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Telford Consulting Pty Ltd

Engineering Services Report

Proposed North Maclean Enterprise Precinct 4499-4651 Mount Lindesay Highway, North Maclean, 4280

Prepared For
Economic Development Queensland/Logan City Council

Client
Wearco Pty Ltd

Project No.
TEL202159

Issue A July 2021

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Document Information

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Issue A		**Position**	**Date**	**Comments**
Prepared By	M. Mesbah	Civil Engineer	06 July 2021	
Reviewed By	A. Hasham	Civil Engineer (RPEQ 7880)	06 July 2021	

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Client	Comments
Wearco Pty Ltd	Nil

Disclaimer

The advice and information contained within this report relies on the quality of the records and other data provided by the Client and obtained from Logan City Council and EDQ along with the time and budgetary constraints imposed.

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1 INTRODUCTION

Telford Consulting Pty Ltd have been commissioned to undertake an Engineering Services Report for the Proposed North Maclean Enterprise Precinct Park at 4499-4651 Mount Lindesay Highway, North Maclean. The aim of this report is to assess:

1. Council's "Infrastructure Code";
2. Council's "Filling and Excavation Code";
3. Concept Water Supply and Sewer Plan;
4. Review of existing services;
5. Review of encumbrances burdening the site.

The limitations of this report are: -

1. Services are based on historical records;
2. No field sampling or testing have been undertaken;
3. No analysis or calculations as to the capacity of existing services have been undertaken;
4. No geotechnical investigations have been undertaken;
5. Existing services location and size have been derived from Council and Statutory Authorities' search records which have been made available.

2 SITE DETAILS

2.1 Site Details Summary

Table 2.1 provides a summary of development details for the subject site.

Table 2.1 – Site Details / Development Summary

Development Details	Comments
Development Application Number	TBC
Applicant's Name	Wearco Pty Ltd.
Street Address	4499-4651 Mount Lindesay Highway
Suburb	North Maclean
State / Postcode	QLD / 4280
Local Authority	Economic Development Queensland (EDQ) Logan City Council
Climatic Region	Central Region
Zoning	Greater Flagstone Priority Area (PDA)
Development Type	Reconfiguring of a Lot
Number of Proposed Lots	4
Site Area	117.9ha
Real Property Description	Lot 39 SP 258739

2.2 Assessment Authority

The site is located within the Greater Flagstone Priority Development Area (PDA) Development Scheme under the authority of Economic Development Queensland (EDQ).

2.3 Location / Existing Development Details

The subject site is located at 4499-4651 Mount Lindesay Highway, North Maclean and has a total site area of approximately 117.9 ha.

This site is bounded by the Mount Lindsay Highway to the east, Crowson Lane to the north, existing rural residential areas to the west and Priority Development Area to the south and south-west.

The subject site currently consists of one dwelling, two (2) sheds and a paved/gravel hardstand area.

Figure 2.1 - Locality Map

2.4 Topography

There is a ridge that runs in the north-south direction to the west of the site. The highest point on the ridge is approximately at RL 43m at the north-west corner of the site. The site falls towards the south-west from the ridge at an approximate grade of 1.5 % and towards the east at an approximate average grade of 1.7%. The lowest point of the site on the southern boundary is at RL 27m and the lowest point of the site on the east boundary is approximately at RL 22m.

2.5 Encumbrances

There is an overhead power line easement (EMTD on RP 125435) bisecting the site in the east-west direction.

2.6 Site Ingress/Egress

The site is accessed from Mount Lindesay Highway to the east and from Crowson Lane to the north.

3 FILLING AND EXCAVATION

Earthworks design shall be in accordance with the standards with PDA guideline no. 13. Those referenced are:

1. Australian Standard: AS 3798 2007 Guidelines on earthworks for commercial and residential developments (PDA guideline no. 13 - Engineering standards).

All proposed lots will have adequate freeboard above the top water levels of the bio-retention and detention basins. Final levels shall be confirmed during detailed design.

Refer to **Appendix B** for concept filling and excavation plans.

4 ROADWAYS AND CORRIDORS

The proposed development shall be accessed from Crowson Lane the intersection with Greenhill Road and the existing round about at the north-eastern corner of the site. A stub road has been provided from the roundabout as a connection point for the proposed development.

The development shall have an industrial connector street in accordance with the cross-section below (Figure 4.1) which has been determined following discussions with EDQ's engineer.

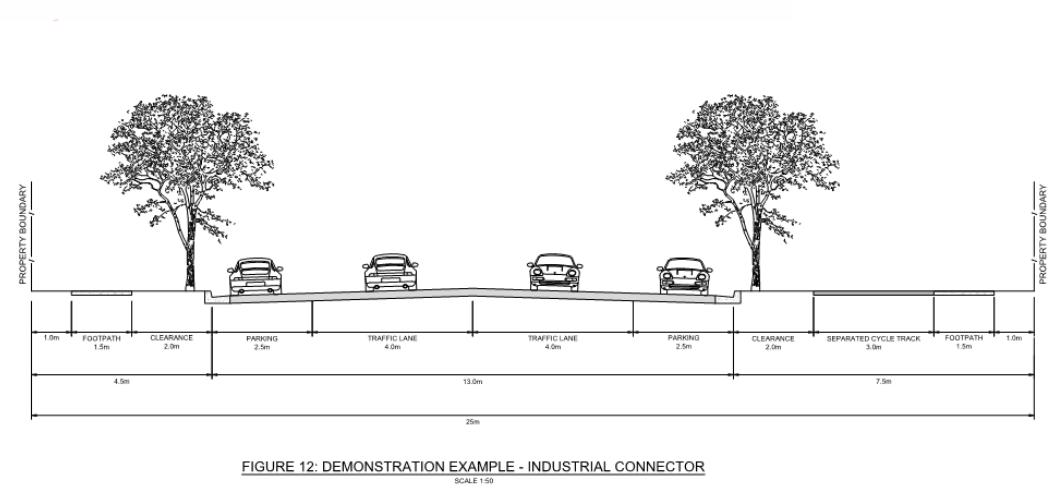


Figure 4.1 – Industrial Connector Street Cross-Section

The lots shall have access from the internal street network while some lot will have direct access from Service Road. On-site parking, circulation and service areas are designed and constructed to meet the relevant local authority standards in accordance with PDA guideline no. 10 (Industry and business areas).

5 ACID SULFATE SOILS

The lowest point of the area to be developed for the proposed sub division is approximately RL 19.97m AHD. Considering this, **Table 5.1** below shows that the proposed development does not trigger the requirement for compliance with the SPP code (*Department of State Development, Infrastructure and Planning State Planning Policy (SPP) April 2016).*

Table 5.1 - SPP April 2016 - DA Requirements for Acid Sulfate Soils

LCC Planning Scheme Policy Criteria	Comments
1. An acid sulfate soils affected area:	**Not Applicable**
2. Land at or below 5 metres Australian Height Datum (AHD) where the natural ground level is below 20 metres AHD if the application is for a material change of use, or operational works, involving: a. Excavating or otherwise removing 100 cubic metres or more of soil sediment, or b. Filling of land with 500 cubic metres or more of material with an average depth of 0.5 metres or more.	**Not Applicable**

6 WATER SUPPLY

6.1 Design Standards

Water shall be designed in accordance with SEQ Water Supply and Sewerage Design and Construction Code (PDA guideline no. 13 - Engineering standards).

6.2 Existing Water Reticulation

A review of Council's records indicates there are existing water mains installed in the adjacent Crowson Lane and the eastern side of the Mount Lindesay Highway.

The following water reticulation infrastructure is recorded.

1. Eastern side of Mt Lindesay Highway - 200 DIA Watermain
2. Northern side of Crowson Lane - 200DIA PN16 mPVC

Refer Figure 6.1 for locations. The highest point in the site is RL36.80 m AHD.

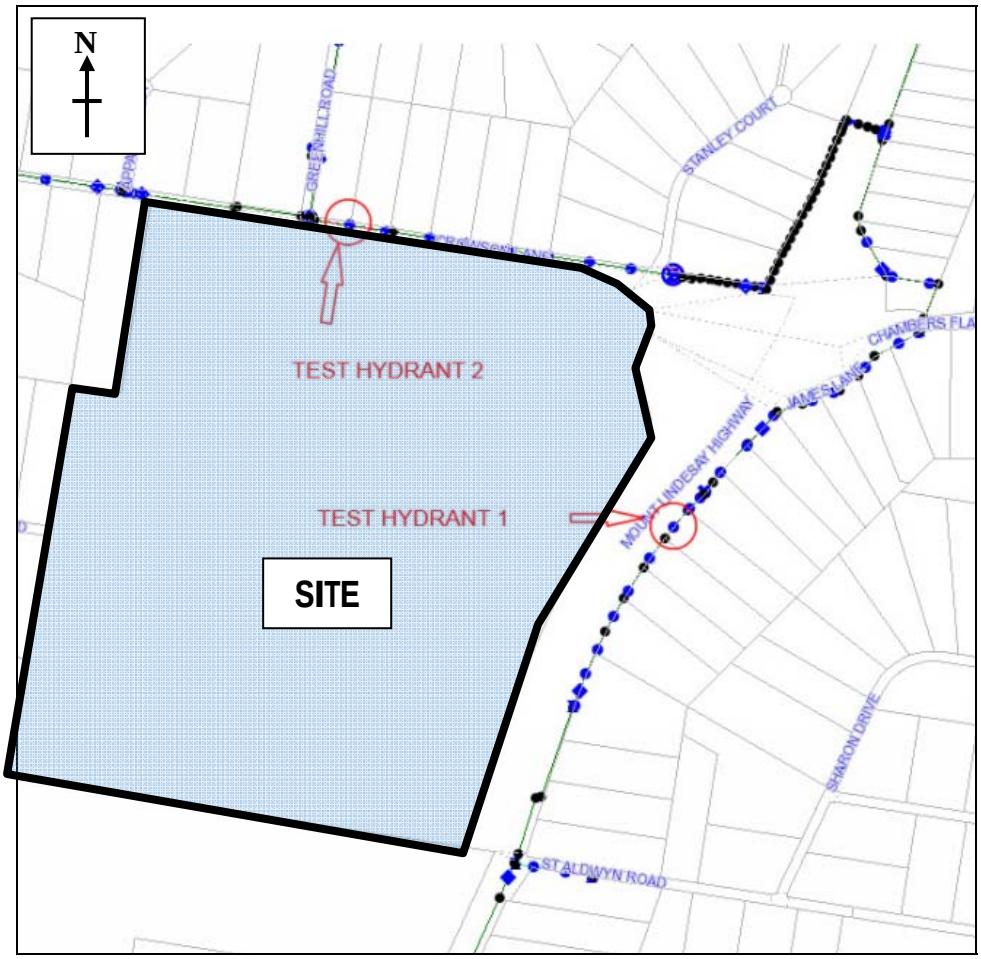


Figure 6.1 – Water Supply Plan and Flow and Pressure Testing Points

6.3 Design Parameters & Equivalent Population

The following SEQ Code design parameters are applicable to the subject site. This site is considered to be situated within an Urban Catchment.

Drinking Water – Conventional

1. Minimum pressure requirements minimum SERVICE pressure (at PH on PD with Reservoirs at MOL) with no flow through service, Urban and Rural = 22m at the property boundary

Fire Fighting Requirements

1. Commercial/Industrial buildings: 30 L/s for 4 hours w background Demand;
2. Background Demand Commercial/ Industrial: PH demand (between 10am and 4pm) (single fire event only);

Pipeline Capacity Requirements

1. Transport MDMM in 20 hrs Reticulation mains; Maintain pressure for Peak Hour and fire flow performance

The following demand rates have been calculated in accordance with the SEQ Code:

1. Average Day Demand (AD) = **5.08 L/s**
2. Peak Day Demand (PD) = **9.58 L/s**
3. Peak Hour Demand (PH) = **13.17 L/s**

Refer to **Appendix D** for calculation details.

6.4 Flow and Pressure Test Results

Figure 6.2 and Figure 6.3 below show details from the flow and pressures tests provided by Council.

Subject Property Details	
Property Address	4499-4651 Mount Lindesay Highway
Hydrant and Network Parameters – Test Hydrant –connection point 1	
Test Hydrant Asset ID	WFH019651
Hydrant Location	Eastern Verge of Mount Lindesay Highway (at 4556-4564 Mount Lindesay Highway)
Node Elevation (m)	20.97 m AHD
Hydrant and Network Parameters – Test Hydrant –connection point 2	
Test Hydrant Asset ID	WFH019651
Hydrant Location	Northern Verge of Crowson Lane (at 101-109 Crowson Lane)
Node Elevation (m)	30.56 m AHD

Figure 6.2 – Hydrant Location and Network Parameters

Normal Supply Conditions /(Peak Day Analysis)		
Hydrant		
Available Flow (L/s)	**Test Hydrant 1- Residual Pressure (m)**	**Test Hydrant 2- Residual Pressure (m)**
0.00	54.14	42.31
5.00	49.66	40.56
10.00	48.19	39.00
15.00	46.33	37.40
20.00	44.08	35.40
25.00	41.51	33.13
30.00	38.64	30.64
35.00	35.47	27.94
40.00	32.03	25.05
45.00	28.34	22.00
50.00	24.34	18.76

Figure 6.3 – Hydrant Test Results

6.5 Proposed Network

The proposal is to provide two connection points from the existing watermain; one in the Mount Lindesay Highway and the second connection will be in Crowson Lane.

The residual pressures provide indicate that the minimum required pressure head of 22m is achievable. However, a water booster may need to be installed which is to be confirmed during detailed design. A detailed water network modelling will be undertaken in the detail design.

For the proposed internal Concept Water Reticulation Plan refer to **Appendix B**.

7 SEWERAGE SUPPLY

7.1 Design Standards

Sewer shall be designed in accordance with SEQ Water Supply and Sewerage Design and Construction Code (PDA guideline no. 13 - Engineering standards).

7.2 Design Parameters & Equivalent Population

The following SEQ Code design parameters are applicable to the subject site.

1. Demand by land use Calculation) = **0.164/100m2** (taken from LCC Planning Scheme 2015)

Table 4.2.2.2—Planned density and planned demand rate for a trunk infrastructure network

Column 1 Planned density area[1]	Column 2 Development type	Column 3 Planned density		Column 4 Planned demand rate for a trunk infrastructure network[2]			
		Non-residential plot ratio[3]	Residential density (dwellings/ net dev ha)	Water supply network (EP)	Sewerage network (EP)	Movement network (vpd)	Park and land for community facilities network (EP)
N055	Retail and service, Commercial	0.30	0	0.197	0.215	10	0.00
N056	Commercial, General/heavy industry	0.80	0	0.175	0.164	5	0.00
N057	Commercial, Light industry	0.80	0	0.144	0.15	10	0.00
N058	Retail and service, Commercial, Light industry	1.00	0	0.646	0.705	35	0.00
N059	Retail and service, Commercial	0.50	0	0.328	0.359	17	0.00
N060	Retail and service, Commercial, Community	1.20	0	0.729	0.796	37	0.00
N061	Retail and service, Commercial	1.00	0	0.68	0.743	36	0.00
N062	Retail and service, Commercial, Light industry,	1.00	0	0.423	0.459	24	0.00
N063	Retail and service, Commercial	1.00	0	0.633	0.691	34	0.00
N064	Retail and service, Commercial	1.50	0	0.985	1.076	52	0.00
N065	Retail and service, Commercial	1.00	0	0.561	0.613	30	0.00

Figure 7.1 – Demand Rates for Trunk Infrastructure

The following demand rates have been calculated in accordance with the SEQ Code:

1. Peak Wet Weather Flow (PWWF)= **3.86 L/s**
2. Peak Day Demand (PD) = **9.58 L/s**
3. Peak Hour Demand (PH) = **13.17 L/s**

For industrial and commercial lots, the relevant SEQ-SPs may consider partial lot servicing.

7.3 Ultimate Sewer Strategy

We understand that the Greater Flagstone PDA Wastewater Servicing Strategy endorsed by EDQ and Logan City Council for the North Maclean Catchment is proposed as follows:

- referring to Figure 7.2, pump station NM1 will pump via rising main towards the south of the site extending through to Greenbank Road ultimately discharging into the NM3 Pump Station.

Following ground truthing, which included consideration of the characteristics of the site and immediate locality, including topography, the location of the high voltage electricity infrastructure corridor, the location of possible ecological values and lot access considerations within the southern portion of the North Maclean Catchment area; the alignments in the proposed development to achieve this intent are proposed in **Appendix B** Civil Engineering Plans for the Concept Sewer Reticulation Plan.

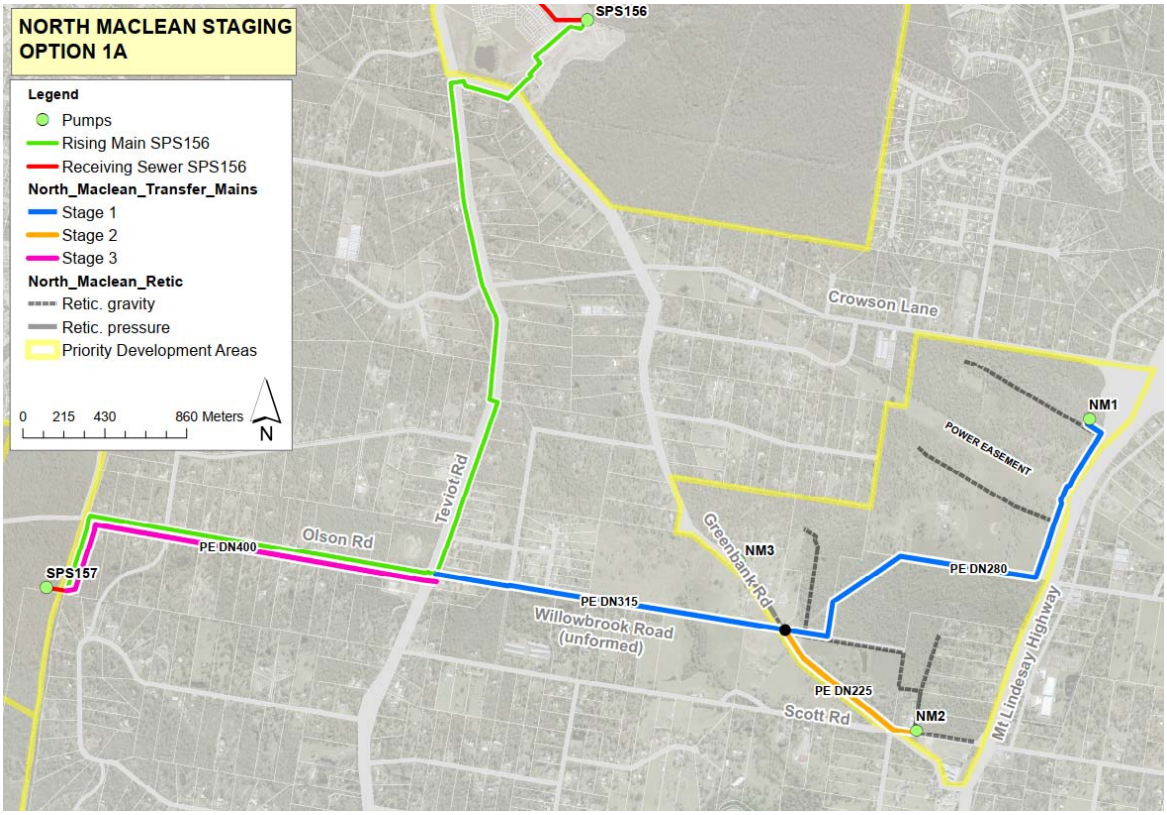


Figure 7.2 – Greater Flagstone PDA Wastewater Servicing Strategy – North Maclean Catchment

7.4 Proposed Internal Network

The majority of the proposed development will drain to proposed Lot 1 which is located at the lowest point of the development.

Until the ultimate effluent disposal network for North Maclean is achieved the proposed internal Concept Sewer Reticulation Plan has been prepared**, refer Appendix B**. Until the ultimate effluent disposal system is in place, we suggest an interim on-site sewage treatment should be adopted for the proposed development, which will be designed and confirmed during the detailed design stage.

8 STORMWATER MANAGEMENT

A separate Site Based Stormwater Management Plan has been prepared for this proposal (refer TEL202159 – SBSMP dated July 2021).

9 ELECTRICITY AND COMMUNICATIONS

9.1 Energex

Existing underground electrical services are available along MT Lindsay Highway and Crowson Lane to the north-west of the site.

9.2 Telstra

The current site and adjacent rural residential areas are serviced by existing Telstra lines. The Telstra service to the proposed development will be available from the existing service.

9.3 Optus

There are underground Fibre Optic Telecommunications cables along MT Lindsay Highway to the east.

Refer to Appendix C for plans from the DBYD search.

10 CODE ASSESSMENTS

The following local Council code assessments have been completed:

1. LCC code assessment infrastructure
2. LCC code assessment filling and excavation

Refer **Appendix E** and **Appendix F**.

11 CONCLUSION

This Engineering Services report has assessed the Economic Development Queensland (EDQ) requirements and Councils requirements and possible development restrictions which may apply to filling and excavation, roadways and corridors, acid sulphate soils, water and sewer reticulation, electrical and communication.

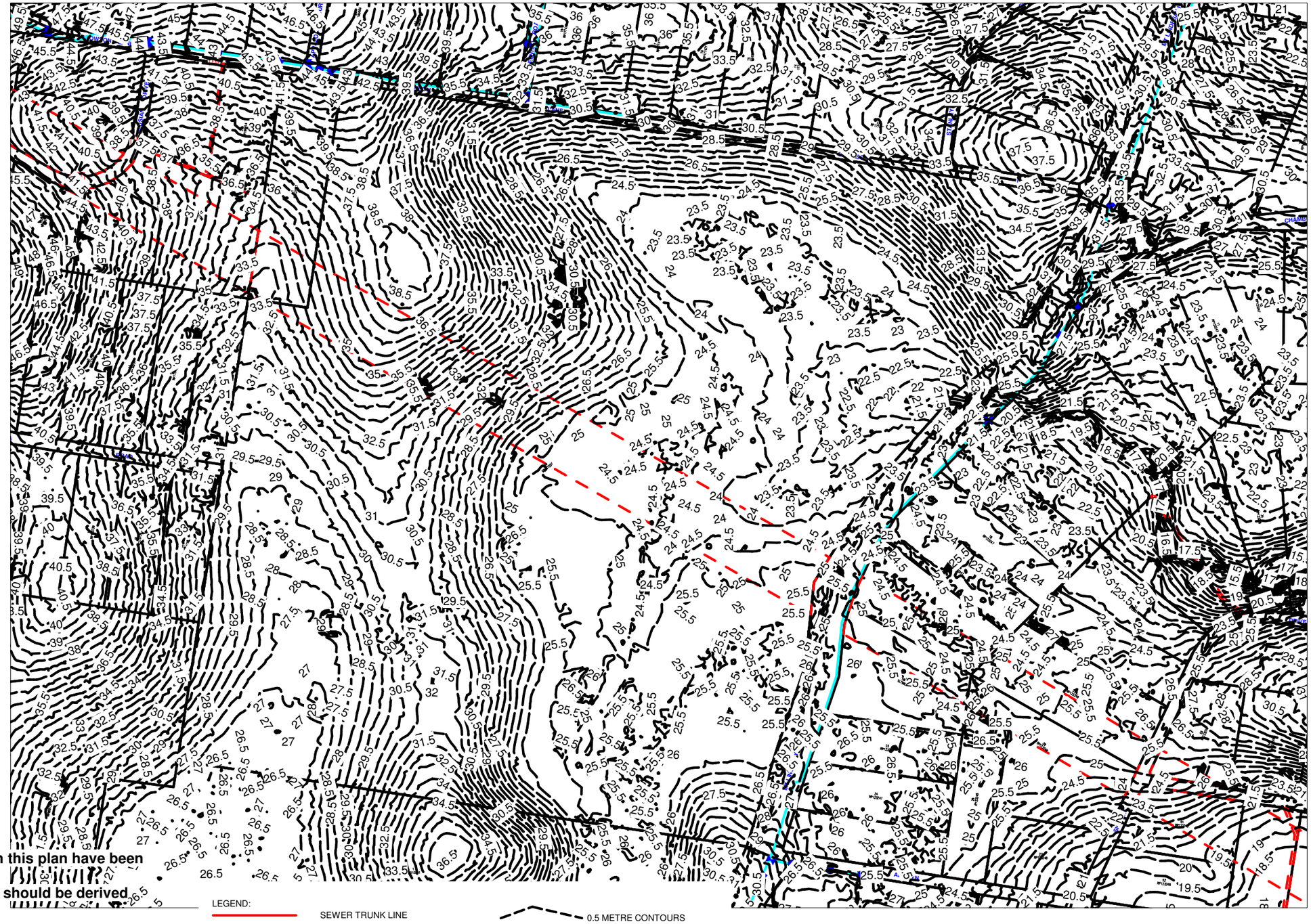
The report concludes that there are no constraints preventing an orderly development of the subject site from occurring as planned and in accordance with the EDQ and Logan City Council's requirements for development.

Appendix A SITE CONTOUR PLAN

LOGAN
CITY COUNCIL

N

SCALE 1:70
SEP 2010



The contours shown on this plan have been derived from ALS Data. Accurate measurement should be derived from ground survey.

No Window

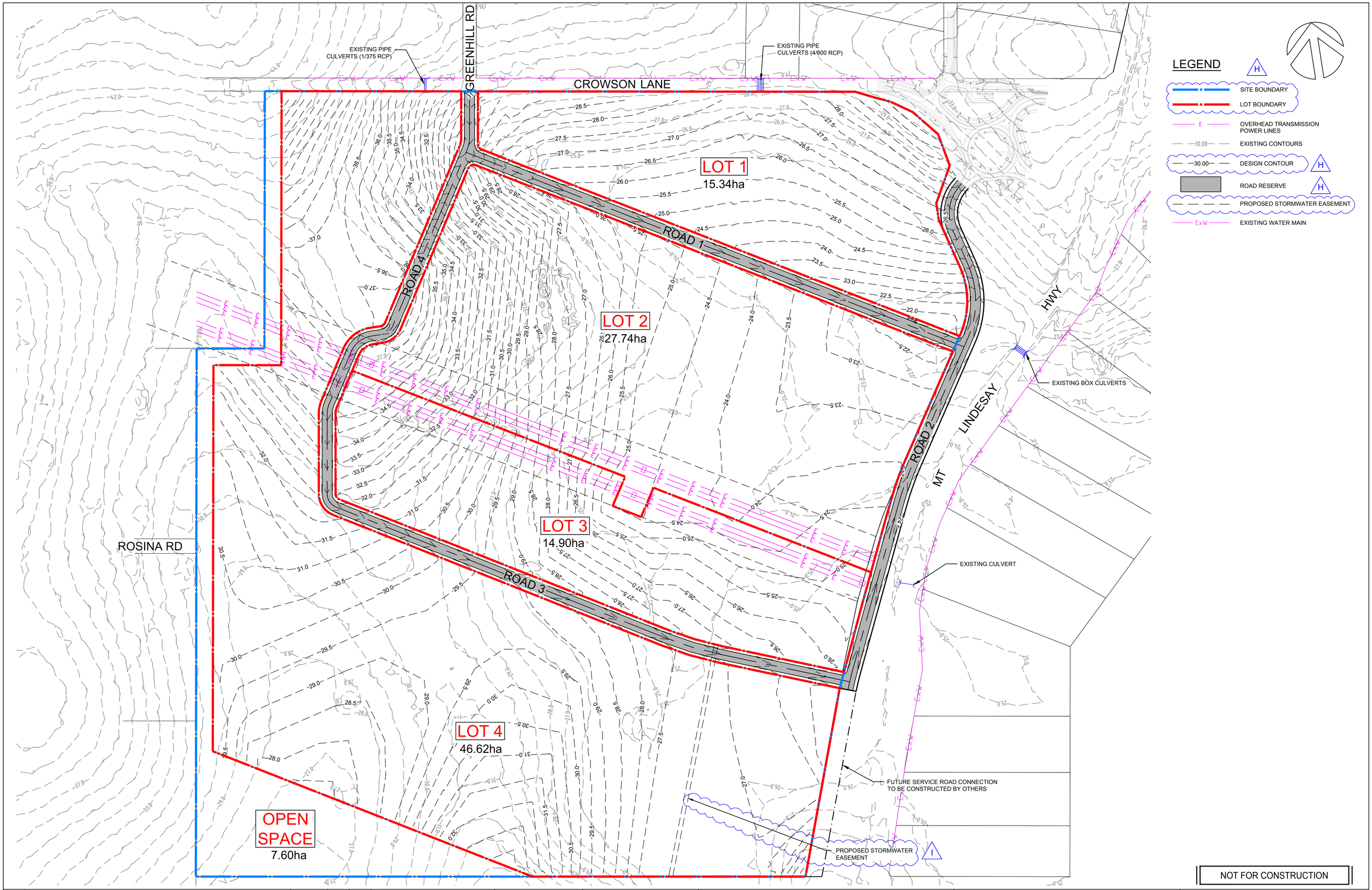
LEGEND:

- SEWER TRUNK LINE
- SEWER LINE & MANHOLE
- WATER LINE & POINTS
- STORMWATER LINE, PITS & MANHOLE
- STORMWATER CHANNEL
- 0.5 METRE CONTOURS

NOTE: AERIAL CAPTURED 2008/2009.
NOTE: LOCATION OF ALL SERVICES INDICATED ONLY, AN ASCONSTRUCTED SEARCH SHOULD BE DONE FOR EXACT LOCATIONS.

s:drafting:wintab:users:deb:CONTOUR MAP SERVICES_AERIAL_LANDSCAPE.WOR

Appendix B CIVIL ENGINEERING PLANS



NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Check
H	ISSUE FOR DEVELOPMENT APPLICATION	07/07/2021	M.M.	J.B.
G	ISSUE FOR DEVELOPMENT APPLICATION	18/12/2020	M.M.	J.B.
F	ISSUE FOR DEVELOPMENT APPLICATION	28/11/2019	M.M.	J.B.
E	ISSUE FOR DEVELOPMENT APPLICATION	01/03/2019	M.M.	J.B.
D	ISSUE FOR DEVELOPMENT APPLICATION	11/07/2018	M.M.	J.B.
C	ISSUE FOR DEVELOPMENT APPLICATION	12/06/2018	M.M.	J.B.

Client
Wearco Pty Ltd
42 South Street, Jimboomba QLD 4280

Surveyor

Scales
0 20 40 60 80 100 120 m
SCALE 1:2500 @ A1

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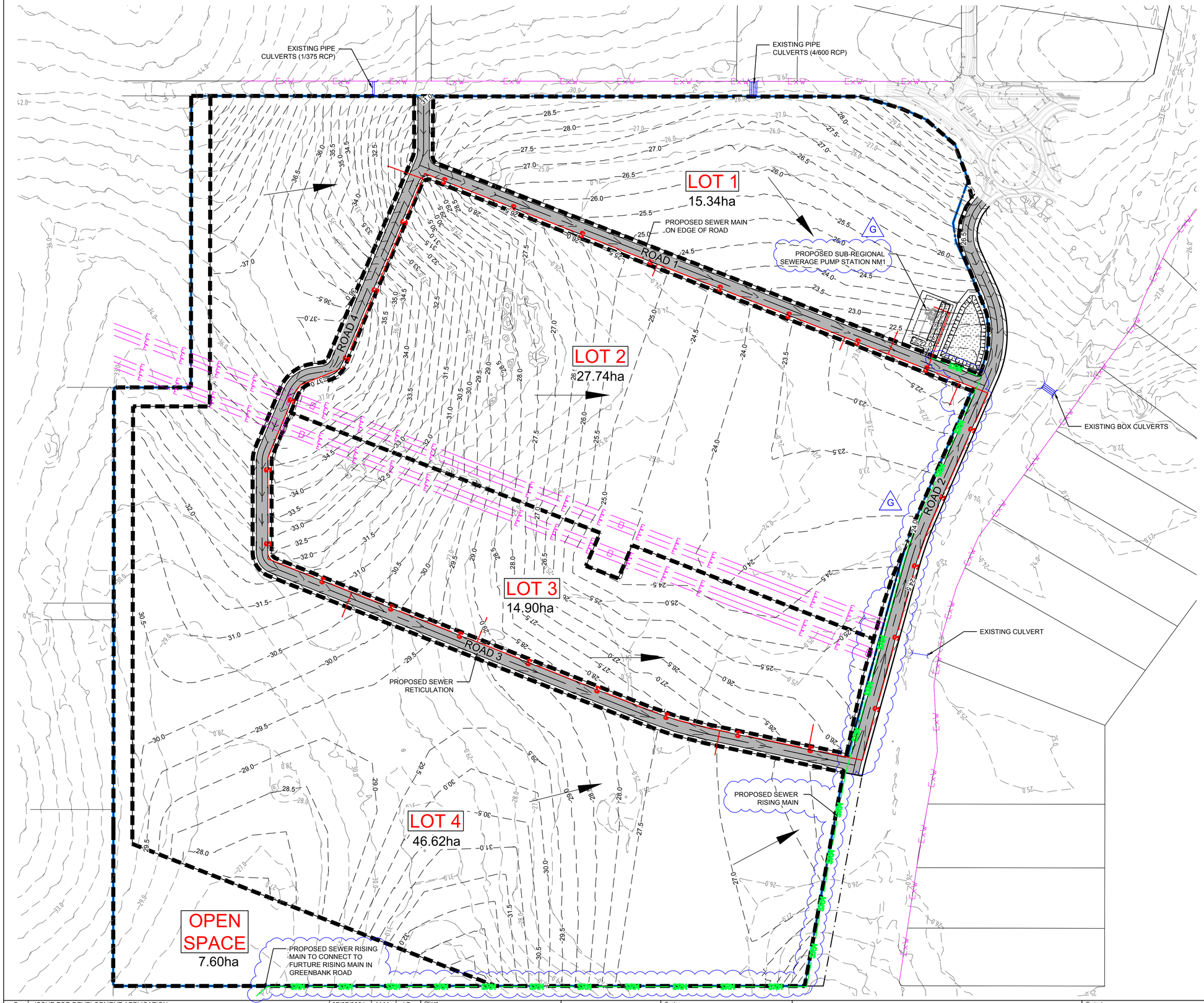
Project
PROPOSED BUSINESS PARK
4499-4651 MT LINDESAY HIGHWAY,
NORTH MACLEAN QLD

Drawing Title
PROPOSED DEVELOPMENT LAYOUT PLAN

Scale	A1	Project No.	Dwg. No.	Issue
1:2500		TIEL202159.CIV.DA	010	H



LEGEND

- SITE BOUNDARY
- PROPOSED SEWER MAIN
- SEWER CATCHMENT BOUNDARY
- LOT SERVICE ARROW
- 30.00 EXISTING CONTOURS
- 30.00 DESIGN CONTOUR
- S PROPOSED SEWER RETICULATION
- SRM PROPOSED SEWER RISING MAIN TO CONNECT TO FUTURE RISING MAIN IN GREENBANK ROAD
- ExW EXISTING WATER MAIN

EP CALCULATIONS NOTES

1. CATCHMENT LAND USE - N056 COMMERCIAL, GENERAL/HEAVY INDUSTRY
2. DEMAND BY LAND USE CALCULATION = 0.164 DEMAND PER 100m2 OF NET DEVELOPABLE AREA FOR NON-RESIDENTIAL DEVELOPMENT (APPROX 16.4 EP/ha)
3. ADWF = 180L/EP/d
4. PIPE CAPACITIES AT MINIMUM GRADE (FROM SEQ WS&S D&C CODE - DESIGN CRITERIA)
   - 4.1. MINIMUM VELOCITY = 0.7m/s AT PDWF;
   - 4.2. MAXIMUM DEPTH OF FLOW = 0.75% d AT PWWF
   - 4.3. DN150 = 9.1L/s (AT 1:180);
   - 4.4. DN225 = 27.8L/s (AT 1:300);
   - 4.5. DN300 = 37.1L/s (AT 1:400);

CATCHMENT TABLE

CATCHMENT NAME	SERVICE AREA (ha)	EP's	PWWF (L/s)
LOT 1	15.34	244	4.39
LOT 2	27.74	456	8.29
LOT 3	14.90	248	4.5
LOT 4	46.62	778	14.00
		SUM	31.18

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Surveyor:

Scales: 0 20 40 60 80 100 120 m — SCALE 1:2500 @ A1

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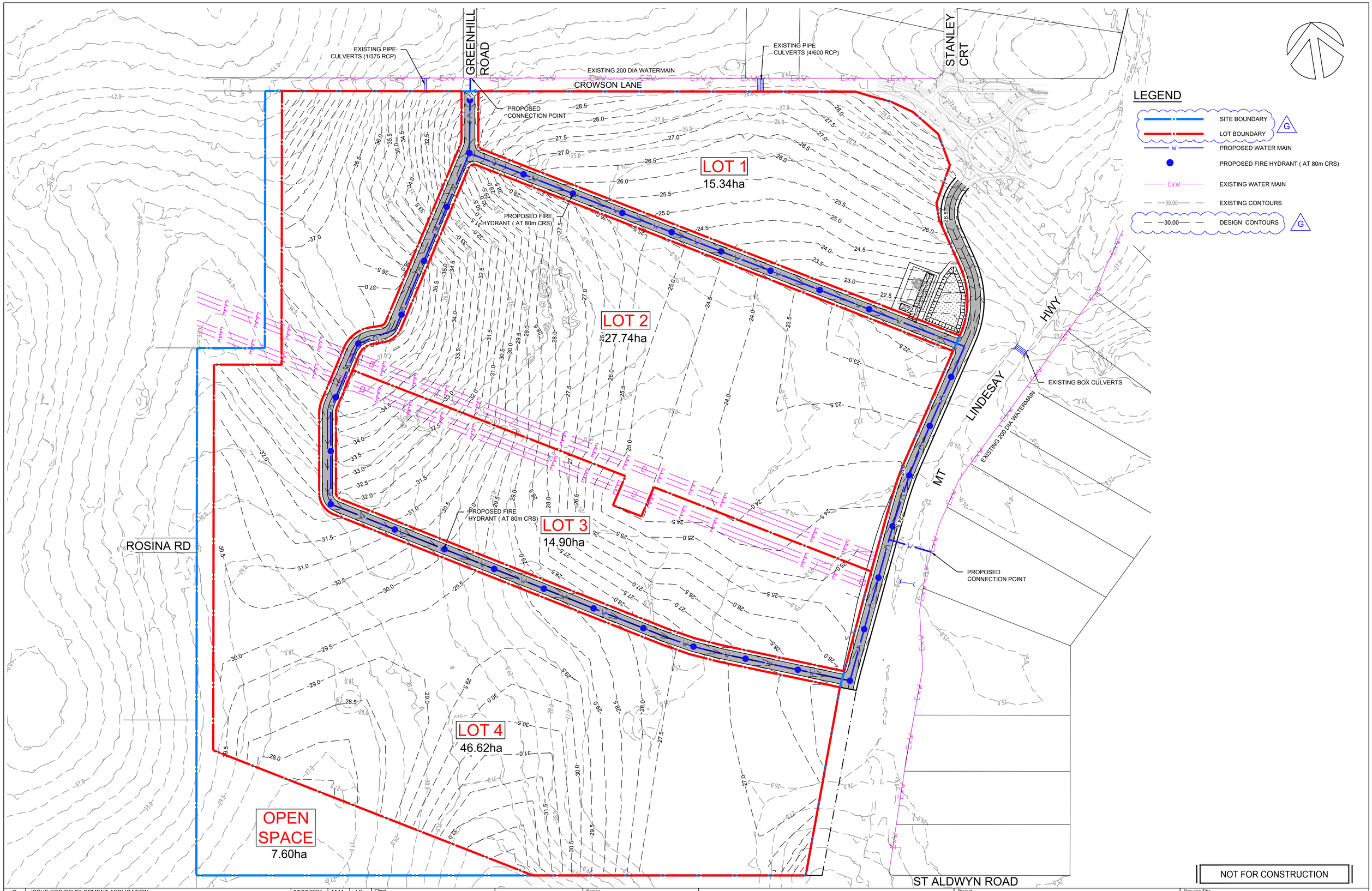
Project: PROPOSED BUSINESS PARK 4499-4651 MT LINDESAY HIGHWAY, NORTH MACLEAN QLD

Drawing Title: CONCEPT SEWER RETICULATION LAYOUT PLAN

Scale A1	Project No.	Dwg. No.	Issue
1:2500	TIEL202159.CIV.DA	012	G



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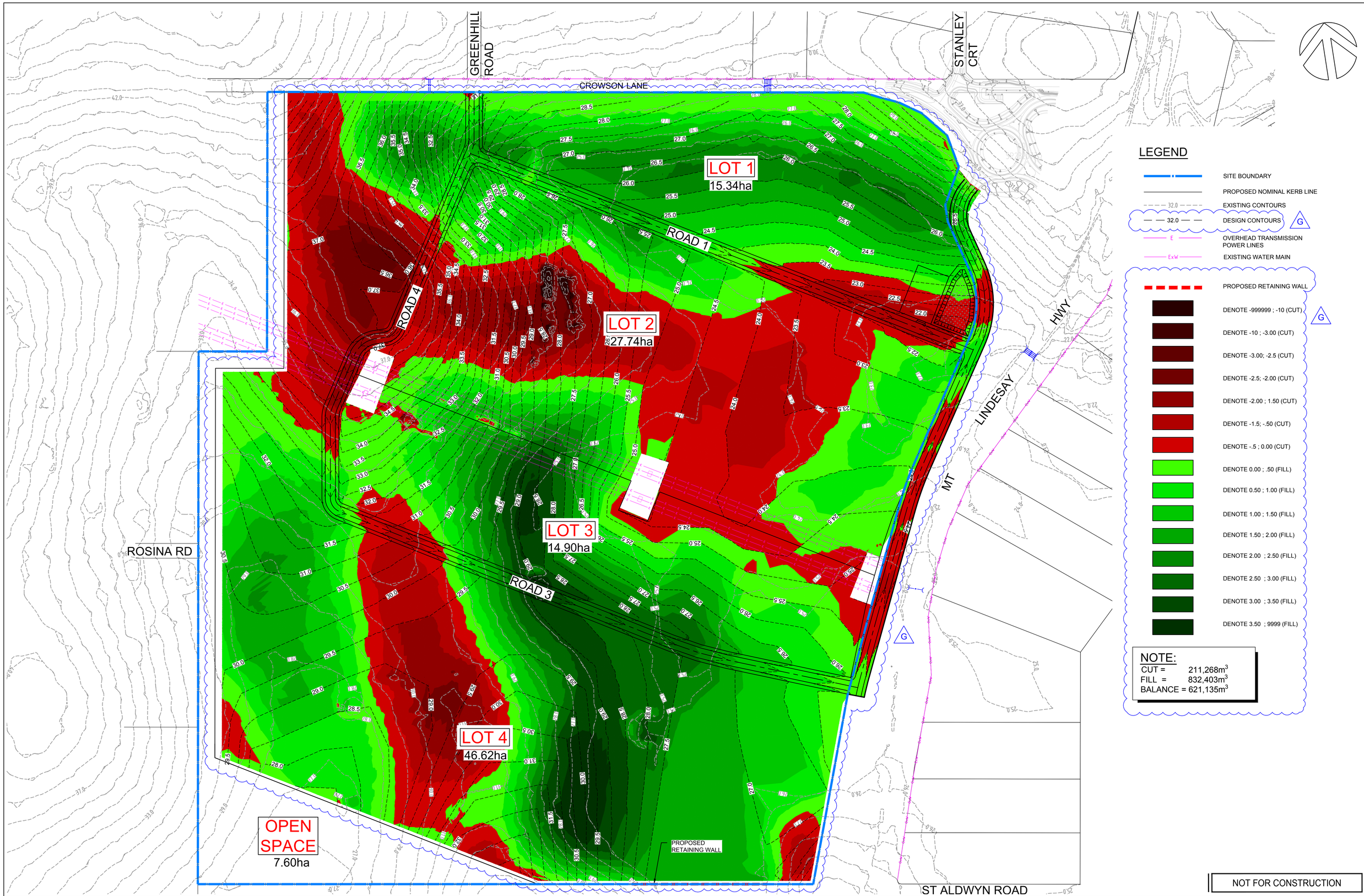
4499-4651 MT LINDESAY HIGHWAY,
NORTH MACLEAN QLD

Drawing Title
CONCEPT WATER RETICULATION
LAYOUT PLAN

Scale	A1	Project No.	Dwg. No.	Issue
1:2500		TIEL202159.CIV.DA	014	G



LEGEND

- SITE BOUNDARY
- PROPOSED NOMINAL KERB LINE
- 32.0 EXISTING CONTOURS
- 32.0 DESIGN CONTOURS (G)
- E OVERHEAD TRANSMISSION POWER LINES
- ExW EXISTING WATER MAIN
- PROPOSED RETAINING WALL
- DENOTE -999999 ; -10 (CUT) (G)
- DENOTE -10 ; -3.00 (CUT)
- DENOTE -3.00; -2.5 (CUT)
- DENOTE -2.5; -2.00 (CUT)
- DENOTE -2.00 ; 1.50 (CUT)
- DENOTE -1.5; -.50 (CUT)
- DENOTE -.5 ; 0.00 (CUT)
- DENOTE 0.00 ; .50 (FILL)
- DENOTE 0.50 ; 1.00 (FILL)
- DENOTE 1.00 ; 1.50 (FILL)
- DENOTE 1.50 ; 2.00 (FILL)
- DENOTE 2.00 ; 2.50 (FILL)
- DENOTE 2.50 ; 3.00 (FILL)
- DENOTE 3.00 ; 3.50 (FILL)
- DENOTE 3.50 ; 9999 (FILL)

NOTE:

CUT = 211,268m^3
FILL = 832,403m^3
BALANCE = 621,135m^3

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Drawing Title: CONCEPT EARTHWORKS LAYOUT PLAN

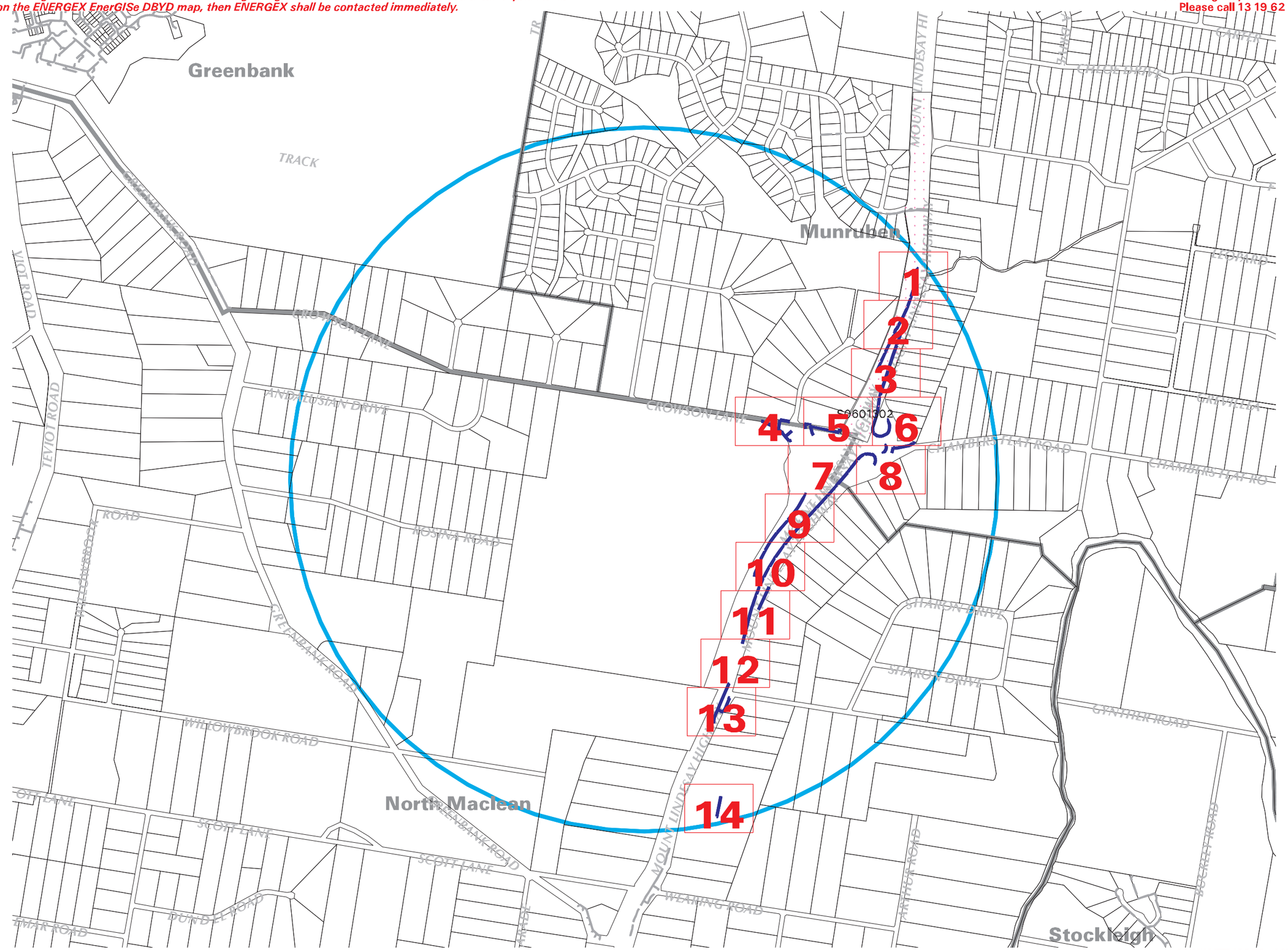
Scale A1	Project No.	Dwg. No.	Issue
1:2500	TIEL202159.CIV.DA	015	G

Appendix C DBYD

PAPER SIZE A3

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

For Emergency Situations Please call 13 19 62



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

UNCONTROLLED COPY

energex

EnerGISe
DBYD

Date: 08 Jul 21 Time: 11.29.00
Requested By: DBYD

NOT TO SCALE

0 600m

Enquiry No: 200426875
KEY MAP

Enquiry Area

LOCALITY DIAGRAM

PAPER SIZE A3

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

For Emergency Situations Please call 13 19 62

2400 2500 2600

0400

6930300m N

5024400m E

W2051114

W2051115

W2051116

W2051117

4378

4400

0300

energex

EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.29.16
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 1

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

N W E S

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LOCALITY DIAGRAM

Munruben

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

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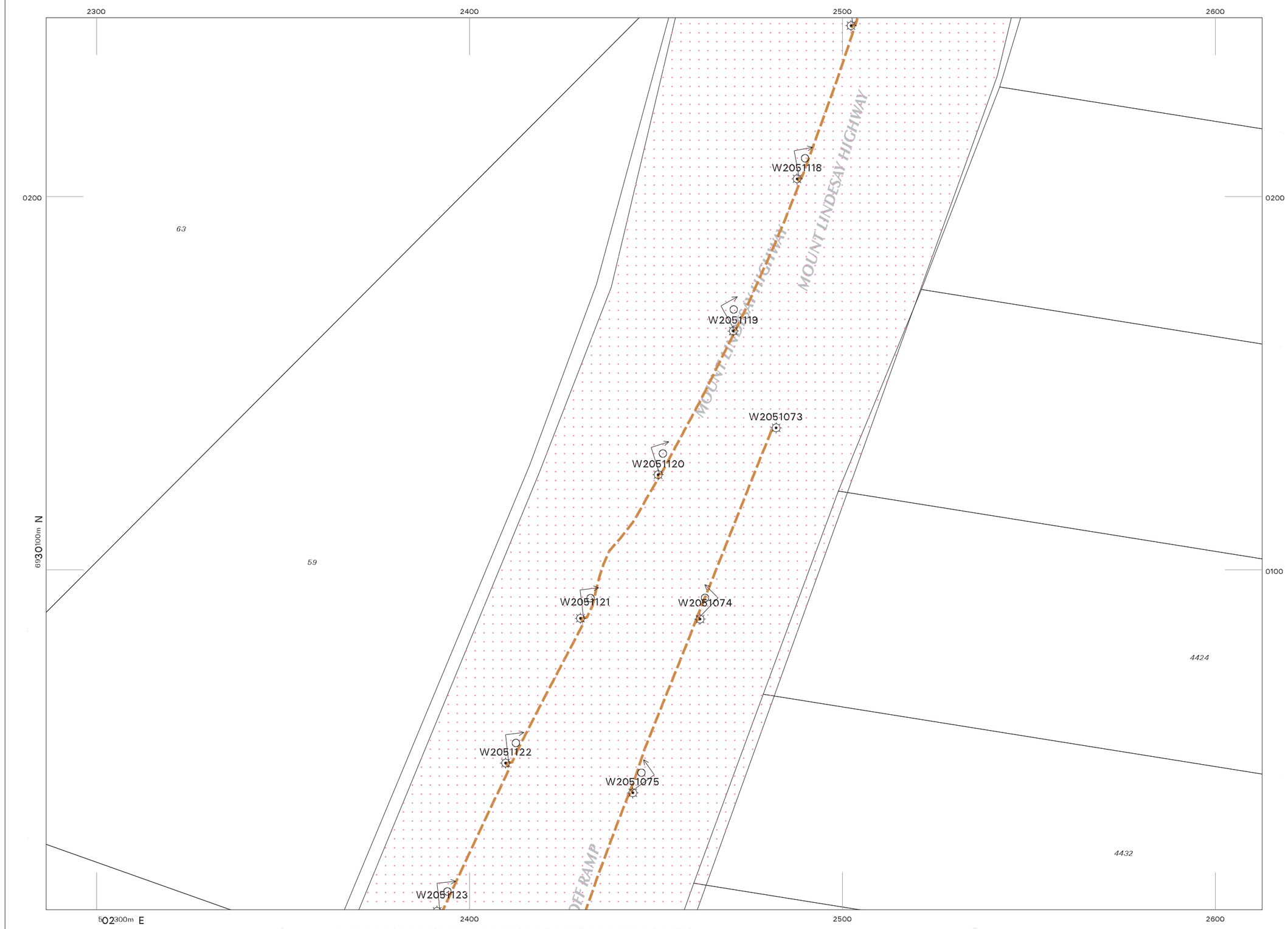
For Emergency Situations Please call 13 19 62



energex

EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.29.35
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 2

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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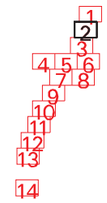

LOCALITY DIAGRAM

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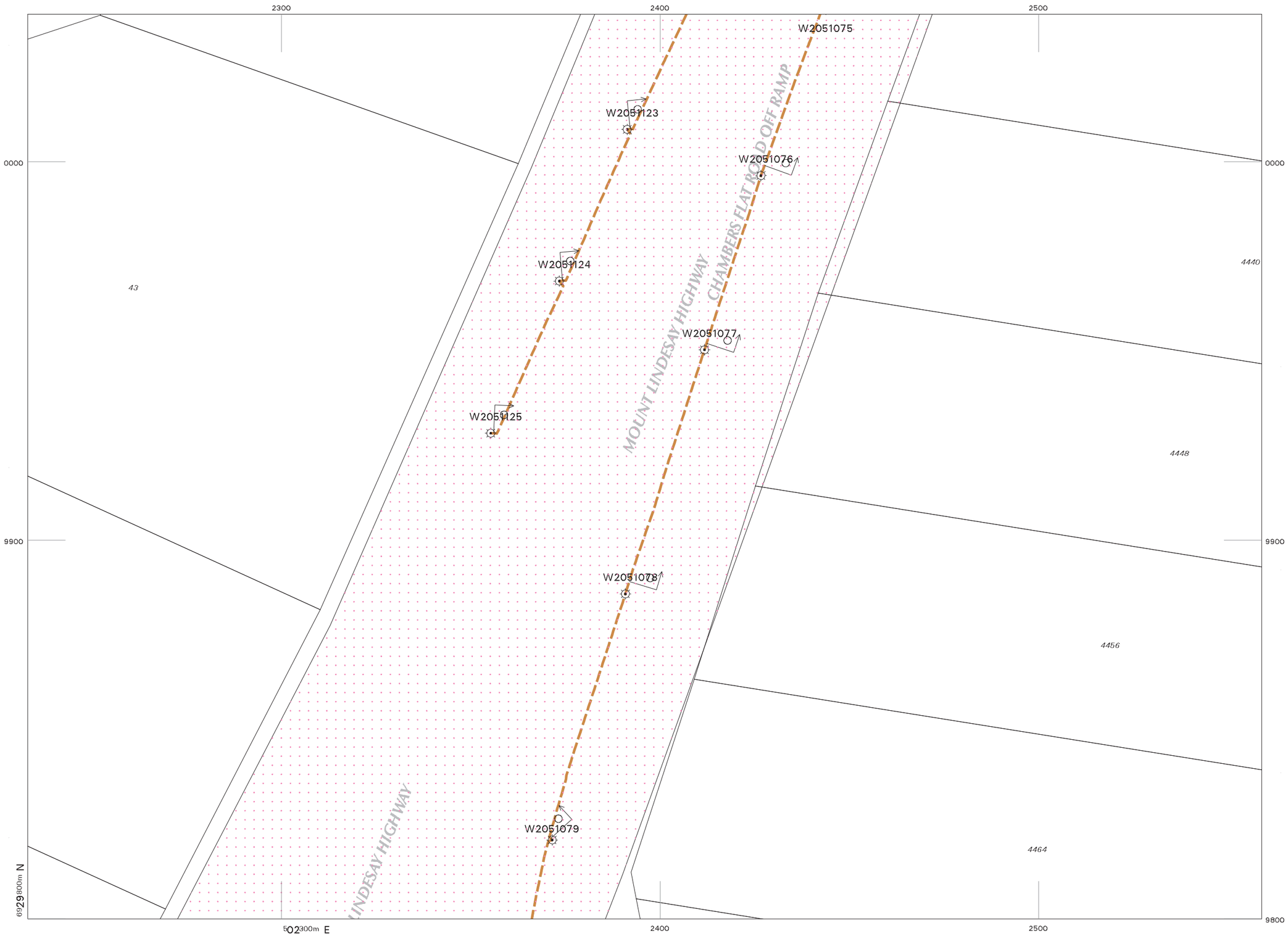

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EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.29.54
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 3

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
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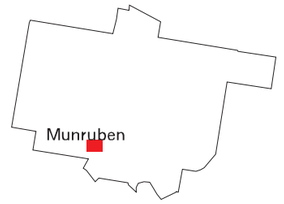

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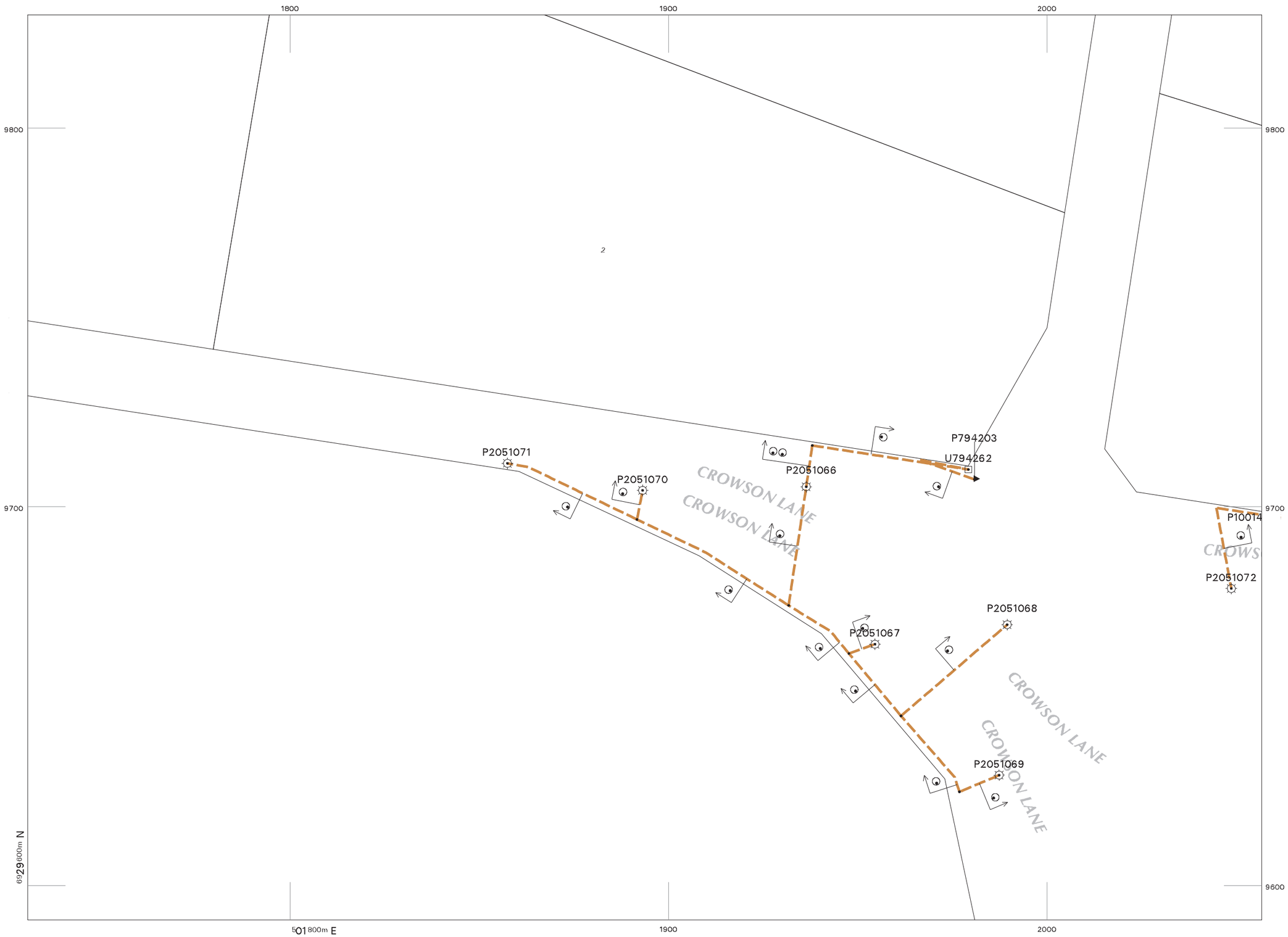

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EnerGISe
DBYD

Date: 08 Jul 21 Time: 11.30.15
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 4

- *Ground Transformer*
- *Cubicle Transformer*
- *Ring Main Unit*
- *Metering Unit*
- *Link Pillar*
- *Service Pillar*
- *Junction Pillar*
- *Pit*
- *Cable Joint*
- *Cable Termination*
- *Cable Marker*
- *Street Light Pole*
- *Earth*
- *Planned Work labelled by Work Order*
- *Cable Voltage Less Than 33kV*
- *Cable Voltage 33kV or Higher*
- *Direct-Lay Cable*
- *Conduit*
- *Multi-Section Duct*
- *Trench*
- *Cable Tray*
- *Tunnel*

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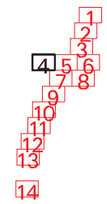

LOCALITY DIAGRAM

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2100 2200 2300

9800 9700 9600

17

1

MOUNT LINDESAY HIGHW

W20510

S0601302

P100143-B

P2051072

CROWSON LANE

U794261

P794180

W2051081

W2051082

W2051138

CROWSON LANE

CROWSON LANE

MOUNT LINDESAY HIGHWAY ON RAMP

CROWSON LANE

CROWSON LANE

6929800m N

5021100m E

2200 2300

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EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.30.35
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 5

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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LOCALITY DIAGRAM

Muhruben

North Maclean

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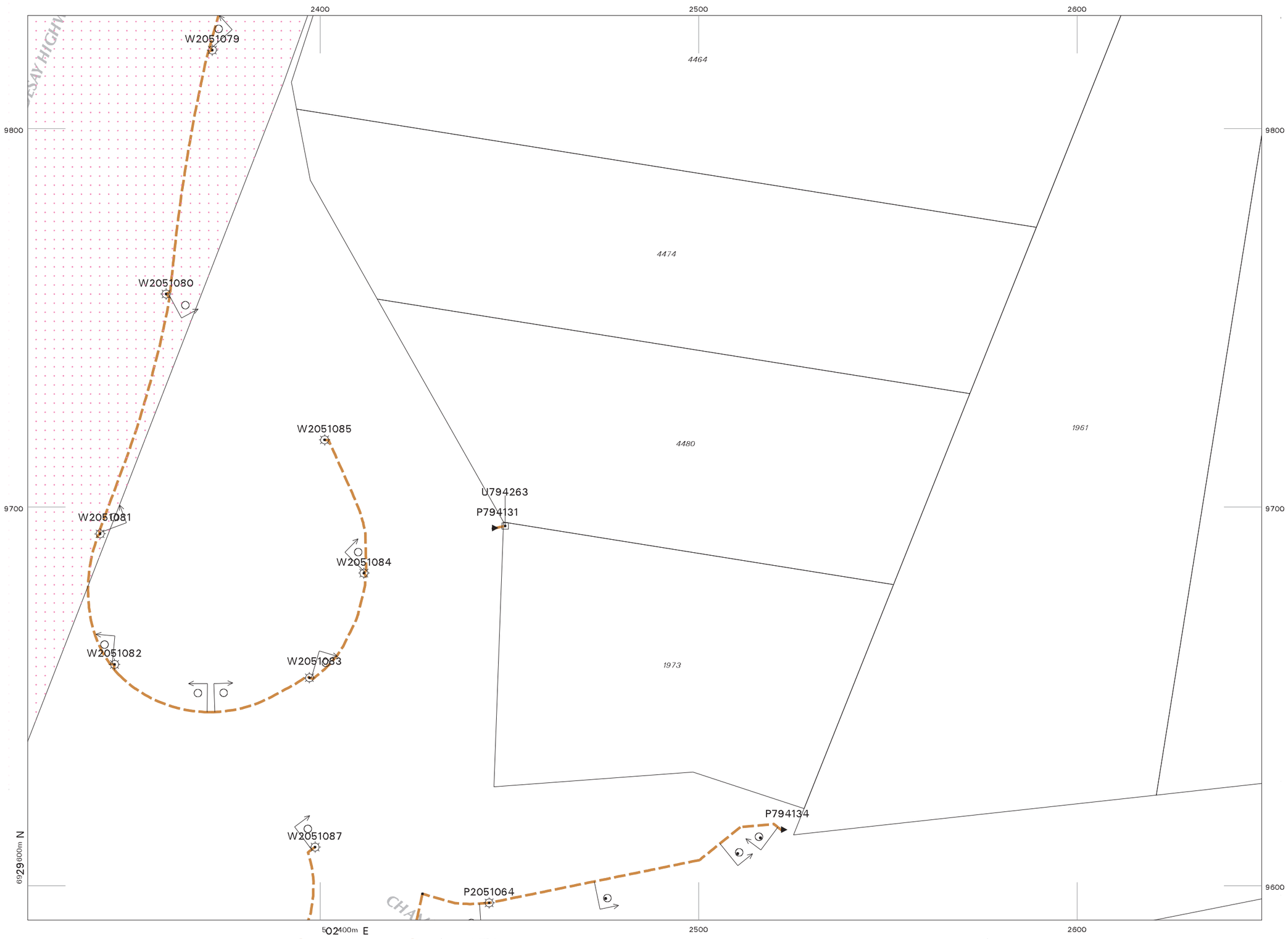

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DBYD

Date: 08 Jul 21 Time: 11.30.55
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 6

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
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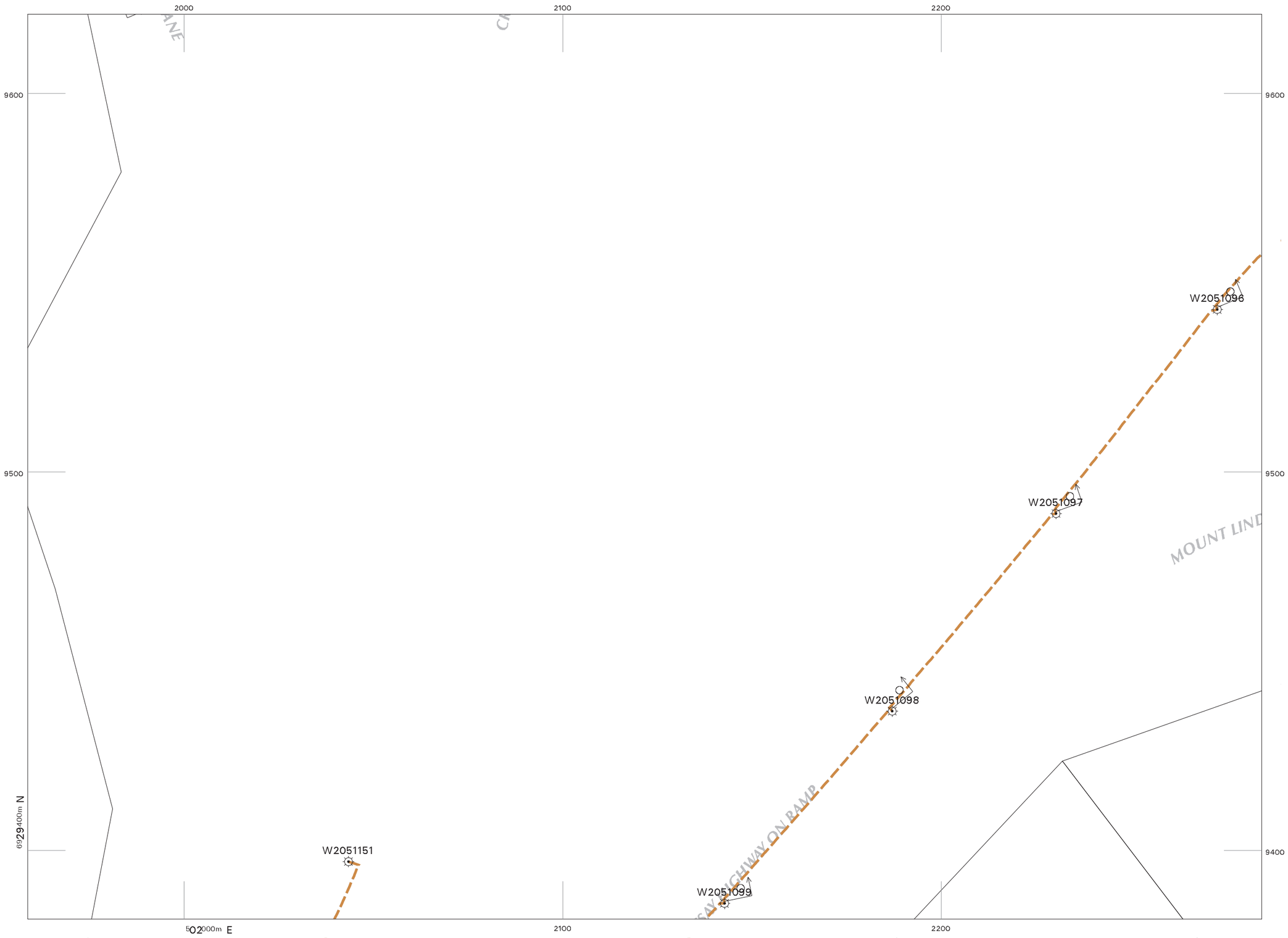

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EnerGISe
DBYD

Date: 08 Jul 21 Time: 11.31.16
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 7

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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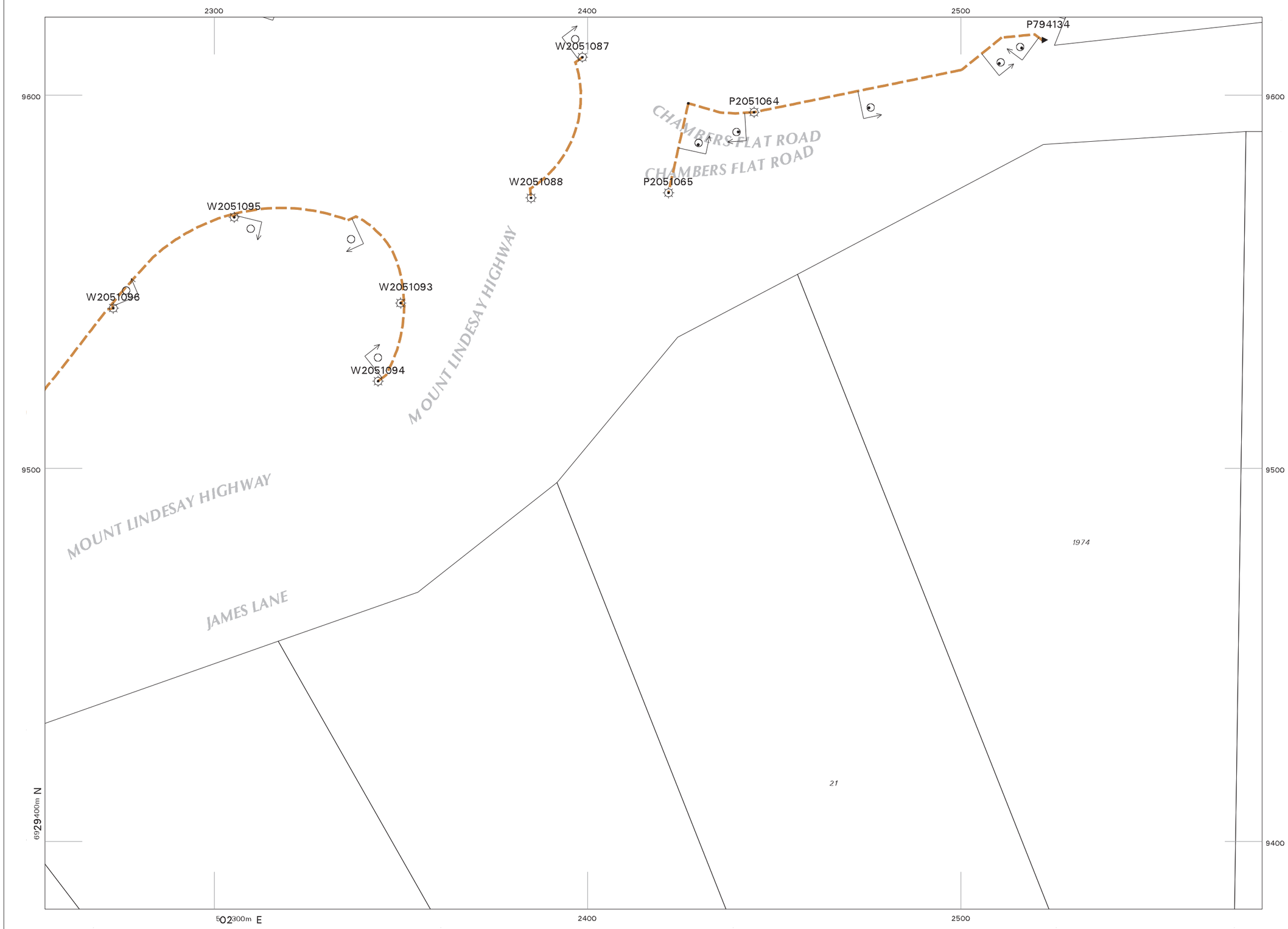

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EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.31.35
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 8

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
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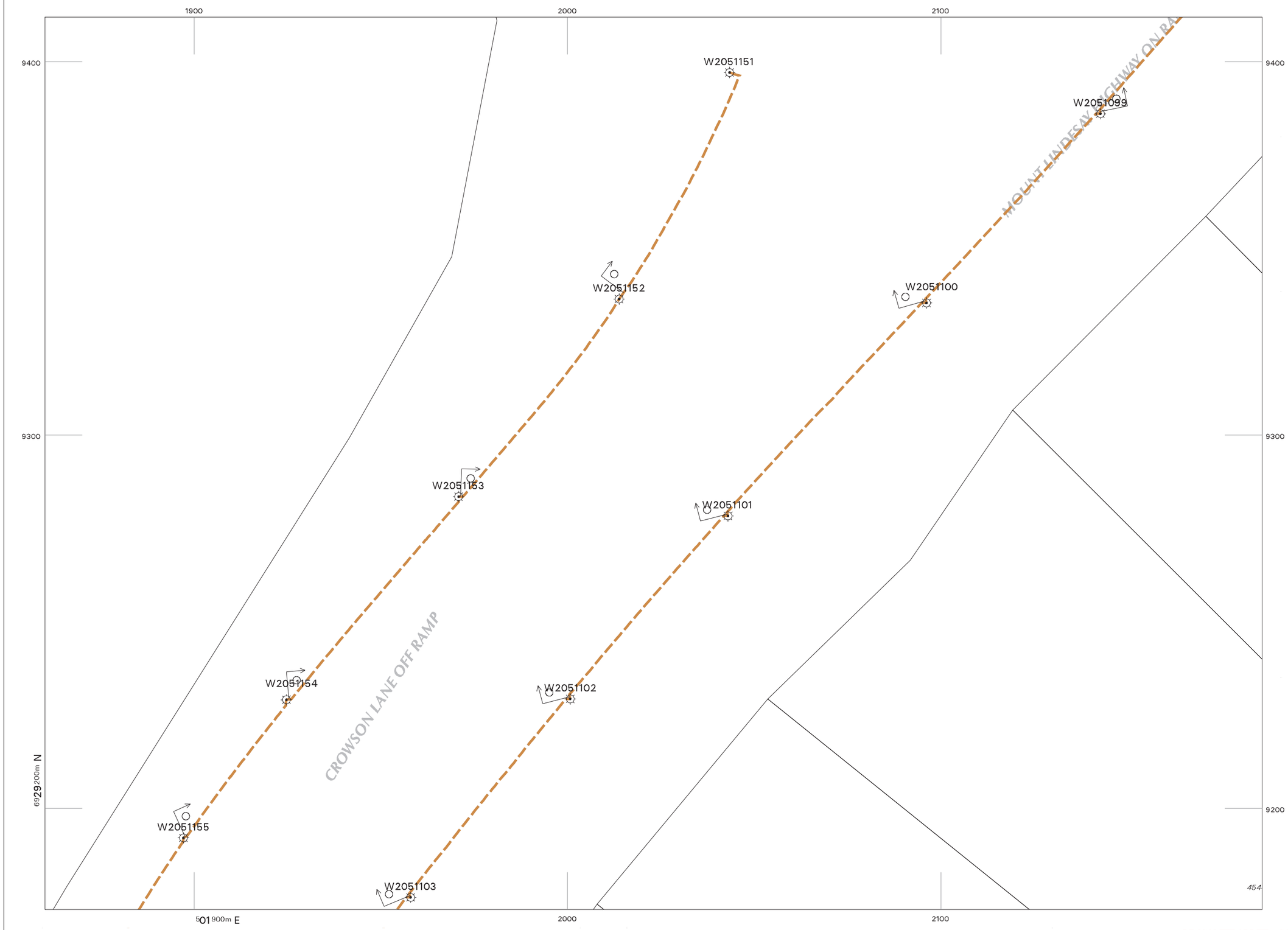
For Emergency Situations Please call 13 19 62



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DBYD

Date: 08 Jul 21 Time: 11.31.55
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 9

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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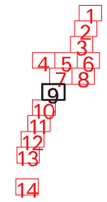
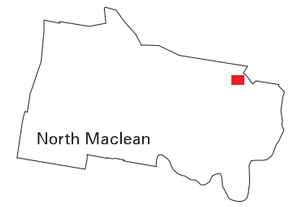


LOCALITY DIAGRAM



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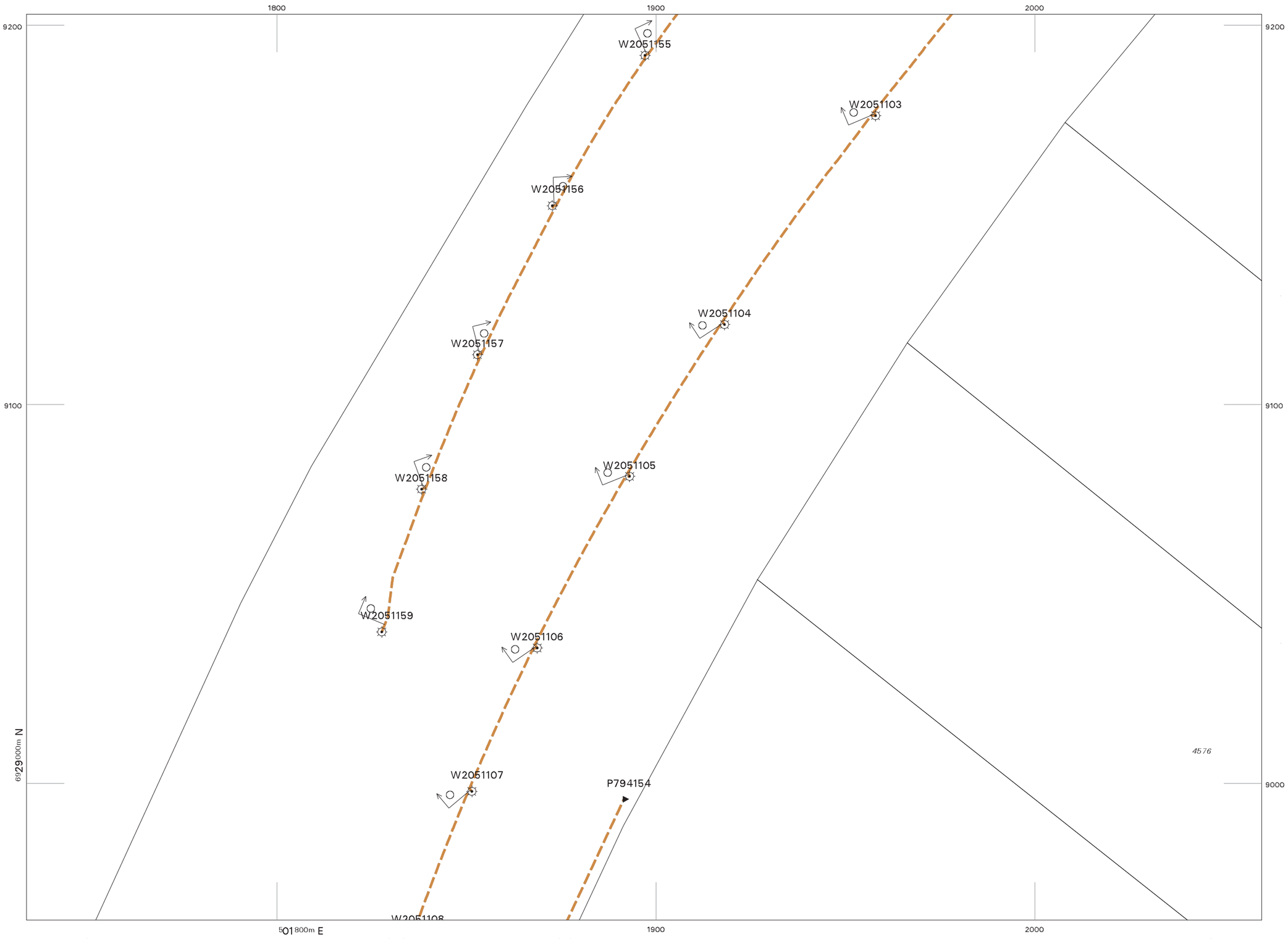

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EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.32.14
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 10

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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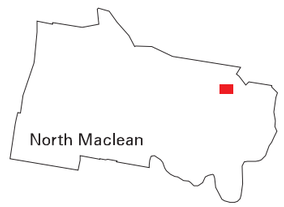

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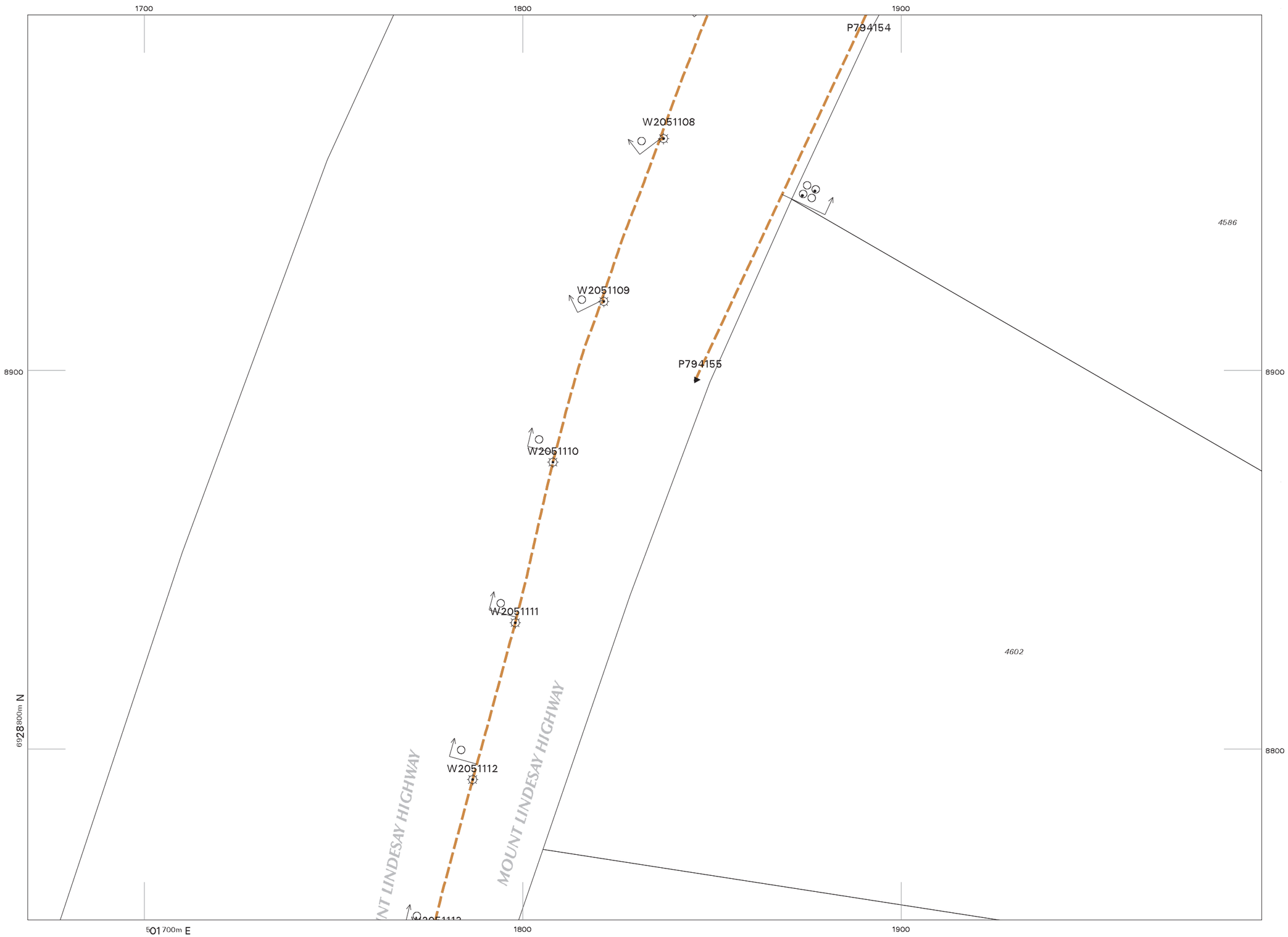

energex

EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.32.37
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 11

- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

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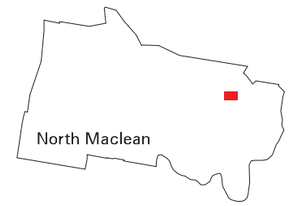
LOCALITY DIAGRAM



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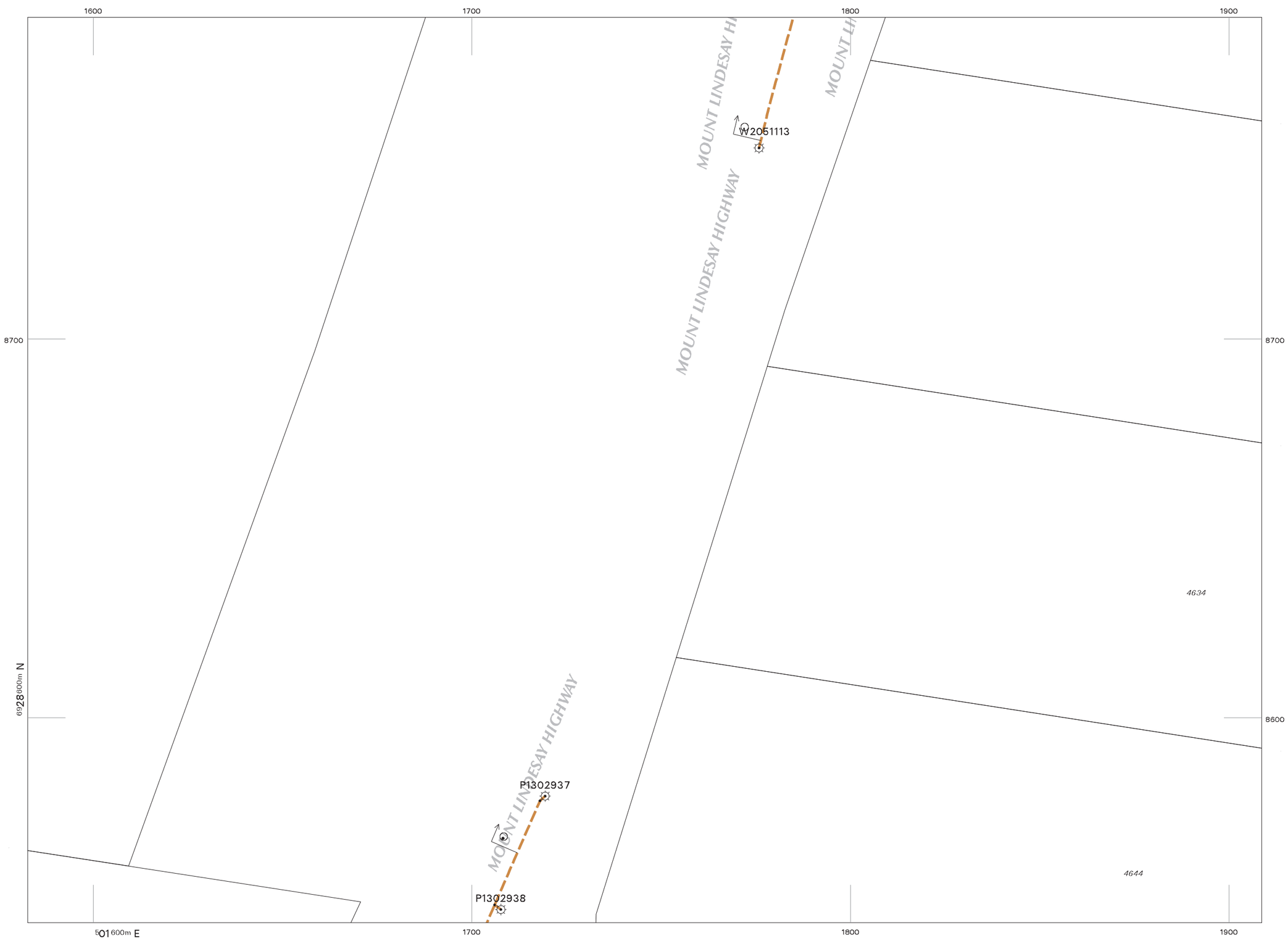
For Emergency Situations Please call 13 19 62



energex

EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.32.55
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 12

- *Ground Transformer*
- *Cubicle Transformer*
- *Ring Main Unit*
- *Metering Unit*
- *Link Pillar*
- *Service Pillar*
- *Junction Pillar*
- *Pit*
- *Cable Joint*
- *Cable Termination*
- *Cable Marker*
- *Street Light Pole*
- *Earth*
- *Planned Work labelled by Work Order*
- *Cable Voltage Less Than 33kV*
- *Cable Voltage 33kV or Higher*
- *Direct-Lay Cable*
- *Conduit*
- *Multi-Section Duct*
- *Trench*
- *Cable Tray*
- *Tunnel*

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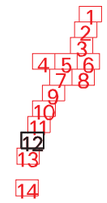
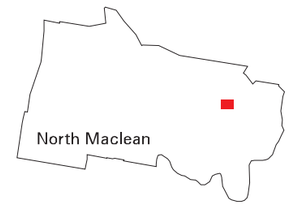


LOCALITY DIAGRAM



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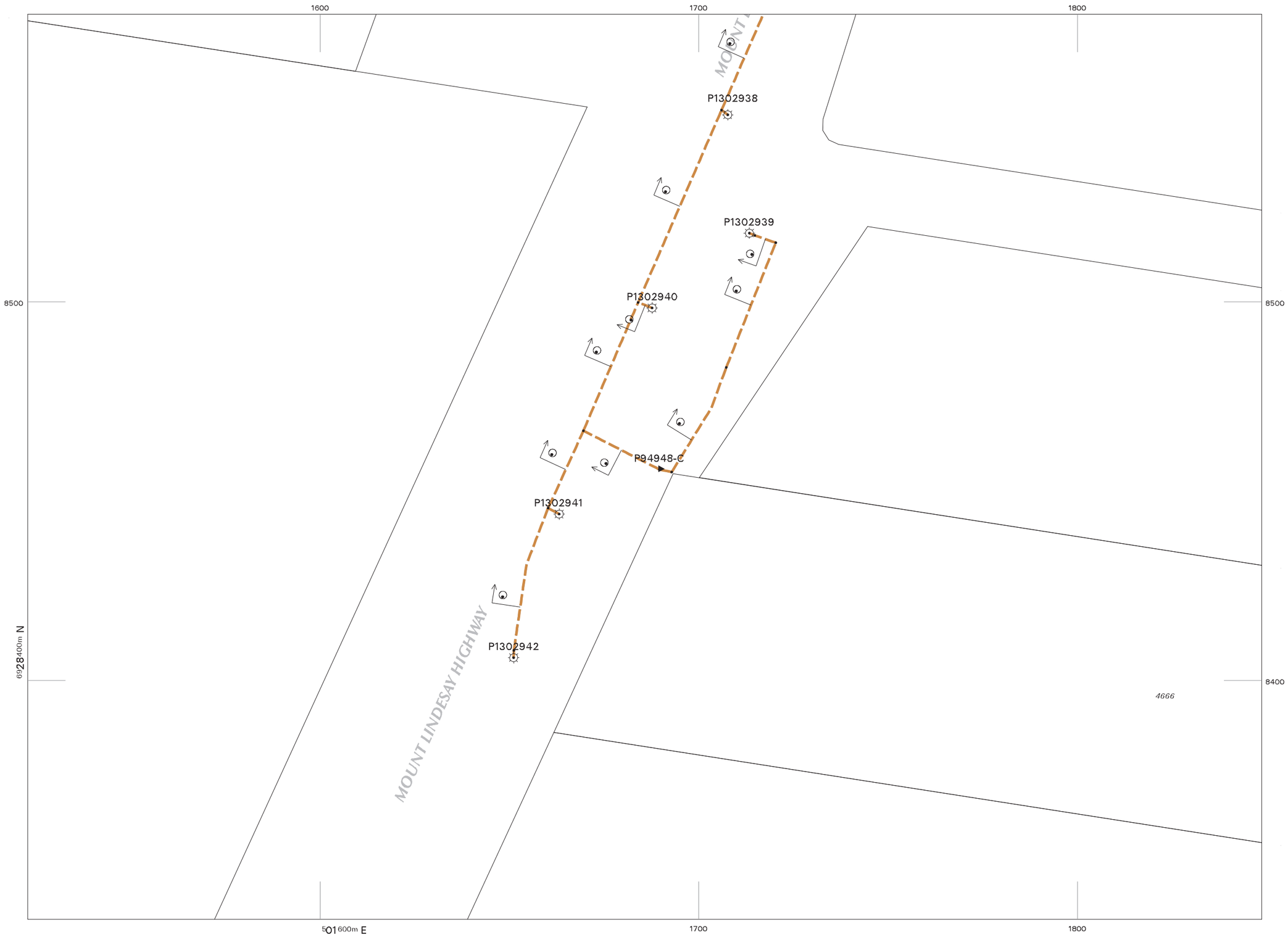

energex

EnerGISe

DBYD

Date: 08 Jul 21 Time: 11.33.14
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 200426875

STRIP No: 13

- *Ground Transformer*
- *Cubicle Transformer*
- *Ring Main Unit*
- *Metering Unit*
- *Link Pillar*
- *Service Pillar*
- *Junction Pillar*
- *Pit*
- *Cable Joint*
- *Cable Termination*
- *Cable Marker*
- *Street Light Pole*
- *Earth*
- *Planned Work labelled by Work Order*
- *Cable Voltage Less Than 33kV*
- *Cable Voltage 33kV or Higher*
- *Direct-Lay Cable*
- *Conduit*
- *Multi-Section Duct*
- *Trench*
- *Cable Tray*
- *Tunnel*

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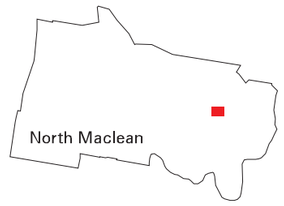

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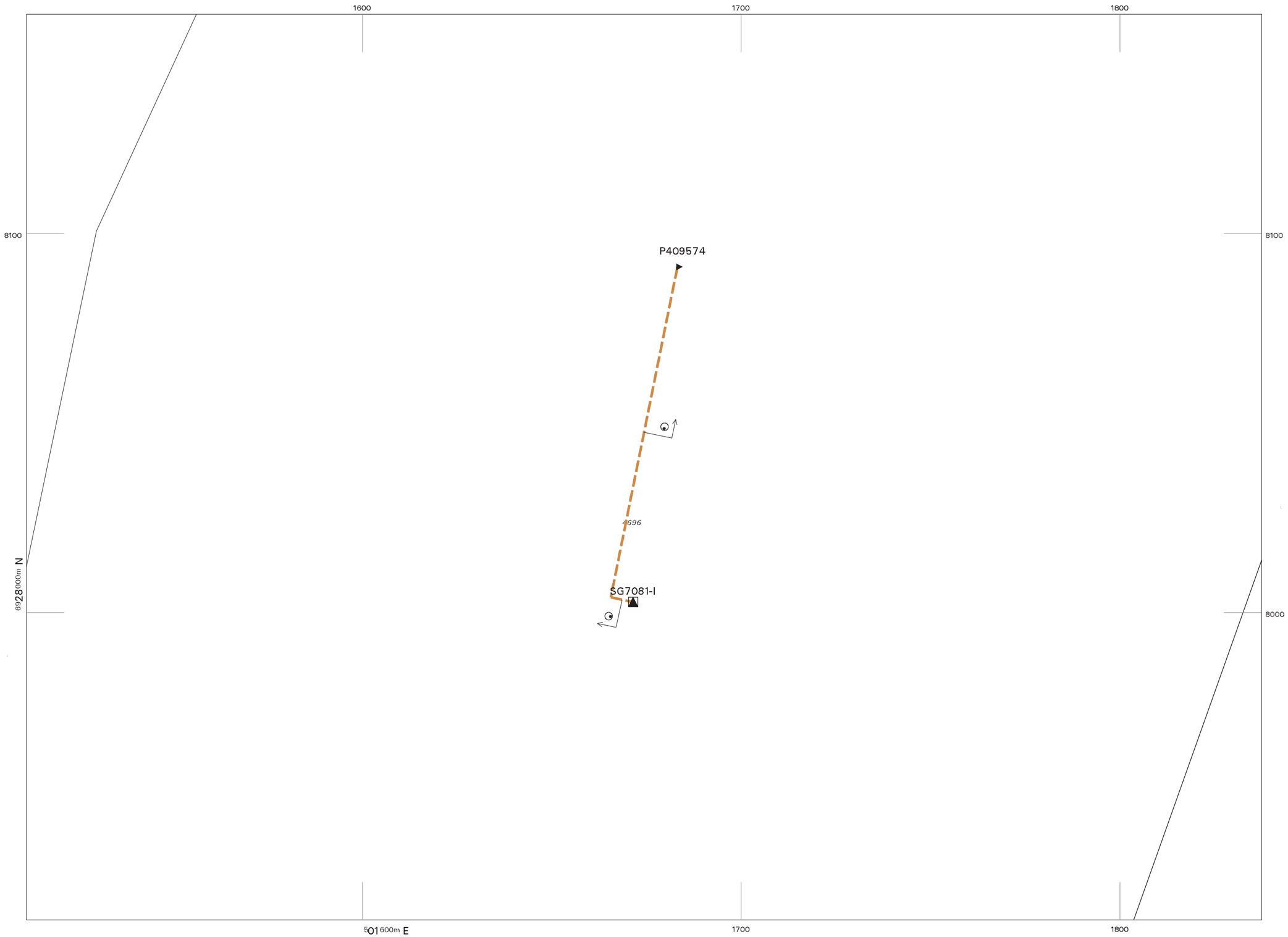
All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISe DBYD map, then ENERGEX shall be contacted immediatelv.

For Emergency Situations Please call 13 19 62



energex

EnerGISe
DBYD

Date: 08 Jul 21 Time: 11.33.34
Requested By: DBYD

SCALE 1:1000

20 0 20m

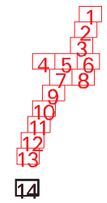
Enquiry No: 200426875

STRIP No: 14

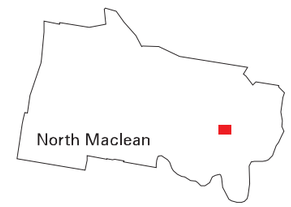
- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

N W E S

INDEX TO SHEETS



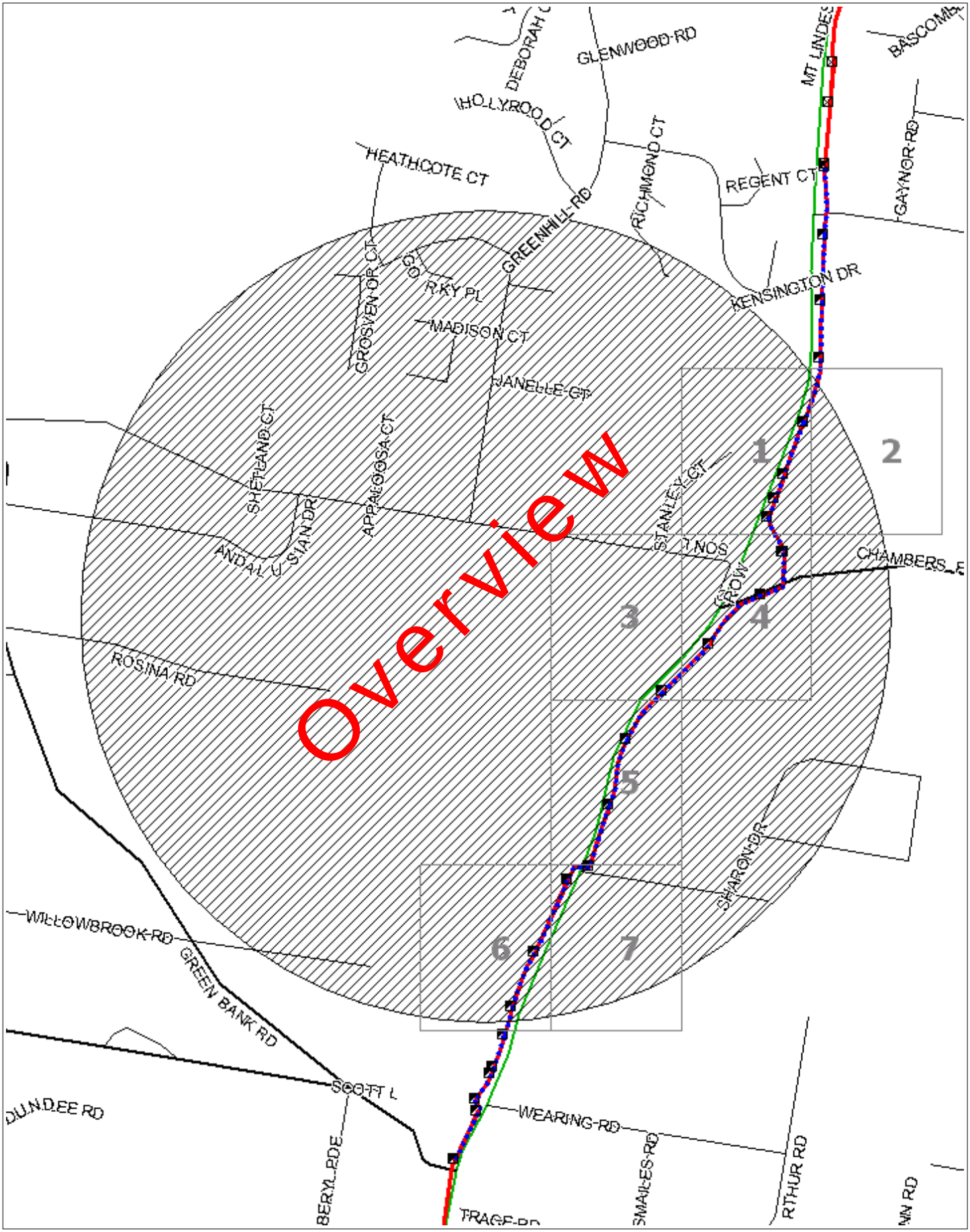
LOCALITY DIAGRAM



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

UNCONTROLLED COPY

PAPER SIZE A3 Map has been designed to be reproduced in colour



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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: 200426874

Date Generated: 08/07/2021

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

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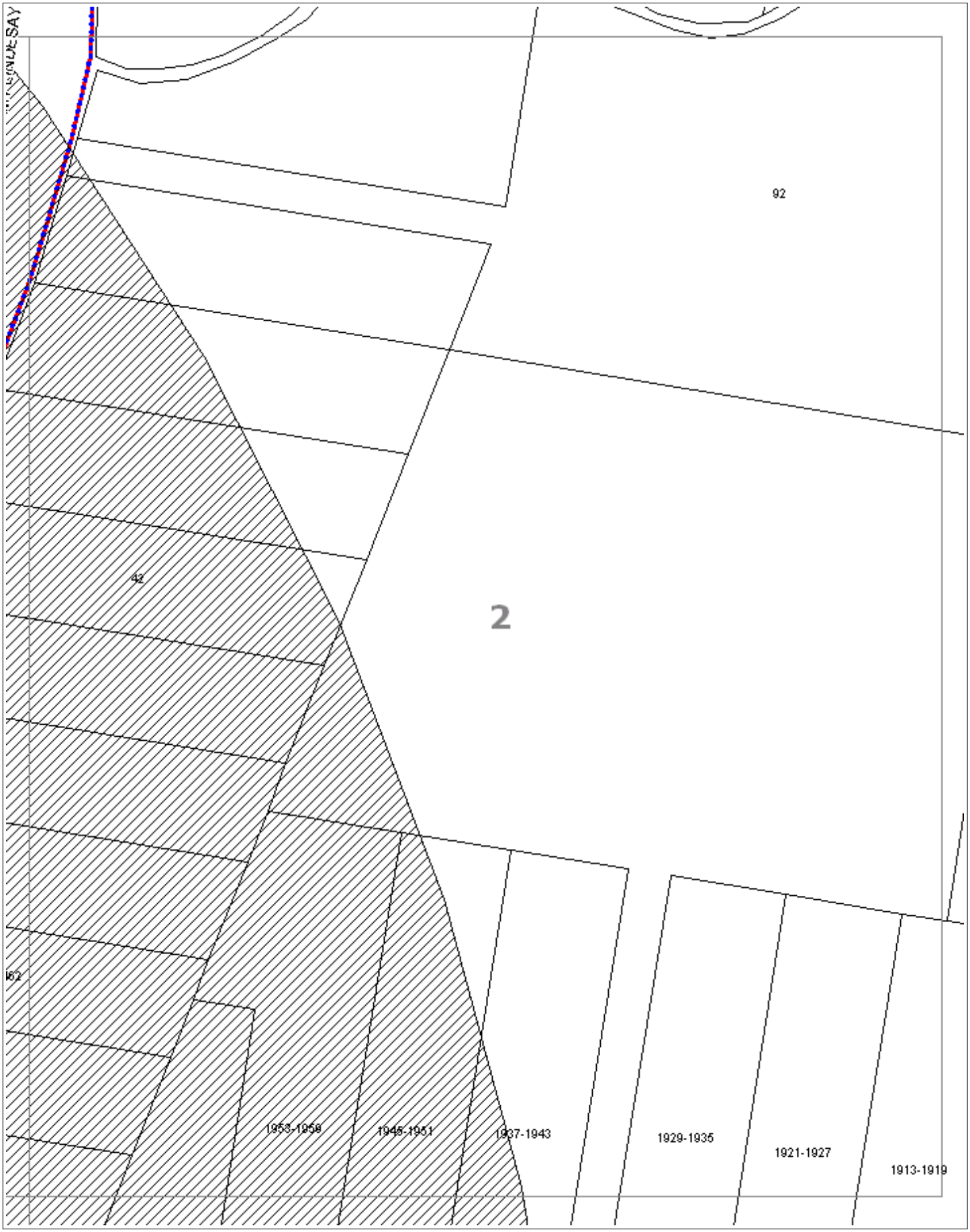

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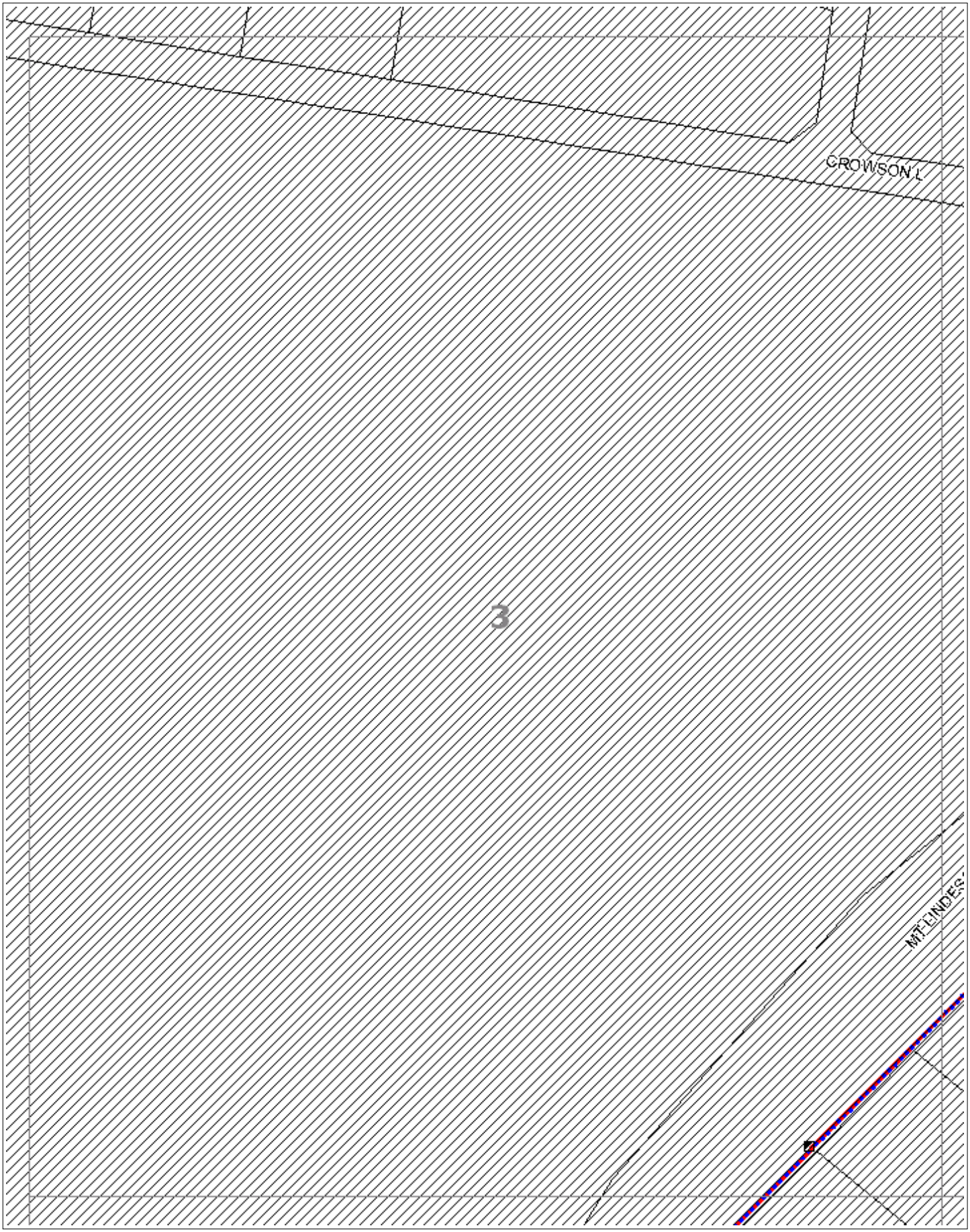

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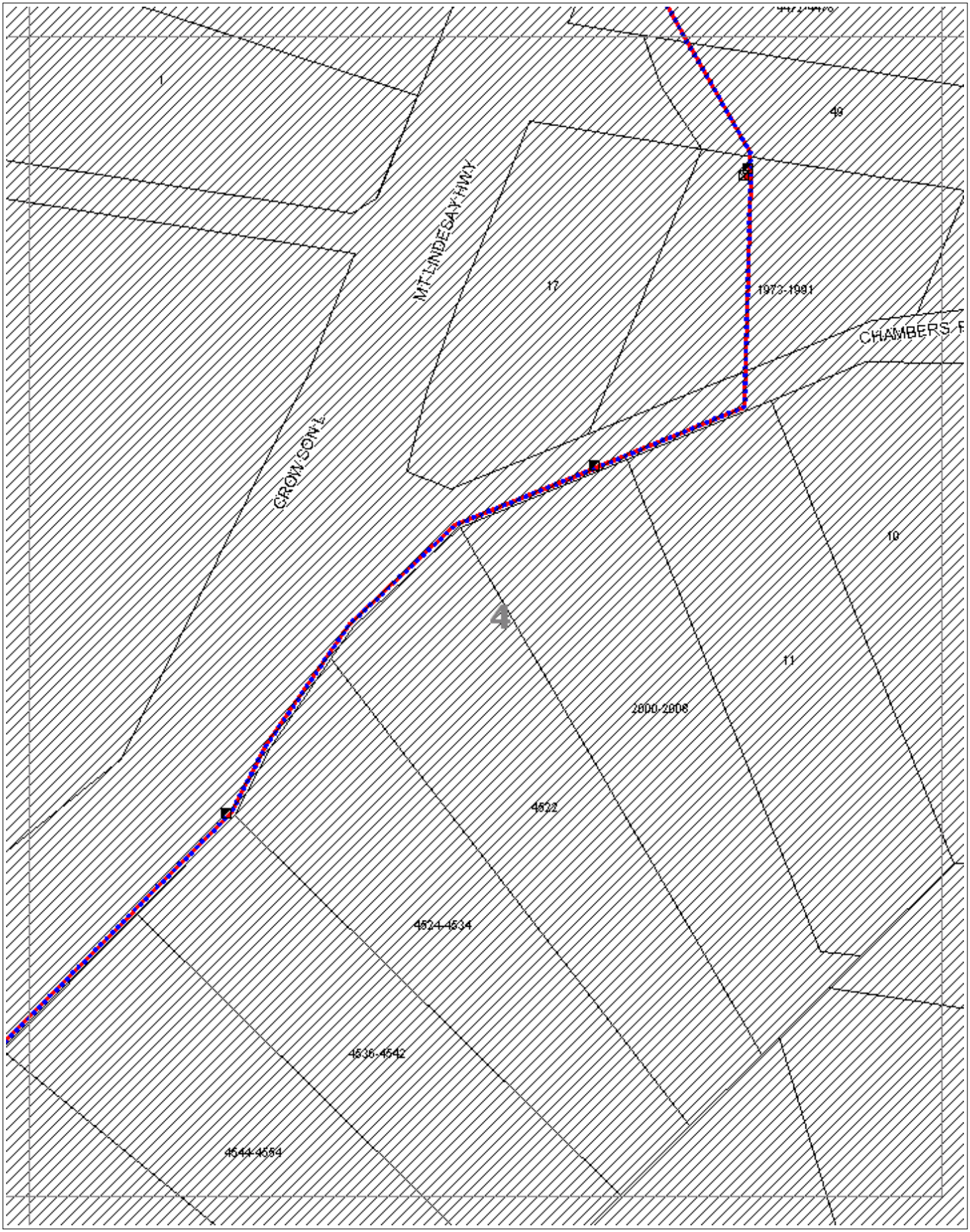

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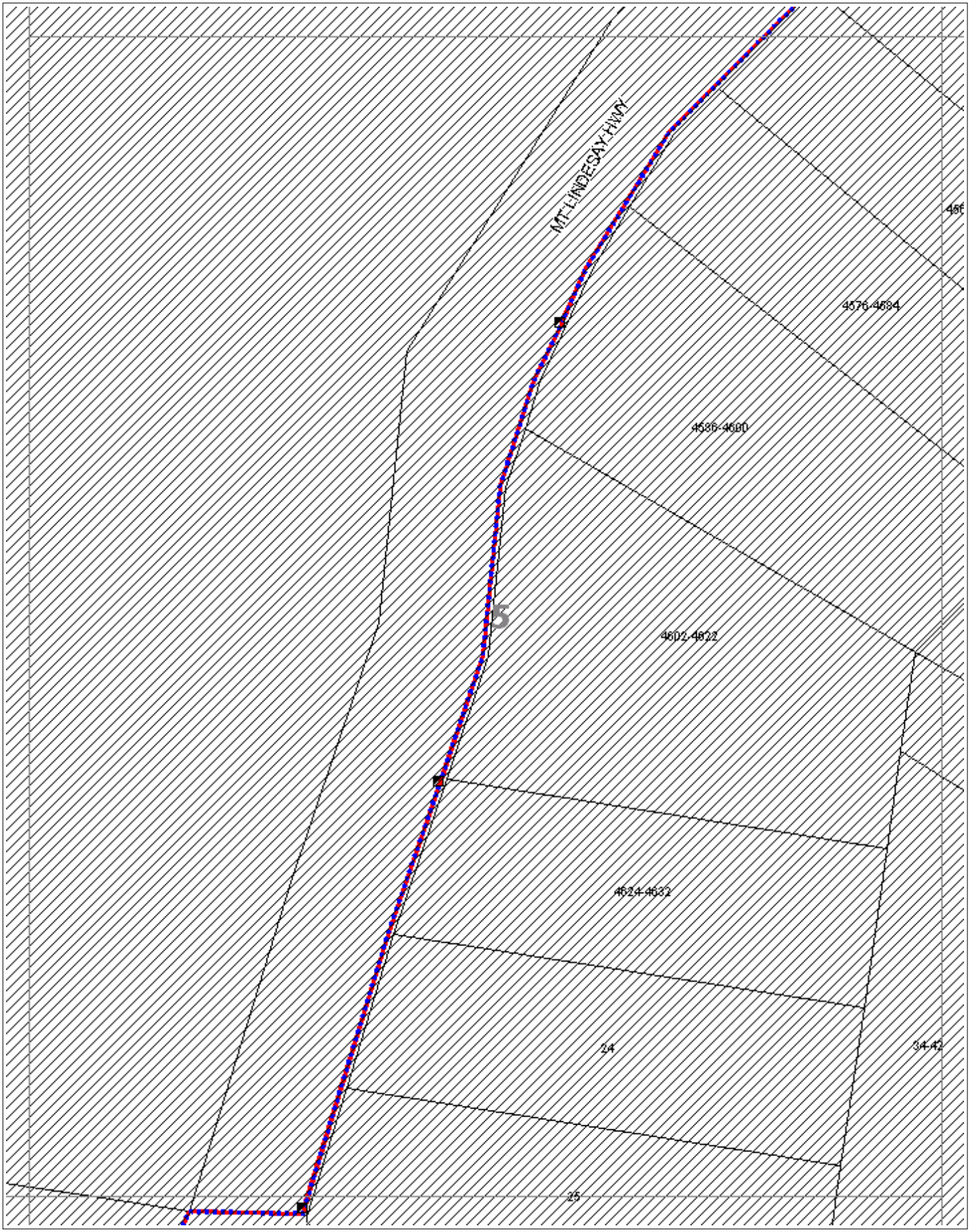

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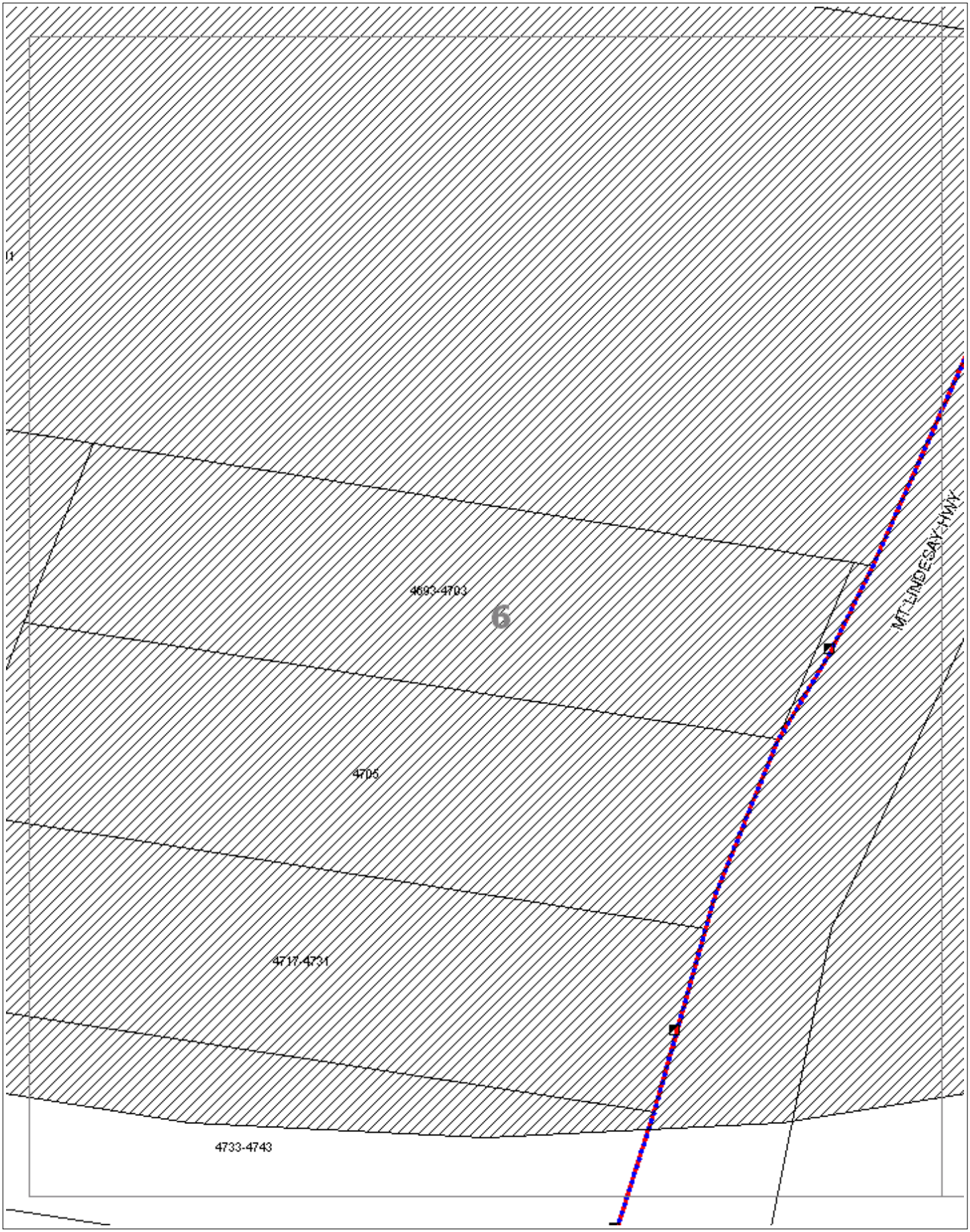

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LEGEND

IT'S HOW WE CONNECT

For more info contact a Telstra Accredited Locater or Telstra Plan Services 1800 653 935

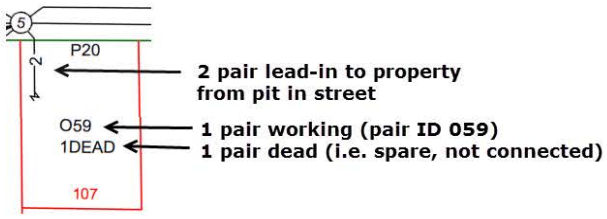
Exchange
(major cable present)

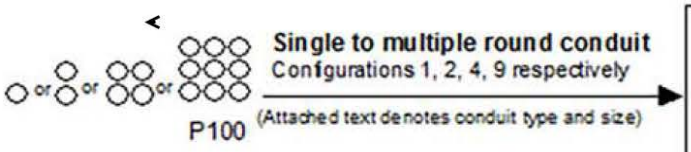
Footway access chamber
(can vary from 1-lid to 12-lid)

or **Pillar/cabinet**
(above the ground / free standing)

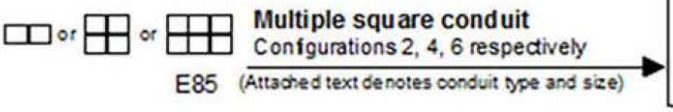
Above ground complex equipment housing (eg RIM)
Please Note: This equipment is powered by 240V electricity.

OC **other carrier**





Single to multiple round conduit
Configurations 1, 2, 4, 9 respectively
(Attached text denotes conduit type and size)



Multiple square conduit
Configurations 2, 4, 6 respectively
(Attached text denotes conduit type and size)

Some examples of conduit type and size:
A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware.
Conduit sizes *nominally* range from 20mm to 100mm.

P50	50mm PVC conduit
P100	100mm PVC conduit
A100	100mm asbestos cement conduit
E 85	85mm square earthenware conduit

Cable jointing pit
(number indicating pit type)

Elevated cable joint
(above ground joint on buried cable)

Telstra Plant in shared utility trench

Aerial Cable
(above ground)

Aerial Cable
(attached to joint use pole e.g. power)

Direct buried cable

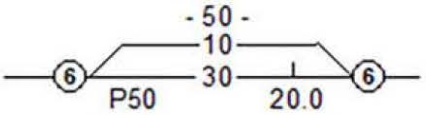
M **Marker post installed**

TR **Buried transponder**

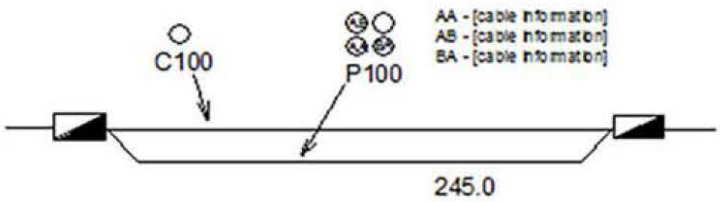
MT **Marker, transponder**

SMOF **Optical fibre cable direct buried**

Some examples of how to read Telstra plans:

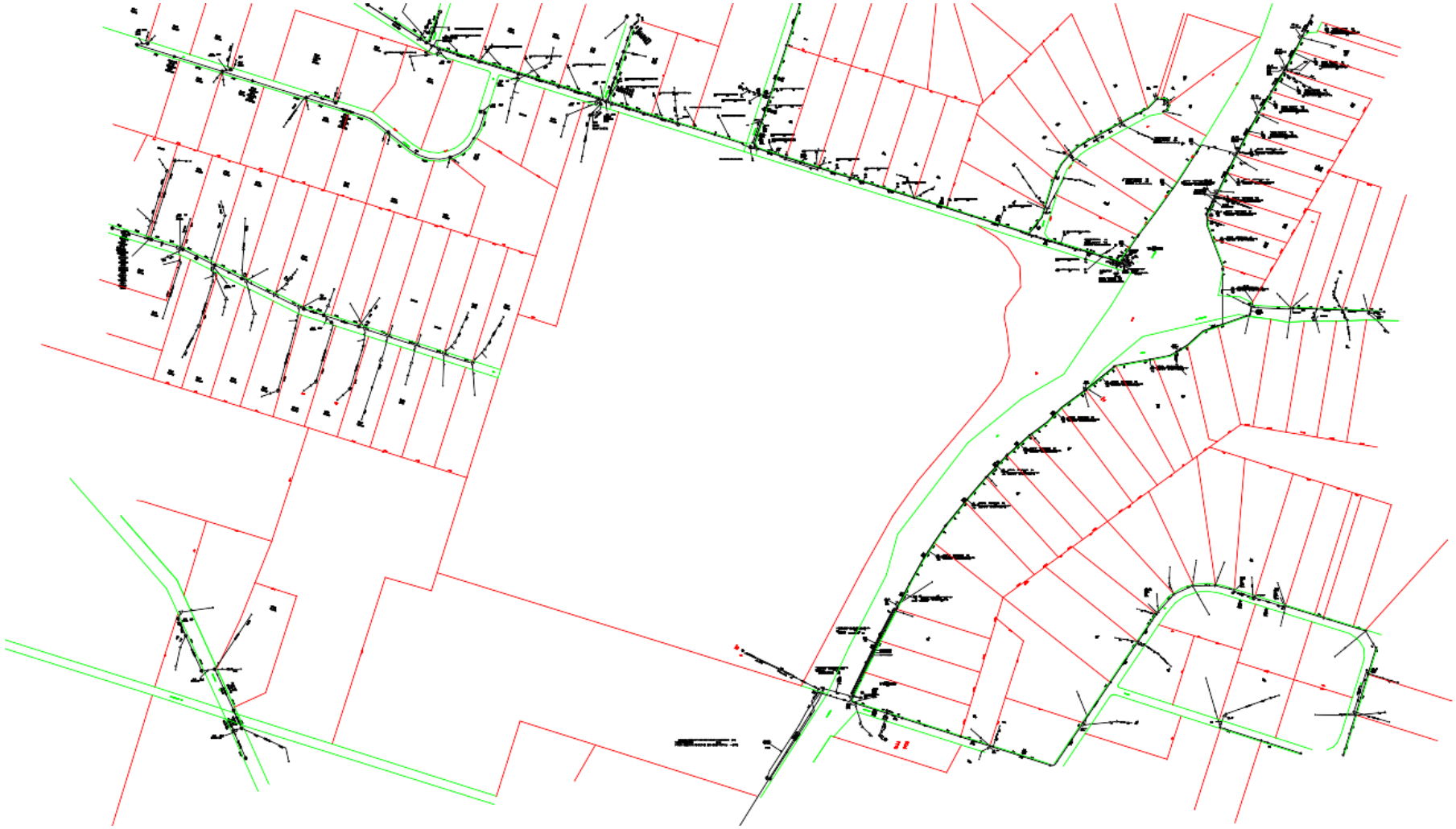


One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



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

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works. The exact position of Telstra assets can only be validated by physically exposing it. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.



TELSTRA SERVICES MAP

Appendix D HYDRANT PRESSURE AND FLOW MODELLING REPORT

Hydrant Pressure and Flow Modelling Report

Preamble

This Hydrant Pressure and Flow Modelling Report presents a theoretical estimate of the residual pressure in the water main at the nominated location when water is taken from the system at the indicated flow rate. The information has not been verified by field tests and is presented for information purposes only. Please refer to the limitations described at the end of the report.

It is strongly suggested that field tests are conducted to verify the theoretical results. Note that pressure management has been implemented and it may take up to 60 seconds for the control valve in the water supply network to respond to increases in fire flow demand.

Method

The Hydrant Curve function is used in the H2OMap network modelling software to simulate an increasing demand at a nominated hydrant in the water supply network with peak hour background demand. The residual pressure in the water supply network at the hydrant is calculated by the model for each increase in flow.

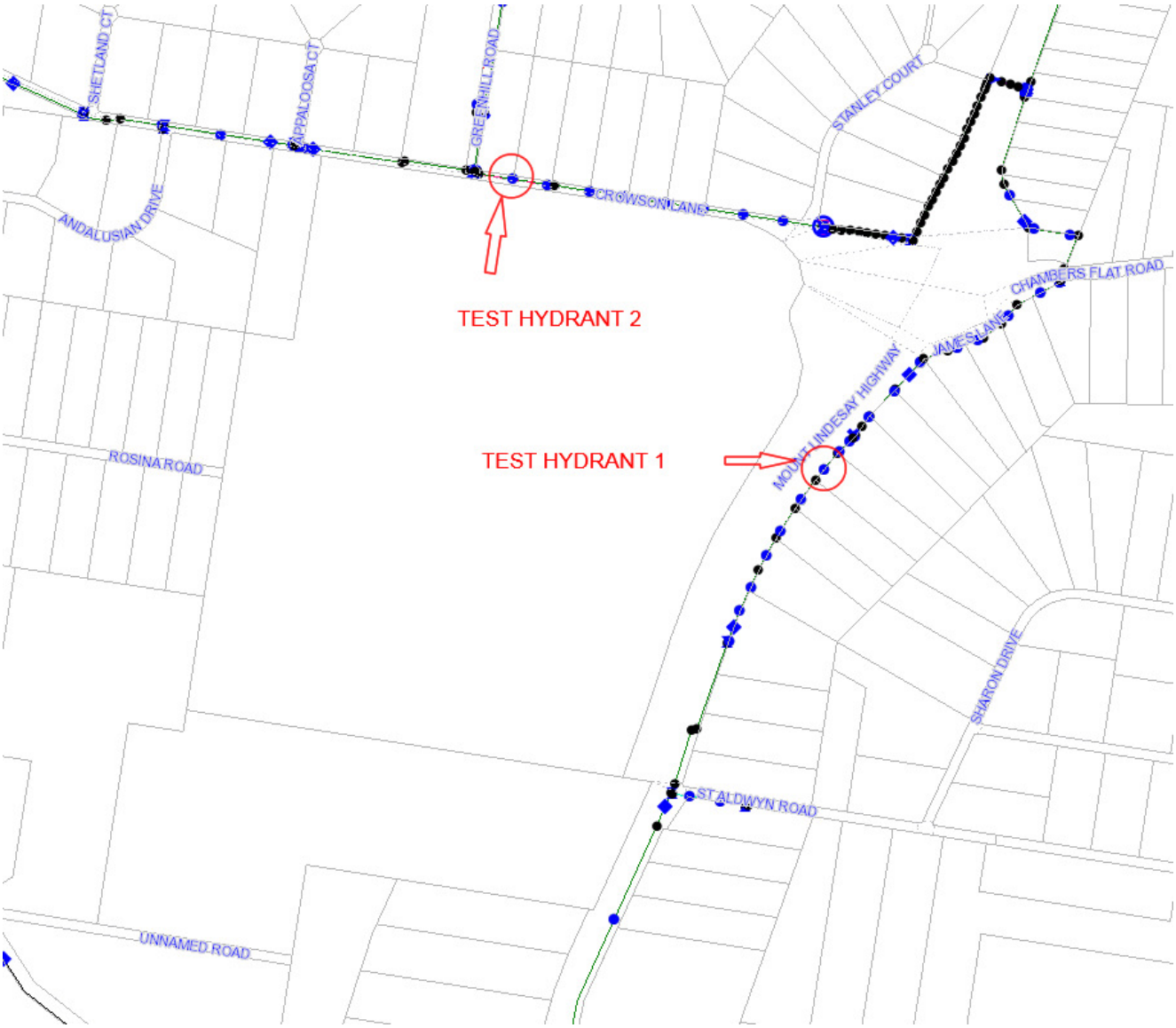
Location

The subject property details and test hydrant locations are provided in Table 1 and the locations of test hydrants are shown in Figure 1.

Table 1 Hydrant Location and Network Parameters

Subject Property Details	
Property Address	4499-4651 Mount Lindesay Highway
Hydrant and Network Parameters – Test Hydrant –connection point 1	
Test Hydrant Asset ID	WFH019651
Hydrant Location	Eastern Verge of Mount Lindesay Highway (at 4556-4564 Mount Lindesay Highway)
Node Elevation (m)	20.97 m AHD
Hydrant and Network Parameters – Test Hydrant –connection point 2	
Test Hydrant Asset ID	WFH019651
Hydrant Location	Northern Verge of Crowson Lane (at 101-109 Crowson Lane)
Node Elevation (m)	30.56 m AHD

Figure 1 Hydrant Test Locations



Results

The results of the hydraulic modelling are presented in Table 2. A graphical representation of the hydrant curve results are shown in Figure 2 and Figure 3.

Table 2 Hydrant Test Results

Normal Supply Conditions /(Peak Day Analysis)		
Hydrant		
Available Flow (L/s)	**Test Hydrant 1- Residual Pressure (m)**	**Test Hydrant 2- Residual Pressure (m)**
0.00	54.14	42.31
5.00	49.66	40.56
10.00	48.19	39.00
15.00	46.33	37.40
20.00	44.08	35.40
25.00	41.51	33.13
30.00	38.64	30.64
35.00	35.47	27.94
40.00	32.03	25.05
45.00	28.34	22.00
50.00	24.34	18.76

Figure 2 Hydrant Curve for test hydrant 1

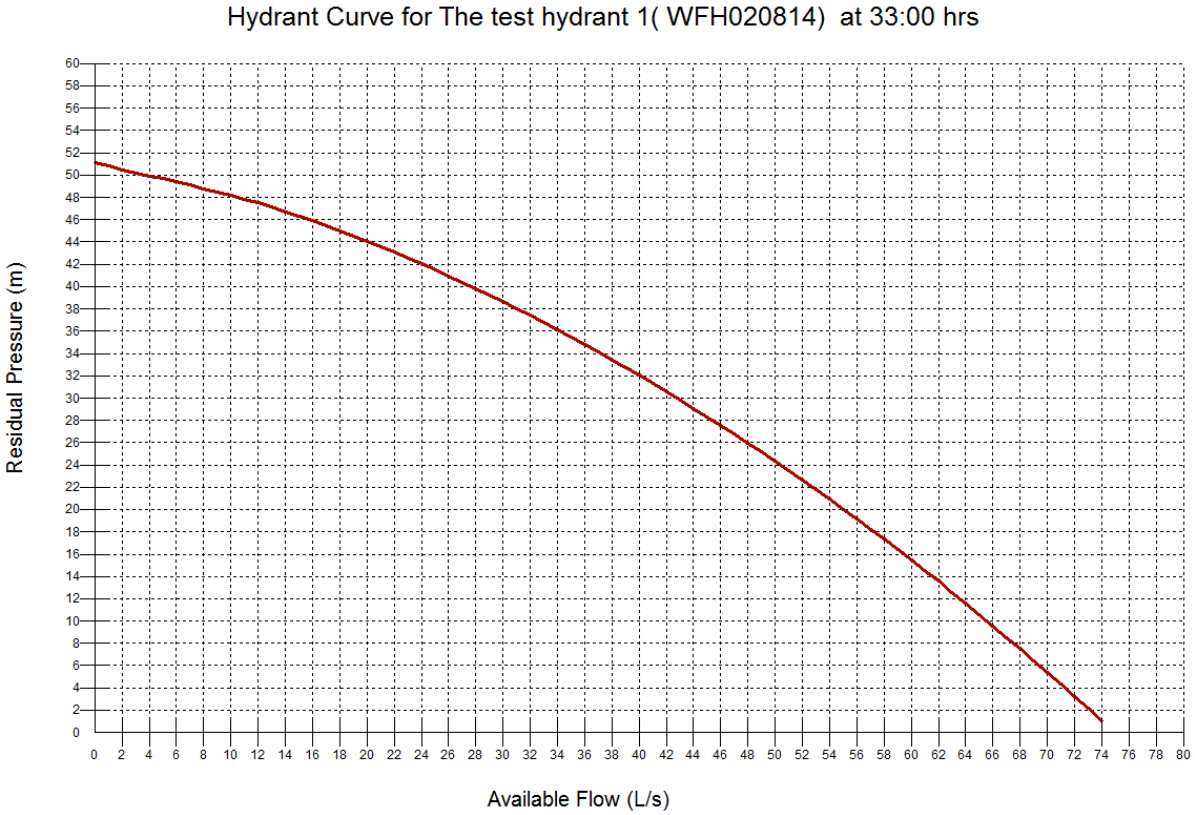
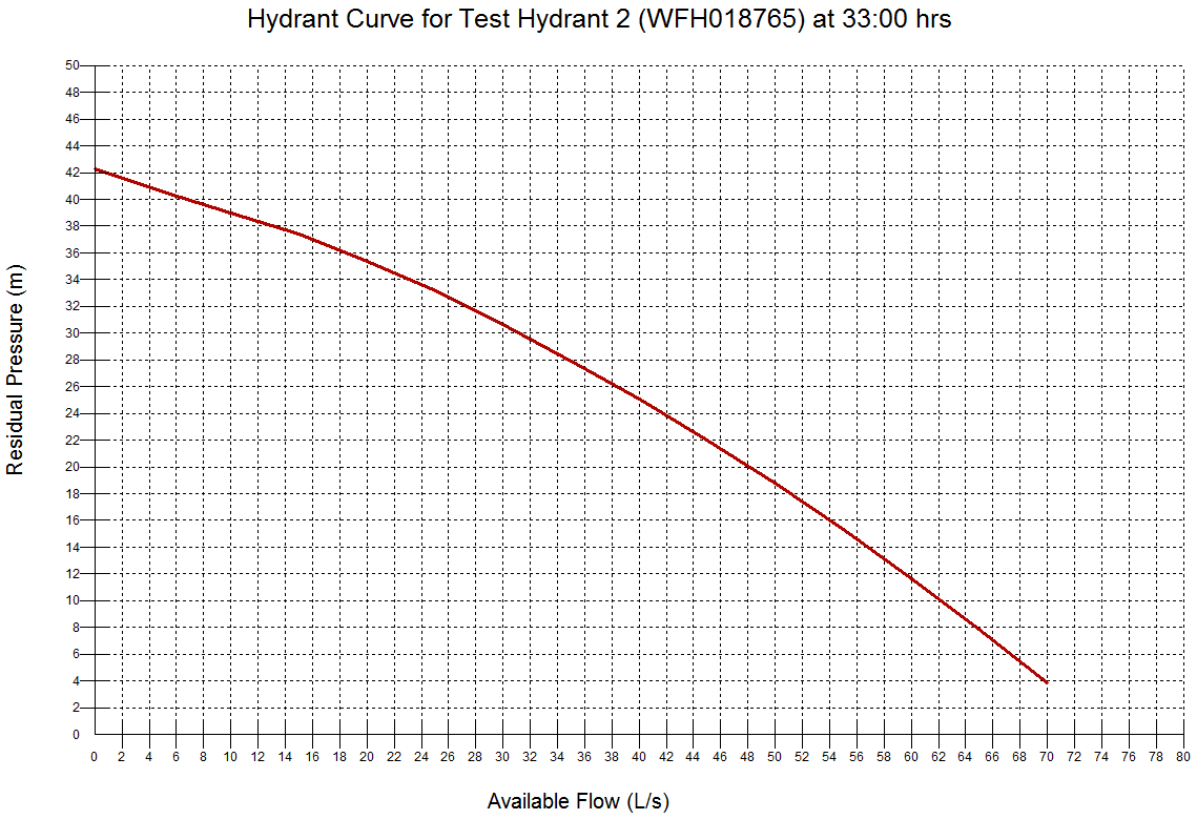


Figure 3 Hydrant Curve for test hydrant 2



Disclaimer

Information requested from Logan Water Infrastructure Development Services relating to hydraulic pressure and flow information is undertaken with the knowledge that such information is based on the most representative hydraulic modelling information available at the time (Hydraulic Modelling Information).

Information provided by Logan Water Infrastructure Development Services is based on hydraulic modelling of an area under the Pressure and Leakage Management Program undertaken by Logan City Council pursuant to government Regulation.

Model results are for the anticipated performance of a commissioned District Metered Area (DMA). Flow rates and system pressures may change after a DMA is commissioned.

The results of the hydraulic assessment may vary from practice due to changes in water supply operational philosophies, water supply policy decisions, maintenance activities on the water supply network and changes in customer demands.

The Hydraulic Modelling Information has not been verified by field measurements and may be inaccurate due to field conditions. Users relying on Hydraulic Modelling Information do so at their

own risk and should make their own independent investigations to verify model outputs after the DMA is commissioned.

Logan Water Infrastructure Development Services do not guarantee and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of the Hydraulic Modelling Information. The Hydraulic Modelling Information is made available to users only upon the terms of this disclaimer and no conditions imposed by users apply.

Appendix E LCC CODE ASSESSMENT INFRASTRUCTURE

Logan City Council – Part 9.4.3 – Infrastructure Code		
Performance Outcomes	Acceptable Outcomes	Response
For self-assessable 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**
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; 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.	**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; d) Not in a sewerage supply service area complies with part 1 of the Queensland Plumbing and Wastewater Code;	**a) Complies** **b) Complies**

	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.	
Location of development		
PO3 Development is located to protect existing and planned infrastructure networks.	**PO4** 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;	**Complies**

	c) A planned cycle network identified on Figure 3.4.1.2.1–Cycle network in planning scheme policy 5–Infrastructure; d) A planned park network identified in PIP map 09.00 Plan for trunk park infrastructure in Schedule 3–Priority infrastructure plans and mapping.	
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.	**AO5** 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.	**Not applicable**
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.	**AO6** 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	**Complies**

	ii. A reserve section in the bottom part of the main water supply tankwater tank.	
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 - Refer SBSMP compiled by ACE.**
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.E nables easy access for maintenance.	**AO7** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**Complies - Refer SBSMP compiled by ACE.**
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;	**A09** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**Complies - Refer SBSMP compiled by ACE.**

b) Not increased in intensity, velocity or frequency; c) Not concentrated onto adjoining premises.		
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 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.	**AO9** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**Complies**
Movement network		
P10 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.	**A10** 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.	**Not Applicable**

For assessable development only		
Land use and transport integration		
PO12 Development within 400 metres of existing or future public passenger transport facilities where the total site are is 5000m2 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.	**AO12** No acceptable outcome provided.	**Not Applicable**

Appendix F LCC CODE ASSESSMENT FILLING AND EXCAVATION

Logan City Council – Part 9.4.2 – Filling and Excavation Code		
Performance Outcomes	Acceptable Outcomes	Response
For self-assessable and assessable development		
Protection of natural processes and ecosystems		
PO1 The discharge of sedimants 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 part3.3 – Filling and excavation standards in planning scheme policy 5 – Infrastructure.	**Complies**
PO2 Topsoil and spoil stockpiled on the premises do not adversely affect natural processes and ecosystems.	**AO2** Topsoil and spoil is stockpiled to comply with part 3.3 – Filling and excavation standards in planning scheme policy 5 – Infrastructure.	**Complies**
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**
Protection of existing and planned infrastructure		
PO4 Filling or excavation works do not adversely affect infrastructure, including any services.	**PO4** Filling or excavation works comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**Complies**

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**
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.	**a) Complies** **b) Complies** **c) Complies**
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 section 3.3.6– Batters and retaining walls in planning scheme policy 5–Infrastructure.	**a) Complies** **b) Complies** **c) Complies** **d) Complies**

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) 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**
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.	**A09** The filling of a dam complies with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**Not Applicable**