ELECTRICAL REPORT

242-244 Beecroft Road, Epping

Epping NSW 2121

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Date: 28 Jun 2024

PREPARED FOR
Dasco Australia Pty Ltd
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Electrical Report

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Introduction

1.1 General

This Electrical Infrastructure Report has been prepared by Northrop Consulting Engineers Pty Ltd (Northrop), the engineering consultants for 242-244 Beecroft Road, Epping NSW 2121.

1.2 Site Description

242-244 Beecroft Road currently exists as an undeveloped site west of the T9 line within 400m of Epping train/metro station.

Along Beecroft Road, there is a gradual downwards slope downwards of approximately 3m towards the southern end of the site.

Likewise, perpendicular to Ray Road, there is a downwards slope exceeding 6m in some areas towards the western boundary/Ray Road.

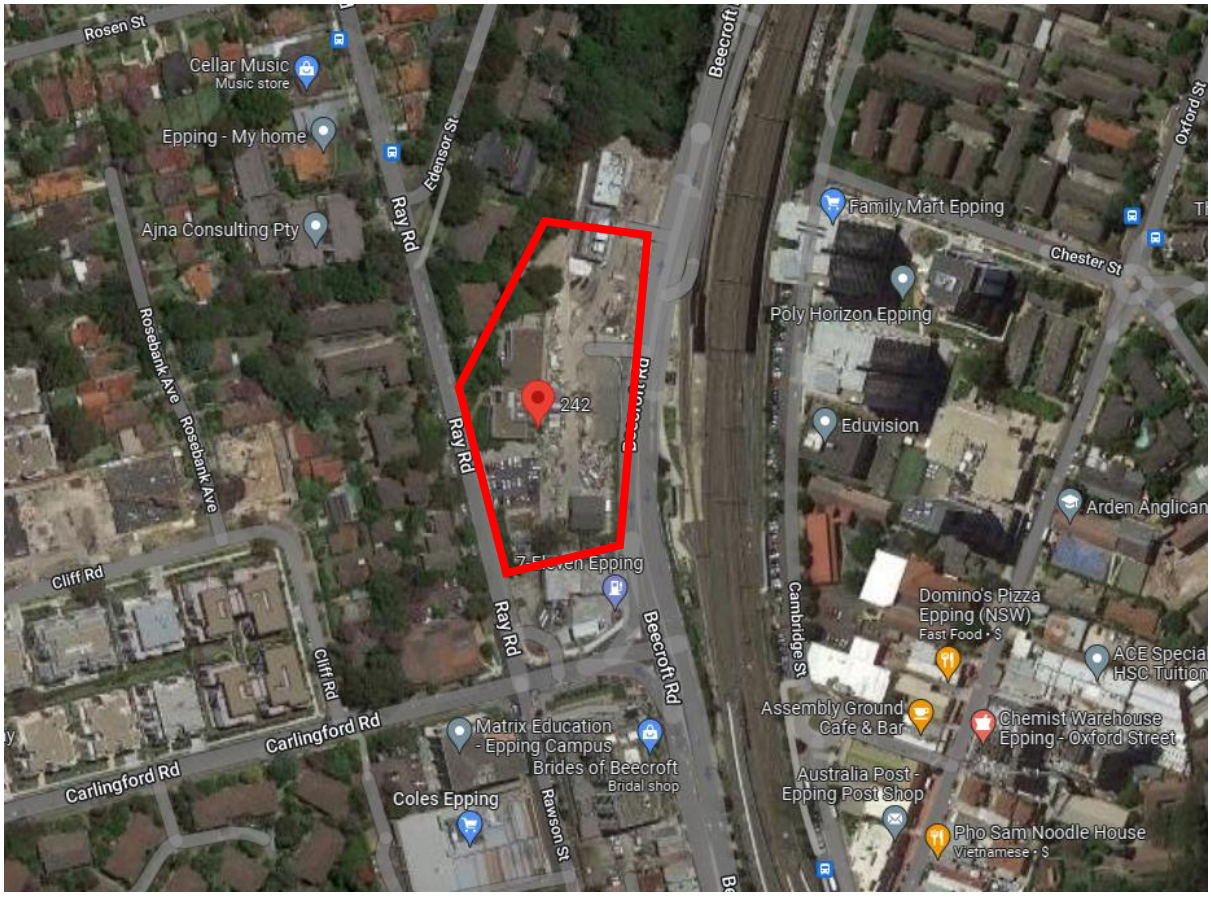

Figure 1.1 - Site Aerial Image

1.3 Project Description

A masterplan has been developed by Turner Studio which outlines the scope of the works which includes:

- Basements 3 and 2 – Predominantly carpark, plantroom, and storage.
- Basement 1 and Lower Ground – Mix of carpark and apartments.
- Ground Floor – Mix of commercial units and apartments.
- Levels 1 – 5 – Apartments separated into 5 lobbies.
- Level 6 – Public space on the roof space of lobbies A, Continuation of apartments in lobbies B, C, D and E.
- Level 7 – Public space on the roof space of lobbies D, Continuation of apartments in lobbies B, C and E
- Levels 8 – 15 – Continuation of apartments in lobbies B, C, and E.
- Level 16 – Public space on the roof space of lobbies B, Continuation of apartments in lobbies C and E
- Level 17 -Apartment and plant space on Building C, Roof space on Lobby E

The proposed site plan is shown below.

Figure 1.2 – Ground Floor Plan prepared by Turner Studio

2. Site Infrastructure

2.1 Electrical Supply

2.1.1 Incoming Power Supply

As the site is not currently services by any incoming power supply, it is currently proposed that the site be energised by the installation of three kiosk substations located in accordance with Ausgrid standards.

2.1.2 Required Works

The new padmount substations will require an easement, as detailed in the below extract from Ausgrid's network standards.

Existing transformers S6129 and S5702 will require removal with the proposed demolition of existing and construction of new substations to be undertaken as enabling works. The staging of these works will be developed in consultation with Ausgrid through an ASP3 design to ensure continuity of electrical supply is provided to adjacent customers.

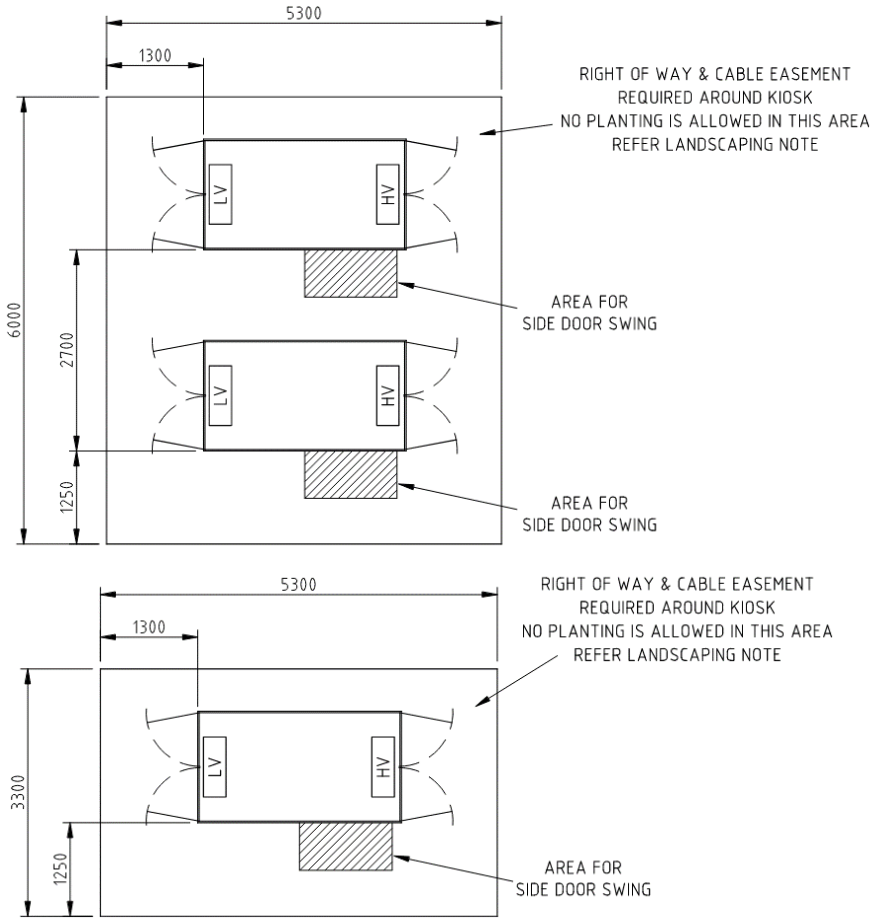

Figure 2.2 - Proposed Substation Spatial Requirements

2.2 Communications

2.2.1 Incoming Communications Lead-In

A new incoming telecommunication is via the NBN network, exact location is to be determined. An extract of the currently existing NBN infrastructure in the surrounding area is as below.

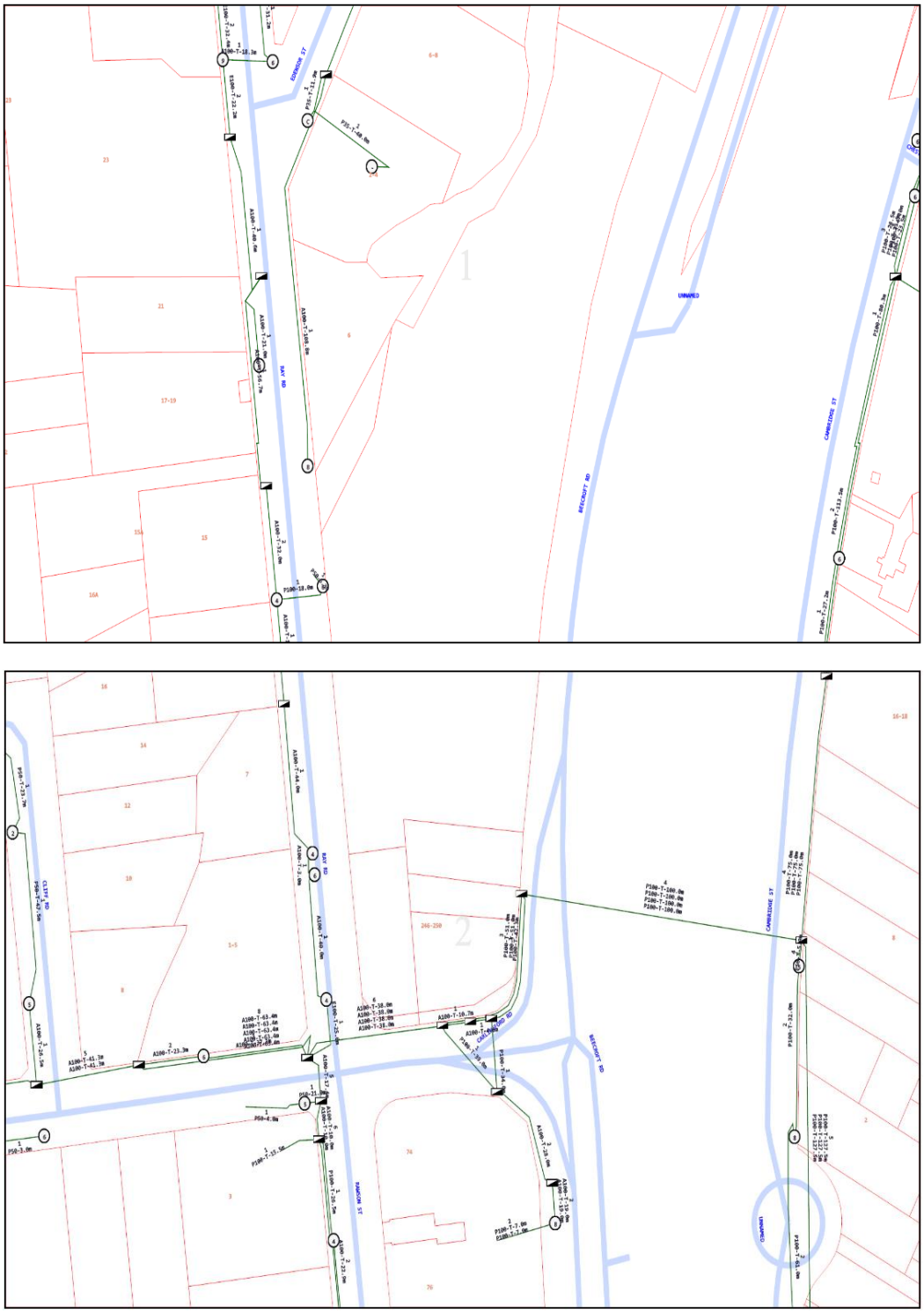

Figure 2.3 – NBN Dial Before You Dig Extract

3. Electrical Services

3.1 Maximum Demand

The total proposed maximum demand for the development is 4161Amps per phase, based on the following AS3000 Maximum Demand Calculation.

DOMESTIC MAXIMUM DEMAND CALCULATION

PROJECT REFERENCE: SY212798 REVISION: B
PROJECT: 242-244 Beecroft Road, Epping DATE: 5/04/2024

CALCULATED IN ACCORDANCE WITH AS/NZS 3000:2018 TABLE C1

Total Number of Units: 487
Number of Units per Phase: 163

Living Units

Load Group	Sub Category	Description		Quantity/ Load	Units (kW, A)	Load (A / Phase)
A.	i)	Internal Lighting				81.5
	ii)	External Lighting				0
B.	i)	10A GPOs				359.7
	ii)	15A GPOs			GPOs	0
	iii)	20A GPOs			GPOs	0
C.		Cooking Appliance	Electric		A	456
D.		Air Conditioning Cooling Equipment		2.5	kW	1340.460526
		Air Conditioning Heating Equipment			A	0
E.		Instantaneous Water Heaters	Electric		A	230.4
F.		Storage Water Heaters	N/A		A	None
G.		Spa & Swimming Pool Heaters	N/A		A	None

Total AS3000 Maximum Demand for All Living Units	2468.46 Amps/Phase

Communal Loads

Floor	Sub Location	Description	Area (m2)	VA/m2	Load (A / Phase)
Basement	B03	Services	48.5	15	1.05
		Rainwater Tank	46	15	1.00
		Rainwater Re-Use	27	15	0.58
		Non-Portable Pump	31	15	0.67
		Fan Room	54	15	1.17
		Services	62	15	1.34
		Car Park	6333.5	15	137.12
					-
Basement	B02	Hot Water E	156	15	3.38
		Fan Room	54	15	1.17
		Storage Cages	120	5	0.87
		Treated Water	28	15	0.61
		Balance Tank	62	15	1.34
		Hot Water Plant A & B	72	15	1.56
		Car Park	6115	15	132.39
		Outdoor Walkway	72	5	0.52
					-
Basement - B01	B01	Car Park	5058	15	109.51
		Car wash Bay	28	30	1.21
		Outdoor Walkway	236	5	1.70
	Near Build E	Fan Room	45	15	0.97
	Near Build C	Management Store	25	10	0.36
	Near Build B	Grease Arrestor	19	15	0.41
		Bulk Waste	50	10	0.72
		Commercial Waste	16	10	0.23
					-
Lower Ground		Car Park	3797	15	82.21
		Outdoor Walkway	996	5	7.19
	Near Build E	Fan Room	62	15	1.34
		Fire Tank + Fire Pump + Fire Reel & Cold Pump	141	15	3.05
		Stairs	12.5	15	0.27
	Near Build C	End Of Trip Facilities	48	50	3.46
		Commercial Bicycle Parking	21	5	0.15
	Near Build B	GYM TBC	140	200	40.41
		Services TBC	56	15	1.21
		Comms	12	400	6.93
		MSB	15	15	0.32
					-
					-
Build E	B01	FOGO Bin Room E	7	10	0.10
		Waste E	33	15	0.71
	B01	Corridor	51	20	1.47
		Stairs	25	10	0.36
	LG	Corridor	59	20	1.70
		Stairs	25	10	0.36
	GF	Corridor	69	20	1.99
		Resi Lobby	50	30	2.17
		Stairs + Egress	35	10	0.51
	L01 - L05	Corridor	270	20	7.79
	L06	Corridor	53	20	1.53
	L07	Corridor	62.5	20	1.80
	L08 - L13	Corridor	260	20	7.51
	L14 - L16	Corridor	159	20	4.59
	L01 - L16	Stairs	400	10	5.77

Build D	B01	Waste D	23	15	0.50
		FOGO Bin Room	8	10	0.12
	B01 - LG	Stairs	26	10	0.38
	GF	Stairs + Egress	36	10	0.52
		Resi Lobby	52	30	2.25
		Commercial Unit 1 (Assuming Offices)	689	80	79.56
		Stairs	16	10	0.23
	L01 - L06	Corridor	624	20	18.01
		Stairs x 2	168	10	2.42
	L07	Swimming pool	48.5		100.00
		Roof Space	323.5	5	2.33
		Store Room	9	10	0.13
		Amenities	13	15	0.28
		Stairs	15	10	0.22
Ground Level		Fire Control	17.5	60	1.52
		Outdoor walking	2943	5	21.24
					-
Build C	B01	Waste C	31	15	0.67
		FOGO Bin Room C	11	10	0.16
		Stairs	17.5	10	0.25
		Corridor	23	20	0.66
	LG	Stairs	45	10	0.65
		Corridor	55	20	1.59
	GF	Stairs - 1 + Egress	24	10	0.35
		Stairs - 2	18	10	0.26
		Corridor	126	20	3.64
		Communcal Space	41	70	4.14
		Amenities	5	15	0.11
	L01 - L05	Stairs - 1	65	10	0.94
		Stairs - 2	90	10	1.30
		Corridor	360	20	10.39
	L06 - L16	Stairs - 1	143	10	2.06
		Stairs - 2	198	10	2.86
		Corridor	719	20	20.76
					-
Build B	B01	Waste B & Central Holding	156	15	3.38
		FOGO Bin Room B	5	5	0.04
	B01 - LG	Stairs	38	10	0.55
		Corridor	28	20	0.81
	GF	Café	124	200	35.80
		Commercial Unit 2 (Office)	84	80	9.70
		Communal Space	76	60	6.58
		Store	5	10	0.07
		Amenities	11	15	0.24
		Stairs + Egress	50	10	0.72
		Corridor	75.5	20	2.18
	L01 - L15	Stairs	285	10	4.11
	L01 - L15	Corridor	939	20	27.11
	L16	Roof Space	825	5	5.95
		Swimming Pool	90		100.00
		Amenities	22	15	0.48
		Plant + Storage	12	15	0.26

Build A	B01	Waste A + FOGO Bin Room A	42	15	0.91
		Resi Lobby A	34	30	1.47
		Stairs	11	10	0.16
	LG	Storage	8	5	0.06
		Stairs + Egress	67	10	0.97
	LG - L05	Corridor	378	20	10.91
	GF - L05	Stairs	138	10	1.99
L06		Amenities	10.5	15	0.23
		Build A Roof - Outdoor	523	5	3.77
					-
					-

Specific Loads	Description	Quantity	Load (A)	Load (A / Phase)
	Lift x 11	11	63	409.5
	Provisional EV			200

Spare Capacity	0.00%
	-
Total AS3000 Maximum Demand for Communal Areas	1693.25 Amps/Phase
Total AS3000 Maximum Demand for Living Units + Communal Areas	4161.71 Amps/Phase

Table 3.1: Maximum Power Demand for the Site

3.2 Main Switchboard & Main Switchroom

It is proposed that a new main switchboard will be provided for the development and be internal located in within the 50m consumer mains limitation to the proposed substation.

The colour of the main switchboard is to be Orange X15. The main switchboard will be sized to accommodate the maximum demand, plus have an allocation of 25% spare capacity.

The main switchboards will contain a life safety services section. The life safety services section will support the fire indicator panel (FIP), lifts, hydraulic and mechanical fire safety services.

The new main switchboard will be of Form 3b to AS/NZS ISO 61439 and IP44 construction.

The switchboard will be located in a dedicated main switch room.

3.3 On-Site Electricity Generation

On-site electricity generation, in the form of photovoltaic panels, is proposed for the 242-244 Beecroft Road development.

The on-site electricity generation will be documented as a of grid connected PV system on the roof in accordance with respective input from the Structural Engineer. Full documentation will include all electrical works required to ensure the correct installation of PV system (such as in distribution boards, main switchboard, and the like).

The electrical infrastructure for the PV system will be located in the distribution board closest to the PV Panels. The PV system is proposed to be grid-connected, back feeding excess produced energy into the energy authority's infrastructure to offset the development's electricity bills.