Overarching CTMP

Overarching Construction Traffic Management Plan

Sydney Metro Western Sydney Airport Advanced and Enabling Works – Installation and commissioning of construction power

Overarching Traffic and Transport Principles

January 2022

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Principal Contractor:	QUICKWAY TRANSPORT and UTILITIES INFRASTRUCTURE			
Revision:		**Name**	**Date**	**Signature**
Rev C	Prepared By:	Louise Casey	24 January 2022	
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Document Status

Revision	Date	Description	Approval
Rev A	22/11/2021	Rev A issued for internal review	Sydney Metro
Rev B	24/11/2021	Rev B issued for external CTMP review	CJP, Penrith City Council, Liverpool City Council, Emergency Services
Rev C	21/01/2022	Rev C issued for external CTMP approval	CJP, Penrith City Council, Liverpool City Council, Emergency Services

Document Changes / Updates (between previous Versions and (this current) Version C)

Date	Section	Original Text	Changes made (new/additional in red)
21/01/2022 (updates between Ver B & Ver C)	Section 1.5	As original.	[Addition of:] For off-airport works, the Quickway's Sydney Metro Western Sydney Airport Advanced & Enabling Works (AEW) CEMP will include outline of the management objectives for traffic and transport related matters, consistent with the Overarching Construction Traffic Management Principle (OCTMP) document (this document).
	Section 5.1	Trenches will be temporarily re-instated at the end of each shift or covered with road-plates.	Trenches will be temporarily re-instated at the end of each shift or covered with road-plates. For any excavations on road carriageway, anti-slip steel road plates will be installed as per TfNSW M209 specification.
	Section 5.3	As original.	[Numerous changes in whole section]
	Section 6.1.3	Give way at all times to pedestrians on the footpath.	Give way at all times to pedestrians and cyclists on the footpath.
	Section 6.5.1	As original.	[Addition of:] Site-specific heavy vehicle driver induction will identify locations where cyclists are expected to be riding along the roadway (i.e. not in dedicated shared cyclists & pedestrian footpath) to increase driver awareness.
	Section 6.5	…Traffic Controllers will be positioned adjacent to the footpath to manage the conflict between construction vehicle and pedestrians during all access and egress movements. Signage…	…Traffic Controllers will be positioned adjacent to the footpath to manage the conflict between construction vehicle and pedestrians during all access and egress movements. In locations where these movements need to occur when there is high pedestrian and cyclist activity, traffic controllers will be implemented at all times during the works. Signage…
	Table 3.1	As original.	Minor updates to "How addressed" comments for MCoA E105, E106
	Table 3.2	As original.	Minor updates to "How addressed" comments for REMM T6

Glossary / Abbreviations

Abbreviation	Expanded text
CEMF	Sydney Metro Construction Environmental Management Framework
SMWSA	Sydney Metro Western Sydney Airport
CSSI	Critical State Significant Infrastructure
CJP	Customer Journey Planning
MCoA	Minister's Condition of Approval
CTMF	Sydney Metro Construction Traffic Management Framework – Sydney Metro West and Sydney Metro – Western Sydney Airport
OCTMP	Overarching Construction Traffic Management Plan (This Plan)
CTMP	Construction Traffic Management Plan
EIS	Environmental Impact Statement
EPL	Environment Protection Licence
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
EWMS	Environmental Work Method Statements
WSA	Western Sydney Airport
HDD	Horizontal Directional Drill (Under bore)
PCC	Penrith City Council
LCC	Liverpool City Council
LTC	Local Traffic Committee
OEH	Office of Environment and Heritage
OPLINC	TfNSW Online Planned Incident System (ROL Applications)
PTCD	Portable Traffic Control Device
REMM	Revised Environmental mitigation measures
ROL	Road Occupancy Licence
ROA	Road Occupancy Application (Western Sydney Airport Authority)
RSA	Road Safety Audit

Abbreviation	Expanded text
TCAWS	Traffic Control at Worksites Technical Manual
TCG	Traffic Control Group
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TMC	Transport Management Centre
TTLG	Traffic and Transport Liaison Group
TTM	Temporary Traffic Management
VMP	Vehicle Movement Plan
VMS	Variable Message Sign (portable or permanent)
On-Airport	The project is characterised into components that are located outside Western Sydney Airport land (off-airport) and components that are located within Western Sydney Airport land (on-airport), to align with their different planning approval pathways required under State and Commonwealth Legislation. The on-airport works comprises areas located within the Western Sydney International land boundary
Off-Airport	The off-airport works comprises areas to the north of Western Sydney International (from the northern airport boundary to the T1 Western Line at St Marys) and land south of the airport (from the southern airport boundary to the Aerotropolis Core precinct).
Certified Design	Means that the Principal's Design Documentation has been approved to construct by Endeavour Energy for a specific Portion of the Works and are to be used as the basis for the Contractor's program for the Works.

1. Introduction

1.1 Context

This Overarching Construction Traffic Management Plan (OCTMP) forms part of the construction requirements for the Sydney Metro Western Sydney Airport Advanced and Enabling Works – Installation and Commissioning of Power project and other future projects. This OCTMP is overarching the two (2) site specific operational CTMPs required for the total works. While it is expected that no other CTMPs are required, in the case that they are, this OCTMP will still apply.

This OCTMP has been prepared in line with the requirements of the Sydney Metro Traffic Management Framework (CTMF), Sydney Metro – Western Sydney Airport Construction Environmental Management Framework (CEMF), Sydney Metro Western Sydney Airport Traffic and Access Construction Environmental Management Plan, EIS and the Ministers Conditions of Approval (MCoA).

1.2 Background for Sydney Metro Western Sydney Airport Project

Sydney Metro is Australia's biggest public transport project. Services between Rouse Hill and Chatswood started in May 2019 on the new stand-alone metro railway system. The Sydney Metro network and program of work includes the Metro North West Line (which opened in May 2019), Sydney Metro City & Southwest (which is currently under construction and due to open in 2024), Sydney Metro West (with construction due to start in 2020) and Sydney Metro - Western Sydney Airport (the project). Potential future extensions to Schofields/Tallawong in Rouse Hill in the north and to Macarthur in the south are under consideration and are being safeguarded but do not form part of the project.

The project will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport (referred to as Western Sydney International) (WSI airport) and the growing region.

The project is being delivered under the Western Sydney City Deal, a partnership between the NSW Government, Australian Government and eight councils of the Western Parkland City. The NSW and Australian Governments have a shared objective of having the rail line operational when WSI airport is planned to open for passenger services.

The new railway line will service Greater Western Sydney and the new WSI airport. It will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe, and easy metro service. The Project will link residential areas with job hubs from St Mary's through to the new airport and the Western Sydney Aerotropolis.

It will provide a major economic stimulus for Western Sydney, supporting more than 14,000 jobs' during construction for the NSW and national economies, including more than 250 new apprenticeships. The project comprises components that are located within WSI airport (on-airport).

Sydney Metro Western Sydney Airport project alignment is shown in Figure 1.2

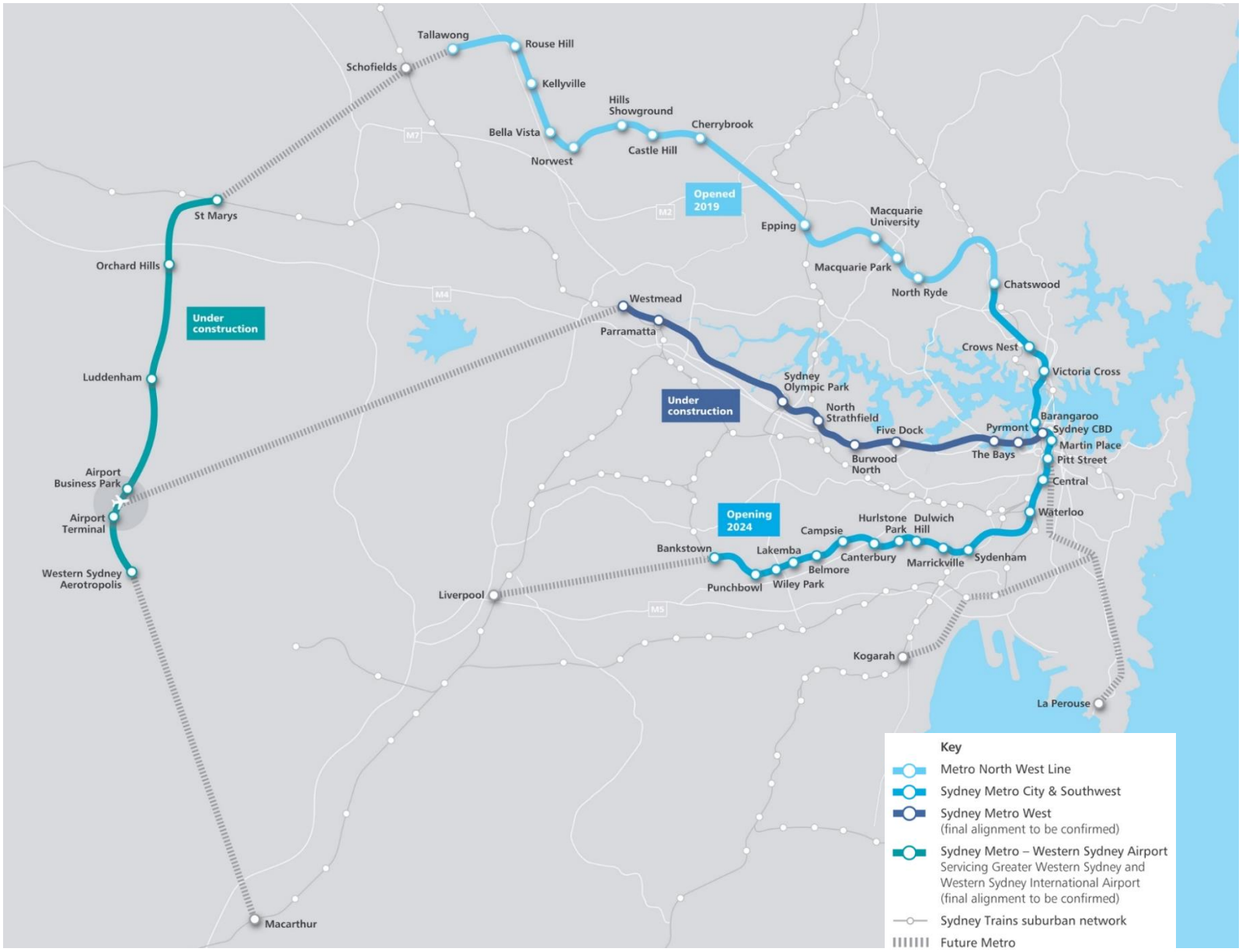


Figure 1.1 Sydney Metro Overview

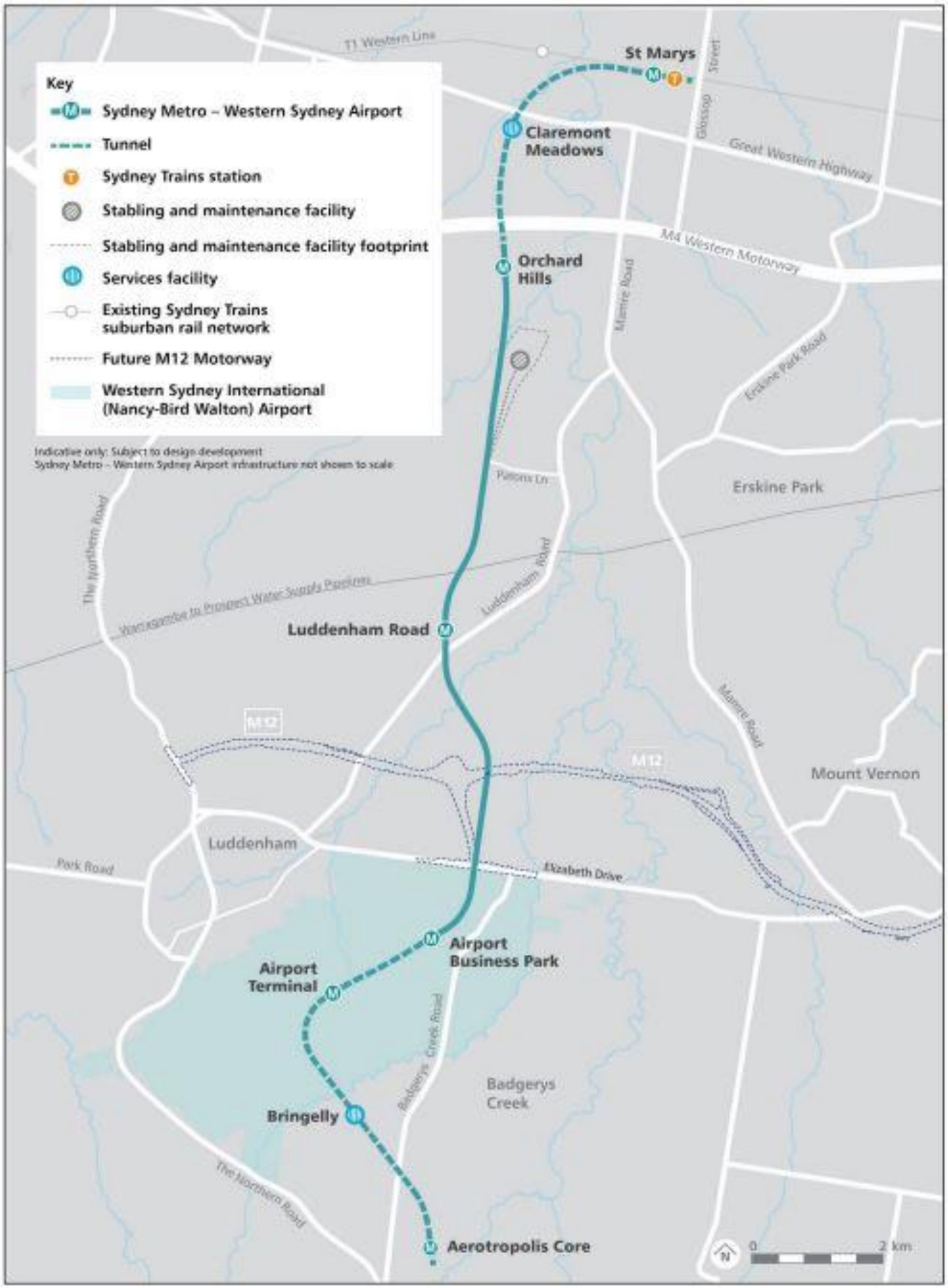


Figure 1.2 Sydney Metro – Western Sydney Airport project alignment

1.2.1 Sydney Metro Western Sydney Airport Planning Approval

The Environmental Impact Statement (EIS) assessed impacts for Sydney Metro Western Sydney Airport. This covered all construction requirements required including tunnelling and utility installation.

The planning approval and related environmental assessment documents are located at:

https://www.planningportal.nsw.gov.au/major-projects/project/35016

1.3 Scope of Works

Quickway have been engaged by Sydney Metro for the construction of temporary construction power supply connections.

a) The Sydney Metro – Western Sydney Airport (SMWSA) project is a new metro rail line from St Marys to Aerotropolis (the Project). Excavation of the tunnels and underground stations will be undertaken by a combination of Road Headers (RHs) and Tunnel Boing Machines (TBMs) both of which have significant electrical power supply demands. The power demands are of a magnitude that can only be provided to each worksite via a High Voltage (HV) feeder.

b) As part of the delivery of the SMWSA project, key Advanced and Enabling Works (AEW) are required, including construction power. These will provide the major works contractor with power ready for connection prior to TBM to be energised and tunnelling commencement.

c) Quickway Transport and Utilities Infrastructure have been engaged by Sydney Metro as the ASP1 Contractor to construct the high voltage connections to six construction worksites. This will ensure HV power is available for the follow-on Sydney Metro Station Boxes and Tunnelling (SBT) and Low Voltage (LV) supply to the Pre-Cast Facilities (Badgerys Creek) for production of segments.

d) Quickway Transport and Utilities Infrastructure will be responsible for the construction of temporary power supply connection, certified for construction by the relevant supply authority, for the following Portions (the works):

   i. Portion 1: Patons Lane;

   ii. Portion 2: Claremont Meadows Services Facility Power;

   iii. Portion 3: Orchard Hills Power;

   iv. Portion 4: Airport Business Park Power;

   v. Portion 5: Precast Facilities Power; and

   vi. Portion 6: Aerotropolis Power.

Refer to Figure 1.3 for location overview.

e) Each portion includes all the work required to install, construct and commission ASP1 construction power as shown in the Principal's Design Documentation included in Attachment A of the Services Brief (refer to Table 1 for design reference locations)

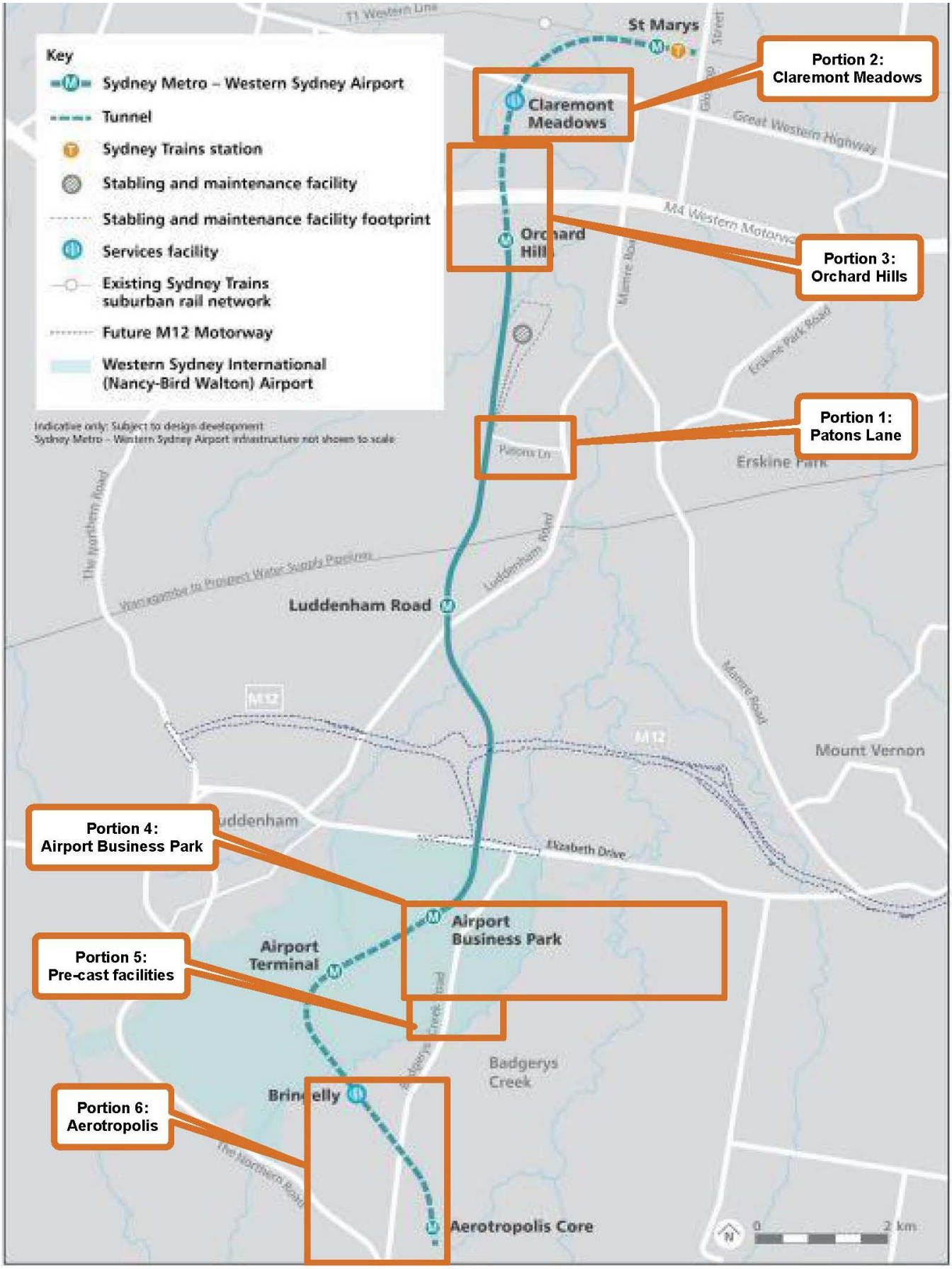


Figure 1.3 Portion 1 – Portion 6 Location overview

Table 1.1 Design reference locations

Portion	Design Name	Case Number	Certified Design Date	Description
1. Patons Lane Undergrounding	LOT 42, DP 738126 - 43A PATONS LANE ORCHARD HILLS ARP4779 ASSET RELOCATION	ARP4779	31/08/2021	Undergrounding of an approximately 300m section of overhead 11kV mains in the northern road verge of Patons Lane, Orchard Hills. Conduits will be installed via horizontal directional drilling.
2. Claremont Meadows Services Facility Power	LOT 2, DP771697 – 1017 GIPPS ST CLAREMONT MEADOWS DBL2558 TEMPORARY BUILDER SUPPLY	DBL2558	31/08/2021	Provision of an 11kV connection to an existing Endeavour Energy HV overhead feeder on the northern side of the Greater Western Highway. Proposed route will be overhead (crossing the Greater Western Highway), and kiosk will be located near the corner of Greater Western Highway and Gipps Street.
3. Orchard Hills Power	70-74 Kent Road (LOT 43 DP29388) ORCHARD HILLS DBL2529_RETIC_20210226 CONNECTION OF LOAD	DBL2529	31/08/2021	Provision of an 11kV connection to the existing Endeavour Energy Claremont Meadows Zone Substation. Proposed route will be underground via Sunflower Drive, Gipps Street, with a Horizontal Directional Drill (HDD) underbore under the M4 Motorway at Kent Road. Kiosks will be located at a property to be acquired off Kent Road.
4. Airport Business Park Power	LOT 2 DP 1260971 – BADGERYS CREEK ROAD BADGERYS CREEK DBL2559_PMOS_RETIC CONNECTION OF LOAD METHOD OF SUPPLY	DBL2559	estimated December 2021	Provision of an 11kV connection to the existing Endeavour Energy Kemps Creek Zone Substation. Proposed route will be underground via Cross Street, Western Road, an easement between Turnbull and Sumbray Avenue, Martin Road, Cuthel Road, Lawson Road, Pitt Street, Longley's Rd and Badgerys Creek Road, including underbores under South Creek and Badgerys Creek. Kiosks will be located at the proposed Airport Business Park station site within WSI Airport.
5. Precast Facilities Power	BAGERYS CREEK ROAD BRINGELLY DBL2560 CONNECTION OF LOAD METHOD OF SUPPLY BAGERYS CREEK ROAD BRINGELLY DBL2584 CONNECTION OF LOAD METHOS OF SUPPLY	DBL2584 & DBL2560	02/11/2021	Provision for an LV supply, connecting to an existing Endeavour Energy HV overhead feeder cable on Badgerys Creek Road at the intersection with Longleys Road. Proposed route will be underground along Longleys Road and kiosks will be located on the northern side of Longleys Road (for the SBT pre-cast site) and southern side of Longleys Road (for the SCAW pre-cast site).
6. Aerotropolis Power	215 BADGERYS CREEK ROAD BRINGELLY DBL2554 CONNECTION OF LOAD PROPOSED METHOD OF SUPPLY	DBL2554	30/09/2021	Provision of an 11kV connection to the existing Endeavour Energy Bringelly Zone Substation. Proposed route will be via Greendale Road, The Northern Road and Badgerys Creek Road and the proposed site access road to Aerotropolis. Kiosk will be located within the Western Parkland City Authority owned lane.

1.4 Purpose of this Plan – Western Sydney Airport Power Enabling Works

The purpose of this Overarching Construction Traffic Management Plan is to set out the principles of traffic and covers the Western Sydney Airport power enabling works only. This OCTMP shall outline the cumulative works activities across all six (6) Portions of work. Works will occur concurrently, at varying stages of the project, on all six (6) Portions. Cumulative impacts with any ongoing Sydney Metro WAS ongoing projects will be discussed in the fortnightly TCG. Map overview of the WSA area is shown in Figure 1.3.

This project has been separated into two (2) sections with each section being a CTMP:

- Operational CTMP 1, will include Portion 1 – Portion 3 (within the Penrith City Council LGA)
  - Portion 1: Patons Lane – alignment shown in Figure 1.4
  - Portion 2: Claremont Meadows Services Facility Power – alignment shown in Figure 1.5
  - Portion 3: Orchard Hills Power – alignment shown in Figure 1.7

- Operational CTMP 2, will include Portion 4 – Portion 6 (within the Liverpool City Council LGA)
  - Portion 4: Airport Business Park Power – alignment shown in Figure 1.8
  - Portion 5: Precast Facilities Power – alignment shown in Figure 1.9
  - Portion 6: Aerotropolis Power – alignment shown in Figure 1.10

The sole focus of this project is the installation and commissioning of construction power including the following:

- Power supply for the tunnel boring machine and construction power for Claremont Meadows Zone Substation to Orchard Hills site with associated underbores under the M4 Motorway at Kent Road, Orchard Hills;
- Power supply for the tunnel boring machines and construction power from Kemps Creek Zone Substation to the Airport Business Park site with associated underbores under South Creek and Badgerys Creek;
- Construction power supply for the below sites:
  - Claremont Meadows Services Facility
  - Pre-cast facilities
  - Aerotropolis
- Concurrent management of work sites; and
- Utility diversions as required for the works.

The following Figure 1.4 to Figure 1.10 outline the location and power supply routes for Portions 1 – 6 respectively.

Figure 1.4 Portion 1: Patons Lane power supply route

Figure 1.5 Portion 2: Claremont Meadows power supply route

Figure 1.6 CTMP 1 – Portion 1 – Power supply route

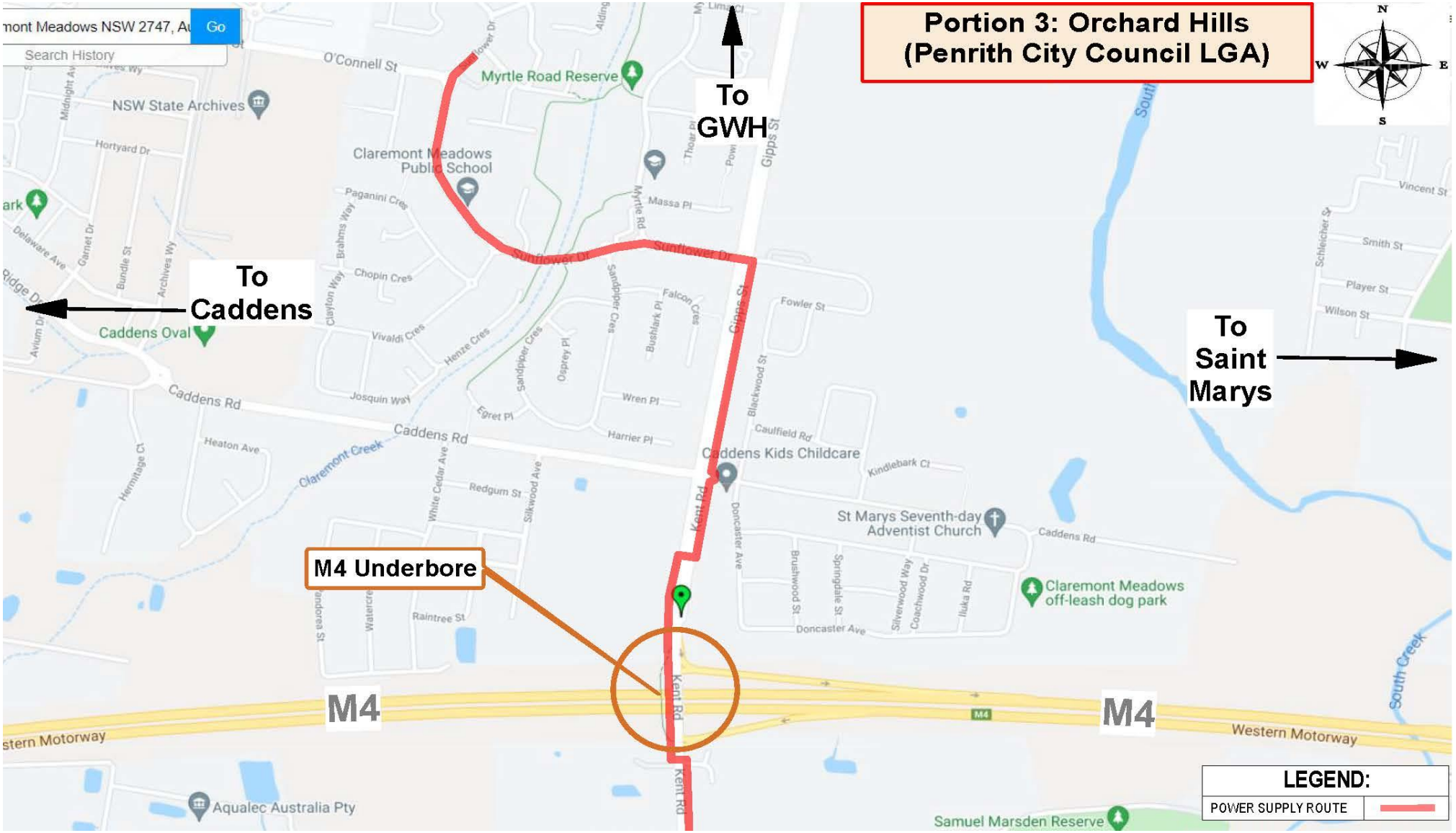


Figure 1.7 Portion 3: Orchard Hills power supply route

Figure 1.8 Portion 4: Airport Business Park power supply route

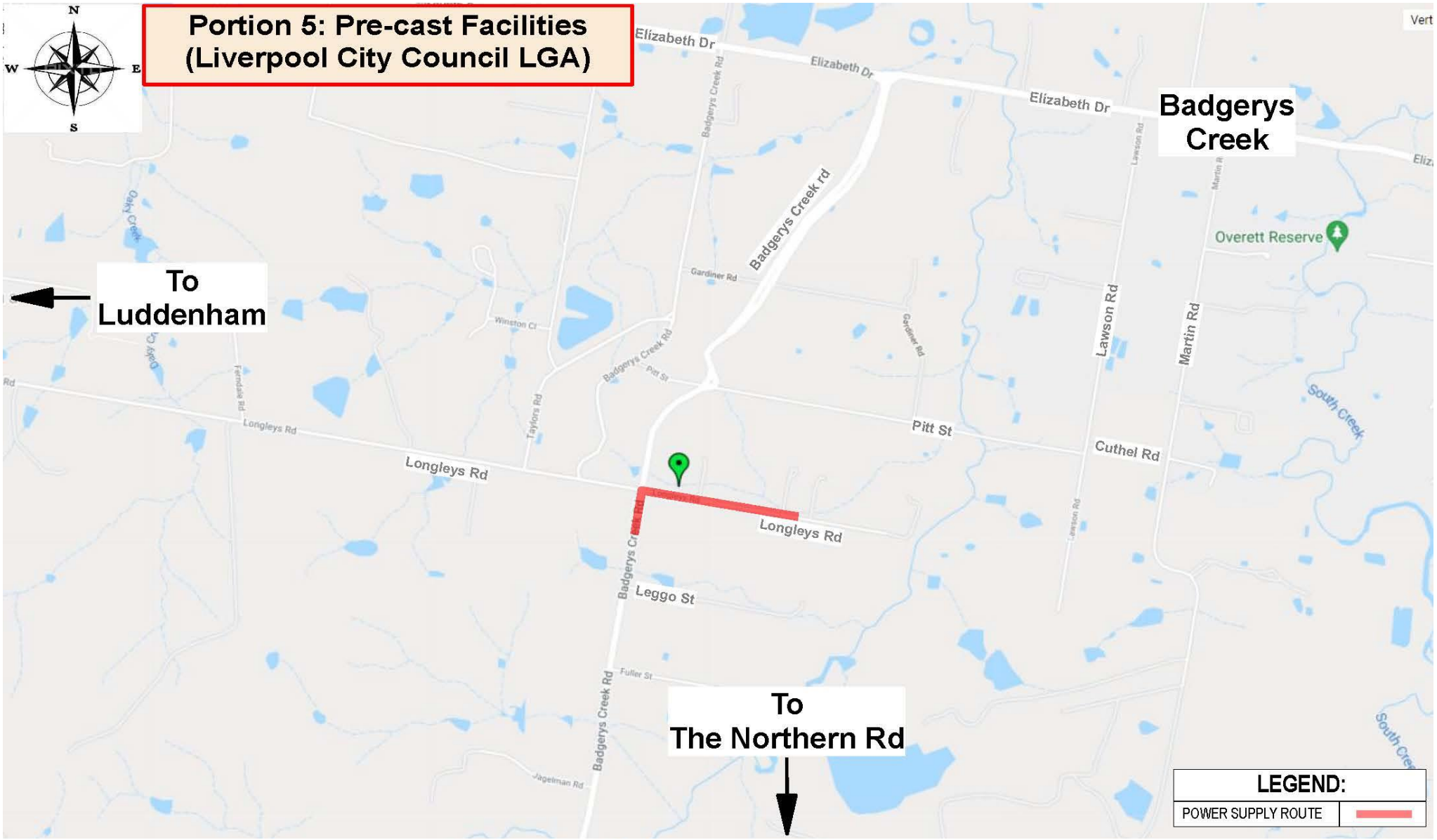


Figure 1.9 Portion 5: Pre-cast facilities power supply route

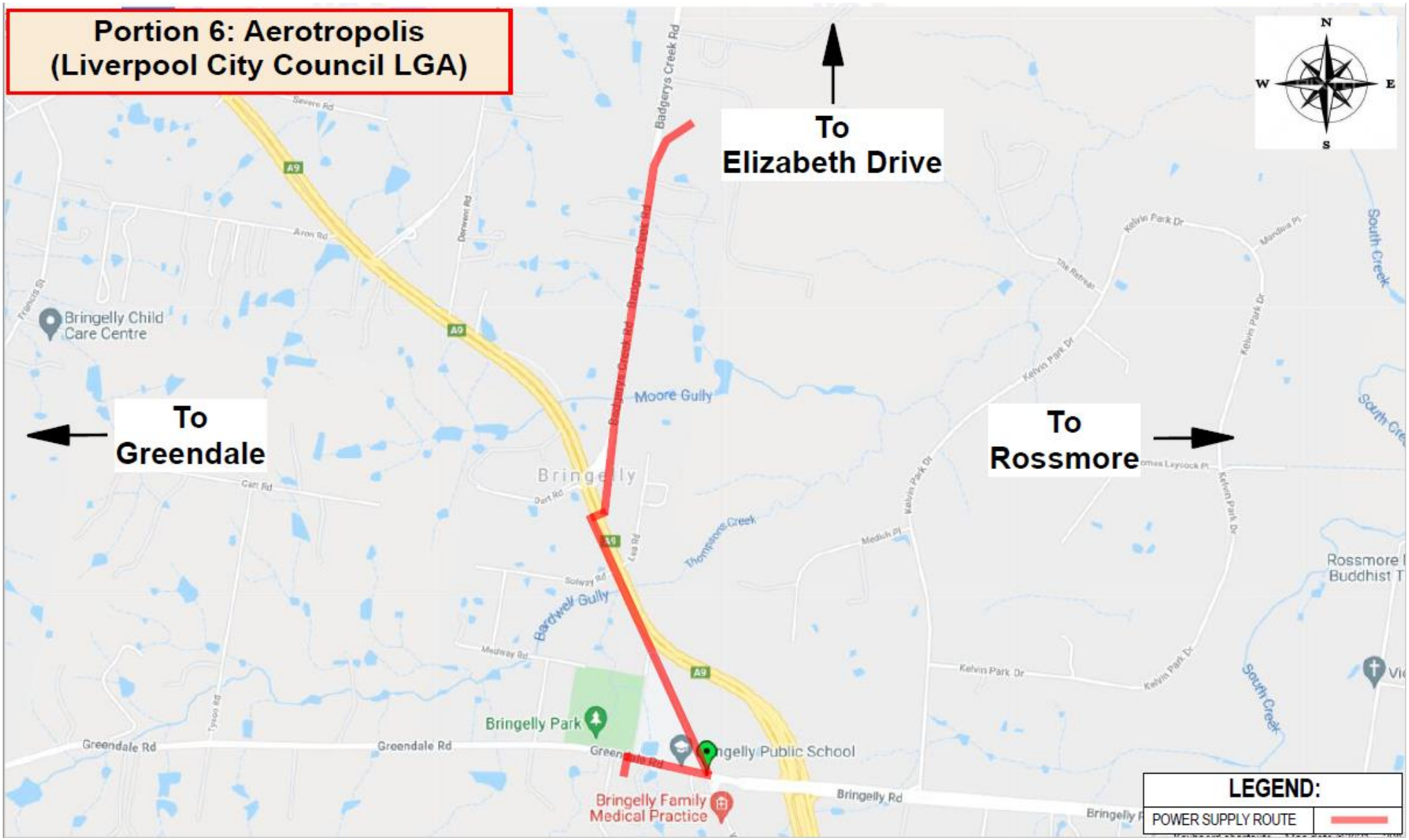


Figure 1.10 Portion 6: Aerotropolis power supply route

1.5 Environmental Management System Overview

The environmental management system overview is described in the Sydney Metro Construction Environmental Management Framework.

For off-airport works, the Quickway's Sydney Metro Western Sydney Airport Advanced & Enabling Works (AEW) CEMP will include outline of the management objectives for traffic and transport related matters, consistent with the Overarching Construction Traffic Management Principle (OCTMP) document (this document).

For on-airport works, the Sydney Metro Western Sydney Airport Traffic and Access CEMP will detail all the management objectives and is consistent with the WSA Traffic and Access CEMP, including all appendices to the CEMP.

The Western Sydney Airport Traffic and Access Construction Environmental Management Plan is located at:

https://www.westernsydney.com.au/sites/default/files/2019-06/WSA%20-%20Bechtel%20-%20Traffic%20and%20Access%20Construction%20-%20CEMP.pdf

1.5.1 WSA Power Enabling Works Environmental Obligations

All construction personnel working on the Western Sydney Airport Power Enabling Works have the following environmental obligations:

- Minimise pollution of land, air and water
- Use pollution control equipment and keep it in proper working order
- Preserve the natural and cultural heritage environment
- Give notice to TfNSW and relevant authorities of a non-Aboriginal or Aboriginal heritage discovery
- Minimise the occurrence of offensive noise
- Be a good neighbour to surrounding land users
- Keep the community informed of milestones, upcoming activities, and duration of relevant aspects of the works
- Use equipment with noise control features where available and ensure that it is properly maintained, and
- Take all feasible and reasonable steps to ensure compliance with the requirements of the Sydney Metro Environmental Management Framework.

1.5.2 Working Hours

As per MCoA E38, works must be undertaken during the following hours:

(a) 7:00am to 6:00pm Mondays to Fridays, inclusive;

(b) 8:00am to 1:00pm Saturdays; and

(c) at no time on Sundays or public holidays.

Except as permitted by an EPL or approved in accordance with the Out of Hours Works Protocol highly noise intensive works that result in an exceedance of the applicable noise management level at the same receiver must only be undertaken:

(a) between the hours of 8:00 am to 6:00 pm Monday to Friday;

(b) between the hours of 8:00 am to 1:00 pm Saturday; and

(c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour.

For the purposes of this condition, 'continuously' includes any period during which there is less than one (1) hour between ceasing and recommencing any of the work.

Works which can be undertaken outside of standard construction hours without any further approval include:

- Works which are determined to comply with the relevant Noise Management Level at sensitive receivers;
- For the delivery of materials outside of approved hours as required by the Police or other authorities (including TfNSW) for safety reasons;
- Where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm.
- Where written agreement is reached with all affected receivers.

Any other necessary out of hours works required will go through an OOHW approval process which will include the required environmental, noise and vibration impact assessments and modelling for impacted receivers.

2. Objectives of this CTMP

2.1 Objectives

The objectives of the Overarching CTMP are to ensure that construction impacts are minimised and are within the scope permitted of relevant planning approvals. This includes minimising delays, ensuring consideration is given to the needs of all road users and maintaining safety for both workers and the general public.

To achieve these objectives and goals, Quickway will:

- Ensure the design and operation of any proposed temporary traffic management measures are carefully planned, coordinated, and implemented.
- Meet public transport user, emergency services, pedestrians, cyclists, and vehicle drivers' expectations with a high level of safety and service in using the existing road and pedestrian network.

This requires efficient, effective, and reliable traffic management strategies to be in place that:

- Follow the CTMF hierarchy of access.
- Achieve uniform traffic throughout all Portions of work.

- Minimise changes to pedestrian and cycle routes and movement.
- Ensure reliable and consistent travel times.
- Provide clear information to allow drivers and other road users to make appropriate decisions in relation to their journey.
- Minimise potential road safety risk, especially for pedestrians and cyclists.
- Understands the impacts of the Project and identifying appropriate methods to mitigate these impacts.
- Strategic advanced planning of the temporary traffic management.
- Taking an approach to traffic management that minimises traffic disruption.
- Ongoing stakeholder engagement and communication.

In planning the traffic management for each portion of work, the most appropriate form of traffic management shall consider the priorities of the potential different users in accordance with TCAWS Version 6.0. The site specific operational CTMP's shall be developed in line with the following CTMF hierarchy of access, listed from the highest to the lowest priority:

1. Incidents and emergency services access
2. Events (special and unplanned)
3. Pedestrians
4. Cyclists
5. Other public transport users – buses, coaches, and light rail (where applicable)
6. Service vehicles
7. Coaches
8. Taxis
9. Kiss and ride and rideshare
10. Private cars

As part of the Construction Traffic Management Framework Quickway will follow the related construction objectives shown in Table 2.1 below:

Table 2.1 CTMF related construction objectives

Key Result Area	Construction Objectives
Transport network	• Minimise disruption to pedestrians, cyclists and motorists. • Ensure Sydney Metro construction traffic accesses the arterial network as soon as practicable on route to, and immediately after leaving the construction site. • Keep Sydney moving • Minimise impacts on bus operations, routes and stops where possible.

Key Result Area	Construction Objectives
	• Minimise changes to traffic operation and kerbside access. • Minimise construction traffic generation during network peak periods. • Maximum peak period construction vehicle volumes should not exceed those outlined in the EIS. • Maintain access to properties and businesses where possible or arrange alternatives. • Maintain a safe environment for pedestrians and cyclists.
Safety	• No worker injury accidents during construction • No injury accidents to members of the public because of construction.
Cumulative impacts	• Work collaboratively with other stakeholders and other major projects to mitigate traffic and transport impacts. This includes but is not limited to WSA authority, CJP, Penrith City Council, Liverpool City Council, Emergency service.
Amenity	• Minimise noise and other environmental impacts on the residents and businesses in the vicinity of the construction sites, in line with the Sydney Metro Construction Noise and Vibration Standard (CNVS)

This CTMP is a key planning tool for all temporary traffic and transport arrangements to provide CJP, Transport for NSW, Penrith City Council PCC, Liverpool City Council LCC, Western Sydney Airport Authority and other stakeholders such as Emergency Services, Bus operators, and business and residential groups, with the assurance that the relevant factors have been considered and impacts to traffic and transport are minimised as much as is practically possible.

The approval, for this OCTMP and all CTMPs will follow the process as outlined on the CTMF. This also includes the reviews of the CTMPs if changes are required as result of improvements and/or requests.

In accordance with MCoA E103 a copy of the CTMPs must be submitted to the Planning Secretary for information before the commencement of any construction in the area identified and managed within the relevant CTMP(s).

3. Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation and regulatory requirements

Identified regulatory requirements are:

- Road Act 1993
- NSW Road Regulation 2008
- NSW Road Transport Act 2013
- NSW Road Transport (Safety and Traffic Management) (Road Rules) 1999
- Work Health Safety Act 2011
- Work Health Safety Regulation 2017

Legislation relevant to traffic management also includes the *Environmental Planning and Assessment Act 1979* (EP&A Act), under which the project approval was granted. Relevant provisions of the EP&A Act are explained.

3.1.2 Guidelines

The main guidelines, specifications, and policy documents relevant to this Plan include:

- Traffic Control at Worksites Manual Technical (TCAWS) Manual Version No.6
- AUSTROADS Guide to Temporary Traffic Management 2019 – Parts 1-10
- AUSTROADS Guide to Traffic Management 2020 – Parts 1-13
- AUSTROADS Guide to Road Safety 2018 – Parts 1-9
- Guidelines for Road Safety Audit Practices
- TfNSW RMS Specification G10-Traffic Management
- RMS QA Specification RMS 200 – Maintenance Rectification Requirements (Pavement)
- RMS QA Specification RMS M208 – Road Openings and Restoration (Low Risk)
- RMS QA Specification RMS M209 – Road Openings and Restoration
- Road Occupancy Manual
- Interim Construction Noise Guidelines (ICNG)

3.2 Ministers Conditions of Approval (MCoA)

Ministers Conditions of Approval (MCoA) for Sydney Metro Western Sydney Airport EIS were approved on 23 July 2021. Allocations specific to the ASP1 Contractor Power Enabling Works scope of works are below listed in Table 3.1. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3.1 Ministers Conditions of Approval relevant to this OCTMP and CTMP's

MCoA No.	Condition Requirements	Document reference	How addressed
Administrative Conditions			
A1	The Proponent must carry out the CSSI in accordance with the terms of this approval and generally in accordance with: (a) Sydney Metro – Western Sydney Airport Environmental Impact Statement dated 21 October 2020; and (b) Sydney Metro – Western Sydney Airport Submission Report submitted April 2021.	This document. (OCTMP) Relevant CTMPs	The OCTMP and all required CTMPs are prepared and written to adhere to conditions of approval and referenced to EIS.
A2	The CSSI must only be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition A1 of this schedule unless otherwise specified in, or required under, this approval.	This document. (OCTMP) Relevant CTMPs	The OCTMP and all required CTMPs are prepared and written to adhere to conditions of approval and referenced to EIS.
A5	The Proponent must comply with all written requirements or directions of the Planning Secretary, including in relation to: (a) the environmental performance of the CSSI; (b) any document or correspondence in relation to the CSSI; (c) any notification given to the Planning Secretary under the terms of this approval; (d) any audit of the construction or operation of the CSSI; (e) the terms of this approval and compliance with the terms of this approval (including anything required to be done under this approval); (f) the carrying out of any additional monitoring or mitigation measures; and (g) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard, or policy required to be complied with under the conditions of this approval.	This document. (OCTMP) Relevant CTMPs	The OCTMP and all required CTMPs are prepared and written to adhere to conditions of approval and referenced to EIS.

MCoA No.	Condition Requirements	Document reference	How addressed
A6	Where the conditions of this approval require a document or monitoring program to be prepared, or a review to be undertaken, in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include: (a) documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval; (b) a log of the dates of engagement or attempted engagement with the identified party and a summary of the issues raised by them; (c) documentation of the follow-up with the identified party(s) where feedback has not been provided to confirm that the party(s) has none or has failed to provide feedback after repeated requests; (d) outline of the issues raised by the identified party(s) and how they have been addressed; and (e) a description of the outstanding issues raised by the identified party(s) and the reasons why they have not been addressed.	Section 4 Relevant CTMPs	Section 4 provides the required consultation methods that will be undertaken for this OCTMP and relevant CTMPs during planning stages and progressively during construction works: Liverpool City Council, Penrith City Council, Western Sydney Airport Authority, TfNSW, Customer Journey Planning, NSW Fire and Rescue, NSW Ambulance and NSW Police and other stakeholders as required.
Incident Notification and Reporting			
A41	The Planning Secretary must be notified via phone or in writing via the Major Projects website as soon as possible and no later than 12 hours after the Proponent becomes aware of an incident. Any notification via phone must be followed up by a notification in writing via the Major Projects website within 24 hours of the initial phone call. The written notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and general nature of the incident.	Section 6.10.2	Sydney Metro hold the primary responsibility for fulfilling the obligations detailed with respect to incident notification and reporting to DPIE. Quickway will assist and cooperate with Sydney Metro to fulfil these obligations.

MCoA No.	Condition Requirements	Document reference	How addressed
A44	The Planning Secretary must be notified in writing via the Major Projects website within seven (7) days after the Proponent becomes aware of any non-compliance with the terms of this approval.	Section 6.10.2	Sydney Metro hold the primary responsibility for fulfilling the obligations detailed with respect to incident notification and reporting to DPIE. Quickway will assist and cooperate with Sydney Metro to fulfil these obligations.
A45	A non-compliance notification must identify the CSSI (including the application number for it), set out the condition of approval that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Section 6.10.2	Sydney Metro hold the primary responsibility for fulfilling the obligations detailed with respect to incident notification and reporting to DPIE. Quickway will assist and provide information to Sydney Metro to fulfil these obligations.
Identification of Workforce			
A46	All Heavy Vehicles used for spoil haulage must be clearly marked on the sides and rear with the project name and application number to enable immediate identification by a person viewing the Heavy Vehicle standing 20 metres away.	Section 6.1.3	Section 6.1.3 details haulage routes and requirements including identification of vehicles.
Noise and Vibration			
E38	Work must only be undertaken during the following hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; (b) 8:00am to 1:00pm Saturdays; and (c) at no time on Sundays or public holidays.	Section 1.5.2 Working Hours	Section 1.5.2 describes the work hours permitted under the Ministers Conditions of Approval.

MCoA No.	Condition Requirements	Document reference	How addressed
E39	Except as permitted by an EPL or approved in accordance with the Out of Hours Works Protocol required by **Condition E42,** highly noise intensive work that result in an exceedance of the applicable NML at the same receiver must only be undertaken: (a) between the hours of 8:00 am to 6:00 pm Monday to Friday; (b) between the hours of 8:00 am to 1:00 pm Saturday; and (c) if continuously, then not exceeding three (3) hours, with a minimum cessation of work of not less than one (1) hour. For the purposes of this condition, 'continuously' includes any period during which there is less than one (1) hour between ceasing and recommencing any of the work.	Section 1.5.2 Working Hours	Section 1.5.2 describes the work hours permitted under the Ministers Conditions of Approval for highly noise intensive work.

E41	Notwithstanding Conditions **E38 and E39** work may be undertaken outside the hours specified in the following circumstances: (a) Safety and Emergencies, including: (i) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (ii) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (b) Low impact, including: (i) construction that causes LAeq(15 minute) noise levels: · no more than 5 dB(A) above the rating background level at any residence in accordance with the ICNG, and · no more than the 'Noise affected' NMLs specified in Table 3 of the ICNG at other sensitive land user(s); and (ii) construction that causes: · continuous or impulsive vibration values, measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), or · intermittent vibration values measured at the most affected residence are no more than the preferred values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006). (c) By Approval, including: (i) where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or (ii) works which are not subject to an EPL that are approved under an Out-of-Hours Work Protocol as required by Condition E42; or (iii) negotiated agreements with directly affected residents and sensitive land user(s); or (d) By Prescribed Activity, including: (i) tunnelling and ancillary support activities (excluding cut and cover tunnelling and surface works not directly supporting tunnelling) are permitted 24 hours a day, seven days a week; or (ii) grout batching at the Orchard Hill construction site is permitted 24 hours per day, seven days per week; or (iii) delivery of material that is required to be delivered outside of standard construction hours in Condition E38 to directly support tunnelling activities,	Section 1.5.2 Working Hours	Section 1.5.2 describes the work hours permitted under the Ministers Conditions of Approval.

MCoA No.	Condition Requirements	Document reference	How addressed
	except between the hours 10:00 pm and 7:00 am to / from the Orchard Hills ancillary facility; or (iv) haulage of spoil generated through tunnelling is permitted 24 hours per day, seven days per week except between the hours of 10:00 pm and 7:00 am to / from the Orchard Hills construction site; or (v) work within an acoustic enclosure are permitted 24 hours a day, seven days a week where there is no exceedance of noise levels or intermittent vibration levels under Low impact circumstances identified in Condition E41 (b), unless otherwise agreed with the Planning Secretary; or (vi) tunnel and underground station box fit out works are permitted 24 hours per day, seven days per week. On becoming aware of the need for emergency work in accordance with (a)(ii) above, the ER, the Planning Secretary and the EPA must be notified of the reasons for such work. The proponent must use best endeavours to notify as soon as practicable all noise and/or vibration affected sensitive land user(s) of the likely impact and duration of those works. Notes: 1. Tunnelling does not include station box excavation. 2. Tunnelling ancillary support activities includes logistics support and material handling and delivery		

MCoA No.	Condition Requirements	Document reference	How addressed
E42	An Out-of-Hours Work Protocol must be prepared to identify a process for the consideration, management and approval of work (not subject to an EPL) which are outside the hours defined in Conditions **E38 and E39**. The Protocol must be approved by the Planning Secretary before commencement of the out-of-hours work. The Protocol must be prepared in consultation with the ER. The Protocol must provide: (a) justification for why out-of-hours work need to occur; (b) identification of low and high-risk activities and an approval process that considers the risk of activities, proposed mitigation, management and coordination, including where: (i) the ER review all proposed out-of-hours activities and firm their risk levels; (ii) low risk activities can be approved by the ER; and (iii) high risk activities that are approved by the Planning Secretary; (c) a process for the consideration of out-of-hours work against the relevant NML and vibration criteria; (d) a process for selecting and implementing mitigation measures for residual impacts in consultation with the community at each affected location, including respite periods consistent with the requirements of Condition **E56**. The measures must take into account the predicted noise levels and the likely frequency and duration of the out-of-hours work that sensitive land user(s) would be exposed to, including the number of noise awakening events; (e) procedures to facilitate the coordination of out-of-hours work including those approved by an EPL or undertaken by a third party, to ensure appropriate respite is provided; and (f) notification arrangements for affected receivers for all approved out-of-hours works and notification to the Planning Secretary of approved low risk out-of-hours works. This condition does not apply of the requirements of Condition **E41** are met. Note: Out-of-hours work is any work that occurs outside the construction hours identified in Condition E38 and E39.	Section 1.5.2 Working Hours	Section 1.5.2 describes the work hours permitted under the Ministers Conditions of Approval.

MCoA No.	Condition Requirements	Document reference	How addressed
E56	All work undertaken for the delivery of the CSSI, including those undertaken by third parties (such as utility relocations), must be coordinated to ensure respite periods are provided. The Proponent must: (a) reschedule any work to provide respite to impacted noise sensitive land use(s) so that the respite is achieved in accordance with Condition E57; or (b) consider the provision of alternative respite or mitigation to impacted noise sensitive land use(s); and (c) provide documentary evidence to the **ER** in support of any decision made by the Proponent in relation to respite or mitigation. The consideration of respite must also include all other approved Critical SSI, SSI and SSD projects which may cause cumulative and / or consecutive impacts at receivers affected by the delivery of the CSSI.	Section 1.5.2 Working Hours	Section 1.5.2 describes the work hours permitted under the Ministers Conditions of Approval.
Traffic and Transport			
E103	Construction Traffic Management Plans (CTMPs) must be prepared in accordance with the Construction Traffic Management Framework. A copy of the CTMP's must be submitted to the Planning Secretary for information before the commencement of any construction in the area identified and managed in the relevant CTMP.	All CTMPs	All CTMPs will be developed in accordance with the CTMF. Prior to any construction approved CTMPs will be submitted for information.
E104	The locations of all Heavy Vehicles used for spoil haulage must be monitored in real time and the records of monitoring be made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one (1) year following the completion of construction.	Section 6.1.3	Section 6.1.3 outlines how spoil haulage heavy vehicle monitoring is conducted

MCoA No.	Condition Requirements	Document reference	How addressed
E105	Local roads proposed to be used by Heavy Vehicles to directly access ancillary facilities / construction sites that are not identified in the documents listed in Condition A1 must be approved by the Planning Secretary and be included in the CTMPs.	Relevant CTMPs Heavy Vehicle Local Roads (HVLR) document provided to Planning Secretary in separate submission.	Relevant operational CTMPs will include swept path analysis, reports and advice for the use of Heavy Vehicle routes on local roads identified. Separate submission of HVLR document to the Planning Secretary will be made for approval for the use construction heavy vehicles on local roads that are not identified in the documents listed in Condition A1. This will include requirements of MCoA E106.
E106	All requests to the Planning Secretary for approval to use local roads under Condition E105 above must include the following: (a) a swept path analysis; (b) demonstration that the use of local roads by Heavy Vehicles for the CSSI will not compromise the safety of pedestrians and cyclists of the safety of two-way traffic flow on two-way roadways; (c) details as to the date of completion of the road dilapidation surveys for the subject local roads; and (d) measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times; and (e) written advice from an appropriately qualified professional on the suitability of the proposed Heavy Vehicle route which takes into consideration items (a) to(d) of this condition.	Relevant CTMPs Heavy Vehicle Local Roads (HVLR) document provided to Planning Secretary in separate submission.	Relevant operational CTMPs will include swept path analysis, reports and advice for the use of Heavy Vehicle routes on local roads identified. Separate submission of HVLR document to the Planning Secretary will be made for approval for the use construction heavy vehicles on local roads that are not identified in the documents listed in Condition A1. This will include requirements of MCoA E106.

MCoA No.	Condition Requirements	Document reference	How addressed
E107	Before any local road is used by a Heavy Vehicle for the purposes of construction of the CSSI, a **Road Dilapidation Report** must be prepared for the road. A copy of the **Road Dilapidation Report** must be provided to the Relevant Road Authority(s) within three (3) weeks of completion of the survey and at no later than one (1) month before the road being used by Heavy Vehicles associated with the construction of the CSSI.	Section 6.9	Section 6.9 outlines the requirements for existing condition reports including timing and provision to the asset owner
E108	If damage to roads occurs as a result of the construction of the CSSI, the Proponent must either (at the Relevant Road Authority's discretion): (a) compensate the Relevant Road Authority for the damage so caused; or (b) rectify the damage to restore the road to at least the condition it was in pre-work as identified in the Road Dilapidation Report.	Section 6.9	Section 6.9 outlines the requirements for existing condition reports including timing and provision to the asset owner
E109	Vehicles associated with the project workforce (including light vehicles and Heavy Vehicles) must be managed to: (a) minimise parking on public roads; (b) minimise idling and queueing on state and regional roads; (c) not carry out marshalling of construction vehicles near sensitive user(s); (d) not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided; and (e) ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMP.	Section 6.1.3	Section 6.1.3 details how the project workforce vehicles will be managed.
E110	Access to all utilities and properties must be maintained during works, unless otherwise agreed with the relevant utility owner, landowner, or occupier.	Section 5.2 Parking and Property Access Section 6.5.2	This document. (OCTMP) and Relevant CTMPs are developed to address the MCoA with regards to Property Access.
E111	The Proponent must maintain access to properties during the entirety of works unless an alternative access is agreed in writing with the landowner(s) whose access is impacted by the CSSI works.	Section 5.2 Parking and Property Access Section 6.5.2	This document. (OCTMP) and Relevant CTMPs are developed to address the MCoA with regards to Property Access.

MCoA No.	Condition Requirements	Document reference	How addressed
E112	Where construction of the CSSI restricts a property's access to a public road, the Proponent must, until their primary access is reinstated, provide the property with temporary alternate access to an agreed road decided through consultation with the landowner, at no cost to the property landowner, unless otherwise agreed with the landowner.	Section 5.2 Parking and Property Access Section 6.5.2	This document. (OCTMP) and Relevant CTMPs are developed to address the MCoA with regards to Property Access.
E113	Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Property access must be reinstated within one (1) month of the work that physically affected the access is completed or in any other timeframe agreed with the landowner or occupier.	Section 5.2 Parking and Property Access Section 6.5.2	This document. (OCTMP) and Relevant CTMPs are developed to address the MCoA with regards to Property Access.
E114	During construction, all reasonably practicable measures must be implemented to maintain pedestrian, cyclist and vehicular access to, and parking in the vicinity of, businesses and affected properties. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be minimised, alternative pedestrian, cyclist and vehicular access, and parking arrangements must be developed in consultation with affected businesses and landowners and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.	Relevant CTMPs	Each relevant operational CTMP will detail measures to be implemented where avoidance of any disruptions to access is not possible.
E116	A Traffic and Transport Liaison Group(s) must be established in accordance with the Construction Traffic Management Framework to inform the development of CTMPs.	Section 4.1	Section 4.1 details the establishment and consultation with TTLG in developing CTMPs.
E117	Supplementary analysis and modelling as required by TfNSW and / or the Traffic and Transport Liaison Group(s) must be undertaken to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations including changes to and the management of pedestrian, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Revised traffic management measures must be incorporated into the CTMPs.	Relevant CTMPs	Amendments to traffic management measures within relevant CTMPs will be revised / completed as required by any analysis or modelling that is requested by TfNSW and/or TTLG

3.3 Revised Environmental Mitigation Measures (REMM)

Relevant REMM are listed in Table 3.2 below. This includes reference to required outcomes, the timing of when the commitment applies, relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 3.2 Revised Environmental Mitigation Measures relevant to this OCTMP and CTMP's

Ref #	Condition Classification	Commitment	Timing	CTMP reference	How addressed
T1	Transport – Construction	Construction Traffic Management Plans will be prepared in accordance with the Construction Traffic Management Framework.	Pre-construction & Construction	This document OCTMP and Relevant CTMP's	OCTMP and operational CTMP's developed pre-construction.
T3	Transport – Construction	Coordination with Western Sydney Airport and TfNSW will be undertaken through the Traffic and Transport Liaison Group (TTLG) to manage potential cumulative construction traffic impacts with M12 Motorway and Elizabeth Drive.	Pre-construction & Construction	This document OCTMP and Relevant CTMP's	Monthly TTLG meetings to be attended and project specific information presented to all attendees.
T4	Transport – Construction	Road Safety Audits would be carried out to address vehicular access and egress, and pedestrian, cyclist and public transport safety. Road Safety Audits would be carried out as per the guidelines outlined in Section 10 of the Construction Traffic Management Framework.	Pre-Construction	Section 6.11	Pre-construction desktop CTMP road safety audits conducted as per Section 6.11
T5	Transport – Construction	Access maintained for pedestrians and cyclists around construction sites as per the guidelines outlined in the CTMF. Appropriate signage shall be provided to guide pedestrians and cyclists past construction sites and on the surrounding network to allow access to be maintained	Construction	Section 6.5 Relevant operational CTMP's	Relevant CTMPs detail specific Pedestrian and Cyclists management requirements for each Portion of work.

Ref #	Condition Classification	Commitment	Timing	CTMP reference	How addressed
T6	Transport – Construction	Access for construction vehicles shall be planned as per the guidelines outlined in the CTMF. Construction site traffic shall be managed to minimise movements during peak periods. Vehicle access to and from construction sites shall be managed to maintain pedestrian, cyclist and motorist safety	Construction	Section 6.1.3 Construction traffic routes Section 6.5 for Pedestrian & Cyclist management Relevant operational CTMP's	Section 6.10 details communication and construction requirements for emergency access at all times. Section 6.5 for Pedestrian & Cyclist management Relevant operational CTMPs detail specific emergency access requirements for each section of work.

4. Consultation & Communication

The following sections summarises the consultation to be undertaken as part of developing this OCTMP and relevant CTMPs.

4.1 Consultation Requirements under the Construction Traffic Management Framework

The size of Sydney Metro projects requires effective and ongoing interaction between several different organisations, key stakeholders, and the general public. This section outlines the consultation groups that will be convened to manage these interactions. Requirements for consultation with local businesses and the community are outlined in 4.2 Communication. As the Project needs regular and ongoing discussions and distribution of information, the following groups will be convened to assist in traffic management planning, document review and stakeholder consultation:

a) Traffic and Transport Liaison Group(s) (TTLG).

b) Traffic Control Group(s) (TCG).

Other organisations may be asked to attend the TTLG and/or receive relevant information depending on the matters under discussion or consideration. These include but are not limited to the following:

- NSW Taxi Council
- NSW Taxi Drivers Association
- BusNSW
- Bicycle NSW
- Bicycle User Group(s)
- Pedestrian Council of Australia
- CJP Transport Integration (on behalf all relevant bus operators)
- Private bus operators (such as NightRide contractors)
- Property NSW
- Disability Council of NSW
- Transurban
- NRMA
- NSW Trains
- NSW Health Infrastructure
- Managing Contractors of other adjacent major infrastructure projects

A summary of consultation undertaken during the approval of this CTMP will be provided in Appendix D.

4.2 Communication Requirements under the Construction Traffic Management Framework & Sydney Metro Overarching Community Communication Strategy

All external communication with the community, including businesses, must follow the guidelines set out in the Sydney Metro Overarching Community Communication Strategy.

The community must be notified of any current and upcoming works, temporary works or contractor activities that have the potential to impact on stakeholders and the community before they happen.

An overview of the approach to stakeholder and community involvement during construction of the Project is provided in the Sydney Metro Executive Summary Appendix B – Stakeholder and community engagement. A key element of this strategy will relate to notifications to stakeholders, local Councils and the community that may be affected by changes to transport, access, and local traffic arrangements.

4.2.1 Existing impacted businesses and residents

All residents and businesses along the power supply routes have been advised of the availability of a dedicated Place Manager (Sydney Metro dedicated community relations specialist) for consultation and to respond to enquiries relating to the work. Advice and assistance are provided via the 24/7 community information line which is widely promoted on site signage, notifications, emails, and business cards available from workforce on site. Should Penrith City Council, Liverpool City Council or other stakeholders receive an inquiry or compliant regarding these works, they can direct these to the contact lines as shown below:

- 24/7 Sydney Metro Community Information Line 1800 717 703 or
- Email sydneymetrowsa@transport.nsw.gov.au

Residents and businesses will be notified about all upcoming work and anticipated impacts, including temporary changes to access and traffic conditions, via community notifications provided at least 7 days prior to the commencement of work. Notifications will include advice to direct stakeholders to follow all relevant signage installed to advise pedestrian, cyclist, and traffic changes, along with the directions of traffic controllers.

Pedestrian access to buildings will be maintained at all times, unless otherwise agreed with the landowner or occupier.

Direct community consultation via door knocking or phone calls will be made with any directly impacted properties if there are changes in property access as a result of construction.

Some driveway access may temporarily be interrupted by trenching and civil works. In this case, the property owner will be door knocked or called and consulted in the days prior, to coordinate access arrangements. Excavation crews will have the provision of steel road plates at each of the work areas should an open excavation be required to be temporarily steel road plated to permit vehicle access to driveways. Property access will be reinstated to previous conditions within one month of the work that physically affected the access is completed or in any other timeframe agreed with the landowner or occupier.

Excavation of roadways or footpaths will be temporarily restored progressively as the trench moves along the alignment. Pedestrian diversions will be established prior to footpath impacts. These diversions will be signposted at appropriate junctions prior to the location of the works.

Temporary restorations will be undertaken immediately following the completion of works in each location. These will be designed and constructed to ensure there are no hazards and be made safe for road users, cyclists, and pedestrians.

Permanent restorations will be completed in line with the relevant Council specifications, of impacted road carriageway and footpaths, once the conduit installation along the entire alignment, cable pulling and testing works are completed.

4.2.2 Notification of traffic changes or disruptive works

Activity specific communications strategies are required to be developed prior to any traffic event. These strategies should include details of the work, impacts and proposed mitigation measures. In addition to the strategy, activity-specific notifications will need to be developed and issued to directly impacted properties prior to works commencing. Notification of proposed changes should also be included on the Project website. Other communication methods that may be implemented could include, but are not limited to:

- Doorknocks
- Letterbox drops
- Advertising (newspapers)
- Social media updates
- Radio
- Website
- Variable Message Boards (VMS)

4.2.3 Responsibilities

Quickway will be responsible for ensuring a system is in place to advise the Sydney Metro Project Communications Team, the TTLG/TCG and other key stakeholders including CJP, Western Sydney Airport Authority, Penrith City Council, Liverpool City Council, and emergency services (if required) each time proposed changes are to be made to traffic arrangements.

Advice will include information about the changes to the traffic operation, anticipated delays to traffic, any changes to the times and duration of the work, and any other potential major disruptions. This advice should be provided at the earliest opportunity, in accordance with the Community Consultation Strategy and provide sufficient time for key agencies to provide comments or information, as necessary.

4.2.4 Roadside messaging

Appropriate signposting, whether static or Variable Message Signs (VMS), should be located and installed to provide for the easy and safe passage of vehicles, pedestrians, and cyclists. This also includes public transport users accessing facilities such as bus stops. The installation of signs will be detailed in the relevant CTMPs. Any signposting should be placed in accordance with relevant guidelines and standards. Messages should be clear and easily interpreted by drivers, pedestrians, and cyclists, and should not create a safety hazard. The proposed location of any VMS would follow the requirements specified in TCAWS 6.9.1 and AS 4852.2.

5. Construction Traffic Aspects and Impacts

The Portions (work locations) has been separated into two (2) working sections for the purposes of operational CTMP development as shown in Figure 5.1.

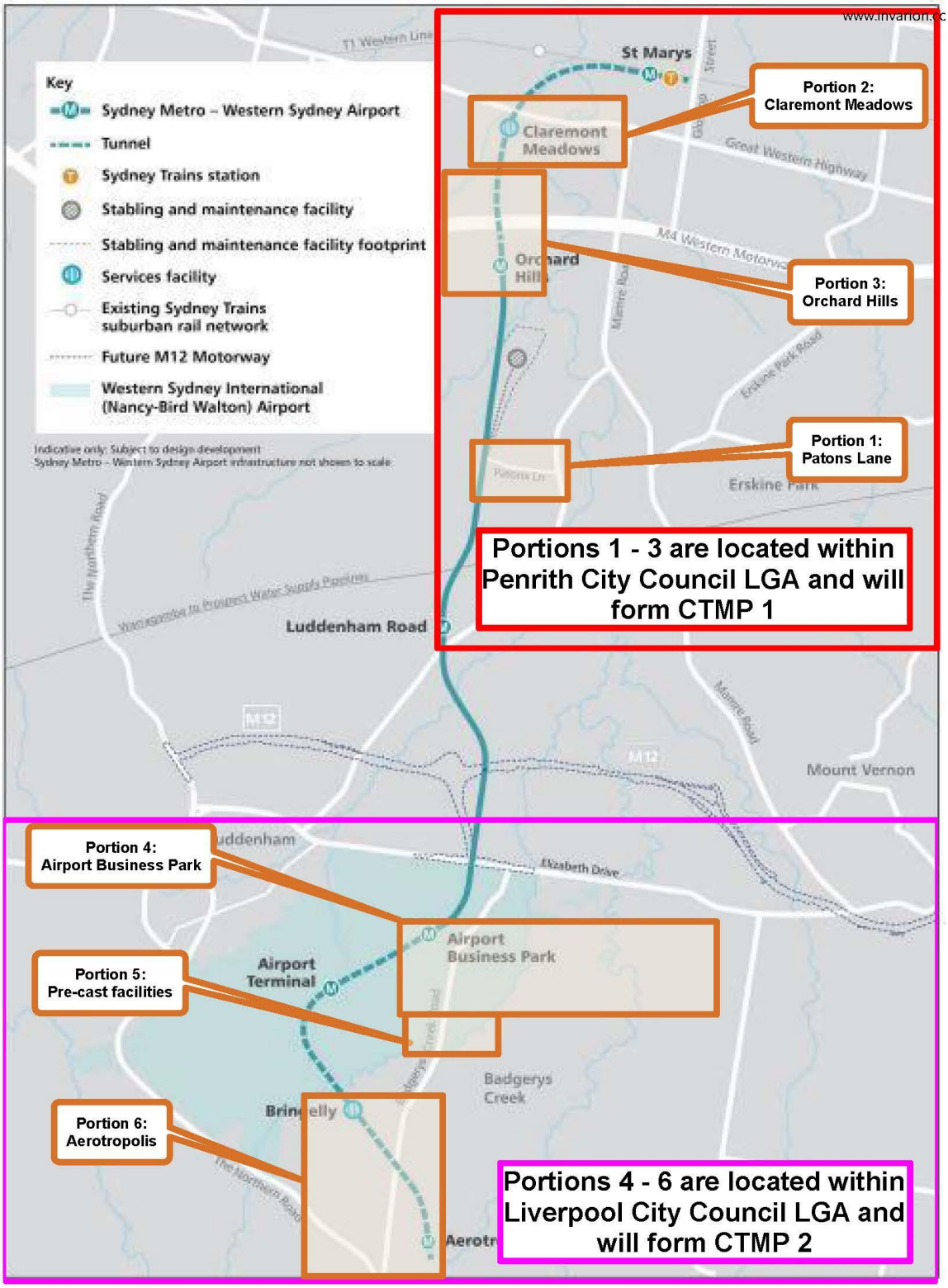


Figure 5.1 Operational CTMP breakdown

The project is characterised into components that are located outside Western Sydney Airport land (off-airport) and components that are located within Western Sydney Airport land (on-airport), to align with their different planning approval pathways required under State and Commonwealth Legislation.

The process for acquiring work permits On-Airport is as follows;

The contractor is to provide the following information to the Principal to facilitate work permits for the On-Airport land works:

i. A signed and dated statement setting out precautions to be taken for Works within the On-Airport land:

   A. Protect persons, while the works are being conducted, from injury arising from the works;

   B. Protect property from damage arising from the works; and

   C. A statement setting out the proposed arrangements for clean-up and rehabilitation of the site for the works.

ii. A site plan identifying the location of the proposed works that will be conducted within On-Airport land;

iii. Location plan for any site compounds to be installed On-Airport land identifying the size of the compound, site shed, fencing, services, any hardstand requirements etc. that are to be removed at the completion of the works;

iv. Details for proposed site shed, hoards and barriers to restrict access located within On-Airport land; and

v. For any services required for site amenities and site facilities withing On-Airport land:

   A. Service drawings and design certificates from appropriately qualified/accredited engineers, including relevant Australian Standards, drawing numbers and qualifications of the certifier;

   B. Design certification identifying compliance with the relevant standards; and

   C. Design statements from appropriately qualified/accredited persons stating that the works as shown on the drawings will comply with the relevant standings, listing the standards and the drawings the statement relates to.

A ROL application will be submitted to WSACo for all works occurring on On-Airport Roads.

The land boundaries for Western Sydney Airport are illustrated in Figure 5.2.

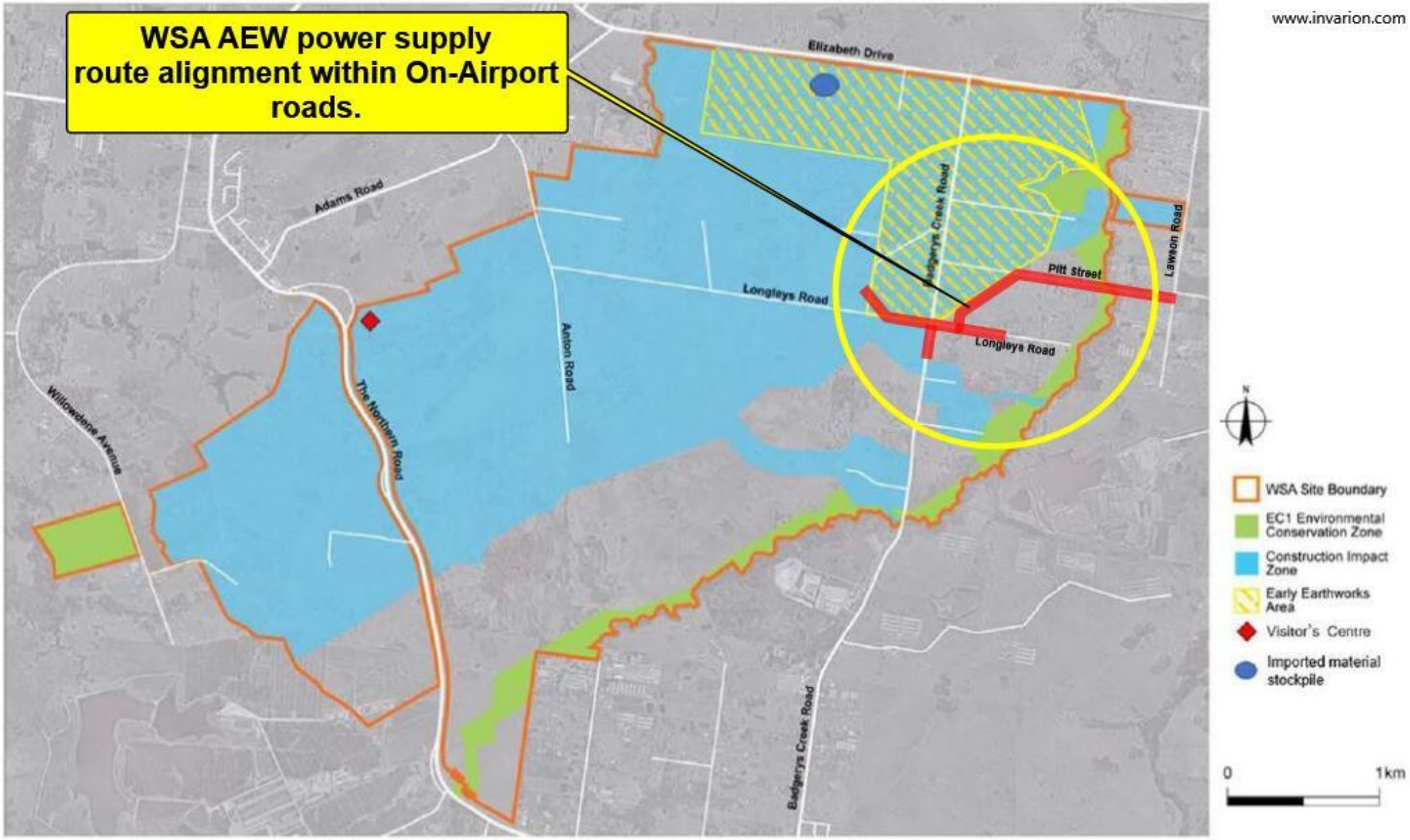


Figure 5.2 WSA Boundary Map

5.1 Transport and Traffic

The potential change in impacts on road network performance, as compared to that described in the Environmental Impact Statement, will be detailed in each respective CTMP.

The potential temporary transport and traffic impacts would be managed in accordance with the Construction Traffic Management Framework (Sydney Metro, 2020e), provided in Appendix F of the Environmental Impact Statement. The Construction Traffic Management Framework provides the overall strategy and approach for construction traffic management for Sydney Metro Western Sydney Airport, and an outline of the traffic management requirements and processes common to each of the proposed construction sites. It establishes the traffic management processes (including the use of directional signage and variable message signs), emergency services consultation requirements for access impacts and acceptable criteria to be considered and followed in managing roads and footpaths adjacent to construction sites.

Trench alignment is generally within the Endeavour Energy allocation of 0.3-0.9m off the property line, and depending on each design is generally in the road or footpath verge. When crossing roads, trenches will be perpendicular and under-bored in most cases. Trenching will be completed progressively, with production per shift variable and dependent on a number of factors including ground conditions, depth/width etc, but with an average of 30m/shift.

Trenches will be temporarily re-instated at the end of each shift or covered with road-plates. For any excavations on road carriageway, anti-slip steel road plates will be installed as per TfNSW M209 specification. Any street parking to be removed to enable works to progress will be removed immediately ahead of the works and returned immediately after the works. Quickway/Sydney Metro Community Team will issue construction notifications ahead of the works which will keep the community informed of any changes to parking/traffic control.

5.2 Parking and Property Access

Details of parking and property access will be detailed in each respective operational CTMP. Parking will be required to be removed, relocated and alternatives provided, where possible, in consultation with, Sydney Metro Western Airport Community Team, Customer Journey Planning (CJP), Penrith City Council, and Liverpool City Council.

The removal of parking may be required on various streets, with specifics detailed in each respective CTMP. Parking will be reinstated as work progresses through the various sections. Once works is completed in these sections parking will be reinstated to pre-construction restrictions.

Overall, the potential impact on parking and property access as a result of the proposed power supply work would be minor. The most impacted Portion of works in relation to parking will be Portion 3 – Orchards Hills Power and will be addressed in CTMP 1.

Impacted parking spaces will be detailed in each of the relevant CTMPs.

5.3 Public Transport

During construction some Bus Stops may be impacted. Any proposed changes will be discussed with the operators prior to the commencement of works and notifications will be provided to passengers. A minimum lead time of approximately 28 days is typically required for any permanent changes and a minimum lead time of approximately 14 days for any temporary changes.

Where bus stops are required to be temporarily closed or relocated, such closures will not occur until bus stops of equivalent capacity, of comparable stop type and which meet accessibility standards (where practicable), are relocated within 400 metres walking distance of the existing bus stop and are operating, unless agreed otherwise with bus services provider(s).

Any closure and relocation of bus stops will be illustrated on the Traffic Guidance Schemes included outlined in the relevant CTMPs provided to CJP, CJP Integration (who communicate with relevant bus service provides) and local Penrith City Council and Liverpool City Council.

Any change to existing bus stop locations requires action through CJP and not in direct consultation with the bus operator. Quickway will follow the CJP Bus disruption process and CTMF requirements for all short term and/or long term impacts to existing bus stops. Consultation with CJP Transport Integration will be made progressively during the project for impacts to public transport (buses), via the TCG, TTLG and specific consultation where required.

Traffic Controllers will be on site to assist and direct patrons to temporary locations. All temporary locations will meet DDA standards. Temporary wayfinding signage will be provided to direct commuters to relocated bus stops.

The impact on the public transport network is expected to minimal on all six Portions of work. Works that may result in potential impacts to public transport are discussed below and itemised in line with the six Portions of work.

5.3.1 CTMP1 – Portion 1 – Patons Lane (PCC LGA)

There are no impacts to the public transport network.

5.3.2 CTMP1 – Portion 2 – Claremont Meadows (PCC LGA)

Table 5.1 illustrates the existing Bus Stop locations and potential impacts during the Claremont Meadows Portion of works.

Table 5.1 Potential bus impacts for Portion 2 – Claremont Meadows - works

Bus Stop ID No:	Location	Direction	Services	Impacted by the project?
274716	Great Western Hwy after Water St	Eastbound	775 – operated by Busways 776 – operated by Busways	Brief up to 5-minute delays due to traffic stoppages at night for aerial cable works across GWH.
274719	Great Western Hwy opp Water St	Westbound	775 – operated by Busways 776 – operated by Busways	Brief up to 5-minute delays due to traffic stoppages at night for aerial cable works across GWH.
274717	Great Western Hwy after Werrington St	Eastbound	770 – operated by Busways 774 – operated by Busways 775 – operated by Busways 776 – operated by Busways 781 – operated by Busways	Brief up to 5-minute delays due to traffic stoppages at night for aerial

			N70 – operated by Hillsbus	cable works across GWH.
274754	Gipps St after Sunflower Dr	Northbound	770 – operated by Busways 774 – operated by Busways 781 – operated by Busways	No impact. Bus stop will remain open during works.
2747395	Sunflower Dr before Gipps Street	Eastbound	770 – operated by Busways 774 – operated by Busways	Temporary re-location 50m west of existing location. Details provided in relevant CTMP.

5.3.3 CTMP1 – Portion 3 – Orchard Hills (PCC LGA)

Table 5.2 illustrates the existing Bus Stop locations and potential impacts during the Orchard Hills Portion of works.

Table 5.2 Potential bus impacts for Portion 3 – Orchard Hills - works

Bus Stop ID No:	Location	Direction	Services	Impacted by the project?
274767	Sunflower Dr at Nullaga Way	Southbound	770 – operated by Busways	Possible short-term relocation required. Details provided in relevant CTMP.
2747118	Sunflower Dr at O'Connell St	Northbound	770 – operated by Busways	Possible short-term relocation required. Details provided in relevant CTMP.
274759	Gipps St after Fowler St	Southbound	774 – operated by Busways 781 – operated by Busways	No impact. Bus stop will remain open during works.
2747365	Gipps St after Caddens Rd	Northbound	774 – operated by Busways 781 – operated by Busways	No impact. Bus stop will remain open during works.
2747415	Caddens Rd opp Blackwood St	Eastbound	774 – operated by Busways	Possible detour off existing route for night closure of Caddens Road Details provided in relevant CTMP.
2747283	Caddens Rd at Galea St	Westbound	774 – operated by Busways	Possible detour off existing route for night closure of Caddens Road. Details provided in relevant CTMP.

5.3.4 CTMP2 – Portion 4 – Airport Business Park (LCC LGA)

Table 5.3 illustrates the existing Bus Stop locations and potential impacts during the Airport Business Park Portion of works.

Table 5.3 Potential bus impacts for Portion 4 – Airport Business Park - works

Bus Stop ID No:	Location	Direction	Services	Impacted by the project?
217162	Devonshire Rd at Cross St	Southbound	801 – operated by Transit Systems (Note selected services on Cross St & Western Road)	Possible brief delays due to works. Details provided in relevant CTMP.
217191	Devonshire Rd before Cross St	Northbound	801 – operated by Transit Systems (Note selected services on Cross St & Western Road)	Possible brief delays due to works. Details provided in relevant CTMP.

5.3.5 CTMP2 – Portion 5 – Precast Facilities Power (LCC LGA)

There are no impacts to Bus Stops. Transit Systems 801 Service operates along Badgerys Creek Road. There is a possibility of brief delays due to shuttle flow implementation. Details will be provided in the relevant CTMP.

5.3.6 CTMP2 – Portion 6 – Aerotropolis (LCC LGA)

Table 5.4 illustrates the existing Bus Stop locations and potential impacts during the Aerotropolis Portion of works.

Table 5.4 Potential bus impacts for Portion 6 – Aerotropolis - works

Bus Stop ID No:	Location	Direction	Services	Impacted by the project?
2171178	Wentworth Road Bringelly Public School, The Northern Road	Northbound	852 – operated by Interline Bus 856 – operated by Interline Bus	No impacts. Bus stop will remain open during works.
255613	Wentworth Rd Bus Bay	Southbound	852 – operated by Interline Bus 856 – operated by Interline Bus	Possible temporary relocation as work occurs adjacent to the bus stop. Details provided in relevant CTMP.

5.3.7 Overview of affected bus routes

Overall bus routes through the six (6) portions of works and surrounding area are shown in Figure 5.3, Figure 5.4, Figure 5.5, Figure 5.6 and Figure 5.7 below:

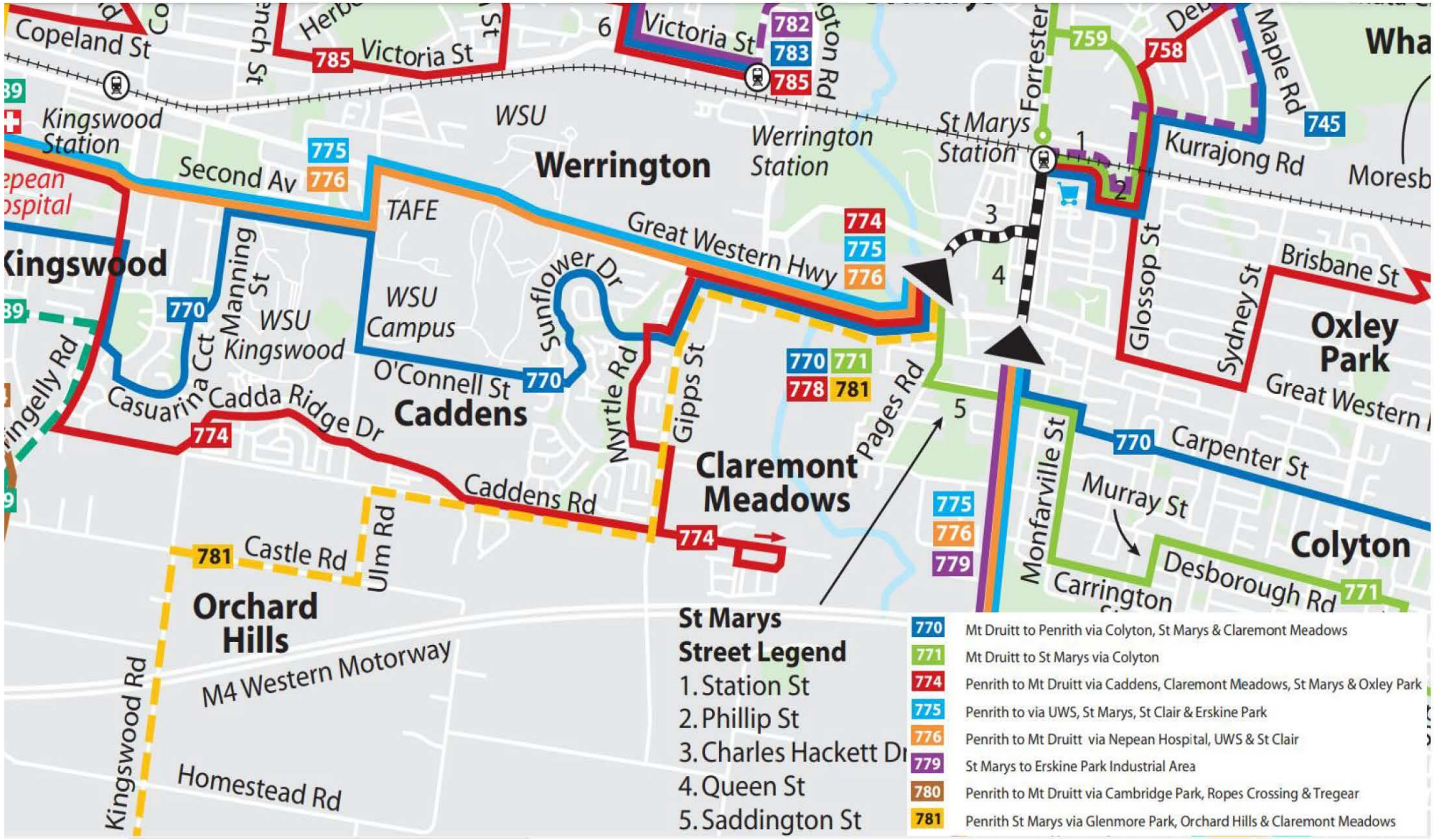


Figure 5.3 Busway's route map

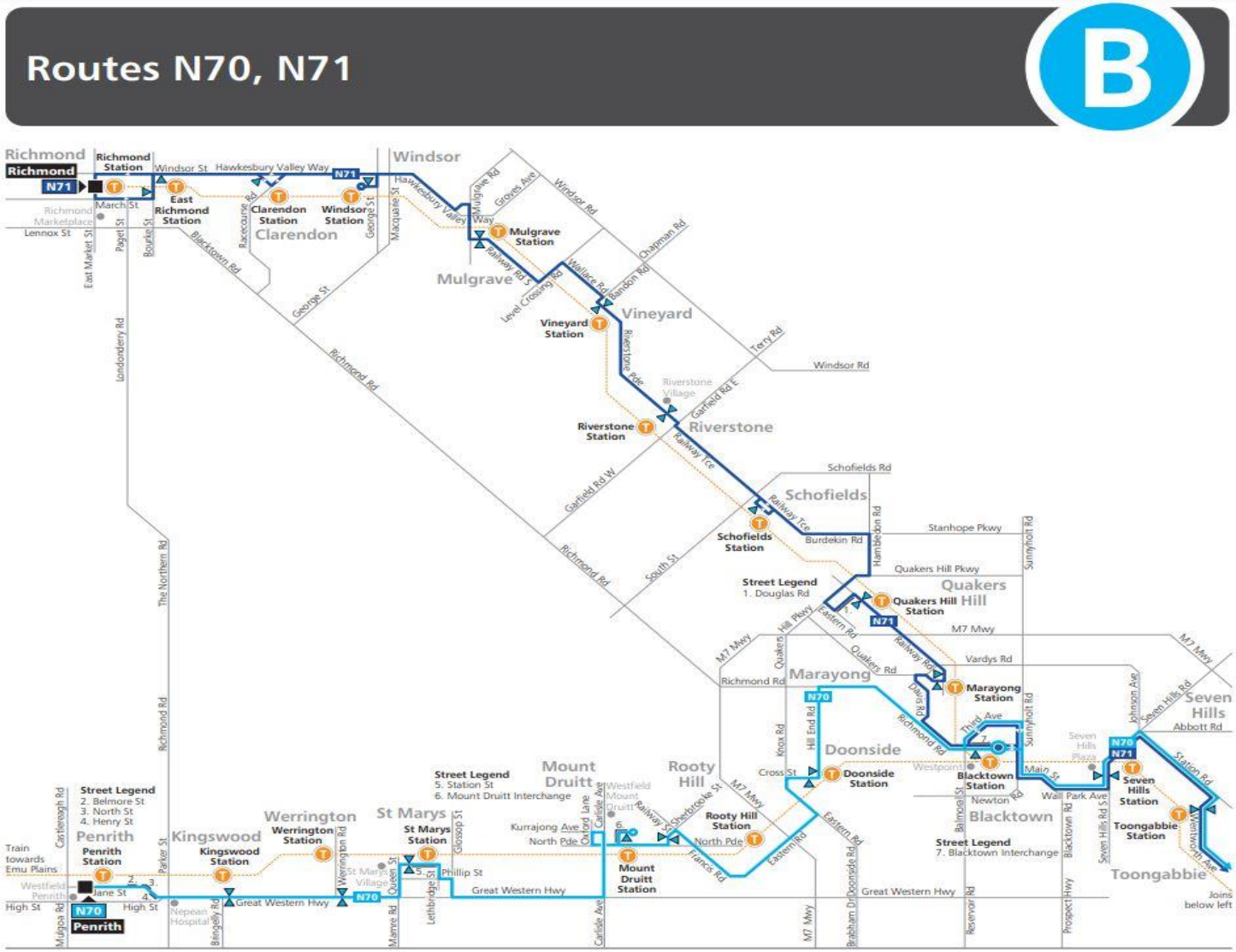


Figure 5.4 Hillsbus N70 route map

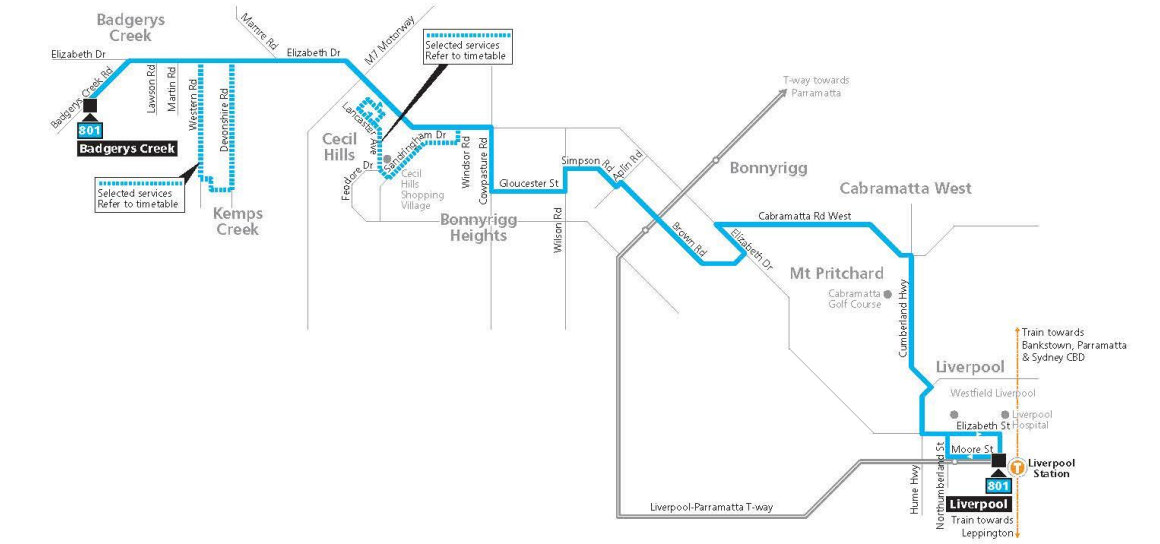


Figure 5.5 Transit Systems 801 route map

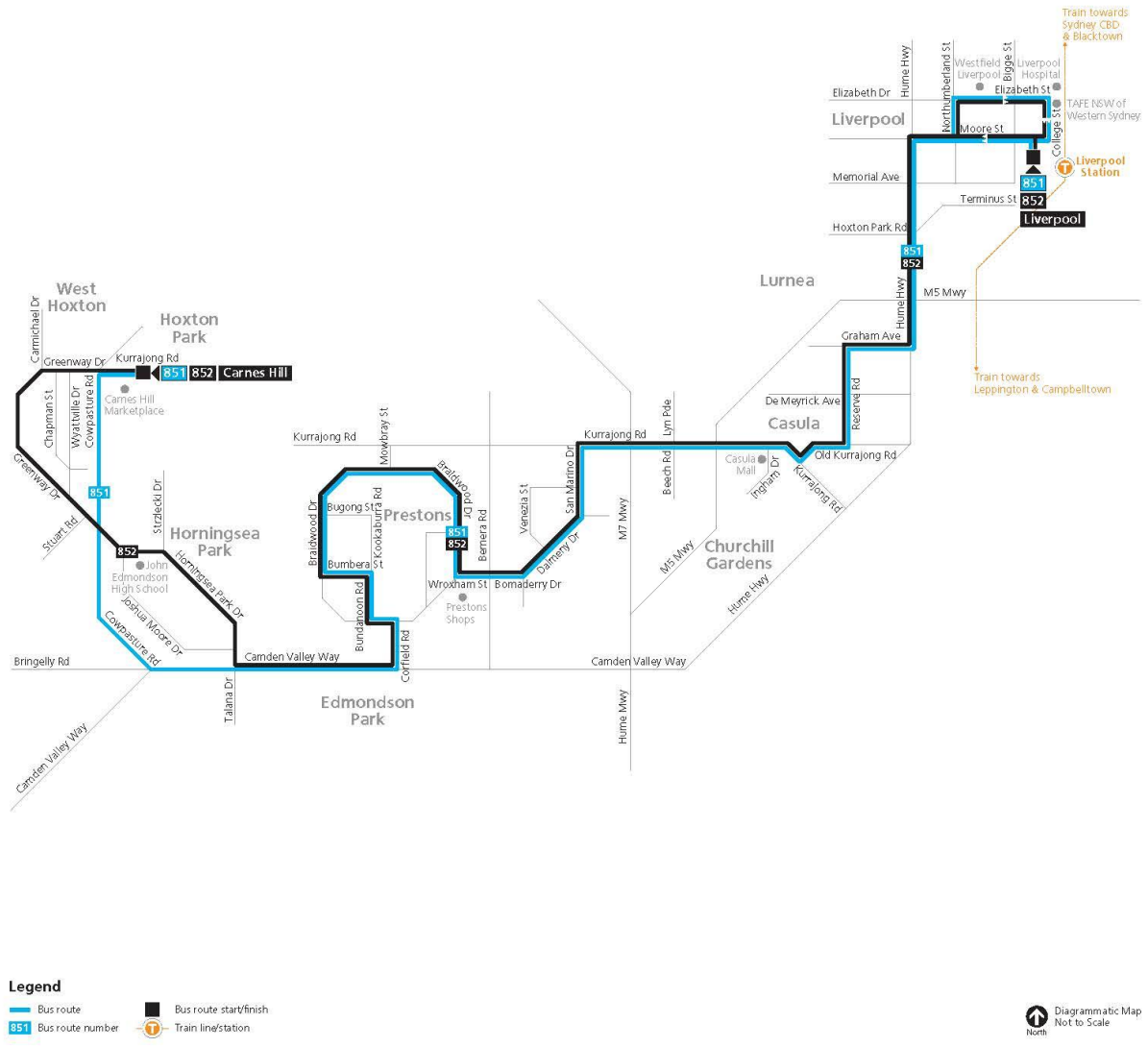


Figure 5.6 Interline Bus 852 route map

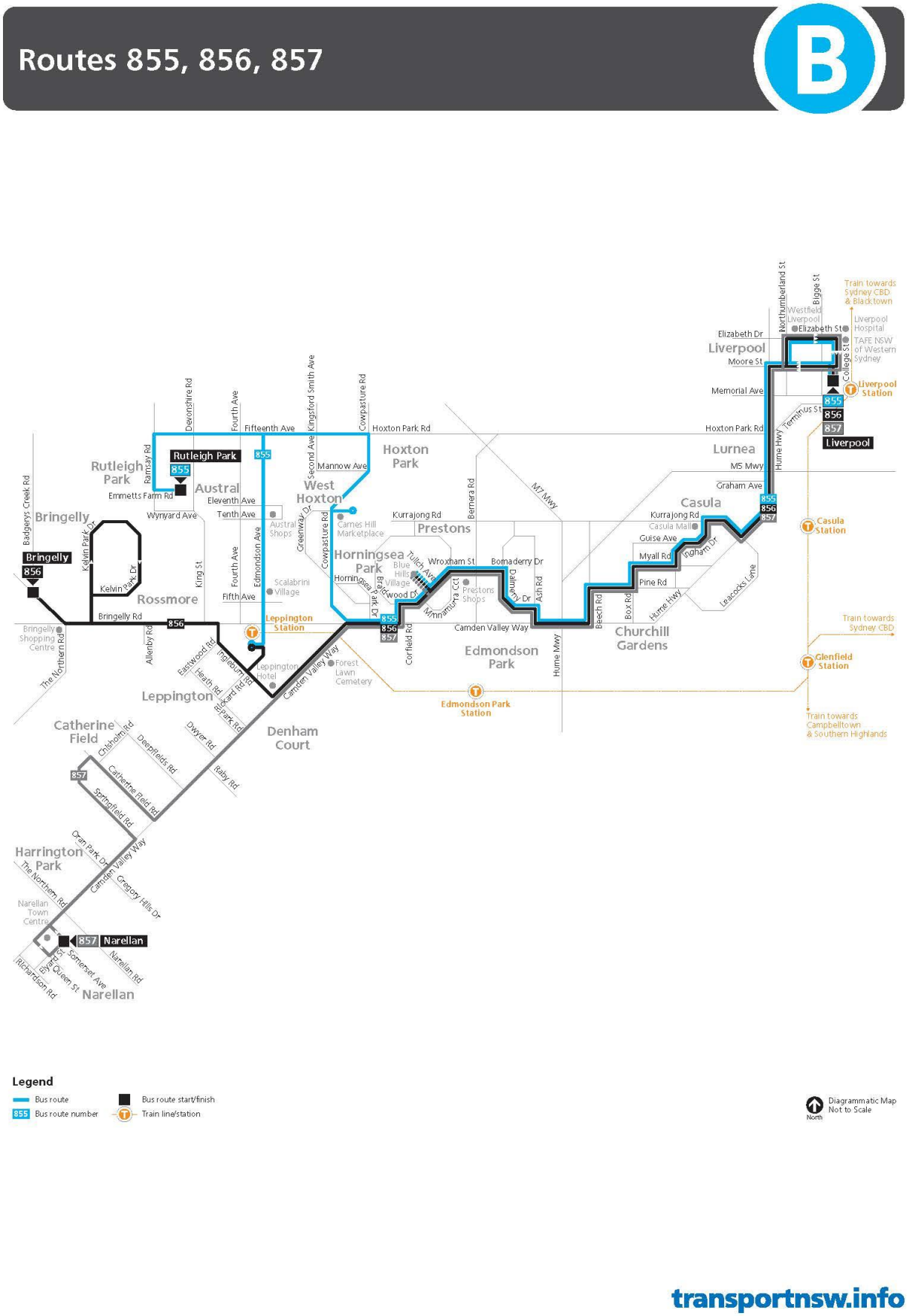


Figure 5.7 Interline Bus 856 route map

6. Construction Traffic Management

6.1 Construction stage traffic management

The following provides and overview of how the works are proposed to be staged across the six (6) Portions of work. Each Portion is divided into separate stages, mostly being the street/road where construction is occurring.

Main Construction works is planned to start late-January 2022 pending all approvals. Main Construction works are due for completion in September 2022, weather and site conditions pending.

To enable the new power supply, new electrical cables are required to be installed from existing sources at substations & overheads connections. Cable will be installed in conduits installed in new trenches, in existing conduits, or in pipes in bores or drills where required (for example, where trenching is not possible due to potential traffic or environmental impacts).

Trench alignment is generally within the Endeavour Energy allocation of 0.3-0.9m off the property line and depending on each design is generally in the road or footpath verge. When crossing roads, trenches will be perpendicular and under-bored in most cases.

A minimum trench depth of 1000mm is required, however this can be shallower or deeper depending on existing services throughout the alignment. Approximate widths will vary from around 450mm-2000mm depending on specific areas. Cable jointing bays will be required along the project route, generally at 500m intervals.

As per above, where trenching is not possible, new conduits will be installed via horizontal directional drilling (e.g. under Badgerys Creek, South Creek & the M4), or via case boring or bed boring.

In terms of onsite traffic management, the construction activities will occur across six (6) Portions.

Table 6.1 Construction and Traffic staging breakdown

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
Portion 1 (PCC LGA)	P1, S1	Patons Lane	• Shuttle flow • Bingo Industries access to be maintained at all times.	CTMP1
Portion 2 (PCC LGA)	P2, S1	Great Western Highway	• Lane merge with intermittent traffic stoppages for aerial cable works. • Works to be completed during night shift for lane closures & aerial works. • Footpath to remain open (temporarily close for short-term works during shift as required). • Emergency services access maintained. • Long term partial closure of footpath on the southern side of GWH between Reserve Road and Gipps Street. 1.2m maintained at all times.	CTMP1
Portion 2 (PCC LGA)	P2, S2	Gipps Street	• Kerb lane closures NB & SB between GWH & Sunflower Drive • Emergency services access maintained. • Footpath to remain open (temporarily close for short-term works during shift as required). • Access to bus stop to be maintained.	CTMP1
Portion 2 (PCC LGA)	P2, S3	Sunflower Drive	• Contra flow on Sunflower Drive at the Gipps Street intersection. Traffic flow and traffic signal operation maintained at the intersection. • Emergency services access maintained • Footpath to remain open (temporarily close for short-term works during shift as required). • Short term temporary relocation of Bus Stop ID: 2747395 approximately 50m west of its existing location.	CTMP1
Portion 3 (PCC LGA)	P3, S1	Sunflower Drive	• Shuttle flow and shoulder closures. • Emergency services access maintained • Footpath to remain open (temporarily close for short-term works during shift as required). • Claremont Meadows Public School – works in the vicinity of the school to be scheduled outside of school peaks or during school holidays.	CTMP1

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
			• Short term temporary relocation of Bus Stop ID: 274767 and 2747118 to facilitate an open road crossing at the Claremont Meadows Zone Substation.	
Portion 3 (PCC LGA)	P3, S2	Gipps Street	• Kerb lane closures NB & SB between Kent Road & Sunflower Drive. • Emergency services access maintained. • Footpath to remain open (temporarily close for short-term works during shift as required). • Access to bus stops to be maintained.	CTMP1
Portion 3 (PCC LGA)	P3, S3	Caddens Road	• Short term full road closure between Gipps Street and Blackwood Street. • Local detour to be implemented. • Works to be completed at night. • Intersection and traffic loop impacts. • Footpath to remain open (temporarily close for short-term works during shift as required).	CTMP1
Portion 3 (PCC LGA)	P3, S4	Kent Road (north of M4)	• Kerb lane closures NB & SB between Gipps St & M4 On-Ramp. • Emergency services access maintained. • Short-term impacts to M4 on and off ramps. • Footpath to remain open. Temporarily close for short-term works during shift as required). Long-term footpath width reduction may be required, however 1.2m width will always be maintained.	CTMP1
Portion 3 (PCC LGA)	P3, S5	M4 Western Motorway	• Lane capacity on M4 reduced from three (3) trafficable lanes to one (1) trafficable lane both east and westbound for M4 underbore. • Emergency services access maintained. • Works to be completed at night. • Potential conflicts with M4 maintenance schedule.	CTMP1
Portion 3 (PCC LGA)	P3, S5	Kent Road (south of M4)	• Kent Road (south of M4) shuttle flow. • Emergency services access maintained. • Impacts to M4 on and off ramps.	CTMP1

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
			• Footpath to remain open. Temporarily close for short-term works during shift as required). Long-term footpath width reduction may be required, however 1.2m width will always be maintained.	
Portion 4 (LCC LGA)	P4, S1	Cross Street	• Shuttle flow. • Kemps Creek Public School – works in the vicinity of the school to be scheduled outside of school peaks or during school holidays. • Increased pedestrian volumes during school peaks. • Footpath to remain open (temporarily close for short-term works during shift as required). • Emergency services access maintained. • School Bus Services – Transit Systems. • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S2	Western Road	• Shuttle flow. • No sealed footpaths. Pedestrians escorted around work area. • Emergency services access maintained • School Bus Services – Transit Systems • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S3	Martin Road	• Shuttle flow. • No sealed footpaths. Pedestrians escorted around work area. • Emergency services access maintained • Increased Heavy Vehicle movements to/from ANL Horticultural Production Facility. • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S4	Cuthel Road	• Short term full road closures. • Property access maintained • No sealed footpaths. Pedestrians escorted around work area. • Emergency services access maintained • Road shoulder / nature strip plant & equipment storage	CTMP2

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
Portion 4 (LCC LGA)	P4, S5	Lawson Road	• Shuttle flow. • Emergency services access maintained. • No sealed footpaths. Pedestrians escorted around work area. • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S6	Pitt Street	• Short term full road closure. • Not a public throughfare from west of Badgerys Creek for vehicles or pedestrians. • Emergency services access maintained. • Interface with WSA Co. • Shared WSA contractor access. • Property access maintained. • No sealed footpaths. Pedestrians escorted around work area. • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S7	Longleys Road	• Not a public thoroughfare for vehicles or pedestrians. • Shared WSA contractor access. • Interface with WSA Co. • Road shoulder / nature strip plant & equipment storage	CTMP2
Portion 4 (LCC LGA)	P4, S8	Badgerys Creek Road	• Shoulder closures with Intermittent traffic stoppages. • Shuttle flow outside of peak periods. • Day and night shift. • No sealed footpath. Pedestrians escorted around the work area. • High volumes of heavy vehicles. • High traffic speeds. • Temporary lighting requirements for nightshift.	CTMP2
Portion 5 (LCC LGA)	P5, S1	Longleys Road	• Not a public thoroughfare for vehicles or pedestrians. • Shared WSA contractor access. • Interface with WSA Co.	CTMP2

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
Portion 5 (LCC LGA)	P5, S2	Badgerys Creek Road	• Shuttle flow outside of peak periods. • Day and night shift. • No sealed footpath. Pedestrians escorted around the work area. • High volumes of heavy vehicles. • High traffic speeds. • Temporary lighting requirements for nightshift.	CTMP2
Portion 6 (LCC LGA)	P6, S1	Badgerys Creek Road	• Shuttle flow outside of peak periods. • SB lane closure on approach to The Northern Road intersection. • Day and night shift. • No sealed footpath. Pedestrians escorted around the work area. • High volumes of heavy vehicles. • High traffic speeds. • Signalised intersection impacts on approach to The Northern Road. • Temporary lighting requirements for nightshift.	CTMP2
Portion 6 (LCC LGA)	P6, S2	The Northern Road	• Kerb lane / shoulder closures NB & SB between Badgerys Creek Road & Bringelly Road outside of peak periods. • Day and nightshift. • Shared pedestrian and cycle path. • High traffic speeds. • Footpath to remain open (temporarily close for short-term works during shift as required). Pedestrian detours would be substantial.	CTMP2
Portion 6 (LCC LGA)	P6, S3	Wentworth Road	• Shoulder/Verge closures. • Shuttle flow outside of peak school periods. • High pedestrian volumes during school peaks. • Coordination with Bringelly Public School. • Interline Bus route operating along Wentworth Road. • Signalised intersection impacts on approach to Greendale Road.	CTMP2

Portion	Stage ID	Street/Road	TTM & Constraints	CTMP No.
Portion 6 (LCC LGA)	P6, S4	Greendale Road	• Shuttle flow outside of peak school periods. • Shoulder closures. • Day and nightshift. • Possible conflict with events at Bringelly Community Centre. • Sealed footpath on the northern side of Greendale Road only. Footpath to remain open (temporarily close for short-term works during shift as required).	CTMP2

6.1.1 Construction site traffic management

All required site specific TGS will be included in the relevant site specific CTMP for each section.

Traffic management for the Western Sydney Airport Power Enabling Works will be divided into two (2) main categories as shown in Table 6.2.

Table 6.2 Traffic management categories

Traffic Management Category	Description of Setup Types
Static	Static work is classified as work that is completed at a fixed site for a period of time with TTM. Static work sites may involve complex traffic arrangements and are often established so that a site can be left unattended during or between work shifts. The use of a static work site must be a risk-based decision, where the risk of setting up static controls is considered against the protection provided by those controls. The following are examples of static work: • Short-term – work requiring traffic control, but where roadway conditions are returned to normal at the end of each shift. • Long-term – work requiring traffic control, but where some form of traffic control will remain in place both day and night and left unattended.
Dynamic	Dynamic work is classified as work that is short term in duration and moves along a length of roadway. Dynamic work is classified into three sub-categories: • Frequently changing work – regularly moves between successive locations, either in or outside of traffic lane where minimal warning is required to advise road users of the presence of workers; • Continuous work (previously known as mobile work) – progressively moving in vehicles along the roadway; or • Intermittent work – work, which is undertake on travel lanes, in gaps in traffic, and requires no adjustment that affects road users on the roadway.
Short-term work	Short-term work applies to traffic management when work does not exceed the duration of a single shift and the work site is continuously attended. With all short-term work, roadway conditions must be returned to normal, without traffic control or after-care provisions, when work has been completed. Indicative examples of proposed short term static work shown in Figure 6.1 and Figure 6.2
Long-term work	Long-term work applies when work is performed over a duration greater than one shift and traffic management is used between shifts. For long-term work, a traffic guidance scheme might need to operate both day and night with the work site left unattended. Long-term work must be arranged and undertaken in accordance with the relevant requirements of static work.
Predominantly works on this project will be classified as short-term static work	

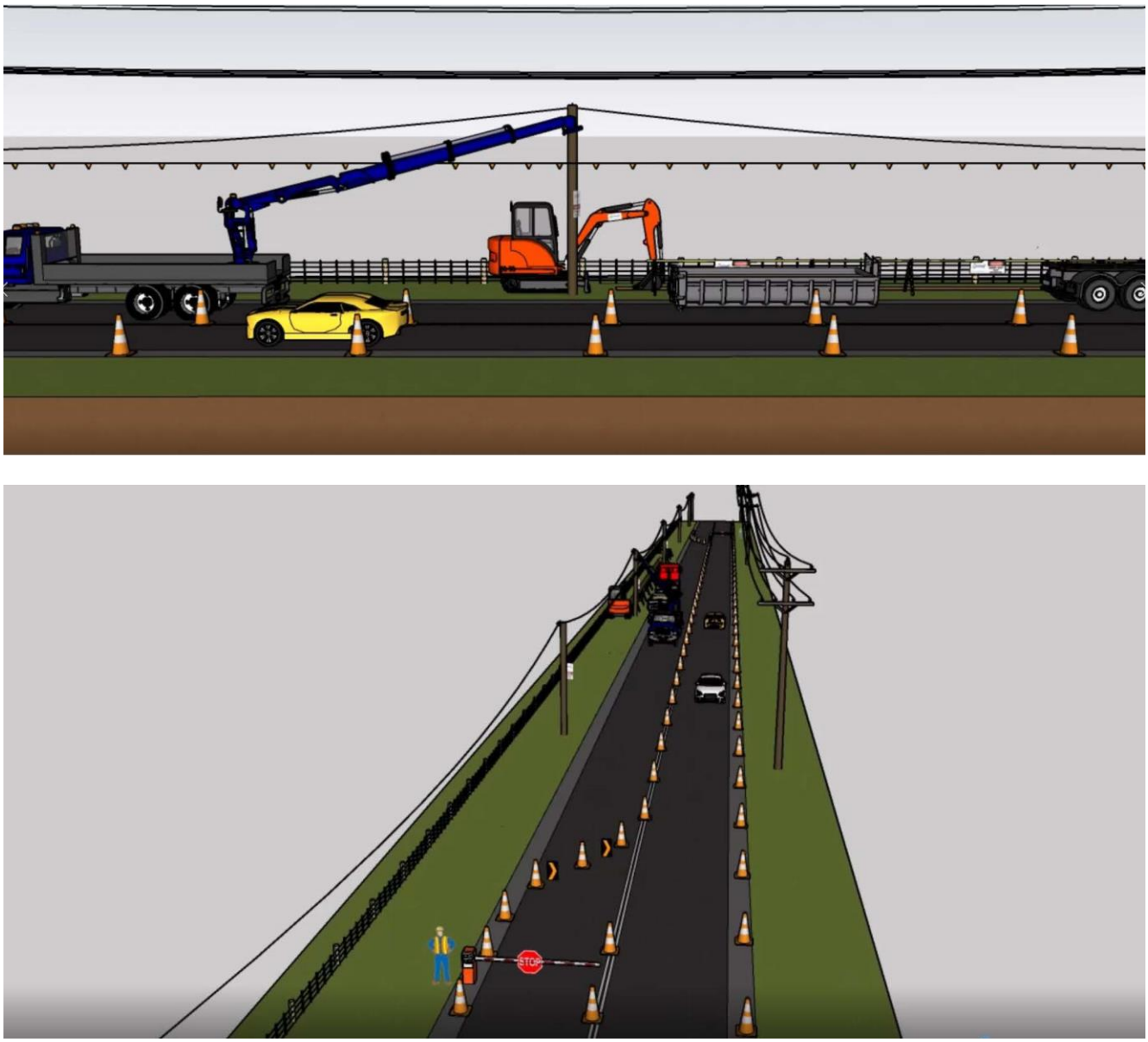


Figure 6.1 Examples of short-term static TTM set ups

Figure 6.2 Example shuttle flow using portable boom barriers – short term site

6.1.2 Site compound traffic management

Any construction vehicles required to move around the construction site on a regular basis and throughout the works and will not be permitted to queue or park within the surrounding streets or work area unless permitted. The arrival of trucks will be staggered to prevent the possibility of queuing of trucks at any time.

Dedicated construction vehicle routes have been developed with the objective of providing the shortest and safest distance to/from the work site in compliance with EIS requirements. Truck movements to and from site shall be restricted to these designated routes and movements to ensure minimal impact on local streets within the vicinity of the site. These truck routes will need to be reviewed if there are any changes to traffic conditions. Access points and procedures shall be identified and clearly communicated to all drivers and suppliers prior to arriving to site. Information on the approved access routes and locations for all construction vehicles shall be provided through onsite toolbox talks, pre-start meetings and project inductions prior to work commencing.

If vehicles are required to reverse into work areas or against normal traffic movements then and approved ROL or Council Permit is required along with an approved TGS.

It is also noted that no Construction vehicles should obstruct any pedestrian crossings or footpaths, and no construction vehicles should layover/obstruct trafficable lanes without an approved ROL or Council Permit.

In addition, no traffic controllers should stop general traffic to allow construction vehicles to enter or exit, without any approved ROL's or Council Permits. All work areas that are established where vehicles are required to enter site should have the following signage as shown below in Figure 6.3. Traffic controller(s) shall control the construction vehicle(s) exiting the site.

Standard Project **Entry**
Gate Signage

Figure 6.3 Proposed site compound signage

6.1.3 Construction traffic routes

Construction vehicles likely to be generated by the daily construction activities include:

- Small rigid vehicles, vans, utes to deliver small materials.
- Medium rigid vehicles for the exportation of materials from site
- Heavy rigid vehicles for transportation of larger materials to site.

Construction vehicles to be used across the WSA AEW project are included below in Table 6.3 with vehicle description shown in Figure 6.4.

The estimated construction vehicle volumes are generally consistent with those forecast in the approved EIS. All heavy vehicles used must be clearly marked on the sides and rear with the project name and application number to enable immediate identification by a person viewing the Heavy Vehicle standing 20 metres away. All heavy vehicles for spoil haulage will be fitted with telematic devices that provide real time location and monitoring data, with electronica records available upon request for a period of no less than one (1) year following the completion of construction.

Table 6.3 Estimated construction vehicles and movements from work areas

Area	Construction	Vehicle type	Estimated movements per day		
			In	Out	Total
All	Trenching Works (per crew)	2 axle rigid trucks	2	2	4
		3 axle rigid trucks	7	7	14
		4 axle rigid trucks	3	3	6
Site compound only	Supply of materials (site compound)	4 axle rigid trucks	6	6	12
		6 axle rigid trucks	8	8	16
		7 axle rigid trucks	4	4	8
		Truck and semi-trailer	1	1	2
Special Routes Identified in each relevant CTMPs	Floating of excavators (once for mobilisation & demobilisation only, not daily)	Truck and 3x4 low loader (14ton excavators)	1	1	2
		Truck and 3x4 low loader (23ton excavators)	1	1	2

Note: Each relevant CTMP will address the specific haulage truck sizes, haulage routes and swept paths for heavy vehicle turns on local roads that are used throughout that area.

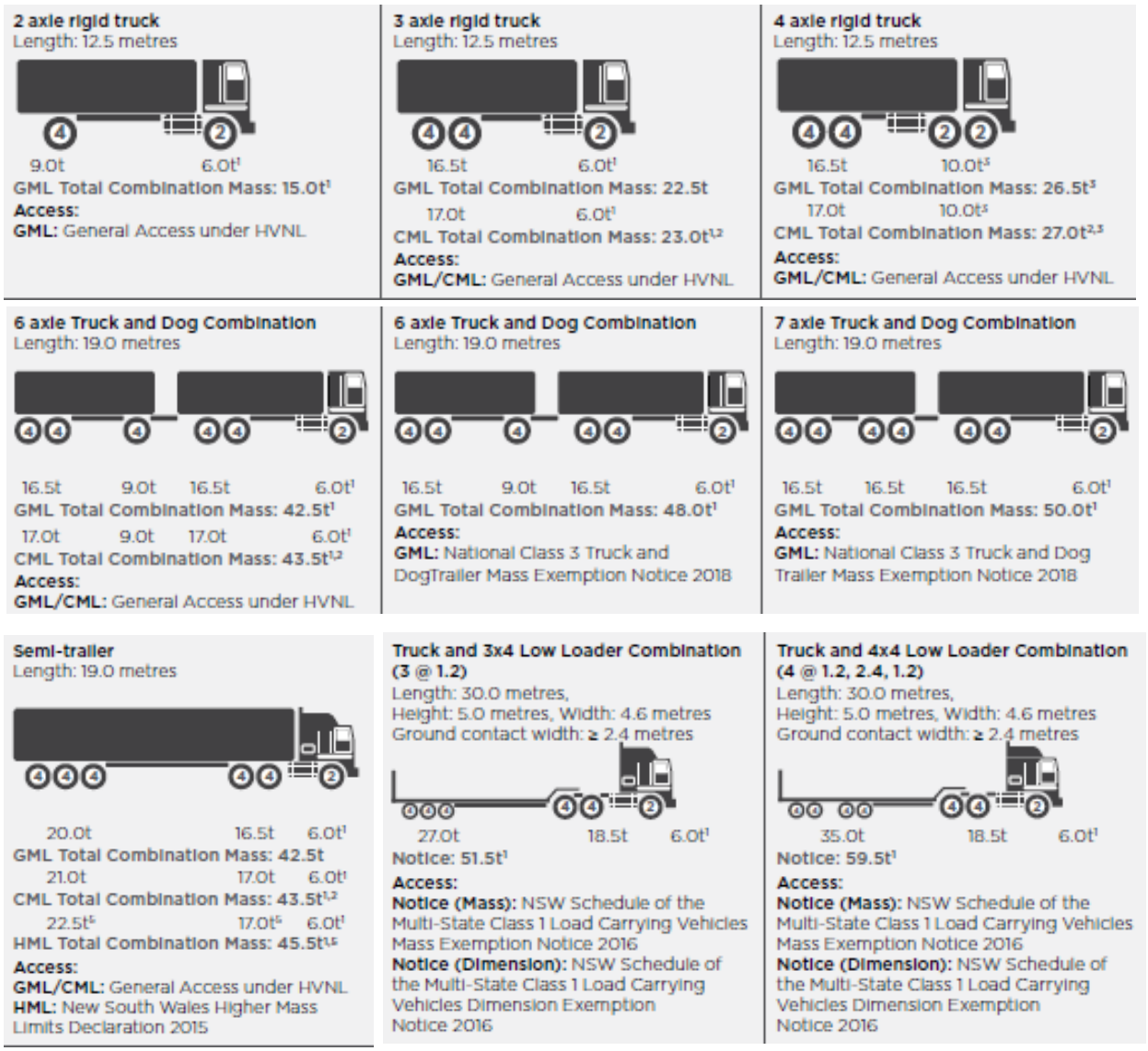


Figure 6.4 Construction vehicle types

Construction vehicles will be required to move between storage areas and the construction site on a regular basis throughout the works and will not be permitted to queue or park within the streets of the surrounding area. The arrival of trucks will be staggered to prevent the possibility of queuing of trucks at any time and minimise movements during peak periods. Construction vehicles must not continuously idle and queue on state, regional or local roads, and must also avoid any marshalling near sensitive land users which will be advised in inductions. Any construction vehicles must also not block or disrupt any access for pedestrians and cyclists unless approved alternate access is provided. All construction vehicles must monitor headlight activity during night works to ensure no constant spill of light into surrounding properties.

Dedicated construction vehicle routes have been developed with the objective to provide the shortest distances to/from the arterial road network whilst minimising the impact of construction traffic on the surrounding road network. Truck movements to and from site shall be restricted to these designated routes, unless otherwise agreed with the road authority, to ensure minimal impact on local streets within the vicinity of the site (unless requiring direct access from that street). Haulage Routes from work areas to site compounds, or off site are shown in Appendix A. Dedicated construction vehicle routes must be followed. Haulage routes that travel past sensitive land users, such as school zones (during operational times) and children's parks shall be avoided wherever reasonably and practically possible.

Construction vehicles entering and exiting the traffic stream at each site must be mindful of the conditions that may affect the safety of these movements. Haulage and access routes will be detailed in each relevant CTMP. Construction vehicles must not be left idling when not in use or awaiting to turn into the construction site, they shall be turned off and turned back on when they are required for use again.

All work vehicles shall:

- Enter and leave site in a forward direction using the approved truck routes unless pre-approved and traffic controllers on site to assist with reversing movements.
- Decelerate slowly and signal their intention by indicator to leave the traffic stream.
- Activate the vehicles rotating beacon on approach to and departure from work site.
- Give way at all times to pedestrians and cyclists on the footpath.
- Wait until there is a gap in traffic before leaving the construction site.
- Avoid movements through school zones during pick up and drop off times.
- Radio ahead to advise of approach to ensure work site space is available.

Relevant CTMPs will include swept path analysis, reports, and advice for the use of Heavy Vehicle routes on local roads identified specific to that CTMP area.

Vehicle associated with the project workforce (including light and heavy vehicles) must be managed to:

- Minimise parking on public roads
- Minimise idling and queuing on state and regional roads;
- Not carry out marshalling of construction vehicles near sensitive user(s);
- Not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided; and
- Ensure spoil haulage vehicles adhere to the nominated routes identified in the CTMPs.

A separate HVLR document submission to the Planning Secretary will be made for approval for the use construction heavy vehicles on local roads that are not identified in the documents listed in Condition A1, which will include the requirements of MCoA E105 and E106.

6.2 Road occupancy

A Road Occupancy Licence (ROL) is required for all Quickway works on:

- Great Western Hwy – State Road A44
- Gipps Street – State Road
- Sunflower Drive – Local Road – ROL required within 100 metres of signalised intersections.
- Caddens Road – Local Road - ROL required within 100 metres of signalised intersections.
- Kent Road – Local Road - ROL required within 100 metres of signalised intersections.
- M4 Western Motorway – State Road M4
- Badgerys Creek Road – Regional Road

- The Northern Road – State Road A9
- Wentworth Road – Local Road - ROL required within 100 metres of signalised intersections.
- Greendale Road – Local Road - ROL required within 100 metres of signalised intersections.

A Road Occupancy Application must be submitted to Western Sydney Airport Authority for approval to work on on-airport roads including:

- Pitt Street
- Longleys Road
- Badgerys Creek Road

All other streets/roads are local/Council roads and require approvals from Inner Penrith City Council (PCC) and Liverpool City Council (LCC). Council permits, as required by PCC and LCC could include:

- Road opening
- Road occupancy permit
- Road closure temporary
- Footpath, road, or car park occupation
- Stand plant permit - crane, pump, or boom vehicle

A Road Occupancy License (ROL) applications shall be made in accordance with the process outlined in the CTMF. The TGSs shall be submitted along with the application to cover the proposed traffic management arrangement shown. The TMC will be provided with a minimum of 10 working days to process each application with an ROL generally being requested for the duration of one month, and then extended as required on an ongoing basis. Should any changes or additional scope of work be added to the work site, then a new TGS shall be drafted to reflect this and a new ROL application submitted to the TMC. The TMC will be responsible for advising of conflicts with ROL approvals given to other projects.

Works are to be undertaken as per the program with sufficient contingency and time for site establishment and breakdown. The site manager is to monitor progress of each work activity and modify works, if necessary, to ensure lane closures are reopened as per ROL approved times. Contingency plans will be in place to assist with any unforeseen problems including having road plates and float trucks available on site. In the event that there is a risk of an ROL breach or over-run, then the TfNSW representative is to be called immediately as well as TMC control room.

A ROL and Council Permit Register will be compiled and maintained on site and can be provided if requested.

6.3 Speed management

Temporary roadwork speed zones will be implemented during construction to manage the speed of traffic approaching and passing through and/or past work sites. In order to temporarily alter a speed limit, a Speed Zone Authorisation (SZA) is required to be in place. SZA will be sought from the responsible road's authority during the course of construction.

Each work area/site will be risk assessed during TGS development to determine the required speed management around past or through the area and as per TCAWS Version 6.0.

The speed limit selected shall not exceed the maximum safe speed of travel for that work area. The safe speed is dependent on the degree of vehicular and pedestrian conflicts, the type and extent of the work in progress, the characteristics of the road and the proximity of workers to passing traffic. Using appropriate signs and devices together with, if considered necessary, an authorised roadwork speed limit will be implemented during specific periods.

6.4 Signposting and delineation

Traffic Control and Delineation Devices will be used where necessary and if appropriate. These include but are not limited to the following:

6.4.1 Signage

Any requirement for temporary advanced warning signage shall be installed by the principal contractor Quickway, as required by the works, so as to:

- Provide warning and notification of the upcoming road works
- Inform of the changes to traffic conditions
- Portable VMS and messaging may also be used on the approach to the work site if further emphasis is required.

All signs used shall conform to the designs and dimensions as per AS1742.3. Prior to installation, all signs and devices shall be checked by the site supervisor to ensure they are in good condition and meet the following standards:

- Condition – signs that are bent, broken or have surface damage shall not be used.
- Cleanliness – signs should be free from accumulated dirt and grime.
- Fluorescence & reflectivity – all signs & devices must meet Australian Standards
- Battery operated devices – shall be checked for lamp operation and battery condition.
- Signage requirements are shown on each Traffic Guidance Scheme. Any signs erected prior to being needed shall be covered by a suitable material and only removed immediately prior to the commencement of works.

Signs and devices shall be positioned and erected in accordance with the locations and spacing shown on the TGS. All signs shall be positioned and erected so that:

- They are properly displayed and securely mounted
- They are within the driver’s line of sight
- They cannot be obstructed from view
- They do not obscure other devices and signs from the driver’s line of sight
- They do not become a possible hazard to vehicles especially along the road edge.
- They do not deflect traffic into an undesirable path.
- They are deployed considerately to avoid noise from metal signage being dropped or dragged to/from position(s)
- Vehicles carrying traffic control signage should be designed and/or modified to minimise noise from rattling signage

- Follow routes for signage deployment that minimises the need for reverse movements and avoiding tonal movement alarms

Should the use of additional (not shown on the TGS) or reduced number of signs or devices be required, they shall be recorded within the traffic control inspection records as a variation to the CTMP, following prior approval.

Where there is potential for conflict between existing signage and temporary signage erected for the purpose of traffic control, the existing signs shall be covered.

6.4.2 Traffic Cones and Bollards

Traffic cones and temporary bollards may be used to define the traffic path past or through the work area. Cones and temporary bollards must not be used as a substitute for barrier boards and signs at either end of the work.

Traffic cones and temporary bollards must comply with Transport QA Specification 3352 Fluorescent Plastic Traffic Cones. Traffic cones and temporary bollards must have a white horizontal retroreflective band of Class 400 material.

6.4.3 Barrier Boards

Shall comply with “former” Roads and Maritime QA Specification 3385, Barrier Boards. Barrier boards shall:

- Be used to prohibit access to the ends of work (where they may have flashing yellow lights mounted on them)
- Be used to prevent use of a traffic lane
- Be placed at right angles to traffic flow at a maximum spacing of 100 m.
- Be secured so that they are not moved or blown over by winds or pressure from vehicles.

Barrier boards shall not:

- Be used as delineation devices but may be used on footpaths for the guidance of pedestrians
- Be placed parallel to the direction of traffic flow as they will be difficult to see and can act like spears if hit by traffic.

Trestles supporting the barrier boards may be manufactured of timber, metal or other suitable, approved material and shall be yellow. The trestles shall provide firm supports for the barrier board and be kept in place by filled sandbags or other acceptable devices. The bases of the trestles shall not protrude beyond the ends of the boards.

6.4.4 Temporary safety barriers

Temporary safety barriers may be used to protect work zones and pedestrians from traffic. Safety barrier types and their end treatments will be in accordance with Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Roads and Maritime Services Austroads Guide Supplement Publication No: Pub.11.097 and only products from the TfNSW accepted list will used. Where waterfilled barriers are used these will be filled with water.

6.4.5 Portable variable message signs

Portable variable message signs (VMS) may be used at prominent locations for prior notification of works and to keep road users informed of changes to road conditions and of possible delays as a result of the work. Messages displayed on the VMS must remain current for the duration of the works and be relocated as necessary as the works progress.

The VMS must be portable, and solar powered, complying with AS 4852.2.

VMS usage will also comply with Guidelines for Location of VMS and Technical Direction for use of VMS and TfNSW RMS G10.

All messages will be approved by TfNSW prior to activation.

6.4.6 Pavement markings and signs

Pavement markings, retro reflective raised pavement markers and signposting may be used in the temporary works. Unless specified otherwise, only line marking tape or waterborne paint will be used for pavement markings for temporary works.

The Specifications, RMS R141, RMS 142 and RMS 143 must be used as relevant to the same standard as for permanent works.

If removal of pavement markings is required, the Traffic Staging Plans will provide details of the proposed methods for removal, the estimated durations to carry out the removal, and if necessary, any proposed measures to restore the road surface. These will be based on the relevant standards/ procedures covering each particular circumstance and comply with RMS D&C R145 – Pavement Marking.

As Per Traffic Control at Worksites Technical manual - all redundant pavement markings shall be immediately obliterated or removed in such a way as to leave a clean, undamaged pavement with a surface texture, reflectivity characteristics and colour comparable to the adjacent pavement surface. Blacking out is not permitted. All redundant raised pavement markers will be immediately removed from the pavement.

6.4.7 Portable traffic control devices

A portable traffic control device (PTCD) is a device designed to manually control traffic. A PTCD is designed to reduce risk to traffic control personnel by enabling use and control of the device via a remote, enabling the operator to be located outside of the live lane of traffic. PTCDs may include but are not limited to PTS and boom barriers.

In accordance with TCAWS Traffic control, a PTCD must be used instead of a manual traffic controller for all work sites under traffic control when the existing permanent speed limit is above 45km/h. The decision to not use a PTCD will be documented in the relevant CTMP and have associated risks considered and included in each CTMP risk assessment.

When developing a TMP or CTMP, or selecting or designing a TGS for the use of a PTCD, the relevant qualified person must consider:

- Queue length estimates.
- Expected traffic flows.
- Operational efficiency of the device and the expected delay and queue lengths; and

- Any lost time associated with use for e.g., lowering of boom.

6.4.8 Light towers

Lighting towers will be used to facilitate night works where there is insufficient light. They will be positioned away from motorists and assessed for any glare which may pose a risk to road users or affect residents and businesses. All lighting must be consistent with AS4282-1997. Where possible towers will be protected to subdue noise where required for long term operations such as temporary footpath lighting. Where possible, the use of silenced diesel powered, solar or battery powered lighting towers should be considered to minimise noise impacts.

Lighting towers will have directional lights that can be adjusted. During the installation, crews will ensure that light is directed to the work areas only and preventing any directions facing residents were possible. Where on a portion of the individual lighting elements on a lighting tower is only required to safely illuminate the work area, other individual lighting elements will be switched off to reduce 'light pollution' wherever reasonably safe to do so.

6.5 Pedestrians and cyclists

Pedestrian and/or cyclists access would be maintained along most streets and as such, impacts to pedestrians/cyclists during these works are considered minor. Any requirements for pedestrians and/or cyclists to be diverted will ensure proper wayfinding signage is installed and temporary ramps of kerbs installed as required.

Safe pedestrian and cyclist access will be maintained around work sites during construction. In circumstances where pedestrian and cyclist access are restricted or removed due to construction activities, an alternate equivalent route which complies with relevant standards and minimum widths, where facilitated, will be provided and signposted. Pedestrian and bicycle paths will be provided on the same scale and to the same width as any facilities for pedestrians or bicycle traffic that were existing prior to the work. Any impacts on pedestrians will result in a pedestrian management plan (PMP) being developed and included as required as part of a CTMP. PMP's may be superimposed onto the Traffic Guidance Schemes TGS's.

Within the work site area, provision will be made to ensure that a safe route is always provided for pedestrians and cyclists around the work area. The impacts on pedestrian movement as a result of these works has been assessed and will be taken into consideration when developing TGS's for each site and work activity. All dedicated marked pathways shall be maintained at all times and left hazard free out of working hours.

To ensure the safety of pedestrians and cyclists, traffic control personnel will be in place during large deliveries and when there is frequent construction traffic crossing the footpath and busy driveways across the Portions of work. Traffic Controllers will be positioned adjacent to the footpath to manage the conflict between construction vehicle and pedestrians during all access and egress movements. In locations where these movements need to occur when there is high pedestrian and cyclist activity, traffic controllers will be implemented at all times during the works. Signage and barrier devices shall also be utilised to reduce the risk of any pedestrians walking across the path of turning vehicles. Consideration will be given to ensure:

- Pedestrians will only be held for short periods of time to allow trucks to enter/exit from site. Pedestrians have the right of way and will not be stopped in anticipation.
- If deemed necessary, suitable signage shall be provided to maintain pedestrian safety when pedestrians travel across the driveway to the site.

- During construction activities where it is necessary to fully close the footpath, suitable and safe diversion points shall be established and if necessary, pram ramps installed.

TfNSW Cycle Way Finder indicates route difficulty and includes road conditions (Figure 6.).

The map shown below in Figure 6.5 shows cycle routes along the project alignment for Portions 1 - 3.

The map shown below in Figure 6.6 shows cycle routes along the project alignment for Portions 4 - 6.

6.5.1 Vulnerable Road Users

Quickway will adopt applicable vulnerable road users' safety measures in line with the CTMF and Sydney Metro Principal Contractor Health and Safety Standard, to minimise the road safety risks to vulnerable road users. Vulnerable road users can include, but are not limited to, the following groups;

- Pedestrians
- Cyclists
- Motorcyclists
- Mobility Impaired Users or Wheelchairs
- School Children and elderly users

DDA requirements will be adopted with kerb ramps or other measures provided at road crossings. Footpath widths are required to provide two-way pedestrian traffic allowing for strollers or prams and wheelchairs to pass each other without requiring temporary widening from the existing width prior to construction commencement. Narrowing of any footpath, if required, shall require approval from the relevant authority prior to works commencing. Where high volumes of vulnerable road users are recorded special provision and design consideration may be required to mitigate any impacts.

Site-specific heavy vehicle driver induction will identify locations where cyclists are expected to be riding along the roadway (i.e. not in dedicated shared cyclists & pedestrian footpath) to increase driver awareness.

All provisions for vulnerable road users will be identified in the operational CTMPs and the associated Traffic Guidance Schemes.

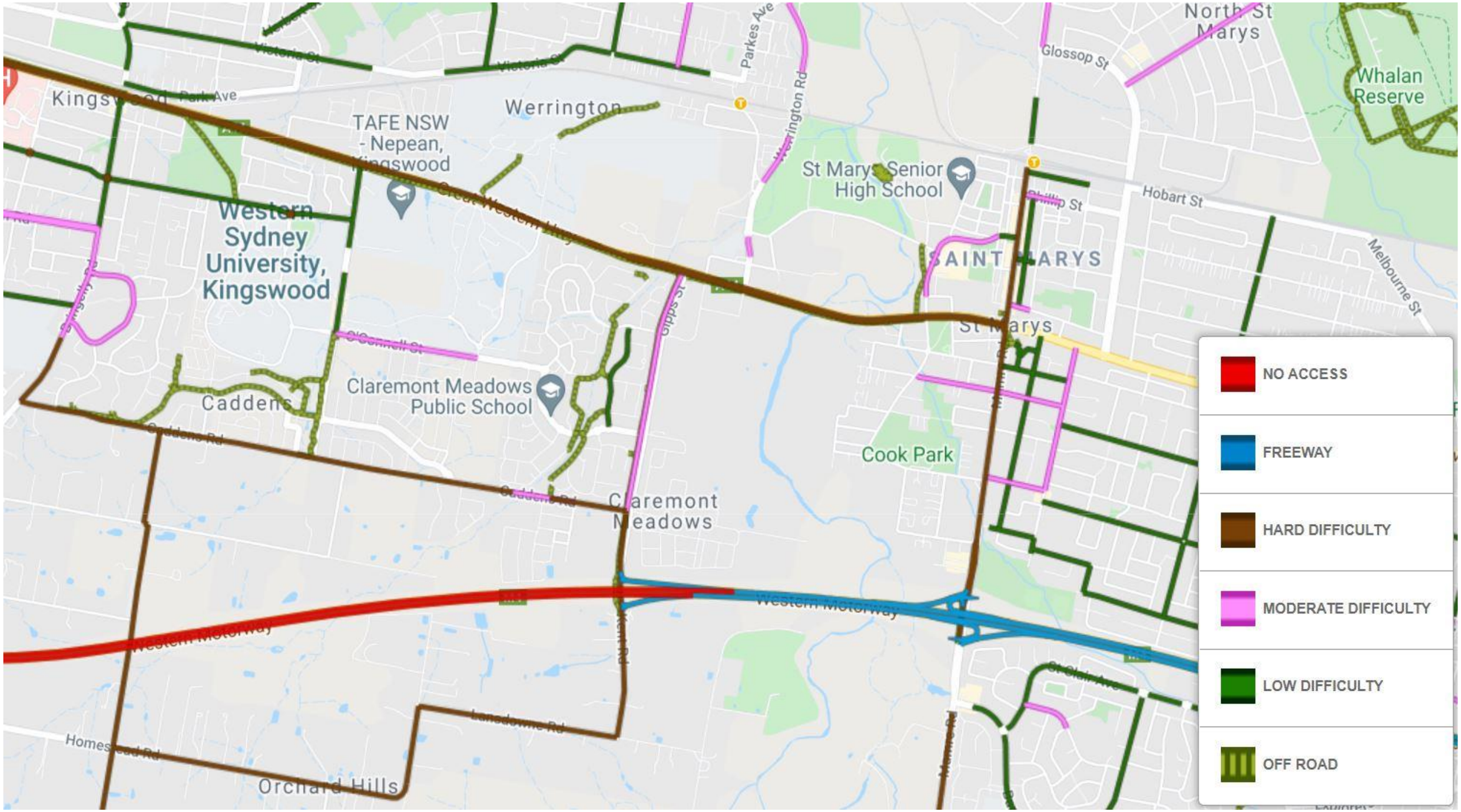


Figure 6.5 Portions 1 – 3 Cycle Way Finder Map

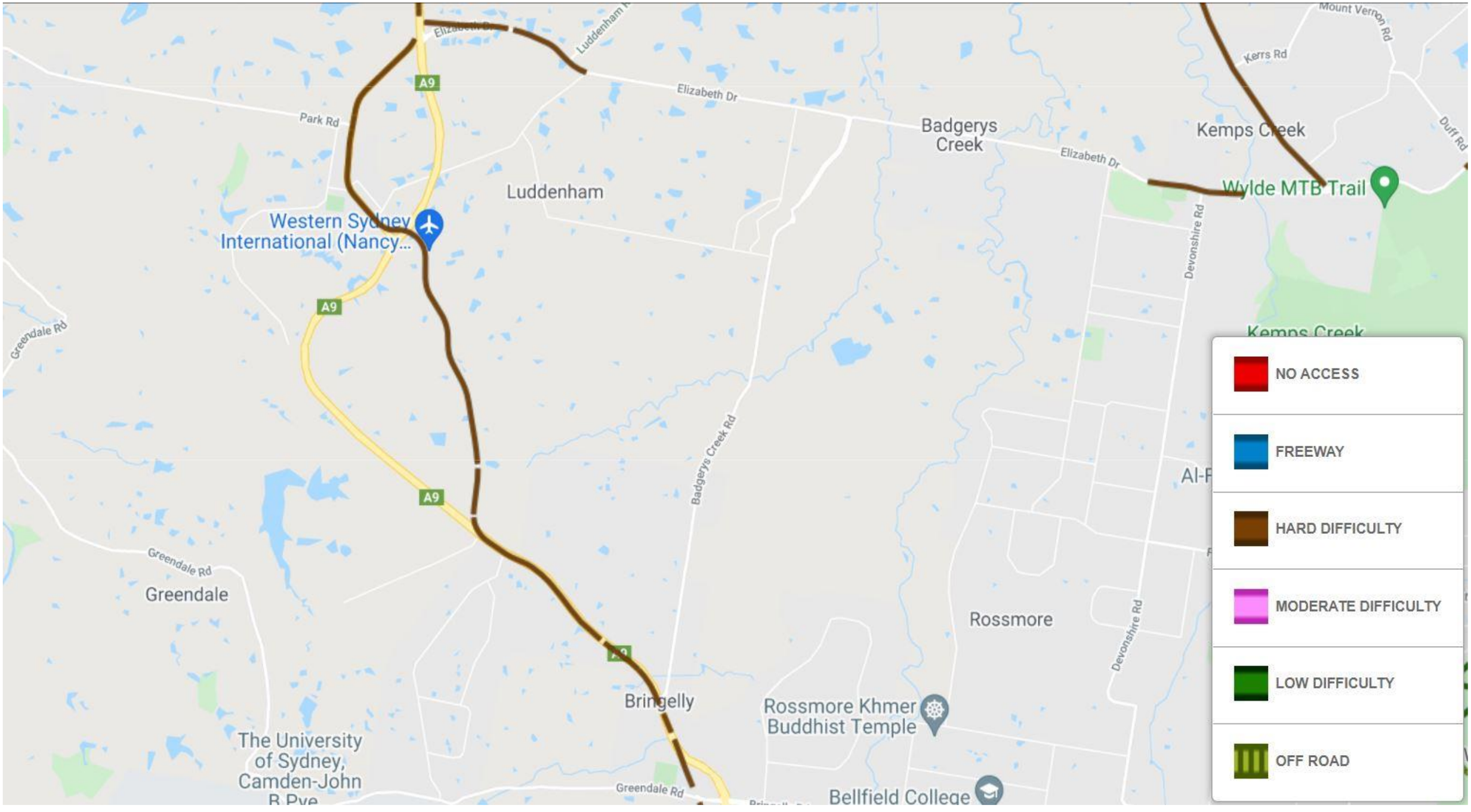


Figure 6.6 Portions 4 – 6 Cycle Way Finder Map

6.5.2 Property access

TfNSW and Quickway consider that minimising the impact and maintaining the amenity of local residents and businesses in the vicinity of the construction works to be very important. In this regard, various traffic management measures will be applied to maintain existing property access points.

Every attempt will be made to minimise disruption to residents and businesses during the works. During construction activities residents and businesses will continue to have access to and from their properties under the guidance and direction of onsite traffic control personnel, unless otherwise agreed beforehand with the occupier. Adequate temporary wayfinding will be provided before and for the duration of any interruption. Access will be reinstated as works progresses through the various sections. Once works is completed in these sections all access will be reinstated to pre-construction conditions.

Furthermore, as there will be a limited amount of parking space available within the site, only essential construction vehicles will be permitted on site with workers being encouraged to use the nearby public transport facilities. Quickway may also be required to identify remote parking areas for workers, to minimise any impacts of workers parking on-street. Under the Sydney Metro Construction Traffic Management Framework is it assumed that there will be no provision, either on the road or within the work site, for worker parking. Any property access physically affected by the project will be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Pre-Construction dilapidation condition survey reports will identify the pre-existing conditions applicable for reinstatement where it is impacted.

Temporary restorations will be undertaken immediately following of the completion of works in each location. These will be designed and constructed ensure no hazards and be made safe for road users, cyclists, and pedestrians.

Permanent restorations will be completed of impacted road carriageway and footpaths once the conduit installation along the entire alignment, cable pulling and testing works are completed.

Where construction impacts property's access to a public road, a temporary alternative access to be consulted and agreed with the property owner will be implemented (no cost to the property landowner, unless otherwise agreed with the landowner) until their primary access is reinstated.

6.6 Waste and recycling access

Residential and business properties fronting affected streets will continue to place their garbage and recycling bins on the kerbside. If direct service access is affected, then designated areas will be shown on site specific TGS indicating collection areas. Bins will be transferred to these sites by Quickway staff and returned upon collection.

Any Council clean ups during construction period will also be accommodated in consultation with Council Waste Services.

Collection days for each Portion of works separated by suburb are illustrated in Table 6.4 below:

Table 6.4 Waste and recycling collection schedule

Portion	Suburbs	Weekly Collection Day	Comments
Portion 1: PCC LGA	Orchard Hills	Wednesday	N/A
Portion 2: PCC LGA	Claremont Meadows	Thursday	N/A
Portion 3: PCC LGA	Orchard Hills Claremont Meadows	Wednesday Thursday	N/A
Portion 4: LCC LGA	Kemps Creek Badgerys Creek	Wednesday Wednesday	Collected fortnightly Collected fortnightly
Portion 5: LCC LGA	N/A	N/A	N/A
Portion 6: LCC LGA	Bringelly	Monday	Collected fortnightly

6.7 Special events

All special event coordination shall be in line with the requirements of the CTMF Section 6.6. Where any Public Events are expected to generate road closures or additional road or pedestrian/cyclist traffic in any areas directly or indirectly affected by the works Quickway will cooperate with the Principal and Authorities to facilitate road traffic and pedestrian/cyclist flow.

During these events this includes:

- No ROL activation during major events
- No footpath closures during major events
- Complying with ROL requirements
- Constant monitoring and communication with TMC and relevant authorities
- Limiting work times
- Cancellation of works
- Changing work areas to alternate locations
- Changing types of works planned

6.8 Cumulative impacts

Given the geographic locations of the six (6) Portion locations it is anticipated that there shall be minimal cumulative impacts, if any, attributed to the power enabling works. Assessment shows that the WSA PEW road works may cause a cumulative impact or potential clashes with other construction activities in this area. Close liaison will be maintained between the WSA PEW project team, Sydney Metro Project Manager, CJP, Penrith City Council, Liverpool City Council and the TMC to ensure upcoming work and or closures do not conflict with any other works that may be planned, during the life of the project, in the area.

6.9 Pre-condition and dilapidation reports

In line with MCoA Conditions E107 and E108 Quickway will prepare a Road Pre-condition Report(s) for affected roads likely to be used by construction traffic prior to commencement of construction. Road Precondition Reports are to assess the current condition of the road and describe mechanisms to restore damage that may result due to traffic and transport related to the construction of the Sydney Metro Western Sydney Airport – Advanced & Enabling Works (Construction power supply).

The Pre-condition Report will survey a pre-determined table of affected roads and consider the following, but not limited to:

- Kerb and gutter (likely to be within a vehicle/s path)
- Line Marking
- Existing vegetation
- Street furniture
- Any existing damage to road pavement or road furniture
- Existing potholes/pavement damage
- Cracking and rutting
- Any existing structures
- Any existing damaged items.

The Road Pre-condition Report will be submitted to TfNSW, Penrith City Council and Liverpool City Council for review at least one (1) month prior to the commencement of construction and/or haulage. For activities not deemed construction under the definition included within the Conditions of Approval, e.g.: utility relocations, a Pre-condition survey will be undertaken prior to the activities commencing and be provided to the relevant road authority(s). Pre-construction dilapidation reports will be provided within three (3) weeks of completion of the survey.

Pre-condition surveys where reasonably practical, may identify and repair any road surface defects (such as potholes) that could cause additional construction traffic noise and vibration (e.g., from vehicles hitting potholes) or may be further increased or worsened during the construction of works and use of roads for heavy vehicle haulage.

Following completion of construction, a Road Dilapidation Report shall be prepared to assess potential damage that may have resulted from the construction works. The Road Dilapidation report is to take into consideration the findings of the Road Pre-condition Report.

As per conditions if damage occurs to any item outlined resulting from the works, aside from that resulting from normal wear and tear, then (at the relevant road authorities discretion):

(a) compensate the asset owner for the damage so caused. The amount of compensation may be agreed with the asset owner, but compensation must be paid even if no agreement is reached; or

(b) rectify the damage so as to restore the item to at least the condition it was in pre-works. Any repairs must be completed before the commencement of SSI operations.

The Existing Condition reports will be provided to the Asset Owner no later than 1 month before construction commences.

Evidence of consultation of pre-construction dilapidation survey conditions reports is included in Appendix D.

6.10 Incident management and response

6.10.1 Emergency Services

Emergency services will be notified of the proposed works, including their nature, date and times as well as contact details for the site supervisor. The Community Relations Manager will be responsible for providing up to date information to the respective emergency services regarding the changes to traffic flow during the works. CJP shall be notified immediately in the event of any unplanned incident for both On-Airport and Off-Airport works.

Arrangement to manage impacts on emergency services include:

- Notification and communication with affected emergency services including suggested detour routes when applicable.
- Provision for emergency service access through the construction site
- Communication with the workforce to ensure understanding of emergency access and response requirements.
- Emergency Services will be consulted via TTLG and notified of work progression and impacts.

Table 6.5 Emergency services contact numbers and locations

Emergency Service	Contact Name	Contact Number	Address
NSW Police Liverpool PAC	Liverpool Police Station	02 9765 9499	148 George Street, Liverpool 2170
NSW Police Nepean PAC	Penrith Police Station	02 4721 9444	317 High Street, Penrith 2750
Fire & Rescue NSW	Liverpool Fire Station Penrith Fire Station	02 9493 1008 02 4784 8386	Anzac Rd & Delfin Dr, Moorebank 2170 290-294 High St, Penrith 2750
NSW Ambulance	Liverpool Penrith	1300 655 200	1 Hoxton Park Rd, Liverpool 147-149 High St, Penrith 2750

6.10.2 Incident Response Procedures

In the event of any unplanned incident or accident on site, whether or not involving traffic or road users, the following project documents must be referred to for the appropriate procedure:

- Sydney Metro Health and Safety Incident Reporting and Investigation Standard
- Sydney Metro Principal Contractor Health and Safety Standard V6.0

In general, the following protocol will be followed:

- Notify the relevant authorities and update accordingly following their instructions. Contact emergency services if required.
- Notify Sydney Metro with 10 minutes of an incident that may attract media attention with an initial phone call and known details. For all other incidents, notify Sydney Metro within 1 hour of the incident with an initial phone call. Within 24 hours provide preliminary details of the incident.
- Where possible, cease work and remove restrictions.
- Modify traffic control as necessary and manage until emergency services arrive.
- Re-program any VMS units to advise of situation.
- Assess and re-evaluate risks and hazards, if necessary, postpone work activities.

Sydney Metro hold the primary responsibility for fulfilling the obligations detailed with respect to incident notification and reporting to DPIE and required authorised. Quickway will assist and cooperate with Sydney Metro to fulfil these obligations.

In the event of an emergency situation, the following relevant authorities must be contacted and advised of the nature of the works, type of emergency and contact details for the site supervisor:

- Emergency Services: (000)
- TMC (131 700)
- Safework NSW (13 10 50)

Broken down vehicles and vehicles involved in minor non-injury crashes shall be temporarily moved to the verge as soon as possible if available and practical, after details of the crash locations have been gathered and noted. Where necessary to maintain traffic flow, vehicles shall be temporarily moved into the closed section of the work area behind the cones, providing there is no risk to vehicles and their occupants or workers. Suitable recovery systems shall be used to facilitate prompt removal of broken down or crashed vehicles. Assistance shall be rendered to ensure the impact of the incident on the network is minimised.

Details of all incidents and accidents shall be reported to the Traffic Control Site Manager and Project Manager using the required incident report form. All details of incidents that occur within the area of an approved ROL are to be recorded by the contractor and reported and investigated in accordance with the requirements of the Sydney Metro Principal Contractor Health and Safety Standard Version 6.

An Environmental incident and emergency response plan have been developed to manage spill prevention and response on this work site. This document is developed in accordance with Sydney Metro Construction Environmental Management Framework.

Emergency Services will be consulted via TTLG and notified of work progression and impacts.

In the event of an environmental incident, refer to relevant CEMP (on-airport or off-airport) for response and management requirements.

6.11 Road Safety Audit

Road safety audits of Construction Traffic Management Plans

The requirements for Road Safety Audits shall be managed in accordance with Section 10 of the CTMF. Sydney Metro and/or its contractors will undertake Road Safety Audits for site-specific CTMPs, to be submitted with the relevant CTMP(s) to stakeholders. The contractor will be required to respond and address all RSA comments before endorsement of the CTMP by Transport Coordination and approval by TfNSW.

Regular traffic safety inspections of work zones are also to be undertaken to ensure all construction site safety arrangements are in place. These traffic inspections will be additional to the daily inspections by the site staff.

Attention will be given to WHS guidelines, work areas adjacent to the road, movement of construction traffic, vehicle speeds and all warning devices or systems.

Road safety audit procedure

All Road Safety Audits will be undertaken in accordance with the Guidelines for Road Safety Audit Practices (RMS, 2011), with reference to current practices outlined in Guide to Road Safety Part 6, Road Safety Audit (Austroads, 2009) and Sydney Metro Principal Contractor Health and Safety Standard Compliance management

7. Compliance Management

7.1 Roles and responsibilities

The Quickway Team's specific responsibilities for the implementation of construction traffic management are detailed in Table 7.1

Table 7.1 Roles and responsibilities

Role	Person Responsible	Contact Number
Senior Project Manager	Tommy Kelly	0436 275 920
Construction Project Manager	Des Leyden	0474 111 028
Environmental Manager	Tom St Vincent Welch	0417 523 756
Traffic Manager	Alex Crane	0408 169 716
Senior Traffic Planner	Louise Casey	0438 798 642
Traffic Control Operations	Mark Andrews	0477 974 952
Senior Project Engineer	Joshua Maltese	0488 662 264
Senior Project Engineer	Daniel Geraghty	0447 382 705
Project Engineer	Nikesh Rathour	0429 438 900
Project Engineer	Alexandro Benet	0420 524 983
Project Engineer	Hasan Zengin	0438 084 497
Site Engineer	Campbell Duggen	0427 077 938

Role	Person Responsible	Contact Number
Site/Quality Engineer	Karn Suwanrit	0416 444 876
Site/Quality Engineer	Olivia Tawdrous	0475 111 135
Senior Supervisor	Ken Stafford	0418 678 784
Senior Supervisor	Stephen Lyons	0410 107 757

7.1.1 Senior Project Manager

The Project Manager has the overall responsibility for Traffic Management for the Sydney Metro Western Sydney Airport Power Enabling Works. Individual names are not included in plans. The Senior Project Manager's responsibilities remain; however, the Project Manager has delegated the following functions:

7.1.2 Traffic Manager / Senior Traffic Planner

The Traffic Manager and/or Senior Traffic Planner has responsibility for:

- As a minimum hold the Safework NSW Prepare Work Zone Traffic Management Plans.
- Attending scheduled meetings with the CJP and TMC;
- Liaising with the Principal and other authorities such as Transport Management Centre (TMC), New South Wales Police and local Councils on traffic management matters for the works site;
- Reviewing this CTMP to ensure it reflects current requirements and practice;
- Coordination and liaison with the TMC, including development and management of Interface Protocols for major traffic incident and event management support;
- Carrying out regular inspections and auditing of the traffic control measures to ensure that they are effective and are being followed.
- Ensuring that the approved traffic control measures are established, implemented, and maintained in accordance with the approved plans;
- Carrying out regular inspections and auditing of the traffic control measures to ensure that they are effective and are being followed;
- Amending and updating the plans, as required, to ensure that they remain current as the work progresses;
- Identifying locations and times where traffic congestion or unsafe conditions for vehicles, cyclists, pedestrians, and workers are occurring, and providing recommendations for improvement;
- Maintaining current copies of the CTMP, Traffic Staging Plans, TGS, VMP, PMP, ROLs and Speed Zone Authorisations, and their controlled distribution;
- Facilitating traffic awareness and giving toolbox talks to site personnel.
- The TCSM has the authority to stop work on any activity if it is considered to be necessary to prevent traffic accidents, or to comply with the directions of the Principal, TMC or Police.
- Development of site-specific CTMPs as required;
- Development of standard and site-specific TGSs;

- Development and subsequent management of site-specific and bulk approval ROLs;
- Traffic control safety audits/inspections, including, as a minimum, checks at the commencement and conclusion of each day's work that all required traffic control measures and signs are in place as detailed on the TGS for each stage. Record the details of this inspection daily. The person conducting this check will be qualified in the Safework NSW Implement Traffic Control Plans course (i.e. hold a current Yellow Card or Implement TCP & Traffic Controller certificate).
- Assess any change to the works scope and activities against approvals and licenses (traffic related);
- Coordinating traffic management activities across the road network;
- Attending meetings as required;
- Relevant reporting.

7.1.3 Environmental Manager

The Environmental Manager has responsibility for:

- Advising on environmental matters and relevant statutory approvals, licenses, permits, guidelines, and authorisations;
- Liaison with the Principal and with all relevant authorities on environmental matters through regular meetings, phone calls and email correspondence
- Authorised contact person for communication with the Principal and EPA on environmental matters.
- Maintaining a register of all environmental documents for the Contract;
- Ensuring that the Quickway Construction Environmental Management Plan (CEMP) is established, implemented, and maintained in compliance, procedures and supplementary SWMS/EWMS and revisions to these documents to remain current with the progress of the Works;
- Ensure all personnel are aware of their roles and responsibilities in accordance with the Environmental Framework to ensure the Environmental Framework is fully implemented
- Overall responsibility for the establishment, management, monitoring and maintenance of erosion and sediment controls within the Site;
- Ensure environmental risks of the work are identified and appropriate mitigation measures implemented.
- Ensure environmental actions raised by Sydney Metro or ER are closed out and reported by the Quickway team
- Carrying out regular inspections and auditing of the works to ensure that environmental safeguards are being followed;
- Identifying where the mitigation measures identified in the CEMF and relevant approvals, reports and plans are not meeting the targets set, and identifying areas where improvements can be achieved;
- Facilitating environmental induction and toolbox talks for all site personnel;

- Stop activities where there is an actual or immediate risk of harm to the environment or to prevent environmental non-conformities until deficiencies are rectified and advise the Project Manager and the General Superintendent.
- Assess any change to the works scope and activities against approvals and licenses (environmental related);
- Undertake relevant environmental monitoring, such as noise monitoring; and
- Assist the communications representative with the management and close out of complaints;
- Be contactable 24hrs to shut down construction work in the event of an emergency.

7.1.4 Project Manager / Senior Project Engineer / Project Engineer

The Project Manager/Senior Project Engineer/Project Engineer is responsible for:

- Ensuring sufficient resources (people, plant, materials, supply chain);
- Ensuring works are carried out in accordance with TfNSW, Project and Quickway Policies and Procedures and Specifications;
- At least one day prior to the intended date of opening the temporary roadways to traffic, notify the Principal in writing that the work, including pavement markings, is conforming and ready for inspection by the Principal.
- Review and approval of training requirements;
- Carry out periodic site inspections;
- Attending meetings as required;
- Relevant reporting.

7.1.5 Senior Supervisor

The Supervisor is responsible for:

- Day-to-day organising and supervision of works;
- Ensuring works are carried out in accordance with TfNSW and Quickway Policies and Procedures;
- Provision and maintenance of suitable traffic management plant and equipment;
- Carry out periodic site inspections;
- Attending meetings as required;
- Review traffic control site implementation and providing feedback and improvement comments from site issues and/or opportunities:
- Relevant reporting.

7.1.6 Traffic Controller

As required under TfNSW Specification G10 all traffic controllers must have attended and be qualified in the traffic control training courses relevant to their roles as shown in Table 7.1.

Table 7.1 Traffic controller qualifications

Traffic Control Role	RMS Traffic Control Training Course
Controlling traffic using a stop/slow bat	Traffic Controller
Set up and work with Traffic Control Guidance Schemes/Traffic Control Plans at a work site.	Implement Traffic Control Plans
Design new construction traffic management plans and TGS's for road works, produce major upgrades of standard plans and/or inspect traffic control plans on road construction sites.	Prepare a Work Zone Traffic Management Plan

The Traffic Controllers are responsible for:

- Completing relevant works documentation.
- Implementing and maintaining TGSs on site.
- Ensuring traffic management is carried out in accordance with TCAWS.
- Contacting the TMC to notify of traffic management implementation and removal in the form of ROL activation and deactivation.
- Report faulty or defective traffic management devices to the Supervisor.
- Ensuring the safe passage of traffic and pedestrians.
- Must wear the traffic controllers vest as an outer garment only when controlling traffic for the purposes of the Contract, and not at other times.
- Ensure the correct use of radios for communication, and ensure they are not excessively loud during night works.

7.2 Communication

Due to the importance of the Western Sydney Airport Power Enabling Works, early engagement will be undertaken with the key stakeholders and authorities, prior to the formal approval process. This is necessary to identify any key issues of concern that may require alternative approaches to be considered in methodology.

Further to any consultation, site- specific TGSs will be developed for each specific Portion of work in accordance with relevant TfNSW and Australian Standards. These plans will show the specifics of the proposed works and individual traffic controls for each site. These TGSs will be included in the relevant CTMPs formally submitted for comment/concurrence by the relevant stakeholders prior to implementation. The main stakeholders/authorities are as follows:

- Customer Journey Planning (CJP)
- TfNSW
- TMC
- Penrith City Council (PCC)
- Liverpool City Council (LCC)
- Western Sydney Airport Authority
- Emergency Services

Extensive effort will be made to provide timely, accurate, relevant, and accessible information regarding the proposed changes to local traffic conditions. Sydney Metro has developed a Stakeholder and Community Engagement Plan which will be referenced and implemented for any notification to residents, businesses, or commuters.

Notification about traffic management impacts may include (but is not limited to) the following:

- Letterbox notifications, leaflets, and fact sheets
- Face to face engagement
- TfNSW website
- Variable Message Signs (VMS)
- Social media updates
- Live Traffic.com.au
- Advertising in local newspapers

Local residents and businesses will also be consulted in advance where there is likely to be a direct impact, for example temporary loss of driveway access or power supply. The Stakeholder and Community Engagement Plan will provide relevant contact information for the purpose of dealing with queries and complaints including:

- 24/7 Sydney Metro Community Information Line 1800 717 703 or
- Email sydneymetrowsa@transport.nsw.gov.au

7.3 Inspections

Requirements and responsibilities in relation to inspections are documented in Section 3.14 of the CEMF, section 3 of the Health and Safety incident reporting and investigation standard and Section 8.2 of the CTMF.

On completion of establishing the work site, the site is to be monitored for a suitable period of time. The traffic control contractor shall ensure that all signage, devices, and controls are maintained at all times. Inspections shall be carried out:

- Before the start of work activities each day on site
- During construction hours
- At the end of each shift period

A daily record of the inspections shall be kept indicating:

- What additional traffic controls were erected
- When changes to controls occurred and why
- Any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

The traffic control contractor will ensure that personnel are assigned to monitor the traffic control site and carry out inspections as follows:

Before work starts:

- Inspect all signage and devices including any VMS/Traffic Signals/PTCD's to ensure they are undamaged and comply with the requirements depicted on the Traffic Guidance Scheme.
- After any adjustments have been made to the signs and devices, conduct a drive through inspection to confirm effectiveness.
- Provide contact name and number for traffic control site supervisor to TMC for day's activities if applicable.

During Construction Hours:

- Ensure that appropriate personnel drive through the site periodically to inspect all signs and devices including VMS/Traffic Signals/PTCD's and ensure they are undamaged and comply with the requirements depicted on the TCP.
- Ensure on site traffic controllers are in place and carrying out necessary duties.
- Keep records of any changes made throughout the day.

At the end of each shift period:

- Conduct an end of shift site inspection, allowing time for any maintenance work.
- Remove any unnecessary signage (Workers Symbolic, Traffic Controller)
- Ensure any lighting is added to specific sites as necessary.
- Record details of inspection and any changes made.

7.4 Auditing

Audits (both internal and external) may be undertaken to assess the effectiveness of traffic management measures, compliance with other relevant plans, CoA and other relevant approvals, licenses, and guidelines.

7.5 Reporting

Quickway will report to Sydney Metro, TfNSW, TMC, Penrith City Council, Liverpool City Council, and other stakeholders on all traffic and transport management issues related to the Western Sydney Airport Advanced and Enabling Works, through the agreed contractual reporting methods, TCGs, TTLGs and CTMPs and any required email correspondence(s).

8. Review and improvement

8.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of traffic management.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

8.2 Minor TGS updates

Minor TGS updates and amendments may be required during construction due to various of reasons, including but not limited to:

- Site conditions change from time of CTMP development to time during implementation
- Working near other contractors and traffic management to avoid conflicts
- Unknown clashes, minor design / alignment changes

Where a minor TGS amendments is required, the Traffic Manager and/or Senior Traffic Planner is to assess whether it would have an impact or diverge from the TTM strategy included in the approved operational CTMPs. If there is no impact or divergence, the Traffic Manager and/or Senior Traffic Planner shall make the minor TGS amendments for implementation onsite. If there is a difference in TTM strategy this need to be consulted with the relevant and associated stakeholder(s).

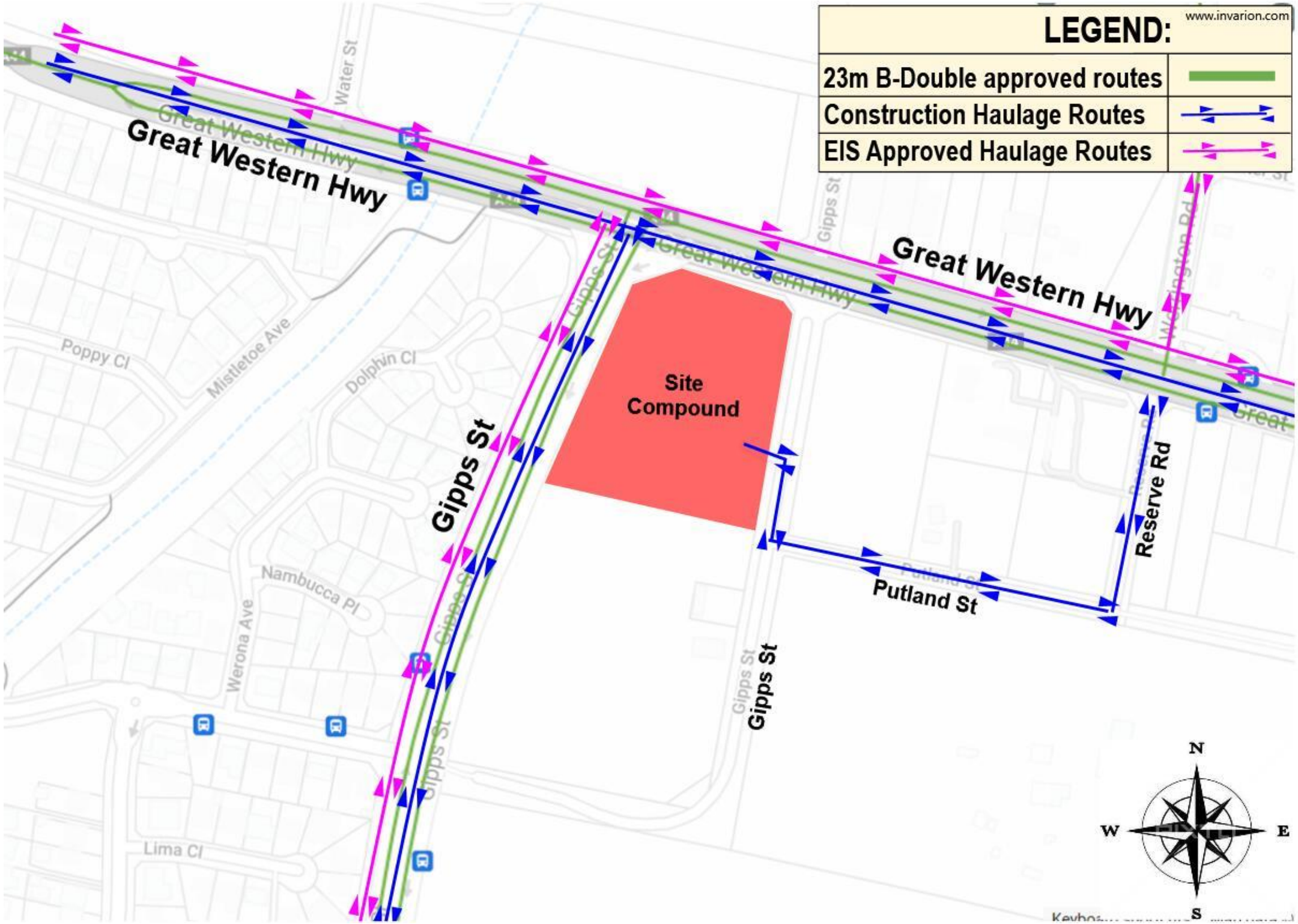
8.3 CTMP update and amendment

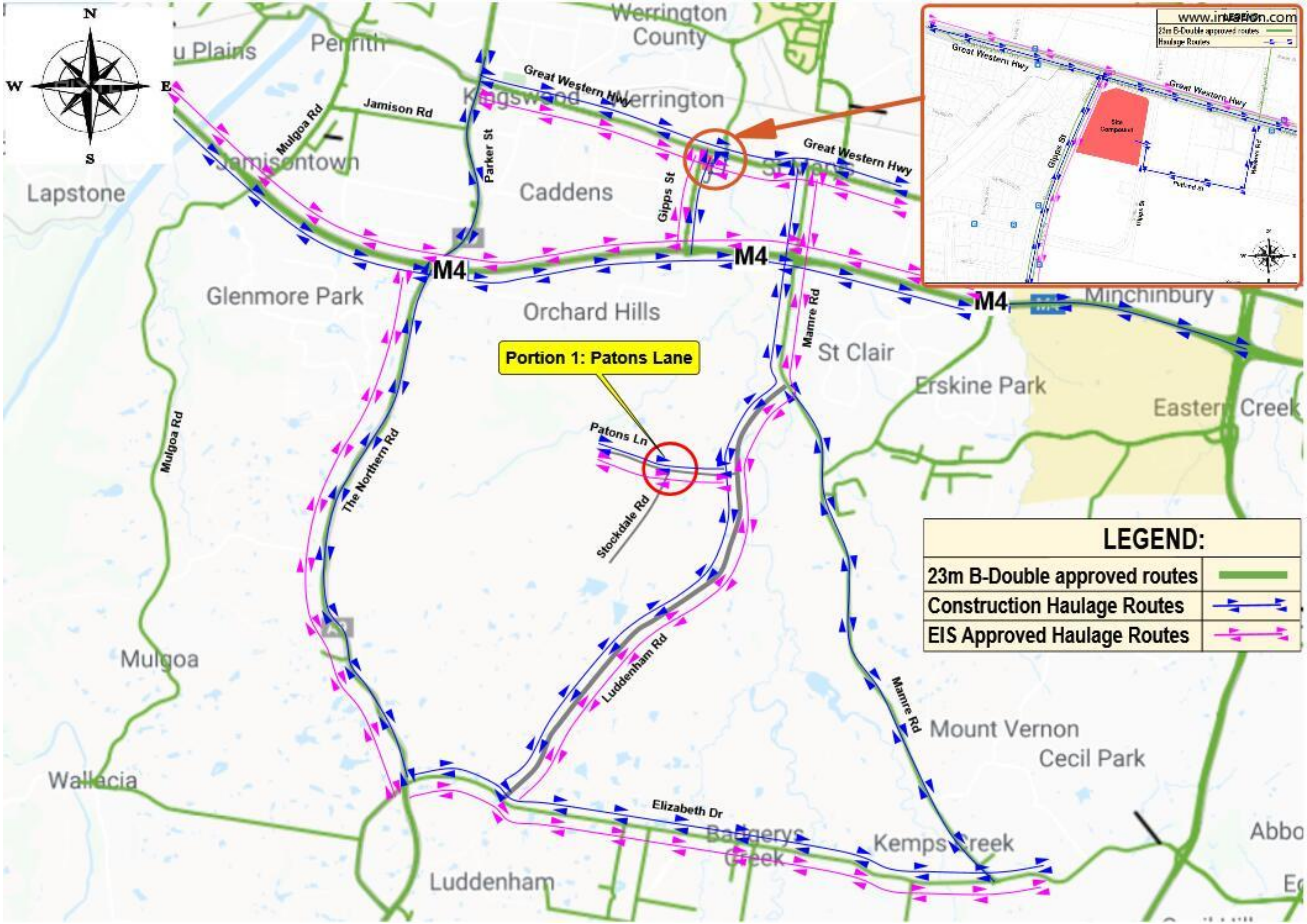
Any updates or amendments of this CTMP will occur as needed.

Only the Traffic Manager and/or Senior Traffic Planner (in consultation with the Environment Manager and Project Manager) can amend this CTMP under consultation with approval authorities.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

Appendix A Haulage Routes


LEGEND:
www.invarion.com
23m B-Double approved routes
Construction Haulage Routes
EIS Approved Haulage Routes
Great Western Hwy
Great Western Hwy
Great Western Hwy
Water St
Gipps St
Gipps St
Site Compound
Putland St
Reserve Rd
Poppy Cl
Mistletoe Ave
Dolphin Cl
Nambucca Pl
Werona Ave
Lima Cl
N
W
E
S


Portion 1: Patons Lane
LEGEND:
23m B-Double approved routes
Construction Haulage Routes
EIS Approved Haulage Routes
Great Western Hwy
Jamison Rd
Mulgoa Rd
Parker St
Gipps St
M4
Mamre Rd
The Northern Rd
Patons Ln
Stockdale Rd
Luddenham Rd
Elizabeth Dr
Penrith
Werrington County
Werrington
Kingswood
Jamisontown
Lapstone
Caddens
St Marys
Glenmore Park
Orchard Hills
Minchinbury
St Clair
Erskine Park
Eastern Creek
Mulgoa
Wallacia
Mount Vernon
Cecil Park
Luddenham
Badgerys Creek
Kemps Creek
N
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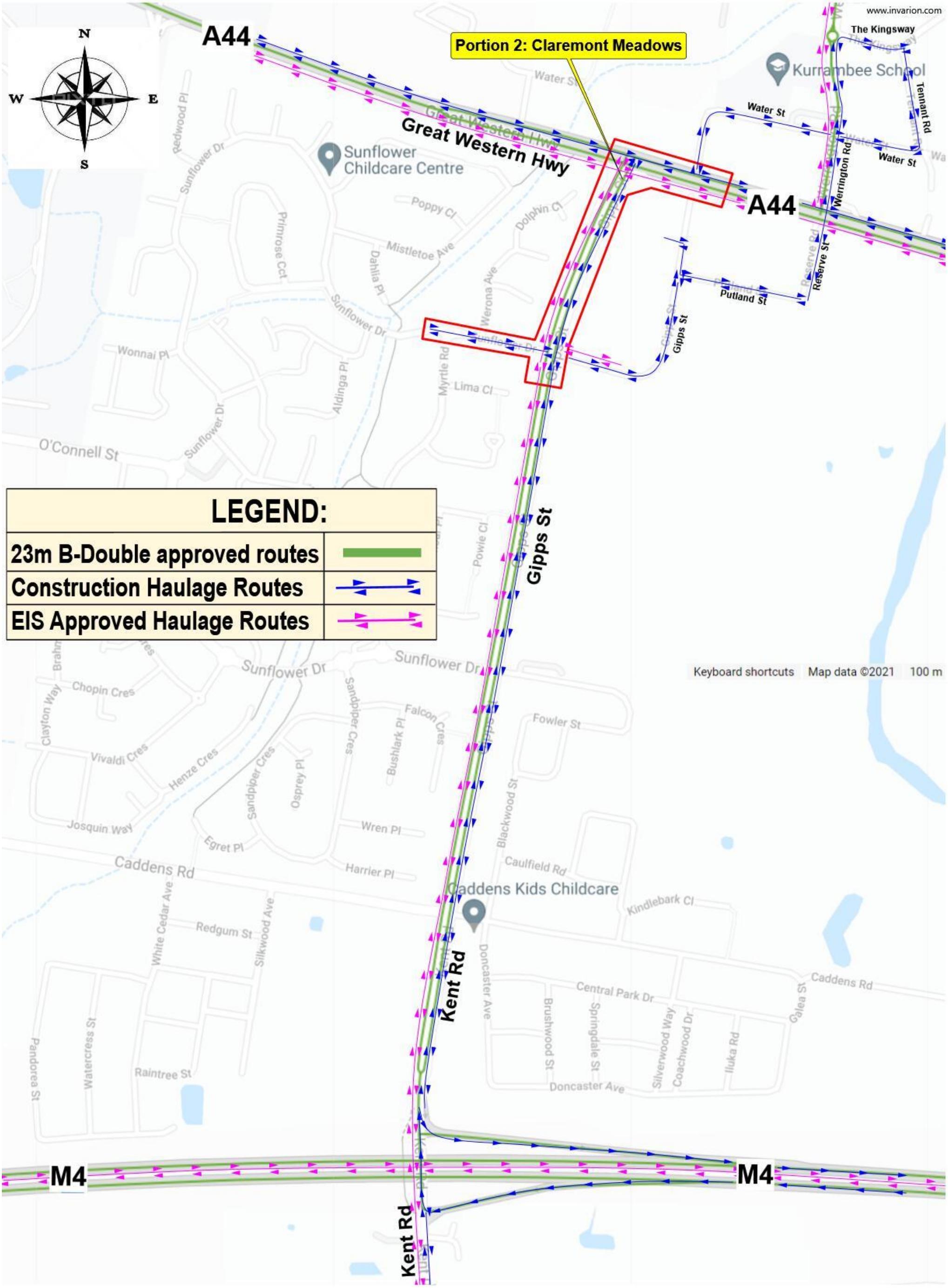
E
W


N
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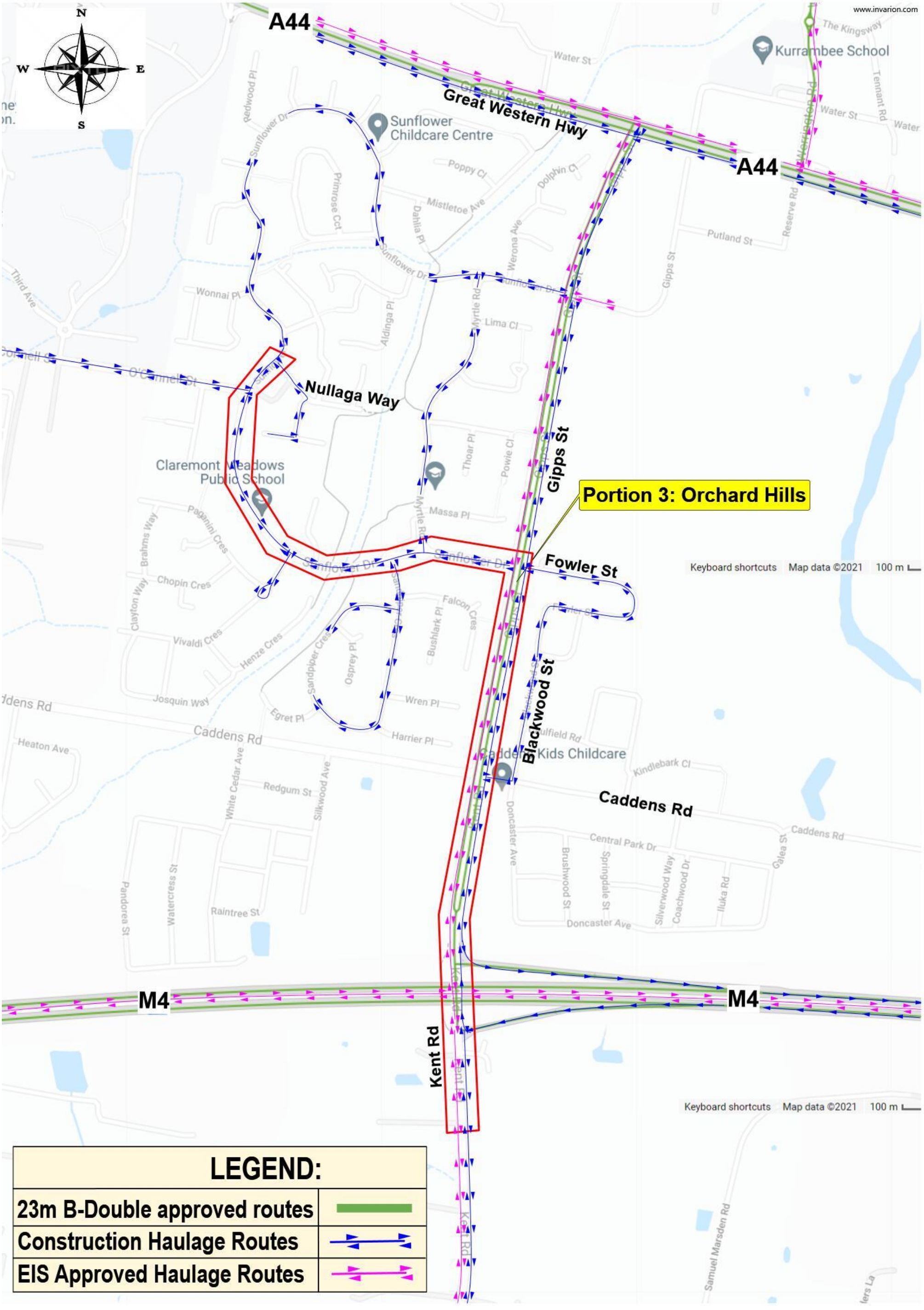
A44
Great Western Hwy
Portion 2: Claremont Meadows
www.invarion.com
The Kingsway
Kurrambee School
Water St
Tennant Rd
Werrington Rd
Reserve St
Putland St
Gipps St
Sunflower Childcare Centre
Redwood Pl
Sunflower Dr
Poppy Cl
Dolphin Cl
Mistletoe Ave
Primrose Cct
Dahlia Pl
Werona Ave
Wonnai Pl
Aldinga Pl
Myrtle Rd
Lima Cl
Powie Cl
O'Connell St
LEGEND:
23m B-Double approved routes
Construction Haulage Routes
EIS Approved Haulage Routes
Keyboard shortcuts
Map data ©2021
100 m
Chopin Cres
Clayton Way
Vivaldi Cres
Henze Cres
Josquin Way
Egret Pl
Caddens Rd
Sandpiper Cres
Osprey Pl
Bushlark Pl
Falcon Cres
Fowler St
Wren Pl
Harrier Pl
Blackwood St
Caulfield Rd
Caddens Kids Childcare
Kindlebark Cl
White Cedar Ave
Redgum St
Silkwood Ave
Pandorea St
Watercress St
Raintree St
Doncaster Ave
Central Park Dr
Brushwood St
Springdale St
Silverwood Way
Coachwood Dr
Iluka Rd
Galea St
Kent Rd
M4


www.invarion.com
N
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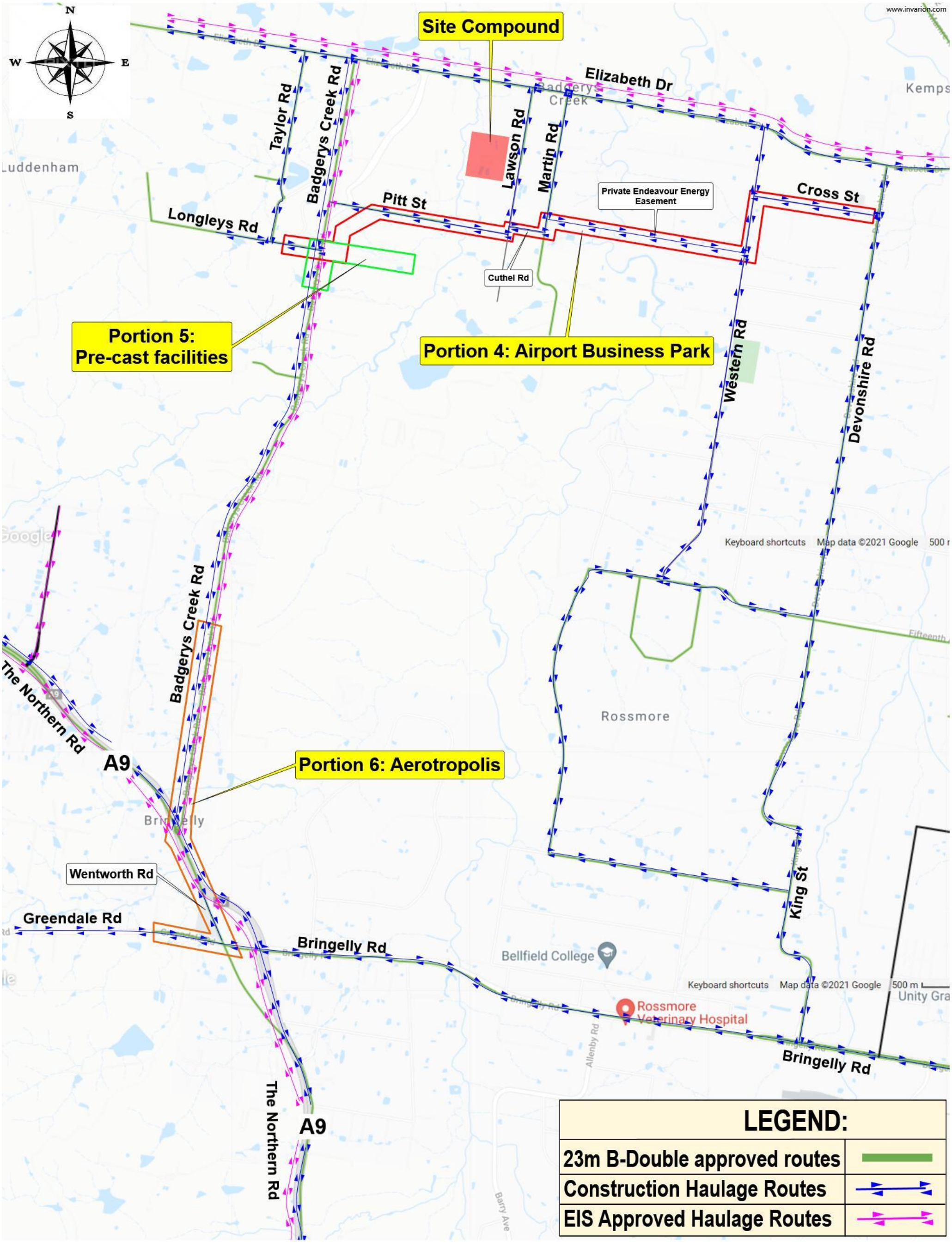
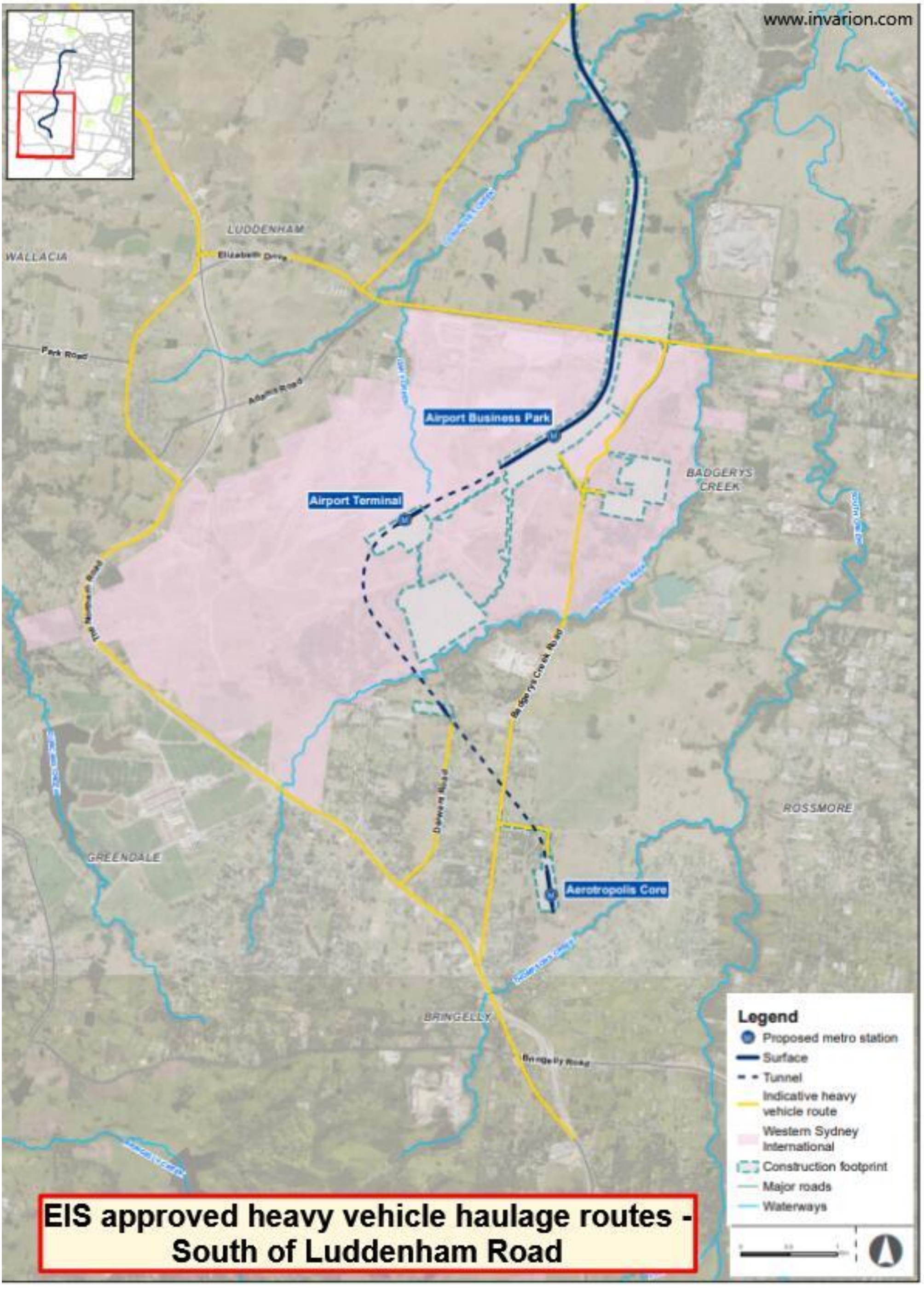
Great Western Hwy
A44
Kurrambee School
The Kingsway
Water St
Tennant Rd
Water
Reserve Rd
Sunflower Childcare Centre
Redwood Pl
Sunflower Dr
Poppy Cl
Primrose Cct
Dolphin Cl
Mistletoe Ave
Dahlia Pl
Werona Ave
Putland St
Gipps St
Third Ave
Wonnai Pl
Aldinga Pl
Myrtle Rd
Lima Cl
O'Connell St
Nullaga Way
Claremont Meadows Public School
Thoar Pl
Powie Cl
Massa Pl
Portion 3: Orchard Hills
Fowler St
Keyboard shortcuts
Map data ©2021
100 m
Brahms Way
Paganini Cres
Chopin Cres
Clayton Way
Vivaldi Cres
Henze Cres
Josquin Way
Sandpiper Cres
Osprey Pl
Bushlark Pl
Falcon Cres
Wren Pl
Egret Pl
Harrier Pl
Blackwood St
Caddens Rd
Heaton Ave
White Cedar Ave
Redgum St
Silkwood Ave
Caddens Kids Childcare
Kindlebark Cl
Caddens Rd
Central Park Dr
Doncaster Ave
Brushwood St
Springdale St
Silverwood Way
Coachwood Dr
Iluka Rd
Galea St
Pandorea St
Watercress St
Raintree St
M4
M4
Kent Rd
Samuel Marsden Rd
LEGEND:
23m B-Double approved routes
Construction Haulage Routes
EIS Approved Haulage Routes


www.invarion.com
N
W
E
S
Site Compound
Elizabeth Dr
Taylor Rd
Badgerys Creek Rd
Lawson Rd
Martin Rd
Badgerys Creek
Kemps
Luddenham
Longleys Rd
Pitt St
Private Endeavour Energy Easement
Cross St
Cuthel Rd
Portion 5:
Pre-cast facilities
Portion 4: Airport Business Park
Western Rd
Devonshire Rd
Keyboard shortcuts
Map data ©2021 Google
500 m
Rossmore
Fifteenth
The Northern Rd
A9
Portion 6: Aerotropolis
Badgerys Creek Rd
Wentworth Rd
Greendale Rd
Bringelly Rd
Bellfield College
Rossmore Veterinary Hospital
Allenby Rd
Barry Ave
King St
Unity Gra
LEGEND:
23m B-Double approved routes
Construction Haulage Routes
EIS Approved Haulage Routes

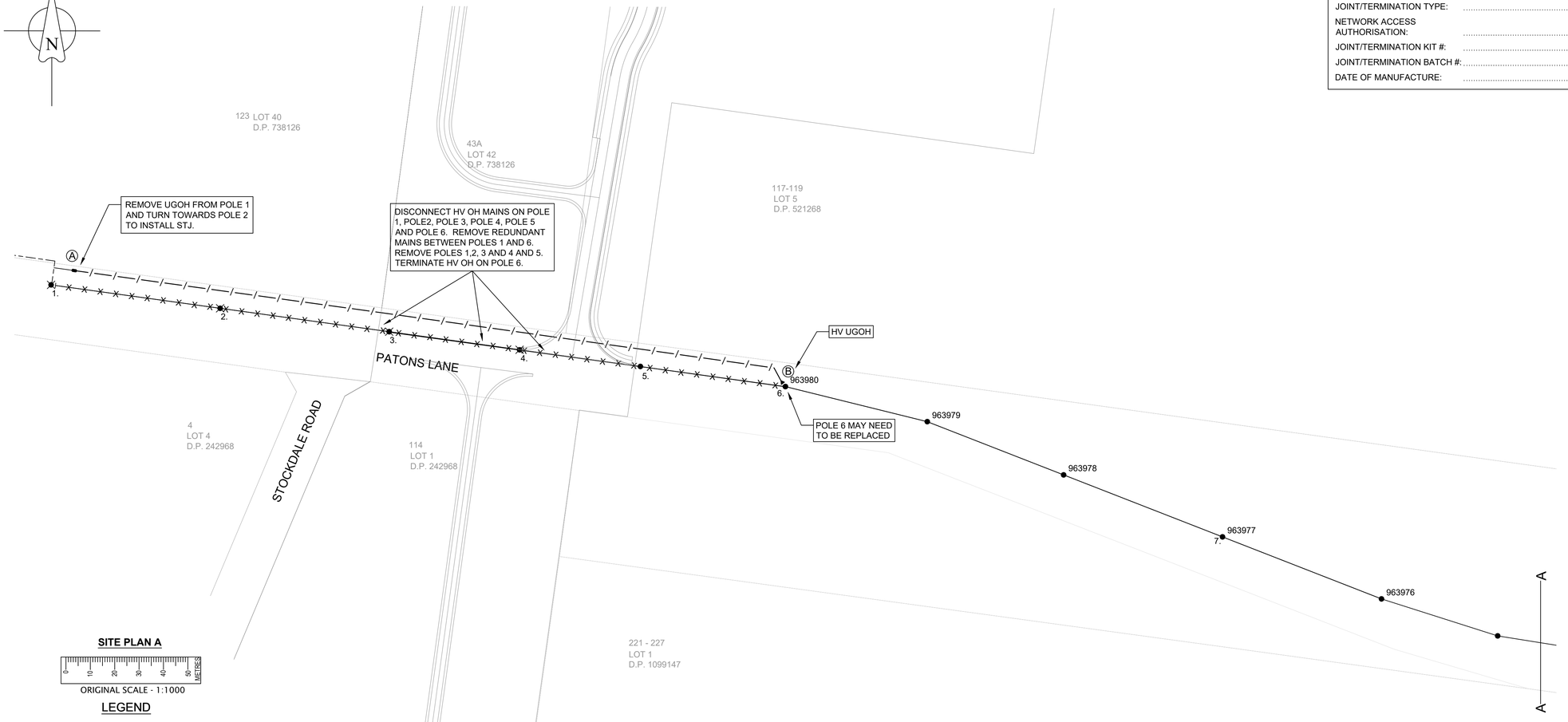

EIS approved heavy vehicle haulage routes - North of Luddenham Road
www.invarion.com
Kingswood
Werrington
St Marys
Great Western Highway
M4 Western Motorway
Orchard Hills
Lenore Drive
ORCHARD HILLS
Penrice Lane
ERSKINE PARK
Luddenham Road
LUDDENHAM
BADGERYS CREEK
Legend
Proposed metro station
Proposed metro alignment
Surface
Tunnel
Indicative haulage routes
Construction footprint
Existing Sydney Trains station
Existing Sydney Trains suburban rail network
Major roads
Waterways


www.invarion.com
LUDDENHAM
WALLACIA
Elizabeth Drive
Park Road
Airport Business Park
Airport Terminal
BADGERYS CREEK
Aerotropolis Core
ROSSMORE
GREENDALE
BRINGELLY
Legend
Proposed metro station
Surface
Tunnel
Indicative heavy vehicle route
Western Sydney International
Construction footprint
Major roads
Waterways
EIS approved heavy vehicle haulage routes - South of Luddenham Road

Appendix B Certified Design

Portion	Design Name	Case Number	Certified Design Date
1. Patons Lane Undergrounding	LOT 42, DP 738126 - 43A PATONS LANE ORCHARD HILLS ARP4779 ASSET RELOCATION	ARP4779	31/08/2021
2. Claremont Meadows Services Facility Power	LOT 2, DP771697 – 1017 GIPPS ST CLAREMONT MEADOWS DBL2558 TEMPORARY BUILDER SUPPLY	DBL2558	31/08/2021
3. Orchard Hills Power	70-74 Kent Road (LOT 43 DP29388) ORCHARD HILLS DBL2529_RETIC_20210226 CONNECTION OF LOAD	DBL2529	31/08/2021
4. Airport Business Park Power	LOT 2 DP 1260971 – BADGERYS CREEK ROAD BADGERYS CREEK DBL2559_PMOS_RETIC CONNECTION OF LOAD METHOD OF SUPPLY	DBL2559	TBC
5. Precast Facilities Power	BAGERYS CREEK ROAD BRINGELLY DBL2560 CONNECTION OF LOAD METHOD OF SUPPLY BAGERYS CREEK ROAD BRINGELLY DBL2584 CONNECTION OF LOAD METHOS OF SUPPLY	DBL2584 & DBL2560	02/11/2021
6. Aerotropolis Power	215 BADGERYS CREEK ROAD BRINGELLY DBL2554 CONNECTION OF LOAD PROPOSED METHOD OF SUPPLY	DBL2554	30/09/2021

Portion 1 - Patons Lane Undergrounding



SITE PLAN A

ORIGINAL SCALE - 1:1000

LEGEND

- EXISTING OVERHEAD MAINS
- INSTALL NEW HV TRENCH
- REMOVE OH MAINS
- INSTALL NEW HV TRENCH
- EXISTING POLE

KEY DOCUMENTS TABLE	
THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	TBA
DESIGNER'S SAFETY REPORT	TBA

JOINT/TERMINATION TYPE: .....

NETWORK ACCESS AUTHORISATION: .....

JOINT/TERMINATION KIT #: .....

JOINT/TERMINATION BATCH #: .....

DATE OF MANUFACTURE: .....

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
   (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
   (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EASEMENT BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

7. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION.
TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

8. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

9. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

10. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

11. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

12. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

13. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

14. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
A - B	HV	NEW 2 x 125mm DUCTS	300m	NIL	NIL
		SUB TOTAL		NIL	NIL

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS			
ASP LEVEL 1 ELECTRICAL WORKS			CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS		CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL		– MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S)	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED			EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT	WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT		
NIL	NIL	CUSTOMER FUNDED CONTESTABLE WORKS	NIL
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT		ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO:	CO-ORDINATION SUPPLY REQUIRED DATE
			30/10/2021
TBC		TBC	ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
			NIL

Cadastre: © Land and Property Information 2016

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP: Connection Policy
EMS: Environmental Management Standard
MCI: Mains Construction Instruction
MDI: Mains Design Instruction
PDI: Protection Design Instruction
SDI: Substation Design Instruction
SAD 0001: Design Drawing Standard
MMI: Mains Maintenance Instruction
SMI: Substation Maintenance Instruction
LDI 0001: Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name:

Service Provider Number: 2516 Date: XX/XX/2020

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

Print Name:

Service Number:

Funding Amount: $

Date:

DUCT DECLARATION

I

OF

CONTACT NUMBER

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS

COMMENCED ON

& COMPLETED ON

SIGNATURE

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

NEW	EXISTING	NEW	REMOVE	EXISTING	BRACKET MOUNTING LENGTH (m)	SPAN LENGTH	LINE DEV DEGREES	HV	LV	DIA mm	TYPE	STAY	FOOTING	RELOCATE	REPLACE	NEW	EXISTING	REMOVE	NUMBER
	963965																		12
	963967																		11
	963970																		10
	963972																		9
	963973																		8
	963977																		7
	963980							HUGOH									X		6
	963981																	X	5
	963982																	X	4
	963983																	X	3
	963984																	X	2
	963985																	X	1
FIELD POLE NUMBER		LANTERNS				CONSTRUCTION				HOLE	POLE								

AMENDMENT'S		
ORIGINAL ISSUE	A	DRAFT No. 01

PRELIMINARY DESIGN ONLY
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

PREPARED BY:
ULTEGRA
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	ARP4779
				AM PROJ. No.	XXXXX
		GENERAL		ULTEGRA REF.	80154__20210621
		OVERHEAD		UBD/PENGUIN REF	P204 P6
		UNDERGROUND		GIS MAP No	U 73525
		SUBSTATIONS		HV OP DIAGRAM	ST MARYS 3 REF AF15
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN	M.E
DATE	21/06/2021
CH'D	R.BHARDWAJ

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN P.L

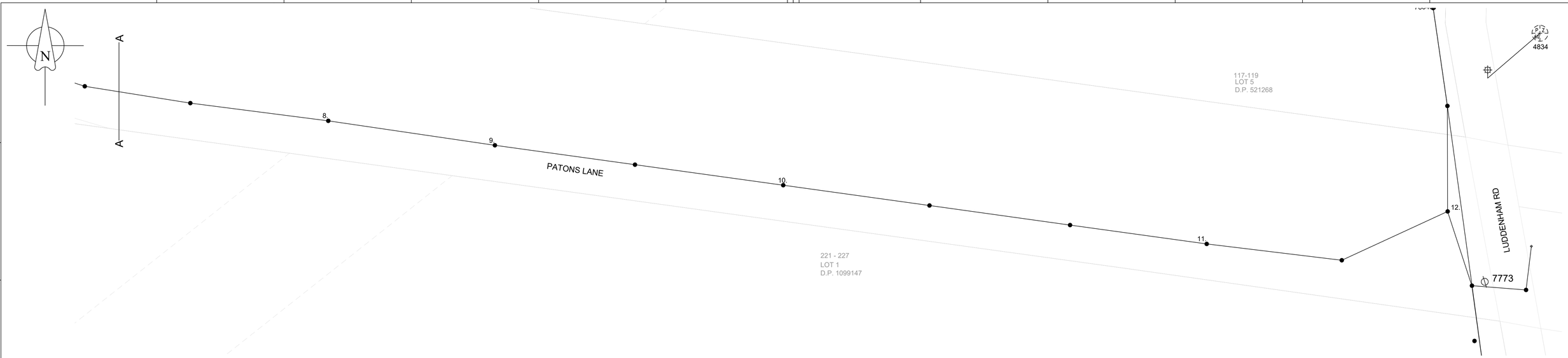
LOT 42, DP 738126 - 43A PATONS LANE
ORCHARD HILLS
ARP4779
ASSET RELOCATION

Endeavour Energy

A1 XXXXX A

SHEET No 1 OF 2 SHEETS

88262

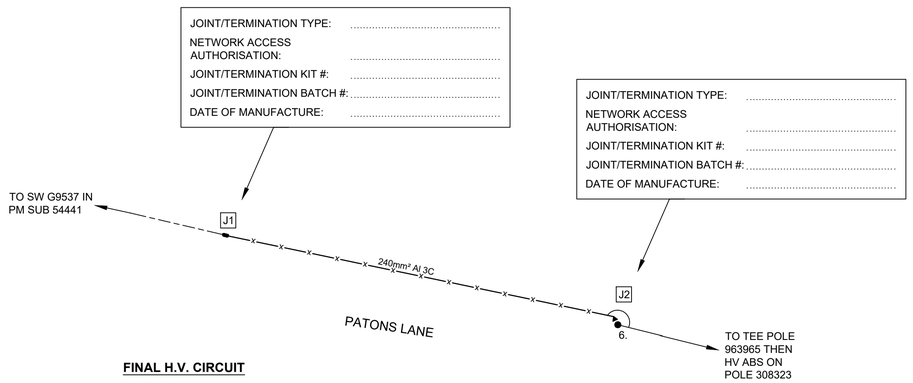


SITE PLAN B

ORIGINAL SCALE - 1:1000

LEGEND

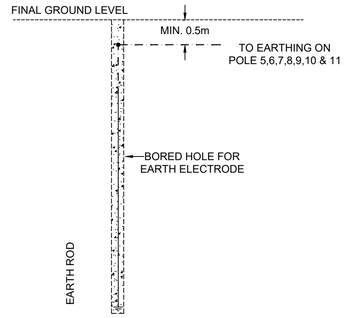
- EXISTING OVERHEAD MAINS
- INSTALL NEW HV TRENCH
- REMOVE OH MAINS
- INSTALL NEW HV TRENCH
- EXISTING POLE



FINAL H.V. CIRCUIT

NOT TO SCALE

- EXISTING HV OH MAINS
- INSTALL 11KV 240mm² AL 3C XLPE/PVC/HDPE CABLE RL = 300m CL = 315m
- NEW HV UGOH
- EXISTING POLE



11kV UGOH AT POLE 5 SEPARATE EARTHING DESIGN

NOT TO SCALE

- CABLE 70mm2 INS Cu
- EARTH ELECTRODE

EARTHING CONSTRUCTION TO EDI-0006

POLE 5 - 11kV UGOH EARTHING DETAILS				
SOIL RESISTIVELY (ohms.m)	LAYER 1	11.48	DEPTH (m)	14.00
	LAYER 2	29.36		-
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.56
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				7
INSULATED DEPTH (m)				0.5
LENGTH OF BARE ELECTRODE (m)				15
CONNECTOR TYPE (CAD or CRIMP)				CRIMP

Cadastre: © Land and Property Information 2016

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

PRELIMINARY DESIGN ONLY
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	ARPXXXX
				AM PROJ. No.	XXXXX
		GENERAL		ULTEGRA REF.	80154__20210621
		OVERHEAD		UBD/PENGUIN REF	P204 P6
		UNDERGROUND		GIS MAP No	U 73525
		SUBSTATIONS		HV OP DIAGRAM	ST MARYS 3 REF AF15
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN M.E
DATE 21/06/2021
CH'D R.BHARDWAJ

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN P.L

LOT 42, DP 738126 - 43A PATONS LANE
ORCHARD HILLS
ARPXXXXX
ASSET RELOCATION

Endeavour Energy

A1 | XXXXX | A

SHEET No 1 OF 2 SHEETS

88262

Portion 2 - Claremont Meadows Services Facility

LEGEND

- NEW SUBSTATION LOCATION
- EXISTING POLE SUBSTATION
- INSTALL NEW HV TRENCH
- NEW DUCT
- EXISTING DUCT
- INSTALL NEW LV TRENCH
- EXISTING UNDERGROUND MAINS
- EXISTING OVERHEAD MAINS
- MODIFIED OH MAINS
- REPLACE POLE
- EXISTING POLE
- EXISTING COLUMN
- EXISTING SL LANTERN
- UNDERSLUNG LINKS
- EXISTING LV LINKS
- EXISTING SLCP
- SITE AREA

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:_____

Date Approved:_____

Examiner's Signature:

_____

Print Name:_____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

DESIGN COMPLIANCE AND INDEMNITY

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MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: Bryan Stringer

Service Provider Number: 2516 Date: 21/07/2021

DUCT DECLARATION

I _____

OF _____

CONTACT NUMBER _____

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS

COMMENCED ON _____

& COMPLETED ON _____

SIGNATURE _____

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

_____

Print Name:

_____

Service Number:_____

Funding Amount: $_____

Date: _____

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.

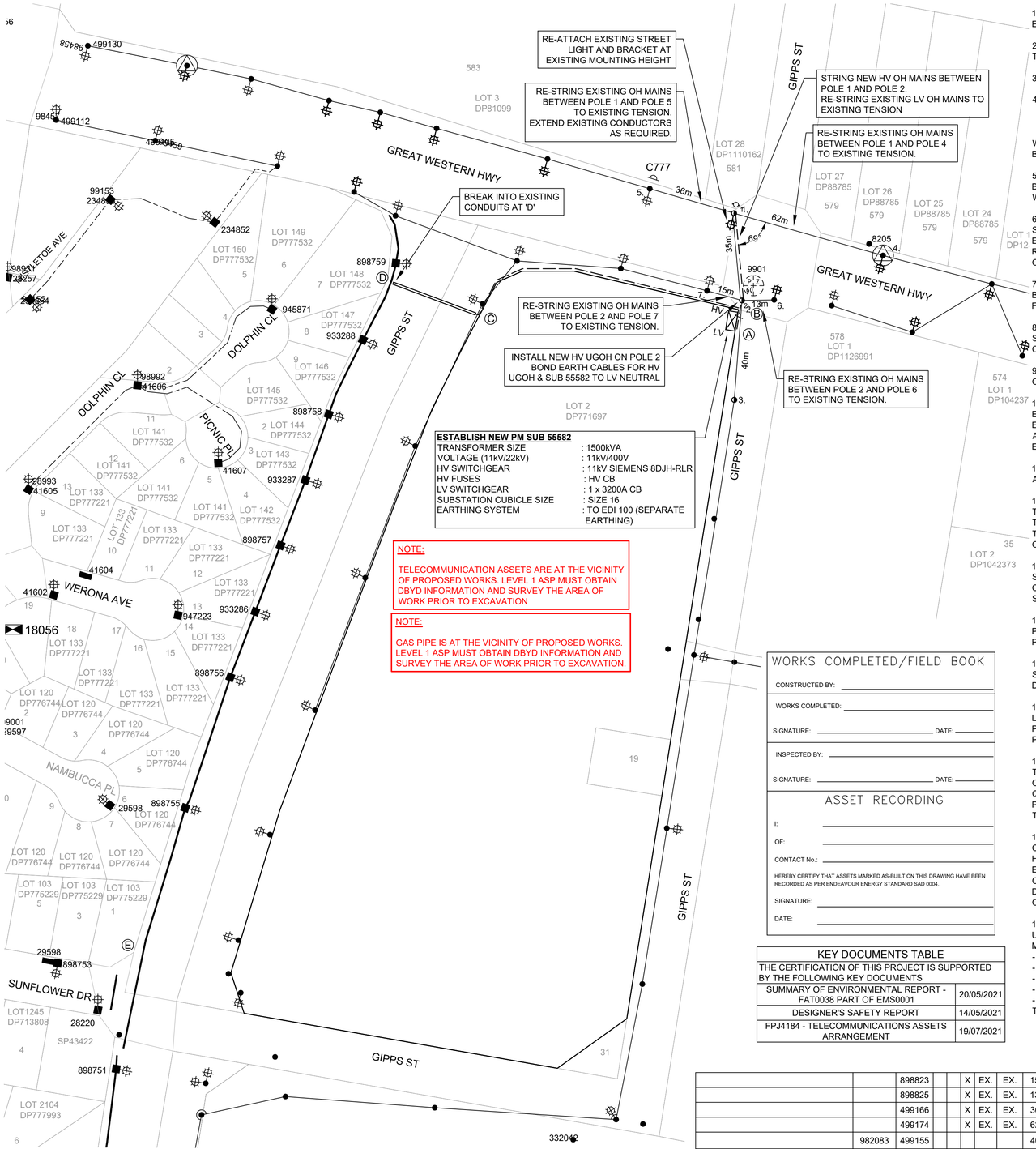
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS			CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS		CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL		– MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY - SUBSTATION COMMISSIONING - CONTRACT INSPECTION (AS PER FEE SENT BY EE'S CWA'S)	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EQUIPMENT LICENCE AREAS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EQUIPMENT LICENCE AREAS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED			EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT	WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT	CUSTOMER FUNDED CONTESTABLE WORKS	NIL
NIL	NIL	ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO:	CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT			DECEMBER 2021
TOTAL EE CAPITAL CONTRIBUTION (EXCLUDING PM & DESIGN) = NIL EE CAPITAL CONTRIBUTION (HV REIMBURSED) = NIL		NIL	ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
			NIL



SITE PLAN

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
(I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
(II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EQUIPMENT LICENCE AREA BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. THE PADMOUNT SUBSTATION SITE (5.5m X 2.75m FOR PM SUB No.55582) IS SUBJECT TO AN ELECTRICAL EQUIPMENT LICENCE BETWEEN SYDNEY METRO AND EPSILON DISTRIBUTION MINISTERIAL HOLDING CORPORATION. SYDNEY METRO IS REQUIRED TO ACQUIRE LAND OWNERSHIP BEFORE COMMENCING CONSTRUCTION ON LOT 2 DP771697.

7. A RESTRICTION ON USE OF LAND IN RELATION TO THE FIRE RATING OF THE BUILDING MEASURED 3m FROM THE SUBSTATION PLINTH IS TO BE CREATED IN FAVOR OF ENDEAVOR ENERGY WITHIN EXISTING LOT 2 DP 771697.

8. FINAL LOCATION OF EQUIPMENT LICENCE AREA FOR SUBSTATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THIER REPRESENTITIVE) PRIOR TO CONSTRUCTION.

9. FIRE HYDRANTS AND BOOSTER VALVES NOT TO BE LOCATED WITHIN 10 METRES OF SUBSTATION PLINTHS.

10. EARTHING OF THE SUBSTATIONS TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI 100. SEPARATE EARTHING TO BE ACHIEVED, THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT, ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100.

11. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

12. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION.
TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

13. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

14. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

15. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

16. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

17. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

18. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

19. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS

SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	20/05/2021
DESIGNER'S SAFETY REPORT	14/05/2021
FPJ4184 - TELECOMMUNICATIONS ASSETS ARRANGEMENT	19/07/2021

REMARKS	NEW	EXISTING	NEW	REMOVE	EXISTING	BRACKET	MOUNTING LENGTH (m)	SPAN LENGTH	LINE DEV DEGREES	HV	LV	DIA mm	DEPTH (m)	TYPE	STAY	FOOTING	RELOCATE	REPLACE	NEW	EXISTING	REMOVE	NUMBER
		898823			X	EX.	EX.	15			EX.									X		7
		898825			X	EX.	EX.	13			EX.									X		6
		499166			X	EX.	EX.	36		EX.	EX.									X		5
		499174			X	EX.	EX.	62		EX.	EX.									X		4
	982083	499155						40			B01	450	1.5	9.5/4		C		X				3
BOND SUB 55582 EARTH CABLE TO LV NEUTRAL	981010	898824						35		B25 + HUGOH	B01	900	2	14/12		C		X				2
RE-ATTACH STREETLIGHT BRACKET AT EXISTING MOUNTING HEIGHT	981009	749636			X	EX.	EX.		69	B21 + B25	LUSL-BB + B05	900	2	14/12		C		X				1
	FIELD POLE NUMBER		LANTERNS					CONSTRUCTION				HOLE		POLE								

AMENDMENTS		
ORIGINAL ISSUE	DRAFT No. 01	A

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TEMPLATE VERSION No. 5.0

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2558
				AM PROJ. No.	2014/02306/010
		GENERAL		ULTEGRA PROJ. No.	80079_20210721
		OVERHEAD		UBD/PENGUIN REF	P164 Q16
		UNDERGROUND		GIS MAP No	U73608
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS2 V10
				LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN M.E

DATE 21/07/2021

CH'D B.S

DO NOT SCALE DIMENSIONS IN METRES

DESIGN A.Z

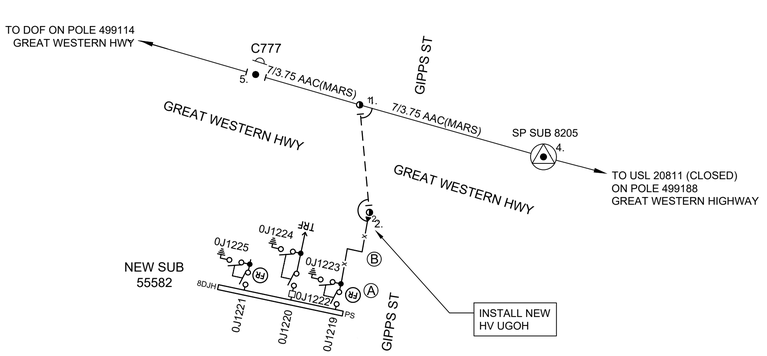
LOT 2, DP771697 - 1-17 GIPPS ST
CLAREMONT MEADOWS
DBL2558
TEMPORARY BUILDER SUPPLY

Endeavour Energy

A1 522411 A

SHEET No 1 OF 4 SHEETS

85969



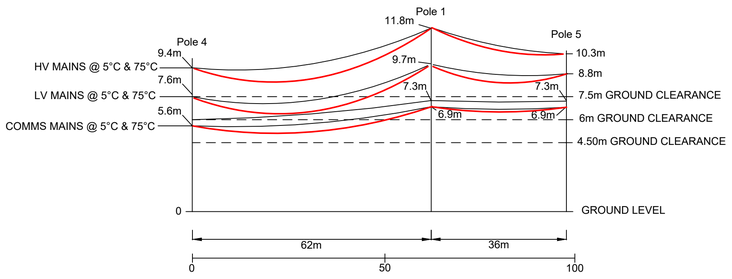
FINAL H.V. CIRCUIT
NOT TO SCALE

——x——x—— INSTALL NEW 240mm² Al. 3C 11kV XLPE/PVC/HDPE CABLE
R.L. 11m C.L. 27m

- - - - - - - - - STRING NEW 7/4.50 AAC HV OVERHEAD MAINS
STRING TO 7% CBL AT 5°C TO TABLE 1 - MCI0005.7.1.2
R.L. = 35m C.L. = 123m

——————— EXISTING HV OH MAINS

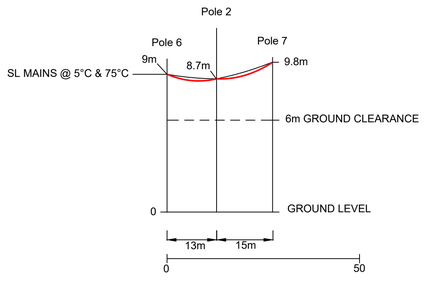
► INSTALL NEW HV UGOH



CONDUCTOR TEMPERATURE PROFILES
HOR. SCALE - 1:1000
VERT. SCALE - 1:250

——————— OH MAINS @ 5°C
——————— OH MAINS @ 75°C

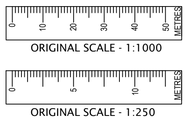
Date of report: 28/05/2021; 13:42 PM
Results produced by Neara (formerly Power Lines Pro) software

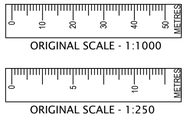


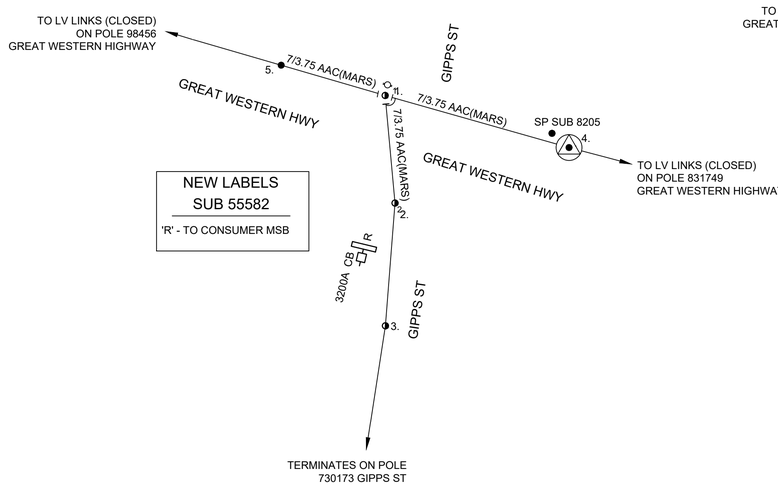
CONDUCTOR TEMPERATURE PROFILES
HOR. SCALE - 1:1000
VERT. SCALE - 1:250

——————— OH MAINS @ 5°C
——————— OH MAINS @ 75°C

Date of report: 28/05/2021; 13:42 PM
Results produced by Neara (formerly Power Lines Pro) software





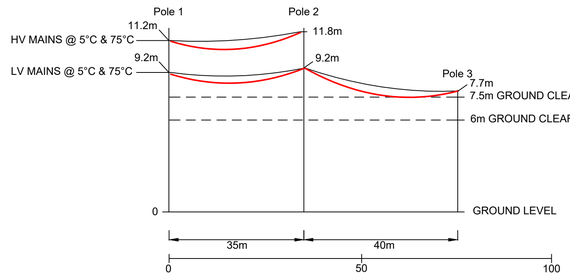


NEW LABELS
SUB 55582
'R' - TO CONSUMER MSB

FINAL L.V. CIRCUIT
NOT TO SCALE

——————— EXISTING LV OH MAINS

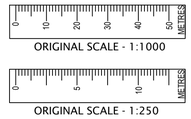
LEVEL 2 ASP TO INSTALL SERVICE MAINS TO CUSTOMER MSB

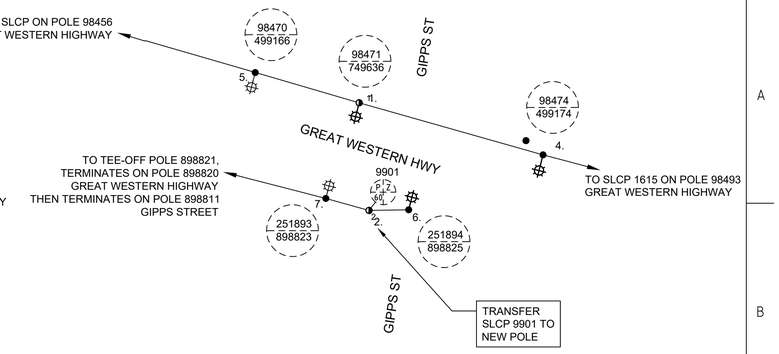


CONDUCTOR TEMPERATURE PROFILES
HOR. SCALE - 1:1000
VERT. SCALE - 1:250

——————— OH MAINS @ 5°C
——————— OH MAINS @ 75°C

Date of report: 28/05/2021; 13:42 PM
Results produced by Neara (formerly Power Lines Pro) software





FINAL SL CIRCUIT
NOT TO SCALE

——————— EXISTING SL OH MAINS

EXISTING SL LANTERN

12345 / 12345 EXISTING LANTERN No. / EXISTING COLUMN No.

DUCTING SCHEDULE				
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
A - B	HV EARTH EARTH	NEW 2 x 125mm DUCTS 2 x DIRECT BURIED EARTH CABLES	7.5	NIL	NIL
B - POLE 2	HV EARTH	NEW 1 x DIRECT BURIED HV CABLE 1 x DIRECT BURIED EARTH CABLE	3.5	NIL	NIL
B - C	EARTH	NEW 1 x DIRECT BURIED EARTH CABLES	117	NIL	NIL
C - D	EARTH EARTH	NEW 6 x 125mm DUCTS 2 x DIRECT BURIED EARTH CABLES (ROAD CROSSING)	38	NIL	NIL
D - E	EARTH SL	EXISTING 2 x 50mm DUCTS 2 x 125mm DUCTS	288	NIL	NIL
E - PILLAR 29598	EARTH SL	EXISTING 2 x 50mm DUCTS	36	NIL	NIL
			TOTAL	NIL	NIL

LEGEND

NEW TRENCH
SPARE DUCT
NEW CABLE DIRECT BURIED
NEW CABLE IN CONDUIT
NEW EARTH CABLE DIRECT BURIED

CERTIFIED BY ENDEAVOUR ENERGY
Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

AMENDMENTS: A ORIGINAL ISSUE DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra
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REFERENCE DRAWING'S

WORK ORDERS
GENERAL
OVERHEAD
UNDERGROUND
SUBSTATIONS

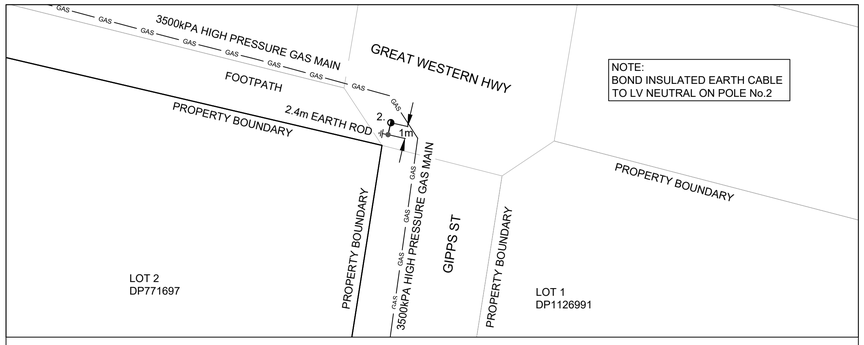
CAP / SAMP No.	DBL2558
AM PROJ. No.	2014/02306/010
ULTEGRA PROJ. No.	80079_20210721
UBD/PENGUIN REF	P164 Q16
GIS MAP No	U73608
HV OP DIAGRAM	CLAREMONT MEADOWS2 V10
LOCAL GOV AREA	PENRITH

ORIGINAL SCALE
DRAWN M.E
DATE 21/07/2021
CH'D B.S
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN A.Z

LOT 2, DP771697 - 1-17 GIPPS ST
CLAREMONT MEADOWS
DBL2558
TEMPORARY BUILDER SUPPLY

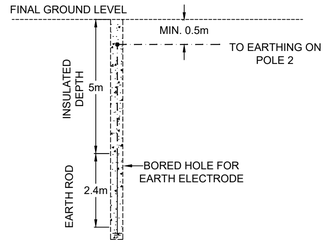
Endeavour Energy
A1 522411 A
SHEET No 2 OF 4 SHEETS

85969



11kV UGOH AT POLE 2 COMMON EARTHING DIAGRAM

NOT TO SCALE



11kV UGOH AT POLE 2 COMMON EARTHING DESIGN

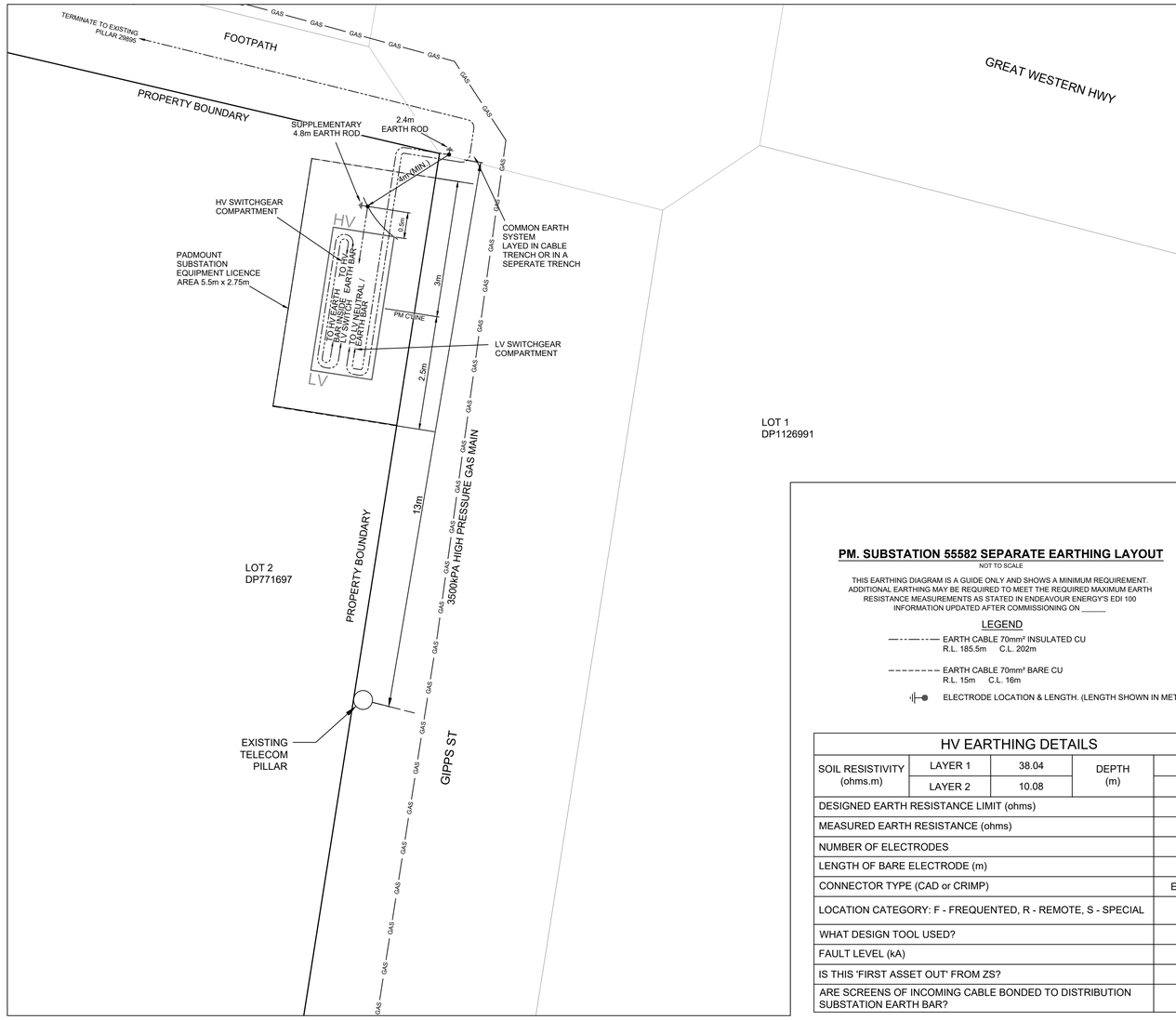
NOT TO SCALE

CABLE 70mm² INS Cu
R.L. 14m C.L. 30m

EARTH ELECTRODE

EARTHING CONSTRUCTION TO EDI-0006-DRAWING 348254

11kV UGOH EARTHING DETAILS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	38.04	DEPTH (m)	0.50
	LAYER 2	10.08		∞
DESIGNED EARTH RESISTANCE LIMIT (ohms)				4.11
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				1
LENGTH OF BARE ELECTRODE (m)				2.4
CONNECTOR TYPE (CAD or CRIMP)				EITHER
LOCATION CATEGORY: F - FREQUENTED, R - REMOTE, S - SPECIAL				F
WHAT DESIGN TOOL USED?				3E
FAULT LEVEL (kA)				2.94
IS THIS 'FIRST ASSET OUT' FROM ZS?				NO
ARE SCREENS OF INCOMING CABLE BONDED TO DISTRIBUTION SUBSTATION EARTH BAR?				YES



PM. SUBSTATION 55582 SEPARATE EARTHING LAYOUT

NOT TO SCALE

THIS EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100 INFORMATION UPDATED AFTER COMMISSIONING ON _____

LEGEND

EARTH CABLE 70mm² INSULATED CU
R.L. 185.5m C.L. 202m

EARTH CABLE 70mm² BARE CU
R.L. 15m C.L. 16m

ELECTRODE LOCATION & LENGTH. (LENGTH SHOWN IN METRES).

HV EARTHING DETAILS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	38.04	DEPTH (m)	0.50
	LAYER 2	10.08		∞
DESIGNED EARTH RESISTANCE LIMIT (ohms)				4.11
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				5
LENGTH OF BARE ELECTRODE (m)				25
CONNECTOR TYPE (CAD or CRIMP)				EITHER
LOCATION CATEGORY: F - FREQUENTED, R - REMOTE, S - SPECIAL				F
WHAT DESIGN TOOL USED?				3E
FAULT LEVEL (kA)				2.94
IS THIS 'FIRST ASSET OUT' FROM ZS?				NO
ARE SCREENS OF INCOMING CABLE BONDED TO DISTRIBUTION SUBSTATION EARTH BAR?				YES

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — DRAFT No. 01 — A

TEMPLATE VERSION No. 5.0

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GENERAL	
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SUBSTATIONS	

CAP / SAMP No.	DBL2558
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LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DRAWN M.E

DATE 21/07/2021

CH'D B.S

DESIGN A.Z

DO NOT SCALE
DIMENSIONS IN METRES

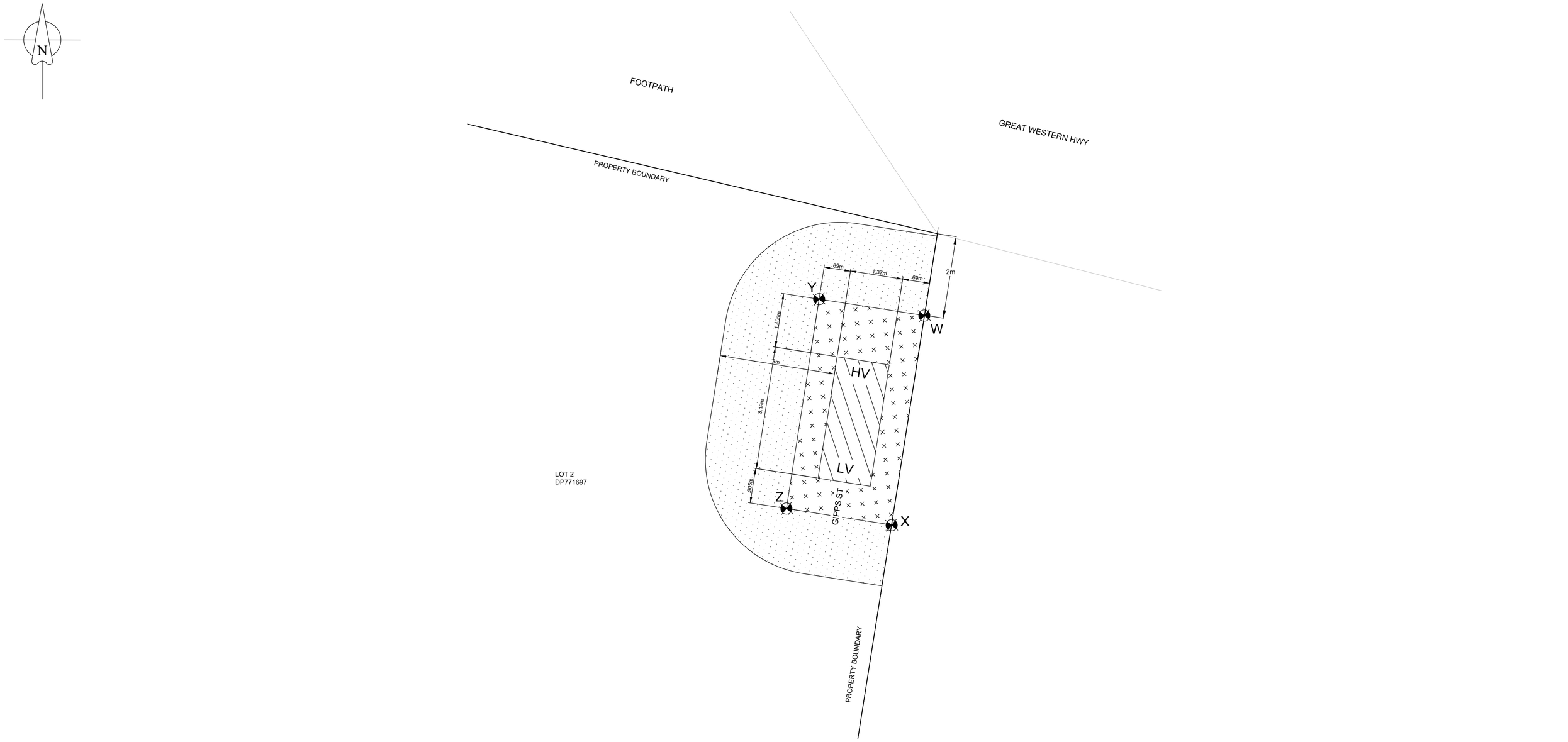
LOT 2, DP771697 - 1-17 GIPPS ST
CLAREMONT MEADOWS
DBL2558
TEMPORARY BUILDER SUPPLY

Endeavour Energy

A1 | 522411 | A

SHEET No 3 OF 4 SHEETS

85969



SUBSTATION EQUIPMENT LICENCE AREA AND RESTRICTIONS

NOT TO SCALE

SUBSTATION PLINTH TO BE INSTALLED AS PER EE STANDARD ARRANGEMENT DRAWING: 016665 REV. S
(REFER TO NOTES 5, 6, 7, 8 & 9)

STANDARD EQUIPMENT LICENCE AREA FOR NEW PM SUBSTATION (5.5m 2.75m & VARIABLE)
(NO OTHER STRUCTURES OR SERVICES ALLOWED)

NEW PM SUBSTATION PLINTH

RESTRICTION ON THE USE OF LAND IN RELATION TO THE FIRE RATING OF BUILDINGS MEASURED 3 METRES FROM PM SUBSTATION PLINTH

SUB EQUIPMENT LICENCE AREA COORDINATES (MGA56)		
POINT	EASTING	NORTHING
W	292136.3570	6261313.1915
X	292135.4994	6261307.7479
Y	292133.6228	6261313.6209
Z	292132.7747	6261308.1867

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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REFERENCE DRAWING'S		WORK ORDERS	
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		UNDERGROUND	
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GIS MAP No	U73608
HV OP DIAGRAM	CLAREMONT MEADOWS2 V10
LOCAL GOV AREA	PENRITH

ORIGINAL SCALE

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	M.E
DATE	21/07/2021
CH'D	B.S
DESIGN	A.Z

LOT 2, DP771697 - 1-17 GIPPS ST
CLAREMONT MEADOWS
DBL2558
TEMPORARY BUILDER SUPPLY

Endeavour Energy

A1 | 522411 | A

SHEET No 4 OF 4 SHEETS

85969

Portion 3 - Orchard Hills

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP:	Connection Policy
EMS:	Environmental Management Standard
MCI:	Mains Construction Instruction
MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: BRYAN STRINGER

Service Provider Number: 2516 Date: 21/05/2021

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

Print Name: Matt Grimwood

Service Number: 37584

Funding Amount: $ 6,409.00

Date: 21/5/21

KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	03/05/2021
DESIGNER'S SAFETY REPORT	10/02/2021

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.

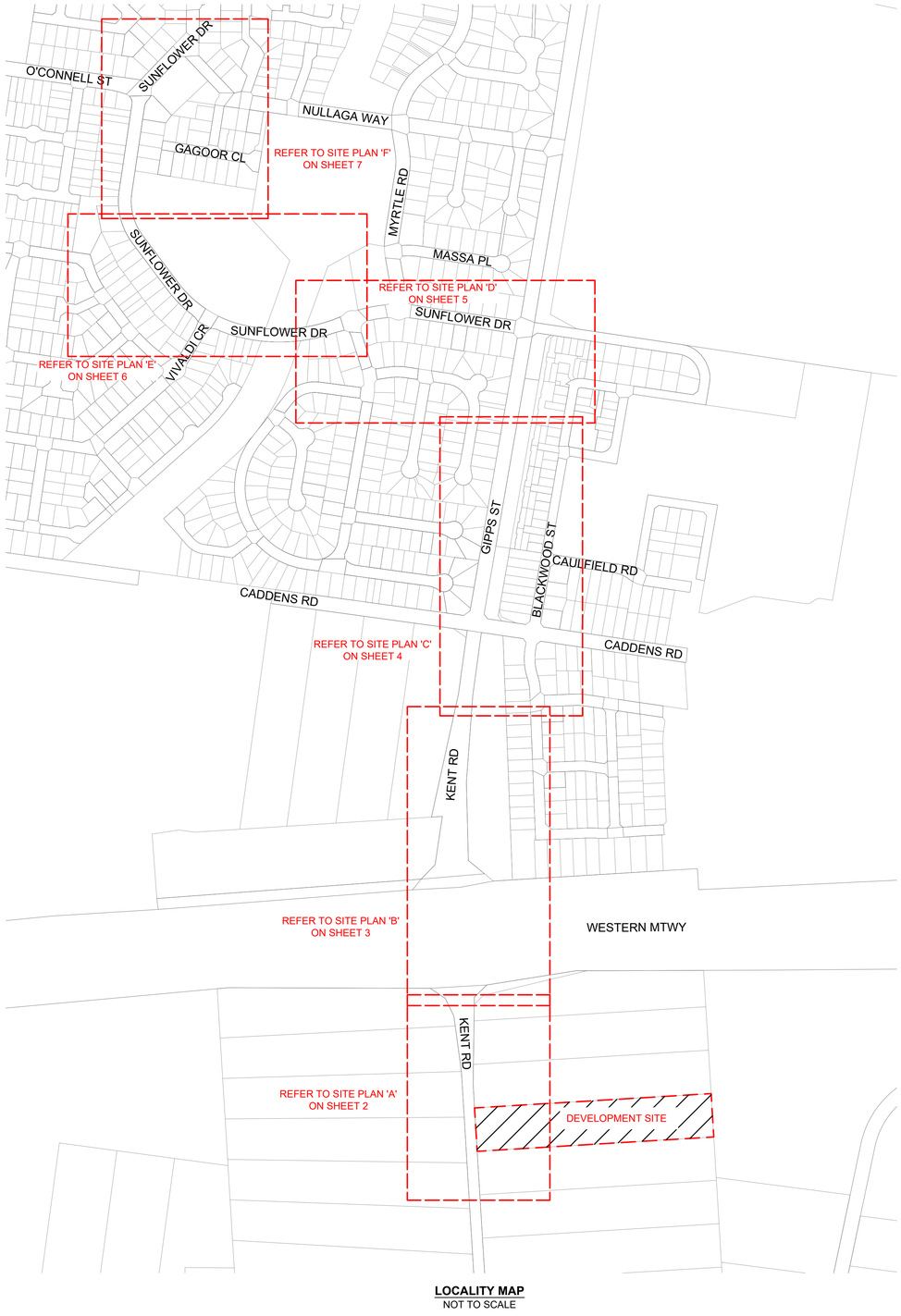
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS			CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS		CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL		– MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S) 2 x PROTECTION SETTINGS $8,442.94 2 x ZS ACCESS AND SUPERVISION $6,630.78 2 x TESTING PRIOR TO COMMISSIONING $9,572.24 2 x 11kV ZONE SUB CB TERMINATION $7,882.50	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED			EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT	WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT		3,052m X Ø125mm PVC DUCTS @ $23/m = $70,196.00
NIL	NIL		CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSEMENT		CUSTOMER FUNDED CONTESTABLE WORKS	AUGUST 2021
DUCT REIMBURSEMENT: 254m x Ø125mm PVC DUCTS @ $23/m $5,842.00 TOTAL EE CAPITAL CONTRIBUTION (EX. PM & DESIGN) $5,842.00 **EE CAPITAL CONTRIBUTION** **(HV REIMBURSED)** $6,409.00		ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SWITCHING STATIONS	ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
			NIL



LOCALITY MAP
NOT TO SCALE

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
(I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
(II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EASEMENT BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. AN EASEMENT FOR 2 x SWITCHING STATION SITES (5m x 2.75m) IS TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN EXISTING LOT 43 DP 29388. THIS EASEMENT IS A MINIMUM SIZE ONLY AND MUST BE LEVEL AND MUST BE FREE OF ALL OTHER SERVICES. EASEMENT MUST BE REGISTERED ON THE TITLE OF LOT 43 DP29388 PRIOR TO ENDEAVOUR ENERGY ACCEPTING LETTER OF INTENT FROM LEVEL 1 ASP.

7. FINAL LOCATION OF EASEMENT FOR SWITCHING STATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THEIR REPRESENTATIVE) PRIOR TO CONSTRUCTION.

8. EARTHING OF THE SWITCHING STATIONS TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI100. COMMON EARTHING TO BE ACHIEVED. THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM OF REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100.

9. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

10. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

11. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

12. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

13. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

14. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

15. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

16. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

17. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

DUCT DECLARATION

I _____

OF _____

CONTACT NUMBER _____

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS

COMMENCED ON _____

& COMPLETED ON _____

SIGNATURE _____

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

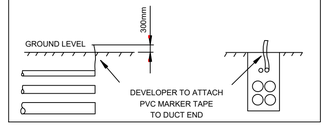
CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

DUCT END LOCATION DETAIL



CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 21/5/21

Examiner's Signature: _____

Print Name: Matt Grimwood

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS
ORIGINAL ISSUE
A DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24_20210521
		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	E.D
DATE	21/05/2021
CH'D	B.S
DESIGN	N.F

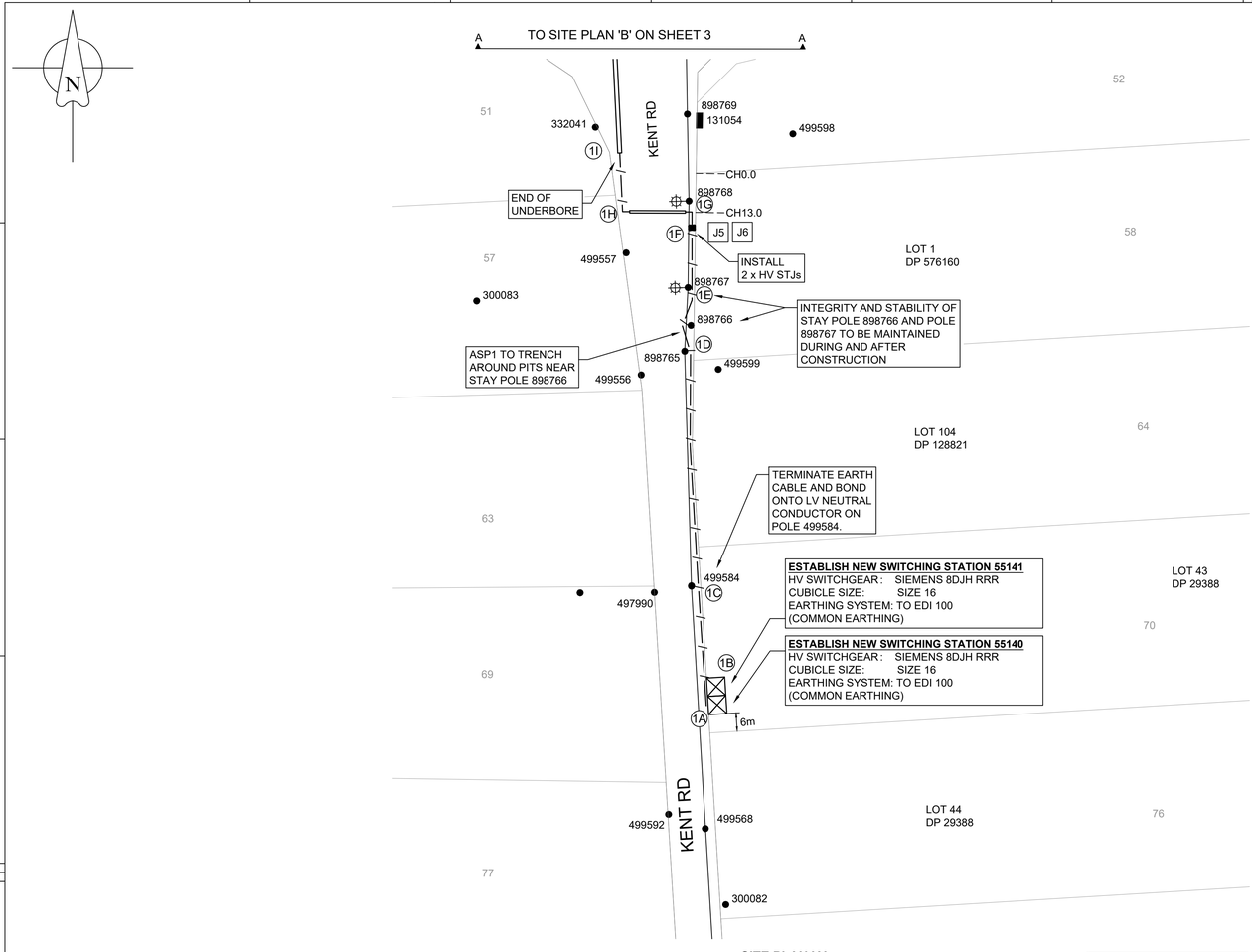
70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

A1 519788 A

SHEET No 1 OF 11 SHEETS

83741



SITE PLAN 'A'

ORIGINAL SCALE - 1:1000

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1A - 1B	HV HV EARTH	NEW 4 x 125mm PVC DUCTS 2 x DIRECT BURIED EARTH	5	5m x 1 x Ø125mm PVC DUCTS @ $23/m = $115.00	NIL
1B - 1C	HV HV EARTH	NEW 4 x 125mm PVC DUCTS 1 x DIRECT BURIED EARTH	30	30m x 1 x Ø125mm PVC DUCTS @ $23/m = $690.00	NIL
1C - 1D	HV HV	NEW 4 x 125mm PVC DUCTS	87	87m x 1 x Ø125mm PVC DUCTS @ $23/m = $2,001.00	NIL
1D - 1E	HV HV STEEL PLATE	NEW 2 x HV CABLES DIRECT BURIED	13	NIL	NIL
1E - 1G	HV HV	NEW 4 x 125mm PVC DUCTS	24	24m x 1 x Ø125mm PVC DUCTS @ $23/m = $552.00	
1G - 1H	HV HV	NEW 6 x 125mm PVC DUCTS (ROAD CROSSING)	18	NIL	NIL
1H - 1I	HV HV	NEW 4 x 125mm PVC DUCTS	18	18m x 1 x Ø125mm PVC DUCTS @ $23/m = $414.00	NIL
		SUBTOTAL		164m x Ø125mm PVC DUCTS @ $23/m = $3,772.00	NIL

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature:
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

LEGEND

- NEW SWITCHING STATION
- NEW ROAD CROSSING DUCTS
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING/NEW STJ
- EXISTING PILLAR
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT

AMENDMENTS
ORIGINAL ISSUE
A
DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2529
AM PROJ. No.	2020/00807/001
ULTEGRA PROJ. No.	80009.24_20210521
UBD/PENGUIN REF	291747.4 6259356.7
GIS MAP No	U73522
HV OP DIAGRAM	CLAREMONT MEADOWS
LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE
DRAWN E.D
DATE 21/05/2021
CH'D B.S
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN N.F

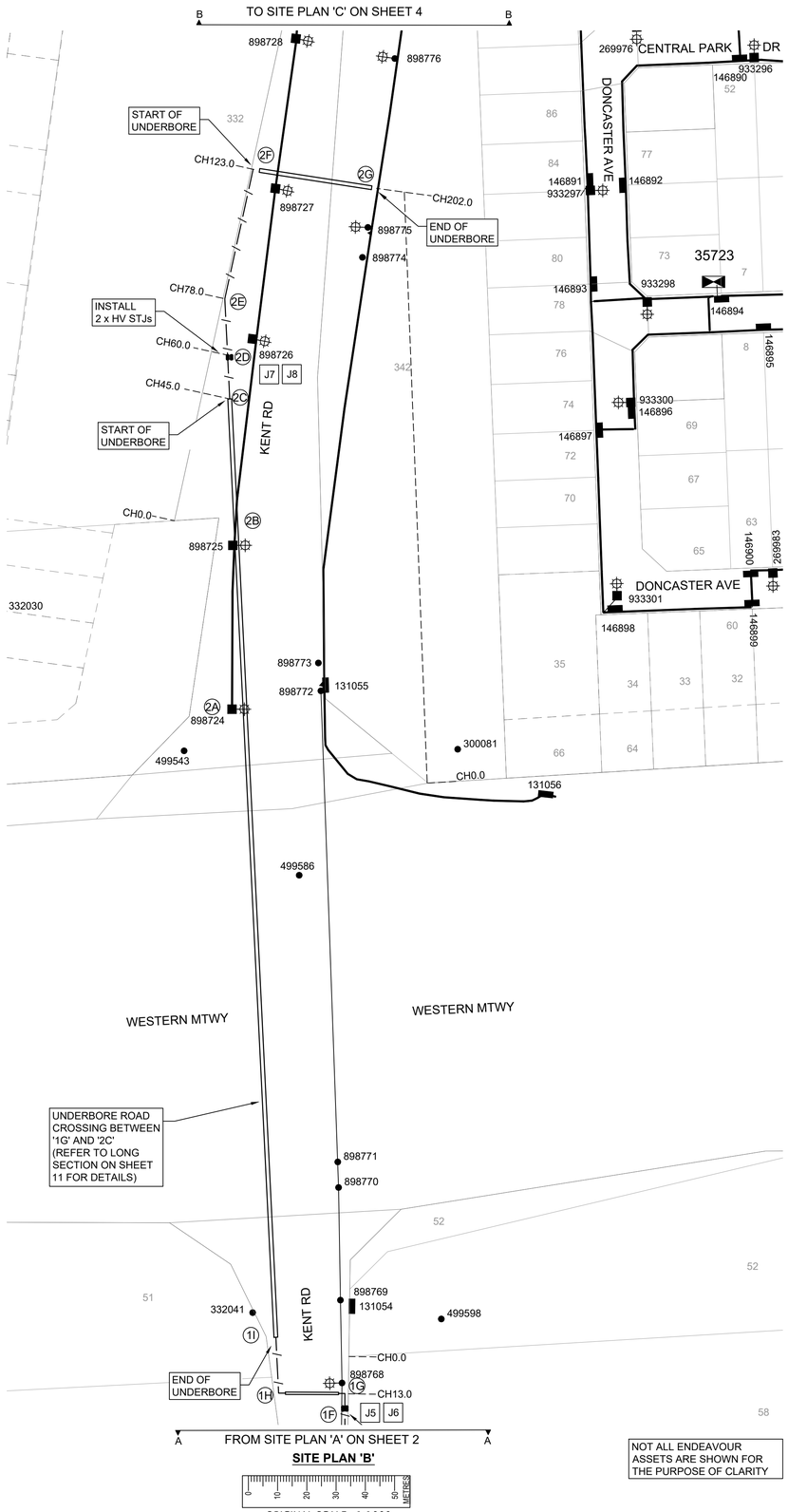
70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy
A1 519788 A
SHEET No 2 OF 11 SHEETS

83741

LEGEND

- EXISTING PM SUBSTATION
- EXISTING DUCTS
- NEW ROAD CROSSING DUCTS
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING OVERHEAD MAINS
- EXISTING/NEW STJ
- EXISTING/NEW UGOH
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT



NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1G - 2A	HV HV	NEW 6 x 125mm PVC DUCTS (UNDERBORE)	215	NIL	NIL
2A - 2B	SL HV HV	NEW 6 x 125mm PVC DUCTS (UNDERBORE) EXISTING 2 x 50mm DUCTS	64	NIL	NIL
2B - 2C	SL HV HV	NEW 6 x 125mm PVC DUCTS (UNDERBORE) EXISTING 2 x 50mm DUCTS	42	NIL	NIL
2C - 2D	HV HV SL	NEW 4 x 125mm PVC DUCTS EXISTING 2 x 50mm DUCTS	15	15m x 1 x Ø125mm DUCTS @ $23/m = $345.00	NIL
2D - 2E	HV HV SL	NEW 4 x 125mm DUCTS EXISTING 2 x 50mm DUCTS	18	18m x 1 x Ø125mm DUCTS @ $23/m = $414.00	NIL
2E - 2F	HV HV SL	NEW 4 x 125mm PVC DUCTS EXISTING 2 x 50mm DUCTS	45	45m x 1 x Ø125mm DUCTS @ $23/m = $1,035.00	NIL
2F - 2G	HV HV	NEW 6 x 125mm PVC DUCTS (UNDERBORE) (ROAD CROSSING)	43	NIL	NIL
		SUBTOTAL		78m x Ø125mm PVC DUCTS @ $23/m = $1,794	NIL

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 21/5/21

Examiner's Signature: _____

Print Name: Matt Grimwood

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: A ORIGINAL ISSUE

DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2529
AM PROJ. No.	2020/00807/001
ULTEGRA PROJ. No.	80009.24_20210521
UBD/PENGUIN REF	291747.4 6259356.7
GIS MAP No	U73522
HV OP DIAGRAM	CLAREMONT MEADOWS
LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE

DRAWN E.D

DATE 21/05/2021

CH'D B.S

DO NOT SCALE DIMENSIONS IN METRES

DESIGN N.F

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

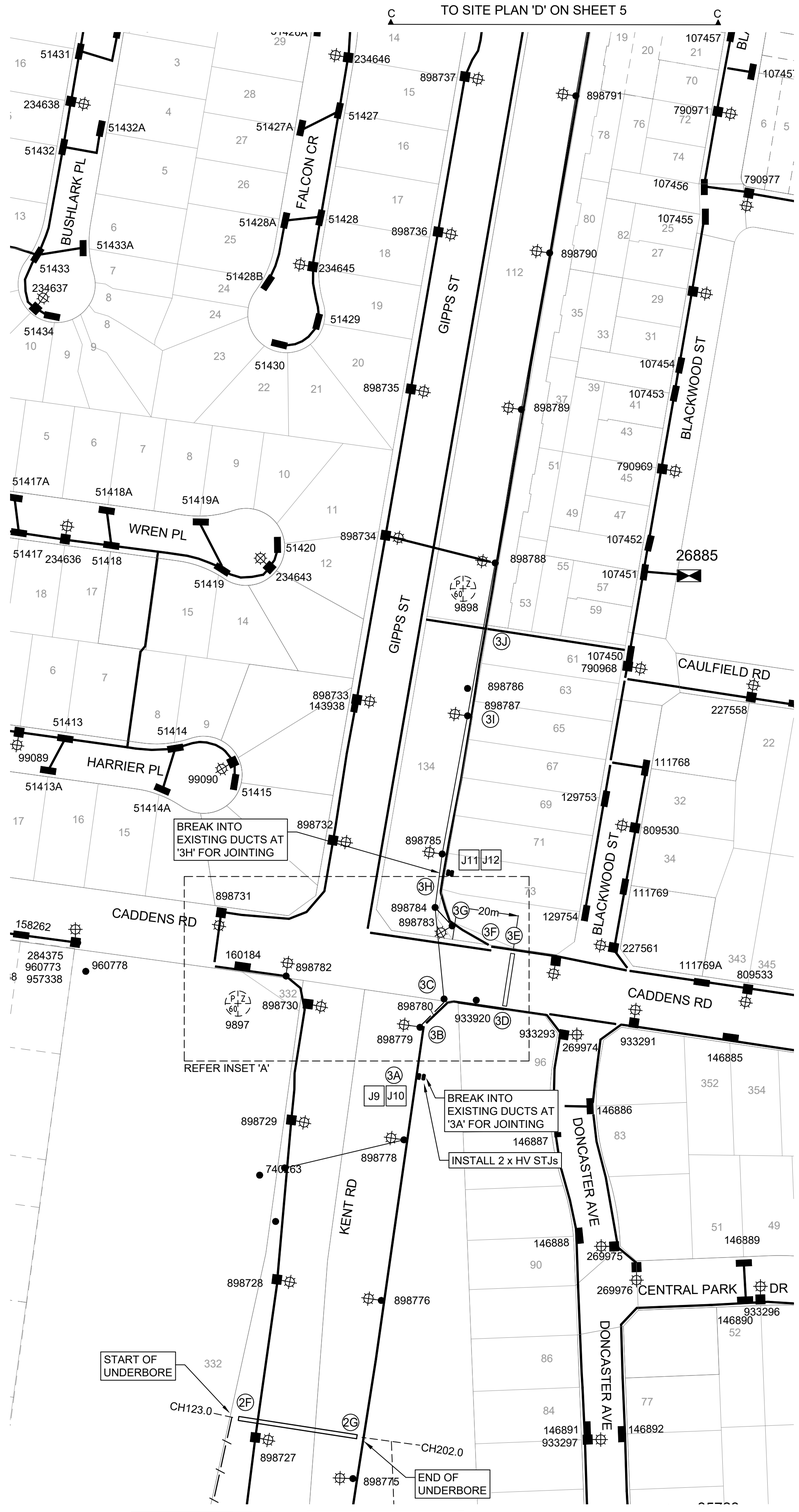
A1 519788 A

SHEET No 3 OF 11 SHEETS

83741

LEGEND

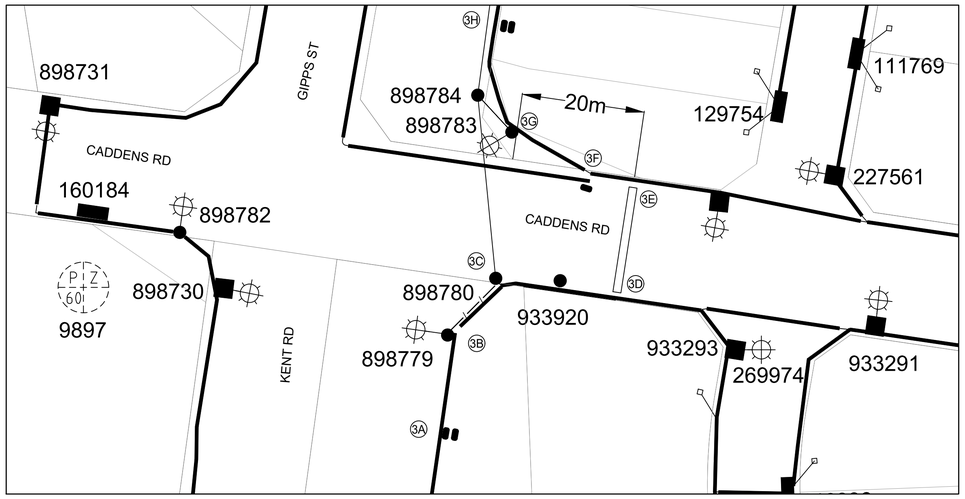
- EXISTING PM SUBSTATION
- EXISTING DUCTS
- NEW ROAD CROSSING DUCTS
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING OVERHEAD MAINS
- EXISTING HV ABS (CLOSED)
- EXISTING/NEW STJ
- EXISTING/NEW UGOH
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING SLCP
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT



SITE PLAN 'C'

ORIGINAL SCALE - 1:1000

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY



INSET 'A'

ORIGINAL SCALE - 1:500

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
2G - 3B	HV HV	EXISTING 2 x 125mm PVC DUCTS	135	NIL	135m x 2 x Ø125mm PVC DUCTS @ $23/m = $6,210.00
3B - 3C	HV HV HV	NEW 4 x 125mm PVC DUCTS EXISTING 1 x 125mm PVC DUCTS 1 x HV DIRECT BURIED	12	12m x 1 x Ø125mm PVC DUCTS @ $23/m = $276.00	NIL
3C - 3D	LV HV HV HV HV	EXISTING 2 x 125mm PVC DUCTS 2 x HV DIRECT BURIED 1 x LV DIRECT BURIED	15	NIL	15m x 2 x Ø125mm PVC DUCTS @ $23/m = $690.00
3D - 3E	HV	NEW 6 x 125mm PVC DUCTS (ROAD CROSSING)	20	NIL	NIL
3E - 3F	HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	9	NIL	9m x 2 x Ø125mm PVC DUCTS @ $23/m = $414.00
3F - 3G	HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	15	NIL	15m x 2 x Ø125mm PVC DUCTS @ $23/m = $690.00
3G - 3H	HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	10	NIL	10m x 2 x Ø125mm PVC DUCTS @ $23/m = $460.00
3H - 3I	HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	57	NIL	57m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,622.00
3I - 3J	LV HV HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	29	NIL	29m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,334.00
		SUBTOTAL	12m x Ø125mm PVC DUCTS @ $23/m = $276.00	540m x Ø125mm PVC DUCTS @ $23/m = $12,420.00	

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 21/5/21

Examiner's Signature: _____

Print Name: Matt Grimwood

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: A ORIGINAL ISSUE

DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
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		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
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ORIGINAL SCALE

DRAWN E.D

DATE 21/05/2021

CH'D B.S

DESIGN N.F

DO NOT SCALE — DIMENSIONS IN METRES

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

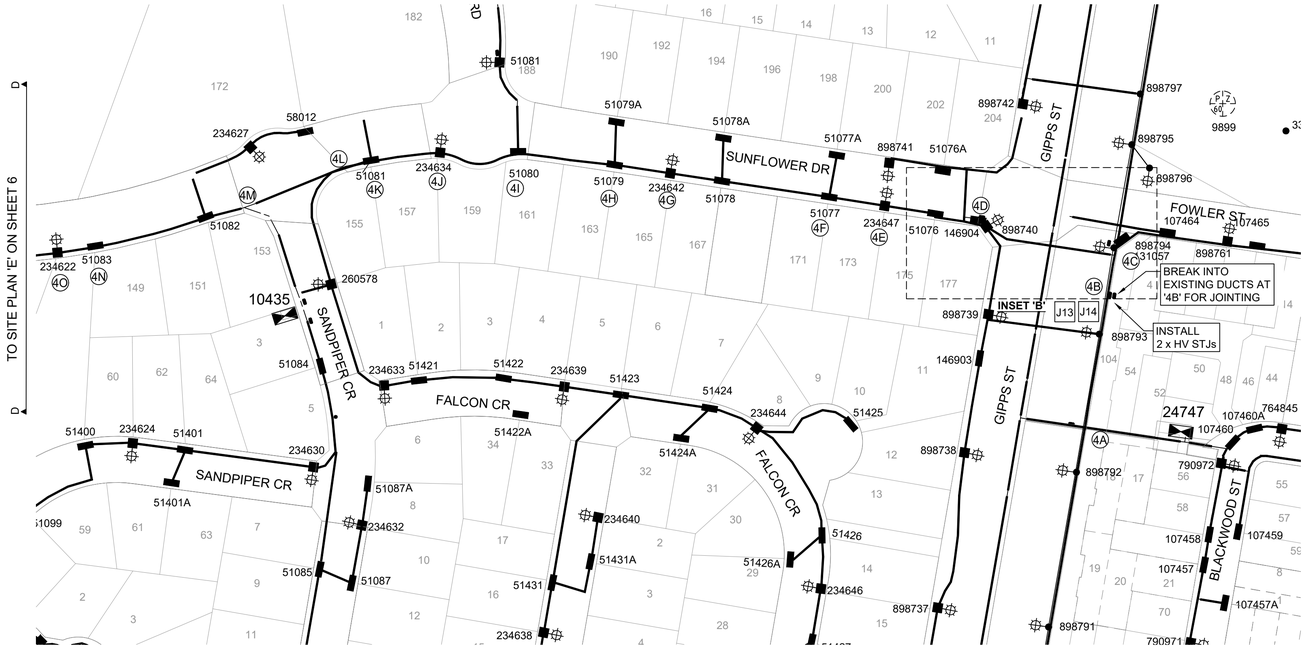
A1 | 519788 | A

SHEET No 4 OF 11 SHEETS

83741

LEGEND

- EXISTING PM SUBSTATION
- EXISTING DUCTS
- EXISTING/NEW STJ
- EXISTING/NEW UGOH
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING SLCP
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT



NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

SITE PLAN 'D'

ORIGINAL SCALE - 1:1000

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

INSET 'B'

ORIGINAL SCALE - 1:500

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
3J - 4A	HV HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	241	NIL	241m x 2 x Ø125mm PVC DUCTS @ $23/m = $11,086.00
4A - 4C	LV HV HV HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x 125mm PVC DUCTS	57	NIL	57m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,622.00
4C - 4D	HV LV HV HV	EXISTING 2 x 50mm PVC DUCTS 6 x125mm PVC DUCTS (ROAD CROSSING)	46	NIL	46m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,116.00
4D - 4E	LV HV HV HV	EXISTING 3 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED	31	NIL	31m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,426.00
4E - 4F	LV HV HV HV SL	EXISTING 3 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED 1 x SL DIRECT BURIED	19	NIL	19m x 2 x Ø125mm PVC DUCTS @ $23/m = $874.00
4F - 4G	LV HV HV HV	EXISTING 3 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED	52	NIL	52m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,392.00
4G - 4H	LV HV HV HV SL	EXISTING 3 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED 1 x SL DIRECT BURIED	19	NIL	19m x 2 x Ø125mm PVC DUCTS @ $23/m = $874.00

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
4H - 4I	LV HV HV HV	EXISTING 3 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED	29	NIL	29m x 2 x Ø125mm PVC DUCTS @ $23/m = $1334.00
4I - 4J	LV HV HV	EXISTING 3 x 125mm PVC DUCTS 1 x LV DIRECT BURIED	30	NIL	30m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,380.00
4J - 4K	LV HV HV SL	EXISTING 3 x 125mm PVC DUCTS 1 x LV DIRECT BURIED 1 x SL DIRECT BURIED	22	NIL	22m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,012.00
4K - 4L	LV LV HV HV SL	EXISTING 3 x 125mm PVC DUCTS 2 x LV DIRECT BURIED 1 x SL DIRECT BURIED	8	NIL	8m x 2 x Ø125mm PVC DUCTS @ $23/m = $368.00
4L - 4M	LV HV HV	EXISTING 8 x 125mm PVC DUCTS (ROAD CROSSING)	36	NIL	36m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,656.00
4M - 4N	LV HV HV HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x LV DIRECT BURIED	50	NIL	50m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,300.00
4N - 4O	SL HV HV HV	EXISTING 8 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 x SL DIRECT BURIED	13	NIL	13m x 2 x Ø125mm PVC DUCTS @ $23/m = $598.00
			SUBTOTAL	NIL	1,306m x Ø125mm PVC DUCTS @ $23/m = $30,038.00

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature:
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2529
AM PROJ. No.	2020/00807/001
ULTEGRA PROJ. No.	80009.24__20210521
UBD/PENGUIN REF	29174.7.4 6259356.7
GIS MAP No	U73522
HV OP DIAGRAM	CLAREMONT MEADOWS
LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE

DRAWN	E.D
DATE	21/05/2021
CH'D	B.S

DO NOT SCALE
DIMENSIONS IN METRES
DESIGN N.F

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

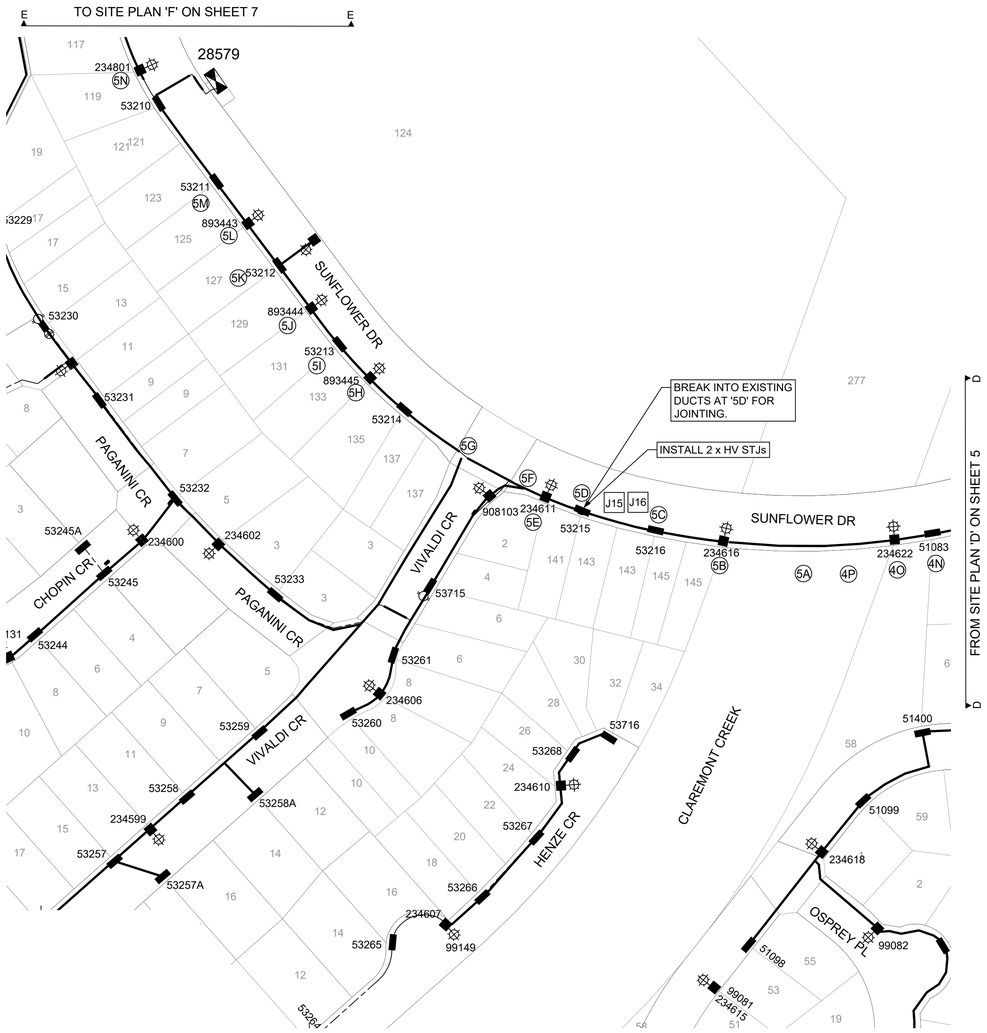
A1 519788 A

SHEET No 5 OF 11 SHEETS

83741

LEGEND

- EXISTING PM SUBSTATION
- EXISTING DUCTS
- EXISTING/NEW STJ
- EXISTING/NEW UGOH
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT
- DUCT WITH PROPOSED REMOVE CABLE



SITE PLAN 'E'

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
4O - 4P	HV / HVHV	EXISTING 6 x 125mm PVC DUCTS 1 x UNKNOWN DUCT 1 x HV DIRECT BURIED	14	NIL	14 x 2 x Ø125mm PVC DUCTS @ $23/m = $644.00
4P - 5A	HV / HV HV	EXISTING 7 x 125mm PVC DUCTS 1 x UNKNOWN DUCT 1 x HV DIRECT BURIED	14	NIL	14 x 2 x Ø125mm PVC DUCTS @ $23/m = $644.00
5A - 5B	HV / HVHV	EXISTING 6 x 125mm PVC DUCTS 1 x UNKNOWN DUCT 1 x HV DIRECT BURIED	30	NIL	30 x 2 x Ø125mm PVC DUCTS @ $23/m = $1,380.00
5B - 5C	SL / HV / HV HV	EXISTING 1 x 50mm PVC DUCT 6 x 125mm DUCTS 1 x UNKNOWN DUCT 1 x HV DIRECT BURIED	23	NIL	23m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,058.00
5C - 5D	LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	25	NIL	25m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,150.00
5D - 5E	SL LV LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 2 X LV DIRECT BURIED 1 x SL DIRECT BURIED	13	NIL	13m x 2 x Ø125mm PVC DUCTS @ $23/m = $598.00
5E - 5F	LV LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 2 X LV DIRECT BURIED	6	NIL	6m x 2 x Ø125mm PVC DUCTS @ $23/m = $276.00
5F - 5G	LV / HV HV HV	EXISTING 8 x 125mm PVC DUCTS (ROAD CROSSINGS)	27	NIL	27m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,242.00
5G - 5H	LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	38	NIL	38m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,748.00
5H - 5I	SL LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED 1 x SL DIRECT BURIED	15	NIL	15m x 2 x Ø125mm PVC DUCTS @ $23/m = $690.00
5I - 5J	LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	15	NIL	15m x 2 x Ø125mm PVC DUCTS @ $23/m = $690.00
5J - 5K	LV SL / HV / HV	EXISTING 1 x 50mm PVC DUCT 6 x 125mm DUCTS 1 x LV DIRECT BURIED 1 x HV DIRECT BURIED	17	NIL	17m x 2 x Ø125mm PVC DUCTS @ $23/m = $782.00
5K - 5L	LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	17	NIL	17m x 2 x Ø125mm PVC DUCTS @ $23/m = $782.00
5L - 5M	SL LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED 1 x SL DIRECT BURIED	17	NIL	17m x 2 x Ø125mm PVC DUCTS @ $23/m = $782.00
5M - 5N	LV / HV / HV	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	45	NIL	45m x 2 x Ø125mm PVC DUCTS @ $23/m = $2,070.00
		SUBTOTAL		NIL	632m x Ø125mm PVC DUCTS @ $23/m = $14,536.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 21/5/21

Examiner's Signature: _____

Print Name: Matt Grimwood

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24__20210521
		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE

DRAWN E.D

DATE 21/05/2021

CH'D B.S

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN N.F

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

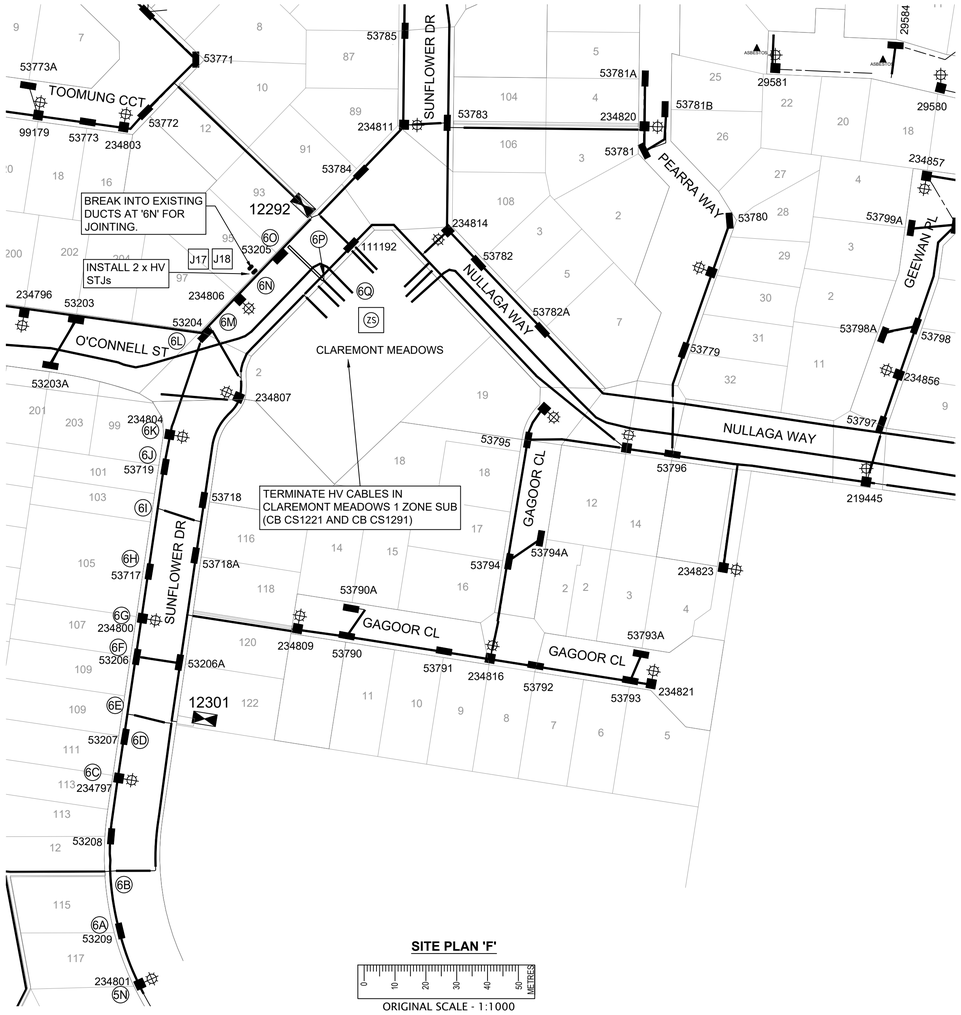
A1 | 519788 | A

SHEET No 6 OF 11 SHEETS

83741

LEGEND

- EXISTING PM SUBSTATION
- EXISTING DUCTS
- EXISTING UNDERGROUND MAINS
- EXISTING/NEW STJ
- EXISTING PILLAR
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING ZONE SUB
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT



SITE PLAN 'F'

ORIGINAL SCALE - 1:1000

E FROM SITE PLAN 'E' ON SHEET 6 E

DUCTING SCHEDULE				
ROUTE	CONFIGURATION	ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
5N - 6A	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED 1 X SL DIRECT BURIED	19	NIL	19m x 2 x Ø125mm PVC DUCTS @ $23/m = $874.00
6A - 6B	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	20	NIL	20m x 2 x Ø125mm PVC DUCTS @ $23/m = $920.00
6B - 6C	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 2 X LV DIRECT BURIED	32	NIL	32m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,472.00
6C - 6D	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 2 X LV DIRECT BURIED 1 X SL DIRECT BURIED	13	NIL	13m x 2 x Ø125mm PVC DUCTS @ $23/m = $598.00
6D - 6E	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 3 X LV DIRECT BURIED	7	NIL	7m x 2 x Ø125mm PVC DUCTS @ $23/m = $322.00
6E - 6F	EXISTING 6 x 125mm PVC DUCTS 1 X LV DIRECT BURIED	20	NIL	20m x 2 x Ø125mm PVC DUCTS @ $23/m = $920.00
6F - 6G	EXISTING 6 x 125mm PVC DUCTS 1 X LV DIRECT BURIED 1 X SL DIRECT BURIED	13	NIL	13m x 2 x Ø125mm PVC DUCTS @ $23/m = $598.00
6G - 6H	EXISTING 6 x 125mm PVC DUCTS 1 x HV DIRECT BURIED 1 X LV DIRECT BURIED	15	NIL	15m x 2 x Ø125mm PVC DUCTS @ $23/m = $690.00
6H - 6I	EXISTING 6 x 125mm PVC DUCTS 2 X LV DIRECT BURIED	21	NIL	21m x 2 x Ø125mm PVC DUCTS @ $23/m = $966.00
6I - 6J	EXISTING 6 x 125mm PVC DUCTS 1 X LV DIRECT BURIED	14	NIL	14m x 2 x Ø125mm PVC DUCTS @ $23/m = $644.00
6J - 6K	EXISTING 1 x 50mm PVC DUCT 6 x 125mm PVC DUCTS 1 x LV DIRECT BURIED	10	NIL	10m x 2 x Ø125mm PVC DUCTS @ $23/m = $460.00
6K - 6L	EXISTING 6 x 125mm PVC DUCTS (ROAD CROSSING)	35	NIL	35m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,610.00
6L - 6M	EXISTING 1 x 50mm PVC DUCT 6 x 125mm PVC DUCTS 1 x LV DIRECT BURIED 1 x HV DIRECT BURIED	3	NIL	3m x 2 x Ø125mm PVC DUCTS @ $23/m = $138.00
6M - 6N	EXISTING 1 x 50mm PVC DUCT 6 x 125mm PVC DUCTS 1 x LV DIRECT BURIED 1 x HV DIRECT BURIED	16	NIL	16m x 2 x Ø125mm PVC DUCTS @ $23/m = $736.00
6N - 6O	EXISTING 6 x 125mm PVC DUCTS 1 x LV DIRECT BURIED 1 x HV DIRECT BURIED	24	NIL	24m x 2 x Ø125mm PVC DUCTS @ $23/m = $1,104.00
6O - 6P	NEW 6 x 125mm PVC DUCTS (ROAD CROSSING)	18	NIL	NIL
6P - 6Q	EXISTING 8 x 125mm PVC DUCTS	25	NIL	25m x 2 x O125mm PVC DUCTS @ $23/m = $1,150.00
	SUBTOTAL		NIL	574m x Ø125mm PVC DUCTS @ $23/m = $13,202.00
	TOTAL	254m x Ø125mm PVC DUCTS @ $23/m = $5,842.00		3,052m x Ø125mm PVC DUCTS @ $23/m = $70,196.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: A

Date Approved: 21/5/21

Examiner's Signature: _____

Print Name: Matt Grimwood

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: A ORIGINAL ISSUE

DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:

Ultegra

UTILITIES & INFRASTRUCTURE SPECIALISTS

www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24__20210521
		OVERHEAD		UBD/PENGUIN REF	29174.7 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE

DRAWN E.D

DATE 21/05/2021

CH'D B.S

DO NOT SCALE DIMENSIONS IN METRES

DESIGN N.F

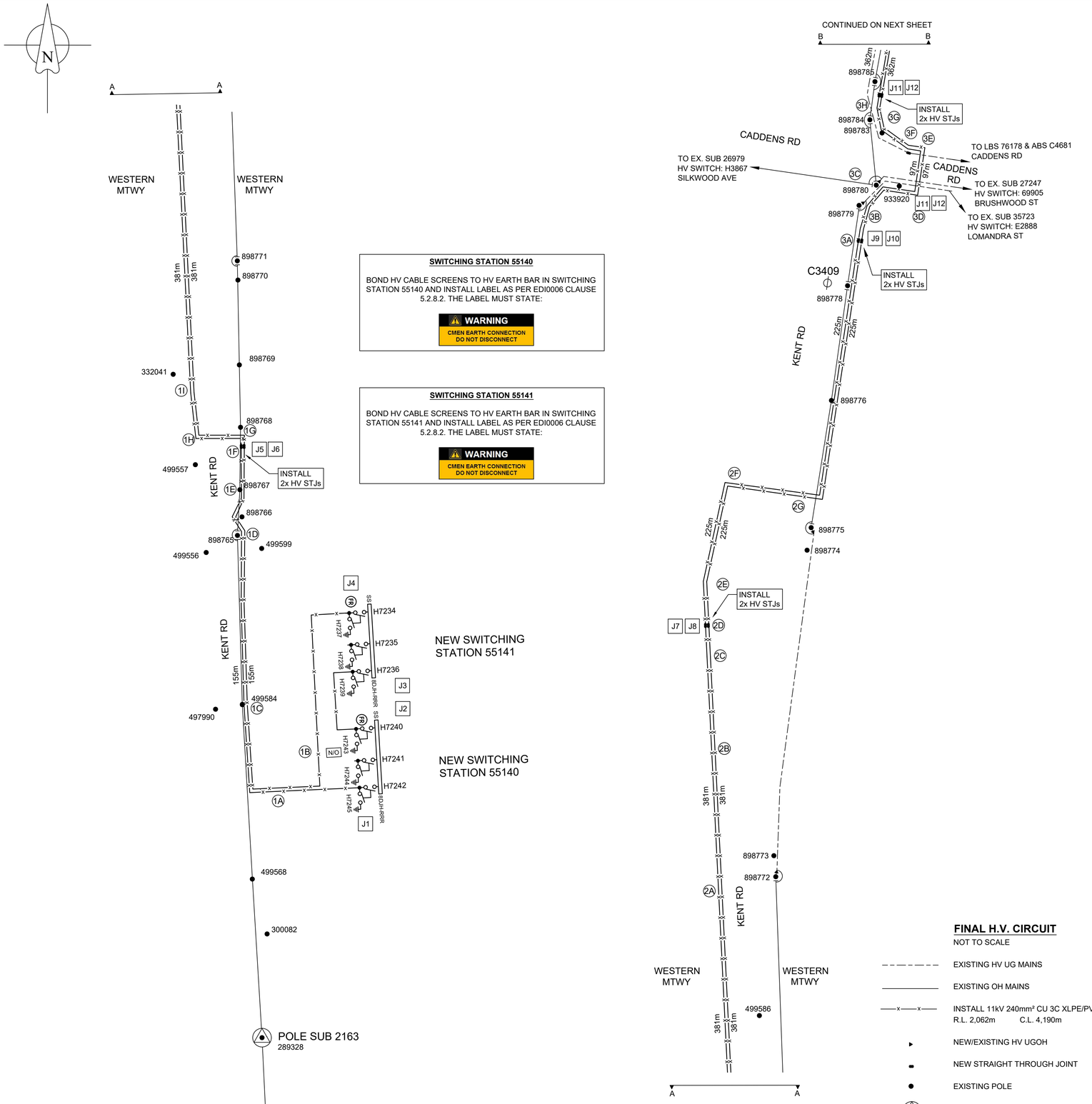
70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

A1 519788 A

SHEET No 7 OF 11 SHEETS

83741



SWITCHING STATION 55140

BOND HV CABLE SCREENS TO HV EARTH BAR IN SWITCHING STATION 55140 AND INSTALL LABEL AS PER EDI0006 CLAUSE 5.2.8.2. THE LABEL MUST STATE:

WARNING
CMEN EARTH CONNECTION
DO NOT DISCONNECT

SWITCHING STATION 55141

BOND HV CABLE SCREENS TO HV EARTH BAR IN SWITCHING STATION 55141 AND INSTALL LABEL AS PER EDI0006 CLAUSE 5.2.8.2. THE LABEL MUST STATE:

WARNING
CMEN EARTH CONNECTION
DO NOT DISCONNECT

NEW SWITCHING STATION 55141

NEW SWITCHING STATION 55140

FINAL H.V. CIRCUIT
NOT TO SCALE

- EXISTING HV UG MAINS
- EXISTING OH MAINS
- INSTALL 11kV 240mm² CU 3C XLPE/PVC/HDPE CABLE R.L. 2,062m C.L. 4,190m
- NEW/EXISTING HV UGOH
- NEW STRAIGHT THROUGH JOINT
- EXISTING POLE
- EXISTING POLE SUBSTATION

J1	JOINT/TERMINATION TYPE:	J7	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:
J2	JOINT/TERMINATION TYPE:	J8	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:
J3	JOINT/TERMINATION TYPE:	J9	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:
J4	JOINT/TERMINATION TYPE:	J10	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:
J5	JOINT/TERMINATION TYPE:	J11	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:
J6	JOINT/TERMINATION TYPE:	J12	JOINT/TERMINATION TYPE:
	NETWORK ACCESS AUTHORISATION:		NETWORK ACCESS AUTHORISATION:
	JOINT/TERMINATION KIT #:		JOINT/TERMINATION KIT #:
	JOINT/TERMINATION BATCH #:		JOINT/TERMINATION BATCH #:
	DATE OF MANUFACTURE:		DATE OF MANUFACTURE:

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature:
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
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ASSET RECORDING
I:
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CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
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AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24__20210521
		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE — DO NOT SCALE — DIMENSIONS IN METRES

DRAWN	E.D
DATE	21/05/2021
CH'D	B.S
DESIGN	N.F

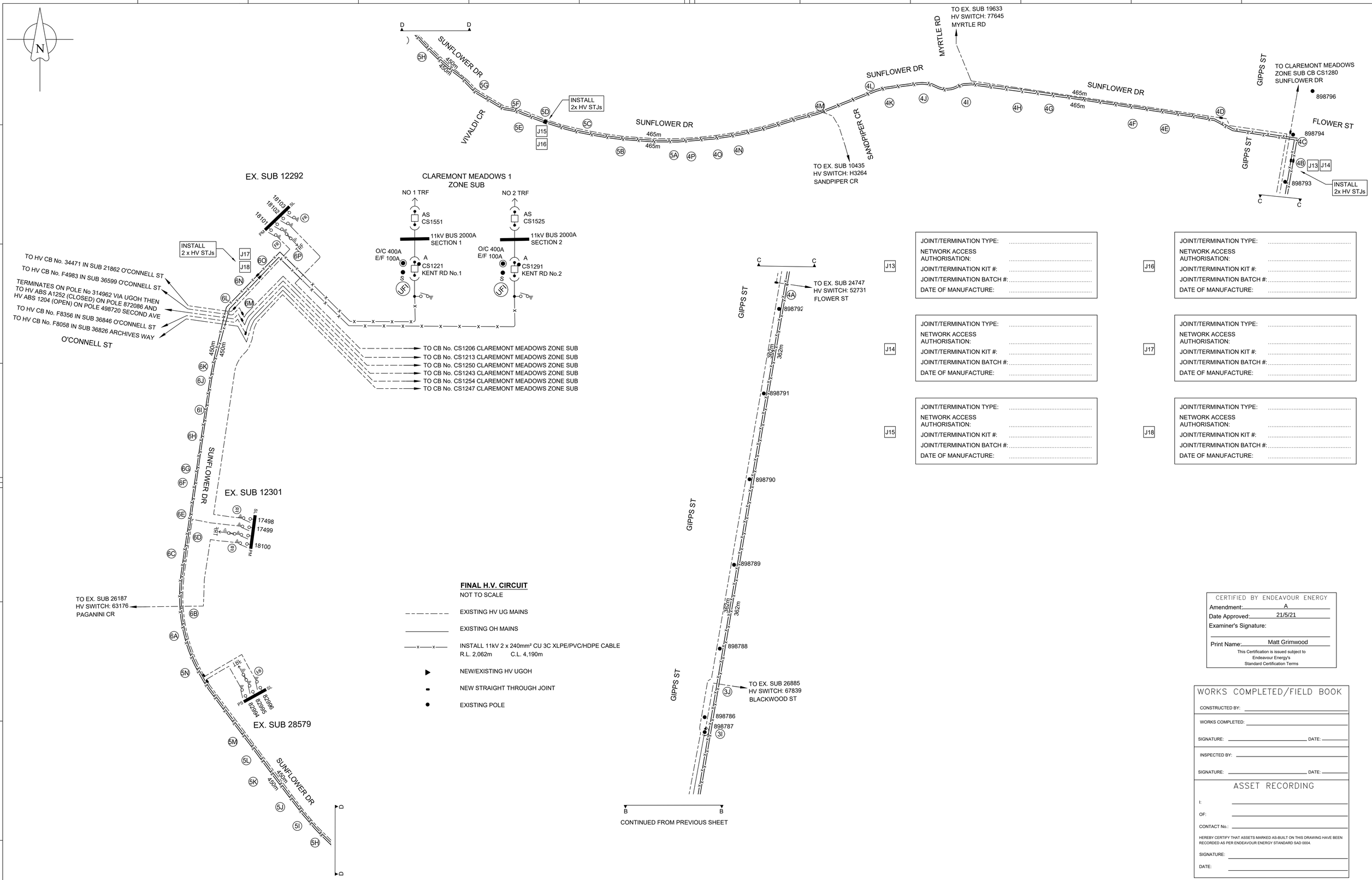
70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy

A1 | 519788 | A

SHEET No 8 OF 11 SHEETS

83741



FINAL H.V. CIRCUIT
NOT TO SCALE

- EXISTING HV UG MAINS
- EXISTING OH MAINS
- INSTALL 11kV 2 x 240mm² CU 3C XLPE/PVC/HDPE CABLE
  R.L. 2,062m C.L. 4,190m
- NEW/EXISTING HV UGOH
- NEW STRAIGHT THROUGH JOINT
- EXISTING POLE

J13	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....
J14	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....
J15	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....
J16	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....
J17	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....
J18	JOINT/TERMINATION TYPE: ..... NETWORK ACCESS AUTHORISATION: ..... JOINT/TERMINATION KIT #: ..... JOINT/TERMINATION BATCH #: ..... DATE OF MANUFACTURE: .....

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature: .....
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

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CONSTRUCTED BY: .....
WORKS COMPLETED: .....
SIGNATURE: ..... DATE: .....
INSPECTED BY: .....
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ASSET RECORDING
I: .....
OF: .....
CONTACT No.: .....
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				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24__20210521
		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

ORIGINAL SCALE — DO NOT SCALE — DIMENSIONS IN METRES

DRAWN	E.D
DATE	21/05/2021
CH'D	B.S
DESIGN	N.F

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

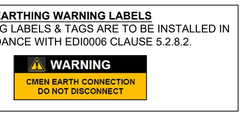
Endeavour Energy

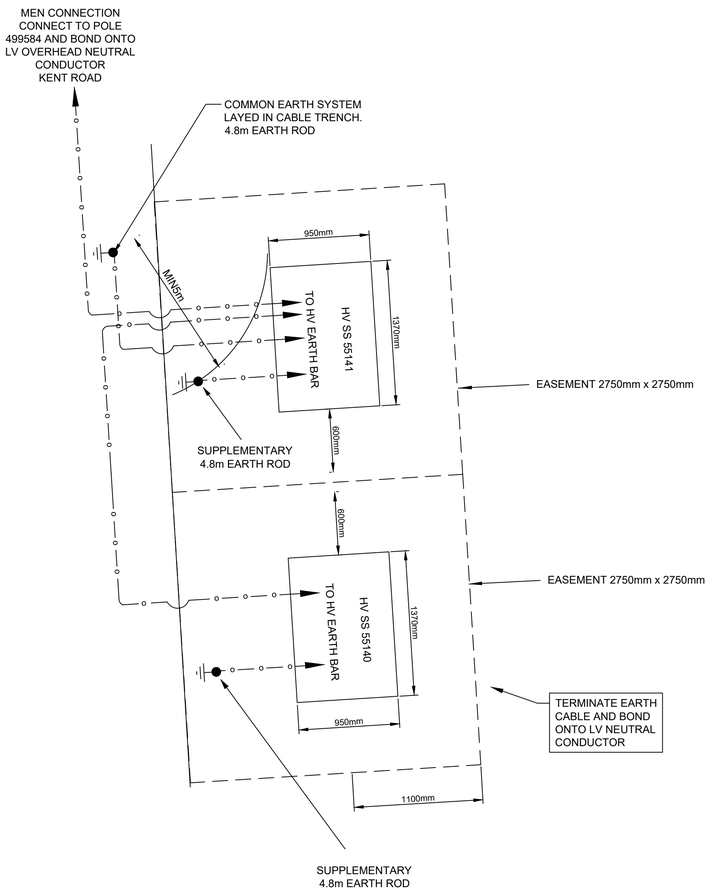
A1 | 519788 | A

SHEET No 9 OF 11 SHEETS

83741

EARTHING WARNING LABELS
EARTH WARNING LABELS & TAGS ARE TO BE INSTALLED IN ACCORDANCE WITH EDI0006 CLAUSE 5.2.8.2.



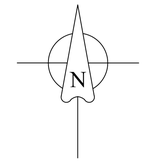


HV SWITCHING STATIONS 55140 AND 55141
COMMON EARTHING LAYOUT
NOT TO SCALE

LEGEND

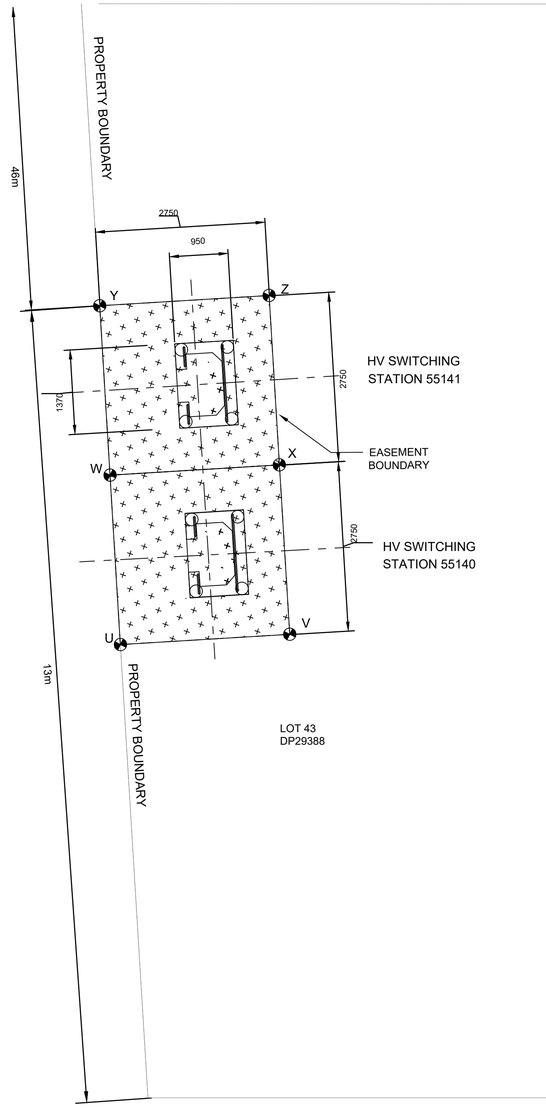
70mm² CU INSULATED
R.L. 40m C.L. 50m

EARTH ROD



KENT RD

NOTE:
EASEMENT TO BE CREATED PRIOR TO ISSUING LETTER OF INTENT



HV SWITCHING STATIONS 55140 & 55141 EASEMENT LAYOUT
NOT TO SCALE

HV SWITCHING STATION EASEMENT
5m X 2.75m

HV SS 55140 COMMON EARTHING DETAILS (CS1221)				
SOIL RESISTIVELY (ohms.m)	LAYER 1	12.12	DEPTH (m)	0.50
	LAYER 2	5.40		
DESIGNED EARTH RESISTANCE LIMIT (ohms)				1.30
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				1
LENGTH OF BARE ELECTRODE (m)				4.80
CONNECTOR TYPE (CAD or CRIMP)				CRIMP
LOCATION CATEGORY: F - FREQUENT				F
WHAT DESIGN TOOL USED?				'3E'
FAULT LEVEL (kA)				7.1
IS THIS 'FIRST ASSET OUT' FROM ZS?				YES
ARE SCREENS OF INCOMING CABLE BONDED TO SWITCHING SUBSTATION EARTH BAR?				YES

HV SS 55141 COMMON EARTHING DETAILS (CS1291)				
SOIL RESISTIVELY (ohms.m)	LAYER 1	12.12	DEPTH (m)	0.50
	LAYER 2	5.40		
DESIGNED EARTH RESISTANCE LIMIT (ohms)				1.30
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				1
LENGTH OF BARE ELECTRODE (m)				4.80
CONNECTOR TYPE (CAD or CRIMP)				CRIMP
LOCATION CATEGORY: F - FREQUENT				F
WHAT DESIGN TOOL USED?				'3E'
FAULT LEVEL (kA)				7.08
IS THIS 'FIRST ASSET OUT' FROM ZS?				YES
ARE SCREENS OF INCOMING CABLE BONDED TO SWITCHING SUBSTATION EARTH BAR?				YES

NOTE:
CONSTRUCTION SHALL NOT COMMENCE UNTIL EASEMENTS ARE CREATED IN ENDEAVOUR ENERGY'S FAVOUR AS IDENTIFIED ON THE EASEMENT PLAN OF THIS DESIGN. IF AN EASEMENT ALTERATION IS REQUIRED DURING CONSTRUCTION, NO ALTERATIONS TO THE ENDEAVOUR ENERGY EXISTING NETWORK CAN OCCUR AND ASSETS PROPOSED IN THIS DESIGN ARE NOT TO BE COMMISSIONED PRIOR TO RECERTIFICATION AND EASEMENTS REGISTERED IN ACCORDANCE WITH THE CERTIFIED DESIGN.

HV SWITCHING STATION 55141		
REF ID.	EASTING	NORTHING
W	291741.3767	6259347.0050
X	291744.1196	6259347.1712
Y	291741.2098	6259349.7492
Z	291743.9544	6259349.9171

HV SWITCHING STATION 55140		
REF ID.	EASTING	NORTHING
U	291741.5439	6259344.2574
V	291744.2886	6259344.4272
W	291741.3767	6259347.0050
X	291744.1196	6259347.1712

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature:
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

AMENDMENTS: ORIGINAL A DRAFT No. 01 ISSUE

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

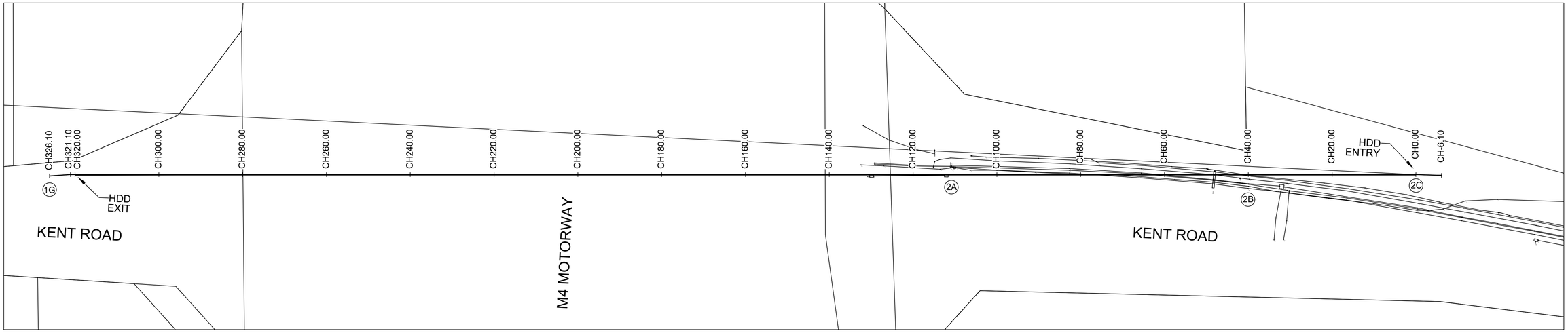
REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	DBL2529
				AM PROJ. No.	2020/00807/001
		GENERAL		ULTEGRA PROJ. No.	80009.24__20210521
		OVERHEAD		UBD/PENGUIN REF	291747.4 6259356.7
		UNDERGROUND		GIS MAP No	U73522
		SUBSTATIONS		HV OP DIAGRAM	CLAREMONT MEADOWS
				LOCAL GOV AREA	PENRITH COUNCIL

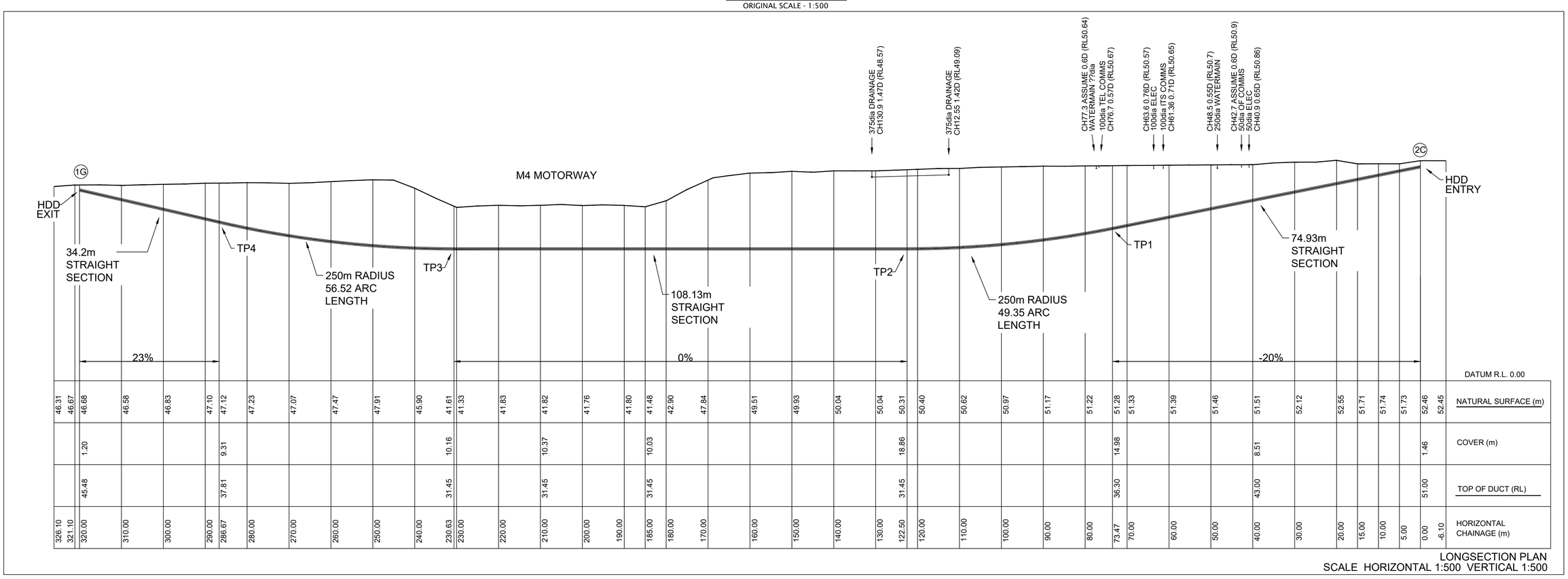
ORIGINAL SCALE
DRAWN E.D
DATE 21/05/2021
CH'D B.S
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN N.F

70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

Endeavour Energy
A1 519788 A
SHEET No 10 OF 11 SHEETS

83741





UNDERBORE ALIGNMENT PLAN

ORIGINAL SCALE - 1:500

DATUM R.L. 0.00

HORIZONTAL CHAINAGE (m)	NATURAL SURFACE (m)	COVER (m)	TOP OF DUCT (RL)
326.10	46.31		
321.10	46.67		
320.00	46.68	1.20	45.48
310.00	46.58		
300.00	46.83		
290.00	47.10		
286.67	47.12	9.31	37.81
280.00	47.23		
270.00	47.07		
260.00	47.47		
250.00	47.91		
240.00	45.90		
230.63	41.61	10.16	31.45
230.00	41.33		
220.00	41.83		
210.00	41.82	10.37	31.45
200.00	41.76		
190.00	41.80		
185.00	41.48	10.03	31.45
180.00	42.90		
170.00	47.84		
160.00	49.51		
150.00	49.93		
140.00	50.04		
130.00	50.04		
122.50	50.31	18.86	31.45
120.00	50.40		
110.00	50.62		
100.00	50.97		
90.00	51.17		
80.00	51.22		
73.47	51.28	14.98	36.30
70.00	51.33		
60.00	51.39		
50.00	51.46		
40.00	51.51	8.51	43.00
30.00	52.12		
20.00	52.55		
15.00	51.71		
10.00	51.74		
5.00	51.73		
0.00	52.46	1.46	51.00
-6.10	52.45		

LONGSECTION PLAN
SCALE HORIZONTAL 1:500 VERTICAL 1:500

M4 UNDERBORE LONG SECTION

ORIGINAL SCALE - 1:500

WARNING:
A CURRENT SERVICES SEARCH, INCLUDING 'DIAL BEFORE YOU DIG' SERVICES PLANS, AND SITE CHECKING OF ALL EXISTING SERVICES WILL BE NECESSARY PRIOR TO COMMENCING ANY WORK. APPROPRIATE PROCEDURES, PRECAUTIONS AND CARE TO BE TAKEN WHEN IN CLOSE PROXIMITY TO ANY SERVICE.

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: A
Date Approved: 21/5/21
Examiner's Signature:
Print Name: Matt Grimwood
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

BORE SECTION
NOT TO SCALE

AMENDMENTS	
ORIGINAL ISSUE	A
DRAFT No. 01	
TEMPLATE VERSION No. 5.0	

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2529
AM PROJ. No.	2020/00807/001
ULTEGRA PROJ. No.	80009.24__20210521
UBD/PENGUIN REF	291747.4 6259356.7
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ORIGINAL SCALE

DRAWN	E.D
DATE	21/05/2021
CH'D	B.S
DESIGN	N.F

DO NOT SCALE
DIMENSIONS IN METRES

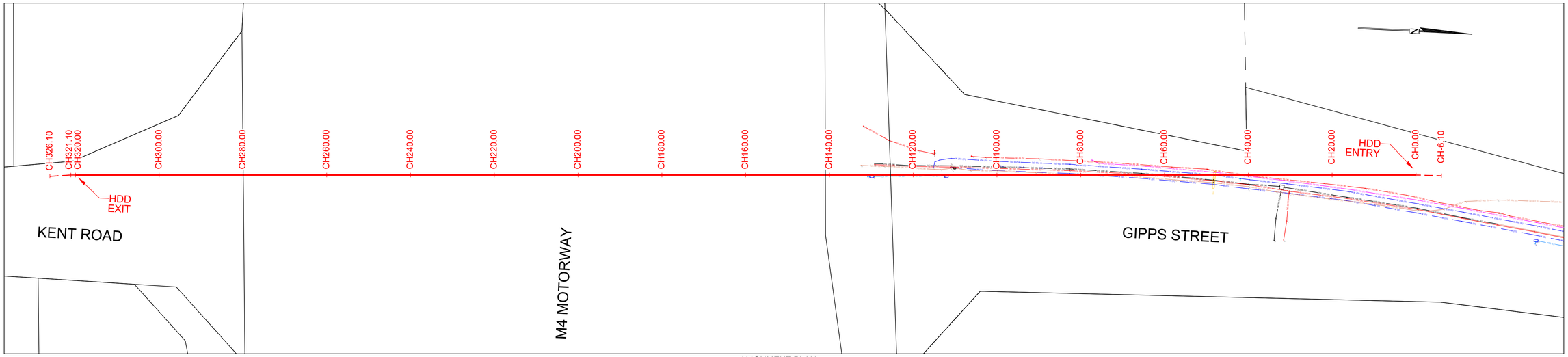
70-74 KENT ROAD (LOT 43 DP29388)
ORCHARD HILLS
DBL2529
CONNECTION OF LOAD

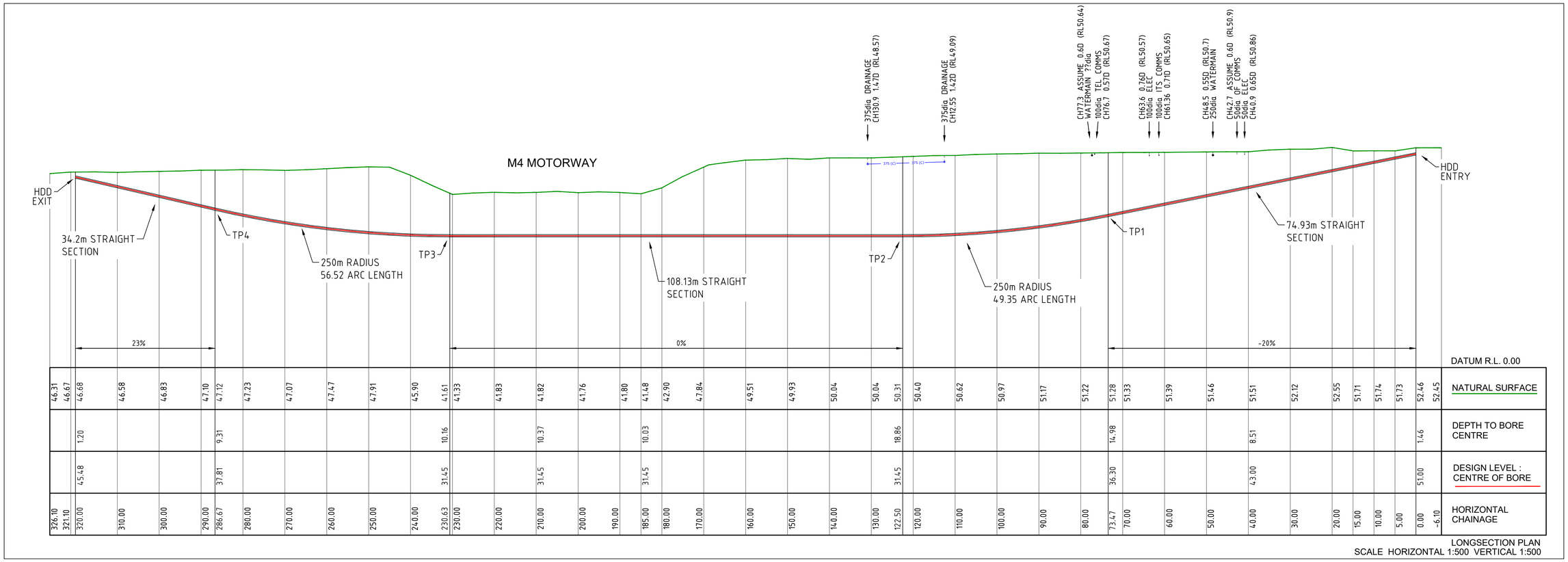
Endeavour Energy

A1 519788 A

SHEET No 11 OF 11 SHEETS

83741





ALIGNMENT PLAN
SCALE 1:500

DATUM R.L. 0.00

NATURAL SURFACE	46.31	46.67	46.68	46.58	46.83	47.10	47.12	47.23	47.07	47.47	47.91	45.90	41.61	41.33	41.83
DEPTH TO BORE CENTRE			1.20				9.31						10.16		
DESIGN LEVEL : CENTRE OF BORE			45.48				37.81						31.45		
HORIZONTAL CHAINAGE	326.10	321.10	320.00	310.00	300.00	290.00	286.67	280.00	270.00	260.00	250.00	240.00	230.63	230.00	220.00

NATURAL SURFACE	41.82	41.76	41.80	41.48	42.90	47.84	49.51	49.93	50.04	50.04	50.31	50.40	50.62	50.97	51.17
DEPTH TO BORE CENTRE	10.37			10.03							18.86				
DESIGN LEVEL : CENTRE OF BORE	31.45			31.45							31.45				
HORIZONTAL CHAINAGE	210.00	200.00	190.00	185.00	180.00	170.00	160.00	150.00	140.00	130.00	122.50	120.00	110.00	100.00	90.00

NATURAL SURFACE	51.22	51.28	51.33	51.39	51.46	51.51	52.12	52.55	51.71	51.74	51.73	52.46	52.45
DEPTH TO BORE CENTRE		14.98				8.51						1.46	
DESIGN LEVEL : CENTRE OF BORE		36.30				43.00						51.00	
HORIZONTAL CHAINAGE	80.00	73.47	70.00	60.00	50.00	40.00	30.00	20.00	15.00	10.00	5.00	0.00	-6.10

LONGSECTION PLAN
SCALE HORIZONTAL 1:500 VERTICAL 1:500

BORE SECTION
NTS

SCALE - 1:500

WARNING :
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NOTE :
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CLIENT:

DIAL BEFORE YOU DIG®
www.1100.com.au
ALL UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED

REV.	DESCRIPTION	DRAWN	DESIGN	APPR.	DATE
A	PRELIMINARY	G.B.	DG	--	17/12/20

DESIGNED BY
D. GUNNELL
DRAFTED BY
G. BAKER
DESIGN CHECKED BY
APPROVED BY

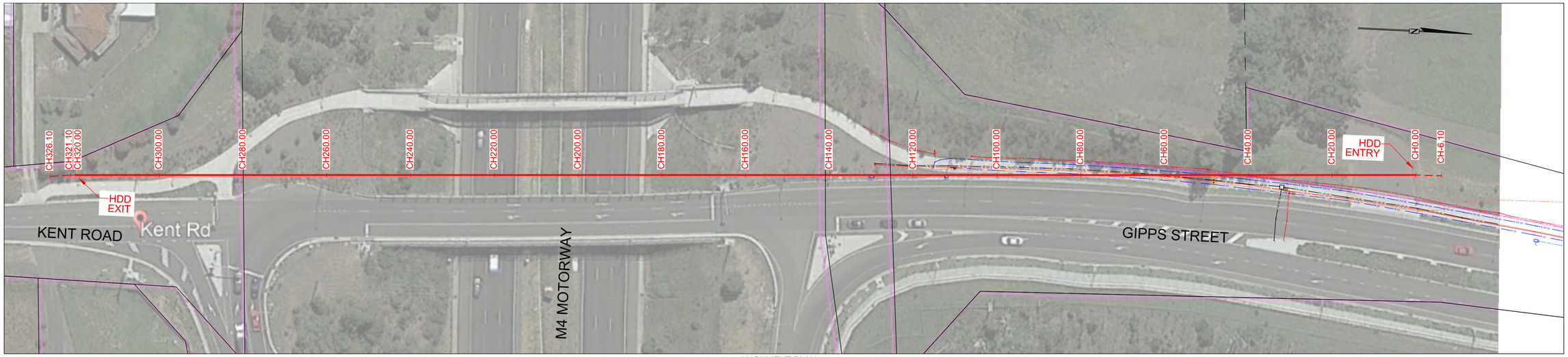
TRENCHLESS ADVISOR

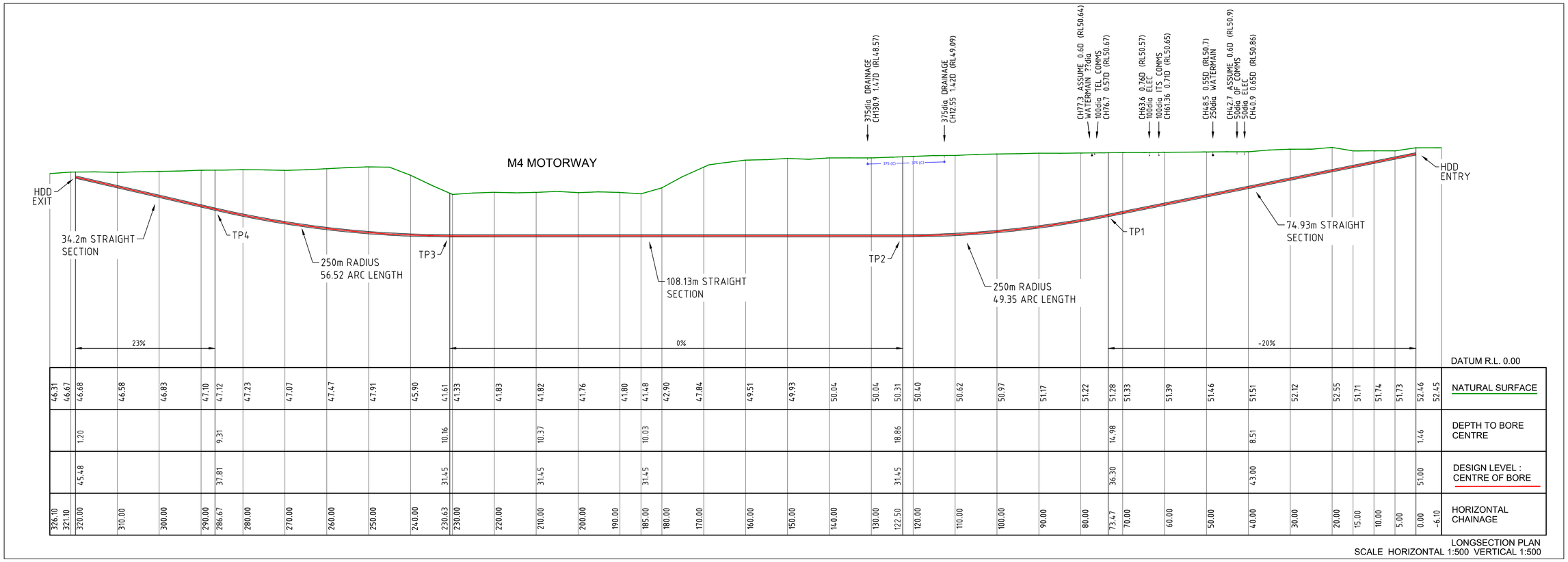
TRENCHLESS ADVISOR
P.O.BOX 6225
YATALA DC
4207

DATE:
17.12.2020
SHEET SIZE
A1
HORIZ DATUM:
XX
LEVEL DATUM:
XX

PROJECT:
M4 CROSSING AT KENT ST_ORCHARD HILLS
TITLE
M4 CROSSING AT KENT ST_ORCHARD HILLS
BORE
ALIGNMENT AND LONGSECTION PLAN

PROJECT No.
XX
SCALE:
1: 500
SHEET OF
1 1
REV
A
DRAWING No.
001





ALIGNMENT PLAN
SCALE 1:500

DATUM R.L. 0.00

NATURAL SURFACE	46.31	46.67	46.68	46.58	46.83	47.10	47.12	47.23	47.07	47.47	47.91	45.90	41.61	41.33	41.83	41.82	41.76	41.80	41.48	42.90	47.84
DEPTH TO BORE CENTRE			1.20				9.31						10.16			10.37			10.03		
DESIGN LEVEL : CENTRE OF BORE			45.48				37.81						31.45			31.45			31.45		
HORIZONTAL CHAINAGE	326.10	321.10	320.00	310.00	300.00	290.00	286.67	280.00	270.00	260.00	250.00	240.00	230.63	230.00	220.00	210.00	200.00	190.00	185.00	180.00	170.00

NATURAL SURFACE	49.51	49.93	50.04	50.04	50.31	50.40	50.62	50.97	51.17	51.22	51.28	51.33	51.39	51.46	51.51	52.12	52.55	51.71	51.74	51.73	52.46	52.45
DEPTH TO BORE CENTRE					18.86						14.98				8.51						1.46	
DESIGN LEVEL : CENTRE OF BORE					31.45						36.30				43.00						51.00	
HORIZONTAL CHAINAGE	160.00	150.00	140.00	130.00	122.50	120.00	110.00	100.00	90.00	80.00	73.47	70.00	60.00	50.00	40.00	30.00	20.00	15.00	10.00	5.00	0.00	-6.10

LONGSECTION PLAN
SCALE HORIZONTAL 1:500 VERTICAL 1:500

BORE SECTION
NTS

SCALE - 1:500

WARNING :
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NOTE :
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CLIENT:

DIAL BEFORE YOU DIG®
www.1100.com.au
ALL UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED

REV.	DESCRIPTION	DRAWN	DESIGN	APPR.	DATE
A	PRELIMINARY	G.B.	DG	--	17/12/20

DESIGNED BY
D. GUNNELL
DRAFTED BY
G. BAKER
DESIGN CHECKED BY
APPROVED BY

TRENCHLESS ADVISOR

TRENCHLESS ADVISOR
P.O.BOX 6225
YATALA DC
4207

DATE:
17.12.2020
SHEET SIZE
A1
HORIZ DATUM:
XX
LEVEL DATUM:
XX

PROJECT:
M4 CROSSING AT KENT ST_ORCHARD HILLS

TITLE
M4 CROSSING AT KENT ST_ORCHARD HILLS
BORE
ALIGNMENT AND LONGSECTION PLAN

PROJECT No.
XX
SCALE:
1: 500
SHEET OF
1 1
REV
A
DRAWING No.
001

Portion 4 - Airport Business Park (ABP)

LOCALITY MAP
NOT TO SCALE

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
   (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
   (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EASEMENT BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

7. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION.
TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

8. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION.
CONTACTS
SYDNEY WATER :(02) 8849 3800

9. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

10. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

11. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

12. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

13. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

14. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL	– MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S)	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED		EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT / WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT	CUSTOMER FUNDED CONTESTABLE WORKS	TBA
NIL / NIL	ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SUBSTATION	CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT		March 2021
TBA		ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
		NIL

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP: Connection Policy
EMS: Environmental Management Standard
MCI: Mains Construction Instruction
MDI: Mains Design Instruction
PDI: Protection Design Instruction
SDI: Substation Design Instruction
SAD 0001: Design Drawing Standard
MMI: Mains Maintenance Instruction
SMI: Substation Maintenance Instruction
LDI 0001: Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: BRYAN STRINGER

Service Provider Number: 2516 Date: XX/XX/2020

PIONEER COST SHARE REIMBURSEMENT SCHEME - EXPIRY DATE DD/MMM/YYYY PRE-CALCULATED REIMBURSEMENT FOR CUSTOMER LOAD OVER 50KVA

ASSET	ASSET COST ESTIMATE ($)	UNIT QUANTITY (Km)	NET ASSET CAPACITY (kVA)	ORIGINAL CUSTOMER UTILISATION (kVA)	MAXIMUM REIMBURSEMENT AMOUNT ($)
HV Mains	$xxxx	xxxkm	xxxkVA	xxxkVA	$xxxx
LV Mains	$xxxx	xxxkm	xxxkVA	xxxkVA	$xxxx
Substation	$xxxx		xxxkVA	xxxkVA	$xxxx

KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
EQUIPMENT TO BE RETURNED TO ENDEAVOUR ENERGY - FPJ4253	TBA
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	TBA
DESIGNER'S SAFETY REPORT	TBA

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

DUCT DECLARATION

I
OF
CONTACT NUMBER
HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.
THE INSTALLATION OF THE DUCTS WAS
COMMENCED ON
& COMPLETED ON
SIGNATURE
LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:
Print Name:
XXXXX
Service Number: XXXXXXX
Funding Amount: $ XXXXX
Date: XX/XX/XXXX

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING

I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

AMENDMENTS: ORIGINAL ISSUE A — DRAFT No. 01

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PREPARED BY:
Ultegra
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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2559
				AM PROJ. No.	
		GENERAL		ULTEGRA PROJ. No.	80059_20210218
		OVERHEAD		UBD/PENGUIN REF	33*S2'58.9"S 150*44'35.5"E
		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE
DRAWN M.E
DATE 18/02/2021
CH'D R.B
DO NOT SCALE DIMENSIONS IN METRES
DESIGN M.Y

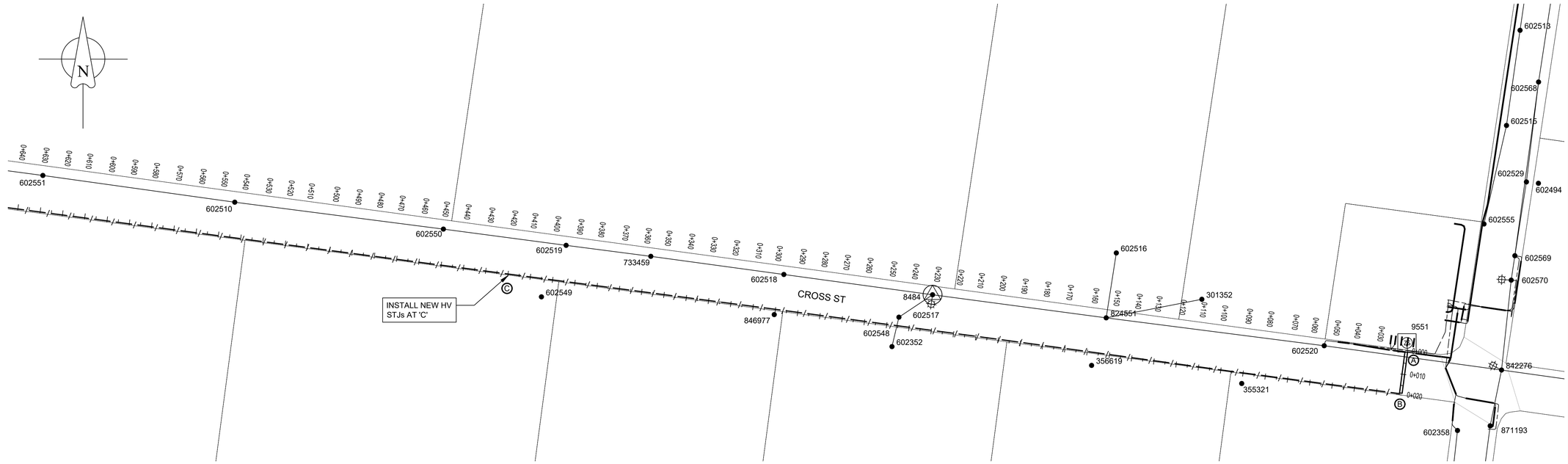
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy
A1 | 123456 | A
SHEET No 1 OF 11 SHEETS

84766

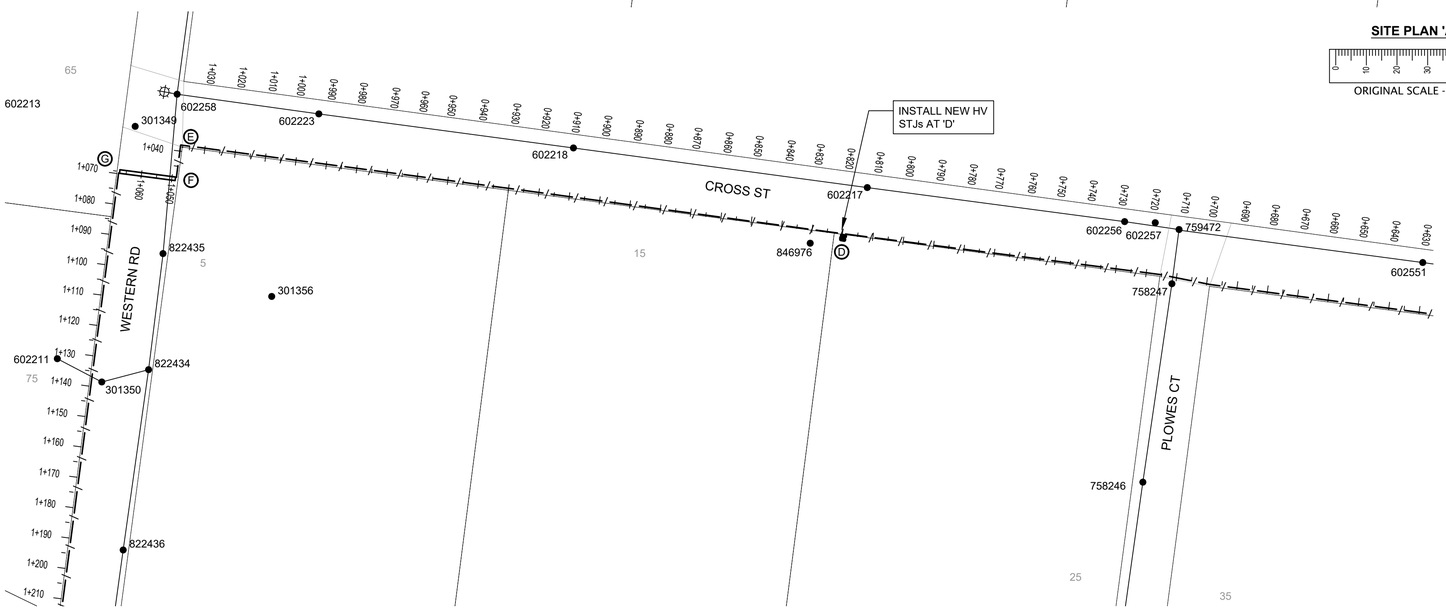
LEGEND

- EXISTING POLE SUBSTATION
- EXISTING ZONE SUB
- EXISTING DUCTS ROUTE
- NEW DUCTS ROUTE
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING OVERHEAD MAINS
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING SERVICES
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT
- DUCT WITH PROPOSED REMOVE CABLE



SITE PLAN 'A'

ORIGINAL SCALE - 1:1000



SITE PLAN 'B'

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
ZS - A	HVHVHVHV	EXISTING 3 x 50mm DUCTS 8 x 125mm DUCTS	5	NIL	NIL	WITHIN ZONE SUB
A - B	HVHVHV	NEW 6 x 125mm DUCTS	11.5	NIL	NIL	ROAD CROSSING
B - C	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH NEW STJs AT 'C'
C - D	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH NEW STJs AT 'D'
D - E	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	218	NIL	NIL	NEW HV TRENCH OPEN POINT AT 'E'
E - F	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	10	NIL	NIL	NEW HV TRENCH
F - G	HVHVHV	NEW 6 x 125mm DUCTS	18	NIL	NIL	ROAD CROSSING

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

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Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

Cadastre: © Land and Property Information 2016

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

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REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2559
AM PROJ. No.	
ULTEGRA PROJ. No.	80059_20210218
UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
GIS MAP No	U73456
HV OP DIAGRAM	KEMPS CREEK ZS
LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN M.E

DATE 18/02/2021

CH'D R.B

DESIGN M.Y

DO NOT SCALE
DIMENSIONS IN METRES

LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 2 OF 11 SHEETS

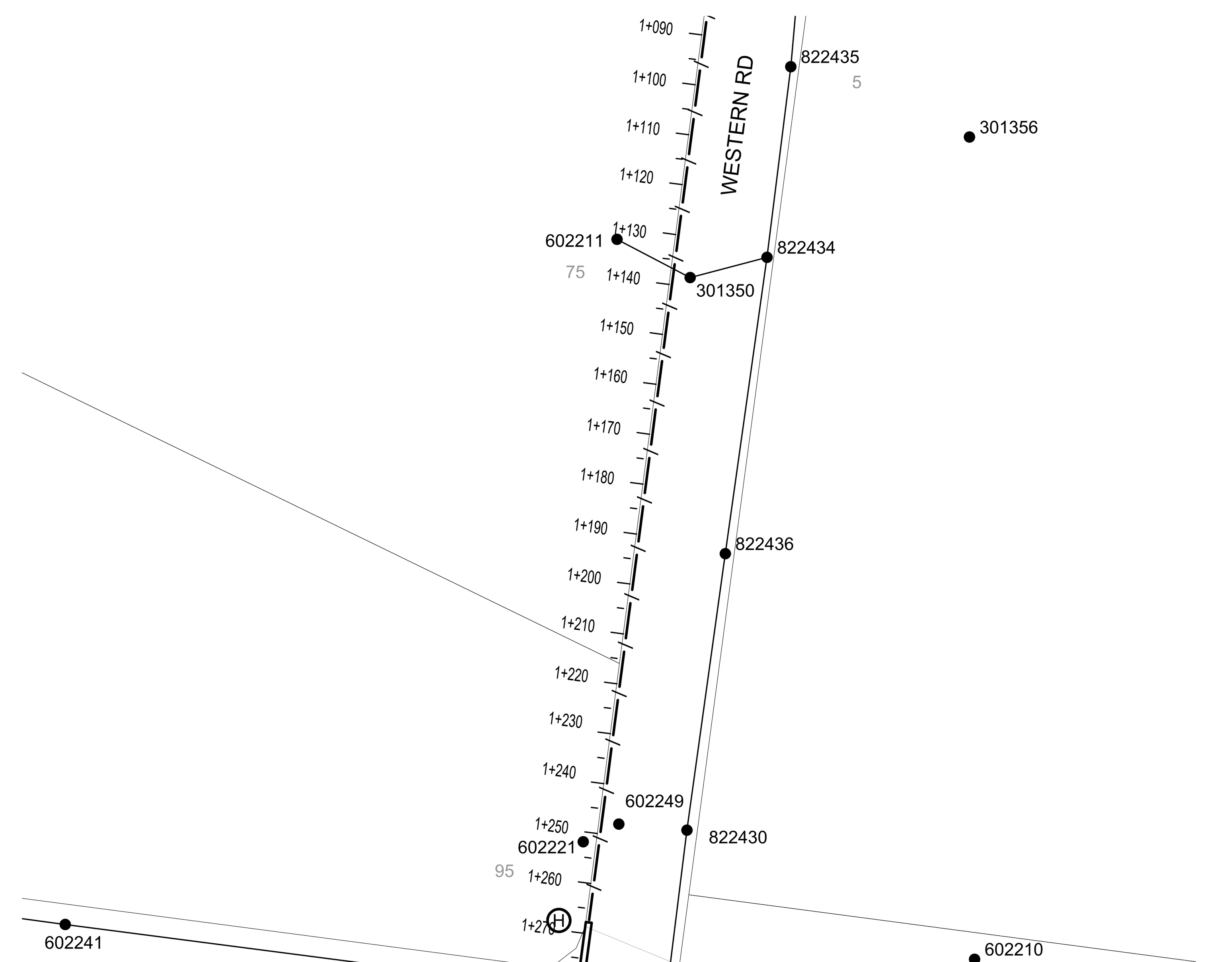
84766

LEGEND

- NEW DUCTS ROUTE
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING OVERHEAD MAINS
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT
- DUCT WITH PROPOSED REMOVE CABLE

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
G - H	HVHVHV, 300, BOUNDARY LINE	NEW 3 x 125mm DUCTS	197.5	NIL	NIL	NEW HV TRENCH
H - I	HVHVHV	NEW 6 x 125mm DUCTS	42	NIL	NIL	ROAD CROSSING
I - J	HVHVHV, 300, BOUNDARY LINE	NEW 3 x 125mm DUCTS	157.5	NIL	NIL	NEW HV TRENCH
J - K	HVHVHV	NEW 6 x 125mm DUCTS	10	NIL	NIL	ROAD CROSSING
K - L	BOUNDARY LINE, 300, HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH NEW STJs AT 'L'




SITE PLAN 'C'

ORIGINAL SCALE - 1:1000

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

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AMENDMENTS | ORIGINAL ISSUE | A | DRAFT No. 01

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REFERENCE DRAWING'S

WORK ORDERS	
GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	DBL2559
AM PROJ. No.	
ULTEGRA PROJ. No.	80059__20210218
UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
GIS MAP No	U73456
HV OP DIAGRAM	KEMPS CREEK ZS
LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN	M.E
DATE	18/02/2021
CH'D	R.B

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN M.Y

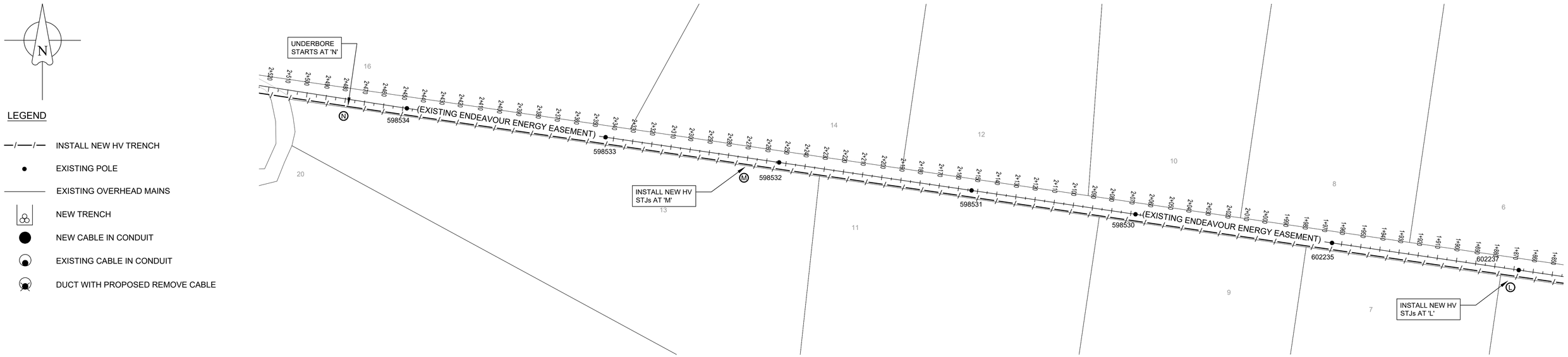
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 123456 A

SHEET No 3 OF 11 SHEETS

84766



SITE PLAN 'D'

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE						
ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
L - M	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH NEW STJs AT 'M'
M - N	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	209	NIL	NIL	NEW HV TRENCH
N - O	HVHV	NEW 6 x 125mm DUCTS	157.5	NIL	NIL	NEW UNDERBORE FROM 'N' TO 'O' NEW STJs AT 'O'

SITE PLAN 'E'

ORIGINAL SCALE - 1:1000

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

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SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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DATE: _____

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Examiner's Signature: _____

Print Name: _____

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2559
				AM PROJ. No.	
		GENERAL		ULTEGRA PROJ. No.	80059_20210218
		OVERHEAD		UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN	M.E
DATE	18/02/2021
CH'D	R.B
DESIGN	M.Y

DO NOT SCALE — DIMENSIONS IN METRES

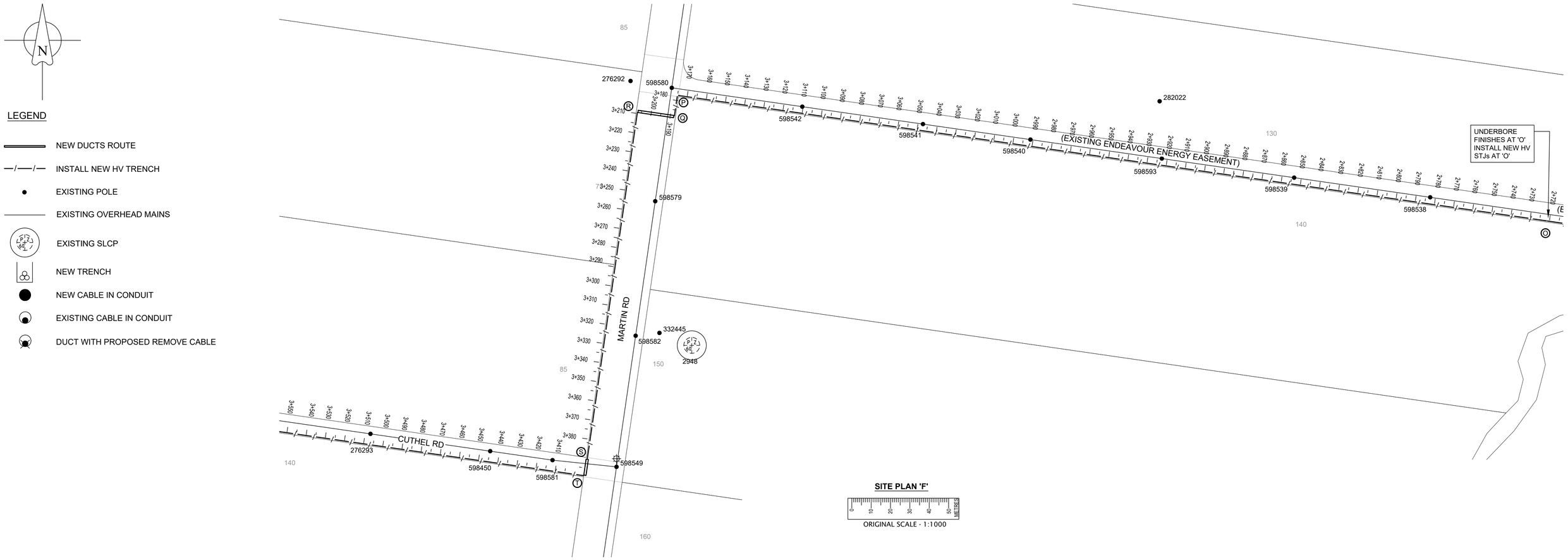
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 4 OF 11 SHEETS

84766



DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
O - P	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	453	NIL	NIL	NEW HV TRENCH OPEN POINT AT 'P'
P - Q	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	10	NIL	NIL	NEW HV TRENCH
Q - R	HVHVHV	NEW 6 x 125mm DUCTS	19	NIL	NIL	ROADCROSSING
R - S	300 BOUNDARY LINE HVHVHV	NEW 3 x 125mm DUCTS	181	NIL	NIL	NEW HV TRENCH
S - T	HVHVHV	NEW 6 x 125mm DUCTS	10	NIL	NIL	ROAD CROSSING

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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SIGNATURE: _____

DATE: _____

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Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2559
				AM PROJ. No.	
		GENERAL		ULTEGRA PROJ. No.	80059_20210218
		OVERHEAD		UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN	M.E
DATE	18/02/2021
CH'D	R.B

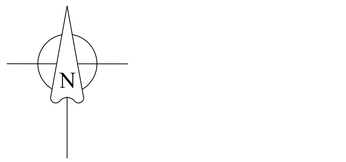
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN M.Y

LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A
SHEET No 5 OF 11 SHEETS

84766

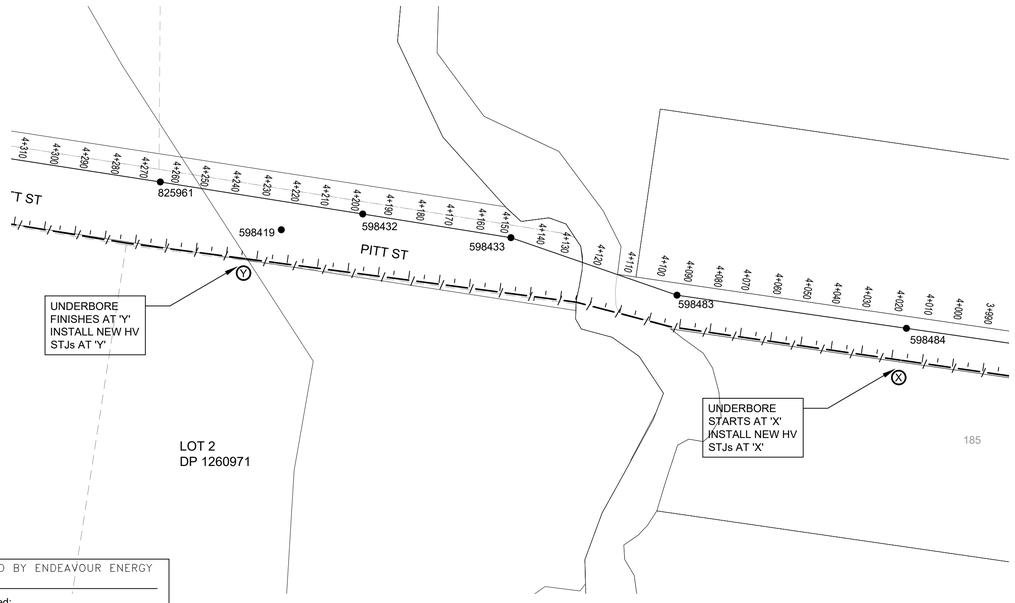


LEGEND

- NEW DUCTS ROUTE
- INSTALL NEW HV TRENCH
- EXISTING POLE
- EXISTING OVERHEAD MAINS
- NEW TRENCH
- NEW CABLE IN CONDUIT
- EXISTING CABLE IN CONDUIT
- DUCT WITH PROPOSED REMOVE CABLE

SITE PLAN 'G'

ORIGINAL SCALE - 1:1000



SITE PLAN 'H'

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
T - U	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	282	NIL	NIL	NEW HV TRENCH OPEN POINT AT 'U'
U - V	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	41	NIL	NIL	NEW HV TRENCH
V - W	HVHVHV	NEW 6 x 125mm DUCTS	30	NIL	NIL	ROADCROSSING
W - X	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	267.5	NIL	NIL	NEW HV TRENCH
X - Y	HVHV	NEW 6 x 125mm DUCTS	216	NIL	NIL	NEW UNDERBORE FROM 'X' TO 'Y' NEW STJs AT 'X' & 'Y'

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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				AM PROJ. No.	
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		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN M.E

DATE 18/02/2021

CH'D R.B

DESIGN M.Y

DO NOT SCALE DIMENSIONS IN METRES

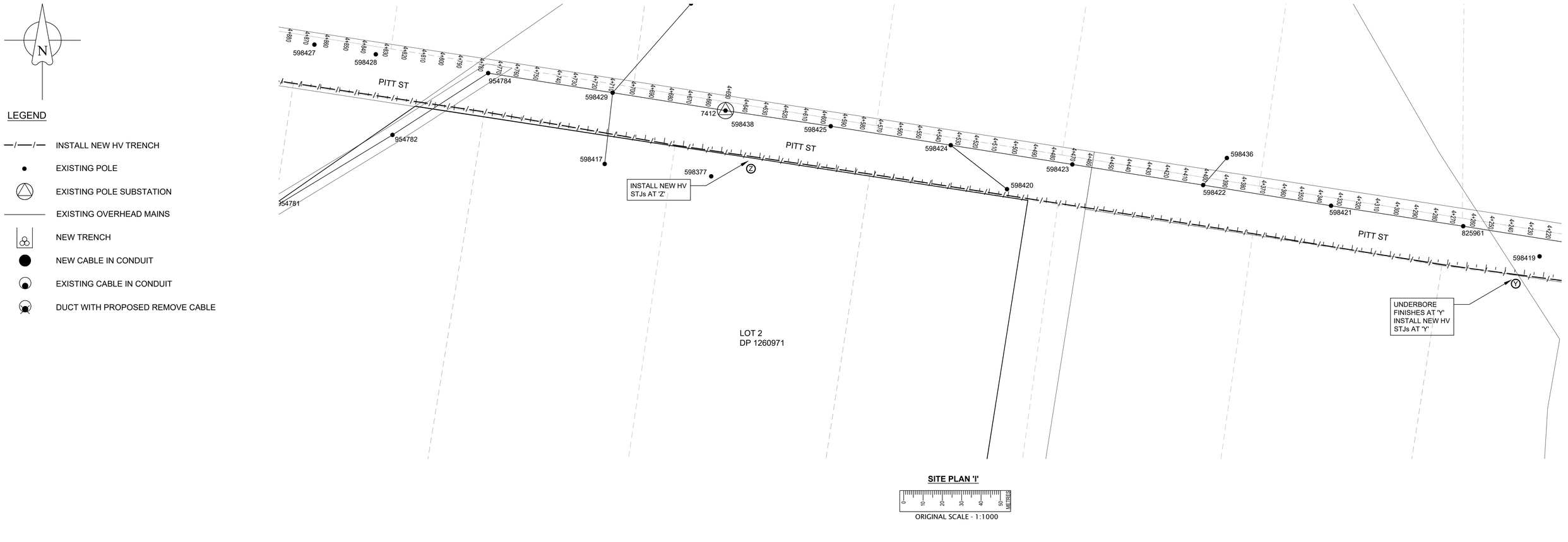
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 6 OF 11 SHEETS

84766



SITE PLAN 'I'

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE						
ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
Y - Z	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH NEW STJs AT 'Z'

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

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ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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		GENERAL		ULTEGRA PROJ. No.	80059_20210218
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		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DRAWN M.E

DATE 18/02/2021

CH'D R.B

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN M.Y

LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 7 OF 11 SHEETS

84766

SITE PLAN 'J'

ORIGINAL SCALE - 1:1000

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

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SIGNATURE:

DATE:

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	REMARKS
Z - 1A	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	400	NIL	NIL	NEW HV TRENCH OPEN POINT AT '1A'
1A - 1B	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	220	NIL	NIL	NEW HV TRENCH
1B - 1C	HVHVHV	NEW 6 x 125mm DUCTS	30	NIL	NIL	ROADCROSSING
1C - 1D	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	31	NIL	NIL	NEW HV TRENCH
1D - 1E	HVHVHV	NEW 6 x 125mm DUCTS	34	NIL	NIL	ROADCROSSING
1E - 1F	300 BOUNDARY LINE HVHVHV	NEW 3 x 125mm DUCTS	385	NIL	NIL	NEW HV TRENCH
1F - 1G	BOUNDARY LINE 300 HVHVHV	NEW 3 x 125mm DUCTS	85	NIL	NIL	NEW HV TRENCH

AMENDMENTS | ORIGINAL ISSUE | A | DRAFT No. 01

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PREPARED BY:
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REFERENCE DRAWING'S	WORK ORDERS			
	GENERAL		CAP / SAMP No.	DBL2559
	OVERHEAD		AM PROJ. No.	
	UNDERGROUND		ULTEGRA PROJ. No.	80059_20210218
	SUBSTATIONS		UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
			GIS MAP No	U73456
			HV OP DIAGRAM	KEMPS CREEK ZS
			LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE		DO NOT SCALE DIMENSIONS IN METRES
DRAWN	M.E	
DATE	18/02/2021	
CH'D	R.B	DESIGN M.Y

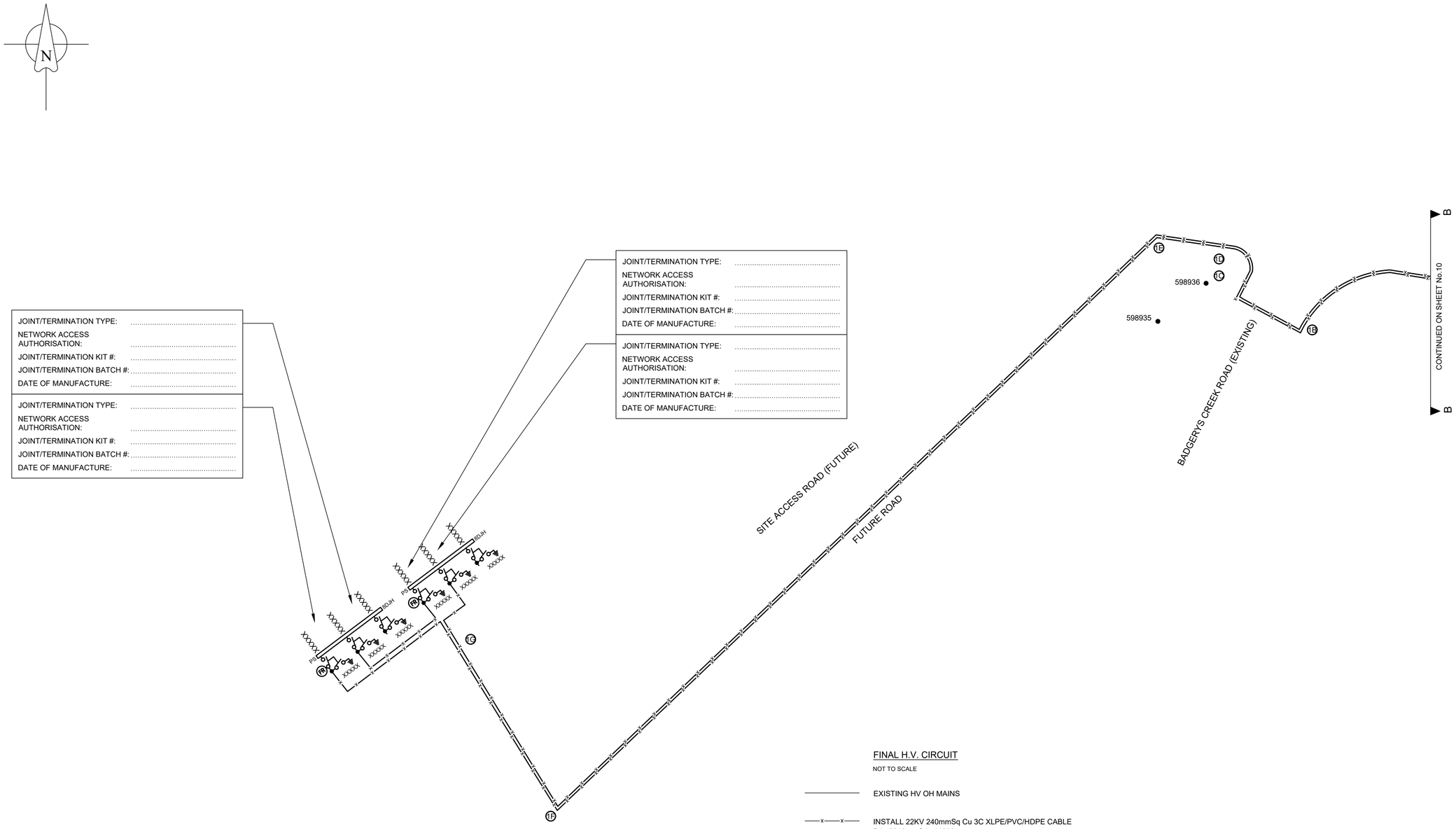
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 8 OF 11 SHEETS

84766



WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS
ORIGINAL ISSUE
A
DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

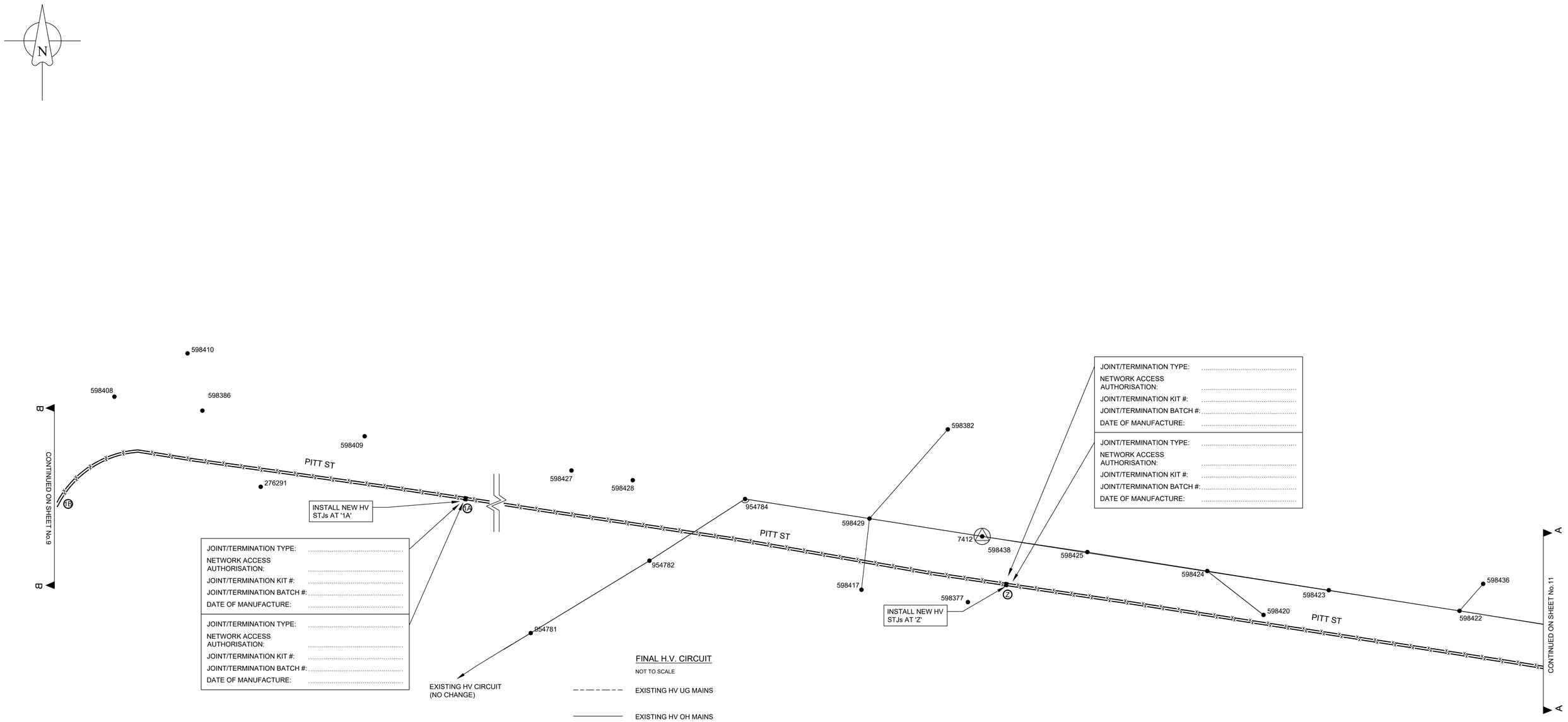
CAP / SAMP No.	DBL2559
AM PROJ. No.	
ULTEGRA PROJ. No.	80059_20210218
UBD/PENGUIN REF	33*52'58.9"S 150*44'35.5"E
GIS MAP No	U73456
HV OP DIAGRAM	KEMPS CREEK ZS
LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE
DRAWN M.E
DATE 18/02/2021
CH'D R.B
DESIGN M.Y
DO NOT SCALE
DIMENSIONS IN METRES

LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy
A1 | 123456 | A
SHEET No 9 OF 11 SHEETS

84766



WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

PRELIMINARY DESIGN ONLY
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

PREPARED BY:

Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2559
				AM PROJ. No.	
		GENERAL		ULTEGRA PROJ. No.	80059_20210218
		OVERHEAD		UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	M.E
DATE	18/02/2021
CH'D	R.B
DESIGN	M.Y

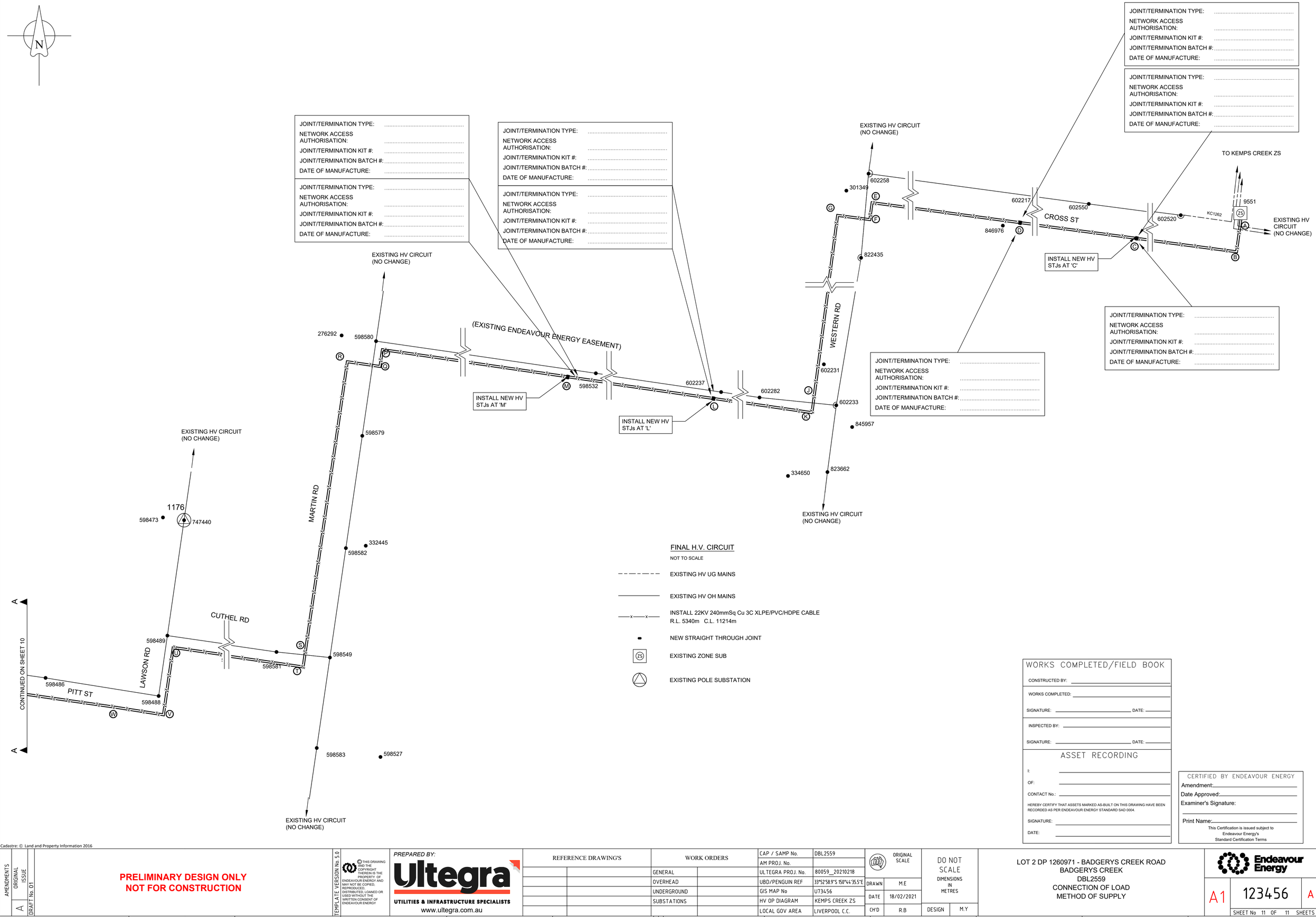
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 10 OF 11 SHEETS

84766



FINAL H.V. CIRCUIT

NOT TO SCALE

- EXISTING HV UG MAINS
- EXISTING HV OH MAINS
- INSTALL 22KV 240mmSq Cu 3C XLPE/PVC/HDPE CABLE R.L. 5340m C.L. 11214m
- NEW STRAIGHT THROUGH JOINT
- EXISTING ZONE SUB
- EXISTING POLE SUBSTATION

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

PRELIMINARY DESIGN ONLY
NOT FOR CONSTRUCTION

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2559
				AM PROJ. No.	
		GENERAL		ULTEGRA PROJ. No.	80059_20210218
		OVERHEAD		UBD/PENGUIN REF	33°52'58.9"S 150°44'35.5"E
		UNDERGROUND		GIS MAP No	U73456
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS
				LOCAL GOV AREA	LIVERPOOL C.C.

ORIGINAL SCALE

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	M.E
DATE	18/02/2021
CH'D	R.B
DESIGN	M.Y

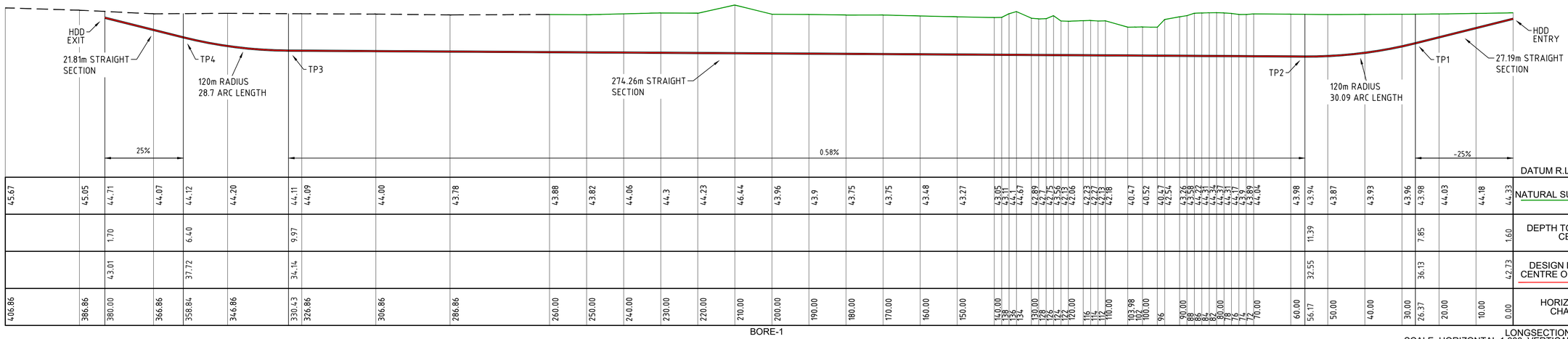
LOT 2 DP 1260971 - BADGERYS CREEK ROAD
BADGERYS CREEK
DBL2559
CONNECTION OF LOAD
METHOD OF SUPPLY

Endeavour Energy

A1 | 123456 | A

SHEET No 11 OF 11 SHEETS

84766



ALIGNMENT PLAN
SCALE 1:200

DATUM R.L. 0.00

45.67	45.05	44.71	44.07	44.12	44.20	44.11	44.09	44.00	43.78	43.88	43.82	44.06	44.3	44.23	NATURAL SURFACE
		1.70		6.40		9.97									DEPTH TO BORE CENTRE
		43.01		37.72		34.14									DESIGN LEVEL : CENTRE OF BORE
406.86	386.86	380.00	366.86	358.84	346.86	330.43	326.86	306.86	286.86	260.00	250.00	240.00	230.00	220.00	HORIZONTAL CHAINAGE

46.44	43.96	43.9	43.75	43.75	43.48	43.27	43.05	43.11	44.1	44.67	42.89	42.7	42.75	43.56	NATURAL SURFACE
															DEPTH TO BORE CENTRE
															DESIGN LEVEL : CENTRE OF BORE
210.00	200.00	190.00	180.00	170.00	160.00	150.00	140.00	138	136	134	130.00	128	126	124	HORIZONTAL CHAINAGE

42.13	42.06	42.23	42.27	42.13	42.18	40.47		40.52	40.47	42.54	43.26	43.58	44.22	44.31	NATURAL SURFACE
															DEPTH TO BORE CENTRE
															DESIGN LEVEL : CENTRE OF BORE
122	120.00	116	114	112	110.00	103.98	102	100.00	96		90.00	88	86	84	HORIZONTAL CHAINAGE

44.34	44.37	44.31	44.17	43.9	43.89	44.04	43.98	43.94	43.87	43.93	43.96	43.98	44.03	44.18	44.33	NATURAL SURFACE
								11.39				7.85			1.60	DEPTH TO BORE CENTRE
								32.55				36.13			42.73	DESIGN LEVEL : CENTRE OF BORE
82	80.00	78	76	74	72	70.00	60.00	56.17	50.00	40.00	30.00	26.37	20.00	10.00	0.00	HORIZONTAL CHAINAGE

BORE-1

LONGSECTION PLAN
SCALE HORIZONTAL 1:600 VERTICAL 1:600

SCALE - 1:600

WARNING :
A CURRENT SERVICES SEARCH, INCLUDING 'DIAL BEFORE YOU DIG' SERVICES PLANS, AND SITE CHECKING OF ALL EXISTING SERVICES WILL BE NECESSARY PRIOR TO COMMENCING ANY WORK. APPROPRIATE PROCEDURES, PRECAUTIONS AND CARE TO BE TAKEN WHEN IN CLOSE PROXIMITY TO ANY SERVICE.

NOTE :
THE LOCATION OF FEATURES, TANGENT POINTS AND DIMENSIONS HAVE IN SOME INSTANCES BEEN OBTAINED FROM EXISTING DRAWINGS. CONSEQUENTLY THEY ARE APPROXIMATE ONLY AND MAY BE DIFFERENT TO CONDITIONS ON SITE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND THE LOCATIONS OF FEATURES PRIOR TO THE COMMENCEMENT OF ANY INTERNAL WORK.

BORE SECTION
NOT TO SCALE

CLIENT:

DIAL BEFORE YOU DIG
www.1100.com.au
ALL UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED

REV.	DESCRIPTION	DRAWN	DESIGN	APPR.	DATE
A	PRELIMINARY	G.B.	DG	--	08/02/21

DESIGNED BY
D. GUNNELL
DRAFTED BY
G. BAKER
DESIGN CHECKED BY
APPROVED BY

TRENCHLESS ADVISOR

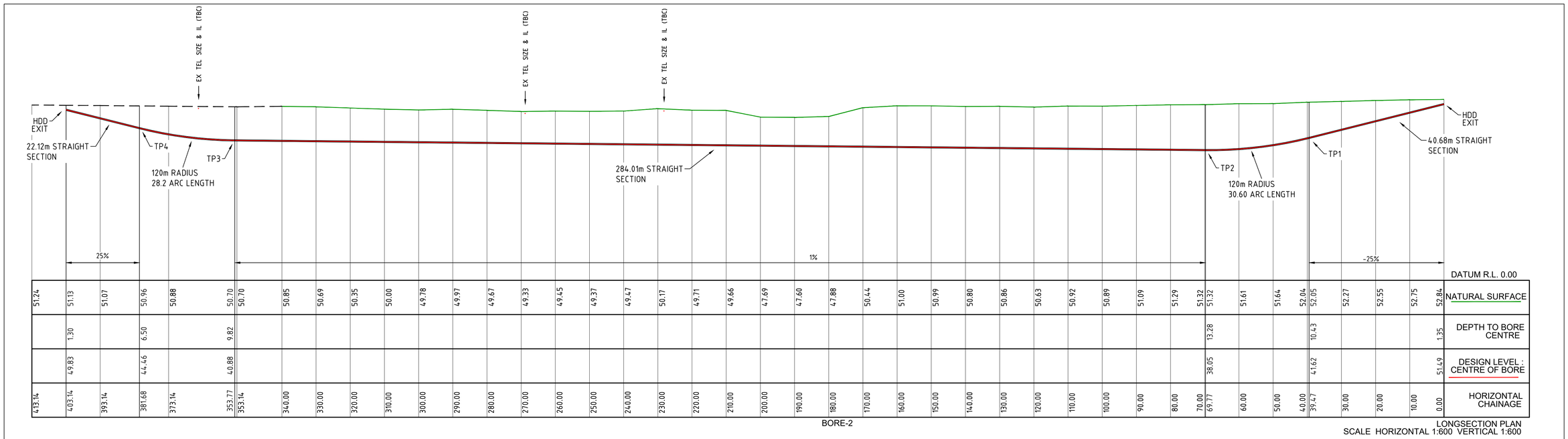
TRENCHLESS ADVISOR
P.O.BOX 6225
YATALA DC
4207

DATE: 08.02.2021
SHEET SIZE A1
HORIZ DATUM:
LEVEL DATUM:

PROJECT: SOUTH CREEK CROSSING

TITLE
SOUTH CREEK CROSSING
BORE-1
HDD ALIGNMENT AND LONGSECTION PLAN

PROJECT No. XXX
SCALE: 1: 600
SHEET 1 OF 1
REV A
DRAWING No. 001



ALIGNMENT PLAN
SCALE 1:600

DATUM R.L. 0.00

NATURAL SURFACE	51.24	51.13	51.07	50.96	50.88	50.70	50.70	50.85	50.69	50.35	50.00
DEPTH TO BORE CENTRE		1.30		6.50		9.82					
DESIGN LEVEL : CENTRE OF BORE		49.83		44.46		40.88					
HORIZONTAL CHAINAGE	413.14	403.14	393.14	381.68	373.14	353.77	353.14	340.00	330.00	320.00	310.00

NATURAL SURFACE	49.78	49.97	49.67	49.33	49.45	49.37	49.47	50.17	49.71	49.66	47.69
DEPTH TO BORE CENTRE											
DESIGN LEVEL : CENTRE OF BORE											
HORIZONTAL CHAINAGE	300.00	290.00	280.00	270.00	260.00	250.00	240.00	230.00	220.00	210.00	200.00

NATURAL SURFACE	47.60	47.88	50.44	51.00	50.99	50.80	50.86	50.63	50.92	50.89	51.09
DEPTH TO BORE CENTRE											
DESIGN LEVEL : CENTRE OF BORE											
HORIZONTAL CHAINAGE	190.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00	90.00

NATURAL SURFACE	51.29	51.32	51.32	51.61	51.64	52.04	52.05	52.27	52.55	52.75	52.84
DEPTH TO BORE CENTRE			13.28				10.43				1.35
DESIGN LEVEL : CENTRE OF BORE			38.05				41.62				51.49
HORIZONTAL CHAINAGE	80.00	70.00	69.77	60.00	50.00	40.00	39.47	30.00	20.00	10.00	0.00

BORE-2

LONGSECTION PLAN
SCALE HORIZONTAL 1:600 VERTICAL 1:600

BORE SECTION
NOT TO SCALE

SCALE - 1:600

WARNING :

A CURRENT SERVICES SEARCH, INCLUDING 'DIAL BEFORE YOU DIG' SERVICES PLANS, AND SITE CHECKING OF ALL EXISTING SERVICES WILL BE NECESSARY PRIOR TO COMMENCING ANY WORK. APPROPRIATE PROCEDURES, PRECAUTIONS AND CARE TO BE TAKEN WHEN IN CLOSE PROXIMITY TO ANY SERVICE.

NOTE :

THE LOCATION OF FEATURES, TANGENT POINTS AND DIMENSIONS HAVE IN SOME INSTANCES BEEN OBTAINED FROM EXISTING DRAWINGS. CONSEQUENTLY THEY ARE APPROXIMATE ONLY AND MAY BE DIFFERENT TO CONDITIONS ON SITE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND THE LOCATIONS OF FEATURES PRIOR TO THE COMMENCEMENT OF ANY INTERNAL WORK.

CLIENT:

DIAL BEFORE YOU DIG®
www.1100.com.au
ALL UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED

REV.	DESCRIPTION	DRAWN	DESIGN	APPR.	DATE
A	PRELIMINARY	G.B.	DG	--	08/02/21

DESIGNED BY
D. GUNNELL
DRAFTED BY
G. BAKER
DESIGN CHECKED BY
APPROVED BY

TRENCHLESS ADVISOR

TRENCHLESS ADVISOR
P.O.BOX 6225
YATALA DC
4207

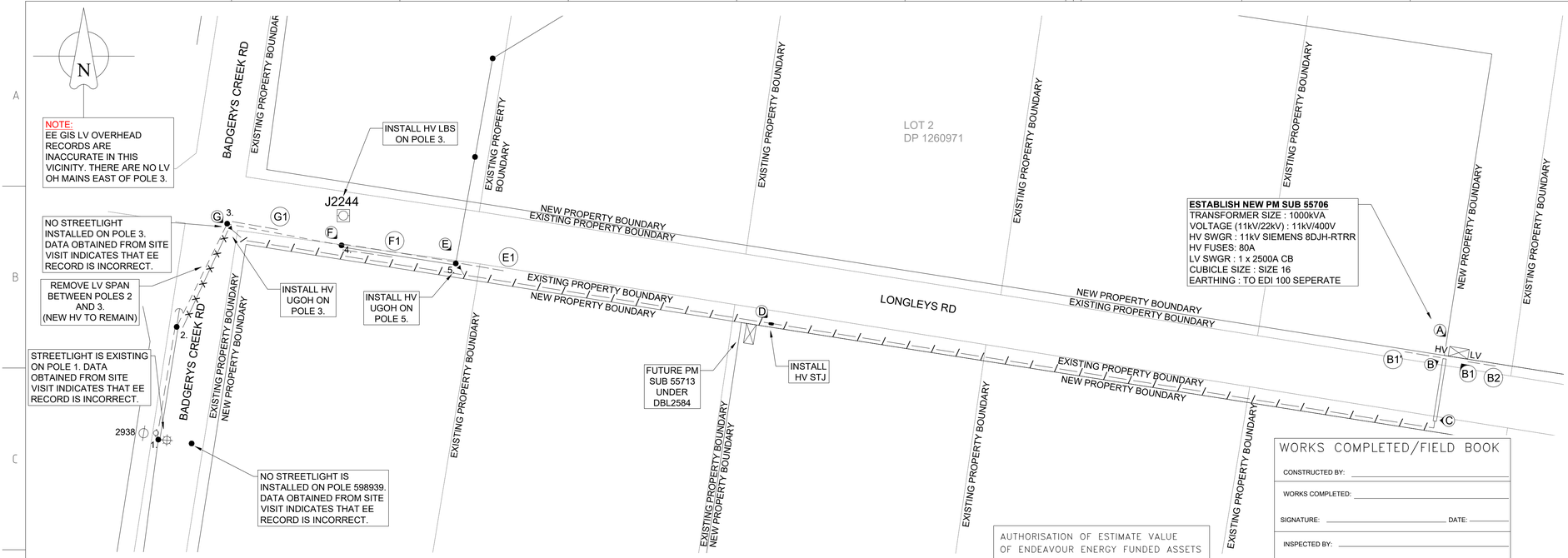
DATE: 08.02.2021
SHEET SIZE A1
HORIZ DATUM:
LEVEL DATUM:

PROJECT:
BADGERYS CREEK CROSSING

TITLE
BADGERYS CREEK CROSSING
BORE-2
HDD ALIGNMENT AND LONGSECTION PLAN

PROJECT No. XXX
SCALE: 1: 600
SHEET 1 OF 1
REV A
DRAWING No. 001

Portion 5 - Precast Facilities (Badgerys Creek)



NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
   (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
   (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND LICENCE AREA BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. LICENCE AREA FOR PADMOUNT SUBSTATION SITES (5.5m X 2.75m) FOR PM SUB No.55713 IS TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN LOT 2 DP 1260971. THIS EASEMENT IS A MINIMUM SIZE ONLY, MUST BE LEVEL, AND MUST BE FREE OF ALL OTHER SERVICES.

7. A RESTRICTION ON USE OF LAND IN RELATION TO THE FIRE RATING OF THE BUILDING MEASURED 3m FROM THE SUBSTATION PLINTH IS TO BE CREATED IN FAVOR OF ENDEAVOR ENERGY WITHIN EXISTING LOT 2 DP 1260971.

8. FINAL LOCATION OF LICENCE AREA FOR SUBSTATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THIER REPRESENTITIVE) PRIOR TO CONSTRUCTION.

9. FIRE HYDRANTS AND BOOSTER VALVES NOT TO BE LOCATED WITHIN 10 METRES OF SUBSTATION PLINTHS.

10. EARTHING OF THE SUBSTATIONS TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI 100. COMMON EARTHING TO BE ACHIEVED, THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT, ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100.

11. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

12. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

13. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

14. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

15. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

16. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

17. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

18. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

19. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

LEGEND

- EXISTING OVERHEAD MAINS
- NEW OVERHEAD MAINS
- RE-ATTACH OVERHEAD MAINS
- NEW HV TRENCH
- OH MAINS TO BE REMOVED
- NEW PADMOUNT SUBSTATION
- EXISTING POLE
- NEW UGOH
- NEW STJ
- EXISTING LANTERN
- EXISTING HV ABS (CLOSED)
- NEW HV LBS (OPEN)
- EXISTING LV LINKS (OPEN)
- NEW TRENCH
- NEW LV TRENCH
- NEW CABLE DIRECT BURIED
- NEW CABLE IN CONDUIT
- SPARE DUCT

SITE PLAN

ORIGINAL SCALE - 1:1000

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

Print Name:

Service Number:

Funding Amount: $

Date:

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	24/06/2021
DESIGNER'S SAFETY REPORT	17/06/2021

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
A - B	HV	NEW 2 x DIRECT BURIED HV CABLES	5m	NIL	NIL
B - B1'	EARTH	NEW 1 x EARTH CABLE DIRECT BURIED	20m	NIL	NIL
B1 - B2	EARTH	NEW 1 x EARTH CABLE DIRECT BURIED	20m	NIL	NIL
B - C	HV	NEW 8 x 125mm DUCTS (ROAD CROSSING)	18m	18 x 5 x Ø125mm DUCTS @ $23/m **$2,070.00**	NIL
C - D	HV	NEW 8 x 125mm DUCTS	267m	267 x 5 x Ø125mm DUCTS @ $23/m **$30,705.00**	NIL
D - E	HV	NEW 8 x 125mm DUCTS	119m	119 x 5 x Ø125mm DUCTS @ $23/m **$13,685.00**	NIL
E - E1	EARTH	NEW 1 x EARTH CABLE DIRECT BURIED	20m	NIL	NIL
E - F	HV	NEW 6 x 125mm DUCTS	90m	90 x 4 x Ø125mm DUCTS @ $23/m **$8,280.00**	NIL
F - F1	EARTH	NEW 1 x EARTH CABLE DIRECT BURIED	20m	NIL	NIL
G - G1	EARTH	NEW 1 x EARTH CABLE DIRECT BURIED	20m	NIL	NIL
		TOTAL		2,380m x Ø125mm DUCTS @ $23/m **$54,740.00**	NIL

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL	- MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S)	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED		EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT: NIL WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT: NIL		NIL
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSEMENT	CUSTOMER FUNDED CONTESTABLE WORKS	CO-ORDINATION SUPPLY REQUIRED DATE
DUCT REIMBURSEMENT: 2,380m x Ø125mm DUCTS @ $23/m **$54,740.00** VALUE OF 1000kVA TRANSFORMER ONLY: **$20,125.00** **TOTAL EE CAPITAL CONTRIBUTION (EX. PM & DESIGN): $74,865.00** **EE CAPITAL CONTRIBUTION (HV REIMBURSED): $82,127.00**	ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SUBSTATION - HV UGOH INSTALLATION - LBS INSTALLATION	OCTOBER 2021 ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP NIL

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP:	Connection Policy
EMS:	Environmental Management Standard
MCI:	Mains Construction Instruction
MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: ROHAN BHARDWAJ

Service Provider Number: 2516 Date: 29/06/2021

DUCT DECLARATION

I

OF

CONTACT NUMBER

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS

COMMENCED ON

& COMPLETED ON

SIGNATURE

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

REMARKS	FIELD POLE NUMBER	LANTERNS					CONSTRUCTION					HOLE	POLE							
	NEW	EXISTING	NEW	REMOVE	EXISTING	BRACKET	MOUNTING LENGTH (m)	SPAN LENGTH	LINE DEV DEGREES	HV	LV	DIA mm	TYPE	STAY	FOOTING	RELOCATE	REPLACE	NEW	EXISTING	REMOVE	NUMBER
INSTALL NEW HV UGOH		954773								EX. (B25 + B25) + HUGOH									X		5
INSTALL NEW HV LBS		954772								HLBS-R									X		4
INSTALL NEW HV UGOH		954771								EX. (B25 + B25) + HUGOH									X		3
INSTALL G1 STAY		598938								B23	B05			G1					X		2
		598883								EX. HABS-BB	EX. B03								X		1

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: ULTEGRA — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S

WORK ORDERS

GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	DBL2560
AM PROJ. No.	2014/02306/001
ULTEGRA REF.	80114__20210629
UBD/PENGUIN REF	P244 M5
GIS MAP No	U73454
HV OP DIAGRAM	KEMPS CREEK ZS Q.13
LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE AS SHOWN

DO NOT SCALE — DIMENSIONS IN METRES

DRAWN	E. DERRY		
DATE	29/06/2021		
CH'D	B.STRINGER	DESIGN	N.F.

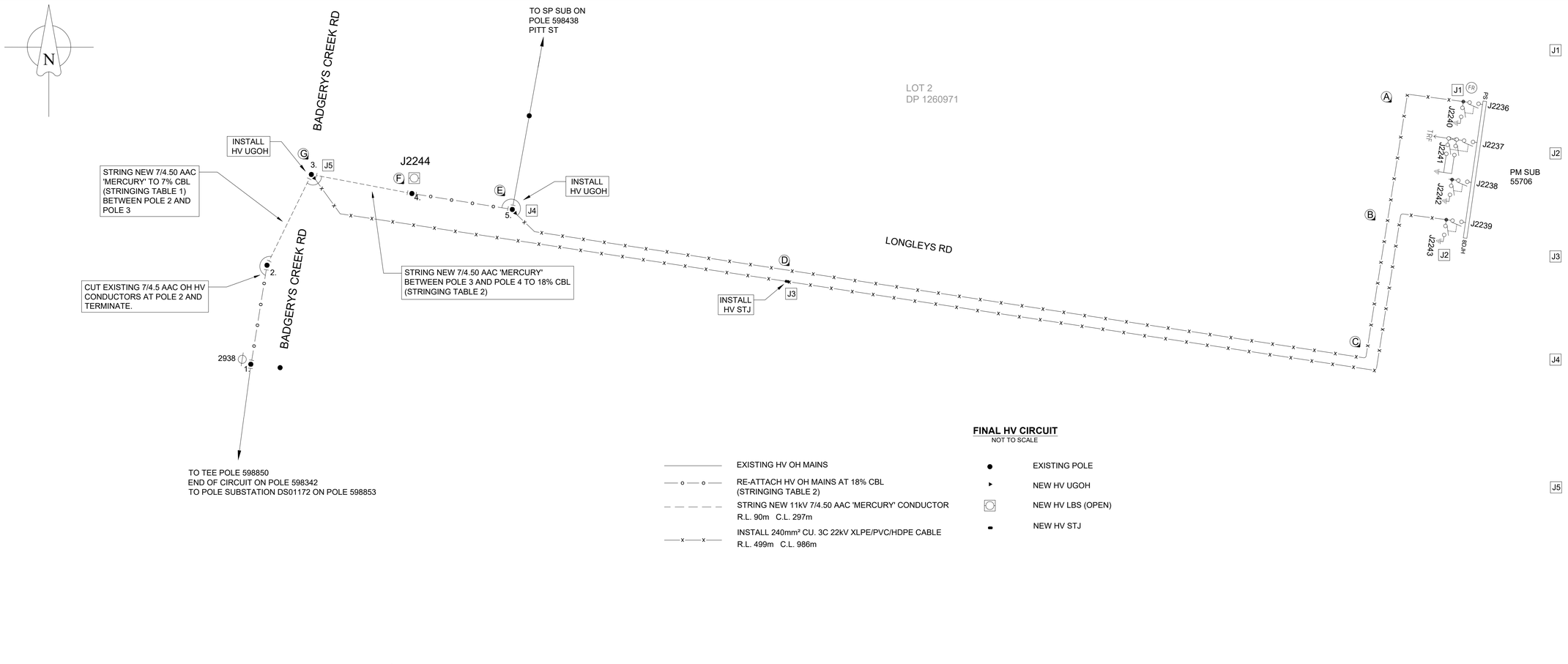
LOT 2 DP1260971 BADGERYS CREEK RD
BADGERYS CREEK
DBL2560
CONNECTION OF LOAD

Endeavour Energy

A1 | 522883 | A

SHEET No. 1 OF 4 SHEETS

87163



FINAL HV CIRCUIT
NOT TO SCALE

- EXISTING HV OH MAINS
- RE-ATTACH HV OH MAINS AT 18% CBL (STRINGING TABLE 2)
- STRING NEW 11kV 7/4.50 AAC 'MERCURY' CONDUCTOR R.L. 90m C.L. 297m
- INSTALL 240mm² CU. 3C 22kV XLPE/PVC/HDPE CABLE R.L. 499m C.L. 986m
- EXISTING POLE
- NEW HV UGOH
- NEW HV LBS (OPEN)
- NEW HV STJ

JOINT/TERMINATION TYPE:
NETWORK ACCESS AUTHORISATION:
JOINT/TERMINATION KIT #:
JOINT/TERMINATION BATCH #:
DATE OF MANUFACTURE:

(J1)

JOINT/TERMINATION TYPE:
NETWORK ACCESS AUTHORISATION:
JOINT/TERMINATION KIT #:
JOINT/TERMINATION BATCH #:
DATE OF MANUFACTURE:

(J2)

JOINT/TERMINATION TYPE:
NETWORK ACCESS AUTHORISATION:
JOINT/TERMINATION KIT #:
JOINT/TERMINATION BATCH #:
DATE OF MANUFACTURE:

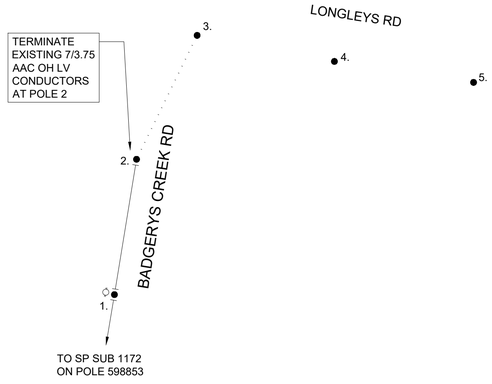
(J3)

JOINT/TERMINATION TYPE:
NETWORK ACCESS AUTHORISATION:
JOINT/TERMINATION KIT #:
JOINT/TERMINATION BATCH #:
DATE OF MANUFACTURE:

(J4)

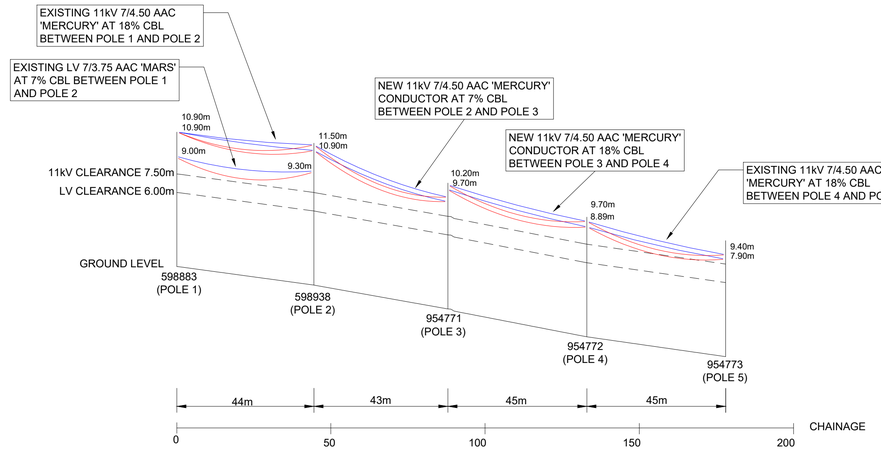
JOINT/TERMINATION TYPE:
NETWORK ACCESS AUTHORISATION:
JOINT/TERMINATION KIT #:
JOINT/TERMINATION BATCH #:
DATE OF MANUFACTURE:

(J5)



FINAL LV CIRCUIT
NOT TO SCALE

- EXISTING LV OH MAINS
- REMOVED LV OH MAINS
- EXISTING POLE
- EXISTING LV LINKS (OPEN)



CONDUCTOR TEMPERATURE PROFILES

HOR. SCALE - 1:1000
VERT. SCALE - 1:250

- OH MAINS @ 5°C
- OH MAINS @ 75°C

ORIGINAL SCALE - 1:1000

ORIGINAL SCALE - 1:250

CERTIFIED BY ENDEAVOUR ENERGY
Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

Cadastre: © Land and Property Information 2016

AMENDMENTS
ORIGINAL ISSUE
A
DRAFT No. 01

TEMPLATE VERSION No 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

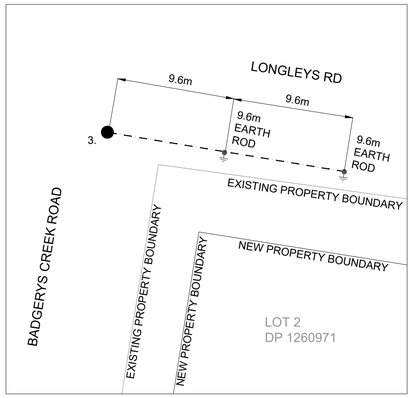
REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2560
				AM PROJ. No.	2014/02306/001
		GENERAL		ULTEGRA REF.	80114__20210629
		OVERHEAD		UBD/PENGUIN REF	P244 M5
		UNDERGROUND		GIS MAP No	U73454
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS Q.13
				LOCAL GOV AREA	LIVERPOOL

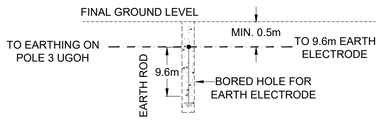
ORIGINAL SCALE AS SHOWN
DRAWN E. DERRY
DATE 29/06/2021
CH'D B.STRINGER
DESIGN N.F.
DO NOT SCALE DIMENSIONS IN METRES

LOT 2 DP1260971 BADGERYS CREEK RD
BADGERYS CREEK
DBL2560
CONNECTION OF LOAD

Endeavour Energy
A1 522883 A
SHEET No 2 OF 4 SHEETS

87163





11kV UGOH AT POLE 3 SEPARATE EARTHING DESIGN

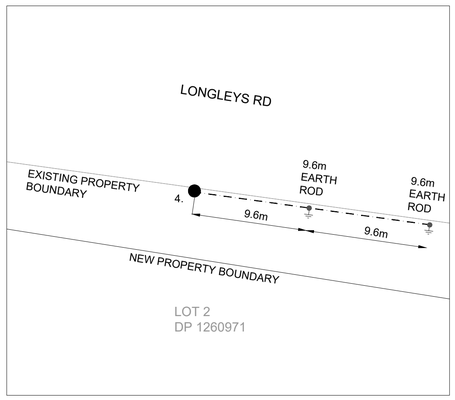
NOT TO SCALE

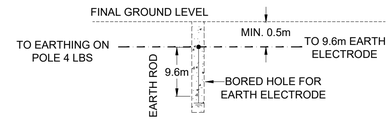
CABLE 70mm2 INS Cu

EARTH ELECTRODE

EARTHING CONSTRUCTION TO EDI-0006

POLE 3 - 11kV UGOH EARTHING DETAILS				
SOIL RESISTIVELY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.70		-
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.68
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				9.6
CONNECTOR TYPE (CAD or CRIMP)				EITHER





11kV LBS AT POLE 4 SEPARATE EARTHING DESIGN

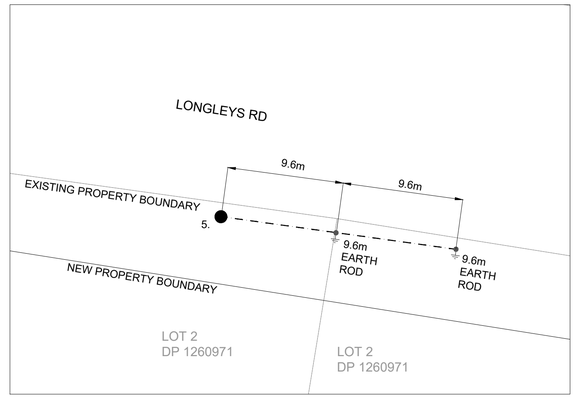
NOT TO SCALE

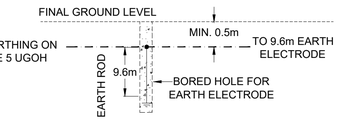
CABLE 70mm2 INS Cu

EARTH ELECTRODE

EARTHING CONSTRUCTION TO EDI-0006

POLE 4 - 11kV LBS EARTHING DETAILS				
SOIL RESISTIVELY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.70		-
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.68
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				9.6
CONNECTOR TYPE (CAD or CRIMP)				EITHER





11kV UGOH AT POLE 5 SEPARATE EARTHING DESIGN

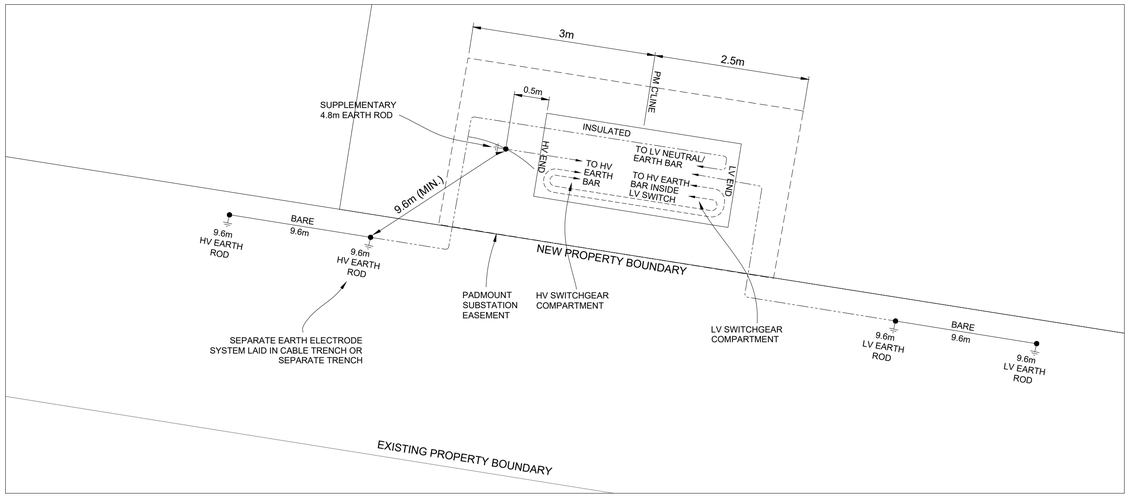
NOT TO SCALE

CABLE 70mm2 INS Cu

EARTH ELECTRODE

EARTHING CONSTRUCTION TO EDI-0006

POLE 5 - 11kV UGOH EARTHING DETAILS				
SOIL RESISTIVELY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.70		-
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.68
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				9.6
CONNECTOR TYPE (CAD or CRIMP)				EITHER



PM SUBSTATION 55706 SEPARATE EARTHING LAYOUT

NOT TO SCALE.

THIS EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH

RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100

LEGEND

CABLE CU. ANNEALED 19/2.14 660V PVC/PVC

CABLE CU. ANNEALED BARE

EARTH ELECTRODE LOCATION & LENGTH. (LENGTH SHOWN IN METRES).

PM SUB 55706 HV EARTHING DETAILS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.7		
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.68
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				9.6
CONNECTOR TYPE (CAD or CRIMP)				EITHER
LOCATION CATEGORY: F - FREQUENTED, R - REMOTE, S - SPECIAL				F
WHAT DESIGN TOOL USED?				3E
FAULT LEVEL (kA)				1.55
IS THIS 'FIRST ASSET OUT' FROM ZS?				NO
ARE SCREENS OF INCOMING CABLE BONDED TO DISTRIBUTION SUBSTATION EARTH BAR?				YES

PM SUB 55706 LV EARTHING DETAILS	
DESIGNED EARTH RESISTANCE LIMIT (ohms)	0.68
MEASURED EARTH RESISTANCE (ohms)	
NUMBER OF ELECTRODES	2
LENGTH OF BARE ELECTRODE (m)	9.6
CONNECTOR TYPE (CAD or CRIMP)	EITHER

HV EARTH MINIMUM SEPARATION (m) - PM SUB 55706		
	DESIGN (m)	ACTUAL (m)
DISTANCE TO 430V	1.5	
DISTANCE TO MEN	1.5	
DISTANCE TO BACKYARD	0.0	
DISTANCE TO URBAN	ALWAYS ACCEPTABLE	
HV-LV ELECTRODE SEPARATION	9.6	

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

AMENDMENTS: ORIGINAL ISSUE A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S

WORK ORDERS		CAP / SAMP No.	DBL2560
GENERAL		AM PROJ. No.	2014/02306/001
OVERHEAD		ULTEGRA REF.	80114__20210629
UNDERGROUND		UBD/PENGUIN REF	P244 M5
SUBSTATIONS		GIS MAP No	U73454
		HV OP DIAGRAM	KEMPS CREEK ZS Q.13
		LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE AS SHOWN

DRAWN	E. DERRY
DATE	29/06/2021
CH'D	B.STRINGER

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN N.F.

LOT 2 DP1260971 BADGERYS CREEK RD
BADGERYS CREEK
DBL2560
CONNECTION OF LOAD

Endeavour Energy

A1 522883 A

SHEET No 3 OF 4 SHEETS

87163

SUBSTATION 55706 LICENCE AREA AND RESTRICTIONS

SCALE 1:50

(REFER TO NOTES 5, 6, 8, 9 & 10) ON SHEET1

SUBSTATION PLINTH TO BE INSTALLED AS PER ENDEAVOUR STANDARD ARRANGEMENT DRAWING: 016665 REV. S

0 0.5 1.0 1.5 2.0 2.5 METRES

ORIGINAL SCALE - 1:50

LICENCE AREA FOR SUBSTATION (5.5m x 2.75m)
(NO STRUCTURES OR SERVICES ALLOWED)

SUBSTATION PLINTH

3m FIRE RESTRICTION ZONE

NEW PM SUB COORDINATES		
REF	EASTING	NORTHING
W	291532.8191	6248013.5750
X	291538.2540	6248012.7311
Y	291532.3927	6248010.8699
Z	291537.8251	6248010.0122

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

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Print Name: _____

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AMENDMENTS
ORIGINAL ISSUE
A
DRAFT No. 01

TEMPLATE VERSION No 5.0

PREPARED BY:

Ultegra

UTILITIES & INFRASTRUCTURE SPECIALISTS

www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2560
				AM PROJ. No.	2014/02306/001
		GENERAL		ULTEGRA REF.	80114__20210629
		OVERHEAD		UBD/PENGUIN REF	P244 M5
		UNDERGROUND		GIS MAP No	U73454
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS Q.13
				LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE AS SHOWN

DRAWN E. DERRY

DATE 29/06/2021

CH'D B.STRINGER

DESIGN N.F.

DO NOT SCALE
DIMENSIONS IN METRES

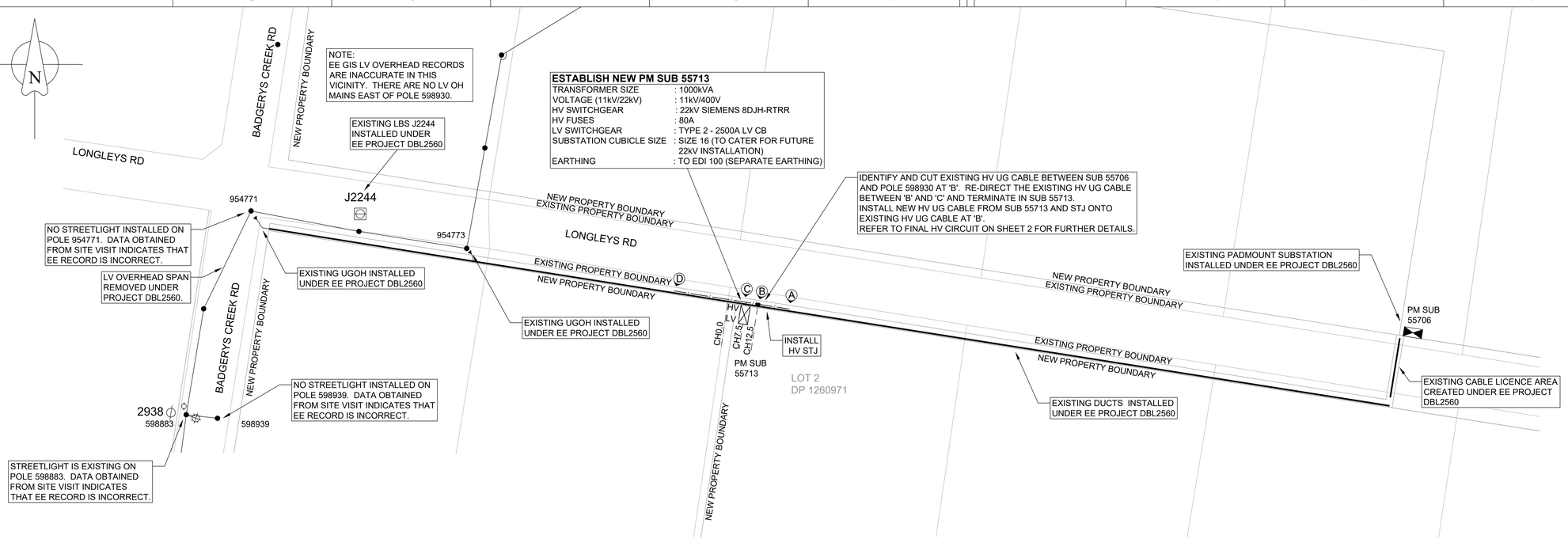
LOT 2 DP1260971 BADGERYS CREEK RD
BADGERYS CREEK
DBL2560
CONNECTION OF LOAD

Endeavour Energy

A1 522883 A

SHEET No 4 OF 4 SHEETS

87163



NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
   (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
   (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND LICENCE AREA BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. THE PADMOUNT SUBSTATION SITE (5.5m X 2.75m) FOR PM SUB No.55713 IS SUBJECT TO AN ELECTRICAL EQUIPMENT LICENCE BETWEEN SYDNEY METRO AND EPSILON DISTRIBUTION MINISTERAL HOLDING CORPORATION. SYDNEY METRO IS REQUIRED TO ACQUIRE LAND OWNERSHIP BEFORE COMMENCING CONSTRUCTION ON LOT 2 DP 1260971.

7. A RESTRICTION ON USE OF LAND IN RELATION TO THE FIRE RATING OF THE BUILDING MEASURED 3m FROM THE SUBSTATION PLINTH IS TO BE CREATED IN FAVOR OF ENDEAVOR ENERGY WITHIN EXISTING LOT 2 DP 1260971.

8. FINAL LOCATION OF LICENCE AREA FOR SUBSTATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THIER REPRESENTITIVE) PRIOR TO CONSTRUCTION.

9. FIRE HYDRANTS AND BOOSTER VALVES NOT TO BE LOCATED WITHIN 10 METRES OF SUBSTATION PLINTHS.

10. EARTHING OF THE SUBSTATIONS TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI 100. COMMON EARTHING TO BE ACHIEVED, THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT, ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100.

11. ATTENTION
ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

12. ATTENTION
TELSTRA & OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION.
TELSTRA & OPTUS UNDERGROUND ASSETS LOCATED IN THE AREA. CONTACTS
TELSTRA NETWORK INTEGRITY HELP DESK: 1800 653 935
OPTUS: 1800 505 777

13. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

14. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

15. ENDEAVOUR ENERGY ENVIRONMENTAL MANAGEMENT PLAN EMS001 IS PART OF THIS DESIGN.

16. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

17. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

18. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

19. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

20. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

LEGEND

- EXISTING UNDERGROUND MAINS
- NEW UNDERGROUND MAINS
- EXISTING OVERHEAD MAINS
- EXISTING DUCT
- NEW HV TRENCH
- NEW PADMOUNT SUBSTATION
- EXISTING PADMOUNT SUBSTATION
- EXISTING POLE
- EXISTING UGOH
- NEW STJ
- EXISTING LANTERN
- EXISTING HV ABS (CLOSED)
- EXISTING HV LBS (CLOSED)
- EXISTING LV LINKS (OPEN)
- EXISTING TRENCH
- NEW TRENCH
- EXISTING CABLE IN CONDUIT
- EXISTING PRIOR CABLE DIRECT BURIED
- SPARE DUCT
- DUCT WITH PROPOSED REMOVE CABLE

SITE PLAN

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

NOTE:
1. THIS PROJECT RELIES ON THE COMPLETION OF DBL2560.

2. A 24/7 ACCESS TO ENDEAVOUR ENERGY PERSONNEL MUST BE PROVIDED.

KEY DOCUMENTS TABLE	
THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	21/06/2021
DESIGNER'S SAFETY REPORT	08/06/2021

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

Print Name:

Service Number:

Funding Amount: $

Date:

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL	- MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S) - SUBSTATION COMMISSIONING	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED		EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT / WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT	CUSTOMER FUNDED CONTESTABLE WORKS	NIL
NIL / NIL	ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SUBSTATION	CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT		DECEMBER 2021
TOTAL EE CAPITAL CONTRIBUTION (EXCLUDING PM & DESIGN) = NIL EE CAPITAL CONTRIBUTION (HV REIMBURSED) = NIL		ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
		NIL

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP:	Connection Policy
EMS:	Environmental Management Standard
MCI:	Mains Construction Instruction
MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: BRYAN STRINGER

Service Provider Number: 2516 Date: 16/07/2021

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

DUCT DECLARATION

I

OF

CONTACT NUMBER

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0008. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS

COMMENCED ON

& COMPLETED ON

SIGNATURE

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
A -B	EARTH HV HV	EXISTING 8 x 125mm DUCTS NEW 1 x DIRECT BURIED EARTH CABLE	13m	NIL	NIL
B - C	EARTH HV HV HV	EXISTING 8 x 125mm DUCTS NEW 1 x DIRECT BURIED EXISTING CABLE (RE-DIRECTED) 1 x DIRECT BURIED EARTH CABLE	5m	NIL	NIL
C - D	EARTH HV HV	EXISTING 8 x 125mm DUCTS NEW 1 x DIRECT BURIED EARTH CABLE	30m	NIL	NIL
		TOTAL		NIL	NIL

AMENDMENTS: ORIGINAL ISSUE A

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S	
DBL2560	2014/02306/001
DBL2559	

WORK ORDERS	
GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	DBL2584
AM PROJ. No.	2014/02306/001
ULTEGRA REF.	80115_20210716
UBD/PENGUIN REF	P244 M5
GIS MAP No	U73454
HV OP DIAGRAM	KEMPS CREEK ZS Q.13
LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE AS SHOWN

DO NOT SCALE DIMENSIONS IN METRES

DRAWN	E. DERRY
DATE	16/07/2021
CH'D	B.STRINGER
DESIGN	A.Z.

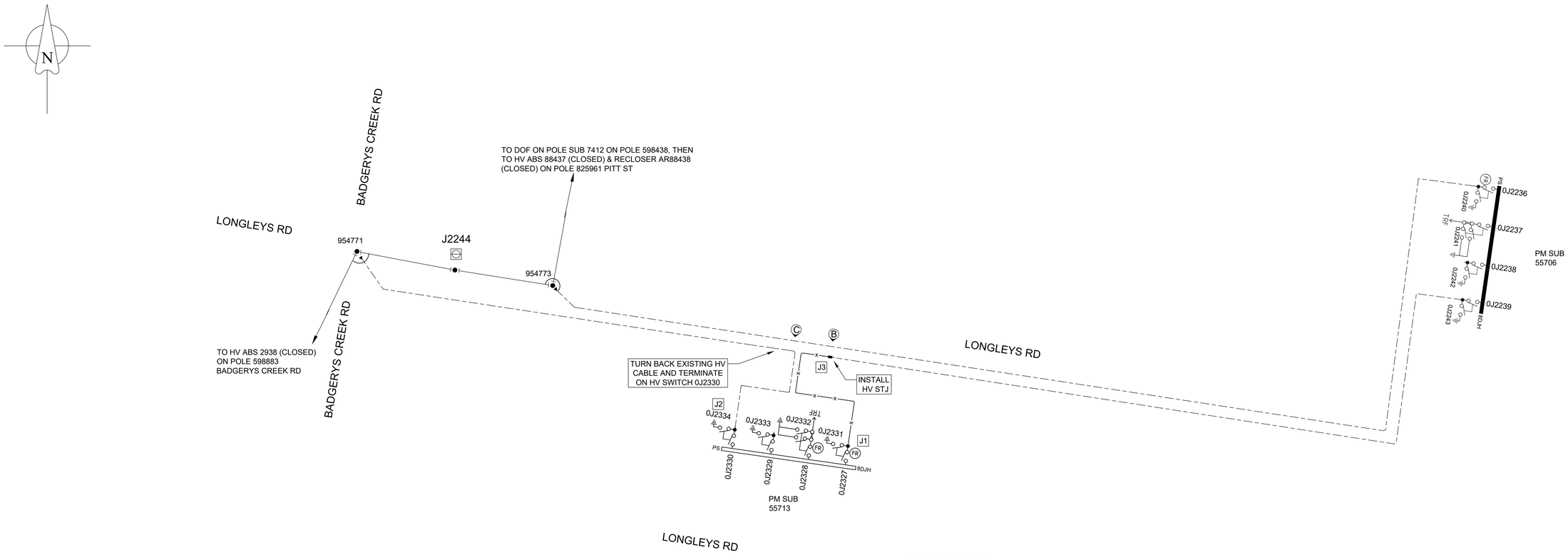
LOT 2 DP 1260971 BADGERYS CREEK RD
BRINGELLY
DBL2584
CONNECTION OF LOAD

Endeavour Energy

A1 522917 A

SHEET No 1 OF 5 SHEETS

87163



FINAL HV CIRCUIT
NOT TO SCALE

———	EXISTING HV OH MAINS
– – – – – –	EXISTING HV UG CABLE
——x——x——	INSTALL 240mm² CU. 3C 22kV XLPE/PVC/HDPE CABLE R.L. 5m C.L. 12m
▸	EXISTING UGOH

J1
JOINT/TERMINATION TYPE: .....
NETWORK ACCESS AUTHORISATION: .....
JOINT/TERMINATION KIT #: .....
JOINT/TERMINATION BATCH #: .....
DATE OF MANUFACTURE: .....

J2
JOINT/TERMINATION TYPE: .....
NETWORK ACCESS AUTHORISATION: .....
JOINT/TERMINATION KIT #: .....
JOINT/TERMINATION BATCH #: .....
DATE OF MANUFACTURE: .....

J3
JOINT/TERMINATION TYPE: .....
NETWORK ACCESS AUTHORISATION: .....
JOINT/TERMINATION KIT #: .....
JOINT/TERMINATION BATCH #: .....
DATE OF MANUFACTURE: .....

NEW LABELS
SUB 55713

'R' - TO CUSTOMER MSB

FINAL L.V. CIRCUIT
NOT TO SCALE
LEVEL 2 ASP TO INSTALL SERVICE MAINS TO CUSTOMER MSB

CERTIFIED BY ENDEAVOUR ENERGY
Amendment: _____
Date Approved: _____
Examiner's Signature: _____
Print Name: _____
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY: _____
WORKS COMPLETED: _____
SIGNATURE: _____ DATE: _____
INSPECTED BY: _____
SIGNATURE: _____ DATE: _____

ASSET RECORDING
I: _____
OF: _____
CONTACT No.: _____
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE: _____
DATE: _____

AMENDMENTS: ORIGINAL ISSUE — A

TEMPLATE VERSION No 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

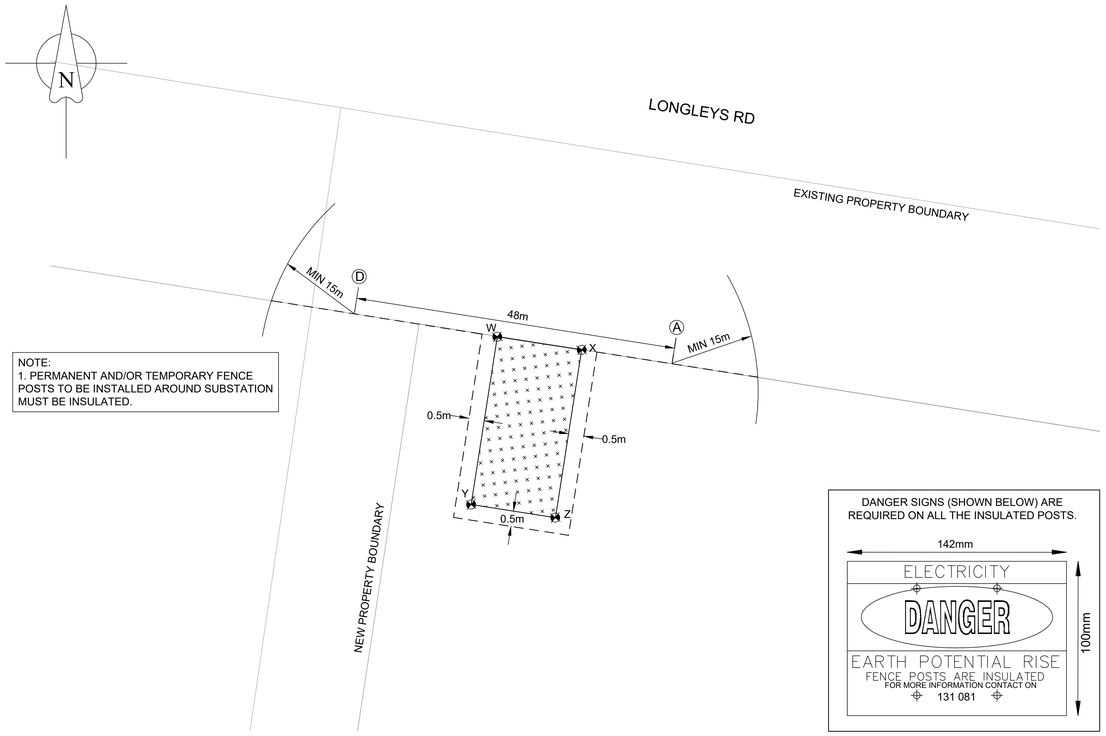
REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2584
				AM PROJ. No.	2014/02306/001
DBL2560	2014/02306/001	GENERAL		ULTEGRA REF.	80115_20210716
DBL2559		OVERHEAD		UBD/PENGUIN REF	P244 M5
		UNDERGROUND		GIS MAP No	U73454
		SUBSTATIONS		HV OP DIAGRAM	KEMPS CREEK ZS Q.13
				LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE
DRAWN: E. DERRY
DATE: 16/07/2021
CH'D: B.STRINGER
DESIGN: A.Z.
DO NOT SCALE
DIMENSIONS IN METRES

LOT 2 DP 1260971 BADGERYS CREEK RD
BRINGELLY
DBL2584
CONNECTION OF LOAD

Endeavour Energy
A1 | 522917 | A
SHEET No 2 OF 5 SHEETS

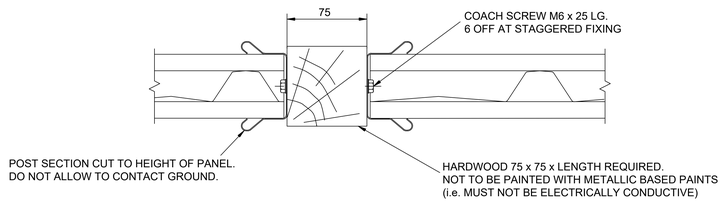
87163



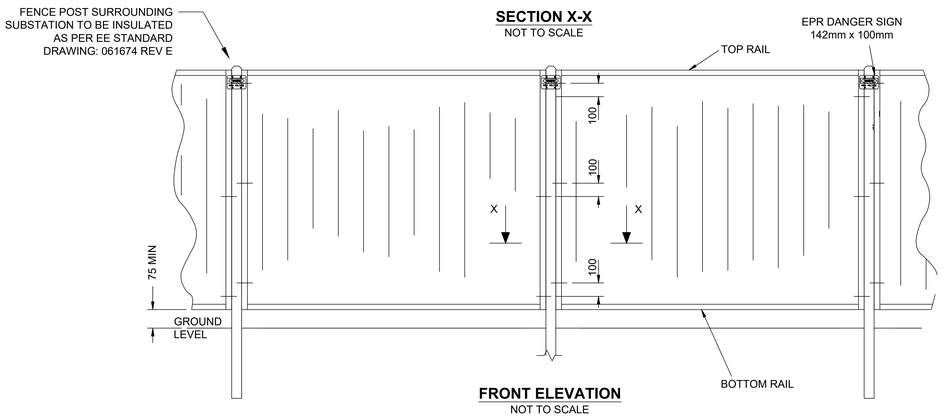
NOTE:
1. PERMANENT AND/OR TEMPORARY FENCE POSTS TO BE INSTALLED AROUND SUBSTATION MUST BE INSULATED.

DANGER SIGNS (SHOWN BELOW) ARE REQUIRED ON ALL THE INSULATED POSTS.

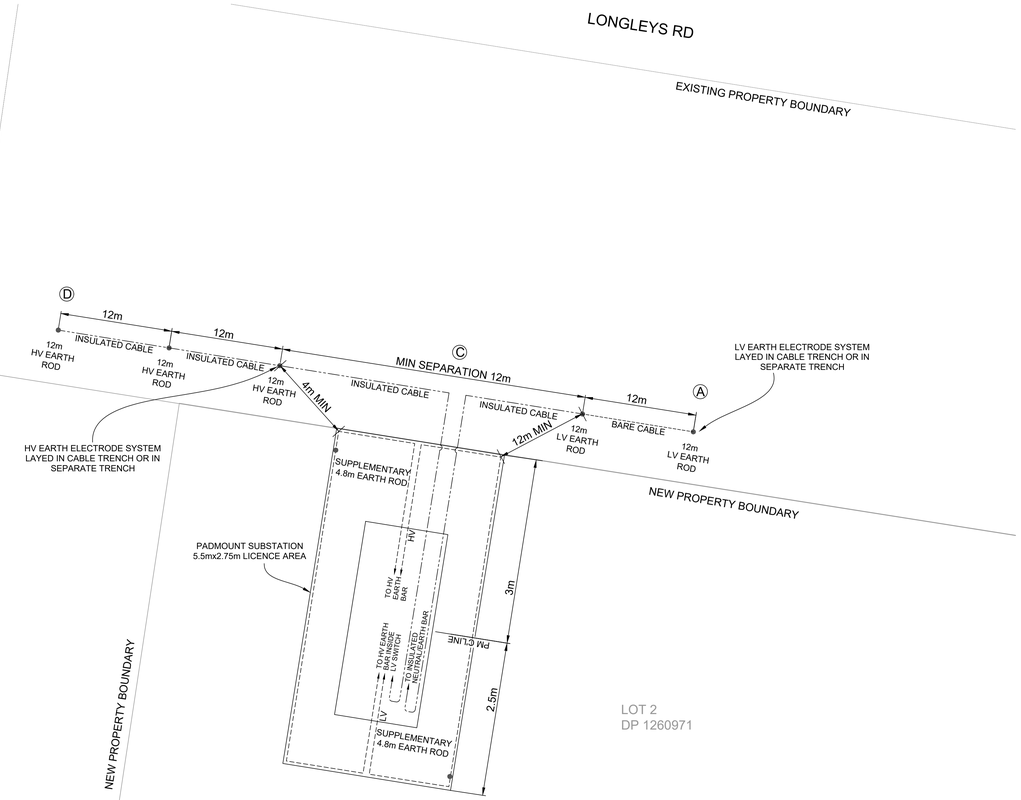
SUBSTATION INSULATED FENCE POST AND EPR DANGER SIGN
NOT TO SCALE
FENCE POST SURROUNDING SUBSTATION TO BE INSULATED AS PER EE STANDARD DRAWING: 061674 REV E



SECTION X-X
NOT TO SCALE



FRONT ELEVATION
NOT TO SCALE



PM SUBSTATION 55713 SEPARATE EARTHING LAYOUT
NOT TO SCALE.

THIS EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI 100

LEGEND

- EARTH CABLE 70mm² INSULATED CU R.L. = 18m C.L. = 26m
- EARTH CABLE 70mm² BARE CU R.L. = 36m C.L. = 46m
- EARTH ELECTRODE LOCATION & LENGTH. (LENGTH SHOWN IN METRES).

PM SUB 55713 HV EARTHING DETAILS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.7		
DESIGNED EARTH RESISTANCE LIMIT (ohms)				0.41
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				3
LENGTH OF BARE ELECTRODE (m)				12
CONNECTOR TYPE (CAD or CRIMP)				EITHER
LOCATION CATEGORY: F - FREQUENTED, R - REMOTE, S - SPECIAL				F
WHAT DESIGN TOOL USED?				3E
FAULT LEVEL (kA)				1.55
IS THIS 'FIRST ASSET OUT' FROM ZS?				NO
ARE SCREENS OF INCOMING CABLE BONDED TO DISTRIBUTION SUBSTATION EARTH BAR?				YES

PM SUB 55713 LV EARTHING DETAILS	
DESIGNED EARTH RESISTANCE LIMIT (ohms)	0.55
MEASURED EARTH RESISTANCE (ohms)	
NUMBER OF ELECTRODES	2
LENGTH OF BARE ELECTRODE (m)	12
CONNECTOR TYPE (CAD or CRIMP)	EITHER

PM SUB 55713 HV EARTH MINIMUM SEPARATION (m)					
	Design	Actual		Design	Actual
TDMEN	0.0		TELECOM	25.0	
TDB	0.0		PIPES	3.0	
TDU	ALWAYS ACCEPTABLE		HV-LV	12.0	

CERTIFIED BY ENDEAVOUR ENERGY
Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE:
DATE:

AMENDMENT'S ORIGINAL ISSUE: A

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
DBL2560	2014/02306/001	GENERAL		CAP / SAMP No.	DBL2584
DBL2559		OVERHEAD		AM PROJ. No.	2014/02306/001
		UNDERGROUND		ULTEGRA REF.	80115_20210716
		SUBSTATIONS		UBD/PENGUIN REF	P244 M5
				GIS MAP No	U73454
				HV OP DIAGRAM	KEMPS CREEK ZS Q-13
				LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE
DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	E. DERRY		
DATE	16/07/2021		
CH'D	B.STRINGER	DESIGN	A.Z.

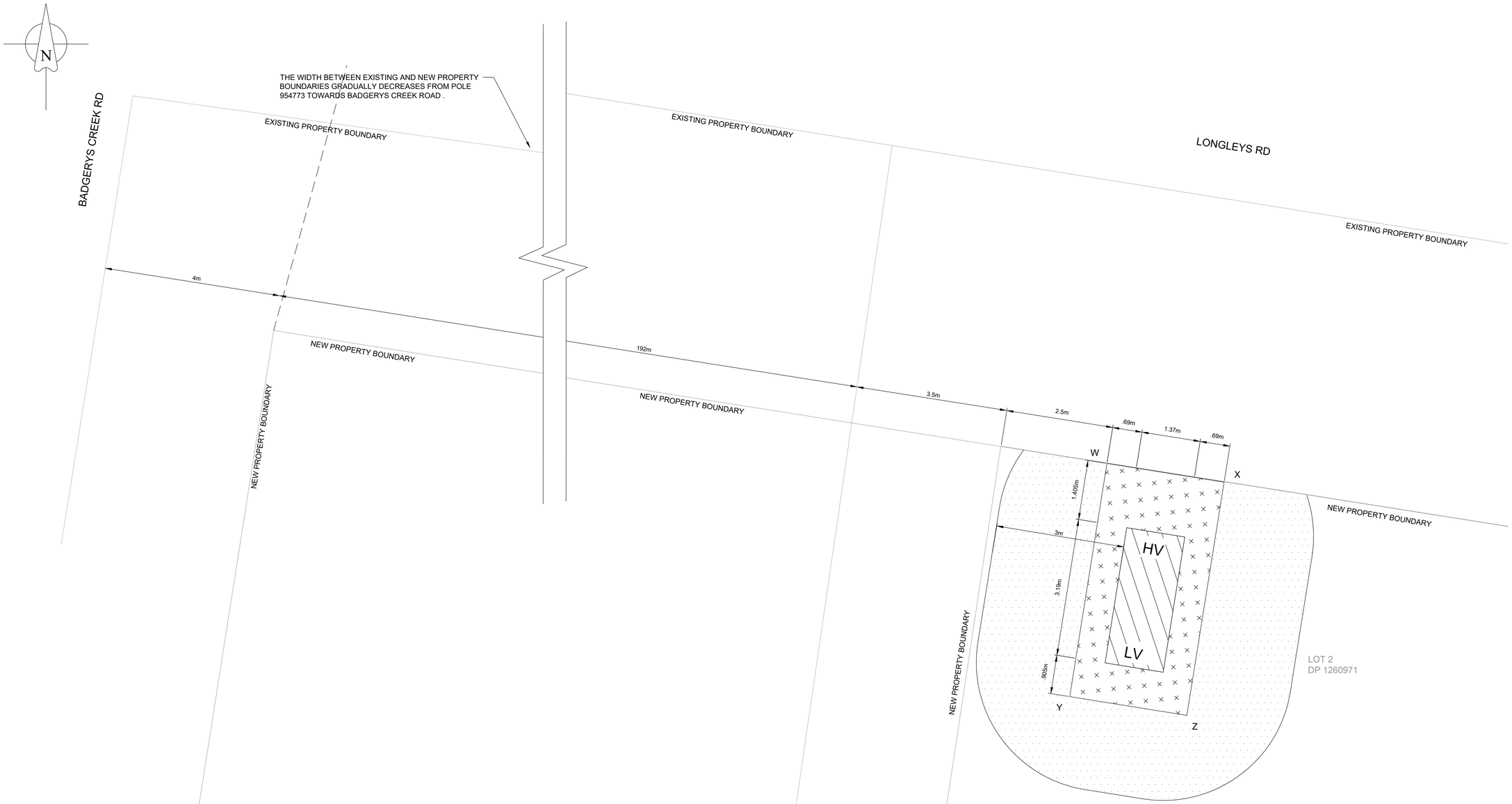
LOT 2 DP 1260971 BADGERYS CREEK RD BRINGELLY
DBL2584
CONNECTION OF LOAD

Endeavour Energy

A1 | 522917 | A

SHEET No 3 OF 5 SHEETS

87163



SUBSTATION 55713 LICENCE AREA AND RESTRICTIONS

NOT TO SCALE

(REFER TO NOTES 5, 6, 7, 8 & 9) ON SHEET 1

SUBSTATION PLINTH TO BE INSTALLED AS PER ENDEAVOUR STANDARD ARRANGEMENT DRAWING: 016665 REV. S

LICENCE AREA FOR SUBSTATION (5.5m x 2.75m)
(NO STRUCTURES OR SERVICES ALLOWED)

SUBSTATION PLINTH

3m FIRE RESTRICTION ZONE

NEW PM SUB COORDINATES		
REF	EASTING	NORTHING
W	291259.7245	6248023.5307
X	291262.4535	6248023.0948
Y	291258.8574	6248018.0995
Z	291261.5857	6248017.6637

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

AMENDMENTS
ORIGINAL ISSUE
A

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
DBL2560	2014/02306/001	GENERAL		CAP / SAMP No.	DBL2584
DBL2559		OVERHEAD		AM PROJ. No.	2014/02306/001
		UNDERGROUND		ULTEGRA REF.	80115_20210716
		SUBSTATIONS		UBD/PENGUIN REF	P244 M5
				GIS MAP No	U73454
				HV OP DIAGRAM	KEMPS CREEK ZS Q:13
				LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	E. DERRY		
DATE	16/07/2021		
CH'D	B.STRINGER	DESIGN	A.Z.

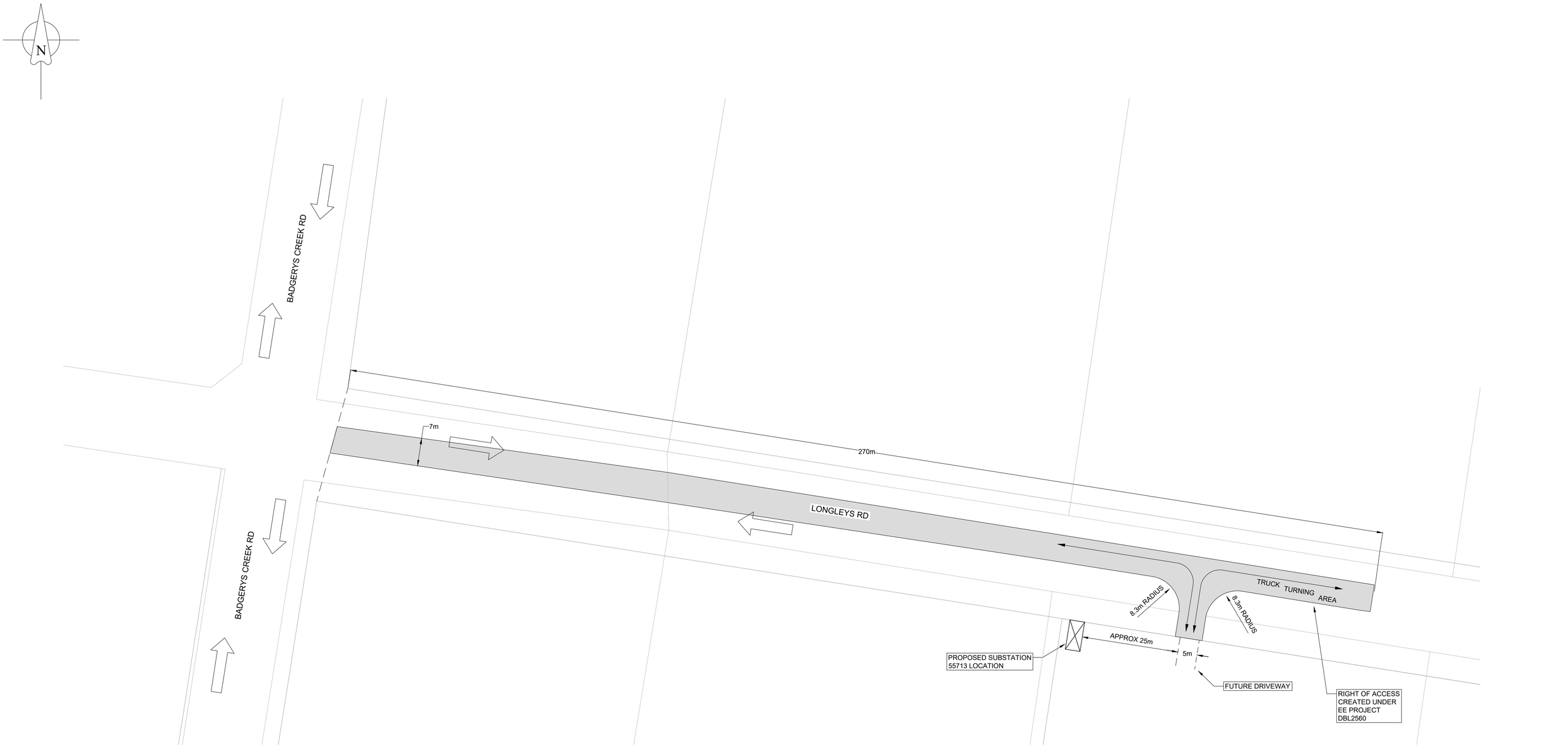
LOT 2 DP 1260971 BADGERYS CREEK RD
BRINGELLY
DBL2584
CONNECTION OF LOAD

Endeavour Energy

A1 | 522917 | A

SHEET No. 4 OF 5 SHEETS

87163



RIGHT OF ACCESS PLAN

0 5 10 15 20 25 METRES

ORIGINAL SCALE - 1:500

AMENDMENTS
ORIGINAL ISSUE
A

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S	
DBL2560	2014/02306/001
DBL2559	

WORK ORDERS	
GENERAL	
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	DBL2584
AM PROJ. No.	2014/02306/001
ULTEGRA REF.	80115_20210716
UBD/PENGUIN REF	P244 M5
GIS MAP No	U73454
HV OP DIAGRAM	KEMPS CREEK ZS Q.13
LOCAL GOV AREA	LIVERPOOL

ORIGINAL SCALE AS SHOWN

DO NOT SCALE
DIMENSIONS IN METRES

DRAWN	E. DERRY
DATE	16/07/2021
CH'D	B.STRINGER
DESIGN	A.Z.

LOT 2 DP 1260971 BADGERYS CREEK RD
BRINGELLY
DBL2584
CONNECTION OF LOAD

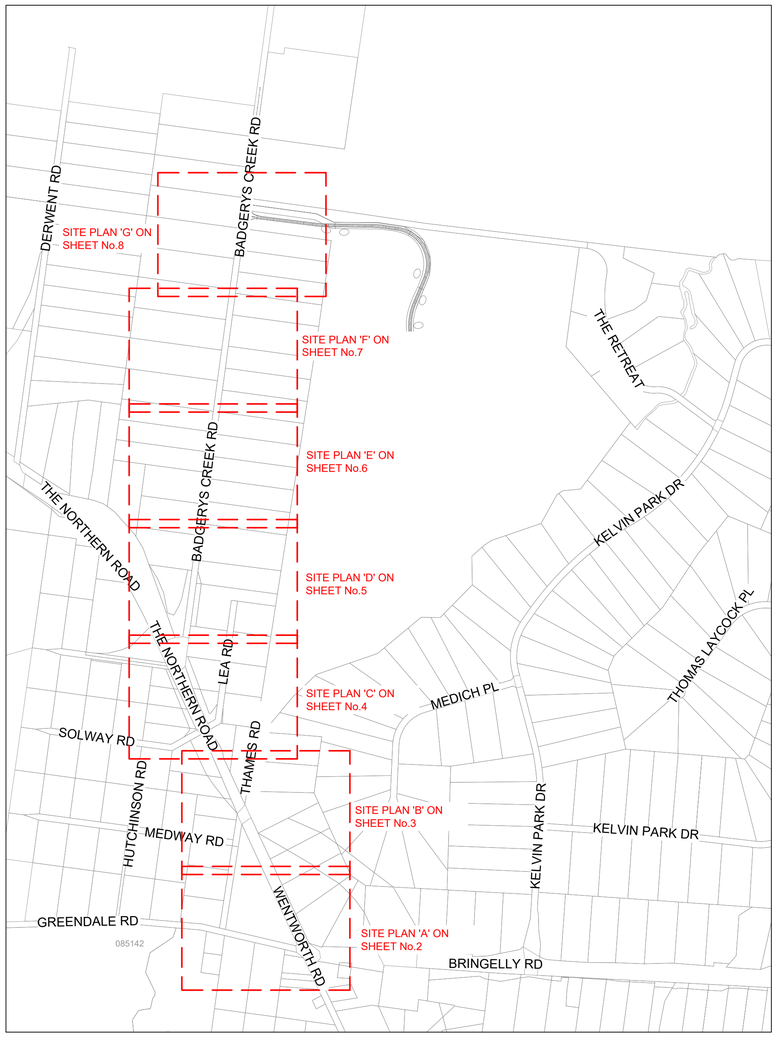
Endeavour Energy

A1 | 522917 | A

SHEET No 5 OF 5 SHEETS

87163

Portion 6 - Aerotropolis



LOCALITY MAP
NOT TO SCALE

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT ENDEAVOUR ENERGY NETWORK STANDARDS AND CONNECTION POLICY.

2. ACCREDITED DESIGNER IS TO BE CONTACTED REGARDING ISSUES RAISED WITH THIS DESIGN.

3. ENDEAVOUR ENERGY CONTACT PHONE: 131 081

4. DESIGN CERTIFICATION SHALL LAPSE WHERE:-
   (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN (6) SIX MONTHS OF THIS CERTIFICATION.
   (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN (6) MONTHS.
WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED BY THE ACCREDITED SERVICE PROVIDER FOR RE-CERTIFICATION.

5. DEVELOPER SHALL PEG ALL PROPERTY AND EASEMENT BOUNDARIES, AND ESTABLISH FINAL LEVELS PRIOR TO COMMENCEMENT OF WORKS.

6. LICENCE AREA FOR SWITCHING STATION SITE (2.75M X 2.75M) IS TO BE CREATED IN FAVOUR OF ENDEAVOUR ENERGY WITHIN LOT 10 DP1235662. THIS LICENCE AREA IS A MINIMUM SIZE ONLY, MUST BE LEVEL, AND MUST BE FREE OF ALL OTHER SERVICES.

7. LICENCE AREA FOR CABLES 3M WIDE IS TO BE CREATED IN FAVOR OF ENDEAVOUR ENERGY WITHIN LOT 10 DP1235662. THIS LICENCE AREA IS A MINIMUM SIZE ONLY, MUST BE LEVEL, AND MUST BE FREE OF ALL OTHER SERVICES.

8. FINAL LOCATION OF EASEMENT FDR SWITCHING STATION SITE TO BE SURVEYED, AND PEGGED BY PROPONENT (OR THIER REPRESENTATIVE) PRIOR TO CONSTRUCTION.

9. EARTHING OF THE SWITCHING STATION TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY EDI1100. COMMON EARTHING TO BE ACHIEVED. THE EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM OF REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY'S EDI100.

9. ATTENTION
SYDNEY WATER TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS
SYDNEY WATER :(02) 8849 3800

10. ATTENTION
PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.

11. ATTENTION
SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSETS DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081.

12. WARNING
LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG, TEL. 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.

13. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND/ OR CONSTRUCTION.

14. THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES. NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.

15. OPERATIONAL LIMITS
UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS AND SUBSTATION
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTIVES/STANDARDS
THE COST IS TO BE FUNDED BY THE DEVELOPER.

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL	– MONOPOLY FEES INSPECTION AND ACCESS AUTHORITY - SYSTEM SWITCHING - PROVISION OF ACCESS AUTHORITY (AS PER FEE SENT BY EE'S CWA'S) 1 x PROTECTION SETTINGS $2,658 1 x ZS ACCESS AND SUPERVISION $1936 1 x TESTING PRIOR TO COMMISSIONING $3,133 1 x 11kV ZONE SUB CB TERMINATION $2346	INCLUDES BUT IS NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS - REGISTERING OF EASEMENTS - PROVIDING SITE ACCESS - OWN SERVICE & SERVICE CONNECTION - CONFIRM FINISHED GROUND LEVELS
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED		EXISTING DUCT USAGE CHARGES
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT / WORKS REQUIRED IN ASSOCIATION OF CUSTOMER CONTESTABLE PROJECT	CUSTOMER FUNDED CONTESTABLE WORKS	996m x 1 x Ø125mm PVC DUCTS @ $23/m = $22406.00
NIL / NIL	ALL OTHER WORKS AND MATERIALS INCLUDING BUT NOT LIMITED TO: - JOINTING - TRENCHING - CABLE INSTALLATION - SUPPLY & INSTALLATION OF SWITCHING STATION	CO-ORDINATION SUPPLY REQUIRED DATE
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSMENT		1/03/2022
NIL		ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY LV 1 ASP
		NIL

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

CP:	Connection Policy
EMS:	Environmental Management Standard
MCI:	Mains Construction Instruction
MDI:	Mains Design Instruction
PDI:	Protection Design Instruction
SDI:	Substation Design Instruction
SAD 0001:	Design Drawing Standard
MMI:	Mains Maintenance Instruction
SMI:	Substation Maintenance Instruction
LDI 0001:	Public lighting Electrical Design Element

Additionally, where relevant, the design complies with AS/NZS 7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

ULTEGRA Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: ..... Name: ROHAN BHARDWAJ

Service Provider Number: 2516 Date: 06/07/2021

KEY DOCUMENTS TABLE

THE CERTIFICATION OF THIS PROJECT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS	
SUMMARY OF ENVIRONMENTAL REPORT - FAT0038 PART OF EMS0001	05/07/2021
DESIGNER'S SAFETY REPORT	05/07/2021

COMMUNICATION ASSETS ALTERATION/RELOCATION

Telecommunication Assets are / are not affected by this project.
The construction ASP must coordinate the work with the following Telecommunication Companies:

Comms Co.	Contact Name	Phone No.	Initial Contact Date	Arrangement Details and Date Agreed

Technical details of the arrangements are available from the Design ASP.

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed:

Print Name: XXXXX

Service Number: XXXXXXX

Funding Amount: $ XXXXX

Date: XX/XX/XXXX

DUCT DECLARATION

I _____

OF _____

CONTACT NUMBER _____

HEREBY CERTIFY THAT THE DUCTS SHOWN ON THIS DRAWING HAVE BEEN INSTALLED IN ACCORDANCE WITH THIS DRAWING & ENDEAVOR ENERGY STANDARDS MDI0028 & MCI0006. THE DUCT DEPTHS AND LOCATIONS AT EACH END HAVE BEEN CORRECTLY MARKED ON THIS DRAWING AS PER ENDEAVOR ENERGY STANDARD SAD0004.

THE INSTALLATION OF THE DUCTS WAS
COMMENCED ON _____
& COMPLETED ON _____

SIGNATURE _____

LAND SURVEYOR REGISTERED UNDER SURVEYING AND SPATIAL INFORMATION ACT 2002

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____
Date Approved: _____
Examiner's Signature: _____
Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____
WORKS COMPLETED: _____
SIGNATURE: _____ DATE: _____
INSPECTED BY: _____
SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____
OF: _____
CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____
DATE: _____

AMENDMENTS: A ORIGINAL ISSUE — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
7		GENERAL		AM PROJ. No.	80082_20210706
		OVERHEAD		HV SWITCHING	REQUIRED
		UNDERGROUND		UBD/PENGUIN REF	290225, 6244106
		SUBSTATIONS		GIS MAP No	U73457
				HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN	ME
DATE	06/07/2021
CH'D	BH
DESIGN	RB

DO NOT SCALE
DIMENSIONS IN METRES

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

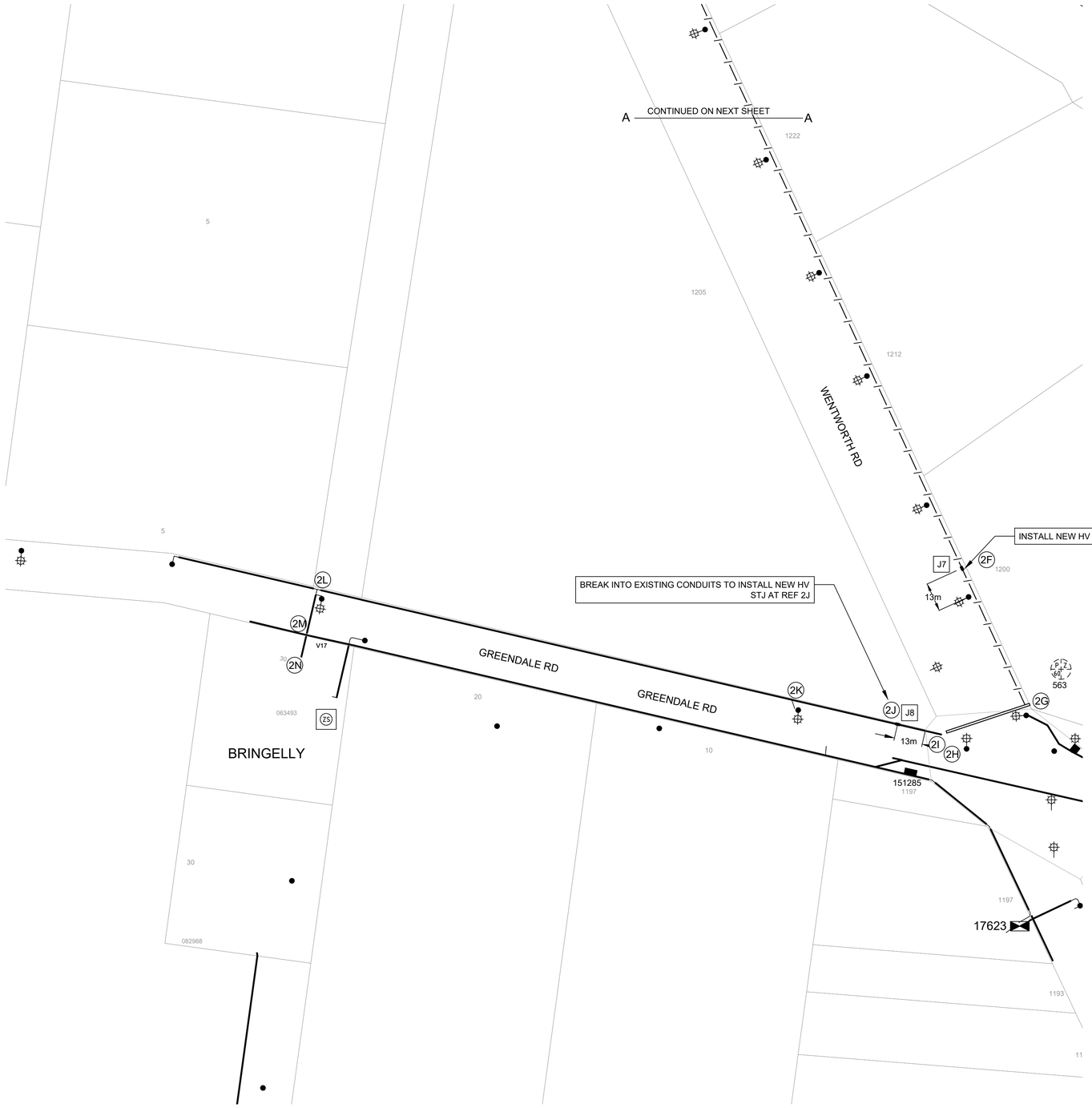
SHEET No 1 OF 12 SHEETS

88351

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

LEGEND

- EXISTING PADMOUNT SUB
- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING ZONE SUB (ZS)
- EXISTING SLCP
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW CABLE DIRECT BURIED
- SPARE DUCT



SITE PLAN A

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
2E - 2F		NEW 2 x 125mm PVC CONDUITS	290	NIL	NIL
2F - 2G		NEW 2 x 125mm PVC CONDUITS	61	NIL	NIL
2G - 2H		NEW (ROAD CROSSING) 6 x 125mm PVC CONDUITS	37	NIL	NIL
2I - 2J		EXISTING 8 x 125mm PVC CONDUITS 2 x HV DIRECT BURIED	18	NIL	18m x 1 x Ø125mm PVC DUCTS @ $23/m = $414.00
2J - 2K		EXISTING 8 x 125mm PVC CONDUITS 2 x HV DIRECT BURIED	47	NIL	47m x 1 x Ø125mm PVC DUCTS @ $23/m = $1081.00
2K - 2L		EXISTING 8 x 125mm PVC CONDUITS 2 x HV DIRECT BURIED	197	NIL	197m x 1 x Ø125mm PVC DUCTS @ $23/m = $4531.00
2L - 2M		EXISTING (ROAD CROSSING) 11 x 125mm PVC CONDUITS	20	NIL	20m x 1 x Ø125mm PVC DUCTS @ $23/m = $460.00
2M - 2N		EXISTING 14 x 125mm PVC CONDUITS	10	NIL	10m x 1 x Ø125mm PVC DUCTS @ $23/m = $230.00
			SUBTOTAL	NIL	292m x 1 x Ø125mm PVC DUCTS @ $23/m = $6716.00
			TOTAL	NIL	996m x 1 x Ø125mm PVC DUCTS @ $23/m = $22406.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN: RB

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

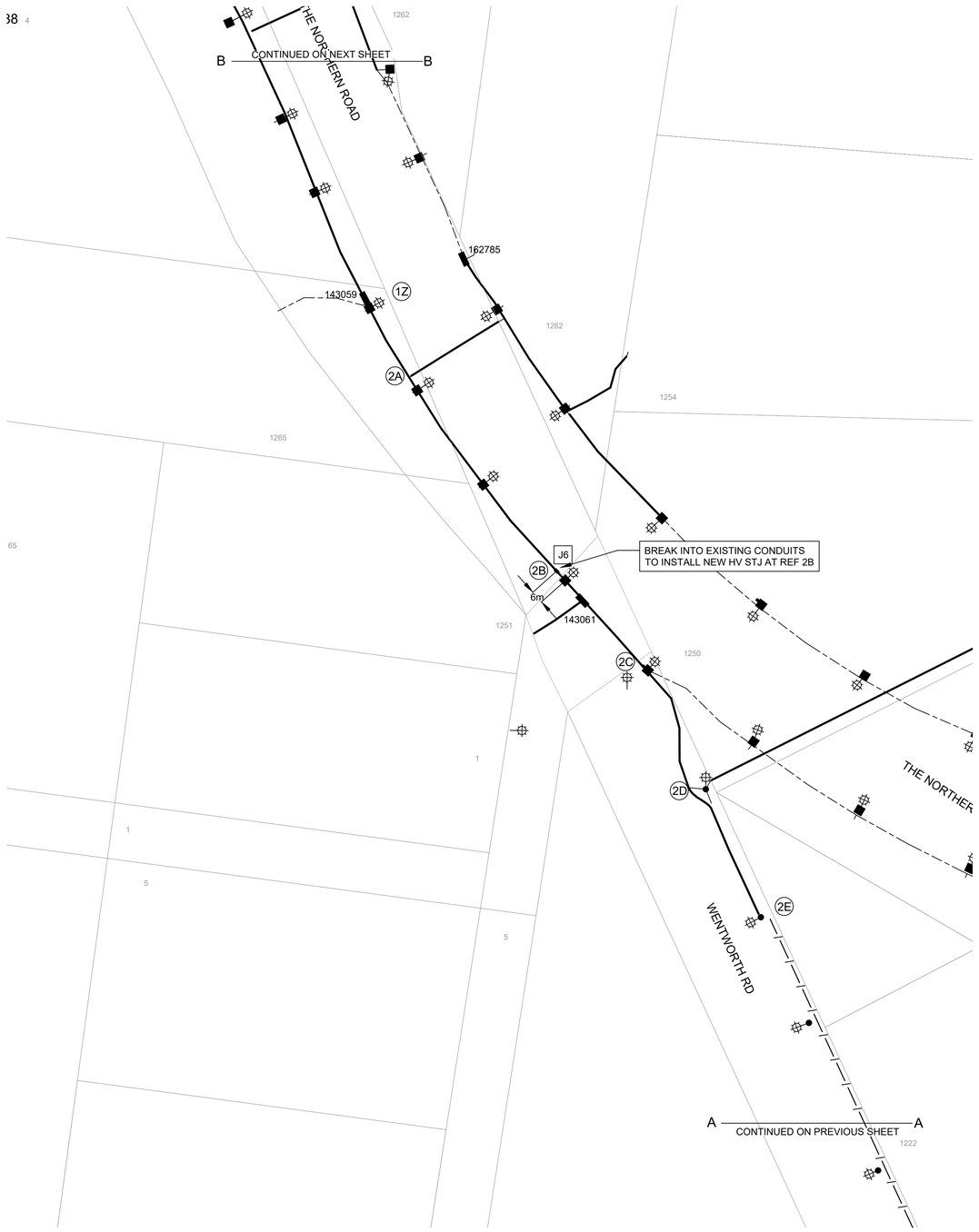
SHEET No 2 OF 12 SHEETS

88351

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

LEGEND

- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING/NEW UGOH
- NEW HV STJ
- EXISTING COLUMN
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW EARTH CABLE DIRECT BURIED
- NEW CABLE DIRECT BURIED
- SPARE DUCT



SITE PLAN B

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1Z - 2A		EXISTING 8 x 125mm PVC CONDUITS	30	NIL	30m x 1 x Ø125mm PVC DUCTS @ $23/m = $690.00
2A - 2B		EXISTING 8 x 125mm PVC CONDUITS	87	NIL	87m x 1 x Ø125mm PVC DUCTS @ $23/m = $2001.00
2B - 2C		EXISTING 8 x 125mm PVC CONDUITS	45	NIL	45m x 1 x Ø125mm PVC DUCTS @ $23/m = $1,035.00
2C - 2D		EXISTING 8 x 125mm PVC CONDUITS	50	NIL	50m x 1 x Ø125mm PVC DUCTS @ $23/m = $1150.00
2D - 2E		EXISTING 8 x 125mm PVC CONDUITS	53	NIL	53m x 1 x Ø125mm PVC DUCTS @ $23/m = $1219.00
			SUBTOTAL	NIL	265m x 1 x Ø125mm PVC DUCTS @ $23/m = $6095.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

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AMENDMENTS: ORIGINAL ISSUE A DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN: RB

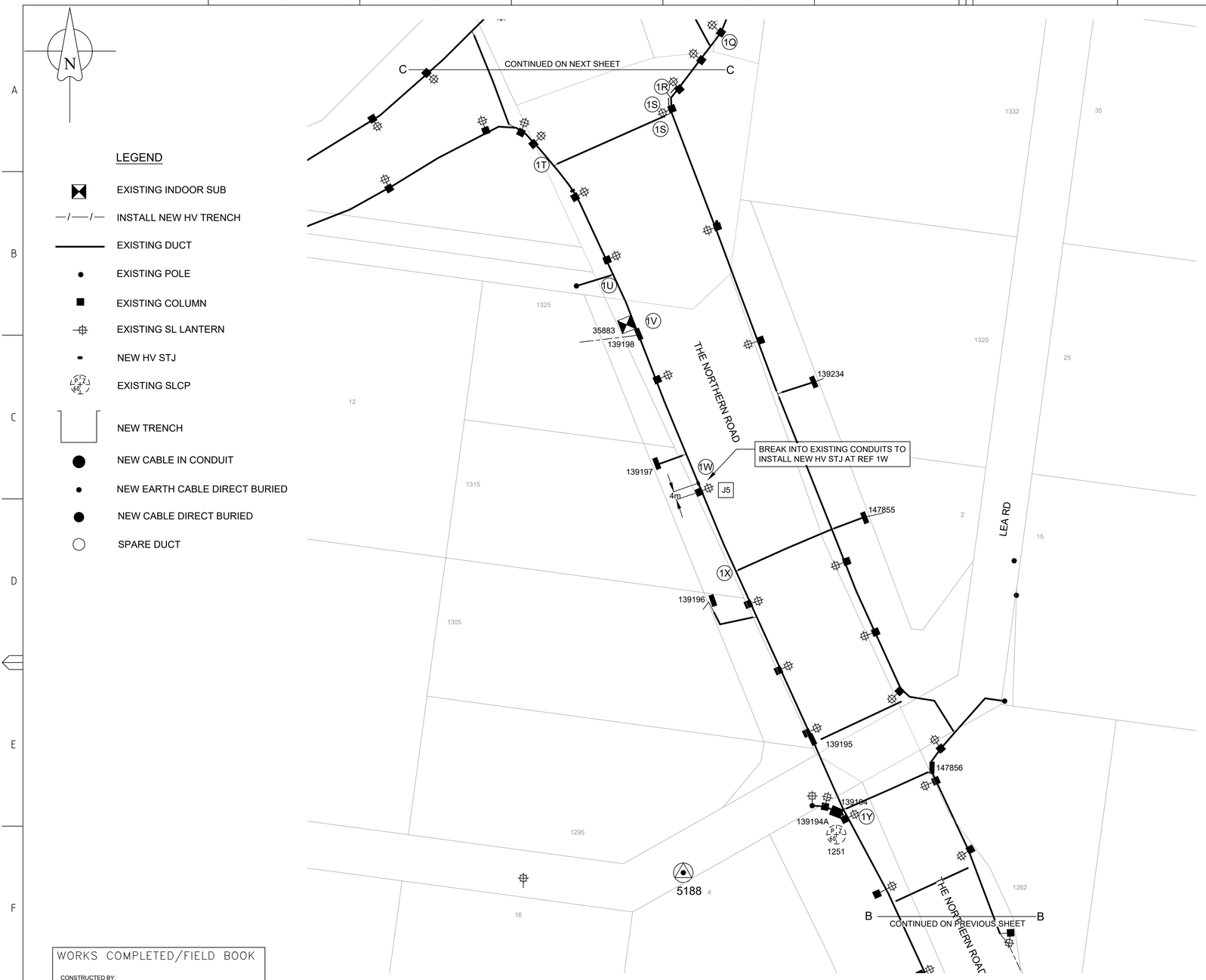
215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

SHEET No 3 OF 12 SHEETS

88351



SITE PLAN C

ORIGINAL SCALE - 1:1000

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1Q - 1R		EXISTING 6 x 125mm PVC CONDUITS	24	NIL	24m x 1 x Ø125mm PVC DUCTS @ $23/m = $552.00
1R - 1S		EXISTING 6 x 125mm PVC CONDUITS NEW 2 x 125mm PVC CONDUITS	10	NIL	NIL
1S - 1S		EXISTING 4 x 125mm PVC CONDUITS NEW 2 x 125mm PVC CONDUITS	8	NIL	NIL
1S - 1T		EXISTING (ROAD CROSSING) 8 x 125mm PVC CONDUITS	57	NIL	57m x 1 x Ø125mm PVC DUCTS @ $23/m = $1,311.00
1T - 1U		EXISTING 8 x 125mm PVC CONDUITS	60	NIL	60m x 1 x Ø125mm PVC DUCTS @ $23/m = $1380.00
1U - 1V		EXISTING 8 x 125mm PVC CONDUITS 1 x DIRECT BURIED EARTH CABLE	24	NIL	24m x 1 x Ø125mm PVC DUCTS @ $23/m = $552.00
1V - 1W		EXISTING 8 x 125mm PVC CONDUITS	75	NIL	75m x 1 x Ø125mm PVC DUCTS @ $23/m = $1725.00
1W - 1X		EXISTING 8 x 125mm PVC CONDUITS	41	NIL	75m x 1 x Ø125mm PVC DUCTS @ $23/m = $1725.00
1X - 1Y		EXISTING 8 x 125mm PVC CONDUITS	117	NIL	117m x 1 x Ø125mm PVC DUCTS @ $23/m = $2691.00
		SUBTOTAL		NIL	398m x 1 x Ø125mm PVC DUCTS @ $23/m = $8654.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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AMENDMENTS: ORIGINAL ISSUE A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

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REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN: RB

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

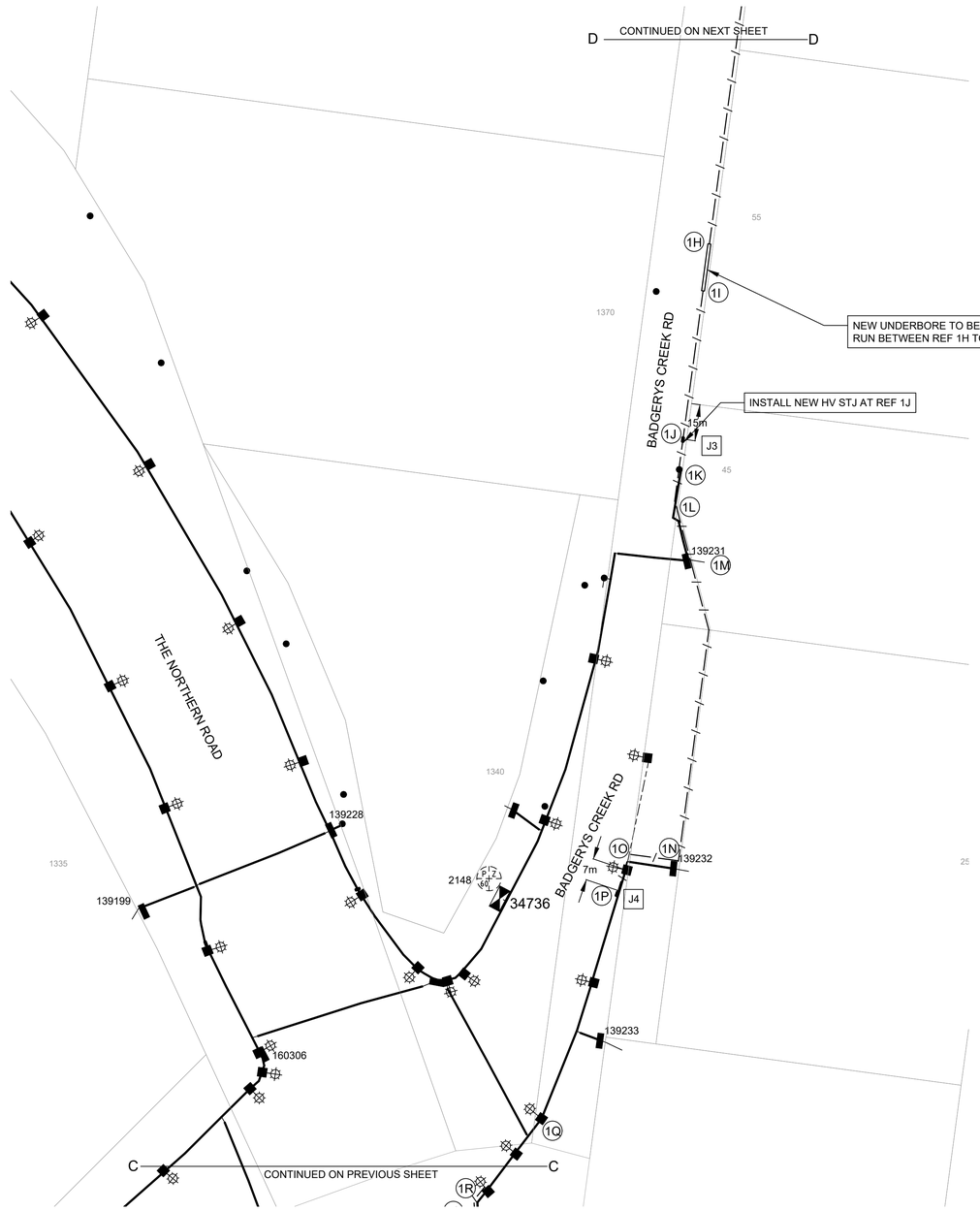
SHEET No 4 OF 12 SHEETS

88351

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

LEGEND

- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING/NEW UGOH
- EXISTING COLUMN
- EXISTING SL LANTERN
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW EARTH CABLE DIRECT BURIED
- NEW CABLE DIRECT BURIED
- SPARE DUCT
- UNDERBORE



SITE PLAN D

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1H - 1I		NEW 3x25mm PVC CONDUITS (UNDERBORE)	24	NIL	NIL
1I - 1J		NEW 2 x 125mm PVC CONDUITS	50	NIL	NIL
1J - 1K		NEW 2 x 125mm PVC CONDUITS	12	NIL	NIL
1K - 1L		NEW 2 x 125mm PVC CONDUITS EXISTING 2 x 125mm PVC CONDUITS	13	NIL	NIL
1L - 1M		NEW 2 x 125mm PVC CONDUITS EXISTING 2 x 125mm PVC CONDUITS	18	NIL	NIL
1M - 1N		NEW 2 x 125mm PVC CONDUITS	102	NIL	NIL
1N - 1O		NEW 2 x 125mm PVC CONDUITS EXISTING 2 x 125mm PVC CONDUITS	75	NIL	NIL
1P - 1Q		EXISTING 4 x 125mm PVC CONDUITS	41	NIL	41m x 1 x Ø125mm PVC DUCTS @ $23/m = $943.00
		SUBTOTAL		NIL	41m x 1 x Ø125mm PVC DUCTS @ $23/m = $943.00

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

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AMENDMENTS: ORIGINAL ISSUE A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

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REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2554
AM PROJ. No.	80082_20210706
HV SWITCHING	REQUIRED
UBD/PENGUIN REF	290225, 6244106
GIS MAP No	U73457
HV OP DIAGRAM	BRINGELLY 1K8
LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DESIGN: RB

DO NOT SCALE DIMENSIONS IN METRES

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

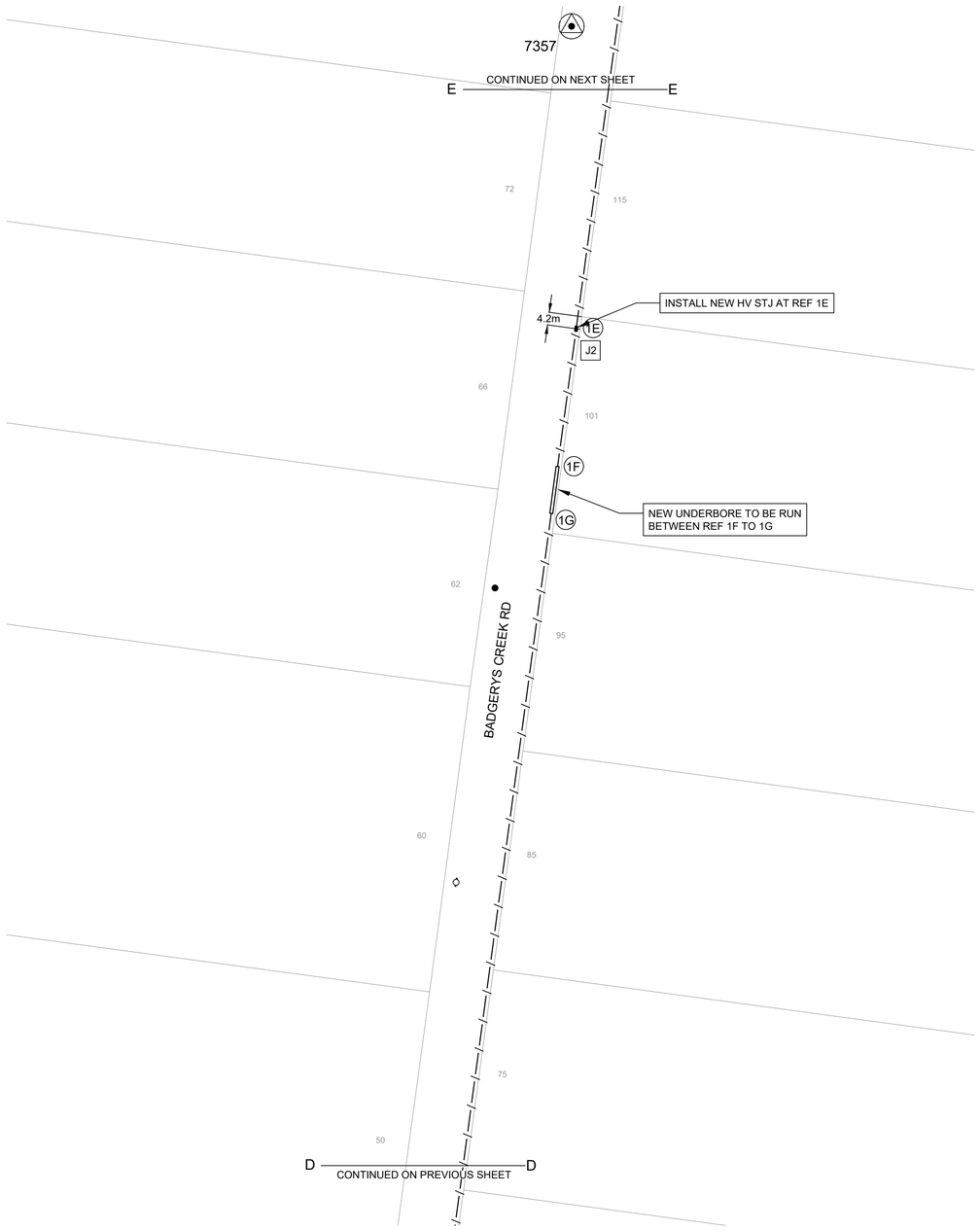
A1 | 522600 | A

SHEET No 5 OF 12 SHEETS

88351

LEGEND

- PROPOSED PADMOUNT SUBSTATION
- EXISTING POLE SUBSTATION
- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING/NEW UGOH
- EXISTING COLUMN
- EXISTING SL LANTERN
- UNDERSLUNG LINKS
- EXISTING LV LINKS
- EXISTING SLCP
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW EARTH CABLE DIRECT BURIED
- NEW CABLE DIRECT BURIED
- SPARE DUCT
- UNDERBORE



NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

SITE PLAN E

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE					
ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1E - 1F		NEW 2 x 125mm PVC CONDUITS	45	NIL	NIL
1F - 1G		NEW 3x25mm PVC CONDUITS (UNDERBORE)	15	NIL	NIL
1G - 1H		NEW 2 x 125mm PVC CONDUITS	297	NIL	NIL
			SUBTOTAL	NIL	NIL

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

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INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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DATE: _____

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Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

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AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
		GENERAL		CAP / SAMP No.	DBL2554
		OVERHEAD		AM PROJ. No.	80082_20210706
		UNDERGROUND		HV SWITCHING	REQUIRED
		SUBSTATIONS		UBD/PENGUIN REF	290225, 6244106
				GIS MAP No	U73457
				HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DESIGN: RB

DO NOT SCALE — DIMENSIONS IN METRES

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

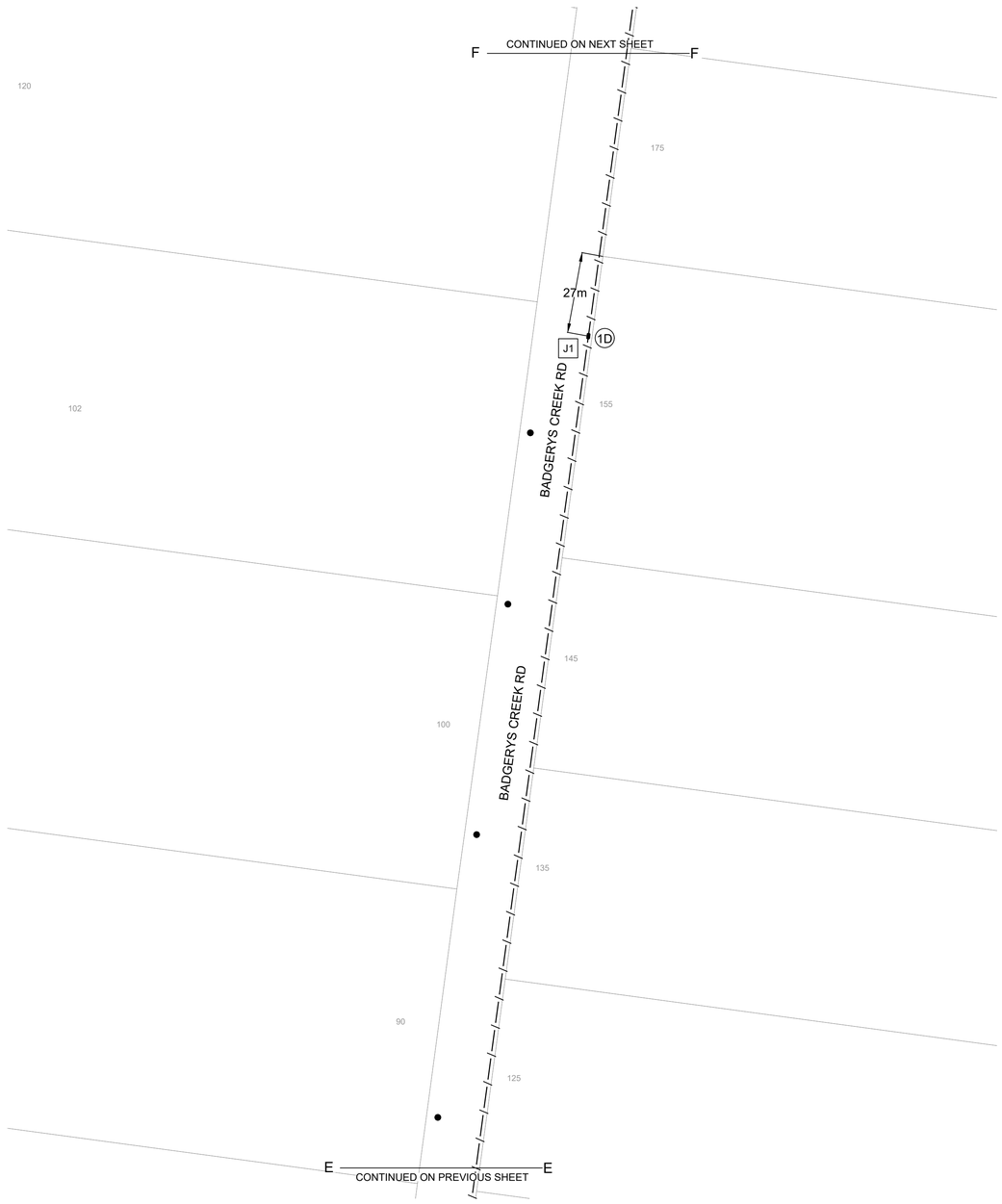
A1 | 522600 | A

SHEET No 6 OF 12 SHEETS

88351

LEGEND

- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING/NEW UGOH
- EXISTING COLUMN
- EXISTING SL LANTERN
- EXISTING LV LINKS
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW EARTH CABLE DIRECT BURIED
- NEW CABLE DIRECT BURIED
- SPARE DUCT



SITE PLAN F

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
1D - 1E		NEW 2 x 125mm PVC CONDUITS	370	NIL	NIL
		SUBTOTAL		NIL	NIL

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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DATE: _____

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Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

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AMENDMENTS
ORIGINAL ISSUE
A DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN ME
DATE 06/07/2021
CH'D BH

DO NOT SCALE
DIMENSIONS IN METRES
DESIGN RB

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

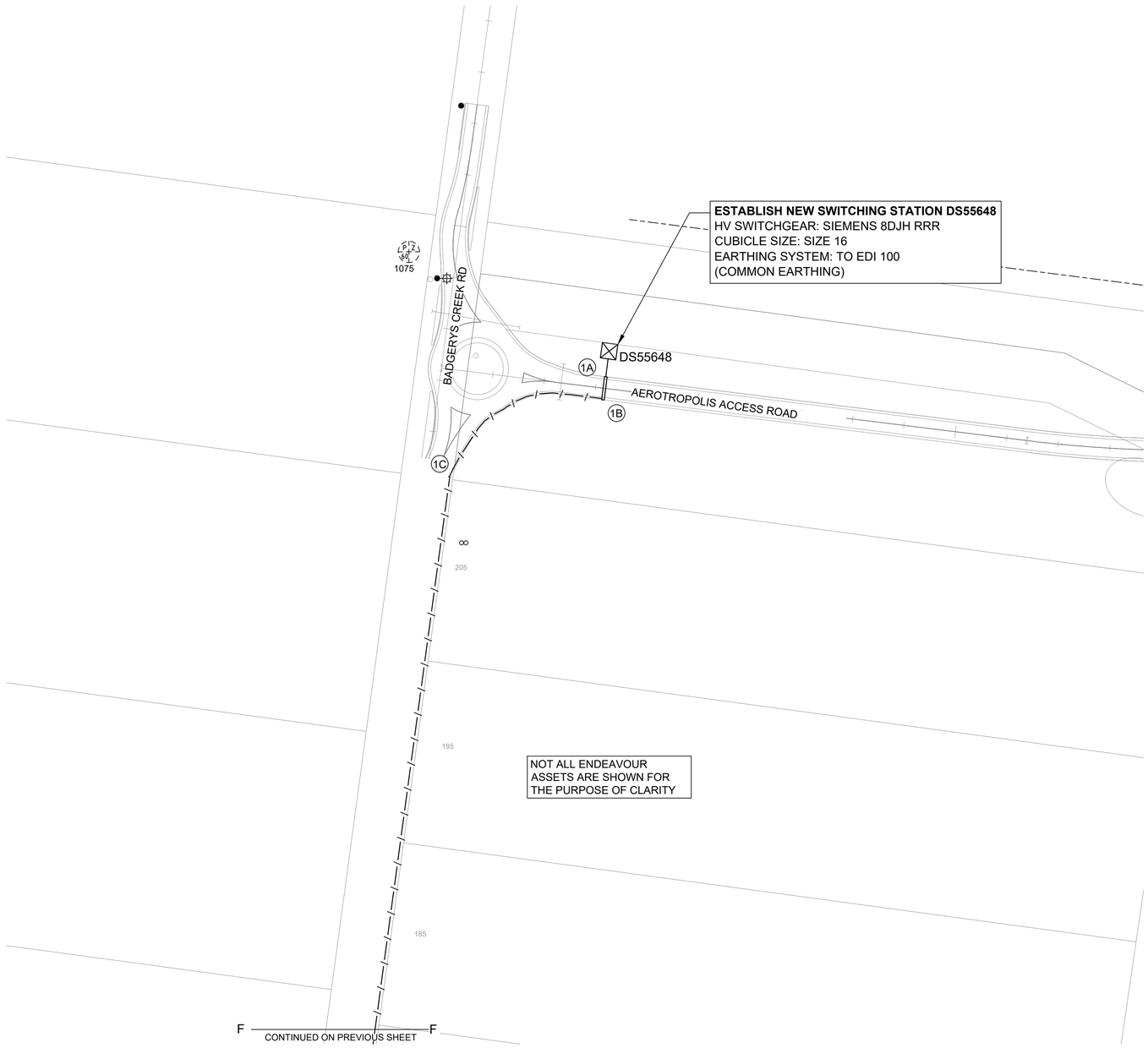
A1 522600 A

SHEET No 7 OF 12 SHEETS

88351

LEGEND

- NEW SWITCHING STATION
- INSTALL NEW HV TRENCH
- INSTALL NEW DUCT
- EXISTING DUCT
- EXISTING POLE
- EXISTING/NEW UGOH
- EXISTING COLUMN
- EXISTING SL LANTERN
- UNDERSLUNG LINKS
- EXISTING SLCP
- NEW TRENCH
- NEW CABLE IN CONDUIT
- NEW EARTH CABLE DIRECT BURIED
- NEW CABLE DIRECT BURIED
- SPARE DUCT



NOT ALL ENDEAVOUR ASSETS ARE SHOWN FOR THE PURPOSE OF CLARITY

SITE PLAN G

0 10 20 30 40 50 METRES

ORIGINAL SCALE - 1:1000

DUCTING SCHEDULE

ROUTE	CONFIGURATION		ROUTE LENGTH (m)	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES
DS55648-1A		NEW 2 x 125mm PVC CONDUITS	7	NIL	NIL
1A - 1B		NEW 2 x 125mm PVC CONDUITS	14	NIL	NIL
1B - 1C		NEW 2 x 125mm PVC CONDUITS	77	NIL	NIL
1C - 1D		NEW 2 x 125mm PVC CONDUITS	310	NIL	NIL
		SUBTOTAL		NIL	NIL

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE: _____

DATE: _____

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

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AMENDMENTS
ORIGINAL ISSUE
A
DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
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REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	DBL2554
AM PROJ. No.	80082_20210706
HV SWITCHING	REQUIRED
UBD/PENGUIN REF	290225, 6244106
GIS MAP No	U73457
HV OP DIAGRAM	BRINGELLY 1K8
LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN ME

DATE 06/07/2021

CH'D BH

DO NOT SCALE
DIMENSIONS IN METRES

DESIGN RB

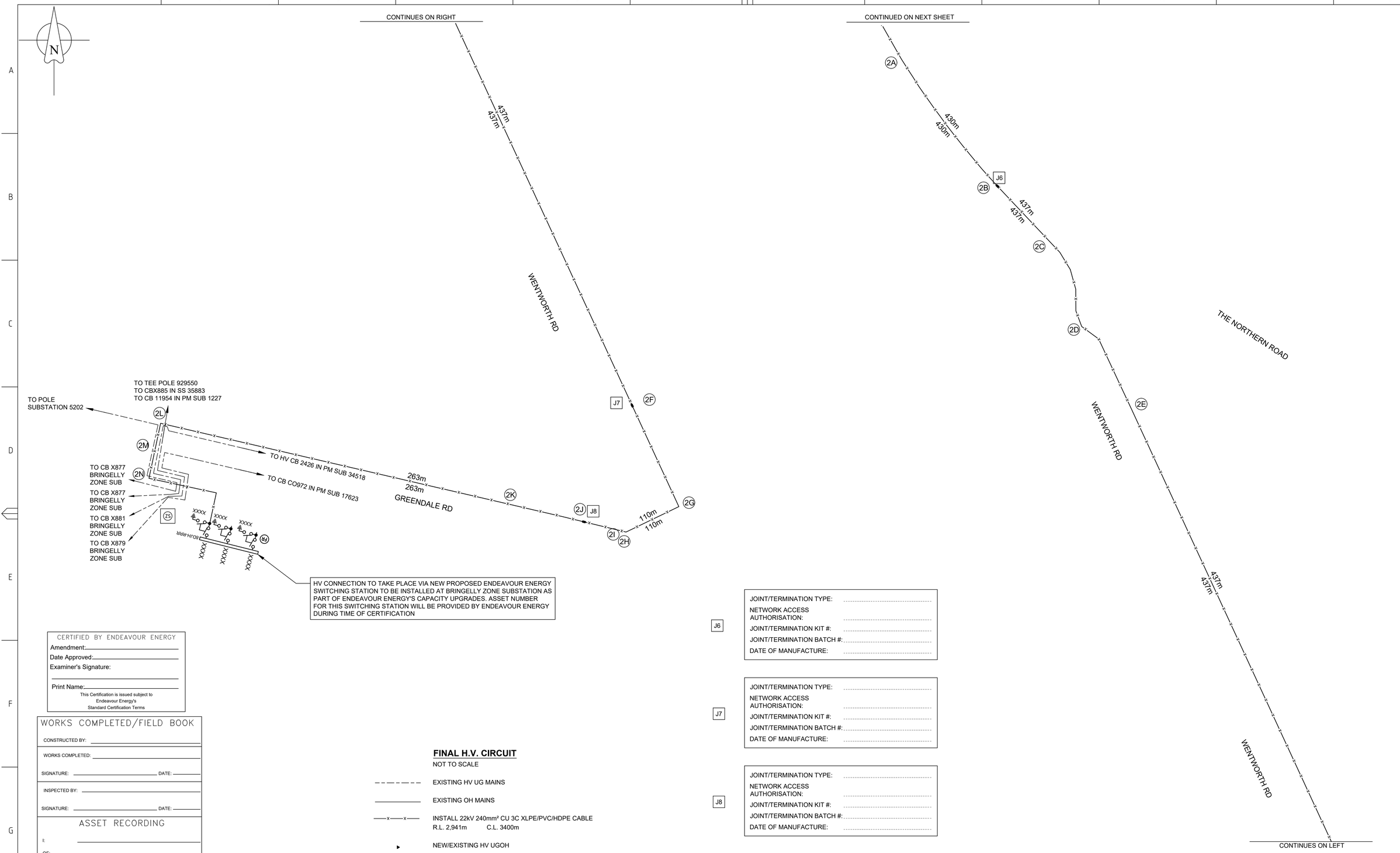
215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 522600 A

SHEET No 8 OF 12 SHEETS

88351



HV CONNECTION TO TAKE PLACE VIA NEW PROPOSED ENDEAVOUR ENERGY SWITCHING STATION TO BE INSTALLED AT BRINGELLY ZONE SUBSTATION AS PART OF ENDEAVOUR ENERGY'S CAPACITY UPGRADES. ASSET NUMBER FOR THIS SWITCHING STATION WILL BE PROVIDED BY ENDEAVOUR ENERGY DURING TIME OF CERTIFICATION

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:

WORKS COMPLETED:

SIGNATURE: DATE:

INSPECTED BY:

SIGNATURE: DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

FINAL H.V. CIRCUIT

NOT TO SCALE

- EXISTING HV UG MAINS
- EXISTING OH MAINS
- INSTALL 22kV 240mm² CU 3C XLPE/PVC/HDPE CABLE R.L. 2,941m C.L. 3400m
- NEW/EXISTING HV UGOH
- NEW STRAIGHT THROUGH JOINT
- EXISTING POLE
- EXISTING POLE SUBSTATION

J6

JOINT/TERMINATION TYPE:

NETWORK ACCESS AUTHORISATION:

JOINT/TERMINATION KIT #:

JOINT/TERMINATION BATCH #:

DATE OF MANUFACTURE:

J7

JOINT/TERMINATION TYPE:

NETWORK ACCESS AUTHORISATION:

JOINT/TERMINATION KIT #:

JOINT/TERMINATION BATCH #:

DATE OF MANUFACTURE:

J8

JOINT/TERMINATION TYPE:

NETWORK ACCESS AUTHORISATION:

JOINT/TERMINATION KIT #:

JOINT/TERMINATION BATCH #:

DATE OF MANUFACTURE:

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE — DO NOT SCALE — DIMENSIONS IN METRES

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DESIGN: RB

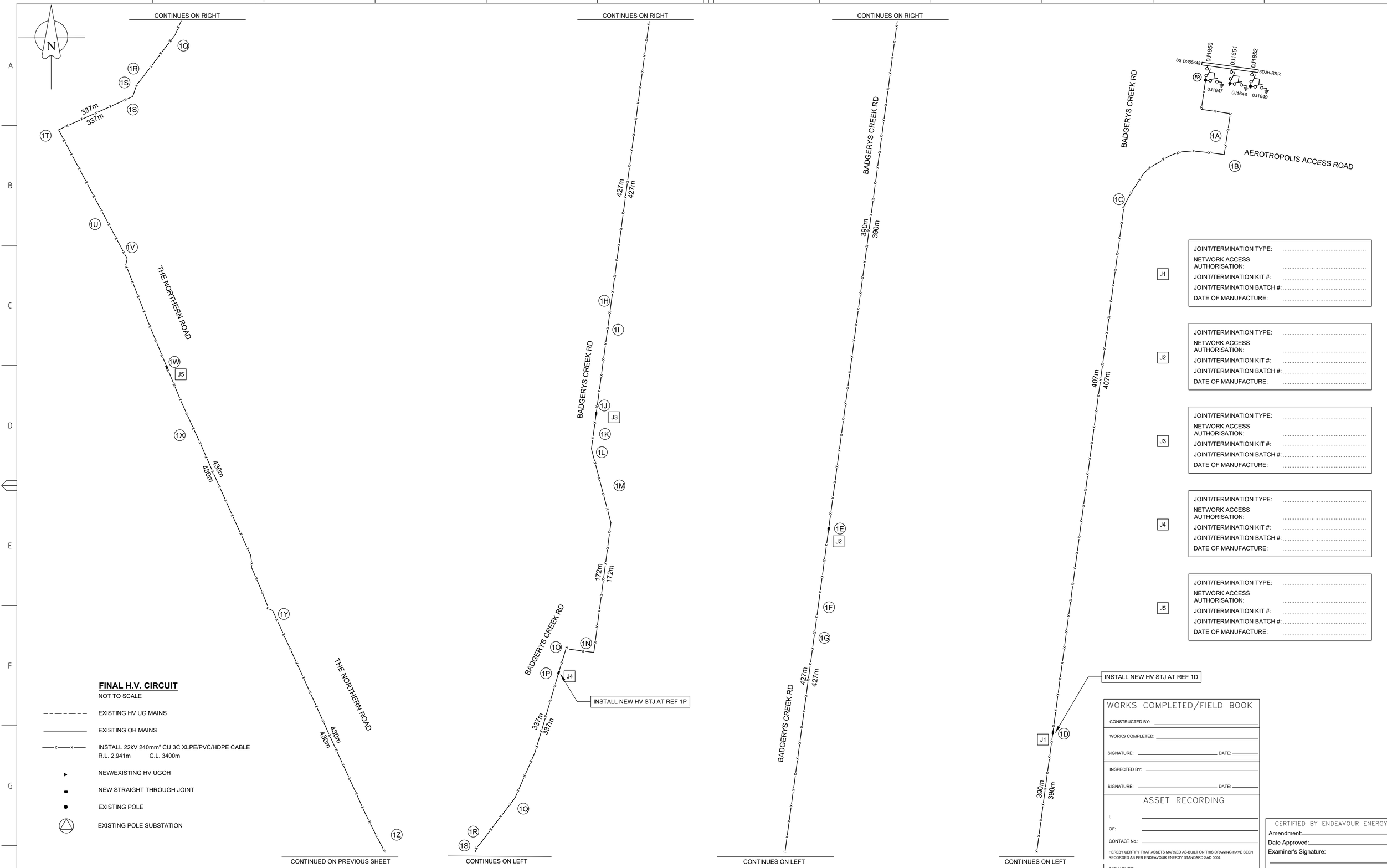
215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

SHEET No 9 OF 12 SHEETS

88351



JOINT/TERMINATION TYPE:	.....
NETWORK ACCESS AUTHORISATION:	.....
JOINT/TERMINATION KIT #:	.....
JOINT/TERMINATION BATCH #:	.....
DATE OF MANUFACTURE:	.....

J1

JOINT/TERMINATION TYPE:	.....
NETWORK ACCESS AUTHORISATION:	.....
JOINT/TERMINATION KIT #:	.....
JOINT/TERMINATION BATCH #:	.....
DATE OF MANUFACTURE:	.....

J2

JOINT/TERMINATION TYPE:	.....
NETWORK ACCESS AUTHORISATION:	.....
JOINT/TERMINATION KIT #:	.....
JOINT/TERMINATION BATCH #:	.....
DATE OF MANUFACTURE:	.....

J3

JOINT/TERMINATION TYPE:	.....
NETWORK ACCESS AUTHORISATION:	.....
JOINT/TERMINATION KIT #:	.....
JOINT/TERMINATION BATCH #:	.....
DATE OF MANUFACTURE:	.....

J4

JOINT/TERMINATION TYPE:	.....
NETWORK ACCESS AUTHORISATION:	.....
JOINT/TERMINATION KIT #:	.....
JOINT/TERMINATION BATCH #:	.....
DATE OF MANUFACTURE:	.....

J5

FINAL H.V. CIRCUIT

NOT TO SCALE

- EXISTING HV UG MAINS
- EXISTING OH MAINS
- INSTALL 22kV 240mm² CU 3C XLPE/PVC/HDPE CABLE R.L. 2,941m C.L. 3400m
- NEW/EXISTING HV UGOH
- NEW STRAIGHT THROUGH JOINT
- EXISTING POLE
- EXISTING POLE SUBSTATION

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY:	
WORKS COMPLETED:	
SIGNATURE:	DATE:
INSPECTED BY:	
SIGNATURE:	DATE:

ASSET RECORDING

I:

OF:

CONTACT No.:

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE:

DATE:

CERTIFIED BY ENDEAVOUR ENERGY

Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AMENDMENTS: ORIGINAL ISSUE — A — DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY: Ultegra — UTILITIES & INFRASTRUCTURE SPECIALISTS — www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS			
				CAP / SAMP No.	DBL2554
				AM PROJ. No.	80082_20210706
		GENERAL		HV SWITCHING	REQUIRED
		OVERHEAD		UBD/PENGUIN REF	290225, 6244106
		UNDERGROUND		GIS MAP No	U73457
		SUBSTATIONS		HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DO NOT SCALE — DIMENSIONS IN METRES

DESIGN: RB

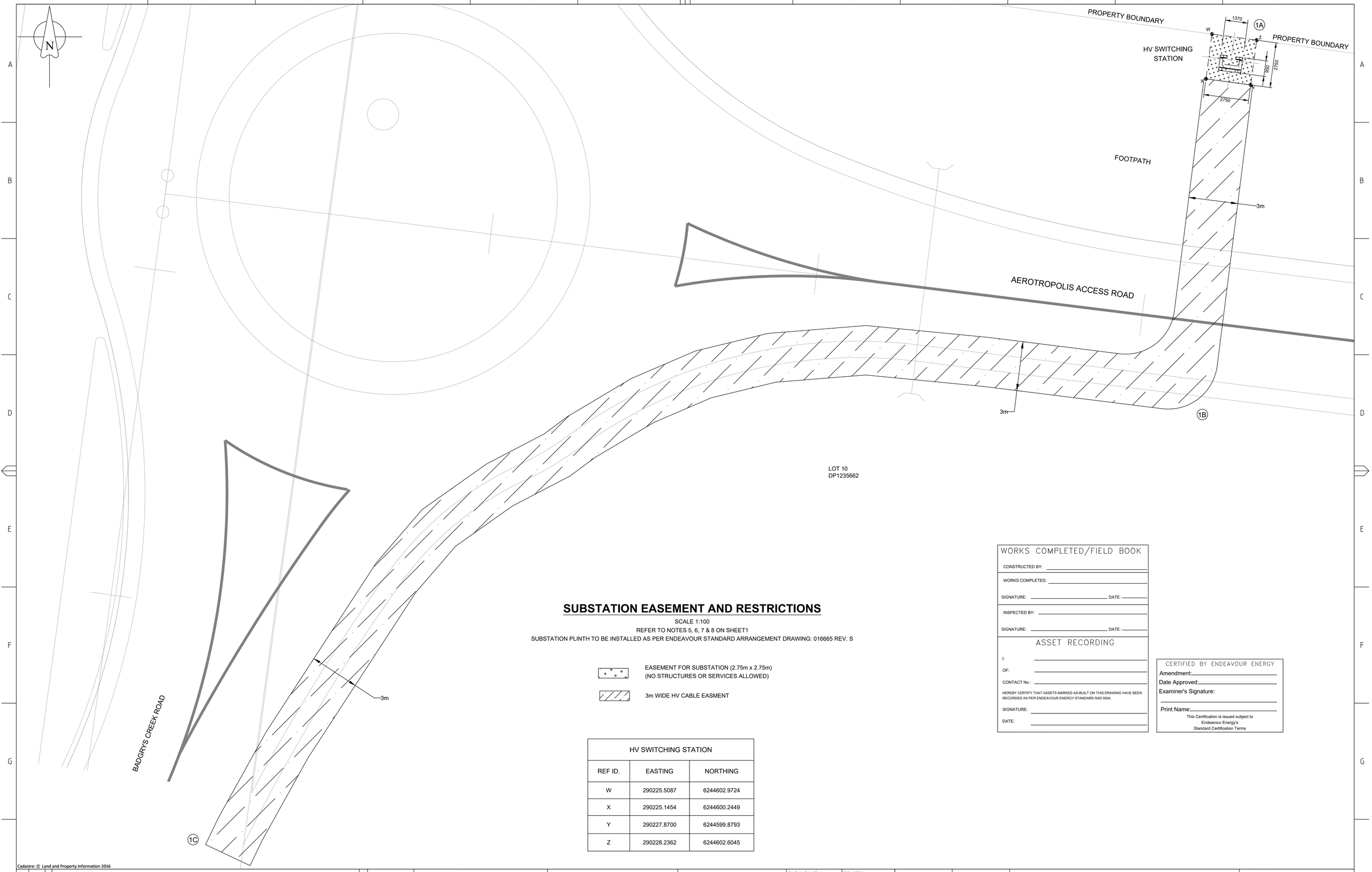
215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

SHEET No 10 OF 12 SHEETS

88351



SUBSTATION EASEMENT AND RESTRICTIONS

SCALE 1:100

REFER TO NOTES 5, 6, 7 & 8 ON SHEET1

SUBSTATION PLINTH TO BE INSTALLED AS PER ENDEAVOUR STANDARD ARRANGEMENT DRAWING: 016665 REV. S

EASEMENT FOR SUBSTATION (2.75m x 2.75m)
(NO STRUCTURES OR SERVICES ALLOWED)

3m WIDE HV CABLE EASMENT

HV SWITCHING STATION		
REF ID.	EASTING	NORTHING
W	290225.5087	6244602.9724
X	290225.1454	6244600.2449
Y	290227.8700	6244599.8793
Z	290228.2362	6244602.6045

WORKS COMPLETED/FIELD BOOK

CONSTRUCTED BY: _____

WORKS COMPLETED: _____

SIGNATURE: _____ DATE: _____

INSPECTED BY: _____

SIGNATURE: _____ DATE: _____

ASSET RECORDING

I: _____

OF: _____

CONTACT No.: _____

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REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
		GENERAL		AM PROJ. No.	80082_20210706
		OVERHEAD		HV SWITCHING	REQUIRED
		UNDERGROUND		UBD/PENGUIN REF	290225, 6244106
		SUBSTATIONS		GIS MAP No	U73457
				HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE

DRAWN: ME

DATE: 06/07/2021

CH'D: BH

DO NOT SCALE — DIMENSIONS IN METRES

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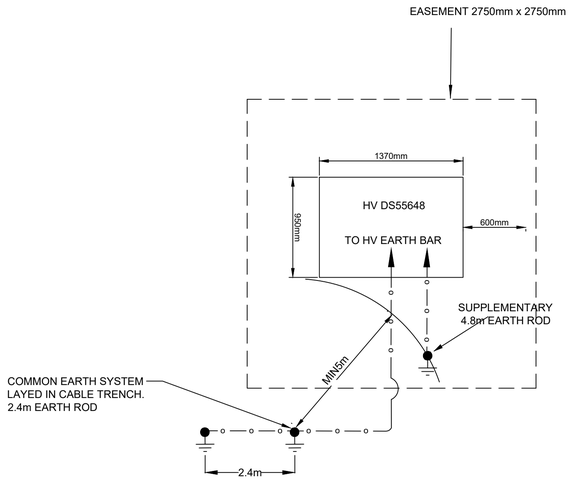
215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy

A1 | 522600 | A

SHEET No 11 OF 12 SHEETS

88351



HV SWITCHING STATIONS DS55648
COMMON EARTHING LAYOUT
NOT TO SCALE

LEGEND

— o — o — 70mm² CU INSULATED
R.L. 40m C.L. 50m

EARTH ROD

HV DS55648 COMMON EARTHING DETAILS (CS1221)				
SOIL RESISTIVELY (ohms.m)	LAYER 1	45.67	DEPTH (m)	0.72
	LAYER 2	8.70		
DESIGNED EARTH RESISTANCE LIMIT (ohms)				1.30
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES				2
LENGTH OF BARE ELECTRODE (m)				2.40
CONNECTOR TYPE (CAD or CRIMP)				CRIMP
LOCATION CATEGORY: F - FREQUENT				F
WHAT DESIGN TOOL USED?				'3E'
FAULT LEVEL (kA)				10.43
IS THIS 'FIRST ASSET OUT' FROM ZS?				YES
ARE SCREENS OF INCOMING CABLE BONDED TO SWITCHING SUBSTATION EARTH BAR?				YES

NOTE:
CONSTRUCTION SHALL NOT COMMENCE UNTIL EASEMENTS ARE CREATED IN ENDEAVOUR ENERGY'S FAVOUR AS IDENTIFIED ON THE EASEMENT PLAN OF THIS DESIGN. IF AN EASEMENT ALTERATION IS REQUIRED DURING CONSTRUCTION, NO ALTERATIONS TO THE ENDEAVOUR ENERGY EXISTING NETWORK CAN OCCUR AND ASSETS PROPOSED IN THIS DESIGN ARE NOT TO BE COMMISSIONED PRIOR TO RECERTIFICATION AND EASEMENTS REGISTERED IN ACCORDANCE WITH THE CERTIFIED DESIGN.

CERTIFIED BY ENDEAVOUR ENERGY
Amendment:
Date Approved:
Examiner's Signature:
Print Name:
This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED/FIELD BOOK
CONSTRUCTED BY:
WORKS COMPLETED:
SIGNATURE: DATE:
INSPECTED BY:
SIGNATURE: DATE:

ASSET RECORDING
I:
OF:
CONTACT No.:
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.
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DATE:

AMENDMENTS
ORIGINAL ISSUE
A DRAFT No. 01

TEMPLATE VERSION No. 5.0

PREPARED BY:
Ultegra
UTILITIES & INFRASTRUCTURE SPECIALISTS
www.ultegra.com.au

REFERENCE DRAWING'S		WORK ORDERS		CAP / SAMP No.	DBL2554
		GENERAL		AM PROJ. No.	80082_20210706
		OVERHEAD		HV SWITCHING	REQUIRED
		UNDERGROUND		UBD/PENGUIN REF	290225, 6244106
		SUBSTATIONS		GIS MAP No	U73457
				HV OP DIAGRAM	BRINGELLY 1K8
				LOCAL GOV AREA	CAMDEN

ORIGINAL SCALE
DRAWN ME
DATE 06/07/2021
CH'D BH
DESIGN RB
DO NOT SCALE
DIMENSIONS IN METRES

215 BADGERYS CREEK RD
BRINGELLY
DBL2554
CONNECTION OF LOAD

Endeavour Energy
A1 522600 A
SHEET No 12 OF 12 SHEETS

88351

Appendix C Indicative Construction Program

Works		**Weekly Lookahead - Construction Program**
PLN ID		4022-WSA-WLAH-001
Rev		**Friday, 14 January 2022**

Quickway
Transport & Utilities Infrastructure

Notes:
1. Approvals pending
2. Subject to inclement weather, and site conditions.

CTMP No.	Portion No.	Portion name	Street	Task	Day / Nights	No. Weeks	Month	Dec-21	Dec-21	Dec-21	Dec-21	Jan-22	Jan-22	Jan-22	Jan-22	Jan-22	Feb-22	Feb-22	Feb-22	Feb-22	Mar-22	Mar-22	Mar-22	Mar-22	Apr-22	Apr-22	Apr-22	Apr-22	May-22	May-22	May-22	May-22	May-22	Jun-22	Jun-22	Jun-22
							Week Start Date	29/11/2021	6/12/2021	13/12/2021	20/12/2021	27/12/2021	3/01/2022	10/01/2022	17/01/2022	24/01/2022	31/01/2022	7/02/2022	14/02/2022	21/02/2022	28/02/2022	7/03/2022	14/03/2022	21/03/2022	28/03/2022	4/04/2022	11/04/2022	18/04/2022	25/04/2022	2/05/2022	9/05/2022	16/05/2022	23/05/2022	30/05/2022	6/06/2022	13/06/2022
							Week End Date	5/12/2021	12/12/2021	19/12/2021	26/12/2021	2/01/2022	9/01/2022	16/01/2022	23/01/2022	30/01/2022	6/02/2022	13/02/2022	20/02/2022	27/02/2022	6/03/2022	13/03/2022	20/03/2022	27/03/2022	3/04/2022	10/04/2022	17/04/2022	24/04/2022	1/05/2022	8/05/2022	15/05/2022	22/05/2022	29/05/2022	5/06/2022	12/06/2022	19/06/2022
NA	NA	NA	NA	Finalisation of management plans, project planning, procurement	Day	5		Eng.	Eng.	Eng.			Eng.	Eng.	Eng.	Eng.	Eng.																			
NA	All	NA	Across project	Low Impact works - route alignment survey, road dilap reports - **commencing 10/12/21**	Day	2			Eng.	Eng.																										
	1	**Paton Lane**	Patons Lane	Mobilise, site setup.	Day	2													Crew 1	Crew 1																
	1		Patons Lane	HDD & pipe installation. Demobilise HDD plant.	Day	2															Crew 2	Crew 2														
	1		Patons Lane	Complete cable installation. Complete earth rod installation x7.	Day	1																Crew 1														
	1		Patons Lane	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations. Demobilise	Day	1																			Crew 1											
	2	**Claremount Meadows**	Gipps St	Compound Establishment	Day	1											Crew 1																		
	2		Gipps St	Trial holing. Locate & mandrel existing conduits.	Night	1															Crew 1														
	2		Gipps St	Gipps St HDD & pipe installation	Night	2																Crew 2	Crew 2												
	2		Gt Western Hwy	Excavate & install kiosk substation	Day	1																	Crew 1												
	2		Gipps St	Complete conduit tie-ins. Install HV & Earth cable.	Night																		Crew 1												
	2		Gt Western Hwy	Endeavour Energy HV outage (x1 night). Complete backfilling & restorations. Demobilise	Night	1																					Crew 1								
	3	**Orchard Hills**	Sunflower Dr	Trial holing. Locate & mandrel existing conduits.	Day	2																			Crew 1			Crew 1							
	3		Gipps St	Trial holing. Locate & mandrel existing conduits.	Night	1																							Crew 1						
	3		Kent Rd	Trial holing. Locate & mandrel existing conduits.	Night	1																								Crew 1					
	3		Gipps St / M4	Mobilise HDD plant. M4 HDD & pipe installation	Day	4																						Crew 2	Crew 2	Crew 2	Crew 2				
	3		Kent Rd	Kent Rd HDD & pipe installation	Night	2																										Crew 2	Crew 2		
	3		Kent Rd	Kent Rd trenching 1A-1G	Day	2																								Crew 1	Crew 1				
	3		Kent Rd	Excavate & install 2 x swithcing stations at Kent Rd 1A	Day	1																										Crew 1			
	3		Caddens Rd	Caddens Rd trenching	Night	1																											Crew 1		
	3		Kent Rd	HDD conduit tie-ins	Day	1																												Crew 1	
	3		Sunflower Dr	Complete conduit install 6O-6P Sunflower RDX & tie-ins to existing	Day	1																												Crew 1	
	3		Kent Rd to Sunflower Dr	Cable installation	Day	3																													Crew 1
	3		Kent Rd to Sunflower Dr	Precommissioning cable jointing/ terminations	Day	0																													
	3		Sunflower Dr	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	2																													

CTMP No.1

Works		**Weekly Lookahead - Construction Program**
PLN ID		4022-WSA-WLAH-001
Rev		**Friday, 14 January 2022**

Notes:
1. Approvals pending
2. Subject to inclement weather, and site conditions.

CTMP No.	Portion No.	Portion name	Street	Task	Day / Nights	No. Weeks	Jun-22	Jul-22	Jul-22	Jul-22	Jul-22	Jul-22	Aug-22	Aug-22	Aug-22	Aug-22	Sep-22	Sep-22	Sep-22	Sep-22	Oct-22	Oct-22	Oct-22	Oct-22
Month							Jun-22	Jul-22	Jul-22	Jul-22	Jul-22	Jul-22	Aug-22	Aug-22	Aug-22	Aug-22	Sep-22	Sep-22	Sep-22	Sep-22	Oct-22	Oct-22	Oct-22	Oct-22
Week Start Date							20/06/2022	27/06/2022	4/07/2022	11/07/2022	18/07/2022	25/07/2022	1/08/2022	8/08/2022	15/08/2022	22/08/2022	29/08/2022	5/09/2022	12/09/2022	19/09/2022	26/09/2022	3/10/2022	10/10/2022	17/10/2022
Week End Date							26/06/2022	3/07/2022	10/07/2022	17/07/2022	24/07/2022	31/07/2022	7/08/2022	14/08/2022	21/08/2022	28/08/2022	4/09/2022	11/09/2022	18/09/2022	25/09/2022	2/10/2022	9/10/2022	16/10/2022	23/10/2022
NA	NA	NA	NA	Finalisation of management plans, project planning, procurement	Day	5																		
NA	All	NA	Across project	Low Impact works - route alignment survey, road dilap reports - **commencing 10/12/21**	Day	2																		
CTMP No.1	1	Paton Lane	Patons Lane	Mobilise, site setup.	Day	2																		
	1		Patons Lane	HDD & pipe installation. Demobilise HDD plant.	Day	2																		
	1		Patons Lane	Complete cable installation. Complete earth rod installation x7.	Day	1																		
	1		Patons Lane	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations. Demobilise	Day	1																		
	2	Claremount Meadows	Gipps St	Compound Establishment	Day	1																		
	2		Gipps St	Trial holing. Locate & mandrel existing conduits.	Night	1																		
	2		Gipps St	Gipps St HDD & pipe installation	Night	2																		
	2		Gt Western Hwy	Excavate & install kiosk substation	Day	1																		
	2		Gipps St	Complete conduit tie-ins. Install HV & Earth cable.	Night																			
	2		Gt Western Hwy	Endeavour Energy HV outage (x1 night). Complete backfilling & restorations. Demobilise	Night	1																		
	3	Orchard Hills	Sunflower Dr	Trial holing. Locate & mandrel existing conduits.	Day	2																		
	3		Gipps St	Trial holing. Locate & mandrel existing conduits.	Night	1																		
	3		Kent Rd	Trial holing. Locate & mandrel existing conduits.	Night	1																		
	3		Gipps St / M4	Mobilise HDD plant. M4 HDD & pipe installation	Day	4																		
	3		Kent Rd	Kent Rd HDD & pipe installation	Night	2																		
	3		Kent Rd	Kent Rd trenching 1A-1G	Day	2																		
	3		Kent Rd	Excavate & install 2 x swithcing stations at Kent Rd 1A	Day	1																		
	3		Caddens Rd	Caddens Rd trenching	Night	1																		
	3		Kent Rd	HDD conduit tie-ins	Day	1																		
	3		Sunflower Dr	Complete conduit install 6O-6P Sunflower RDX & tie-ins to existing	Day	1																		
	3		Kent Rd to Sunflower Dr	Cable installation	Day	3	Crew 1	Crew 1																
	3		Kent Rd to Sunflower Dr	Precommissioning cable jointing/ terminations	Day	0		HV	HV	HV															
	3		Sunflower Dr	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	2										Crew 1	Crew 1							

Works		**Weekly Lookahead - Construction Program**
PLN ID		4022-WSA-WLAH-001
Rev		**Friday, 14 January 2022**

Notes:
1. Approvals pending
2. Subject to inclement weather, and site conditions.

CTMP No.	Portion No.	Portion name	Street	Task	Day / Nights	No. Weeks	Dec-21	Dec-21	Dec-21	Dec-21	Jan-22	Jan-22	Jan-22	Jan-22	Jan-22	Feb-22	Feb-22	Feb-22	Feb-22	Mar-22	Mar-22	Mar-22	Mar-22	Apr-22	Apr-22	Apr-22	Apr-22	May-22	May-22	May-22	May-22	May-22	Jun-22	Jun-22	Jun-22
Month																																			
Week Start Date							29/11/2021	6/12/2021	13/12/2021	20/12/2021	27/12/2021	3/01/2022	10/01/2022	17/01/2022	24/01/2022	31/01/2022	7/02/2022	14/02/2022	21/02/2022	28/02/2022	7/03/2022	14/03/2022	21/03/2022	28/03/2022	4/04/2022	11/04/2022	18/04/2022	25/04/2022	2/05/2022	9/05/2022	16/05/2022	23/05/2022	30/05/2022	6/06/2022	13/06/2022
Week End Date							5/12/2021	12/12/2021	19/12/2021	26/12/2021	2/01/2022	9/01/2022	16/01/2022	23/01/2022	30/01/2022	6/02/2022	13/02/2022	20/02/2022	27/02/2022	6/03/2022	13/03/2022	20/03/2022	27/03/2022	3/04/2022	10/04/2022	17/04/2022	24/04/2022	1/05/2022	8/05/2022	15/05/2022	22/05/2022	29/05/2022	5/06/2022	12/06/2022	19/06/2022
CTMP No.2	4	Airport Business Park	Pitt St / Lawson Rd	Compound establishment at 195 Lawson Rd	Day	2											Crew 3	Crew 3																	
	4		Cross St	Cross St HDD A3-A4	Day	1													Crew 4																
	4		Cross St	Cross St HDD A5-A6	Day	1														Crew 4															
	4		Cross St	Cross St HDD A7-B1	Day	3														Crew 4	Crew 4	Crew 4													
	4		Cross St	Cross St HDD B3-B4	Day	1																Crew 4													
	4		Cross St	Cross St trenching	Day	4														Crew 3	Crew 3	Crew 3	Crew 3												
	4		Western Rd	Western Rd trenching	Day	3																		Crew 3	Crew 3	Crew 3									
	4		Western Rd	Western Rd HDD C1-C2	Day	1																	Crew 4												
	4		Western Rd	Western Rd HDD C4-C7	Day	2																	Crew 4	Crew 4											
	4		Unnamed Lane	Unnamed Lane trenching	Day	5																				Crew 3	Crew 3	Crew 3	Crew 3	Crew 3					
	4		Unnamed Lane	Unnamed Lane HDD D3-E1 (South Creek)	Day	4															Crew 5	Crew 5	Crew 5	Crew 5											
	4		Martin Rd	Martin Rd trenching	Day	2																								Crew 3	Crew 3				
	4		Cuthel Rd	Cuthel Rd HDD F7-G1	Day	3																			Crew 4	Crew 4	Crew 4								
	4		Lawson Rd	Lawson Rd trenching	Day	2																		Crew 6	Crew 6										
	4		Pitt St	Pitt St HDD H2-H3 (Badgerys Creek)	Day	4																		Crew 5	Crew 5	Crew 5	Crew 5								
	4		Pitt St	Pitt St treching	Day	4																				Crew 6	Crew 6	Crew 6	Crew 6						
	4		Pitt St	Pitt St to Longelys Rd easement trenching	Day	3																							Crew 6	Crew 6	Crew 6				
	4		Badgerys Creek Rd	Badgerys Creek Rd HDD	Day	2																							Crew 4	Crew 4					
	4		Longleys Rd	WSA site HDD K4-K5	Day	3																								Crew 4	Crew 4	Crew 4			
	4		Longleys Rd	WSA site trenching. Excavate & install 2 x switching stations	Day	3																										Crew 6	Crew 6	Crew 6	
	4		Cross St to Longleys Rd	Cable installation	Day	6																													Crew 6
	4		Cross St to Longleys Rd	Precommissioning cable jointing/ terminations	Day	0																													
	4		Cross St to Longleys Rd	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	3																													
	5	Precast Facilities	Longleys Rd	Mobilise & complete site setup	Day	1																			Crew 7										
	5		Longleys Rd	Longleys Rd trenching	Day	4																			Crew 7	Crew 7	Crew 7	Crew 7							
	5		Longleys Rd	Excavation & installation of 2 x kiosk substations	Day	1																									Crew 7				
	5		Badgerys Creek Rd	Badgerys Creek Rd HDD	Day	2																									Crew 4	Crew 4			
	5		Longleys Rd	Cable installation	Day	1																											Crew 7		
	5		Longleys Rd	Precommissioning cable jointing/ terminations	Day	0																												HV	
	5		Longleys Rd	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	1																													
	6	Aerotropolis	Greendale Rd	Mobilise, site setup.	Day	1																Crew 8												
	6		Greendale Rd	Trial holing. Locate & mandrel existing conduits.	Day	1																Crew 8												
	6		The Northern Rd	Trial holing. Locate & mandrel existing conduits.	Night	1																	Crew 8												
	6		Badgerys Creek Rd	Trial holing	Night	1																		Crew 8											
	6		Wentworth Rd	Wentworth Rd trenching	Day	2																			Crew 8	Crew 8									
	6		Badgerys Creek Rd	Badgerys Creek Rd trenching	Night	6																					Crew 8	Crew 8	Crew 8	Crew 8	Crew 8	Crew 8			
	6		Badgerys Creek Rd	Badgerys Creek Rd bores 1H-1I, 1M-1N, 1O-1P	Night	4																		Crew 2	Crew 2	Crew 2						Crew 8			
	6		Access Rd	Excavation & installation of switching station, completion of trenching	Day	0																													
	6		Greendale Rd to Aerotropolis	Cable installation	Night	2																												Crew 8	Crew 8	
	6		Greendale Rd to Aerotropolis	Precommissioning cable jointing/ terminations	Night	0																													HV
	6		Greendale Rd to Aerotropolis	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	1																													
					Totals	124																													

Works		**Weekly Lookahead - Construction Program**
PLN ID		4022-WSA-WLAH-001
Rev		**Friday, 14 January 2022**

Notes:
1. Approvals pending
2. Subject to inclement weather, and site conditions.

CTMP No.	Portion No.	Portion name	Street	Task	Day / Nights	No. Weeks	Jun-22	Jul-22	Jul-22	Jul-22	Jul-22	Jul-22	Aug-22	Aug-22	Aug-22	Aug-22	Sep-22	Sep-22	Sep-22	Sep-22	Oct-22	Oct-22	Oct-22	Oct-22
Month																								
Week Start Date							20/06/2022	27/06/2022	4/07/2022	11/07/2022	18/07/2022	25/07/2022	1/08/2022	8/08/2022	15/08/2022	22/08/2022	29/08/2022	5/09/2022	12/09/2022	19/09/2022	26/09/2022	3/10/2022	10/10/2022	17/10/2022
Week End Date							26/06/2022	3/07/2022	10/07/2022	17/07/2022	24/07/2022	31/07/2022	7/08/2022	14/08/2022	21/08/2022	28/08/2022	4/09/2022	11/09/2022	18/09/2022	25/09/2022	2/10/2022	9/10/2022	16/10/2022	23/10/2022
CTMP No.2	4	Airport Business Park	Pitt St / Lawson Rd	Compound establishment at 195 Lawson Rd	Day	2																		
	4		Cross St	Cross St HDD A3-A4	Day	1																		
	4		Cross St	Cross St HDD A5-A6	Day	1																		
	4		Cross St	Cross St HDD A7-B1	Day	3																		
	4		Cross St	Cross St HDD B3-B4	Day	1																		
	4		Cross St	Cross St trenching	Day	4																		
	4		Western Rd	Western Rd trenching	Day	3																		
	4		Western Rd	Western Rd HDD C1-C2	Day	1																		
	4		Western Rd	Western Rd HDD C4-C7	Day	2																		
	4		Unnamed Lane	Unnamed Lane trenching	Day	5																		
	4		Unnamed Lane	Unnamed Lane HDD D3-E1 (South Creek)	Day	4																		
	4		Martin Rd	Martin Rd trenching	Day	2																		
	4		Cuthel Rd	Cuthel Rd HDD F7-G1	Day	3																		
	4		Lawson Rd	Lawson Rd trenching	Day	2																		
	4		Pitt St	Pitt St HDD H2-H3 (Badgerys Creek)	Day	4																		
	4		Pitt St	Pitt St treching	Day	4																		
	4		Pitt St	Pitt St to Longelys Rd easement trenching	Day	3																		
	4		Badgerys Creek Rd	Badgerys Creek Rd HDD	Day	2																		
	4		Longleys Rd	WSA site HDD K4-K5	Day	3																		
	4		Longleys Rd	WSA site trenching. Excavate & install 2 x switching stations	Day	3																		
	4		Cross St to Longleys Rd	Cable installation	Day	6	Crew 6	Crew 6	Crew 6	Crew 6	Crew 6													
	4		Cross St to Longleys Rd	Precommissioning cable jointing/ terminations	Day	0						HV	HV	HV	HV									
	4		Cross St to Longleys Rd	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	3									Crew 3	Crew 3	Crew 3							
	5	Precast Facilities	Longleys Rd	Mobilise & complete site setup	Day	1																		
	5		Longleys Rd	Longleys Rd trenching	Day	4																		
	5		Longleys Rd	Excavation & installation of 2 x kiosk substations	Day	1																		
	5		Badgerys Creek Rd	Badgerys Creek Rd HDD	Day	2																		
	5		Longleys Rd	Cable installation	Day	1																		
	5		Longleys Rd	Precommissioning cable jointing/ terminations	Day	0																		
	5		Longleys Rd	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	1	Crew 7																	
	6	Aerotropolis	Greendale Rd	Mobilise, site setup.	Day	1																		
	6		Greendale Rd	Trial holing. Locate & mandrel existing conduits.	Day	1																		
	6		The Northern Rd	Trial holing. Locate & mandrel existing conduits.	Night	1																		
	6		Badgerys Creek Rd	Trial holing	Night	1																		
	6		Wentworth Rd	Wentworth Rd trenching	Day	2																		
	6		Badgerys Creek Rd	Badgerys Creek Rd trenching	Night	6																		
	6		Badgerys Creek Rd	Badgerys Creek Rd bores 1H-1I, 1M-1N, 1O-1P	Night	4																		
	6		Access Rd	Excavation & installation of switching station, completion of trenching	Day	0																		
	6		Greendale Rd to Aerotropolis	Cable installation	Night	2																		
	6		Greendale Rd to Aerotropolis	Precommissioning cable jointing/ terminations	Night	0	HV																	
	6		Greendale Rd to Aerotropolis	Endeavour Energy HV outage (x1 day). Complete backfilling & restorations.	Day	1			Crew 8																
				Totals		**124**																		

Appendix D Consultation & Communication

Sydney Metro Western Sydney Airport - Advanced & Enabling Works (Construction Power)
Stakeholder Comment Tracker - Overarching Traffic Management Principles

RESPONSE STATUS
O Open
C Closed

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1	B	Section 1.4	CJP	-	07-Dec-2021	It should be noted any future works deemed to be of a high-impact, CJP may request additional CTMPs to be submitted for review and approval Raised by CJP TfNSW	Noted.	24-Jan-2022					
2	B	Section 1.5.2	CJP	-	07-Dec-2021	Approved ROL hours may not always align with the nominated working hours listed in this section, particularly during activities with road and/or transport impacts. Raised by CJP TfNSW	Noted.	24-Jan-2022					
3	B	Section 3.2	CJP	-	07-Dec-2021	MCoA E103 - All CTMPs must go through a formal review and obtain an approval from CJP prior to commencing any works that will have a road user impact Raised by CJP TfNSW	Noted.	24-Jan-2022					
4	B	Section 5.1	CJP	-	07-Dec-2021	The site specific CTMPs will be subject to a review and approval process by the relevant stakeholders prior to the commencement of any works. Raised by CJP TfNSW	Noted. Site-specific CTMPs will be provided to TfNSW CJP, local council for review, comment and approval	24-Jan-2022					
5	B	Section 5.1	CJP	-	07-Dec-2021	An ROL will also be required for any works with a road and transport impact. This needs to be submitted via the OPLINC system at least 10 business days prior to works commencing. Local council may require a similar application to be made. Raised by CJP TfNSW	Noted. Specific consultation with relevant CJP personnel will be continue prior, and ongoing during ROL applications. Local Councils applications processes have been determined and agreed.	24-Jan-2022					
6	B	Section 5.1	CJP	-	07-Dec-2021	Road plates will need to be installed in acordance relevant TfNSW standards to avoid large flat edges that are unsafe and potetentially cause damage. Raised by CJP TfNSW	Noted. Section 5.1 amended to include relevant TfNSW for road plate installation. Relevant CTMPs will identify locations where road-plates and associated aftercare signage is required.	24-Jan-2022					
7	B	Section 5.3	CJP	-	07-Dec-2021	Lead times may vary to what has been captured in this section. It would be beneficial to allow between 2-6 weeks for any changes that may be required throughout this program of works. The end of paragraph 2 is in some ways contradictry to paragraph 4 and so not clear on what the process is that should be followed. Raised by CJP TfNSW	Section 5.3 has been amendment to improve clarity and remove any potential contradictories.	24-Jan-2022					
8	B	Section 5.3.2 - 5.3.6	CJP	-	07-Dec-2021	Is there any indication of timing/dates that these potential bus impacts will be experienced? Early engagement with the CJP Transport Integration team is paramount. Raised by CJP TfNSW	Noted. Specific consultation will be conducted with CJP Transport Intergration about potential bus impacts, dates/ timings. This will be completed outside of the CTMP review & comment process.	24-Jan-2022					
9	B	Section 6.1	CJP	-	07-Dec-2021	CTMP 1 and 2 will contain a lot of detail considering the number of loaction contained within each. While I understand the rational it also runs the risk of holding up other works if there is a concern with 1 site as the TMP as a whole will need to be approved. Raised by CJP TfNSW	Noted. If any issues arise with certain sections of CTMP1 and/or CTMP2, specific consultation will be undertaken to ensure timely resolutions.	24-Jan-2022					
10	B	Section 6.1	CJP	-	07-Dec-2021	A number of the works and traffic management arrangements described in the table would only be possible during off-peak hours and/or at night. Raised by CJP TfNSW	Noted-Working shifts will be subject to ROL approval timeframes.	24-Jan-2022					
11	B	Section 6.1.2	CJP	-	07-Dec-2021	Future TMPs should address how onstreet queuing will be mitigated, managed and monitored. Construction vehicles should also avoid obstructing or parking in bus zones or with in the statutory distances of a bus stop. Raised by CJP TfNSW	Noted.	24-Jan-2022					
12	B	Section 6.1.2	CJP	-	07-Dec-2021	Construction vehicles should also avoid obstructing or parking in bus zones or with in the statutory distances of a bus stop. Raised by CJP TfNSW	Noted.	24-Jan-2022					
13	B	Section 6.1.3	CJP	-	07-Dec-2021	Construction vehicle traffic should be limited during peak periods where possible. Raised by CJP TfNSW	Noted.	24-Jan-2022					
14	B	Section 6.2	CJP	-	07-Dec-2021	Given that these works are in association with a major Tranport project, ROLs may still be required on some local roads irrespective of its proximity to traffic signals and where public transport exists e.g. Kent Rd Raised by CJP TfNSW	Noted. Specific consultation with CJP regarding ROLs will be conducted prior and ongoing during ROL applications.	24-Jan-2022					
15	B	Appendix A	CJP	-	07-Dec-2021	Haulage Routes: Have the appropriate approvals been obtained for routes not already approved as part of the EIS? Raised by CJP TfNSW	Heavy Vehicle use of Local Roads (for routes where relevant as shown in Appendix A) DPIE approval request is currently ongoing. This approval will be received by DPIE prior to Heavy Vehicles use of Local Roads.	24-Jan-2022					
16	B	Table 5.1 pg 45	Roads and Maritime Services (part of TfNSW division)	QML	09-Dec-2021	TN - Recent SCATS records (refer to 'SCATS Counts' tab) indicate that heavy volumes are still expected at night on GWH. Traffic stoppages up to 5-min could cause serious congestion that couldn't be recovered within a short period. Any stoppages for cable works across GWH should therefore be scheduled at late/mid night, with close monitoring of queue formation to adjust the control strategy. Please specify the time schedule and frequency of stoppages in the upcoming CTMP. * Note the provided SCATS counts for reference only, taken on GWH ~200m east of Gipps St.	Noted this detail will be included in the relevant CTMP.	24-Jan-2022					
17	B	Appendix A pg 93	Roads and Maritime Services (part of TfNSW division)	QML	09-Dec-2021	TN - The proposed haulage route on Sunflower Dr (north), Myrtle Rd and Sandpiper Cres are outside of approved B-double routes and are local streets for residential access. Consider safety these sections should be excluded from the haulage route.	Sunflower Dr (north), Myrtle Rd, Sandpipe Cres will have rigid HV use only. These roads, along with other local roads not included in the EIS documents are included in HVLR and submitted to the Planning Secretary for approval.	24-Jan-2022					

Sydney Metro Western Sydney Airport - Advanced & Enabling Works (Construction Power)
Stakeholder Comment Tracker - Overarching Traffic Management Principles

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18	B	Appendix A	Sydney Metro	TS	09-Dec-2021	Following on from my previous comments, it appears some of the routes on local roads shown don't align with the EIS? Will Quickway be seeking approval for these in accordance with CoA E105?	Correct. All local roads not included in documents listed in Condition A1 will be included in HVLR and submitted to the Planning Secretary for approval.	24-Jan-2022					
19	B	Section 6.10.2 Pg 80	Sydney Metro	TS	09-Dec-2021	For environmental incidents, it might also be worthwhile referencing the relevant section of the Quickway CEMP	Addition of last paragraph to Section 6.10.2	24-Jan-2022					
20	B	Section 6.9 Pg 78	Sydney Metro	TS	09-Dec-2021	"then (at the asset owner's discretion):" E108 refers to Relevant Road Authority, rather than asset owner - are these the same groups?	Corrected to assimilate same working as the MCoA.	24-Jan-2022					
21	B	Section 6.9 Pg 78	Sydney Metro	TS	09-Dec-2021	"The Road Pre-condition Report will be submitted to TfNSW, Penrith City Council and Liverpool City Council for review at least one (1) month prior to the commencement of construction and/or haulage." CoA E107 also requires that the reports must be provided within tree weeks of completion of the survey - this should also be clarified here.	Last sentence to paragraph 3 added in Section 6.9.	24-Jan-2022					
22	B	Section 6.9 Pg 78	Sydney Metro	TS	09-Dec-2021	'...construction of the Rozelle Power Supply Works.' Please revise	Corrected.	24-Jan-2022					
23	B	Section 6.5.2 Pg 76	Sydney Metro	TS	09-Dec-2021	It might also be worth mentioning this specific part of CoA E111: The Proponent must maintain access to properties during the entirety of works unless an alternative access is agreed in writing with the landowner(s) whose access is impacted by the CSSI works. In addition, this section should also address CoA E112: Where construction of the CSSI restricts a property's access to a public road, the Proponent must, until their primary access is reinstated, provide the property with temporary alternate access to an agreed road decided through consultation with the landowner, at no cost to the property landowner, unless otherwise agreed with the landowner.	Addition of last paragprah text in Section 6.5.2.	24-Jan-2022					
24	B	Section 6.1.3 Pg 66	Sydney Metro	TS	09-Dec-2021	'Truck movements to and from site shall be restricted to these designated routes, unless otherwise agreed with the road authority,...' There is also the requirement for Planning Secretary to approve the use of local roads proposed to be used by HV that are not identified in the Planning Approval. This section should outline the process for seeking approval by DPIE - ie preparation and submission of the HVLR referenced on page 33. This section should also reiterate the requirements of E106, should approval for the use of Local roads be sought	Addition of last paragprah text in Section 6.1.3.	24-Jan-2022					
25	B	Table 3.2 - T6 Pg 37	Sydney Metro	TS	09-Dec-2021	Suggest also referencing section 6.5 which includes information on how pedestrians and cyclists will be managed?	Reference to Section 6.5 included as suggested.	24-Jan-2022					
26	B	Table 3.2 - T1 Pg 36	Sydney Metro	TS	09-Dec-2021	'OCTMP and occupational CTMP's developed preconstruction.' Typo?	Typo corrected.	24-Jan-2022					
27	B	Table 3.1 - E106 Pg 32	Sydney Metro	TS	09-Dec-2021	'Relevant operational CTMPs will include swept path analysis, reports and advice for the use of Heavy Vehicle routes on local roads identified.' It might also be worth clarifying that the document that is to be provided to DPIE for their approval (I presume the HVLR), will include the content required in E106, in addition to the CTMP?	Table 3.1 hows addressed for E106 is updated as suggested.	24-Jan-2022					
28	B	Table 3.1 - E105 Pg 32	Sydney Metro	TS	09-Dec-2021	"Heavy Vehicle Local Roads (HVLR) document provided to Planning Secretary in separate submission." Given the lead times for seeking DPIE approval, have Quickway identified any local roads that are to be used by heavy vehicles that are no identified in the Planning Approval? It might be good to have a section flagging possible local roads that require approval somewhere in this OCTMP	HVLR document has been submitted to Planning Secretary in Dec-2021 and current under final approval process.	24-Jan-2022					
29	B	Table 3.1 - E105 and E106 Pg 32	Sydney Metro	TS	09-Dec-2021	'Separate submission to the Planning Secretary will be made for approval for the use construction heavy vehicles on local roads.' suggest clarifying this statement: '...local roads that are not identified in the documents listed in Condition A1'	Table 3.1 hows addressed for E105 & E106 is updated as suggested.	24-Jan-2022					
30	B	Table 3.1 - E103 Pg 32	Sydney Metro	TS	09-Dec-2021	Clarification: As per my previous comment, does that also extend to this OCTMP??	Correct.	24-Jan-2022					
31	B	Section 2.1 - Pg 23	Sydney Metro	TS	09-Dec-2021	Clarification: Given the paragraph above says this OCTMP will following the approval process under the CTMF, does that mean this OCTMP will be provided to the Planning Secretary for info in line with MCOA E103 too?	Correct.	24-Jan-2022					
32	B	Section 1.5 - Pg 20	Sydney Metro	TS	09-Dec-2021	Suggest mentioning that off-airport works will be conducted under Quickway's Sydney Metro Western Sydney Airport Power Enabling Works CEMP	Added to Section 1.5	24-Jan-2022					

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33	B	General	Penrith City Council	LV	09-Dec-2021	Relevant permits and approvals for road occupancy, closure and the like must be applied for from Council for works on local roads as per discussions held with Penrith City Council staff on Wednesday 8 December, 2021.	Noted and agreed.	24-Jan-2022					
34	B	General	Penrith City Council	LV	09-Dec-2021	Council requests that dilapidation surveys pre and post works are completed and provided to Council.Inspection by Council officers post works is required and any damages to be 'made-good' to Council's satisfaction as per the Interface Agreement.	Noted. On 20/12/2021, pre-construction dilapidation reports transmitted for; work areas (e.g. for excavations), heavy vehicles routes on local roads.	24-Jan-2022					
35	B	General	Penrith City Council	LV	09-Dec-2021	Ensure continued ease of access for cyclists and people of all abilities.	Noted.	24-Jan-2022					
36	B	General	Penrith City Council	LV	09-Dec-2021	Ensure compatibility with existing Council assets, where appropriate.	Noted.	24-Jan-2022					
37	B	General	Penrith City Council	LV	09-Dec-2021	Ensure all best practice guidelines and standards, and Council policy, specifications and standard drawings are complied with. Any variation is to be discussed with Council for concurrence.	Noted.	24-Jan-2022					
38	B	General	Penrith City Council	LV	09-Dec-2021	Ensure all local businesses, property owners and stakeholders are suitably consulted and not adversely affected. Stakeholders include but are not necessarily limited to emergency services, taxi service providers, bus operators, waste services.	Noted. Stakeholders (businesses, residents and others) have been and ongoing engagement and consultation with Sydney Metro community team.	24-Jan-2022					
39	B	General	Penrith City Council	LV	09-Dec-2021	Council is to be notified of any impacts or safety issues that may arise during the course of the planned works and the actions taken to appropriately manage those impacts and safety issues.	Noted.	24-Jan-2022					
40	B	General	Penrith City Council	LV	09-Dec-2021	NHVR permits are required for any Over Size Over Mass vehicles as required.	Noted.	24-Jan-2022					
41	B	General	Penrith City Council	LV	09-Dec-2021	Haulage routes via local roads between work sites and exit onto a state road are to be identified on a plan and dilapidation reports provided.	In accordance with MCoA E107, dilapidation reports have been provided for local road proposed to be used by Heavy Vehicles. These were provided to relevant road authorities on 20/12/2021.	24-Jan-2022					
42	B	General	Penrith City Council	LV	09-Dec-2021	Council has concern in regard to the proposed haulage routes. Appendix A shows maps with EIS approved routes and blue construction routes which cover a number of local roads that were not approved under the EIS. Local roads should not be used as haulage routes without strong justification demonstrating that there is no alternative route for construction traffic. Restrictions on vehicle size, hours of use, volume of vehicles may be required.	EIS approved haulage routes are primarily focused on the major construction and tunneling works where there is significant number of heavy vehicles for spoil haulage works to and from dedicated tunnel and site access points. The EIS's fails to assess of haulage routes for enabling works such as temporary construction power installation (this project). The construction power alignment design is fixed between existing electrical substations and the required construction power point, with power alignments stretching up to a couple of kilometers long where access and egress is required along each point for excavation works. Ultimately this results in numerous local roads where heavy vehicles must travel along to access/egress the trenching alignment work areas. All local roads not included in documents listed in Condition A1 will be included in HVLR and submitted to the Planning Secretary for approval, and also included in the relevant CTMPs with how they will be managed.	24-Jan-2022					
43	B	Appendix A pg 94	Roads and Maritime Services (part of TfNSW division)	QML	08-Dec-2021	BS - What construction vehicles are proposed to be used for truck movements outside of approved B-Double routes? It should be noted that the intersections of Elizabeth Drive / Western Road and Elizabeth Drive / Devonshire Road experience heavy delays, especially for vehicles wishing to access Elizabeth Drive; thus these routes should be avoided if possible.	Heavy vehicles would include combination of rigid trucks and truck & quad dogs. Refer details are included in relevant CTMPs. Noted, regarding possible delays for vehicles attempting to access Elizabeth Dr.	24-Jan-2022					
44	B	Appendix A	Roads and Maritime Services (part of TfNSW division)	QML	06-Dec-2021	RT -what construction vehicles are intending to use Reserve Road to access the site compound? It should be noted that there is no dedicated right turn phase at intersection of Great Western Highway & Reserve Road, and so delays may be experienced for vehicles turning right out of Reserve Road.	Access to site compound via Reserve Rd would include rigid trucks and truck & quad dogs. Noted reagrding potential delays for delays at intersection. It is noted that the use of Reserve Rd access to site compound will only be utilised until the opening of the signalised intersection of Gipps St at Gipps St is open for traffic. This is currently under final stages of construction.	24-Jan-2022					

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C Closed

Item No	Doc Rev	Item Description, (Page, Para, Drg ref)	Stakeholder (e.g. PCC, LCC, CJP, GS)	Reviewer (intials)	Date (comments made)	Stakeholder Comment	Contractor's Response	Date	Status (O,C,CS)	Stakeholder response	Contractor Response	Response Status (O,C,CS)	Date
45	B	Appendix A - Gipps St site compound	Transport for New South Wales	LW	30-Nov-2021	The haulage route diagram shows the use of Reserve Road differing from the EIS approved routes. There does not appear to be any red arrow protection for the left turn from Great Western Highway to Reserve Road - meaning that left turning vehicles will receive a green signal at the same time pedestrians receive a green signal to cross Reserve Road. This increases the likelihood of collision, especially with significant blind spot issues that HV have and with a McDonalds likely to see increased pedestrian movements. Please demonstrate how this risk will be mitigated SFAIRP.	Noted. Specific reference to the awareness of pedestrians during this left turn movement from vehicles heading WB on GWH will be included in heavy vehicle driver induction. It is noted that the use of Reserve Rd access to site compound will only be utilised until the opening of the signalised intersection of Gipps St at Gipps St is open for traffic. This is currently under final stages of construction.	24-Jan-2022					
46	B	Appendix A - haulage routes	Transport for New South Wales	LW	30-Nov-2021	A number of the haulage routes shown in this appendix appear to differ from the EIS approved routes. Can you please detail and add what safety analysis has been carried out (such as a HIRA) to demonstrate that these routes are safe.	Haulage route overview maps included in the OCTMP. Site-specific CTMPs include professional safety assessment, and the relevant swept path analysis for heavy vehicle maneuvers on local roads.	24-Jan-2022					
47	B	6.5 Pedestrians and cyclists	Transport for New South Wales	LW	30-Nov-2021	The fourth paragraph details use of traffic controllers pending on construction activity. Please also consider using traffic controllers to manage conflicts entering and exiting site in any areas of higher pedestrian and cyclist activity.	Section 6.5 updated - in locations where movements across high activity footpaths/ cyclists ways, traffic controllers will be implemented at all times during the works.	24-Jan-2022					
48	B	6.5 Pedestrians and cyclists	Transport for New South Wales	LW	30-Nov-2021	The first three paragraphs detail maintaining access around the worksite - please consider adding driver awareness of specific locations where cyclists are expected to be riding along the road or areas with higher pedestrian numbers including vulnerable pedestrians around schools. This will assist in reducing the risk of collisions with vulnerable users along haulage routes.	Section 6.5.1 updated for driver awarness of cyclists location in site specific heavy vehicle driver induction.	24-Jan-2022					
49	B	6.1.3 Construction traffic routes	Transport for New South Wales	LW	30-Nov-2021	Page 67 refers to all work vehicles shall give way at all times to pedestrians on the footpath. Can you please expand this to pedestrians and cyclists - as there may be instances where cyclists can legally ride along the footpath, especially around the schools.	Bullet point no.3 in Section 6.1.3 has been updated to also include cyclists.	24-Jan-2022					
50	B	Whole Document	Liverpool City Council	CW	13-Dec-2021	Liverpool City Council (LCC) has provied the attached OCTMP approval letter (including in Appendix D of OCTMP).	Liverpool City Council (LCC) has provied the attached OCTMP approval letter (including in Appendix D of OCTMP). It is noted that all requipments outlined have been included in the site-specific Portion 4 to Portion 6 CTMP2 (LCC LGA) which LCC have reviewed and provided comments.	24-Jan-2022	C				

LIVERPOOL CITY COUNCIL

Our Ref: SSD1-25/2020
Contact: Charles Wiafe
Ph: 8711 7542
Date: 13 December 2021

Joshua Maltese
Quickway

Dear Joshua

Re: Sydney Metro Western Sydney Airport - Overarching Construction Traffic Management Plan

I refer to the submitted Overarching Construction Traffic Management Plan (OCTMP) (Reference No. 4022-WSA-OCTMP-001) for the Sydney Metro Western Sydney Airport Aerotropolis Metro Station enabling works – Installation and commissioning of construction power at Badgerys Creek Road area and Aerotropolis.

Portions 4 and 6 enabling works, are proposed within the Liverpool Local Government Area. Hence, Council has reviewed and provides the following comments and requirements on OCTMP2:

1. Sections of the proposed power supply routes are along Badgerys Creek Road, Martin Road and Pitts Street, which are future arterial roads with approximately 40-60 m wide SP2 zone classified road reserve. Consultation is required with Transport for NSW corridor protection team for any permanent new utility installation.

2. A number of construction traffic management plans (CTMPs) have been prepared for various construction works as part of the enabling works. Sydney Metro is to provide Council with an overview of the multiple construction traffic management plans, for review and endorsement. The OTMP as required in Minister's Conditions of Approval (MCoA) should cover all the enabling and main construction works for Sydney Metro - Western Sydney Airport project.

3. Site specific CTMP are to be submitted to Council's comment at least 10 days prior to commence of work.

   Each site specific CTMP is to include:

   - Haulage routes showing proposed heavy vehicle and oversized vehicle routes to/from the construction sites and compounds,
   - Haulage truck sizes
   - Swept paths for heavy vehicle movement on local roads that would be used as haulage route

4. The OCTMP is to be include a Driver Code of Conduct prepared and included as part of a site specific CTMP.

5. The proposed locations of variable message boards (VMS) and associated messages is to be submitted to Council for review.

6. Council's Road Occupancy permits are required for works within public roads under its care and control including Badgerys Creek Road and other local roads.

   A road occupancy application, including work specific traffic control plans are to be submitted online to Council and if required the Transport Management Centre at least 7 business days prior to its proposed road occupancy. Application forms can be found on Council's website at: https://www.liverpool.nsw.gov.au/council/Fees-Forms-Policies-and-Enforcement/forms.

7. In addition, Council's Road opening approvals are required for works including connections to existing services within its public road reserves.

8. Working hours should be restricted to the approved times, in accordance with the development consent. If required, contact Council's Traffic and Transport Section for approval of alternative working hours for works within Council's public road reserves.

9. Pre-condition and dilapidation reports should include the existing bridges along sections of Pitt Street and Badgerys Creek Road.

10. Adequate off-street parking is to be provided for all construction workers. Alternatively

11. A notice with contact phone number and email details for community to make contacts regarding work activities are to be installed at the work site.

12. An updated indicative construction program is to be submitted to Council for review.

13. Haulage routes and any disturbed Council assets are to be maintained in good condition until completion of the project.

14. Temporary restorations shall be carried out as per the Ausspec 306U.

15. Pre and post dilapidation survey are to be carried out and compared to identified damage/s. Any damage is to be repaired to Council's satisfaction.

Should you require further clarification, please contact me again via email on Wiafec@liverpool.nsw.gov.au.

Yours sincerely

Charles Wiafe
Service Manager Traffic and Transport