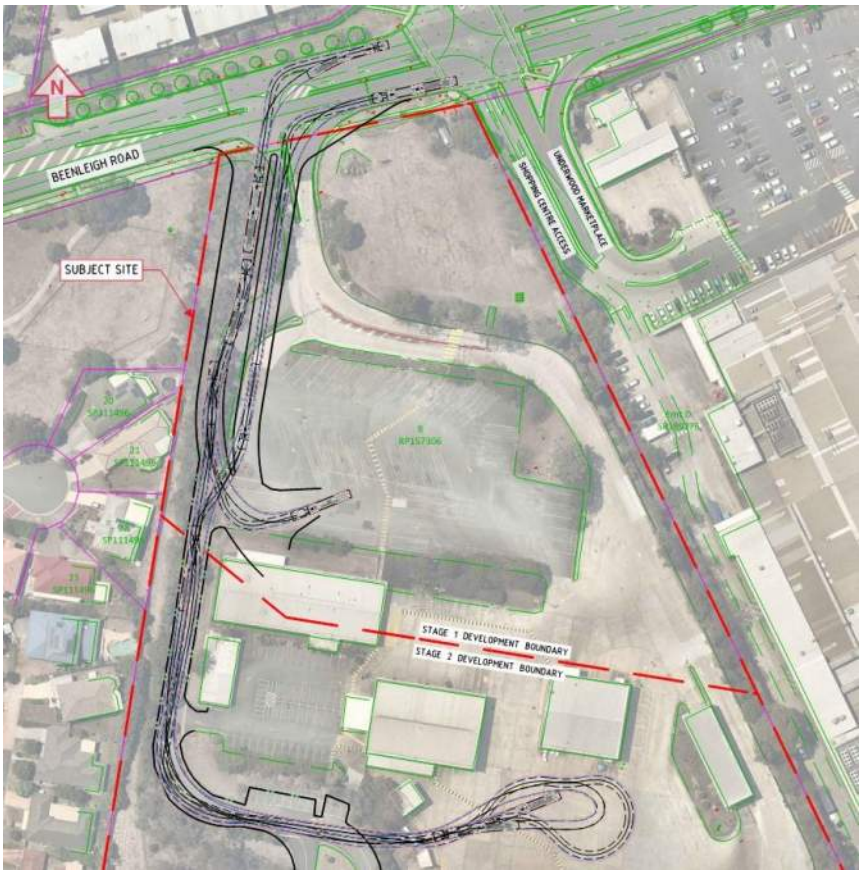


Figure 5-2 Stage 2 Internal Road Layout (GTA Consultants)



Figure 5-3 - Proposed Site Access and Final Internal Road Layout (GTA Consultants)

6. Stormwater Drainage

6.1. Existing Stormwater Drainage Scheme

The subject site generally grades from south to north at slopes ranging from 1-10% towards the northern corner of the site. The existing lot currently comprises of a single warehouse, loading zones, car parking with sparsely vegetated land and trees with private internal drainage system.

The existing lawful point of discharge for the site is located along the northern boundary of the site and an easement to the east of the site. A majority of the runoff is captured and discharged to existing stormwater manholes location on Beenleigh Road which is the primary lawful point of discharge. The secondary lawful point of discharge is a smaller system that connects into the adjacent commercial development (Easement C SP257567, located within Lot 1 SP257567).

6.2. Proposed Stormwater Management Objectives

The stormwater management objectives that apply to the site have been defined in accordance with QUDM and The Logan Planning Scheme 2015. The stormwater objectives are:

- Avoid the creation of nuisance flow or hazard problems
- Protect the quality of surface and ground waters during construction and operation of new development
- Maintain the natural hydrologic behaviour of catchments
- Protect existing natural features and ecological processes
- Integrate stormwater management infrastructure carefully in the urban and natural landscape.

The achievement of these objectives is summarised in the following section of this report.

6.3. Proposed Stormwater Management Strategy

The overall stormwater management strategy for the proposed development will comprise of lot-based detention systems designed to ensure non-worsening at the two discharge points for the site. The OSD requirements have been determined at a catchment-wide scale. It is expected that all future MCU applications for every individual Superlot will need to perform their own study of the drainage network to ensure non-worsening to the external stormwater network.

The proposed development will maintain both lawful discharge points outlined in Section 6.1. The drainage system on Beenleigh Road fronting the site will be reconfigured to accommodate one single pipe connection from the development. The single pipe connection will be located within the internal access road corridor that will convey a majority of the site flows.

The secondary point of discharge will remain unchanged, however the internal drainage towards this discharge point will be modified to accommodate the proposed development within the adjacent medium-density lot. It is expected the internal drainage design and configuration will be subject to future MCU application and detailed design.

Figure 6-1 below provides a schematic of the proposed stormwater management strategy and indicative location of stormwater infrastructure.

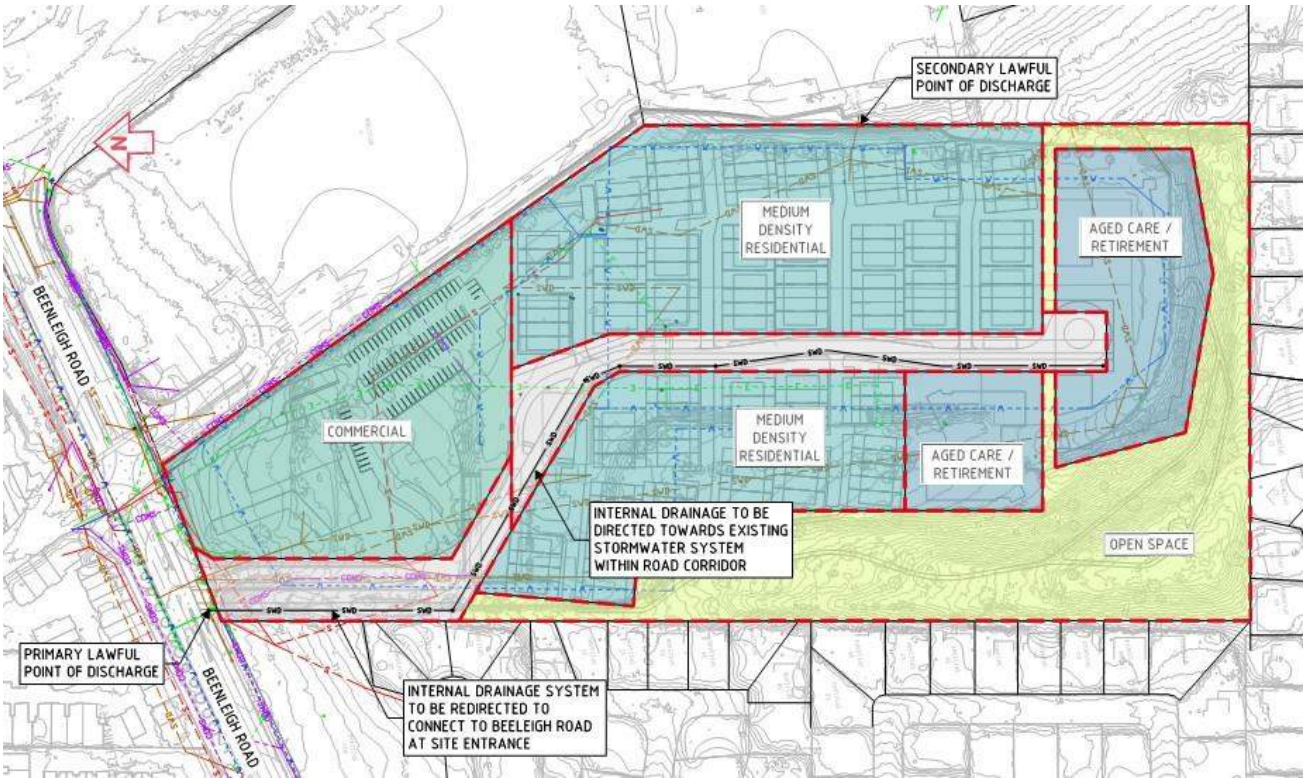


Figure 6-1 - Schematic of Stormwater Management Strategy

6.3.1. Stormwater Quantity

A conceptual DRAINS model has been prepared to assess non-worsening within the Beenleigh Road corridor and at the site entrance. The existing model has considered the internal and external stormwater system up to the ultimate discharge point into trunk concrete channels approaching culverts crossing beneath Logan Road, located approximately 200m east of the site.

The proposed model has been prepared with the internal drainage system modelled conceptually to mimic the hydraulic characteristic of the ultimate development, including provision for lot-based detention systems which has been modelled as a lumped approach.

The total detention volume required for the site is 2,080m^3. This detention volume has been sized within the DRAINS model and assessed against the existing model to ensure non-worsening at both lawful points of discharge for the site. The total detention volume has been broken down to an indicative site storage requirement (SSR) per hectare of 315m^3/Ha. It is expected that all future superlot MCU applications will need to provide this SSR to ensure non-worsening in the ultimate developed scenario. Future MCU applications will need to perform their own study of the drainage network to ensure non-worsening at the Beenleigh Road corridor.

6.3.2. Stormwater Quality

Operational phase stormwater quality infrastructure is not proposed for the development. The subject site falls within the catchment for monetary contributions for stormwater quality in lieu of on-site stormwater quality infrastructure. The contribution requirements for the site are summarised in Table 6-1 and will be claimed for the development.

Table 6-1 - Summary of Water Quality Offset Contributions

Land Use Type	Offset Amount
Residential	$54,000 / ha
Commercial / Industrial	$57,600 / ha

6.4. Flood Management

The site does not fall within a flood overlay and is not impacted by flooding in the vicinity of the site.

7. Water Supply

7.1. Existing Water Supply Infrastructure

The following existing water mains have been identified near the site based on detailed site survey (refer Appendix D), DBYD search (Refer to Appendix E):

- DN225mm ductile iron water reticulation main located on Beenleigh Road, along the Northern boundary

7.2. Proposed Water Supply Infrastructure

Logan Water has advised that 800 Equivalent Persons (EP's) can be serviced from the existing water network without any augmentations.

The preliminary strategy involves connecting all lots to Council water reticulation. The Council reticulation system will extend into the site within a 6.0m wide easement in favour of Council (shown below in pink) located within the Common Property corridor – refer to Concept Servicing Plans as shown within Appendix A.

Additional metered connections for all proposed lots will be required. Each lot will have its own water service from the extended Council main with a water meter assembly within the boundary of each proposed lot. Locations of individual lot water services will be determined in future MCU applications.

Future MCU applications, once layout and associated yield data is known, will require water network analysis modelling and reporting to be completed to ascertain scope of external water network upgrades (if any).

The indicative location of the water main within the proposed easement along internal access road is shown in Figure 7-1.

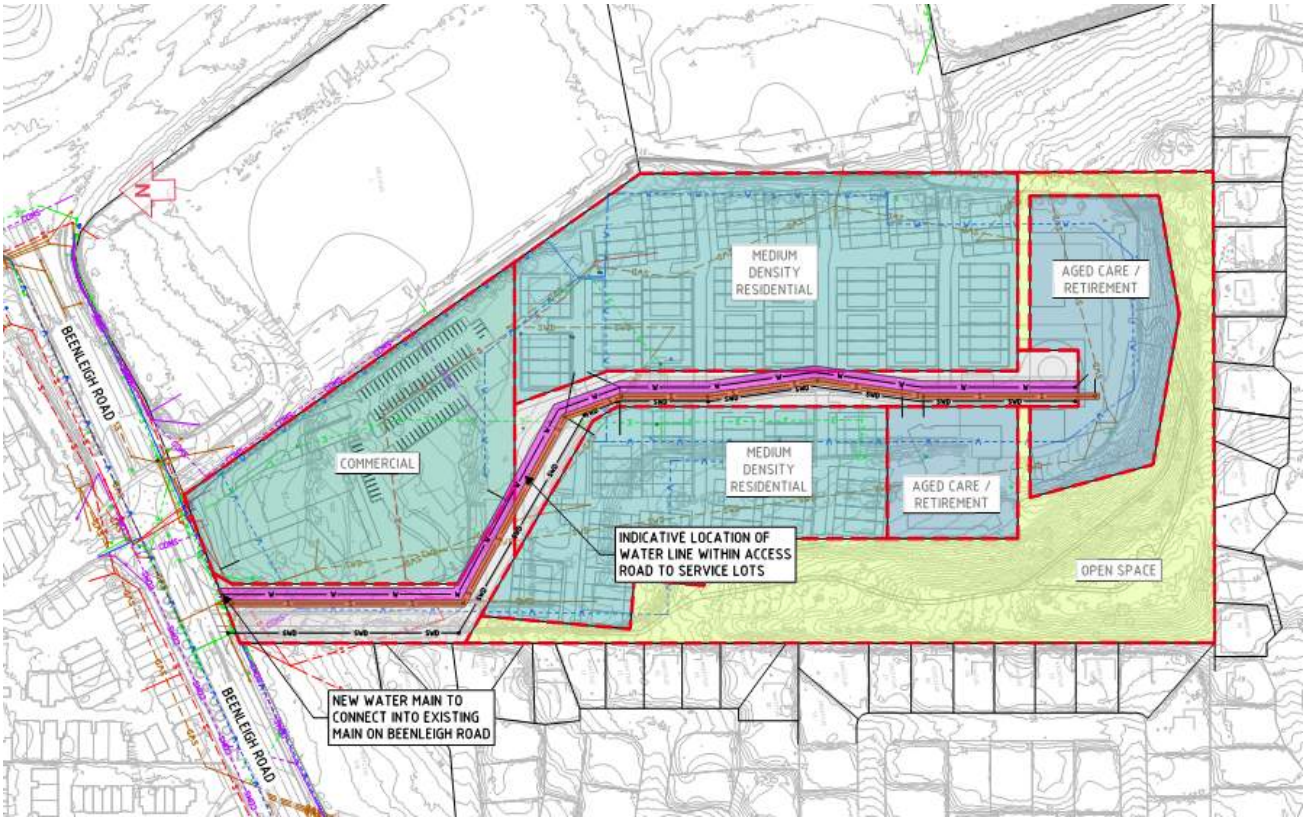


Figure 7-1 Proposed internal water main

7.2.1. Internal Water Network

As part of the building works for all individual lots, internal water reticulation service will be provided throughout the lots. This will require a full water network design to be prepared by a qualified hydraulic engineer, designed to service all internal firefighting flows and services demands.

7.2.2. Fire System

In accordance with the SEQ WS&S D&C Code, the site is permitted to draw the following fire flows.

- Commercial/ Industrial – 30L/sec for 4 hours
- Low Density Urban – 25L/sec for 2 hours

A metered connection will be provided for a fire hydrant to service the lots. The location and details of the hydrant connection will be confirmed at the detail design phase with Logan Water; however, it has been advised that the existing network can only provide 15L/s fire flow.

8. Sewerage Reticulation

8.1. Existing Sewer Reticulation

The following existing sewer mains have been identified near the site based on detailed site survey (refer Appendix D), DBYD search (Refer to Appendix E):

- DN225mm vitrified clay sewer trunk gravity main located on Beenleigh Road, along the northern boundary

8.2. Proposed Sewer Reticulation

Logan City Council has advised that 880 Equivalent Persons can be serviced from the existing sewerage network without any augmentations.

The preliminary strategy involves connecting all lots to Councils sewerage system. Councils system will extend into the site within a 3.0m wide easement in favour of Council (shown below in orange) located within the Common Property corridor – refer to Concept Servicing Plans as shown within Appendix A. Each individual lot will have a sewer connection from the council main extending into each lot boundary.

Future MCU applications, once layout and associated yield data is known, will require sewer network analysis modelling and reporting to be completed to ascertain scope of external sewerage network upgrades (if any).

Indicative location of sewer line and connections within easement along internal access road shown below in Figure 8-1.

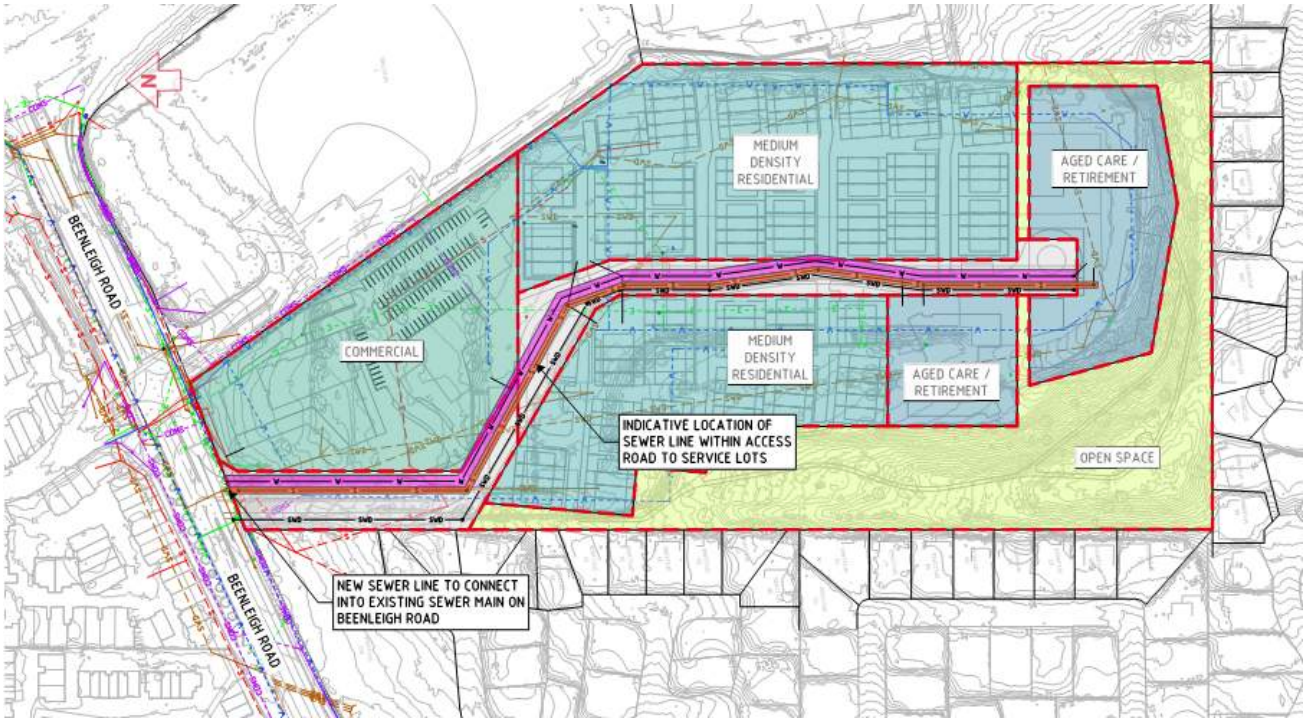


Figure 8-1 Internal Sewer Reticulation

9. Electrical Supply

Existing underground and above-ground power lines have been located via a Dial Before You Dig (DBYD) search (Refer to Appendix E) and other desktop searches. Electrical cables of voltage <33kV have been located within existing road reserve of Beenleigh Road. Above ground power lines have been located along the northern verge of Beenleigh Road.

Connections for the proposed development will require an extension of the electrical cables of voltage <33kV located on Beenleigh Road. The proposed development is required to incorporate low-voltage electricity supply to all facilities within the development to comply with Council and Energex legislation.

The need for a pad mount transformer to be located within the development site is subject to further design discussion with Energex; however sufficient provisions can be made within the proposed plan of development to accommodate one if required.

10. Gas Supply

The DBYD search information (Refer to Appendix E) did not return any existing gas services in the vicinity of the development site.

Should gas services be required for the development, connection and extension requirements shall be undertaken by a specialist consultant and will form part of the future building works applications to both APA and LCC.

11. Telecommunications

Telecommunication services have been identified within the road reserves of Beenleigh Road. It is proposed to utilise this existing surrounding infrastructure to provide telecommunication services to the proposed development.

Connection from the proposed development to the above-mentioned services will be undertaken by a specialist consultant and will form part of the future building works applications to both appropriate Telecommunications entity and LCC.

12. Conclusion

Northrop Consulting Engineers Pty Ltd (Northrop) have been engaged by VIMG to prepare an Civil Engineering Report (Stormwater, Infrastructure & Services) for a Preliminary Approval submission to Logan City Council (Council) and any nominated referral agency. The Mixed-Use Development is located at 1677 Beenleigh Road, Underwood (the site) and proposes to reconfigure the site into five mixed-use superlots, open space and internal access road corridor, with associated services & access easements (as required).

This Civil Engineering Report supports the application for Preliminary Approval also including a variation request for the site. The works described within addresses the concept design for access (roadworks) as well as civil services requirements to connect the proposed development to the external network in accordance with authority guidelines.

The Preliminary Approval also including a variation request envisages the site be redeveloped for the following uses:

- Hotel inclusive of short-term accommodation
- Health care service (Medical centre)
- Shop (Chemist)
- Food and drink outlet (Café)
- Multiple dwellings (Townhouses)
- Residential facility
- Retirement aged facility

For further information, preliminary yield data for each use and details for Variation Requests seeking changes from the Planning Scheme (for the subject site), please refer to Town Planning Report by Mecone and Architectural Drawings by Arkhefield. Following Preliminary Approval, and once layouts for each use are developed, future Material Change of Use (MCU) applications for each development lot will need to consider the recommendations within this Civil Engineering Report as well as future Engineering studies and designs suitable to support future MCU Development Applications.

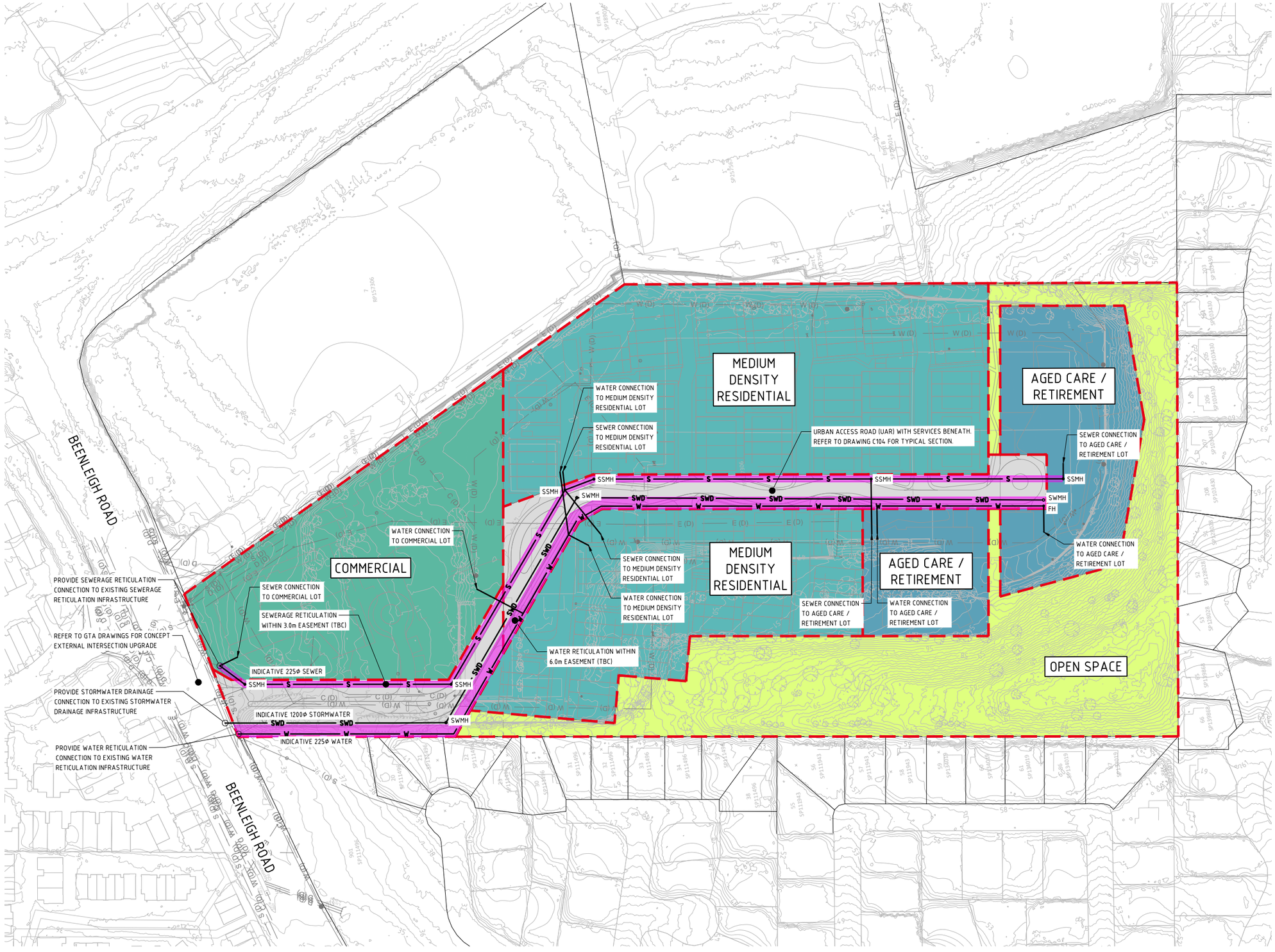
Key outcomes from the Civil Engineering study completed by Northrop during development of this Civil Engineering Report are;

- The site is not impacted by sources of Flooding (River nor Overland Flow)
- The site, in the existing condition, features primary access onto Beenleigh Road. Refer to Traffic Management Plan by GTA for traffic modelling and intersection upgrade requirements in relation to the development of the site
- Access to lots will be via an internal driveway (common property) featuring a concrete pavement, with kerb and channel and 2-way crossfall
- The proposed future use for the site will require filling /excavation and associated retaining. Concept earthworks & retaining plans are shown within Appendix A, though works will be subject to future Development Application assessment as well as subsequently Operational Works assessment
- The site features large existing retaining walls on the eastern boundary. These retaining walls are proposed to be kept as part of the future development sites that interfaces with the eastern boundary though will be subject to future structural engineering investigation/study to inform any rectification requirements
- The existing site features multiple Lawful Points of Discharge (LPODs) connecting to in-ground drainage infrastructure in the north (Beenleigh Road) and east (existing commercial site). In the developed case we have maintained both LPODs, with the primary LPOD discharging to Beenleigh Road infrastructure via proposed in-ground drainage infrastructure running under the access driveway – refer to Concept

Servicing Plans as shown within Appendix A. A Preliminary DRAINS model has been completed, which nominates a Site Storage Requirement (SSR) per hectare for all superlots. Future MCU applications will need to perform their own study of the drainage network to ensure non-worsening at the Beenleigh Road corridor.

- Water Quality treatment objectives in relation to the developed site will be satisfied via payment of the contribution payment to local Council in lieu of implementing runoff treatment devices
- Sewer and Water, in the existing condition, connect to Beenleigh Road. In the proposed case, all lots will connect to Council water & sewer reticulation that will be extended into the site (within associated authority easements) in the common property corridor – refer to concept servicing plans as shown within Appendix A.
- Future MCU applications, once layout and associated yield data is known, may require sewer & water network analysis modelling and reporting to be completed to ascertain scope of external sewer/water network upgrades (if any).
- Connection to existing electrical infrastructure surrounding the site will be made via underground cables on Beenleigh road.
- Existing gas infrastructure in the vicinity of the site was not encountered in the preliminary investigations informing this report.
- Connection to existing telecommunications infrastructure surrounding the site will be made via underground cables on Beenleigh Road.

Appendix A – Civil Engineering Plans



LEGEND

- S (D) — EXISTING SEWERAGE RETICULATION
- D (D) — EXISTING STORMWATER DRAINAGE
- W (D) — EXISTING WATER RETICULATION
- C (D) — EXISTING TELECOMMUNICATIONS
- E (D) — EXISTING ELECTRICITY
- SWD — PROPOSED STORMWATER DRAINAGE
- S — PROPOSED SEWERAGE RETICULATION
- W — PROPOSED WATER RETICULATION
- SWMH — PROPOSED STORMWATER MANHOLE
- SSMH — PROPOSED SEWER MANHOLE
- FH — PROPOSED FIRE HYDRANT
- PROPOSED 3.0m EASEMENT

VERIFIER:
JOB MANAGER:
DESIGNED:
DRAWN:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	SW		MB	27.09.19
2	ISSUED FOR INFORMATION	SW		MB	04.11.19
3	ISSUED FOR INFORMATION	SW		MB	13.11.19

CLIENT: VIMG

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT: Arkhefield

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE.

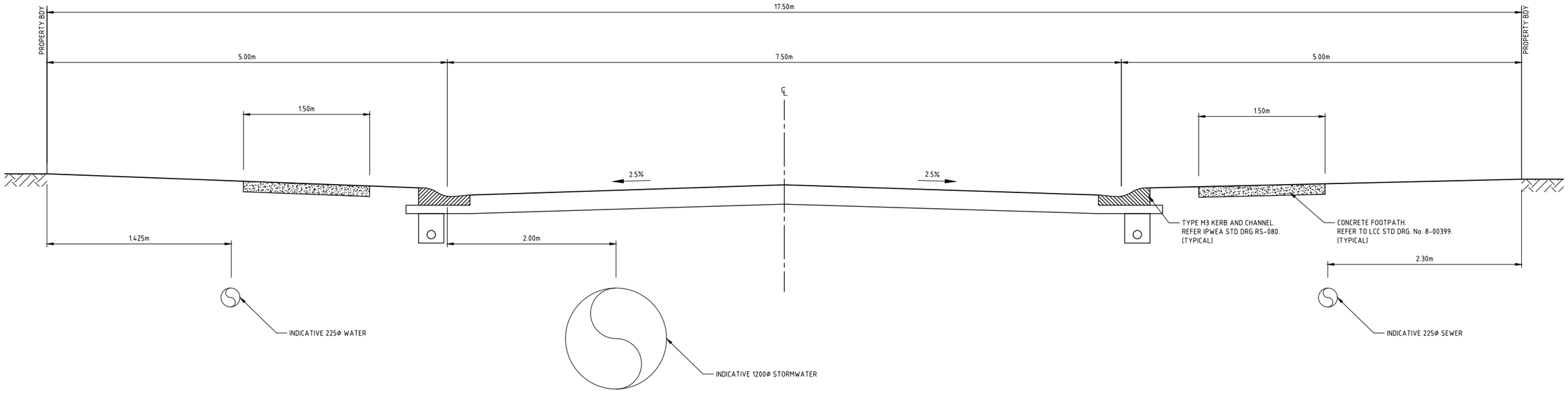
SCALE 1:1000 @ A1 — 0 10 20 30 40 50m

NORTHROP
Brisbane
Level 9, 200 Mary Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT: **1677 BEENLEIGH ROAD, UNDERWOOD, QLD 4119**

DRAWING TITLE: **CIVIL SKETCH**
PRELIMINARY CIVIL ACCESS AND SERVICES LAYOUT PLAN

JOB NUMBER: **BN191596**
DRAWING NUMBER: **C103**
REVISION: **3**
DRAWING SHEET SIZE = A1



URBAN ACCESS ROAD (UAR) TYPICAL SECTION

REFER TO LCC STD DRG 8-00375
SCALE 1:25

VERIFIER:
JOB MANAGER:
DESIGNED:
DRAWN:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	SW		MB	13.11.19

CLIENT
VIMG
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
Arkhefield
THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE

SCALE 1:25@A1
0.0 0.2 0.4 0.6 0.8 1.0 1.2m

NORTHROP
Brisbane
Level 9, 200 Mary Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT
1677 BEENLEIGH ROAD, UNDERWOOD, QLD 4119

DRAWING TITLE
CIVIL SKETCH
PRELIMINARY CIVIL TYPICAL ROAD SECTION

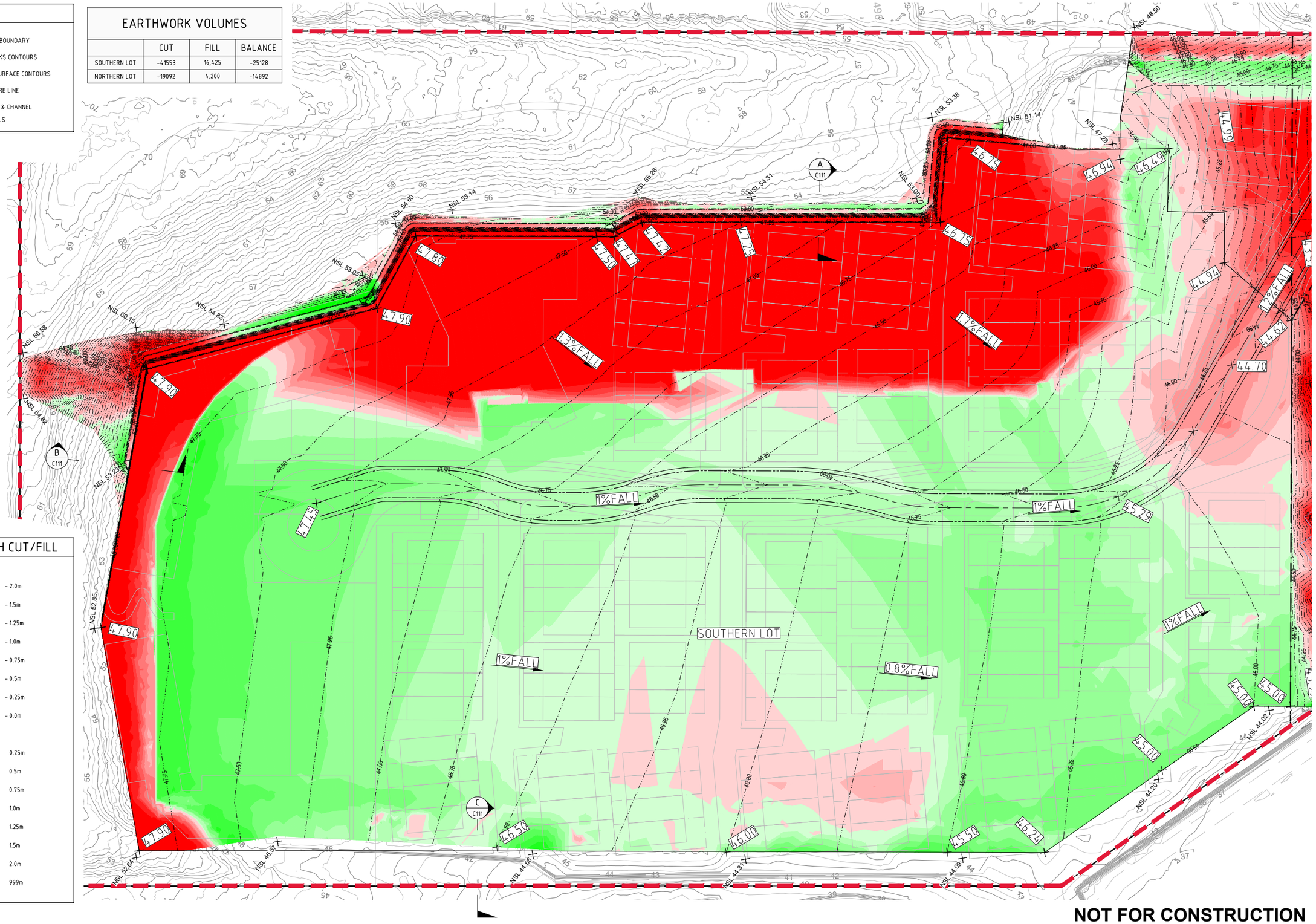
JOB NUMBER **BN191596**
DRAWING NUMBER **C104**
REVISION **1**
DRAWING SHEET SIZE = A1

LEGEND

- PROPERTY BOUNDARY
- 45.05 EARTHWORKS CONTOURS
- XX.XX EXISTING SURFACE CONTOURS
- ROAD CENTRE LINE
- ROAD KERB & CHANNEL
- +45.06 SPOT LEVELS

EARTHWORK VOLUMES

	CUT	FILL	BALANCE
SOUTHERN LOT	-41553	16,425	-25128
NORTHERN LOT	-19092	4,200	-14892



EARTHWORKS DEPTH CUT/FILL

DEPTH OF CUT

- - 999m TO - 2.0m
- - 2.0m TO - 1.5m
- - 1.5m TO - 1.25m
- - 1.25m TO - 1.0m
- - 1.0m TO - 0.75m
- - 0.75m TO - 0.5m
- - 0.5m TO - 0.25m
- - 0.25m TO - 0.0m

DEPTH OF FILL

- 0.0m TO 0.25m
- 0.25m TO 0.5m
- 0.5m TO 0.75m
- 0.75m TO 1.0m
- 1.0m TO 1.25m
- 1.25m TO 1.5m
- 1.5m TO 2.0m
- 2.0m TO 999m

VERIFIER:
JOB MANAGER:
DESIGNED:
DRAWN:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	SW		MB	01.08.19
2	ISSUED FOR INFORMATION	SW		MB	04.11.19
3	ISSUED FOR INFORMATION	SW		MB	02.12.19

CLIENT: VIMG

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT: Arkhefield

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE

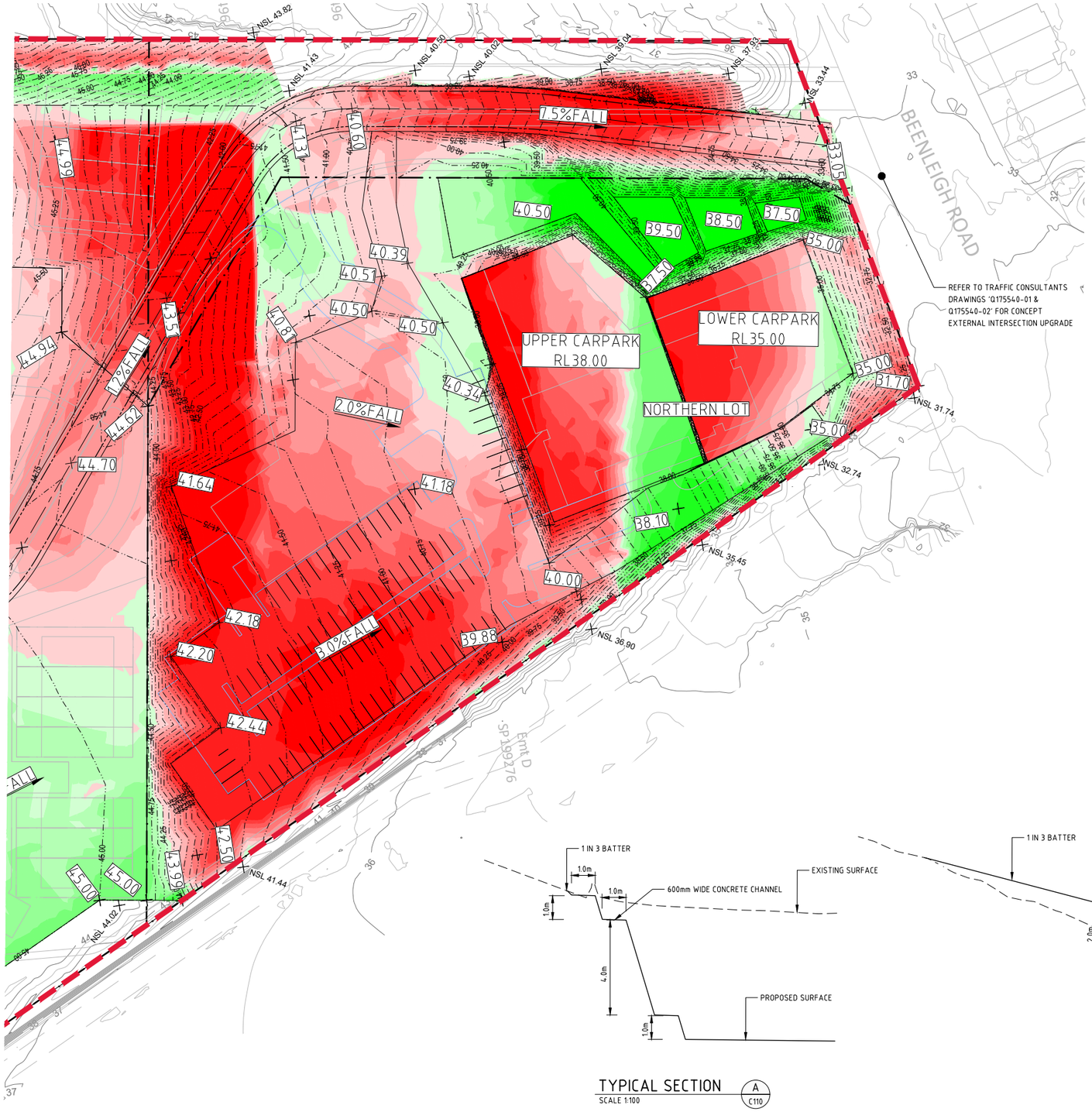
SCALE 1:500@A1 0 5 10 15 20 25m

NORTHROP
Brisbane
Level 9, 200 Mary Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

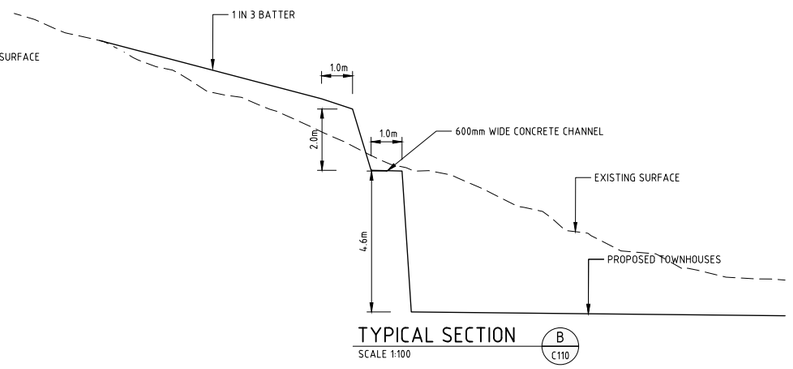
PROJECT: 1677 BEENLEIGH ROAD, UNDERWOOD, QLD 4119

DRAWING TITLE: CIVIL SKETCH
BULK EARTHWORKS SCHEMATIC PLAN

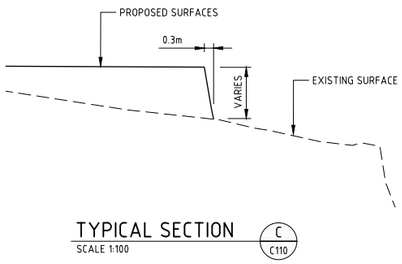
JOB NUMBER: BN191596
DRAWING NUMBER: C110
REVISION: 3
DRAWING SHEET SIZE = A1



TYPICAL SECTION A
SCALE 1:100
C110



TYPICAL SECTION B
SCALE 1:100
C110



TYPICAL SECTION C
SCALE 1:100
C110

LEGEND

- PROPERTY BOUNDARY
- 45.05 EARTHWORKS CONTOURS
- XX.XX EXISTING SURFACE CONTOURS
- ROAD CENTRE LINE
- ROAD KERB & CHANNEL
- +45.06 SPOT LEVELS

EARTHWORKS DEPTH CUT/FILL

DEPTH OF CUT

- - 999m TO - 2.0m
- - 2.0m TO - 1.5m
- - 1.5m TO - 1.25m
- - 1.25m TO - 1.0m
- - 1.0m TO - 0.75m
- - 0.75m TO - 0.5m
- - 0.5m TO - 0.25m
- - 0.25m TO - 0.0m

DEPTH OF FILL

- 0.0m TO 0.25m
- 0.25m TO 0.5m
- 0.5m TO 0.75m
- 0.75m TO 1.0m
- 1.0m TO 1.25m
- 1.25m TO 1.5m
- 1.5m TO 2.0m
- 2.0m TO 999m

EARTHWORK VOLUMES

	CUT	FILL	BALANCE
SOUTHERN LOT	-41553	16,425	-25128
NORTHERN LOT	-19092	4,200	-14892

VERIFIER:
JOB MANAGER:
DESIGNED:
DRAWN:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	SW		MB	01.08.19
2	ISSUED FOR INFORMATION	SW		MB	04.11.19
3	ISSUED FOR INFORMATION	SW		MB	02.12.19

CLIENT
VIMG
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
Arkhefield
THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK.
NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.
THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE

SCALE 1:500@A1
0 5 10 15 20 25m

NORTHROP
Brisbane
Level 9, 200 Mary Street, Brisbane QLD 4000
GPO BOX 423 Brisbane QLD 4001
(07) 3365 0400 brisbane@northrop.com.au
ABN 81 094 433 100

PROJECT
1677 BEENLEIGH ROAD, UNDERWOOD, QLD 4119

DRAWING TITLE
CIVIL SKETCH
BULK EARTHWORKS SCHEMATIC SECTIONS

JOB NUMBER
BN191596

DRAWING NUMBER
C111

REVISION
3

DRAWING SHEET SIZE = A1

Appendix B – Architectural Drawings



Legend
1. Food & Beverage
2. Short Term Accommodation
3. Medical / Commercial / Retail
4. Medium Density Residential
5. Retirement Living
6. Aged Care

0m 10m 20m 30m 40m 50m 75m

Arkhefield

VIMG

The concepts and information contained in this document are the copyright of Arkhefield. Use or copying of the document in whole or in part without the written permission of Arkhefield constitutes an infringement of copyright.

PROJECT
Underwood Mixed Use Development

DRAWING NAME
Proposed Site Plan

DRAWING NO.
100-01 H

SCALE 1 : 1500
04.12.19
PROJECT NO. 3607

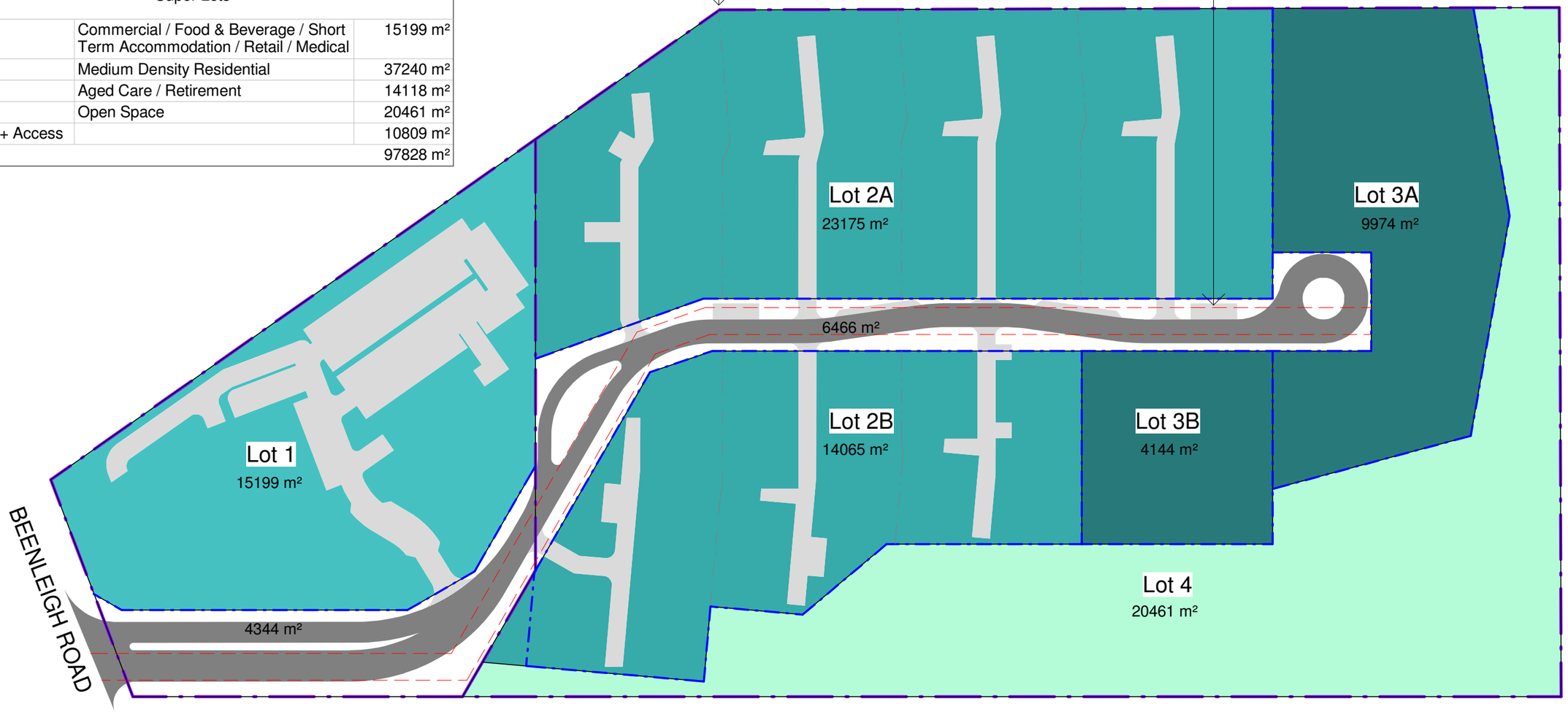
3/12/2019 10:11:22 PM

grey lines indicate potential sub-division of super lot to create smaller townhouse development lots

9m wide services easement (below ground)

PRECINCT 1 | PRECINCT 2 | PRECINCT 3

Super Lots		
Lot 1	Commercial / Food & Beverage / Short Term Accommodation / Retail / Medical	15199 m²
Lot 2	Medium Density Residential	37240 m²
Lot 3	Aged Care / Retirement	14118 m²
Lot 4	Open Space	20461 m²
Services + Access		10809 m²
		97828 m²



PRECINCT 1 | PRECINCT 2 | PRECINCT 3

0m 10m 20m 30m 40m 50m 75m

The concepts and information contained in this document are the copyright of Arkhefield. Use or copying of the document in whole or in part without the written permission of Arkhefield constitutes an infringement of copyright.

Arkhefield | VIMG

PROJECT: Underwood Mixed Use Development

DRAWING NAME: Super Lot Plan

DRAWING NO.: 100-02 D

SCALE 1 : 1500
25.11.19
PROJECT NO. 3607

25/11/2019 4:00:50 PM

Appendix C – As Constructed Plans

N1050 N1100 N1150 PROPERTY BOUNDARY N1200 N1250 N1300 N1350 N1400 N1450

E 800 E 850 E 900 E 950 E 1000

CD1 CD2 CD3 CD4 CD5 CD6 CD7 CD8 CD9 CD10 CD11 CD12 CD13 CD14 CD15 CD16

FLOW 30 WIDE CATCHDRAIN

SOUTHERN CARPARK

MAIL CENTRE BUILDING (BUILDING A)

WESTERN CARPARK

TRANSPORT CARPARK

TRANSPORT BUILDING

NORTHERN CARPARK

VEHICLE SERVICE BUILDING

450mm WIDE GRATED DRAIN

300mm WIDE GRATED DRAIN

INLET 1

SLOPE

ACCESS ROAD

BREAK UP & REMOVE EXISTING FIELD INLET

DOWNPIPE CONNECTION PIT

Φ225 PVC DPC

Φ450 PVC

TRUCKWASH BY OTHERS

BEENLEIGH RD

FOR DETAILS OF STORMWATER DRAINAGE UPGRADING REFER DRG.N°89128-C53

EXIST RCP

EXIST 6825 RCP

S.O. APPROX

WOOLWORTHS SHOPPING CENTRE

KURABY HOTEL EXISTING CARPARK

EXISTING RCP Φ675

N

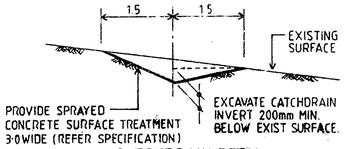
CATCHDRAIN SETTING OUT TABLE

POINT N°	EASTING	NORTHING	POINT N°	EASTING	NORTHING
CD 1	950	1065	CD 11	805	1200
CD 2	925	1061	CD12	798	1225
CD 3	900	1057	CD13	787	1250
CD4	875	1059	CD14	777	1275
CD 5	850	1071	CD15	772 6	1300
CD 6	832	1083	CD16	772.8	1350
CD7	827	1100			
CD8	817	1125			
CD 9	811	1150			
CD10	807	1175			

NOTE: 1. CATCHDRAIN SETOUT CO ORDINATES MUST BE CONFIRMED ON SITE BY SUPERINTENDENT PRIOR TO EXCAVATION.
2. POINT N° LOCATED AT ℄ OF DRAIN.

NOTES

1. ALL PIPES TO BE CLASS 'X'
2. PIPE JOINT TYPE ≤ Φ600 - RUBBER RING JOINT
   > Φ600 - FLUSH JOINT
3. FOR MANHOLE DETAILS REFER DRG N° 89128-C24 & C25 & C27.
4. COORDINATE ORIGIN AT S.E CORNER OF SUBJECT SITE E 1000 N 1000
5. SIDE DRAIN LOCATION DIAGRAMMATIC ONLY REFER DRG SR29 FOR ACTUAL POSITION



CATCHDRAIN DETAIL

LEGEND

- CATCHMENT BOUNDARY
- PAVEMENT CATCHMENT UNDER ROOF OVERHANG
- 11/4 STORMWATER PIPE AND MANHOLE REFER LONGITUDINAL SECTIONS FOR SETOUT INFORMATION DRG N° 89128 C24 & C25
- 6 CATCHMENT NUMBER
- g8 STORMWATER GULLY & PIPE CONNECTION REFER GULLY SCHEDULE DRG N° 89128 - C26
- Φ225 PVC D.P.C DOWNPIPE CONNECTION PIPE CONSTRUCT PITS AS DETAILED TO FACILITATE DOWNPIPE CONNECTION REFER DRG N° 89128-C27
- Φ100 FLEXIBLE CORRUGATED AGGRICULTURAL DRAIN - REFER SPECIFICATION

CATCHMENT TABLE

CATCHMENT N°	IMPERVIOUS AREA (ha)
1	0 48
2	0 17
3	0 14
4	0 52
5	0 17
6	0 52
7	0 51
8	0 34
9	0 15
10	0 07
11	0 70
12	0 20
13	0 02
14	0 43
15	0 07
16	0 03
17	0 03
18	0 07
19	0 04
20	0 17
21	0 06
22	0 04
23	0 23
24	0 19
25	0 16
26	0 36
27	0 33
28	0 15
29	0 10
30	0 05
31	0 24
32	0 13

1-10710

Australia Post

BROADCON AUSTRALIA PTY LIMITED

Architects: Philip Gough & Assoc. Pty Ltd, 96 Holman Street, Kangaroo Point QLD 4169, Ph 891 1488 Fax 891 1491

Engineers: Tod Group (Brisbane) Pty Ltd, 7th Level 127 Creek Street Brisbane QLD 4000, Ph 221 3888 Fax 229 7243

Contract Administrator:

Electrical/Mechanical Engs:

Jabsco Pty Limited, 11th Level 348 Edward St, GPO Box 1409 Brisbane 4001, Ph 832 5080 Fax 839 5878

D. Middleton & Assoc Pty Ltd, Unit 4 212 Boundary Street Spring Hill QLD 4000, Ph 839 3299 Fax 839 5878

Amendments			
Issue		Date	Init
A	LAYOUT AMENDED	6-9-90	WMC

Scale 1:500

Designed N.H.J.

Drawn P.J.K.

Approved

Southern Suburbs Mail Centre Underwood

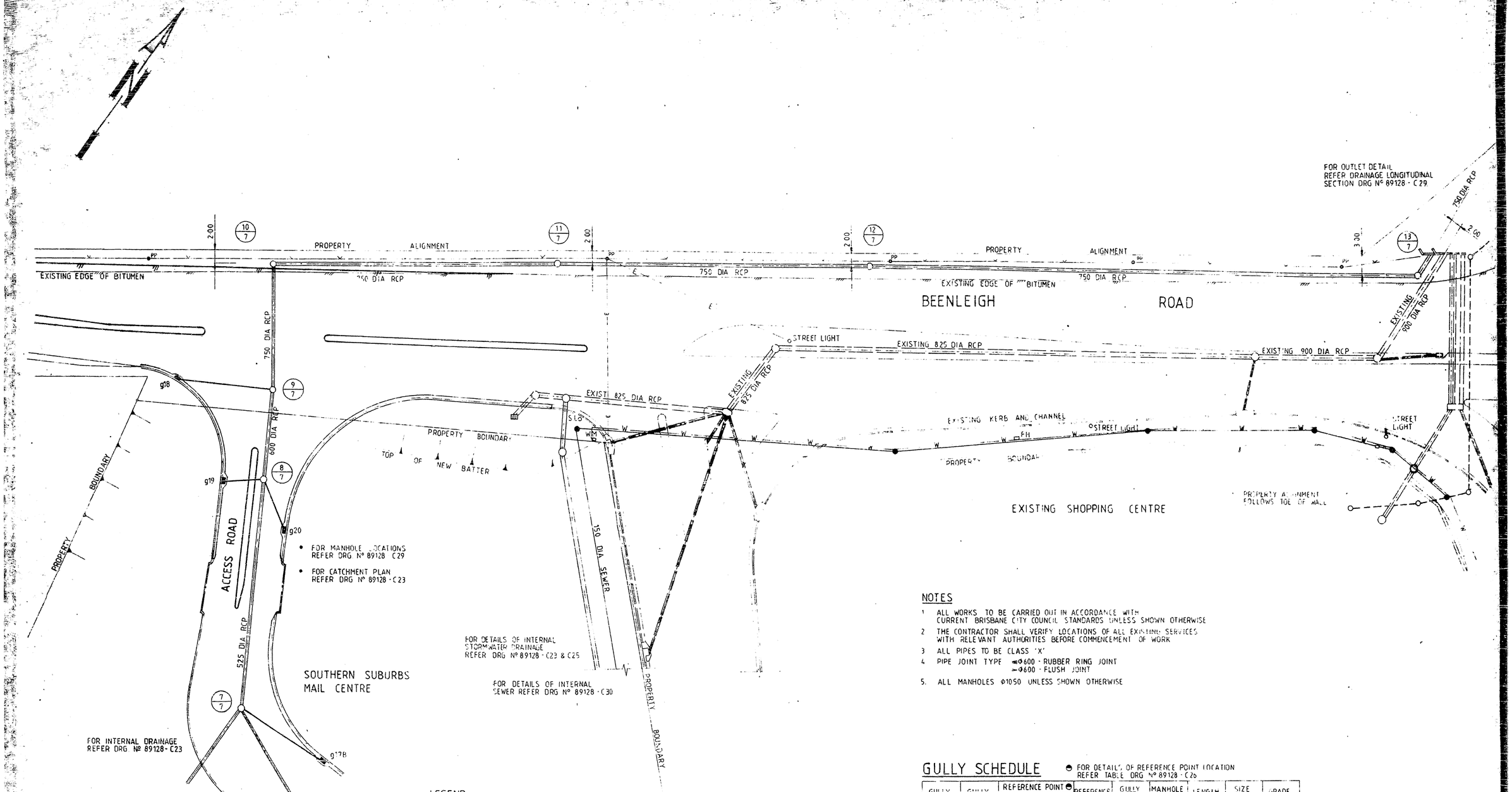
Building

Title STORMWATER DRAINAGE GENERAL LAYOUT AND CATCHMENT PLAN

Project Number 89128

Sheet Number C 23 A

This drawing is Copyright and the property of the Australia Post Corporation and must not be used without its permission.



NOTES

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT BRISBANE CITY COUNCIL STANDARDS UNLESS SHOWN OTHERWISE
2. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCEMENT OF WORK
3. ALL PIPES TO BE CLASS 'X'
4. PIPE JOINT TYPE ≤Ø600 - RUBBER RING JOINT
   >Ø600 - FLUSH JOINT
5. ALL MANHOLES Ø1050 UNLESS SHOWN OTHERWISE

GULLY SCHEDULE

⊖ FOR DETAILS OF REFERENCE POINT LOCATION REFER TABLE DRG Nº 89128 - C26

GULLY Nº	GULLY TYPE	REFERENCE POINT ⊖ EASTING (X COORD)	REFERENCE POINT ⊖ NORTHING (Y COORD)	REFERENCE LEVEL ⊖	GULLY INVERT LEVEL	MANHOLE INVERT LEVEL	LENGTH REF - REF	SIZE AND CLASS	GRADE %
g18	E	775 041	1484 428	33 366	32.30	31 90	16 08	300	2 49 %
g19	D	788 526	1473 001	34 286	33 10	33 00	7 25	300	1 38 %
g20	D	801 422	1470 542	34 653	33 50	33 00	9 08	300	5 51 %

GULLY TYPE LEGEND

TYPE	STD DRG	DESCRIPTION
E	WMS 56C	BCC TYPE E GULLY HOLE (SINGLE GRATE)
D	WMS 55E	BCC TYPE D GULLY HOLE (DOUBLE GRATE)

LEGEND

- EXISTING UNDERGROUND ELECTRICITY
- EXISTING POWER POLE AND OVERHEAD ELECTRICITY
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER
- NEW SEWER
- NEW STORMWATER DRAINAGE
- EXISTING WATERMETER
- EDGE OF EXISTING BITUMEN
- EDGE OF NEW BITUMEN
- o S.L. STREET LIGHT

1-10711

Australia Post

BROADCON AUSTRALIA PTY LIMITED

Architects: Philip Gough & Assoc. Pty Ltd, 96 Holman Street, Kangaroo Point QLD 4169, Ph 891 1488 Fax 891 1491

Engineers: Tod Group (Brisbane) Pty Ltd, 7th Level 127 Creek Street, Brisbane QLD 4000, Ph 221 3968 Fax 229 7243

Contract Administrator: Jebest Pty Limited, 11th Level 348 Edward St, GPO Box 1409 Brisbane 4001, Ph 832 6222 Fax 832 6365

Electrical/Mechanical Engs: D. Middleton & Assoc Pty Ltd, Unit 4 212 Boundary Street, Spring Hill QLD 4000, Ph 832 3868 Fax 832 5772

Amendments

Issue		Date	Init
A	ACCESS RD. LAYOUT AMENDED	6.9.90	WMC

Scale 1:250

Designed G.J.R

Drawn K.J.

Approved

Southern Suburbs Mail Centre Underwood

Building

Title STORMWATER DRAINAGE (EXTERNAL) GENERAL LAYOUT

Project Number 89128

Sheet Number C28 A

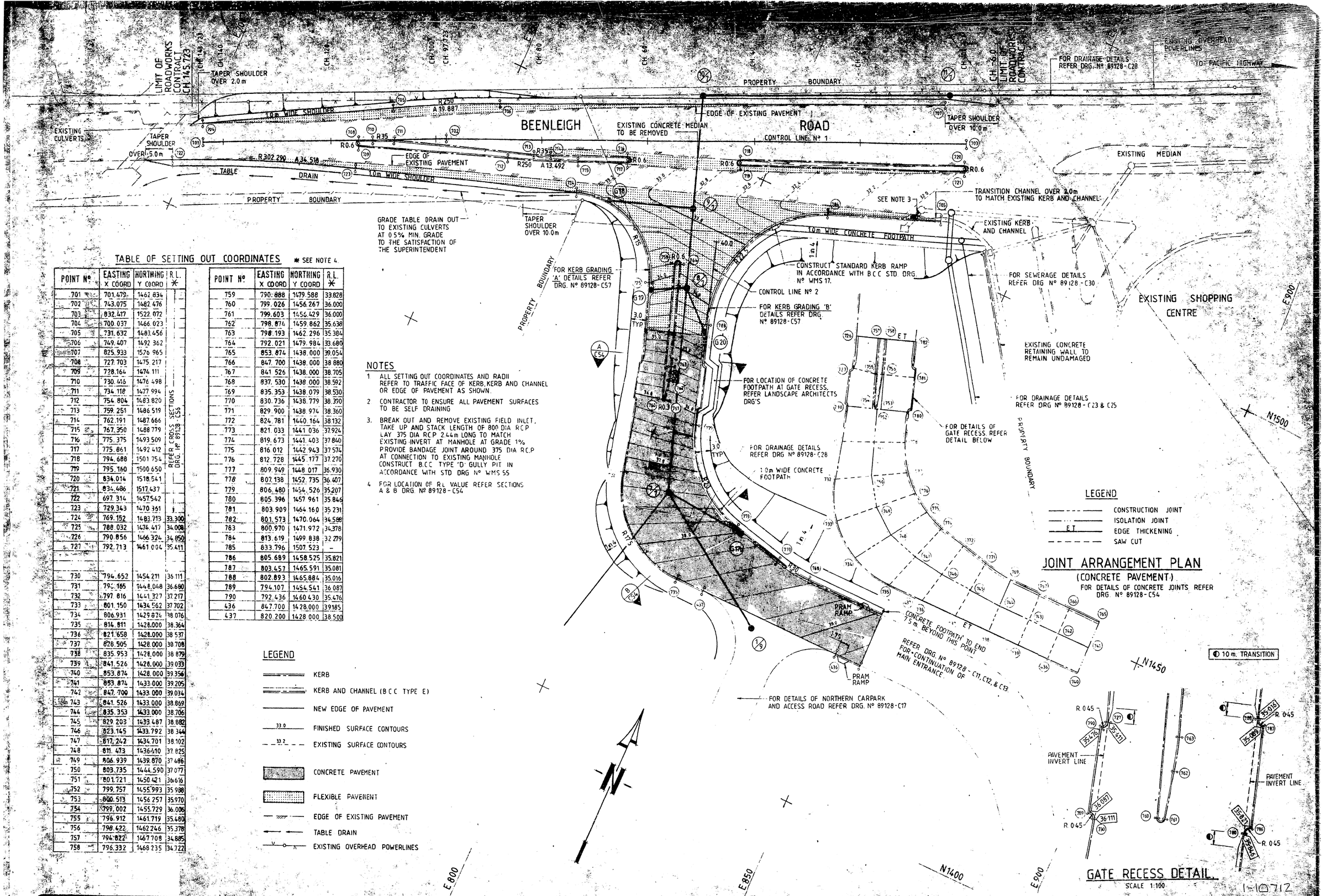


TABLE OF SETTING OUT COORDINATES * SEE NOTE 4

POINT Nº	EASTING X COORD	NORTHING Y COORD	R.L. *
701	701.479	1462.834	
702	743.075	1482.476	
703	832.417	1522.072	
704	700.037	1466.023	
705	731.632	1483.456	
706	749.407	1492.362	
707	825.933	1526.965	
708	727.703	1475.217	
709	728.164	1474.111	
710	730.416	1476.498	
711	734.118	1477.994	
712	754.804	1483.820	
713	759.251	1486.519	
714	762.191	1487.666	
715	767.350	1488.779	
716	775.375	1493.509	
717	775.861	1492.412	
718	794.688	1501.754	
719	795.160	1500.650	
720	834.014	1518.541	
721	834.486	1517.437	
722	697.314	1457.542	
723	729.343	1470.361	
724	769.152	1483.713	33.300
725	788.032	1474.417	34.008
726	790.856	1466.324	34.650
727	792.713	1461.004	35.411
730	794.652	1454.211	36.111
731	796.165	1448.048	36.690
732	797.816	1441.327	37.217
733	801.150	1434.562	37.702
734	806.931	1429.674	38.076
735	814.811	1428.000	38.364
736	821.658	1428.000	38.537
737	828.505	1428.000	38.708
738	835.953	1428.000	38.879
739	841.526	1428.000	39.033
740	853.874	1428.000	39.356
741	853.874	1433.000	39.205
742	847.700	1433.000	39.034
743	841.526	1433.000	38.869
744	835.353	1433.000	38.706
745	829.203	1433.487	38.682
746	823.145	1433.792	38.344
747	817.242	1434.701	38.102
748	811.473	1436.410	37.825
749	806.939	1439.870	37.486
750	803.735	1444.590	37.077
751	801.721	1450.421	36.616
752	799.757	1455.993	35.988
753	800.513	1456.257	35.970
754	799.002	1455.729	36.006
755	796.912	1461.719	35.480
756	798.422	1462.246	35.378
757	794.822	1467.708	34.885
758	796.332	1468.235	34.722

POINT Nº	EASTING X COORD	NORTHING Y COORD	R.L. *
759	790.888	1479.588	33.828
760	799.026	1456.267	36.000
761	799.603	1456.429	36.000
762	798.874	1459.862	35.638
763	798.193	1462.296	35.384
764	792.021	1479.984	33.680
765	853.874	1438.000	39.054
766	847.700	1438.000	38.880
767	841.526	1438.000	38.705
768	837.530	1438.000	38.592
769	835.353	1438.079	38.530
770	830.736	1438.779	38.390
771	829.900	1438.974	38.360
772	824.781	1440.164	38.132
773	821.033	1441.036	37.924
774	819.673	1441.403	37.840
775	816.012	1442.943	37.574
776	812.728	1445.177	37.270
777	809.949	1448.017	36.930
778	807.138	1452.735	36.407
779	806.480	1454.526	35.207
780	805.396	1457.961	35.846
781	803.909	1464.160	35.231
782	801.573	1470.064	34.588
783	800.970	1471.972	34.378
784	813.619	1499.838	32.279
785	833.796	1507.523	–
786	805.689	1458.525	35.821
787	803.457	1465.591	35.081
788	802.893	1465.884	35.016
789	794.107	1454.541	36.087
790	792.436	1460.430	35.476
436	847.700	1428.000	39185
437	820.200	1428.000	38.500

REFER CROSS SECTIONS DRG. Nº 89128-C55

NOTES

1. ALL SETTING OUT COORDINATES AND RADII REFER TO TRAFFIC FACE OF KERB, KERB AND CHANNEL OR EDGE OF PAVEMENT AS SHOWN.
2. CONTRACTOR TO ENSURE ALL PAVEMENT SURFACES TO BE SELF DRAINING
3. BREAK OUT AND REMOVE EXISTING FIELD INLET, TAKE UP AND STACK LENGTH OF 800 DIA RCP LAY 375 DIA RCP 2.44m LONG TO MATCH EXISTING INVERT AT MANHOLE AT GRADE 1% PROVIDE BANDAGE JOINT AROUND 375 DIA RCP AT CONNECTION TO EXISTING MANHOLE CONSTRUCT B.C.C TYPE 'D' GULLY PIT IN ACCORDANCE WITH STD DRG Nº WMS 55
4. FOR LOCATION OF R.L VALUE REFER SECTIONS A & B DRG Nº 89128-C54

LEGEND

- KERB
- KERB AND CHANNEL (B.C.C TYPE E)
- NEW EDGE OF PAVEMENT
- 33.0 FINISHED SURFACE CONTOURS
- 33.2 EXISTING SURFACE CONTOURS
- CONCRETE PAVEMENT
- FLEXIBLE PAVEMENT
- EDGE OF EXISTING PAVEMENT
- TABLE DRAIN
- EXISTING OVERHEAD POWERLINES

LEGEND

- CONSTRUCTION JOINT
- ISOLATION JOINT
- ET EDGE THICKENING
- SAW CUT

JOINT ARRANGEMENT PLAN

(CONCRETE PAVEMENT)

FOR DETAILS OF CONCRETE JOINTS REFER DRG Nº 89128-C54

GATE RECESS DETAIL

SCALE 1:100

1-10712

Australia Post

BROADCON AUSTRALIA PTY LIMITED

Architects: Philip Gough & Assoc. Pty Ltd, 96 Holman Street, Kangaroo Point QLD 4169, Ph (07) 891 1491, Fax (07) 891 1491

Engineers: Tod Group (Brisbane) Pty Ltd, 9th Level-127 Creek Street, Brisbane QLD 4000, Ph (07) 221 2999, Fax 229 7943

Issue	Amendments	Date	Init.
A	LAYOUT AMENDED & REGRADED	4.9.96	SJK

Scale 1:250 | Designed S.J.K. | Drawn D.H.

Southern Suburbs Mail Centre Underwood

Building

Title: BEENLEIGH ROAD AND MAIN ENTRANCE LAYOUT AND PAVEMENT PLAN

Project Number 89128

Drawing Number C2

Appendix D – Detailed Survey



IMPORTANT NOTES

This plan is intended as a verification of the supplied digital data. For more details see accompanying DWG and 12da files. All survey information is extracted from a UAV survey conducted by WCG and is intended for development application design purposes.

The background image taken from nearmap. Date of image is 24 March 2019

DATUM
This plan is on GDA94, MGA Zone 56 with ground distances. For true MGA Zone 56 Coordinates, scale all data from PSM 130285 by 0.99958771 and add 500,000 to the Eastings and 6,900,000 to the Northings.

AHD is derived from PSM144962, RL 37.077

PROPERTY BOUNDARIES

The subject lot boundaries shown on this plan are compiled from original survey records and plotted with a surveying methodology that gives these boundaries a positional uncertainty of 100 millimetres and must not be used for detailed design. A Cadastral Survey as defined by the Surveying and Mapping Infrastructure Act 2003 and Surveyors Act 2003 is required for accurate boundary positions and dimensions.

UNDERGROUND SERVICES

This plan generally complies with Australian Standard 5488—2013: Classification of Subsurface Utility Information (SUI). All underground alignments shown are Quality Level D (QL-D). They have been scaled or digitized from service provider's records only.

Only a limited amount of inground services within the subject site have been shown due to incomplete and outdated records.

Only information with Quality Level A should be relied upon for detailed design. For more information
see AS5488—2013.

CONTOURS

The contours shown on this plan may not be "natural surface" or "ground level" as defined by some local councils and should not be used as the reference surface when determining building height limits.

Contour Interval: 0.5 metres.

Extensively vegetated areas and areas beyond the subject site have not been able to be surveyed by UAV methodology. In these areas 2013 State Government DEM models have been used to derive the provided contours.

VEGETATION

Vegetation shown has been extracted from the UAV survey and is limited to what data was captured. Some trees and associated details may have been omitted from the survey.

BUILDING AREAS

Note hatched building areas shown are indicative of floor areas only and do not necessarily conform with the Gross Floor Area (GFA) definition for Logan City Council. Areas are based on available survey data and external information and extents only. Internal layout, usage and additional floors have not be accounted for in the area calculations.

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying
Brisbane: Level 2, 1 Breakfast Creek Rd, Newstead, QLD 4006 Phone: 07 3666 5200

CLIENT: VIMG

NORTH POINT

SCALE: 10 0 10 20 30 40 Scale 1:1000 @A1

CONTEXT PLAN

ADDRESS:
LOT 8 on RP157306
1677 BEENLEIGH ROAD
UNDERWOOD, QLD

PROJECT NO.	DRAWING NO.	SHEET NO.
19-0340S	19-0340S-02	1 of 1

VERSION	DWN	CH	DATE
02	AT/NDM	NDM	22/11/2019

v02 - addition of building areas
v01 - original issue - 21/06/2019

Appendix E – Dial Before You Dig Information

Dial Before You Dig (DBYD)

Asset Location Response

PO Box 3226 Logan City DC QLD 4114 • 150 Wembley Road, Logan Central
p (07) 3412 3412 • **e** council@logan.qld.gov.au • www.logan.qld.qov.au • ABN 21-627-796 435



Northrop Consulting Engineers - Mr Mark Gittins
Level 9 200 Mary Street
Brisbane City QLD 4000
mgittins@northrop.com.au

Logan City Council has been advised that you have placed an enquiry through the Dial Before You Dig service. Our records indicate the enquiry with the following details are affecting Logan City Council asset(s).

Enquiry Details	
Sequence Number	84110241
Enquiry Date	05/06/2019 10:30
Response	**AFFECTED**
Address	1677 Beenleigh Road Underwood
Location in Road	CarriageWay,Footpath,Nature Strip
Activity	Manual Excavation

Please review plans attached and contact Logan City Council prior to commencing works:

Logan City Council now provides a limited amount of As-Constructed and Drainage Plans on-line, click on the *Logan City As-Constructed Plans* link and type in the property address you are seeking. Unfortunately, not all properties will have plan records accessible on-line. The following options are available to customers should a record not be available:

- For **As Constructed Private Sewer/Roofwater *(Inside Properties)***
  Contact *Development Assessment, Building & Plumbing*
  p: (07) 3412 5269
  Alternatively visit our Website Link to the relevant PS1 or PS2 forms:
  http://www.logan.qld.gov.au/planning-and-building/planning-and-development/plumbing-and-drainage

- For **As Constructed Private Sewer/Water/Stormwater *(Outside Properties)***
  Contact *Road Infrastructure Planning*
  p: (07) 3412 5282
  Alternatively visit our Website Link for PS3 forms:
  http://www.logan.qld.gov.au/planning-and-building/planning-and-development/plumbing-and-drainage

Please Note: *Council cannot provide stormwater information in the old Beaudesert shire. To obtain details you will need to complete a PS3 form.*

If you have any other enquiries, or if any of the above details are incorrect, please contact Road Infrastructure Planning on (07) 3412 5282.

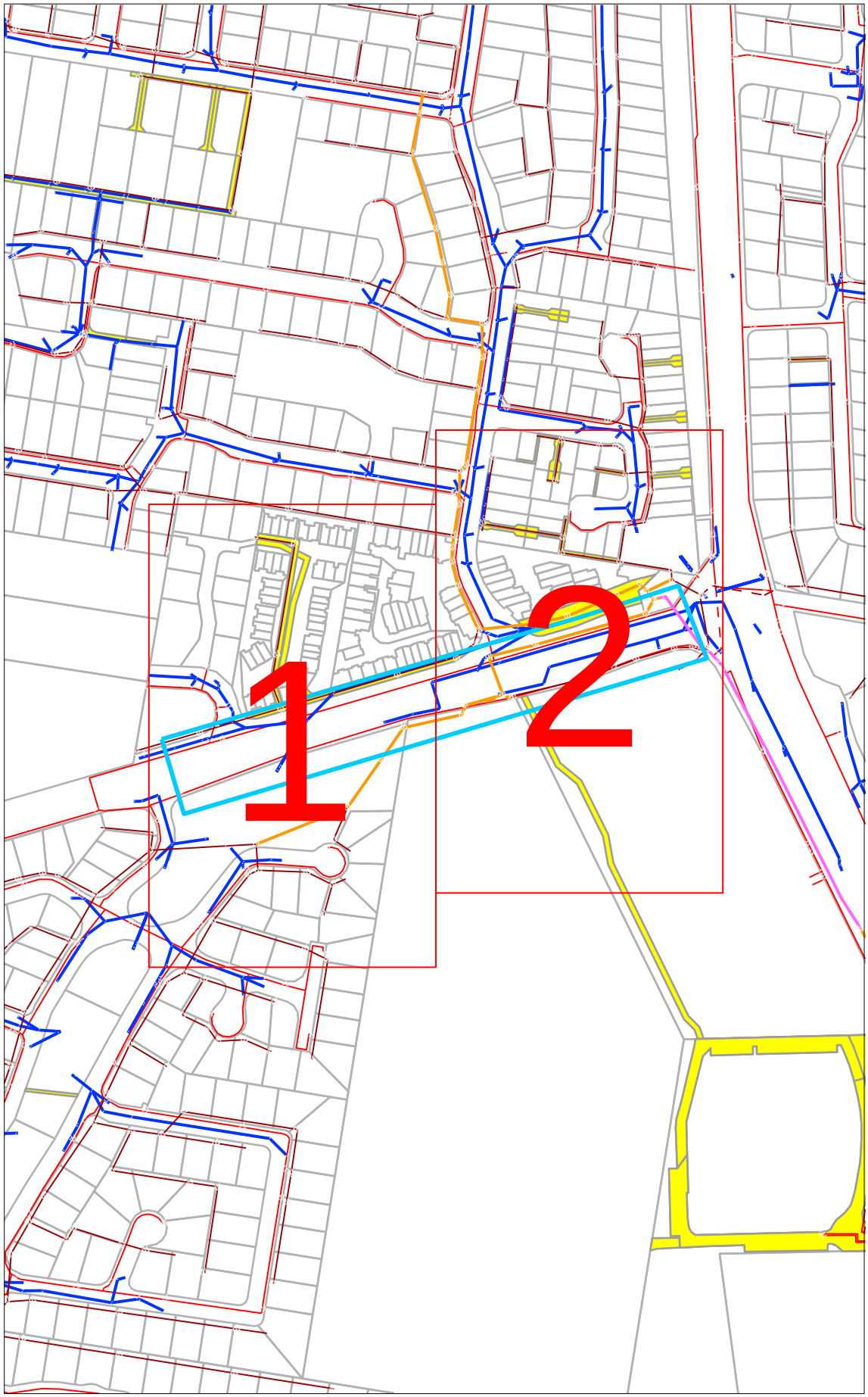
Disclaimer: This document is confidential to the addressee and may also be privileged, and neither confidentiality nor privilege is waived, lost or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from Council's records is believed to be accurate, but no responsibility is assumed for any error or omission. Council will only accept responsibility for information contained under official letterhead and duly signed by, or on behalf of, Chief Executive Officer.

Logan City Council's infrastructure dates back over many years and may include manufactured materials containing asbestos. 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 but not limited to "workplace health and safety".

Overview Map

Sequence No: 84110241

1677 Beenleigh Road Underwood



LEGEND:

- Affected DBYD Work Area
- 1 Detail Map

Sewer Assets

- Sewerage Pump Station - Existing
- Sewerage Pump Station - Retired
- Sewerage Manhole - Existing
- Sewerage Manhole - Retired
- Sewerage Pipe - Existing
- Sewerage Pipe - Retired
- Sewerage Trunk Main - Existing
- Sewerage Trunk Main - Retired
- Sewerage Rising Main - Existing
- Sewerage Rising Main - Retired

Water Assets

- Hydrant - Existing
- Hydrant - Retired
- Valve - Existing
- Valve - Retired
- Water Supply Line - Existing
- Water Supply Line - Retired

Stormwater Assets

- Manholes, Gullies and Drainways
- Telemetry Gauge Station
- Stormwater Headwall
- Telemetry Air Line
- Stormwater Pipes and Culverts

Parcel Types

- Easement
- Base Lot (Type L)
- Water Body (Type W)

N

1:3000

0 0.03km

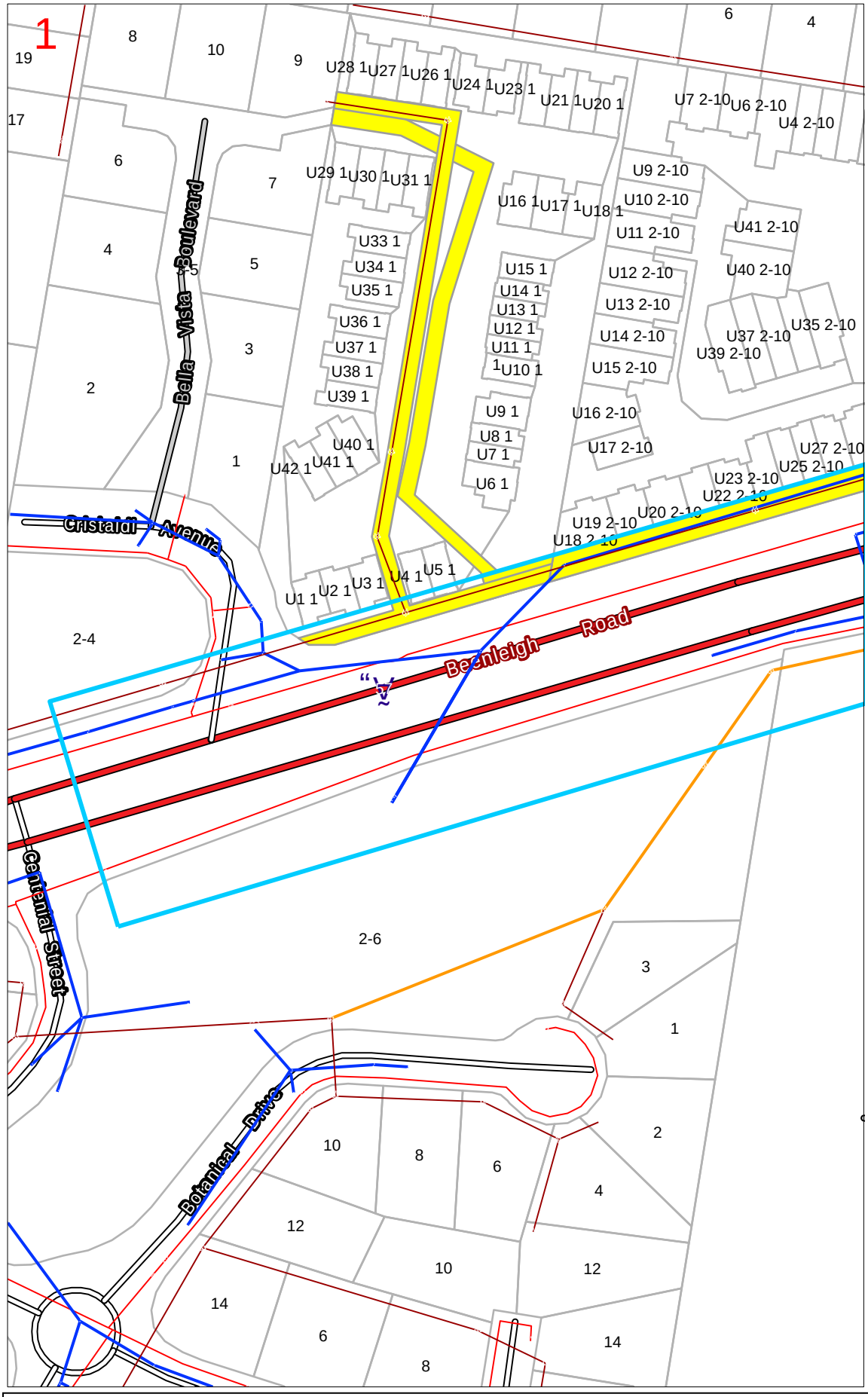
Disclaimer: The plans are indicative only and while all reasonable care has been taken in producing this information, Logan City Council does not warrant the accuracy, completeness or currency of this information and accepts no responsibility for, or in connection with any loss or damage suffered as a result of any inaccuracies, errors or omissions or your reliance on this information. Base material reproduced with permission of the Director-General, Department of Natural Resources and Mines. The State of Queensland (Department of Natural Resources and Mines).

Logan City Council's infrastructure dates back over many years and may include manufactured materials containing asbestos. 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 but not limited to "workplace health and safety".

Map 1

Sequence No: 84110241

1677 Beenleigh Road Underwood



LEGEND:

- Affected DBYD Work Area
- 1 Detail Map

Sewer Assets

- Sewerage Pump Station - Existing
- Sewerage Pump Station - Retired
- Sewerage Manhole - Existing
- Sewerage Manhole - Retired
- Sewerage Pipe - Existing
- Sewerage Pipe - Retired
- Sewerage Trunk Main - Existing
- Sewerage Trunk Main - Retired
- Sewerage Rising Main - Existing
- Sewerage Rising Main - Retired

Water Assets

- Hydrant - Existing
- Hydrant - Retired
- Valve - Existing
- Valve - Retired
- Water Supply Line - Existing
- Water Supply Line - Retired

Stormwater Assets

- Manholes, Gullies and Drainways
- Telemetry Gauge Station
- Stormwater Headwall
- Telemetry Air Line
- Stormwater Pipes and Culverts

Parcel Types

- Easement
- Base Lot (Type L)
- Water Body (Type W)

N

1:3000

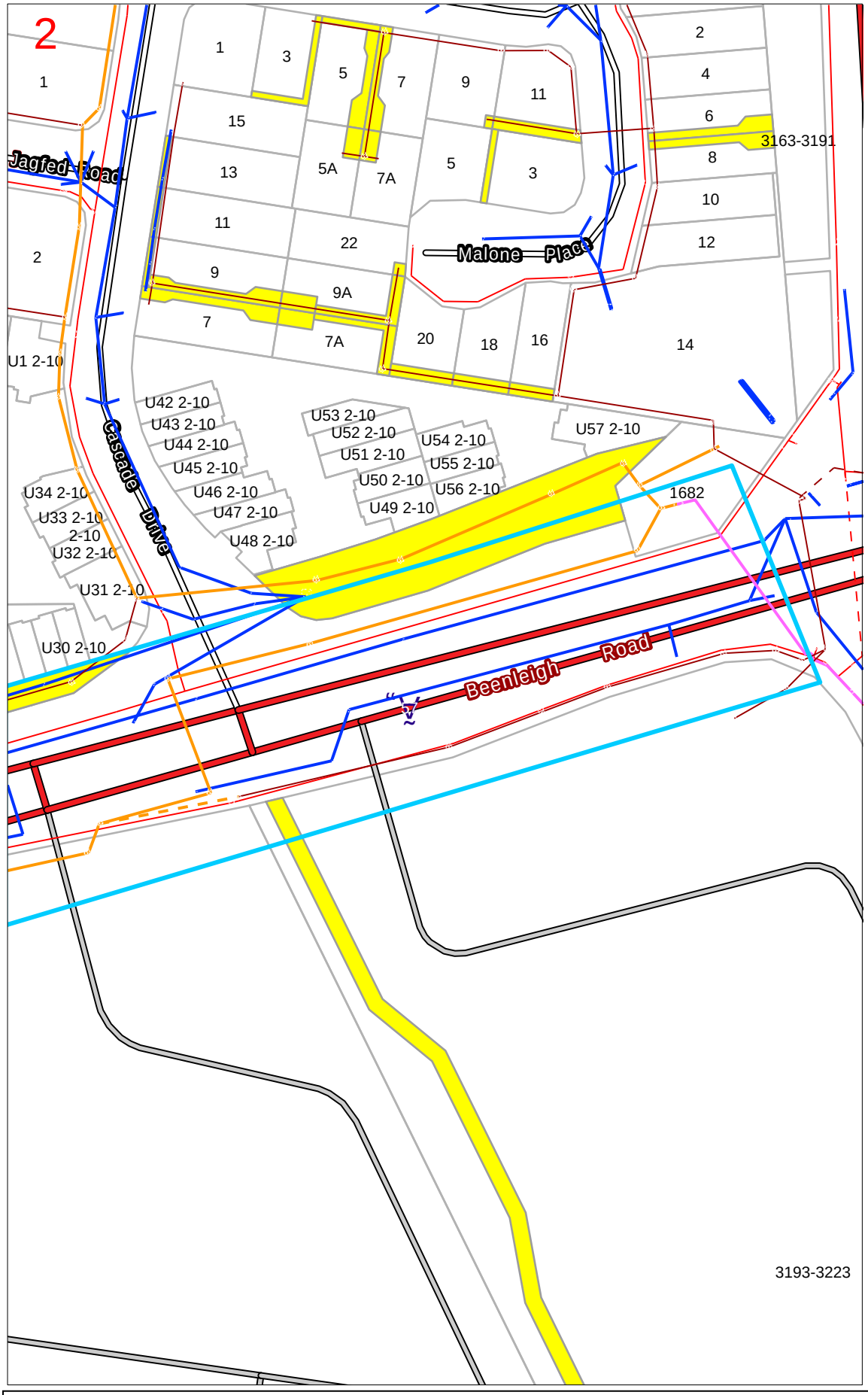
Disclaimer: The plans are indicative only and while all reasonable care has been taken in producing this information, Logan City Council does not warrant the accuracy, completeness or currency of this information and accepts no responsibility for, or in connection with any loss or damage suffered as a result of any inaccuracies, errors or omissions or your reliance on this information. Base material reproduced with permission of the Director-General, Department of Natural Resources and Mines. The State of Queensland (Department of Natural Resources and Mines).

Logan City Council's infrastructure dates back over many years and may include manufactured materials containing asbestos. 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 but not limited to "workplace health and safety".

Map 2

Sequence No: 84110241

1677 Beenleigh Road Underwood



LEGEND:

- Affected DBYD Work Area
- 1 Detail Map

Sewer Assets

- Sewerage Pump Station - Existing
- Sewerage Pump Station - Retired
- Sewerage Manhole - Existing
- Sewerage Manhole - Retired
- Sewerage Pipe - Existing
- Sewerage Pipe - Retired
- Sewerage Trunk Main - Existing
- Sewerage Trunk Main - Retired
- Sewerage Rising Main - Existing
- Sewerage Rising Main - Retired

Water Assets

- Hydrant - Existing
- Hydrant - Retired
- Valve - Existing
- Valve - Retired
- Water Supply Line - Existing
- Water Supply Line - Retired

Stormwater Assets

- Manholes, Gullies and Drainways
- Telemetry Gauge Station
- Stormwater Headwall
- Telemetry Air Line
- Stormwater Pipes and Culverts

Parcel Types

- Easement
- Base Lot (Type L)
- Water Body (Type W)

N

1:3000

Disclaimer: The plans are indicative only and while all reasonable care has been taken in producing this information, Logan City Council does not warrant the accuracy, completeness or currency of this information and accepts no responsibility for, or in connection with any loss or damage suffered as a result of any inaccuracies, errors or omissions or your reliance on this information. Base material reproduced with permission of the Director-General, Department of Natural Resources and Mines. The State of Queensland (Department of Natural Resources and Mines).

Logan City Council's infrastructure dates back over many years and may include manufactured materials containing asbestos. 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 but not limited to "workplace health and safety".

Indicative Plans

Issue Date:	05/06/2019
Location:	1677 Beenleigh Road , Underwood , QLD , 4119

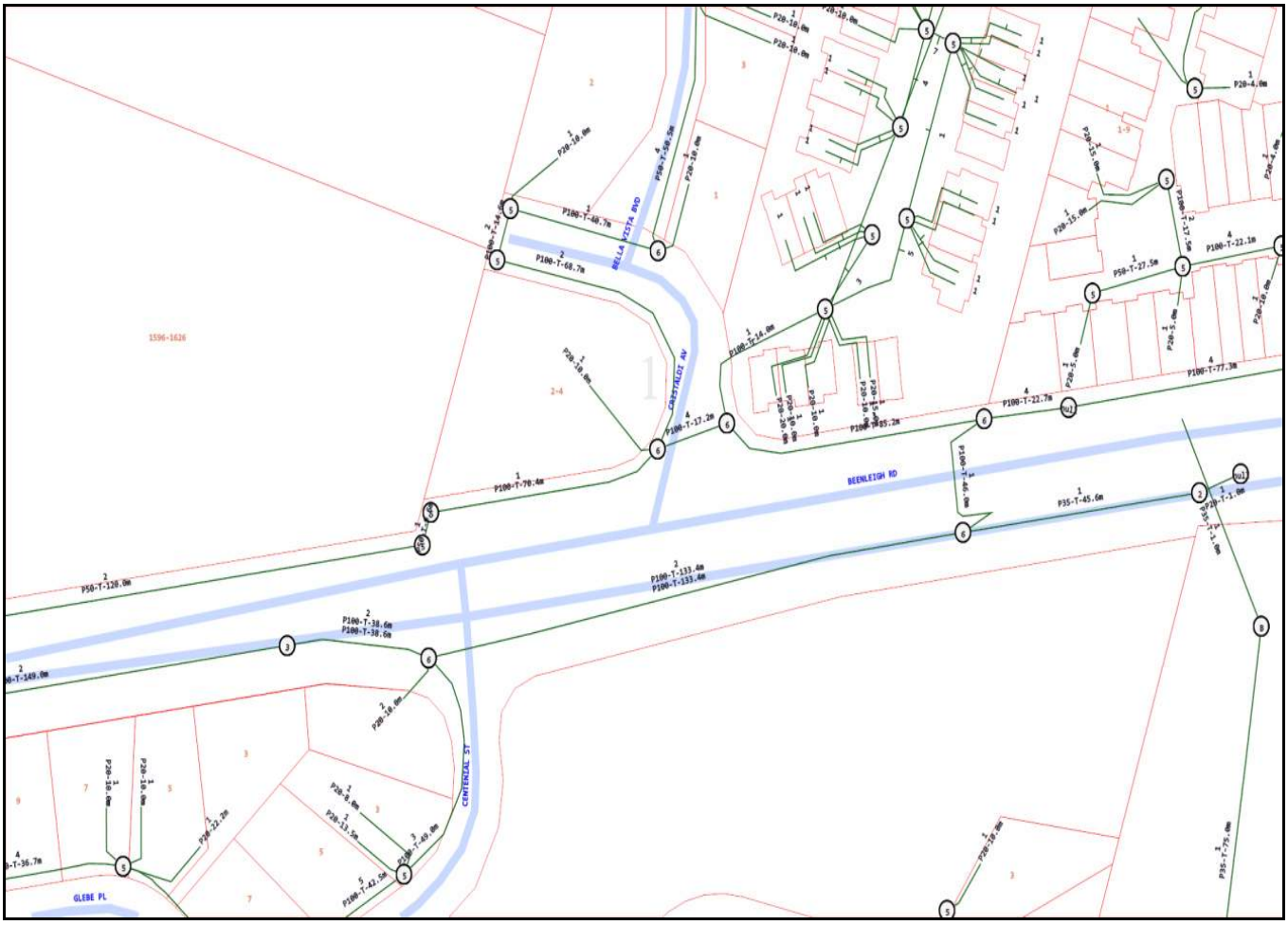
1	2

© 2015 nbn co limited | ABN 86 136 533 741
Email info@nbn.com.au Web nbn.com.au

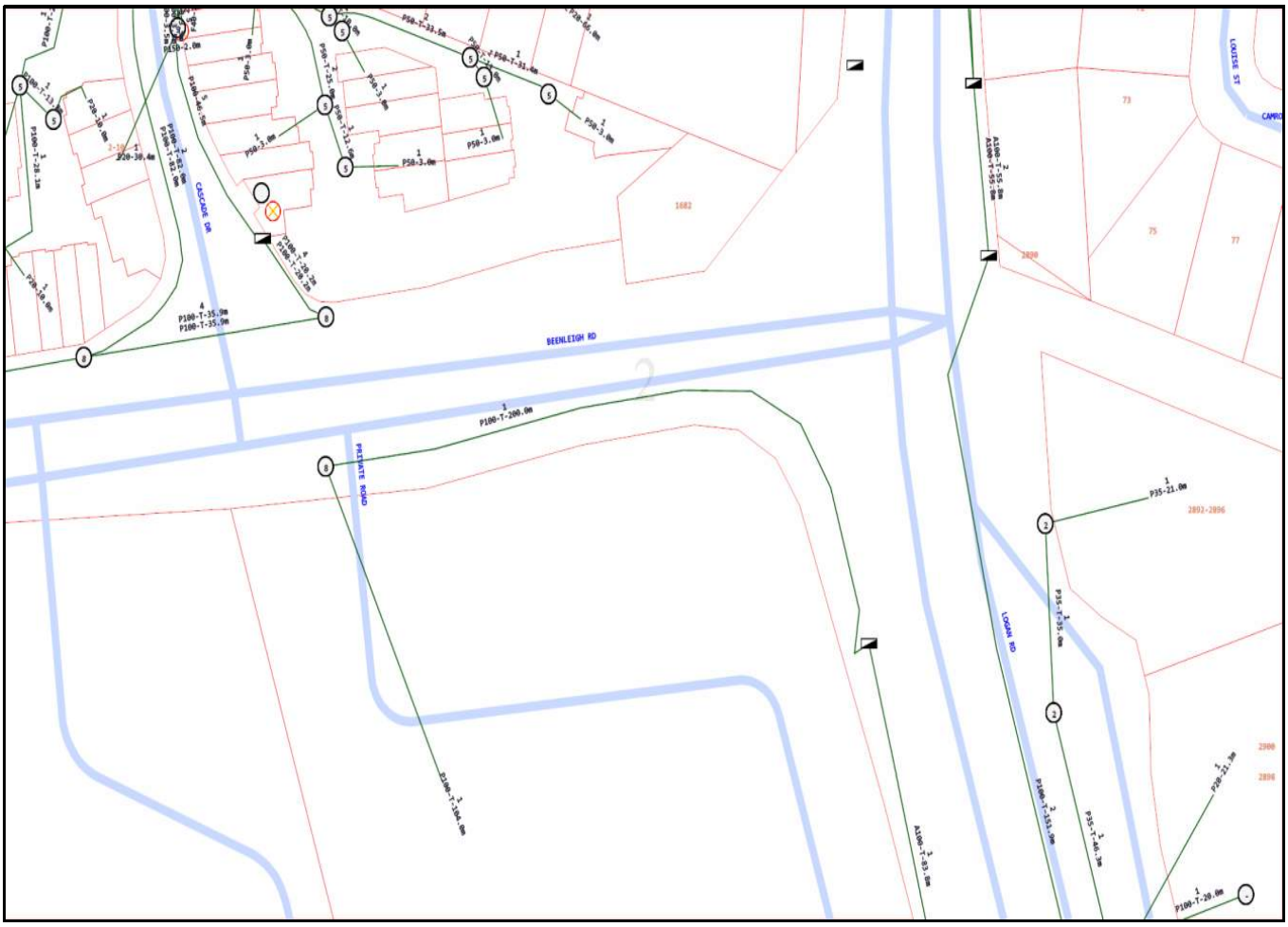
LEGEND

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

© 2015 nbn co limited | ABN 86 136 533 741
Email info@nbn.com.au Web nbn.com.au



Level 11, 100 Arthur Street, North Sydney NSW 2060
© 2015 nbn co limited | ABN 86 136 533 741
Email info@nbn.com.au Web nbn.com.au



Emergency Contacts

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

© 2015 nbn co limited | ABN 86 136 533 741

Response Cover Letter

Date: 05/06/2019

AAPT (PowerTel) Limited
GPO Box 7041 Sydney 2001
Phone: 1800 786 306
A/H: 1800 786 306

To:
Mr Mark Gittins - Customer ID: 1960039
Northrop Consulting Engineers
Level 9 200 Mary Street
Brisbane City QLD 4000

Email: mgittins@northrop.com.au
Phone: 0404896447
Fax: Not Supplied
Mobile: Not Supplied



Dear Mr Mark Gittins

The following is our response to your Dial Before You Dig enquiry.

AAPT ASSETS ARE AFFECTED BY YOUR ENQUIRY 84110238

Sequence Number:	84110238
Location:	1677 Beenleigh Road Underwood QLD 4119
Commencement Date:	24/06/2019

In relation to your enquiry at the above address, AAPT (PowerTel) advises as follows.

The records of AAPT (PowerTel) Limited disclose that there are underground FIBRE OPTIC / TELECOMMUNICATIONS cables in the vicinity of the above enquiry. The AAPT network is in a 3rd party ducted network in this area. The 3rd party supplier will manage any duct issues related to this request. The 3rd party supplier will also contact AAPT directly if they believe the AAPT network would be impacted.

It is essential that no excavations are undertaken until you have received and appraised the duct owner's plans and conditions for this area.

Should the scope of your work or the area of your work change, please contact as below to receive further advice. Due to continued network expansion, the network information can only be considered valid and accurate for 28 days from issue.

AAPT will seek compensation for any damage to its network through negligence or ignorance of duty of care. Should you require any further information, please contact as below:

AAPT
Ph: 1800 786 306

DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete

DUTY OF CARE

Due to the nature of underground cables and the age of some cables and records the accuracy and/or completeness of the information cannot be guaranteed and, accordingly, they are indicative only and as a result AAPT (PowerTel) 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 onsite investigations are essential to locate an assets exact position.

The following minimum clearances must be maintained.

1) 300mm when laying asset's inline, horizontal or vertical.

2) 500mm when operating vibrating equipment. Eg: Vibrating plates.

3) 1000mm when operating mechanical excavators or Jackhammers.

ON SITE LOCATING OF AAPT'S (POWERTEL) CABLING AND INFRASTRUCTURE MUST BE CONDUCTED BY AAPT'S (POWERTEL) PERSONNEL ONLY. AAPT (POWERTEL) WILL USE ALL LEGAL MEANS TO SEEK DAMAGES AND ANY OTHER REMEDIES AVAILABLE TO IT IN THE EVENT THAT ITS CABLE OR ANY OTHER NETWORK INFRASTRUCTURE IS DAMAGED BY YOU OR YOUR PERSONNEL AND/OR CONTRACTORS. IT IS AN OFFENCE TO OPEN ANY AAPT'S (POWERTEL) PITS OR MANHOLES AND/OR ANY ASSOCIATED INFRASTRUCTURE BELONGING TO OR PART OF AAPT'S (POWERTEL) NETWORK

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 & Manhole covers must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the possibility of damage to the cable.

EG: Blades of hand equipment should be orientated parallel to the line of the cable rather than digging across the cable.

All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.

All excavations must be undertaken in accordance with the relevant legislation and regulations.

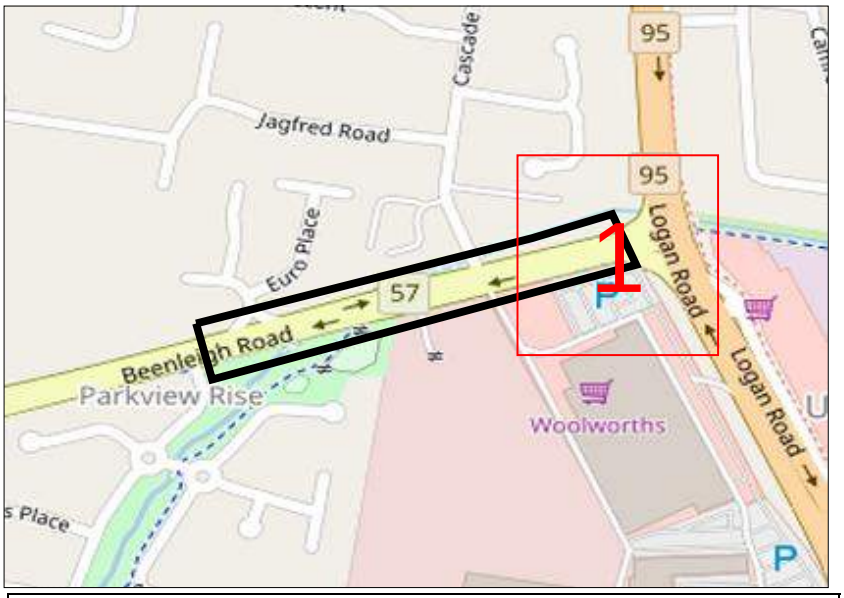
ANY DAMAGE TO AAPT (POWERTEL) NETWORK MUST BE REPORTED IMMEDIATELY TO 1800 786 306

Any information provided is valid only for 28 days from the date of issue of this document.

If the work operations extend beyond this period, or if the designs are altered in any way, you are requested to re-submit your proposal for re-assessment by contacting Dial Before You Dig ph:1100 or www.dialbeforeyoudig.com.au

Onsite visits by AAPT (PowerTel) agents may incur costs, this would solely depend on the type and extent of the work to be carried out. EG: Major roadwork's, network relocation's, Large planning and design work's.

Overview Map



0 0.06km **Scale: 1:** 5500

AAPT (for information specific to this job only) Ph 1800 786 306

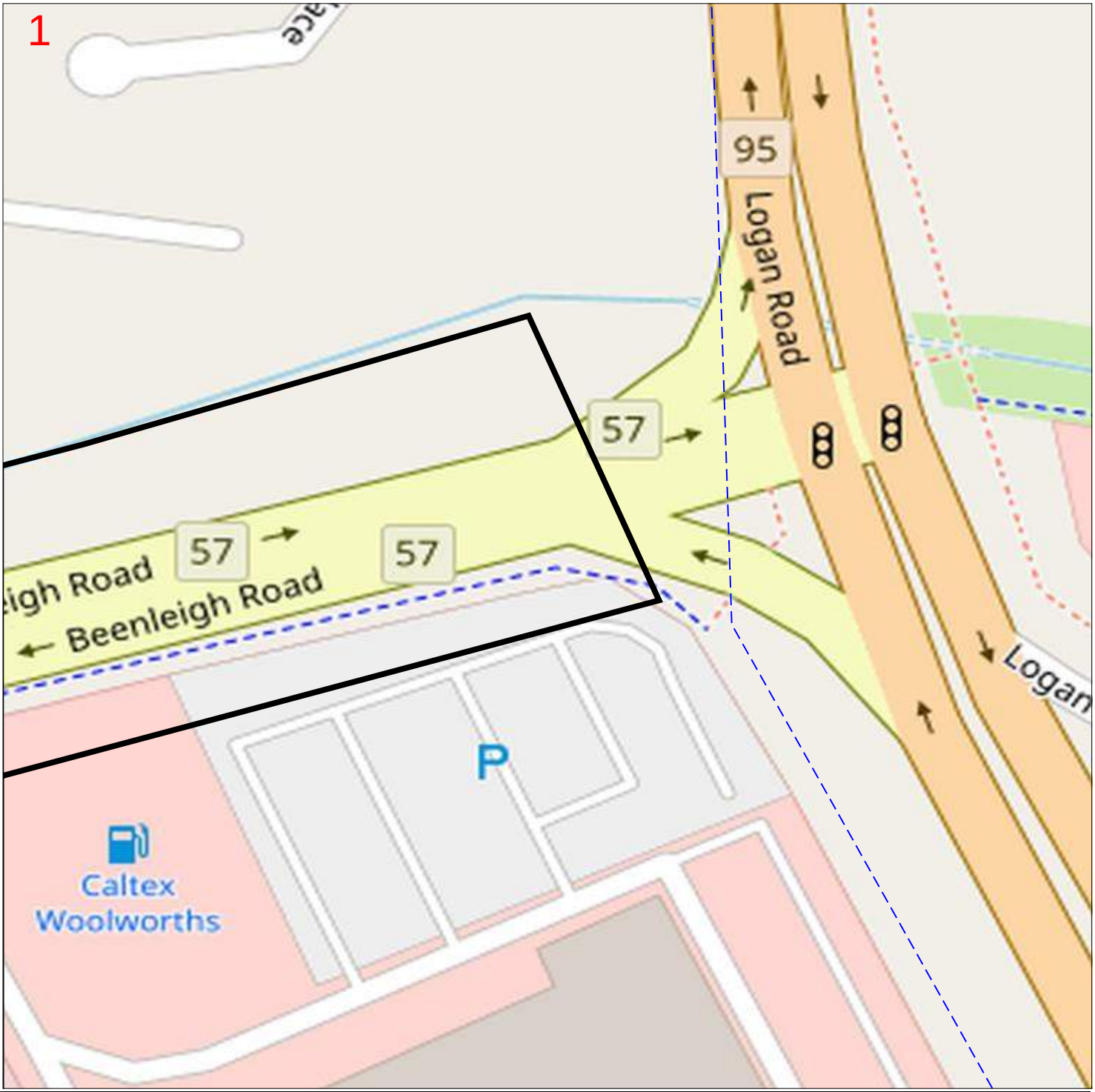
DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete

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

AAPT

PowerTel Simply Business

AAPT (PowerTel) Limited GPO Box 7041 Sydney 2001
Phone: 1800 786 306 A/H 1800 786 306



Enquiry Number: 84110238

Map Sheet: 1

Scale: 1:750

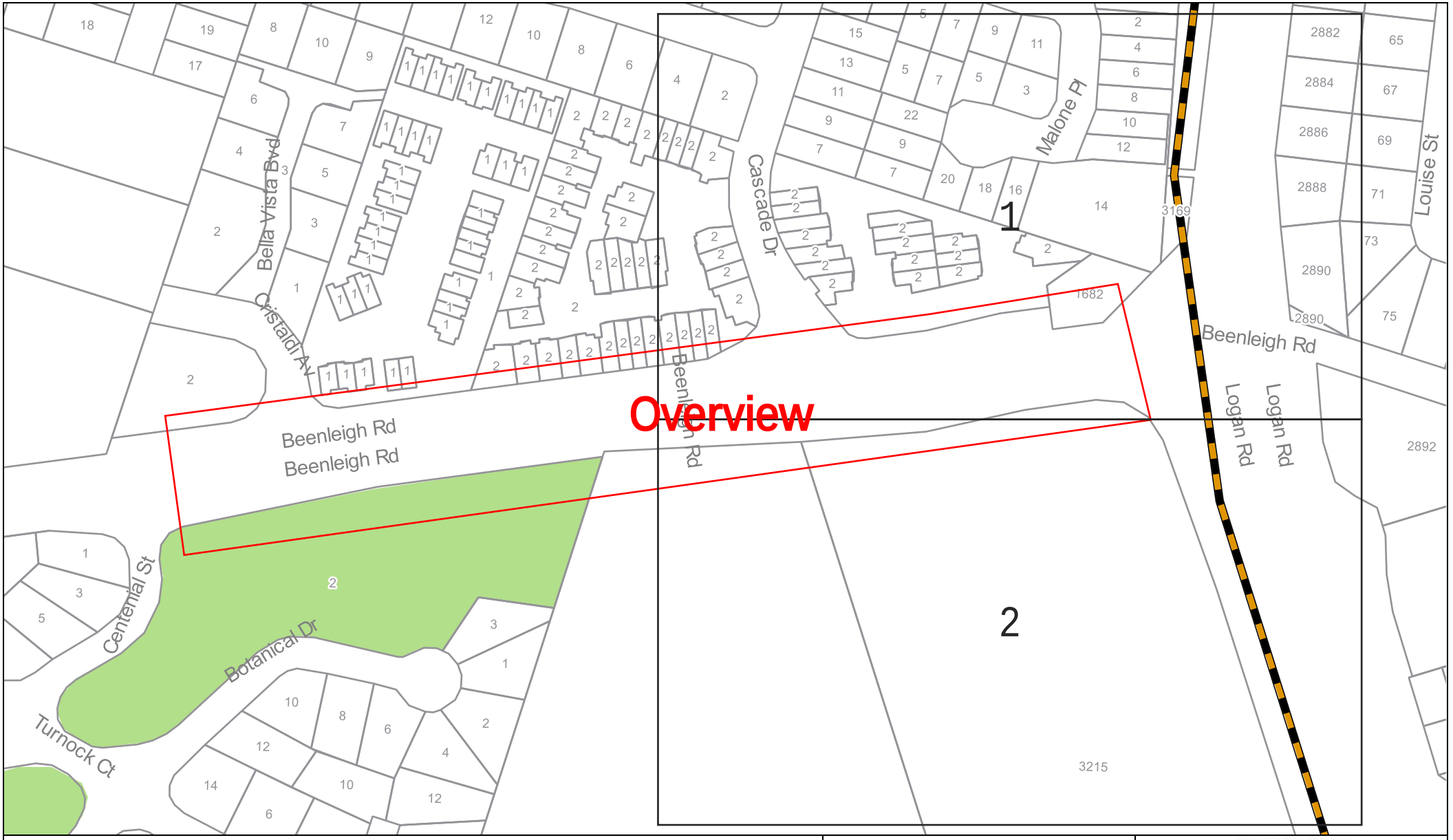
0 0.008km

LEGEND:

- DBYD Work Area
- AAPT Duct
- Non AAPT Duct
- AAPT Manhole

N

DISCLAIMER: This document has been prepared solely for the use of AAPT. It should not be scaled to locate any asset. No warranty is given that the information given is accurate or complete



Sequence Number: 84110240

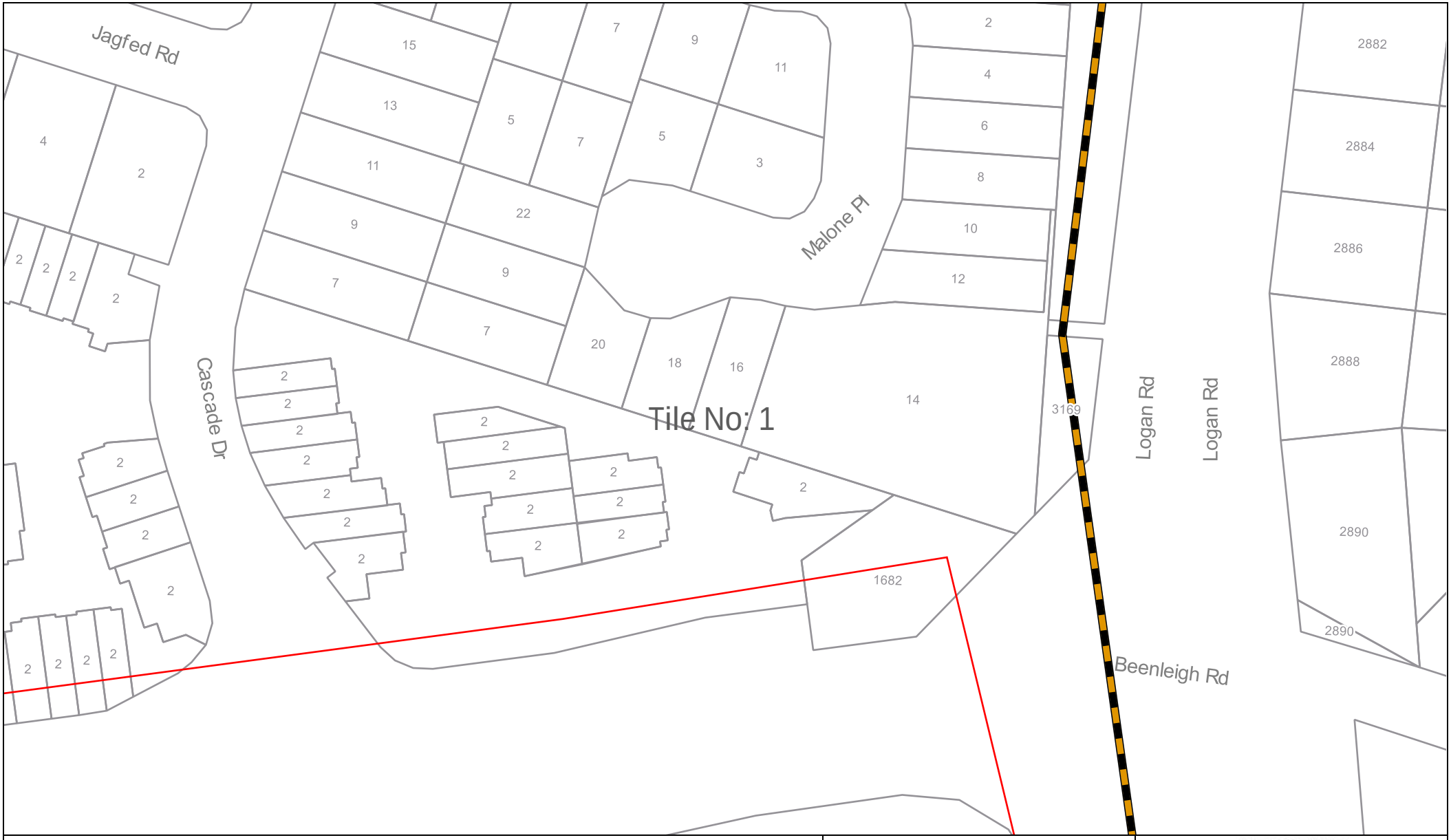
Date: 05/06/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



Sequence Number: 84110240

Date: 05/06/2019

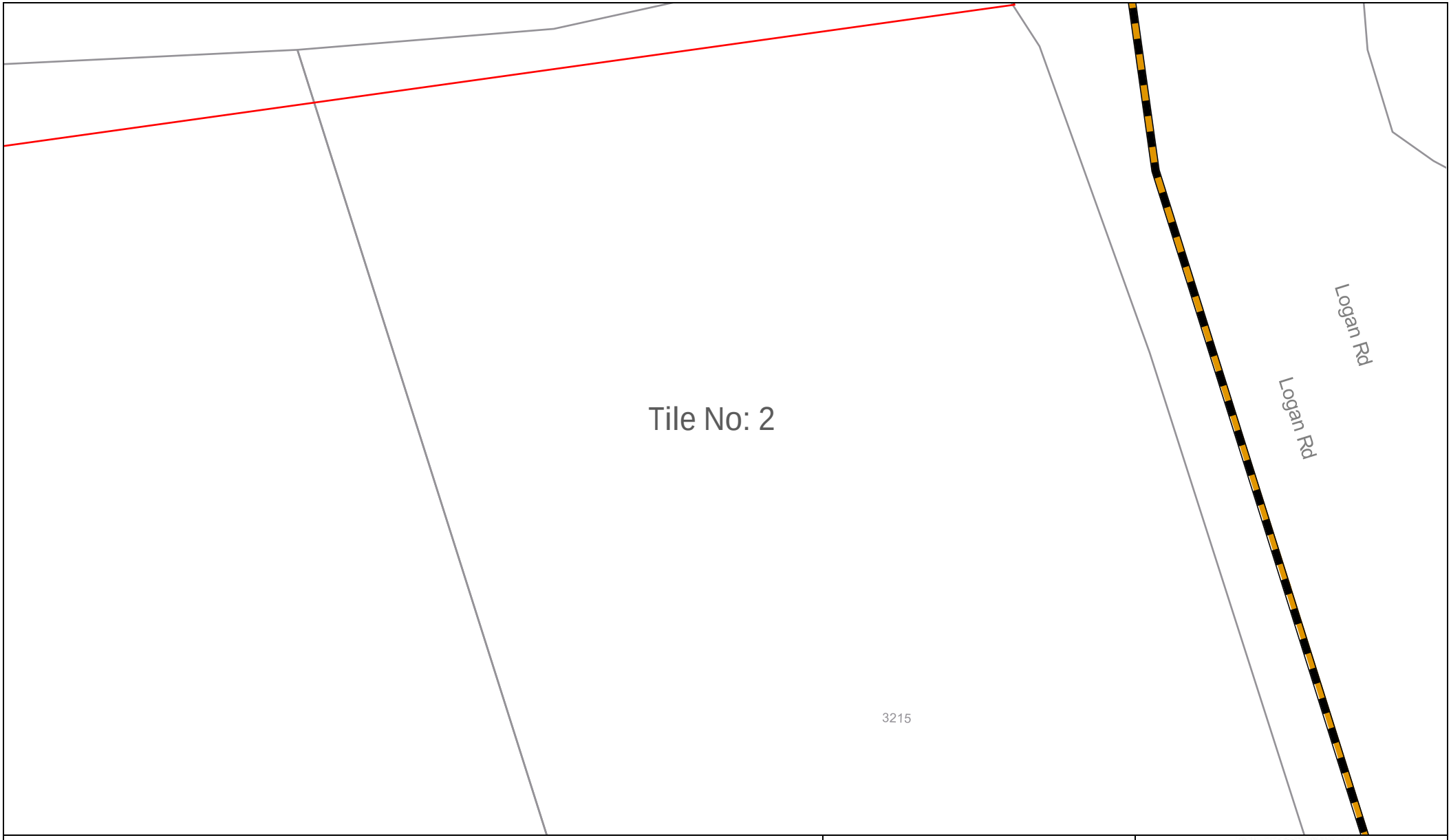
DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite
- Area

Assets
- Cable
- 3rd Party Duct
- Marker Post



Sequence Number: 84110240

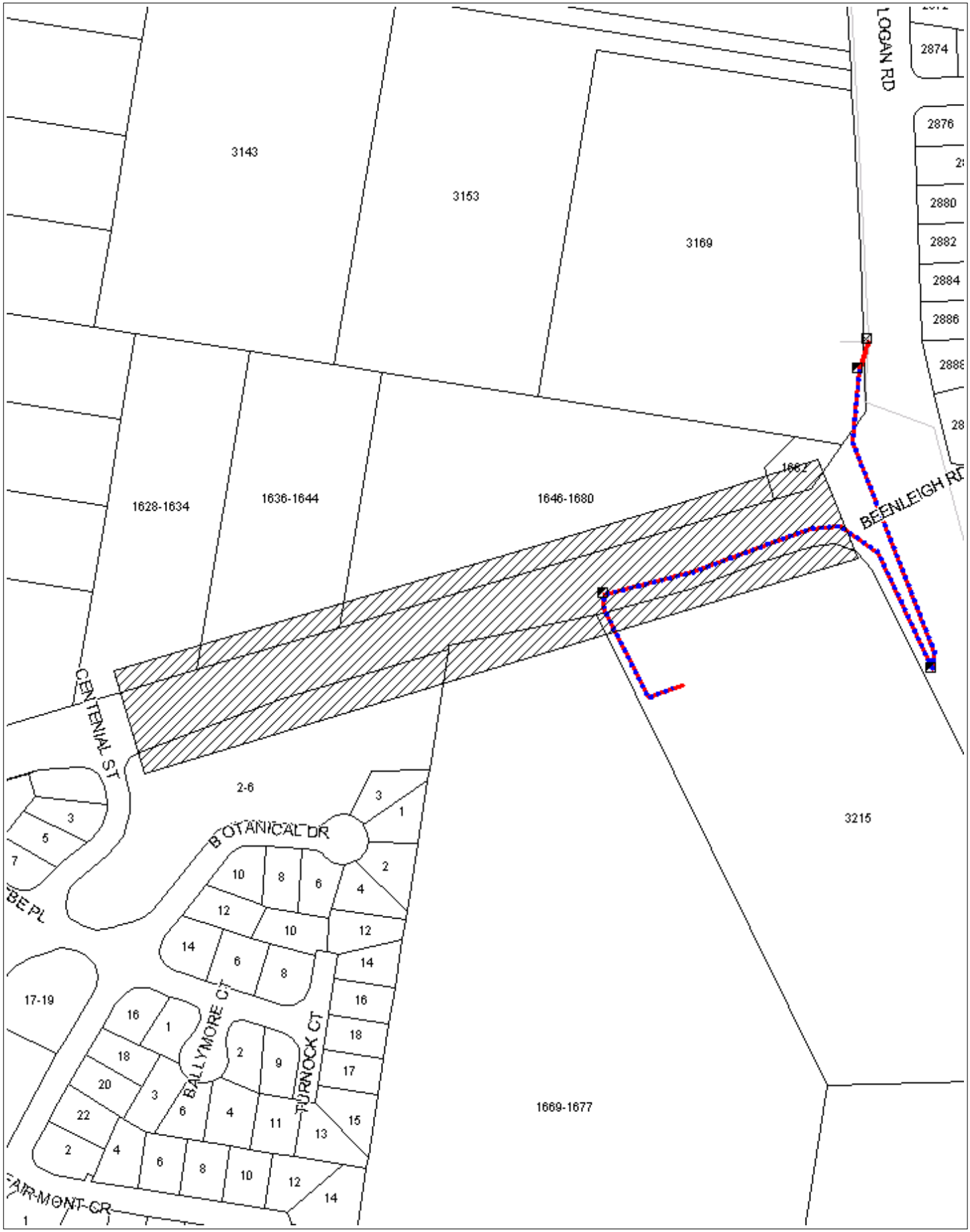
Date: 05/06/2019

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite	Assets
Area	Cable
	3rd Party Duct
	Marker Post



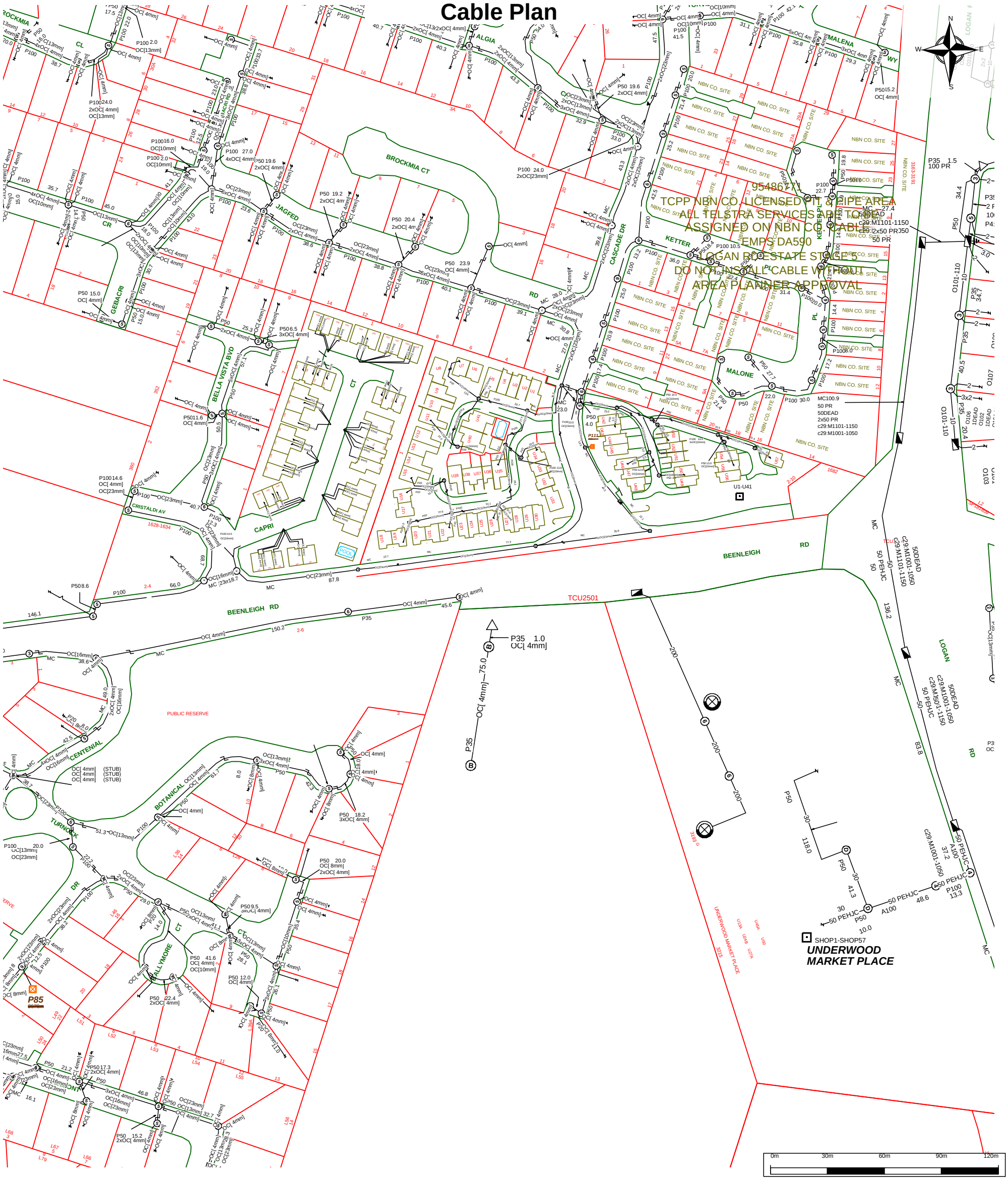
WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has 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: 84110244

Date Generated: 05/06/2019

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

Cable Plan



Telstra	For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	
Generated On 05/06/2019 10:39:00	Sequence Number: 84110243
	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.

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

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

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

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

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

Mains Cable Plan



For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 84110243
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.
Generated On 05/06/2019 10:39:03	

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

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

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

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

Appendix F – Floodwise Property Report

Logan City Council - Flood Level Report

The Logan City Council Flood Level Report is provided to support planning and development in accordance with the current version of the Logan Planning Scheme 2015. This report summarises the relevant information for the Flood Hazard overlay code and applicable flood planning levels. The content of this report should be considered along with all other applicable planning and development requirements.
This tool is not designed to give information on the risk of flooding for the purposes of preparing for potential flooding that may affect your home or business. For information on disaster preparedness please visit Council's Disasters and Emergencies webpage.

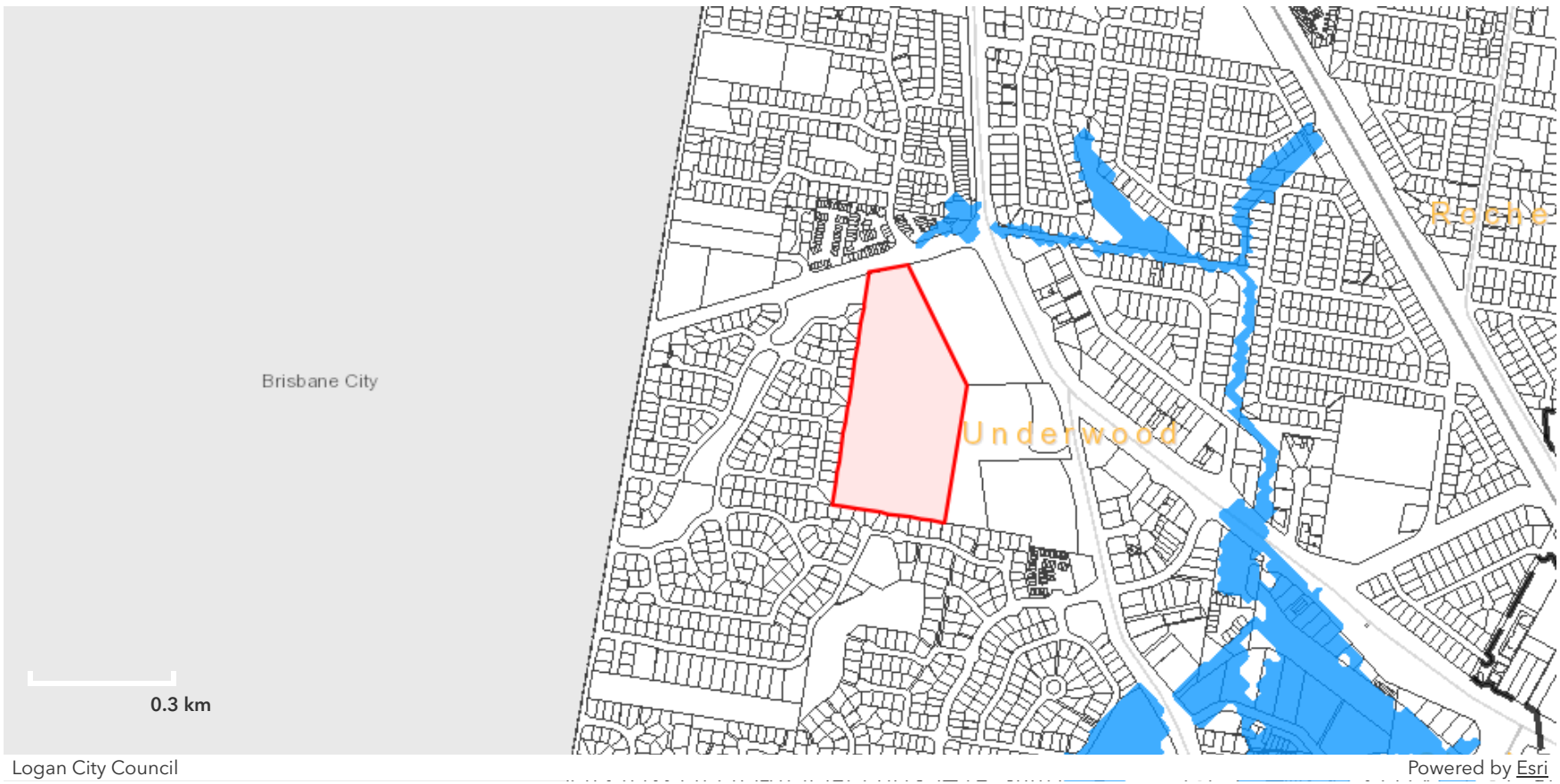
Property Details

Address:	1669-1677 Beenleigh Road UNDERWOOD QLD 4119		
Lot/Plan:	Lot 8 RP 157306	**Property Key:**	223969
Property Size:	97,840 m ^{2} (survey plan area)	**Division:**	2
Zone and precinct:	Specialised Centre - Underwood Business		

Planning and Development Triggers

The Flood Hazard Overlay from the Logan Planning Scheme 2015 is displayed. If the selected property is impacted/affected, the Flood Level Report will provide information about flood levels. For further information please contact Council by emailing Council@logan.qld.gov.au or phoning (07) 3412 5900.

No Flood Planning Triggers	This property has not been identified in a natural hazard area for flooding. The Flood Hazard overlay code is not triggered for planning and development.



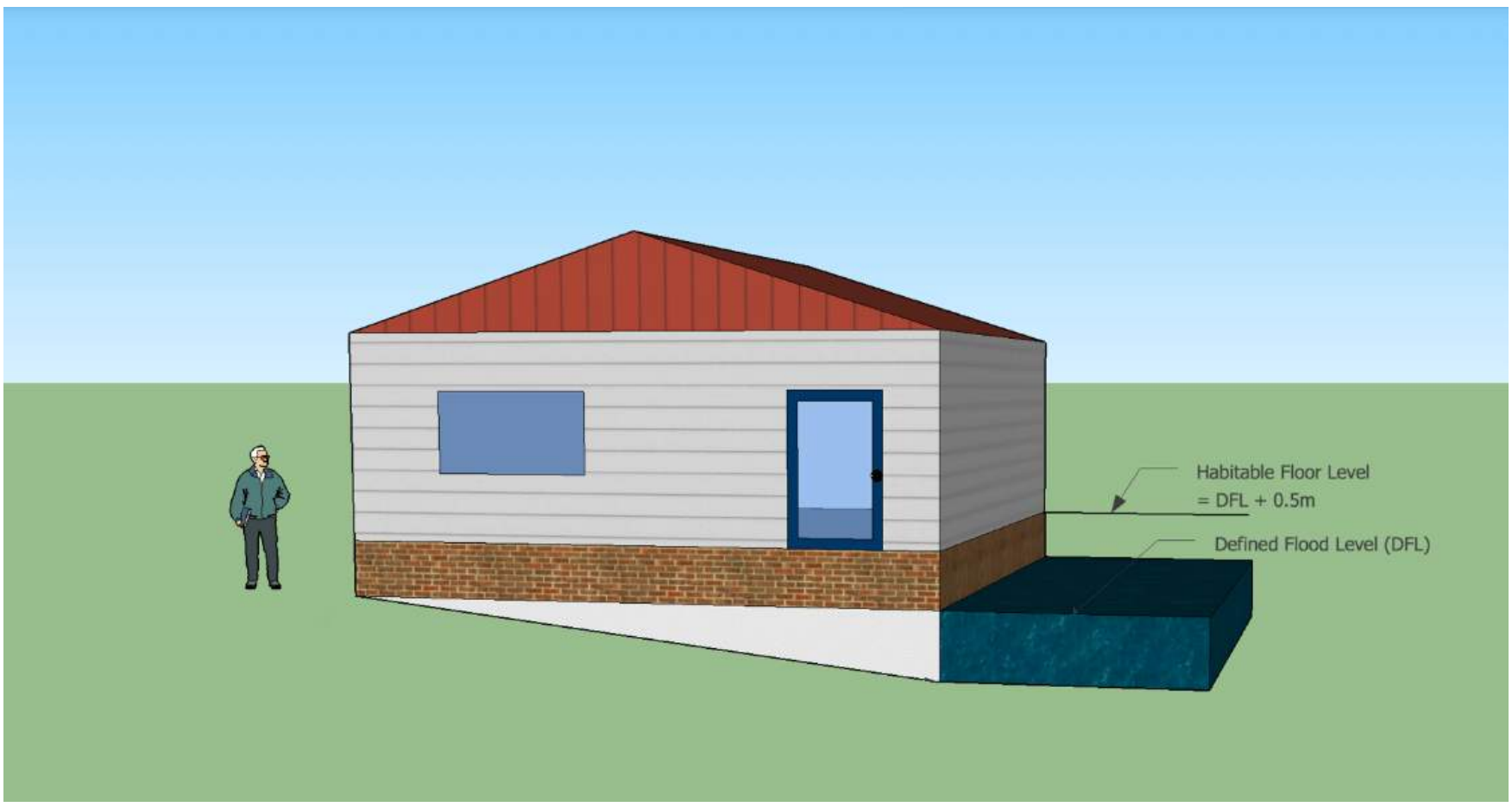
Where to next?

This Flood Level Report is designed to support the implementation of the Logan Planning Scheme 2015. The planning scheme helps Council to safely manage population growth, plan for a sustainable future and guide the way land is used and developed across the city.

Building a house?

A house located in a Flood Hazard overlay area must have a finished habitable floor level a minimum of 500mm above the defined flood event (as shown below).

A building permit, is required prior to commencing construction on most types of domestic or commercial build works. These can be sought from a private building certifier who will assess whether the proposed work complies with the relevant legislation, regulations and standards. You can access more information on the building works process from Council at Planning & Building.



Lodging a development application?

For further advice regarding planning approval for a subdivision or material change of use, or operational works please visit the Development in Logan webpage or contact a Council planner on (07) 3412 5269.

Buying or selling?

Regulation of planning and development is just one way that we can help to make our city flood resilient. If you are looking to buy or sell a property it is important to consider the risk of flooding and how you can be prepared for potential flooding which may affect your property, business and neighbourhood. Being resilient is a shared responsibility, and Council has developed a range of information on flooding to assist all members of the community to be better prepared for severe weather and flooding. For information on all hazards, including flooding, please visit Council's Disasters and Emergencies website.

Please note:

All possible steps have been undertaken to ensure the information presented in this report is accurate at the time of generation. Changes to the topography and condition of the local creeks and waterways may have an impact on flooding. Over time, Council may undertake further technical studies to maintain the understanding of flooding across the city, and update the information available.

Logan City Council

PO Box 3226 Logan Central QLD 4114

Generated: Tuesday, 3 December 2019 4:15 PM

Phone: (07) 3412 5269

Email: council@logan.qld.gov.au

Web: logan.qld.gov.au

Appendix G – Code Response Tables

8.2 Overlay codes

8.2.1 Acid sulfate soils overlay code

8.2.1.1 Application

1. This code applies to accepted development (subject to requirements) and assessable development for which the Acid sulfate soils overlay code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.10.1.1–Acid sulfate soils overlay map OM–01.00 in Part 5.
2. When using this code, reference should be made to section 5.3.2–Determining the category of development and category of assessment and, where applicable, section 5.3.3–Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development located in Part 5–Tables of assessment.

8.2.1.2 Purpose

1. The purpose of code is to ensure that acid sulfate soils do not adversely affect the natural and built environment and human health and safety.
2. The purpose of the code will be achieved through the following overall outcomes:
    a. Development:
        i. avoids the disturbance of acid sulfate soils; or
        ii. protects ecosystems, the built environment and personal health and safety by managing any disturbed acid sulfate soils and associated drainage waters.

8.2.1.3 Requirements for assessment

Part A–Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 8.2.1.3.1–Acid sulfate soils overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Land in the Potential and actual acid sulfate soil area		
PO1 Development in the Potential and actual acid sulfate soil area identified on Acid sulfate soils overlay map–OM-01.01 that involves disturbing soil or sediment at or below 5 metres AHD:	**AO1.1** Development in the Potential and actual acid sulfate soils area at or below 5 metres AHD identified on Acid sulfate soils overlay map–OM–01.01 does not involve: a. excavating or otherwise removing 100m^3 or	Will comply. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

a. avoids disturbing acid sulfate soils; or b. is managed to avoid the: i. release of acid and metal contaminants; ii. is managed to avoid the release of nutrients that contribute to coastal algal blooms. Editor's note––For development to which this overlay code applies, undertake an acid sulfate soils investigation conforming to the current version of Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland and the current Queensland Acid Sulfate Soil Technical Manual: Laboratory Methods Guidelines. Where the presence of acid sulfate soils is confirmed, prepare an acid sulfate soils management plan in accordance with the current Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines.	more of soil or sediment; or b. filling of land involving 500m^3 or more of material with an average depth of 0.5 of a metre or greater; or c. extracting ground water.	
	AO1.2 Development in the Potential and actual acid sulfate soils area above 5 metres AHD and at or below 20 metres AHD area identified on Acid sulfate soils overlay map–OM–01.01 does not involve excavating or otherwise removing 100m^3 or more of soil or sediment at or below 5 metres AHD.	Will comply. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Treatment and disposal of acid sulfate soils		
PO2 Development manages the treatment and disposal of acid sulfate soils.	**AO2** Where acid sulfate soils are identified, the acid sulfate soils are managed in accordance with an acid sulfate soils management plan prepared in accordance with the current Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines.	NA

Editor's note—The following documents will assist in undertaking an acid sulfate soil investigation and assessment:

- Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines
- Queensland Acid Sulfate Soil Technical Manual, Legislation and Policy Guide
- National Acid Sulfate Soils Guidance: National acid sulfate sampling and identification methods manual
- Acid Sulfate Soils: Laboratory Methods Guidelines
- Australian Standard 4969 – Analysis of acid sulfate soil – Dried samples – Methods of test
- National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual
- National Acid Sulfate Soils Guidance: Guidelines for the dredging of acid sulfate soil sediments and associated dredge spoil management
- National Acid Sulfate Soils Guidance: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments
- National Acid Sulfate Soils Guidance: Overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands

9.4.2 Filling and excavation code

9.4.2.1 Application

1. This code applies to accepted development (subject to requirements) and code assessable operational work—filling or excavation for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.8.1—Operational work.
2. When using this code, reference should be made to section 5.3.2–Determining the category of development and category of assessment and, where applicable, section 5.3.3–Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5–Tables of assessment.

9.4.2.2 Purpose

1. The purpose of the code is to protect premises, people and natural processes from adverse impacts associated with filling or excavation.
2. The purpose of the code will be achieved through the following overall outcomes:
    a. development protects:
        i. natural physical processes and ecosystems;
        ii. existing and planned infrastructure;
        iii. personal health and safety and premises;
        iv. visual amenity.

9.4.2.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A–Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.2.3.1–Filling and excavation code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes Comments	
For accepted development (subject to requirements) and assessable development		
Protection of natural processes and ecosystems		
PO1 The discharge of sediments and pollutants from filling or excavation does not adversely affect a waterway or the stormwater network.	**AO1** The discharge of sediments and pollutants to a waterway or stormwater network complies with part 3.3—Filling and excavation standards in planning scheme policy 5—Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
PO2 Topsoil and spoil stockpiled on the premises do not	**AO2** Topsoil and spoil is stockpiled to comply with part 3.3–	Complies. To be detailed in future earthworks detailed designs.

adversely affect natural processes and ecosystems.	Filling and excavation standards in planning scheme policy 5–Infrastructure.	
PO3 Filling is carried out using stable, solid and clean earth, free of organic and putrescible waste, rubbish and refuse material.	**AO3** Filling complies with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Protection of existing and planned infrastructure		
PO4 Filling or excavation works do not adversely affect infrastructure, including any services.	**AO4** Filling or excavation works comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Protection and enhancement of personal health and safety and premises		
PO5 Filling or excavation works do not adversely affect personal health and safety.	**AO5** Filling or excavation works comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Surface water flow		
PO6 Surface water drainage does not cause any of the following: a. ponding on any premises; or b. a hazard or adversely affect personal health and safety and premises; or c. diversion or concentration of flow from or onto adjoining premises or infrastructure.	**AO6** Surface water drainage complies with part 3.3–Filling or excavation standards in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Batters		
PO7 A batter: a. does not adversely affect the natural physical processes and ecosystems; b. protects existing and planned infrastructure; c. is safe, stable and easily maintained; d. is landscaped to enhance visual amenity.	**AO7** A batter is designed and constructed to comply with the standards specified in 3.3.6–Batters and retaining walls in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

Retaining walls		
PO8 A retaining wall: a. is not constructed of timber and are not located on existing or proposed lot boundaries, or movement networks; b. does not adversely affect the natural physical processes and ecosystems; c. is located to avoid conflict with adjoining premises; d. is located such that existing and planned infrastructure is not adversely affected; e. protects the visual amenity of adjoining premises or a public open space; f. is located within the premises that is being filled; g. is located within the premises that is cut and is designed to take any surcharge loading allowable on the uphill lot; h. is safe and stable; i. enables easy access for maintenance.	**AO8** A retaining wall is designed and constructed to comply with the standards specified in section 3.3.6.2–Retaining walls in planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Filling of a dam		
PO9 The filling of a dam: a. does not adversely affect the natural physical processes and ecosystems; b. creates a safe and stable surface; c. is integrated into the landscape.	**AO9** The filling of a dam complies with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	NA

9.4.3 Infrastructure code

9.4.3.1 Application

1. This code applies to:
   a. material change of use:
      i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5–Categories of development and assessment-Material change of use in Part 5–Tables of assessment;
      ii. that is made impact assessment in a table of assessment in section 5.5–Categories of development and assessment-Material change of use or section 5.9–Categories of development and assessment–Local plans in Part 5–Tables of assessment;
   b. reconfiguring a lot:
      i. that is code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;
      ii. made impact assessment in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;
   c. operational work that is infrastructure work:
      i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column Table 5.8.1–Operational work in Part 5–Tables of assessment.
2. When using this code, reference should be made to section 5.3.2–Determining the category of development and category of assessment and, where applicable, section 5.3.3–Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5–Tables of assessment.

9.4.3.2 Purpose

1. The purpose of the code is to ensure that infrastructure is provided to service development.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. development protects the existing infrastructure and planned infrastructure networks being the:
      i. movement network;
      ii. park network;
      iii. water network;
      iv. sewerage network;
      v. stormwater network;
      vi. other networks including electricity, gas and telecommunications;
      vii. land for community facilities network;
   b. development other than operational work provides infrastructure that is necessary to service the development, including elements of:
      i. a safe, efficient and legible road network;
      ii. a safe, efficient and legible public transport network;
      iii. a safe, efficient and legible cycle network;
      iv. a safe, efficient and legible pedestrian network;

v. a safe, efficient and legible parks network;
vi. a safe and efficient water network;
vii. a safe and efficient sewerage network;
viii. a safe and efficient stormwater network;
ix. safe and efficient other networks including electricity, gas and telecommunications;
x. a safe and efficient road lighting network;
xi. land for a community facilities network;

c. development integrates with existing and planned infrastructure networks;
d. infrastructure is designed and constructed to deliver a standard of service that is efficient and equitable;
e. the cost to the community for the life of the infrastructure is minimised by providing for a suitable design life, ease of maintenance and ease of replacement;
f. infrastructure protects personal health and safety and premises;
g. infrastructure protects environmental values.

9.4.3.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A–Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.3.3.1–Infrastructure code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Provision, design, construction and location of infrastructure		
PO1 Development is demonstrated to be capable of being serviced by necessary infrastructure.	**AO1** Reports, plans and drawings are provided in accordance with part 2 of planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
PO2 Development: a. provides necessary infrastructure to service the development; b. provides that the design, construction and location of necessary infrastructure: i. protects existing and planned infrastructure networks; ii. services proposed development; iii. integrates with existing and planned infrastructure networks; iv. delivers a standard of service that is efficient and equitable;	**AO2** Development: a. in a water supply service area connects to the water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; b. not in a water supply service area provides a tank with a minimum storage capacity of 45,000 litres; c. in a sewerage supply service area connects to the waste water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code;	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

v. minimises the cost to the community for the life of the infrastructure by providing a suitable design life, ease of maintenance and ease of replacement; vi. protects personal health, safety and premises; vii. protects environmental values.	d. not in a sewerage supply service area complies with part 1 of the Queensland Plumbing and Wastewater Code; e. provides stormwater infrastructure in accordance with part 3.6 of planning scheme policy 5–Infrastructure; f. provides a movement network infrastructure in accordance with part 3.4 of planning scheme policy 5–Infrastructure; g. provides parks in accordance with part 3.12 of planning scheme policy 5–Infrastructure; h. provides road lighting in accordance with part 3.5 of planning scheme policy 5–Infrastructure; i. provides electricity reticulation in accordance with part 3.8 of planning scheme policy 5–Infrastructure; j. provides gas and telecommunications reticulation in accordance with part 3.9 of planning scheme policy 5–Infrastructure. Editor's note––The delivery of any part of a network identified in the plans for trunk infrastructure is governed by Part 4–Local government infrastructure plan.	
Location of development		
PO3 Development is located to protect existing and planned infrastructure networks.	**AO3** Development is located outside: a. planned widening of a road or a new road identified in Table 7.3.1.1–Road encroachment maps of planning scheme policy 5—Infrastructure; b. planned public transport network identified on Figure 3.4.1.3.1—Public transport network in planning scheme policy 5—Infrastructure; c. a planned cycle network identified on Figure 3.4.1.2.1–Cycle network in planning scheme policy 5–Infrastructure; d. a planned network identified in Local government infrastructure plan map–LGIP-07.00 Plan for trunk parks infrastructure in Schedule 3–Local	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

	government infrastructure plan mapping and tables.	
Fire fighting		
PO4 Development in a water service area accessed by common private title provides: a. fire hydrant infrastructure; b. unimpeded access for emergency services vehicles. Editor's note—The term common private title refers to areas such as access roads in community title developments or strata title unit access, which are private and under group or body corporate control.	**AO4** Development in a water service area accessed by common private title complies with the Acceptable outcomes of the SPP code: Fire services in developments accessed by common private title in Appendix 1 of the state planning policy.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
PO5 Development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for fire fighting purposes.	**AO5** Development: a. is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or b. has an on-site water storage in accordance with Table 9.4.3.3.2—Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: i. a separate tank; or ii. a reserve section in the bottom part of the main water supply tankwater tank . Editor's note—The requirement in AO5 is; - in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.1–Infrastructure code: accepted development (subject to requirements) and assessable development; - reflected in AO5 in Table 8.2.3.3.1–Bushfire hazard overlay code: accepted development (subject to requirements) and assessable development.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

Disposal of trade waste		
PO6 The disposal of trade waste in a sewerage supply service area does not adversely affect the sewerage network.	**AO6** The disposal of trade waste in a sewerage supply service area complies with the sewer admission standards in section 3.2.6–Sewer admission standards in planning scheme policy 3–Environmental management.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Roof water drainage and surface water drainage		
PO7 Development provides stormwater infrastructure for the drainage of the premises so as not to cause any of the following: a. ponding of stormwater on the premises; b. a hazard to personal health and safety; c. damage to premises; d. an increased risk of flooding to premises within the catchment.	**AO7** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Natural flow of surface water		
PO8 Development provides that the natural flow of surface water is: a. not altered so as to cause a risk to personal health and safety or damage to property; b. not increased in intensity, velocity or frequency; c. not concentrated onto adjoining premises.	**AO8** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Water sensitive urban design		
PO9 Development which provides stormwater infrastructure incorporates water sensitive urban design principles having regard to: a. protecting existing natural features and	**AO9** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

ecological processes; b. protecting the natural hydrologic behaviour of catchments; c. protecting the existing natural flow and water quality regimes of waterways; d. protecting water quality of surface and ground waters; e. minimising demand on the water network; f. minimising sewage discharges to the natural environment; g. integrating water into the landscape to enhance visual and ecological values.		
Movement network		
PO10 The projected traffic levels for a use do not adversely affect the planned standards of service for a road or intersection.	**AO10** Development does not cause or contribute to projected traffic levels: a. exceeding the maximum vehicle trips per day in Table 3.4.1.4.2 in planning scheme policy 5–Infrastructure; or b. exceeding the maximum control delays through intersections in peak periods in Table 3.4.1.4.3 in planning scheme policy 5—Infrastructure.	Will Comply. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Integrated movement concept report		
PO11 Development which generates more than 3,000 vehicle trips per average weekday is designed to integrate the movement network to minimise the transportation costs required to service the use.	**AO11** Development which generates more than 3,000 vehicle trips per average weekday provides an integrated movement concept report which integrates the planning of the movement network in accordance with part 2 and 3 of planning scheme policy 5–Infrastructure.	Will Comply. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
For assessable development only		
Land use and transport integration		
PO12 Development within 400 metres of existing or future	**AO12** No acceptable outcome provided.	

public passenger transport facilities where the total site are is 5,000m^2 or more: a. supports a road hierarchy which facilitates efficient, safe and accessible bus services connecting to existing and future public passenger transport facilities; b. enhances connectivity between existing and future public passenger transport facilities and other transport modes; c. optimises the walkable catchment to existing and future public passenger transport facilities; d. provides for direct and safe access to and use of existing or future public passenger transport facilities. Note––SPP code: Land use and transport integration in Appendix 4 of the state planning policy provides guidance to achieve this outcome.		Will Comply. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

Table 9.4.3.3.2—Water storage for fire fighting

Column 1 **Lot size / use type**	**Column 2** **Water requirement**
For each residential lot:	
a. less than 1,000m^2	5,000 litres
b. between 1,000m^2 and less than 1 hectare	10,000 litres
c. greater than 1 hectare	20,000 litres
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard

9.4.7 Servicing, access and parking code

9.4.7.1 Application

1. This code applies to:
   a. material change of use:
      i. that is accepted development (subject to requirements) or code assessable and for which the Servicing, access and parking code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5–Categories of development and assessment-Material change of use in Part 5–Tables of assessment;
      ii. that is made impact assessment in a table of assessment in section 5.5–Categories of development and assessment-Material change of use or section 5.9–Categories of development and assessment–Local plans in Part 5–Tables of assessment;
   b. reconfiguring a lot:
      i. that is code assessable and for which the Servicing, access and parking code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;
      ii. made impact assessable in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;
   c. operational work being a driveway crossover or infrastructure work that is constructing a car park area that is accepted development (subject to requirements) or code assessable and for which the Servicing, access and parking code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column Table 5.8.1–Operational work in Part 5–Tables of assessment.
2. When using this code, reference should be made to section 5.3.2–Determining the category of development and category of assessment and, where applicable, section 5.3.3–Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5–Tables of assessment.

9.4.7.2 Purpose

1. The purpose of the code is to ensure that development satisfies the demand for parking and provides safe, functional and legible parking, access and servicing.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. parking, access and servicing areas:
      i. satisfy the expected demand for the number and type of vehicles, motorcycles and bicycles;
      ii. are safe and functional and have easy way finding;
      iii. protect the movement network.

9.4.7.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A–Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.7.3.1–Service, access and parking code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments

For accepted development (subject to requirements) and assessable development		
Provision of parking spaces for vehicles		
PO1 Vehicle parking, loading and servicing and pick up/set down areas are provided that satisfy the expected demand for the number and type of vehicles likely to be generated by a use having regard to: a. the particular circumstances of the premises including the: i. nature, intensity and hours of operation of the use; ii. desirability of providing a car park and attracting vehicles to the premises; iii. maximum number of employees and customers to be on the premises at any one time; iv. size, levels and dimensions of the premises; b. the proximity of the premises to an existing or future Parking station, other available car park or public transport facility.	**AO1** Vehicle parking, vehicle washing, loading and servicing and pick up/set down areas are provided: a. for a use listed in Table 9.4.7.3.2–Vehicle parking and servicing, to comply with columns 2 to 5 of Table 9.4.7.3.2–Vehicle parking and servicing; b. for a use not listed in Table 9.4.7.3.2–Vehicle parking and servicing, in accordance with a car parking assessment report to be provided to the local government and prepared in accordance with Part 2 of planning scheme policy 5–Infrastructure. Editor's note––For building work, Car parking for people with a disability is to be provided in accordance with Table D3.5–Carparking spaces for people with a disability in the Building Code of Australia.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
PO2	**AO2**	

Development with a security gate provides accessible visitor vehicle parking in front of the security gate.	Development with a security gate provides visitor vehicle parking that complies with Table 9.4.7.3.4–Visitor parking spaces for uses incorporating a security gate.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
PO3 A car park not being a Parking station provides free and unobstructed access for the use by employees and visitors during the normal hours of operation of the use.	**AO3** A use, other than a Residential activity or a Parking station, provides vehicle parking that: a. is kept, used and maintained exclusively for car parking; b. is accessible to all employees and visitors during the normal hours of operation of the use with no encumbrance, fee or charge; c. does not have a gate, door or similar device that restricts vehicular access by employees or visitors.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Provision of motorcycle parking		
PO4 Motorcycle parking is provided that is safe and functional.	**AO4** Motorcycle parking is provided to comply with section 2.4.7 of AS2890.1:2004–Parking facilities–Off street car	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

	parking.	
Provision of bicycle parking		
PO5 Bicycle parking facilities are provided that: a. satisfy the likely demand for bicycle parking; b. are functional; c. are located close to a pedestrian entry to a building.	**AO5** Bicycle parking facilities comply with: a. the rate specified in column 7 of Table 9.4.7.3.2–Vehicle parking and servicing; b. AS2890.3–1993–Bicycle parking facilities.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Provision of vehicle manoeuvring area		
PO6 Development provides a safe and functional vehicle manoeuvring area.	**AO6** Development provides a vehicle manoeuvring area that: a. enables vehicles to enter and exit the site in a forward motion where the development: i. is non-residential development; or ii. is for five or more dwellings; b. accommodates the design vehicle specified in Table 9.4.7.3.5–Design vehicle for a manoeuvring area; c. complies with	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.

	section 3.4.4.10–Manoeuvring areas of planning scheme policy 5–Infrastructure.	
Vehicle washing bay		
PO7 A vehicle washing bay does not cause environmental harm.	**AO7** A vehicle washing bay provides that run off is discharged to: a. a grassed area or permeable landscape area; or b. the sewerage system.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Car park access		
PO8 Vehicular access to a car parking area has sufficient queuing space to ensure a vehicle does not queue on a road, cycleway or footpath.	**AO8** Vehicular queuing space to a car parking area: a. does not provide a turning movement, intersecting aisle or a speed hump in a queuing area; b. complies with Table 9.4.7.3.3–Queuing spaces; c. complies with Table 9.4.7.3.6–Queuing requirements for particular uses.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Access and driveways		
PO9 A driveway is safe, functional and does not adversely affect infrastructure.	**AO9** A driveway is designed	

	and constructed to comply with section 3.4.5–Design standards for access and driveways of planning scheme policy 5–Infrastructure.	Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
Design and construction of a car parking area		
PO10 A car parking area is designed to: a. provide easy way finding for pedestrians, cyclists and motorists; b. provide appropriately sized and line marked spaces in accordance with relevant Australian standards; c. provide a convenient and safe pedestrian network; d. provide safe and efficient vehicle circulation; e. provide a progressive reduction in the speed environment in moving between the road and a parking space; f. provide a safe sight distance at a potential conflict point; g. provide for efficient and simple parking space search patterns; h. provide for uncongested public transport and service vehicle movements through the premises; i. keeps a heavy vehicle out of a parking aisle; j. ensure no heavy vehicle reverses across a pathway; k. prevent parking off a circulation road; l. prevent an adverse impact on the safety and efficiency of the existing or planned movement network; m. prevent a motorist from reversing on a road; n. prevent an unnecessary space that encourages illegal parking; o. address safety of users through appropriate lighting; p. be appropriately landscaped; q. be surfaced so as to be useable in all weather conditions; r. manage stormwater flows.	**AO10** A car parking area is designed and constructed in accordance with section 3.4.6–Design standards for car parking of planning scheme policy 5–Infrastructure.	Complies. Complies. Final format/arrangement subject to results of engineering investigations to be completed for future MCU Applications.
For assessable development		
Vehicle queuing		
PO11 Queuing associated with a drive through facility (including Service stations and Car washes) does not cause blockages to traffic on the road network. Note––Planning scheme policy 5–Infrastructure provides guidelines on how to achieve this	**AO11** No acceptable outcome provided.	NA

outcome.		

Table 9.4.7.3.2–Vehicle parking and servicing

Column 1 Use[1]	Column 2 Minimum number of parking spaces[2]	Column 3 Minimum number of parking spaces for a: a. Centre zone where a principal centre or major centre; b. Medium density residential zone where not at Browns Plains or Park Ridge.	Column 4 Loading bay	Column 5 Pick-up / set down areas	Column 6 Minimum number of bicycle spaces
Adult store	1 space per 17m² of GFA	1 space per 100m² of GFA	√ (if more than 500m² GFA)	Not required	1 space per 400m² GFA / employee; plus 1 visitor space per 500m² GFA
Agricultural supplies store	1 space per 100m² of site area	Not applicable	√	Not required	No minimum
Animal husbandry	No minimum	Not applicable	Not required	Not required	No minimum
Animal keeping	A minimum of either: (a) 4 spaces, if the premises is used for the boarding of animals; or (b) 2 spaces, if the premises is not used for the boarding of animals.	Not applicable	Not required	Not required	No minimum
Aquaculture	1 space per employee; plus 1 visitor space.	Not applicable	√	Not required	No minimum
Bar	1 space per 10m² of GFA bar area (excluding staff only	1 space per 100m² of GFA.	√	Not required	No minimum

	areas); plus 1 space per 3 gaming machines for gaming machines				
Brothel	5 spaces per 100m2 of GFA	Not applicable	Not required	Not required	No minimum
Bulk landscape supplies	1 space per 400m² of site area with a minimum of 6 spaces	Not applicable	√	Not required	No minimum
Caretaker's accommodation	1 covered space	Not applicable	Not required	Not required	No minimum
Car wash	1 space per employee if not part of a Service station	1 space per employee if not part of a Service station.	Not required	Not required	No minimum
Childcare centre	1 space per equivalent full time employee based on the maximum number of employees on the premises at any one time plus 1 space per 10 approved places for children	1 space per equivalent full time employee based on the maximum number of employees on the premises at any one time plus 1 space per 10 approved places for children	√	Not required	No minimum
Club	1 space per 30m² of GFA	1 space per 100m² of GFA	√	√ (if more than 2,000m² GFA)	No minimum
Community care centre	1 space per equivalent full time employee, based on the maximum number of employees on the premises at any one time plus 1 space per 10 visitors	1 space per equivalent full time employee, based on the maximum number of employees on the premises at any one time plus 1 space per 10 visitors	√	√	No minimum
Community residence	1 space per employee plus 1 visitor space with a minimum of 2 spaces	Not applicable	Not required	Not required	No minimum
Crematorium	1 space per employee	Not applicable	√	√	No minimum.
Cropping	No minimum	Not applicable	√	Not required	No

					minimum
Dual occupancy	2 spaces per dwelling, 1 of which is covered	Not applicable	Not required	Not required	No minimum
Dwelling unit	1 space	Not applicable	Not required	Not required	No minimum
Educational establishment	1 space per employee; plus 1 space per 5 students for year 12 students and above; plus 1 visitor space per 10 students and 1 bus space per 50 students	1 space per 1 employee; plus 1 space per 5 students for year 12 students and above; plus 1 visitor space per 10 students and 1 bus space per 50 students	√	√	Not specified Note—Part MP4.1 - Sustainable Buildings of the QDC contains requirements for End of Trip Facilities.
Emergency services	Sufficient spaces to accommodate the number of vehicles likely to be parked at any one time	Not applicable	√	√	No minimum
Environment facility	No minimum	Not applicable	Not required	Not required	No minimum
Extractive industry	No minimum	Not applicable	Not required	Not required	No minimum
Food and drink outlet	1 space per 10m² of GFA up to 400m² GFA, thereafter 1 space per 20m² GFA; plus 2 spaces per 10m² of floor area for an outdoor seating area.	1 space per 100m² of GFA	√	Not required	1 space per 30m² GFA.
Function facility	1 space per 17m² of GFA	1 space per 100m² of GFA	√	√ (if more than 2,000m² GFA)	No minimum
Funeral parlour	1 space per employee; plus 1 space per 10m² of GFA	Not applicable	√	√	No minimum

	associated with a chapel				
Garden centre	1 space per 300m² of display area with a minimum of 6 spaces; plus 1 space per 20m² of indoor retail use area	1 space per 100m² of GFA	√	Not required	No minimum
Hardware and trade supplies	1 space per 60m² of GFA	1 space per 100m² of GFA	√	Not required	No minimum
Health care service	1 space per 10m² of GFA; plus 1 ambulance space	1 space per 100m² of GFA	√	√	1 space per 400m² GFA for employees; plus 1 visitor space per 200m² GFA
High impact industry	1 space per 150m² of GFA up to 900m²; plus 1 space per 200m² GFA thereafter	Not applicable	√	Not required	1 space per 800m² GFA for employees.
Home-based business (not being guest accommodation)	1 space plus 1 space per non- resident staff member in addition to the spaces required for the Dwelling house or Dwelling unit	Not applicable	Not required	Not required	No minimum
Home-based business (being guest accommodation)	1 space per bedroom to be utilised for the guest accommodation in addition to the spaces required for the Dwelling unit	Not applicable	Not required	Not required	No minimum
Hospital	1 space per 10m² of GFA; plus 1 ambulance space	1 space per 100m² of GFA	√	√	Not specified Note—Part MP4.1 - Sustainable Buildings of the QDC

					contains requirements for End of Trip Facilities.
Hotel	1 space per guest room; plus 1 space per 10m² of GFA for lounge, bar and beer garden area (excluding staff only areas); plus 1 space per 35m² GFA of liquor sales area; plus 1 space per 5m² of GFA for gaming machines	1 space per 100m² of GFA	√	√	1 space per 50m² of GFA for lounge, bar and beer garden area; plus 1 space per 60m² of GFA for gaming machines
Indoor sport and recreation	1 space per 15m² of GFA	1 space per 15m² of GFA	√	√	3 spaces; plus 1 space per 50m² GFA for visitors
Intensive animal industry	1 space	Not applicable	Not required	Not required	No minimum
Intensive horticulture	Sufficient spaces to accommodate the number of vehicles likely to be parked at any one time	Not applicable	Not required	Not required	No minimum
Landing	No minimum	Not applicable	Not required	Not required	No minimum
Low impact industry	1 space per 50m² of GFA up to 500m²; plus 1 space per 100m² GFA thereafter	Not applicable	√	Not required	1 space per 800m² GFA for employees
Major electricity infrastructure	No minimum	Not applicable	Not required	Not required	No minimum
Market	1 space per 5m² of GFA of	Not applicable	√	Not required	1 space

	the stalls and the displays				per 10 stalls
Medium impact industry	1 space per 80m² of GFA up to 500m²; plus 1 space per 100m² GFA thereafter	Not applicable	√	Not required	1 space per 800m² GFA for employees
Multiple dwelling	In the Loganlea local plan: • 1.15 covered spaces for dwellings comprising less than 2 bedrooms; • 1.3 covered spaces for dwellings comprising 2 or more bedrooms; • 1 vehicle washing space where the use comprises more than 15 dwellings; and • 0.4 visitor space per dwelling.	1 covered space per dwelling	√	√	1 space per 3 dwelling units plus 1 visitor space per 12 dwelling units
	For all other land (unless Column 3 applies): • 1.5 covered spaces for dwellings comprising less than 2 bedrooms; • 2 spaces, including 1 covered space, for dwellings comprising 2 or more bedrooms; • 0.25 visitor space per dwelling; and • 1 vehicle washing space where the use comprises more than 15 dwellings				
Nightclub entertainment facility	1 space per 100m² of GFA plus 1 space per employee	Not applicable	√	√	No minimum

Office	1 space per 20m² of GFA of any storey at ground level; plus 1 space per 30m² of GFA of any other storey with a minimum of 4 spaces; plus 2 visitors' spaces	1 space per 100m² of GFA	√	√	Not specified. Note—Part MP4.1 - Sustainable Buildings of the QDC contains requirements for End of Trip Facilities.
Outdoor sales	1 space per 300m² of display area; plus 1 space per 1.5 employees	Not applicable	Not required	Not required	No minimum
Outdoor sport and recreation (where a bowling green)	4 spaces for the first rink; plus 2 spaces for the subsequent rink	4 spaces for the first rink; plus 2 spaces for the subsequent rink	√	√	No minimum
Outdoor sport and recreation (where a court game)	4 spaces per court	4 spaces per court	Not required.	√	No minimum
Outdoor sport and recreation (where a golf course)	40 spaces per 9 hole course or 80 spaces for 18 hole course	Not applicable	√	√	No minimum
Outdoor sport and recreation (where a golf driving range)	1 space per tee off area; plus 1 space per 20m² GFA of bar, lounge and other entertainment areas	Not applicable	Not required	√	No minimum
Outdoor sport and recreation (where a swimming pool)	15 spaces; plus 1 space per 100m² of site area	15 spaces; plus 1 space per 100m² of site area	√	√	2 spaces per 20m² of pool area
Outdoor sport and recreation (where outdoor field	15 spaces per field	Not applicable	√	√	No minimum

games)					
Outdoor sport and recreation (where a sport arena)	1 space for every 3 seats plus 1 bus space per 100 seats	1 space for every 3 seats; plus 1 bus space per 100 seats	√	√	1 space per 250 seats
Outdoor sport and recreation (other than those above)	1 space per 15m² of GFA	1 space per 15m² of GFA	√	√	No minimum
Park	No minimum	Not applicable	Not required	Not required	No minimum
Parking station	No minimum	Not applicable	Not required	Not required	No minimum
Permanent plantation	No minimum	Not applicable	Not required	Not required	No minimum
Place of worship	1 space per 10m² of GFA	1 space per 100m² of GFA	√	√	No minimum
Port service (where a marina)	1 space per 10 berths	Not applicable	Not required	Not required	No minimum
Relocatable home park	1 space per dwelling; plus visitor car parking of 1 space per 5 dwellings; plus 1 vehicle washing space per 50 dwellings	Not applicable	Not required	Not required.	No minimum.
Renewable energy facility	No minimum	Not applicable	Not required	Not required.	No minimum
Research and technology industry	1 space per 50m² of GFA up to 500m²; plus 1 space per 100m² GFA thereafter	Not applicable	√	Not required.	1 space per 800m² GFA for employees
Residential care facility	1 space per 5 beds; plus 1 space per full time employee; plus 1 ambulance parking space	1 space per 5 beds; plus 1 space per full time employee; plus 1 ambulance parking space	√	√	No minimum

Resort complex	1 space per guest room; plus 1 space per 10m² of GFA for lounge, bar and beer garden area (excluding staff only areas); plus 1 space per 35m² GFA of liquor sales area; plus 1 space per 5m² of GFA for gaming machines	1 space per 100m² of GFA	√	√	1 space per 50m² of GFA for lounge, bar and beer garden area; plus 1 space per 60m² of GFA for gaming machines
Retirement facility	1 space per self-contained unit; plus 1 visitor space per 10 units; plus 1 space per fulltime employee 1 ambulance parking space	1 space per self-contained unit; plus 1 visitor space per 10 units; plus 1 space per fulltime employee; plus 1 ambulance parking space	√	√	No minimum
Roadside stall	No minimum	Not applicable	Not required	Not required	No minimum
Rooming accommodation	0.25 spaces per rented room	0.25 spaces per rented room	Not required	Not required	1 space per 4 rented room
Rural industry	Sufficient spaces to accommodate the number of vehicles likely to be parked at any one time	Not applicable	√	Not required	No minimum
Rural workers' accommodation	1 space per bedroom	Not applicable	Not required	Not required	No minimum
Sales office	1 space per employee where for an estate Sales office or display dwelling. 1 space per employee with a minimum of 4 spaces where for a cluster of display dwellings	1 space per employee with a minimum of 4 spaces	Not required	Not required	1 space per 200m² GFA for employees

Service industry (where a car rental establishment)	1 space per 25m² of GFA; plus 1 space per 1.5 vehicles in a hire vehicle fleet that may be provided in tandem	1 space per 100m² of GFA; plus 1 space per 1.5 vehicles in a hire vehicle fleet that may be provided in tandem	Not required	Not required	1 space per 200m² GFA for employees
Service industry (where not a car rental establishment)	1 space per 25m² of GFA	1 space per 100m² of GFA	Not required	Not required	1 space per 200m² GFA for employees
Service station	2 spaces; plus 1 space per 25m² of GFA for a shop of less than 150m²; plus 1 spaces per 20m² of GFA of shop area exceeding 150m²; plus 1 space per 10m² of GFA for food and drink outlet; plus 5 spaces per vehicle service bay. Editor's note -tandem car parking is acceptable for service or staff vehicles	2 spaces; plus 1 spaces per 25m² of GFA for a shop of less than 150m²; plus 1 spaces per 20m² of GFA of shop area exceeding 150m²; plus 1 space per 10m² of GFA for food and drink outlet; plus 5 spaces per service bay. Editor's note - tandem car parking may be acceptable for service or staff vehicles	√	Not required	1 space per 200m² GFA for employees
Shop	1 space per 17m² of GFA	1 space per 100m² of GFA	√	Not required	1 space per 300m^2 GFA
Shopping centre	1 space per 17m² of GFA for a floor area of 1-10,000m² GFA 1 space per 20m² of GFA for a floor area >10,000-30,000m² GFA. 1 space per 23m² of GFA for a floor area of >30,000m² GFA	1 space per 100m² of GFA	√	√	Not specified. Note—Part MP4.1 - Sustainable Buildings of the QDC contains requirements for End of Trip Facilities.
Short-term accommodation	1 space per residential unit; plus 1 visitor space per 2 residential units; plus 1	1 space per unit	√	√	1 space per 5 residential

	space for a manager resident on the premises; plus 1 space for 20m² of GFA of a restaurant, common room, catering and conference facility. 1 vehicle washing space.				units plus 1 visitor space per 4 residential units
Showroom	1 space per 35m² of GFA	1 space per 100m² of GFA	√	Not required	1 space per 750m² GFA for employees; plus 1 visitor space per 1,000m² GFA
Special industry	1 space per 150m² of GFA up to 900m²; plus 1 space per 200m² GFA thereafter	Not applicable	√	Not required	1 space per 800m² GFA for employees
Substation	1 space	Not applicable	Not required	Not required	No minimum
Telecommunications facility	1 space per employee with a minimum of 2 spaces	Not applicable	Not required	Not required	No minimum
Theatre	1 space per 8 seats	1 space per 100m² of GFA	Not required	Not required	No minimum
Transport depot	1 car space for every truck space; plus 1 space per 2 non-driver employees	Not applicable	√	Not required	No minimum
Tourist park	1 space per site; plus 1 visitor space per 10 sites; plus 1 vehicle washing space per 20 sites; plus 1 space for a manager resident on the premises	Not applicable	Not required	Not required	No minimum
Utility installation	1 space per employee with a	Not applicable	√	Not required	No

	minimum of 2 spaces				minimum
Veterinary service	1 space per 30m² of GFA	1 space per 100m² of GFA	√	√	No minimum
Warehouse (not being a mini-storage establishment)	1 space per 100m² of GFA	Not applicable	√	Not required	No minimum
Warehouse (being a mini-storage establishment)	1 space per 100 storage units; plus 1 space per employee Minimum traffic circulation accessway width of 6.5m	Not applicable.	√	Not required	No minimum
Wholesale nursery	1 space per employee; plus 1 visitor space.	Not applicable	√	Not required	No minimum
Winery	1 space per 10m² of GFA up to 400m² GFA for retail and dining areas only, thereafter 1 space per 20m² GFA for retail and dining areas only; plus 2 spaces per 10m² of GFA for an outdoor seating area.	1 space per 100m² of GFA	√	Not required	1 space per 30m² GFA for retail and dining areas only

Note—[1] Where the premises are used for more than one use, the rates for each use are applicable.

Note—[2] Where the calculated number of spaces is not a whole number, the number of spaces is rounded to the higher whole number.

Table 9.4.7.3.3–Queuing spaces

Column 1 **Static capacity of car park**	**Column 2** **Minimum number of vehicles in queue [1]**
1-30	2
31-60	2
61-100	3
>100	The number calculated complies with Table 3.3 of AS 2890.1:2004 Parking facilities - Off-street car parking

Note— For the purposes of calculating queue length, each car length is 6 metres and the queue distance is measured from the boundary of the premises at a crossover to the first available car parking space on the premises.

Table 9.4.7.3.4–Visitor parking spaces for uses incorporating a security gate

Column 1 Total number of visitor car parking spaces provided on the premises	Column 2 Minimum number of visitor car parking spaces required in front of a security gate
<6	0
6-10	2
11-20	4
21-30	6
31-40	8
41-50	10
>50	Visitor car parking spaces to accommodate the amount of vehicular traffic likely to be generated by the use

Table 9.4.7.3.5–Design vehicle for a manoeuvring area

Column 1 Use or user class	Column 2 Design vehicle[1]
Adult store	SRV, if less than 500m² GFA MRV if 500m² or greater GFA
Agricultural supplies store	AV
Animal keeping	MRV
Aquaculture	HRV
Bulk landscape supplies	HRV
Childcare centre	SRV
Club	HRV
Community care centre	MRV
Crematorium	SRV
Cropping	AV
Educational establishment	HRV/bus
Environment facility	HRV
Food and drink outlet	MRV, if less than200m² GFA

	HRV, if 200m² or greater GFA
Function facility	HRV
Funeral parlour	SRV
Garden centre	HRV
Hardware and trade supplies	HRV
Health care service	SRV
High impact industry	AV
Hotel	HRV
Indoor sport and recreation	HRV
Intensive animal husbandry	AV
Intensive horticulture	AV
Low impact industry	HRV
Market	HRV
Medium impact industry	HRV
Multiple dwelling	SRV if comprising 6 to 10 dwellings; HRV if comprising more than 10 dwellings
Night club entertainment facility	HRV
Office	MRV, if less than 1,000m² GFA HRV, if 1,000m² or greater GFA
Outdoor sales	AV
Outdoor sport and recreation	HRV/bus
Parking station	B99
Place of worship	SRV
Research and technology industry	HRV
Residential care facility	HRV
Relocatable home park	HRV = bus
Retirement facility	HRV = bus
Rooming accommodation	HRV

Rural industry	AV
Service industry	AV
Service station	AV
Shop	MRV, if less than 500m² GFA HRV, if 500m² or greater GFA
Shopping centre	AV
Short term accommodation	HRV
Showroom	HRV
Theatre	HRV
Transport depot	AV
Utility installation	HRV
Wholesale nursery	AV
Warehouse (where a mini storage establishment)	HRV
Warehouse	AV/HRV
Veterinary service	SRV
Use not specific in column 1	Design vehicle specified by the local government

Editor's note— B99 = a car
Editor's note— SRV = a small rigid vehicle or ambulance
Editor's note— MRV = a medium rigid vehicle
Editor's note— HRV = a heavy rigid vehicle
Editor's note— AV = an articulated vehicle

Table 9.4.7.3.6–Queuing requirements for particular uses

Use	Minimum provisions for queuing (in addition to Table 9.4.7.3.3–Queuing spaces)
Car wash	4 vehicles per car wash bay
Food and drink outlet	10 vehicles per drive through facility
Hardware and trade supplies	8 vehicles in any drive in
Hotel	12 vehicles per drive through facility
Resort complex	12 vehicles per drive through facility
Service station	3 vehicles from a fuel outlet.

	Where a Car wash is associated with the Service station, at least 4 vehicles are provided before the Car wash entrance
Short-term accommodation	2 vehicles at the entry of the site
Tourist park	2 vehicles at the entry of the site

Appendix H – Logan City Council Correspondence

Carlos Palada

From: Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Sent: Thursday, 29 August 2019 3:40 PM
To: Mark Gittins
Cc: Mitch Blyth; WaterDA; McRoberts, Michelle; O'Flaherty, Patrick; Binch, Jessica
Subject: RE: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Mark,

As mentioned you earlier, I have forwarded your request to our planning team to undertake the further water and sewer analysis studies for the proposed development.
Our comments after these studies are;

Sewer

- Anticipated 880 EP's from your proposed development can be serviced from the existing sewerage network without any augmentation.
- That means, it is not required to provide a sewerage planning report.
- You can connect the proposed development to the existing network at a suitable connection point/s.

Water

- As indicated earlier, only 800 EP's from proposed development can be serviced from the existing water network without any augmentations.
- If it is exceeding 800EP's, it is required to undertake the minor augmentation (inter connection of DN150 water main at Malena Way to DN225 water main at Logan Road) as informed in the email dated 25/06/2019.
- It is required to lodge an Operation works application to undertake above augmentation.
- Not required to submit a water planning report.
- However only residential fire flow (15L/s) is available in the Council water network (in the existing system or with this augmentation) complying with the SEQ Code and Council's standards.
- If any additional fire flow requirements for the non-residential lots proposed in the development to be organised internally (ex. additional storage, booster pump station etc.). Your hydraulic engineer will determine this.

Please do not hesitate to contact me, if you need any clarification.

regards

Rohana Samarakoon | Water Development Services Engineer | Water Infrastructure Branch | **Logan City Council**
Phone: 07 3412 5261 | PO Box 3226 Logan City DC Qld 4114 | rohanasamarakoon@logan.qld.gov.au
logan.qld.gov.au | facebook.com/logancitycouncil | twitter.com/logancc

City of Logan: Innovative, Dynamic, City of the Future

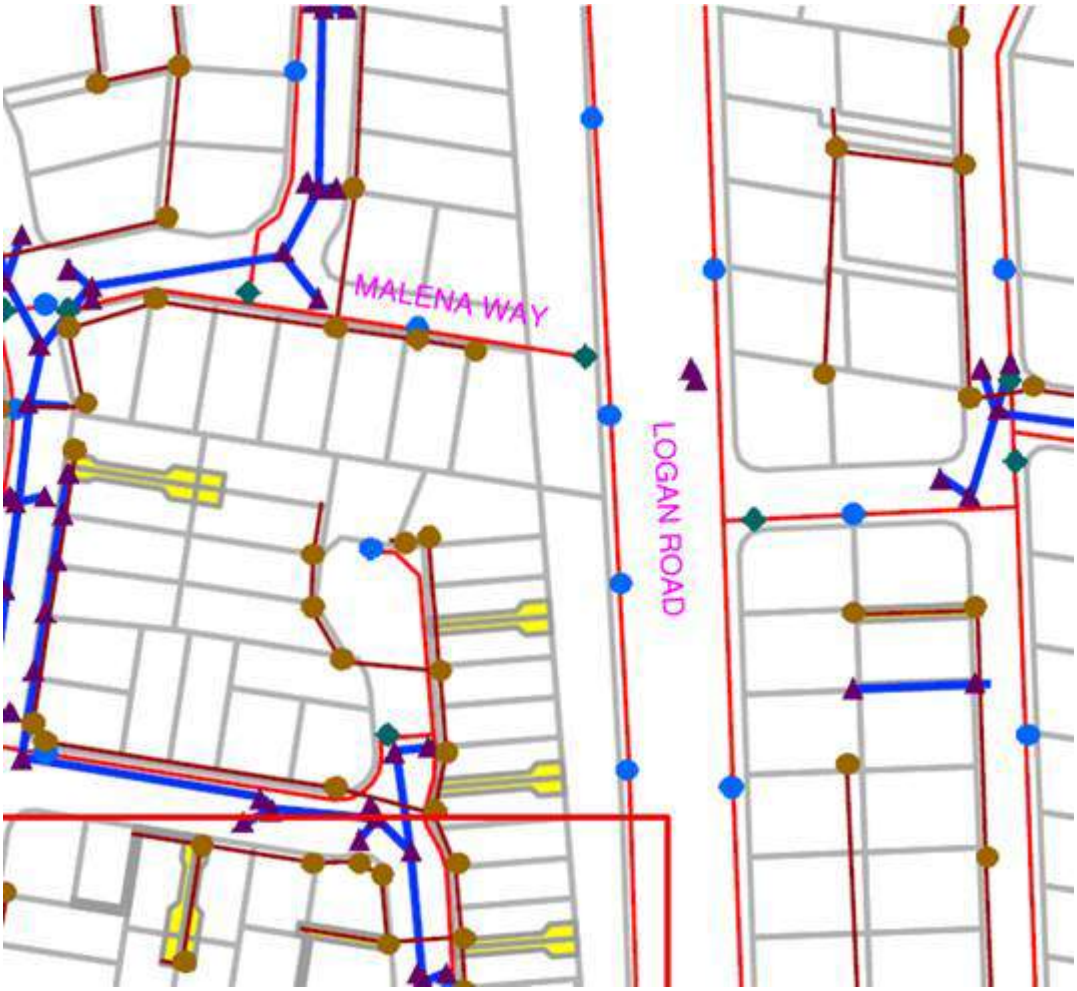
From: Mark Gittins [mailto:MGittins@northrop.com.au]
Sent: Friday, 9 August 2019 9:49 AM
To: Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Cc: Mitch Blyth <MBlyth@northrop.com.au>; WaterDA <WaterDA@logan.qld.gov.au>; McRoberts, Michelle <MichelleMcRoberts@logan.qld.gov.au>
Subject: RE: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Rohana,

The assumptions made regarding the EP loadings were based on the SEQcode design criteria (Appendix A2 Table A3) and the LCC planning scheme. Applying the types of development shown on the concept layout to the planning

scheme and then to the SEQcode design criteria was quite confusing as the terminology between the two are different. For example, Townhouses in the planning scheme policy are deemed 'multiple dwellings' however in the SEQcode the closest terminology is 'multiunit development'. Therefore I applied a 2.0EP/unit for the townhouses. Likewise with the Aged Care and Retirement living units, the closest was the 'multiunit development' and applied the 2.0EP/unit or 2.0EP/bed. Can you please confirm that the demand in my previous email has been calculated correctly?

Further to the above, we are trying to front load the project to determine all the issues. Could you please provide further clarity on the extent of augmentation works that was mentioned in the email you sent with the LCC planning teams comments? It was stated that to increase the EP's for the sewer some major upgrades are required, upsize the existing DN525 main. Could you please provide a plan showing the extent of this upgrade? For the water it was mentioned that the capacity can be improved to 1000 EP's by connecting the DN150 water main in Malena Way to the DN225 water main in Logan Road. A DBYD search shows that there are 2 water mains in Logan Road (red lines shown in the screenshot below). Can you please confirm which side of Logan Road the DN225 water is in, east or west?



Thanks in advance.

Mark Gittins
Civil Design Manager

Northrop Consulting Engineers
T 07 3067 5319 **M** 0404 896 447
Level 9, 200 Mary Street Brisbane City QLD 4000
www.northrop.com.au

From: Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Sent: Thursday, 8 August 2019 9:14 AM
To: Mark Gittins <MGittins@northrop.com.au>
Cc: Mitch Blyth <MBlyth@northrop.com.au>; WaterDA <WaterDA@logan.qld.gov.au>; McRoberts, Michelle <MichelleMcRoberts@logan.qld.gov.au>
Subject: FW: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Mark,

Sorry Mark, I couldn't review this as I was not in the office yesterday.

Regarding water & sewer EP's, you have to refer the "demand tables" in the Design Criteria in the SEQ Code and LCC Planning Scheme.

I am not aware about this Thursday's meeting, anyway please contact me if you need further information.

regards

Rohana Samarakoon | Water Development Services Engineer | Water Infrastructure Branch | **Logan City Council**
Phone: 07 3412 5261 | PO Box 3226 Logan City DC Qld 4114 | rohanasamarakoon@logan.qld.gov.au
logan.qld.gov.au | facebook.com/logancitycouncil | twitter.com/logancc

City of Logan: Innovative, Dynamic, City of the Future

From: Mark Gittins [mailto:MGittins@northrop.com.au]
Sent: Tuesday, 6 August 2019 1:55 PM
To: Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Cc: WaterDA <WaterDA@logan.qld.gov.au>; Mitch Blyth <MBlyth@northrop.com.au>
Subject: RE: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Rohana,

The concept design for the proposed development at 1677 Beenleigh Road, Underwood has progressed further. The attached document shows the concept layout and the summary of development. The good news is that the EP's generated by the concept is approximately 880 EP's, based on the loading assumptions below. This is much less than originally anticipated and close to the available capacity in the existing water and sewerage network that was provided by your planning team.

Assumed loadings based on development type
ILU's = 2.0EP/unit
Aged Care = 2.0 EP/bed
Residential Lots = 2.8EP/lot
Townhouse = 2.0EP/lot
Development Lot = 107EP/net ha.

There is a pre lodgement meeting with council on Thursday, which I'm not sure if you are attending however it would be good if you could advise if the EP assumptions above are reasonable. Also, it would be good to get an understanding of the extent of upgrade works to the existing water and sewerage networks if the works are required. This can be discussed at the meeting on Thursday if you are attending, if not is it possible for you to comment on this prior to the meeting?

Thanks.

Mark Gittins
Civil Design Manager

Northrop Consulting Engineers
T 07 3067 5319 **M** 0404 896 447
Level 9, 200 Mary Street Brisbane City QLD 4000
www.northrop.com.au

From: Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Sent: Tuesday, 25 June 2019 2:45 PM
To: Mark Gittins <MGittins@northrop.com.au>
Cc: WaterDA <WaterDA@logan.qld.gov.au>
Subject: RE: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Mark,

As informed earlier, I have checked your request with our Planning team and our comments are;

Water

- 850 EP's (residential) can be added to the existing network without any augmentations
- This can be improved to 1000 EP's with a minor augmentations (inter connection of DN150 water main at Malena Way to DN225 water main at Logan Road)

Sewer

- Roughly 800 EP's can be added to the existing network without any augmentations
- To increase the EP's some major upgrades required in the downstream (upsize the existing DN525 main)

If you need further information please contact me.

regards

Rohana Samarakoon | Water Development Services Engineer | Water Infrastructure Branch | **Logan City Council**
Phone: 07 3412 5261 | PO Box 3226 Logan City DC Qld 4114 | rohanasamarakoon@logan.qld.gov.au
logan.qld.gov.au | facebook.com/logancitycouncil | twitter.com/logancc

City of Logan: Innovative, Dynamic, City of the Future

From: Mark Gittins [mailto:MGittins@northrop.com.au]
Sent: Wednesday, 5 June 2019 4:22 PM
To: WaterDA <WaterDA@logan.qld.gov.au>; Samarakoon, Rohana <RohanaSamarakoon@logan.qld.gov.au>
Subject: Sewer and Water Network Capacity - 1677 Beenleigh Road, Underwood

Hi Rohana,

In confidence, our client VIMG has purchased the site at 1677 Beenleigh Road, Underwood which is currently operational as the Australia Post facility until July 2020. Once this lease ends, VMIG will be looking to develop the site into mixed use that is supported by the current zoning. This may include higher density residential, child care facilities or health care facilities etc.

From a Dial Before You Dig (DBYD) search we have found that there is an existing sewer along the frontage of the site that drains to a pump station at the corner of Beenleigh Road and Logan Road. The rising main from the pump station then heads south along Logan Road. In regards to the existing water reticulation the DBYD search shows a

water main on both the northern and southern side of Beenleigh Road. The attached PDF is the DBYD information from LCC.

We are trying to ascertain if the existing sewerage and water network has spare capacity to support this development and if not which component of the sewerage system is the limiting factor. Can you please provide the following information:

- Number of EP's that can be added to the existing sewerage network
- The limiting point of the sewerage network affecting capacity – gravity main size or pump station or rising main?
- Does the existing water reticulation network have spare capacity to service the development?

I'll give you a call sometime tomorrow to discuss further.

Mark Gittins
Civil Design Manager

Northrop Consulting Engineers
T 07 3067 5319 **M** 0404 896 447
Level 9, 200 Mary Street Brisbane City QLD 4000
www.northrop.com.au



****
The contents of this email message and any attachments are intended only for the addressee and may be confidential, private or the subject of copyright. If you have received this email in error please notify Logan City Council, by replying to the sender or calling +61 7 3412 3412 and delete all copies of the e-mail and any attachments.

To view Logan City Council's Privacy Collection Notice, please visit http://logan.qld.gov.au/about-council/contact-us/privacy.

****
The contents of this email message and any attachments are intended only for the addressee and may be confidential, private or the subject of copyright. If you have received this email in error please notify Logan City Council, by replying to the sender or calling +61 7 3412 3412 and delete all copies of the e-mail and any attachments.

To view Logan City Council's Privacy Collection Notice, please visit http://logan.qld.gov.au/about-council/contact-us/privacy.

****
The contents of this email message and any attachments are intended only for the addressee and may be confidential, private or the subject of copyright. If you have received this email in error please notify Logan City Council, by replying to the sender or calling +61 7 3412 3412 and delete all copies of the e-mail and any attachments.

To view Logan City Council's Privacy Collection Notice, please visit http://logan.qld.gov.au/about-council/contact-us/privacy.

****
The contents of this email message and any attachments are intended only for the addressee and may be confidential, private or the subject of copyright. If you have received this email in error please notify Logan City Council, by replying to the sender or calling +61 7 3412 3412 and delete all copies of the e-mail and any attachments.

To view Logan City Council's Privacy Collection Notice, please visit http://logan.qld.gov.au/about-council/contact-us/privacy.