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ELECTRICAL SERVICES DUE DILIGENCE REPORT

Castle Ridge Retirement Village Redevelopment

350 Old Northern Road Castle Hill NSW 2154

PREPARED BY

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1. INTRODUCTION

Northrop Engineers have been engaged to provide high level due diligence reporting services for a proposed retirement village redevelopment at the site located at 350 Old Northern Road, Castle Hill, NSW 2154.

This document provides the estimated maximum demand calculation based on AS/NZS: 3000 Table C1 & C3 for the proposed development.

The purpose of this report is to;

- Provide high level advice regarding the Electrical Services infrastructure to the site.
- Provide a preliminary high-level budget estimate for the development

Limitations and Exclusions

The limitations and exclusions of this report are as follows:

- The following assessment is based upon review of the Urban Design Report, prepared by Architectus and visual inspection of the site infrastructure. The site inspection took place on Friday, the 18th of November 2018.
- All information provided is based on correspondence from Authorities and Dial Before You Dig information.

Existing Infrastructure

The substation is currently supplying a demand of about 175kVA as per a verbal advice received from an Endeavour Energy engineer. Currently, the substation has 125kVA spare capacity.

The site is equipped with five main distribution boards/meter boards feeding all independent living units and a club house.



Figure 1 – Kiosk Substation



Figure 2 – Main Distribution Board no. 3

High Voltage Infrastructure

The existing high voltage cable to the substation is fed from the overhead street network. 11kV high voltage overhead lines run along the Old Northern Road.

Currently, the site is fed from the copper telecommunications network from Telstra. A telephone distribution frame is located in each meter board cupboard and connected to each independent living unit via a pit and pipe system.

Figure 5 – Telstra Pits

Maximum Demand

The anticipated maximum demand based on Architectus' Urban Design Report is shown below:

CALCULATION IN ACCORDANCE WITH AS/NZS 3000 - 2007 TABLE C1					
Load Group	Description	Quantity / Load	Units (kW,A)	Load (A / Phase)	
A.	(i) Internal Lighting				50.00
	(ii) External Lighting				
B.	(i) 10A GPOs				240.00
	(ii) 15A GPOs		GPOs		
	(iii) 20A GPOs		GPOs		
C.	Cooking Appliance				280.00
D.	Air Conditioning Cooling Equipment	2.5	kW		781.25
	Air Conditioning Heating Equipment		kW		
E.	Instantaneous Water Heaters	Gas			
F.	Storage Water Heaters	Gas			
G.	Spa & Swimming Pool Heaters				

Based on the above calculation, the anticipated maximum demand for the proposed development is 1450kVA or 2093A/phase. Hence the existing electrical infrastructure is inadequate to support the proposed development.

Telecommunications / NBN Network

The site will be nbn™ network ready in 6 to 12 months' time.

Under the nbn™ Developer Agreement, nbn™ will incur \$400 per apartment for fibre infrastructure. The developer will be responsible for designing and installing pit, pipe and pathway infrastructure

In addition, the developer will require to transfer the ownership of pit and pipe to nbn™ after commissioning.

3. BUDGET

High Level Budget Estimates

Castle Ridge Retirement Village			
	SQM/Quantity	Rate	Amount
General Areas (Approximates)			
Carpark and General Areas	20,000	\$50.00	\$1,000,000.00
External / Landscape areas	5,000	\$50.00	\$250,000.00
Independent living units			
Apartments	298	\$15,000.00	\$4,470,000.00
Other Areas			
Level 3 Design	1	\$20,000.00	\$20,000.00
Substation	2	\$250,000.00	\$500,000.00
NBN Fibre pits and pathways Works	1	\$150,000.00	\$150,000.00
NBN network Termination Devices	298	\$400.00	\$119,200.00
			\$6,509,200.00

Disclaimer

- The above prices are based on industry knowledge, RLB's Rider Digest 2018, and Rawlinson's Australian Construction Handbook 2018, reflecting an objective view of industry prices. It should be noted that Northrop Consulting Engineers are not quantity surveyors;
- Allowances where otherwise unknown, have been extracted from documentation detailing typical allowances and requirements based on similar developments;
- Northrop Consulting Engineers reserves the right to adjust the above figures based on further developed documentation and information for the project;
- This budget estimate has been provided in assistance with the client to offer a broad understanding of the scope and cost of works at this stage. At no given time shall Northrop Consulting Engineers assume responsibility of market figures;
- The above figures shall be treated only as a guideline and is subject to change with further development of design;

- It is assumed that the above costs will be subject to tenderers and market value. These figures have been produced as a means of advice and not subject to cost comparison throughout any stage of this development;
- We understand the client and all relevant parties have read through the provided figures and information as part of this disclaimer and will not object the rights and responsibilities set out by Northrop Consulting Engineers.
- Authority fees are indicative only.

Briefing Documents

This budget estimate has been prepared based on review of the following information:

- Urban Design Report provided by Architectus.

Assumptions

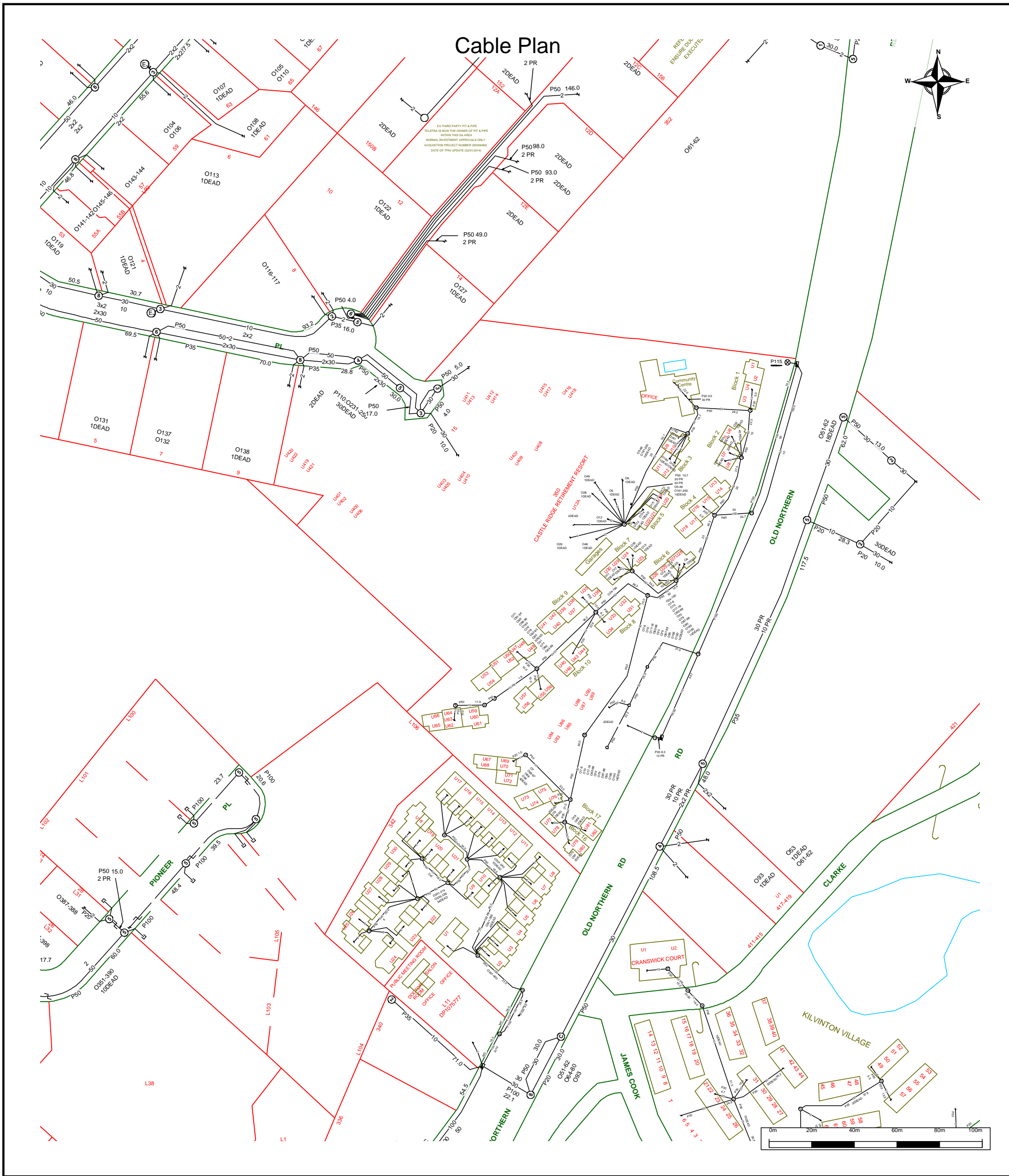
- Assumed all buildings will be constructed in a single stage, no allowances have been made for staging/phasing of buildings;


Exclusions

- Professional fees;
- Decorative lighting, automatic lighting control, CCTV, PV, Generator, Photo Voltaic, co-generation etc.;
- Electrical equipment not supplied by the electrical contractor, including but not limited to active network equipment,
- Local authority contributions;
- Escalation of construction prices from date of budget estimate to date of tender;
- Contingency;
- Builders works;
- GST;
- Demolition works;
- Reinstatement of surfaces;
- Temporary services and connections;
- Latent conditions, unspecified heritage works and the like;
- Upgrade and/or augmentation of existing utility or private inground services;

- S152307 – Castle Ridge Retirement Village Redevelopment Due Diligence
Electrical Services Due Diligence Report

Dial Before You Dig documentation



	<p>For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)</p>	<p>Sequence Number: 50552768</p>
<p>TELSTRA CORPORATION LIMITED A.C.N. 051 775 556</p>		<p>CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.</p>
<p>Generated On 02/02/2016 16:17:10</p>		

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.

EX-THIRD PARTY PIT & PIPE
TELSTRA IS NOW THE OWNER OF PIT & PIPE
WITHIN THIS DA AREA
NORMAL INVESTMENT APPROVALS ONLY
ACQUISITION PROJECT NUMBER (35558486)
DATE OF TPNI UPDATE (02/01/2014)



2xCBN CABLES
c12:M1401-1462 200/0.1
1DEAD
c12:M1464-1600
1003:JN-AL/1-60 60F/-
3008:AA-AL/1-24 24F/-
3008:AA-AK/1-12 12F/-
1xP32 SUBDUCTS
OC IX1303 MO1 12/2026


 c12:M1401-1462 200/0.51 PIUT (A)
 1DEAD
 c12:M1464-1600
 2xCBN CABLES (AC)
 1xP32 SUBDUCTS (AC)
 OC IX1303 MO1 12/2026 (AC)
 c11:M1-800 800/0.64 PIUT (BC)

c12:M1001-1400 400 PIUT <- (AC)
c12:M1401-1600 200/0.51 PIUT <- (AC)
CBN CABLE (AC)
c11:M1-800 800/0.64 PIUT <- (BC)



 c12:M1001-140

 c12:M1401-160

 2xCBN CABLE

12:M1401-1600 20
xDIST
xCBN CABLES
DIST
11:M1-800 800



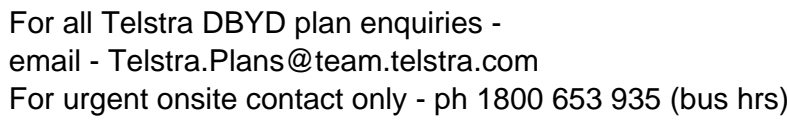
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CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

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

WARNING

- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- In accordance with the *Electricity Supply Act 1995*, you are obliged to report any damage to Endeavour Energy Assets immediately by calling **131 003**.
- The customer must obtain a new set of plans from Endeavour Energy if work has not been started or completed within twenty **(20)** working days of the original plan issue date.
- The customer must contact Endeavour Energy if any of the plans provided have blank pages, as some underground asset information may be incomplete.
- Endeavour Energy underground earth grids may exist and their location **may not** be shown on plans. Persons excavating are expected to exercise all due care, especially in the vicinity of padmount substations, pole mounted substations, pole mounted switches, transmission poles and towers.
- Endeavour Energy plans **do not** show any underground customer service mains or information relating to service mains within private property.
- Asbestos or asbestos-containing material may be present on or near Endeavour Energy's underground assets.
- Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
- All plans must be printed and made available at the worksite where excavation is to be undertaken. Plans must be reviewed and understood by the crew on site prior to commencing excavation.











INFORMATION PROVIDED BY ENDEAVOUR ENERGY

- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
- Depth of underground assets may vary significantly from information provided on plans as a result of changes to road, footpath or surface levels subsequent to installation.
- Such plans have been prepared solely for use by Endeavour Energy staff for design, construction and maintenance purposes.
- All enquiry details and results are kept in a register.

DISCLAIMER

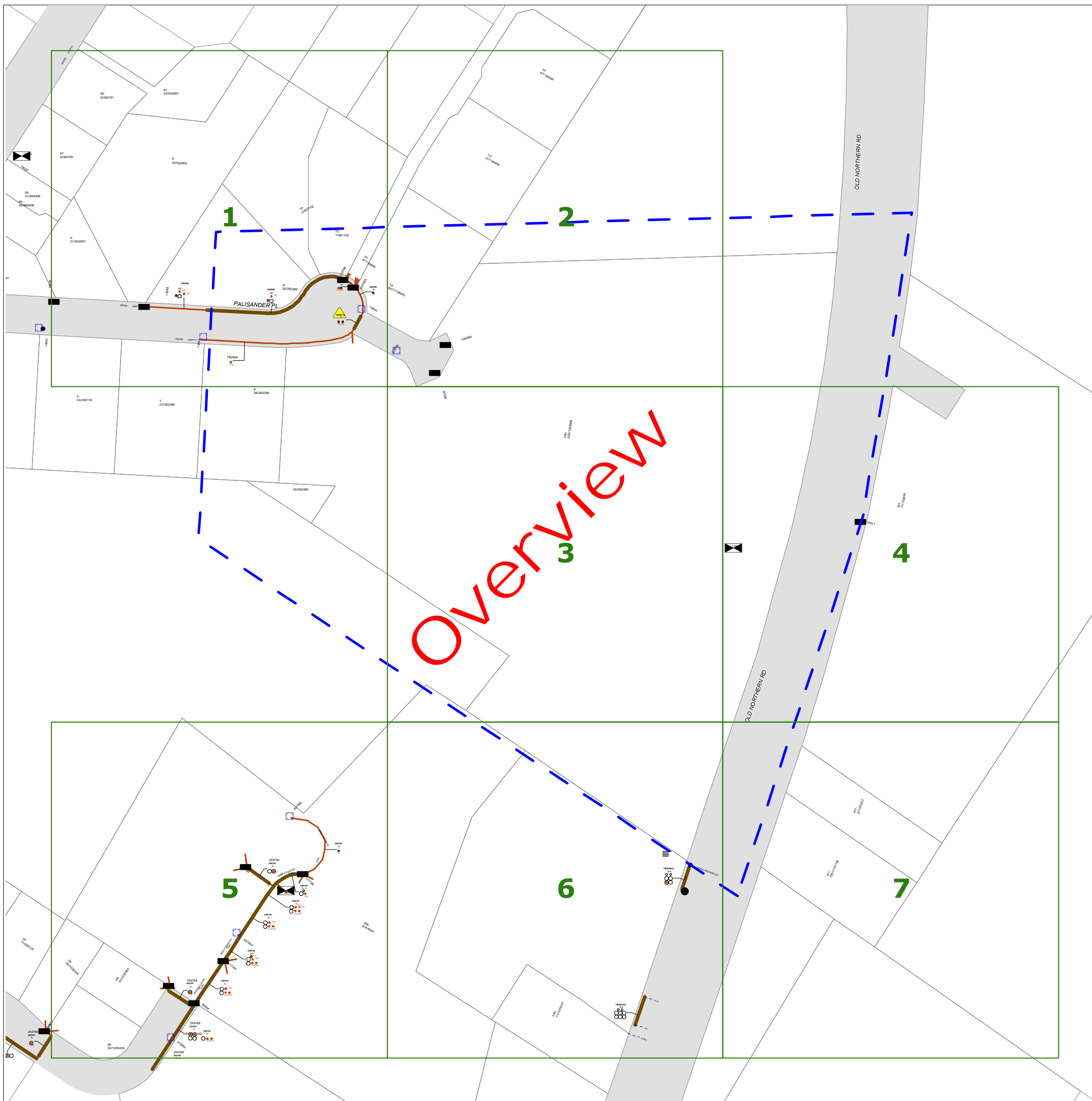
Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.

LEGEND

-  or  Street light column
-  Padmount substation
-  or  Overground pillar (O.G.Box)
-  Underground pit
-  Duct run
-  Cable run
-  Typical duct section
-  Asbestos warning

NOT TO SCALE

DBYD Sequence No.:	50552767
Issued Date:	02/02/2016



APPENDIX - D

503
DP 1048808

350 Old
NORTHERN RD

17844
300 kVA
(TO BE
REMOVED)

10813
D
84034
D
Old Northern
54111
541086