ELECTRICAL INFRASTRUCTURE DUE DILIGENCE REPORT

TOGA PENWAY PLACE PENRITH

MULTIDISCIPLINARY CONSULTANCY SERVICES

JHA

JHASERVICES.COM

This report is prepared for the nominated recipient only and relates to the specific scope of work and agreement between JHA and TOGA (the recipient). It is not to be used or relied upon by any third party for any purpose.

DOCUMENT CONTROL SHEET

Project Number	180377
Project Name	TOGA Penrith
Description	Infrastructure Due Diligence Report for Level 3 Services
Key Contact	Mr Daniel Borkovic (TOGA)

Prepared By

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Authorised	Hadi Jalgha

Revision History

Issued To	Revision and Date								
Mr Daniel Borkovic	**REV**	DRAFT	FINAL	B					
	DATE	2/08/2019	23/01/2020	1/10/2021					
	REV								
	DATE								
	REV								
	DATE								

CONTENTS

1 INTRODUCTION

JHA have previously been engaged to complete detailed designs for a mixed use development (residential and commercial), which includes two towers totalling over 187 independent residential units. JHA scope included Level 3 and electrical services on the following property:

- DP 1243401 634-638 High Street, Penrith. NSW 2750 (East Development)

Project has been placed on hold for a considerable time and has now recommenced. It must be noted that previous investigation and Level 3 Design may no longer be viable and the purpose of this document is to re-investigate the potential impact the development shall have on the utility electrical infrastructure and update the findings in this document.

It is understood the above lot is proposed to be developed into a mixed commercial and residential premises consisting of the following expected arrangements:

- 1075m2 of Commercial/Retail space
- 357 independent Residential Units
- 13,036m2 of Carpark space

The following assumptions have been considered:

- Lifts at 32A/ph each
- Residential A/C rated at 12A/ph per unit
- Retail allowance 600A

This report covers the following infrastructure services:

- Electrical Services

During the creation of this report, the following sources of information were accessed and have been used to provide a summary of the utility services infrastructure available to, and surrounding the site and provide consideration for the potential points of connection for the development:

- Dial Before You Dig (DBYD)
- Endeavour Energy GIS Network
- Google Maps / Nearmaps / Sixmaps

Important note that this report is preliminary in nature and represents the findings at the time of writing. Until the Electrical Utility Endeavour Energy is formally engaged and a supply offer paid/signed the availability of the existing electrical infrastructure that is highlighted in this report could change at any time.

2 ELECTRICAL SERVICES

2.1 EXISTING INFRASTRUCTURE

2.1.1 GENERAL

The following section addresses the existing electrical infrastructure in the direct vicinity of the new development site, considering the Level 3 design provided for the East Development. A design has been previously submitted and approved by Endeavour Energy under the project UML8570 for a single 1000kVA kiosk substation, however the certification has lapsed and is no longer valid. The below summarises the existing infrastructure

2.1.2 HIGH VOLTAGE INFRASTRUCTURE

There are two 11kV High Voltage underground feeders located on the northern side of the development along High St. One of these feeders continues down along John Tipping Road.

To the west of the East development on Mulgoa Rd, there are two 11kV High Voltage underground feeders one of which passes alongside the southern part of site along Union Rd.

Spare capacity on HV network is currently unknown and subject to input from Endeavour Energy. If capacity is unavailable from local HV network. HV cable connections may be required from areas further away or from the nearest Zone Substation.

These existing assets are owned and operated by Endeavour Energy as the electrical authority for the area.

Please refer to Appendix A for service location details.

2.1.3 LOW VOLTAGE INFRASTRUCTURE

Existing 400V Low Voltage & Street Lighting aerial mains are located traversing along John Tripping Grove.

These assets are also owned by Endeavour Energy and provide the local properties with electrical supply.

The existing lots are supplied by aerial low voltage service mains connected to existing Endeavour Energy Poles from John Tripping Grove.

Please refer to Appendix A for service location details.

2.1.4 STREET LIGHTING

Existing 400V Street Lighting Underground cables are located traversing along Mulgoa Rd and down along Union Rd. Overhead 400V street lighting lines are located traversing along John Tipping Road and High St. Street lighting currently exists along all roads surrounding the property.

Please refer to Appendix A for service location details

2.1.5 SUMMARY

From our investigations, it appears the site is mostly unencumbered by any existing services except for the lighting and LV power poles located along John Tripping Grove that would make way for the public domain area. Street lighting may require changes based on council DA documents.

2.2 EAST DEVELOPMENT PROPOSED ELECTRICAL INFRASTRUCTURE

This section was completed on a high level desktop assessment without Endeavour Energy Input and is subject to change. The below summarises the electrical infrastructure requirements to suit the current proposed development.

2.2.1 ELECTRICAL MAXIMIUM DEMAND

The maximum demand estimate for the site is shown below:

- 1,744.7 kVA; or
- 2,427 A/phase (3 phase)

The proposed electrical demand has been assessed based on the estimated number of independent living units and VA/m2 for common property areas in accordance with AS/NZS 3000:2018 Electrical Installations (Wiring Rules).

Refer to Appendix C for a breakdown of the Maximum Demand.

2.2.2 PROPOSED SUPPLY ARRANGEMENTS

This section was completed on a high level desktop assessment without Endeavour Energy Input and is subject to change.

The following was proposed to Endeavour Energy, a visual representation is available in in Appendix B:

- Establishment of a two new High Voltage 1,000kVA transformer kiosks
- Trenching and installation of HV and LV cables to various feeders in the area.

The new kiosk substations and cables will become the property of Endeavour Energy at commissioning and, as such, all installation arrangements and design works will be in accordance with their Network Standards and site-specific requirements and is subject to their final approvals.

Refer to Appendix E for substation spatials, for the architectural and building considerations required around the substations as per Endeavour Energy Requirements. Additional notes to consider:

- Fire hydrants must be 10m away from the substations,
- Building ventilation must be 6m away from substations
- Substations must be located in an area that is free and available for Endeavour Energy maintenance trucks to gain 24/7 unimpeded access,
- Any structure within 3m of the substations must be fire rated.

2.2.3 RELOCATION OF EXISTING AERIAL LV INFRASTRUCTURE

N/A

2.2.4 PROPOSED AUTHORITY STREET LIGHTING

N/A

2.3 ENDEAVOUR ENERGY SUBSTATION PROGRAM

The following is an overview of the timing and required arrangements to be considered throughout the design and construction process for the new kiosk substations to be installed on site to provide suitable electrical supply.

ITEM	DESCRIPTION	Duration	Action By
DESIGN APPROVALS STAGE SCHEDULE			
1	**Application for Connection** to Endeavour	-	Client/ Consultant
2	**Endeavour Connection Assessment:** Endeavour Energy provides a 'Letter of Offer' to the applicant and monopoly fees for payment.	2 weeks	Endeavour Energy
3a	**Design Contract Acceptance:** Client accepts Endeavour Energy Design Contract terms and pays initial design and easement fees.	1 week	Client
3b	**Proposed Design Scope:** Consultant provides a proposed design scope to enable commencement of design information package.	Concurrent with 3a	Consultant
4a	**Design Information:** Endeavour Energy provides a Design Brief Package based on above PDS to enable commencement of ASP3 design for submission.	Up to 6 weeks	Endeavour Energy
4b	**Notification Stage:** ASP3 submits Section 45 notification (40 day notice) to council and SEPP notification (21 day notice) to council and neighbours	-	Consultant
5a	**Design Stage:** L3 ASP prepares design from Design Brief. Submission to Endeavour Energy for checking and further negotiations for final arrangements.	4 weeks*	Consultant
5b	**Agreements & Contracts Stage:** Client to execute contract documents including: - Deed of Agreement for Easement - Acceptance Contracts	Concurrent with 5a	Client
6	**Design Certification:** Endeavour Energy design checking and certification of ASP3 design package. Includes for Endeavour Energy comments and revised design work submissions as required.	8 weeks**	Endeavour Energy / Consultant
7	**Connection Offer:** Endeavour Energy issues Connection Offer and construction phase fees.	1 week	Endeavour Energy
8	**Connect Offer Acceptance:** Client executes and returns Connection Offer Acceptance form. Client pays construction phase fees.	1 week	Client
9	**Engage ASP1:** Client engages ASP1 Contractor. ASP1 Contractor finalise the agreement with Endeavour Energy. ASP1 to order substation equipment (12 week lead time).	2 weeks	ASP1

* Design for the proposed kiosk substation is currently substantially complete. 4 weeks allows for:

- An unexpected result from Endeavour Energy Distribution Planning with regards to High Voltage Connection.
- Customer execution of easement and deed contracts for works.

** Subject to Endeavour Energy design review, Summary Environmental Report approval and minimal number of resubmissions. Section 45 Council 40 day notification expiration.

ITEM	DESCRIPTION	Duration	Action By
CONSTRUCTION STAGE SCHEDULE			
10	**Pre-Construction Meeting:** ASP1 schedules and requests construction kick-off meeting with Endeavour Energy and ASP3 on site.	2 weeks	ASP1
11a	**Project Planning:** ASP1 submits permits and construction planning critical dates to Endeavour Energy. ASP1 nominates its employees for authorisations by Endeavour Energy to enable works to commence. Client and the ASP1 to provide notification for Endeavour Energy inspection.	2 weeks	ASP1
11b	**Compliance Officer Appointment:** Endeavour Energy appoints a Compliance Officer for the project and attends initial site meeting to review the construction planning.	Concurrent with 11a	Endeavour Energy
12	**Commencement Approval:** Endeavour Energy Compliance Officer assesses construction planning pre-conditions and provides approval for the construction phase works to commence.	1-2 weeks	Endeavour Energy
13	**Construction Stage:** ASP1 commences construction of new kiosk substation. Endeavour Energy inspects work in progress at pre-determined milestones. Equipment delivery to site.	12 weeks^	ASP1
15	**Request for Electrification:** ASP1 schedules and requests the commissioning outage date for connection of new substation. Any defects notified to the ASP1 must be rectified prior to electrification.	Minimum 6 weeks	ASP1
16	**Pre-Electrification / Practical Completion:** Endeavour Energy conducts Practical Completion inspection of the works.	2 weeks	Endeavour Energy
17	**Electrification / Commissioning:** Endeavour Energy accepts the ASP1 works as part of its Network.		Endeavour Energy

^ Subject to delivery of substation equipment to site with minimum 4 weeks installation time and piering / earthing / civil works completed.

APPENDIX A – PREVIOUSLY APPROVED ELECTRICAL INFRASTRUCTURE

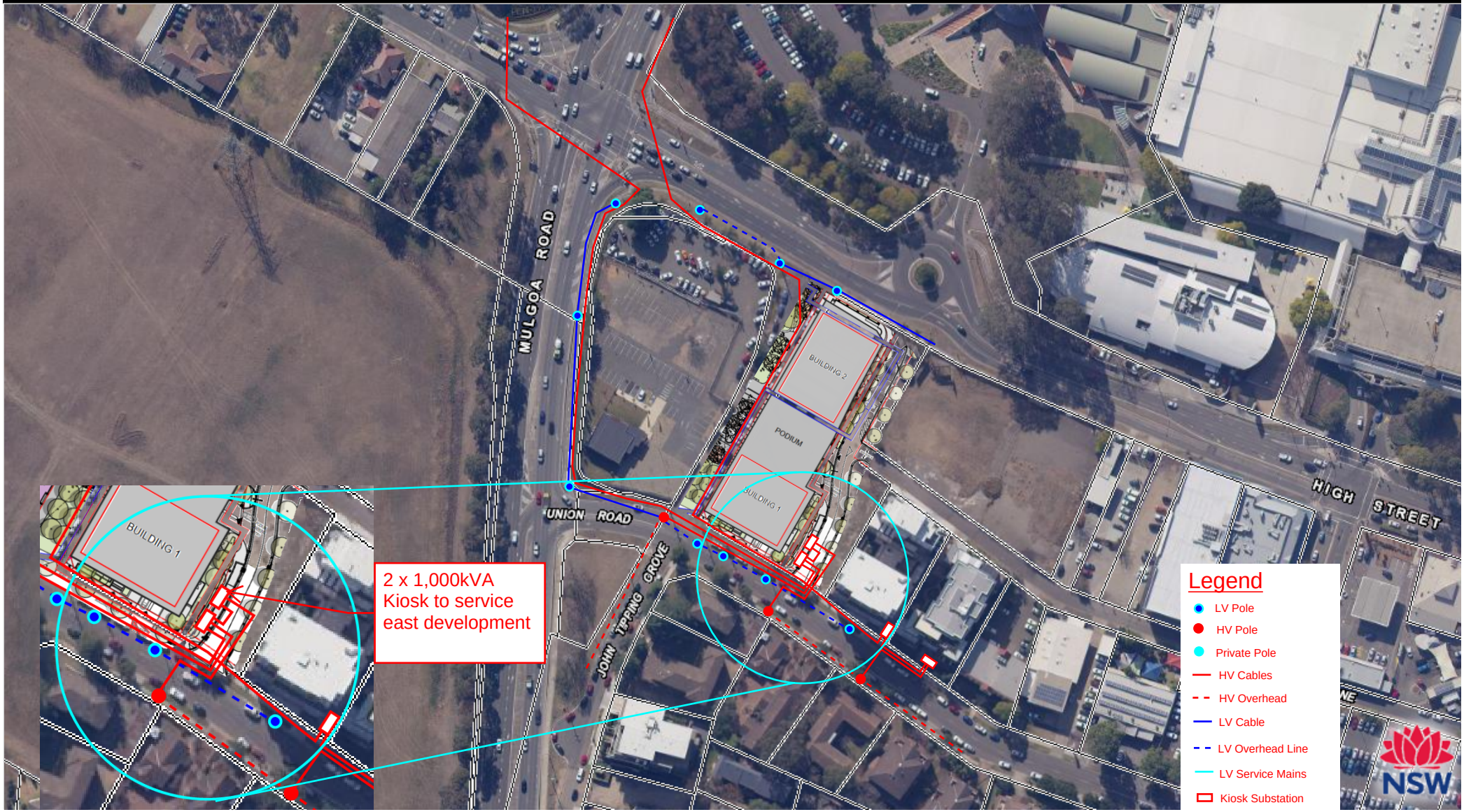
Appendix A - Existing Infrastructure

Penway Place, East Development

APPENDIX B – PROPOSED ELECTRICAL INFRASTRUCTURE

Appendix B - Proposed Electrical Infrastructure

Penway Place, East Development



APPENDIX C – MAXIMUM DEMAND EAST DEVELOPMENT

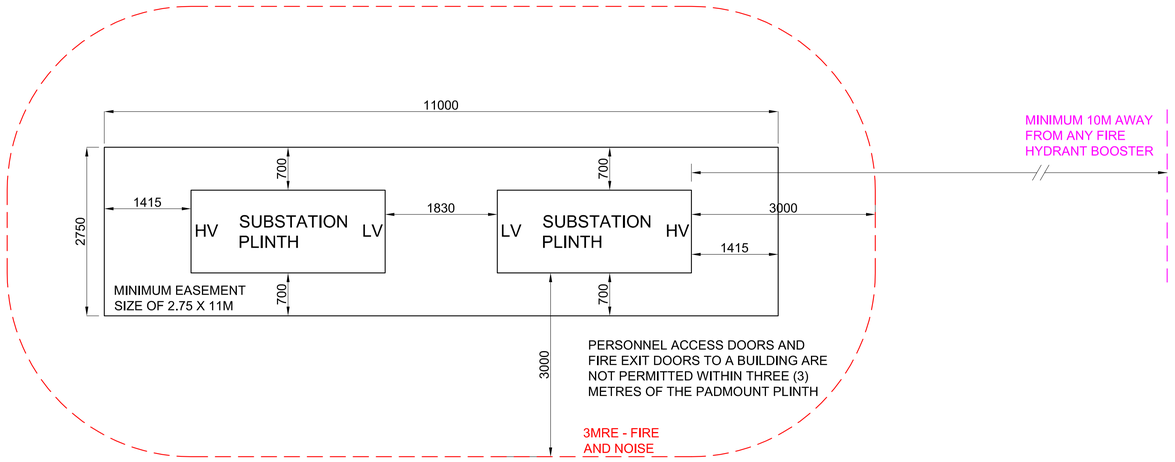
Toga - High St, Penrith
Date: 01/10/2021

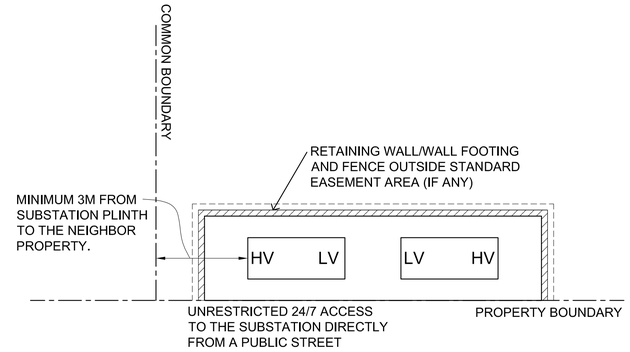
AS 3000 Table C1

	Blocks of living units			
	21 or more living units per phase	357.0	**Total Numbers Of Units**	
	Loading associated with individual units	119.0	**Units Per Phase**	
A. Lighting				
(i) Except as in (ii) and load group H below	0.5 A per living unit	59.5		
(ii) Outdoor lighting exceeding a total of 1000W	No assessment for purpose of maximum demand			
B. Socket outlets				
(i) Socket-outlets not exceeding 10 A. Permanently connected electrical equipment not exceeding 10 A and not included in other load groups	50 A + 1.9 A per living unit	276.1		
(ii) Where the electrical installation includes one or more 15 A socket-outlets other than socket-outlets provided to supply electrical equipment set out in groups C, D, E, F, G, and L	10 A	0.0	0	**Qty**
(iii) Where the electrical installation includes one or more 20 A socket-outlets other than socket-outlets provided to supply electrical equipment set out in groups C, D, E, F, G, and L	15 A	0.0	0	**Qty**
C. Ranges, cooking appliances, laundry equipment or soket outlets rated at more than 10 A for the connection thereof	2.8 A per living unit	333.2		
D. Fixed space heating of air-conditioning equipment, saunas or socket-outlets rated at more than 10 A for the connection thereof	75% connected load	1071.0	1428	**685**
E. Instantaneous water heaters	100 A + 0.8 A per living unit	0.0	*If there is a value in M13 delete M14*	
F. Storage water heaters	100 A + 0.8 A per living unit		*If there is a value in M14 delete M13*	
G. Spa and swimming pool heaters	75% of the largest spa, plus	0.0		**Largest Spa**
	75% of the largest swimming	0.0		**Largest Pool**
	pool, plus 25% of the	0.0		**Remainder**
H. Communal lighting	100% connected load	100.0	100	**Total Load**
I. Socket-outlets not included in groups J and M below Permanently connected electrical equipment not exceeding 10 A	1 A per point, up to a maximum of 15 A	0.0		**Oty**
J. Appliances rated at more than 10 A and	50% connected load			
(i) Clothes dryers, water heaters, self-heating washing machines, wash boilers		0.0		**Total Load**
(ii) Fixed space heating, air-conditioning equipment, saunas	75% connected load	37.5	50	**Total Load**
(iii) Spa and swimming pool heaters	75% of the largest spa, plus	0.0		**Largest Spa**
	75% of the largest swimming	0.0		**Largest Pool**
	pool, plus 25% of the	0.0		**Remainder**
K. Lifts	No assessment for purpose of maximum demand			
L. Motors	(i) Largest motor-100%	0.0		**Largest**
	(ii) Remaining motors-50%	0.0		**Remaining**
M. Other items not covered by above	< 11 A - No assessment > 10 A - By assessment			
		1877.3	Amps	
		1501.8	Amps	**Diversity 0.8**

1

APPENDIX D – SUBSTATION SPATIALS





ENDEAVOUR ENERGY
SUBSTATION LOCATION, BUILDING AND EASEMENT MINIMUM REQUIREMENT

SUBSTATION SITE:

1. SUBSTATION MINIMUM EASEMENT SIZE TO BE 2.75M X 11M.
2. SUBSTATION EASEMENT TO OPEN TO SKY.
3. NO UTILITIES, OTHER SERVICES OR ANY FOREIGN STRUCTURES ARE ALLOWED TO ENCROACH THE SUBSTATION EASEMENT (NO WATER TANK WITHIN 5M OF SUBSTATION).
4. SUBSTATION SITE SHALL BE FLAT AND LEVELED OVER THE ENTIRE EASEMENT AREA.
5. COMPLY WITH 1:100 FLOOD LEVELS, FOR WHEREVER THE EASEMENT IS LOCATED.
6. IN CASE OF SUBSTATIONS BEING INSTALLED DEEP WITHIN PRIVATE PROPERTY, ENDEAVOUR ENERGY CABLE RUNS MUST BE PROVIDED WITH A MINIMUM 1M WIDE EASEMENT.

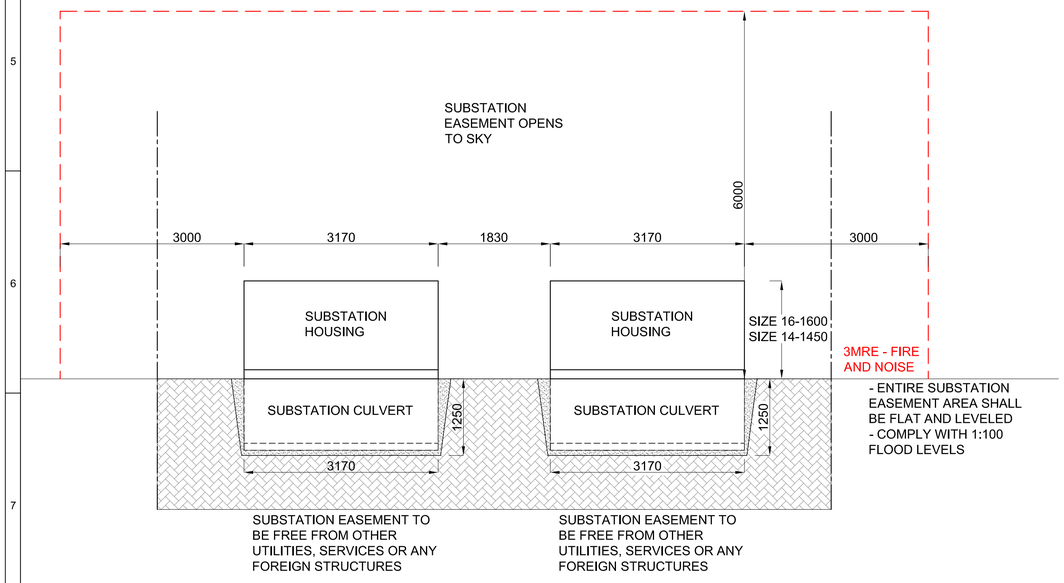
SUBSTATION SEGREGATION:

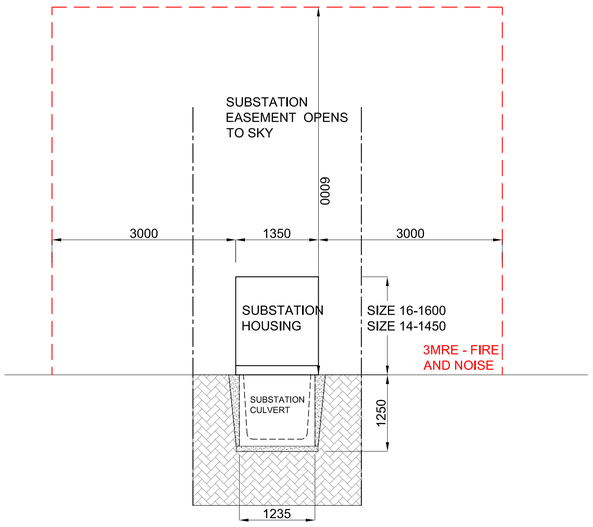
1. EASEMENT MUST BE LOCATED AS SUCH THAT THE SUBSTATION PLINTH IS 3M FROM THE NEIGHBOR BOUNDARY.
2. FIRE RATING OF ANY BUILDING STRUCTURE WITHIN THE FIRST 1.5M FROM THE SUBSTATION CUBICLE NEEDS TO BE 2HRS FIRE RATED AND IN THE FOLLOWING 1.5M NEEDS TO BE 1HR FIRE RATED
3. NO FIXED GLASS/WINDOWS WITHIN 3M OF SUBSTATION CUBICLE.
4. NO FIRE EGRESS PATHS ARE ALLOWED WITHIN 3M OF SUBSTATION EASEMENT.
5. SUBSTATION CUBICLE NEEDS TO BE AT LEAST 10M AWAY FROM ANY FIRE HYDRANT BOOSTER. NOTE: IF A FIRE PUMP ROOM IS WITHIN 10M OF SUBSTATION, FIRE AUTHORITY APPROVAL MAY BE REQUIRED.
6. AS DESIGNER'S (ASP3) DUTY OF CARE, IT IS TO BE ENSURED THAT "THE ZONE OF INFLUENCE" OF ANY NEARBY SYDNEY WATER ASSET BE ADEQUATELY AWAY FROM THE SUBSTATION CULVERT. IF NOT, CLIENT IS REQUESTED TO GATHER WRITTEN APPROVAL FROM SYDNEY WATER FOR THE LOCATION OF THE SUBSTATION.
7. MINIMUM SEPARATION FROM SUBSTATION EARTHING SYSTEM TO COMMUNICATION ASSETS AND SWIMMING POOL TO BE AS PER SITE SPECIFIC EARTHING DESIGN.

SUBSTATION ACCESS:

VEHICLE ACCESS TO THE SUBSTATION:

1) SUBSTATION IS LOCATED AT THE FRONT PROPERTY BOUNDARY WITH UNRESTRICTED 24/7 VEHICLE ACCESS TO THE SUBSTATION DIRECTLY FROM A PUBLIC STREET; OR
2) IF THE SUBSTATION IS INSTALLED DEEP WITHIN PRIVATE PROPERTY UNRESTRICTED 24/7 RIGHT OF WAY ACCESS IS NEEDED. RIGHT OF WAY ACCESS IS REQUIRED TO BE:
   - MINIMUM OF 4500MM WIDE AND 3500MM HEIGHT.
   - CAPABLE OF SUSTAINING 25-TONNE/METRE.
   - MINIMUM HEADROOM OF 5500MM IN THE VICINITY OF THE SUBSTATION.
   - MINIMUM TURNING CIRCLE INSIDE RADIUS OF 5 METRES A WIDTH OF 2.8 METRES INCLUDING MIRRORS AND 10.3 METRES LONG. THE MAXIMUM GRADIENT OF ACCESS WAY IN FRONT OF THE SUBSTATION SHALL BE 1:15 OR 3.9 DEGREES.





REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
1	22.01.2018	ISSUED FOR INFORMATION	RP

CLIENT

ARCHITECT

CONSULTANT

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www.jhaservices.com
ASP / 3 # 3342

PROJECT

TITLE

STANDARD EE SPATIALS

ENDEAVOUR ENERGY STANDARD
DOUBLE PADMOUNT SUBSTATIONS
LAYOUT 2

FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

DRAWN	CHECKED	APPROVED	SCALE	CREATED
RP	BB	BB	NTS	JAN 18

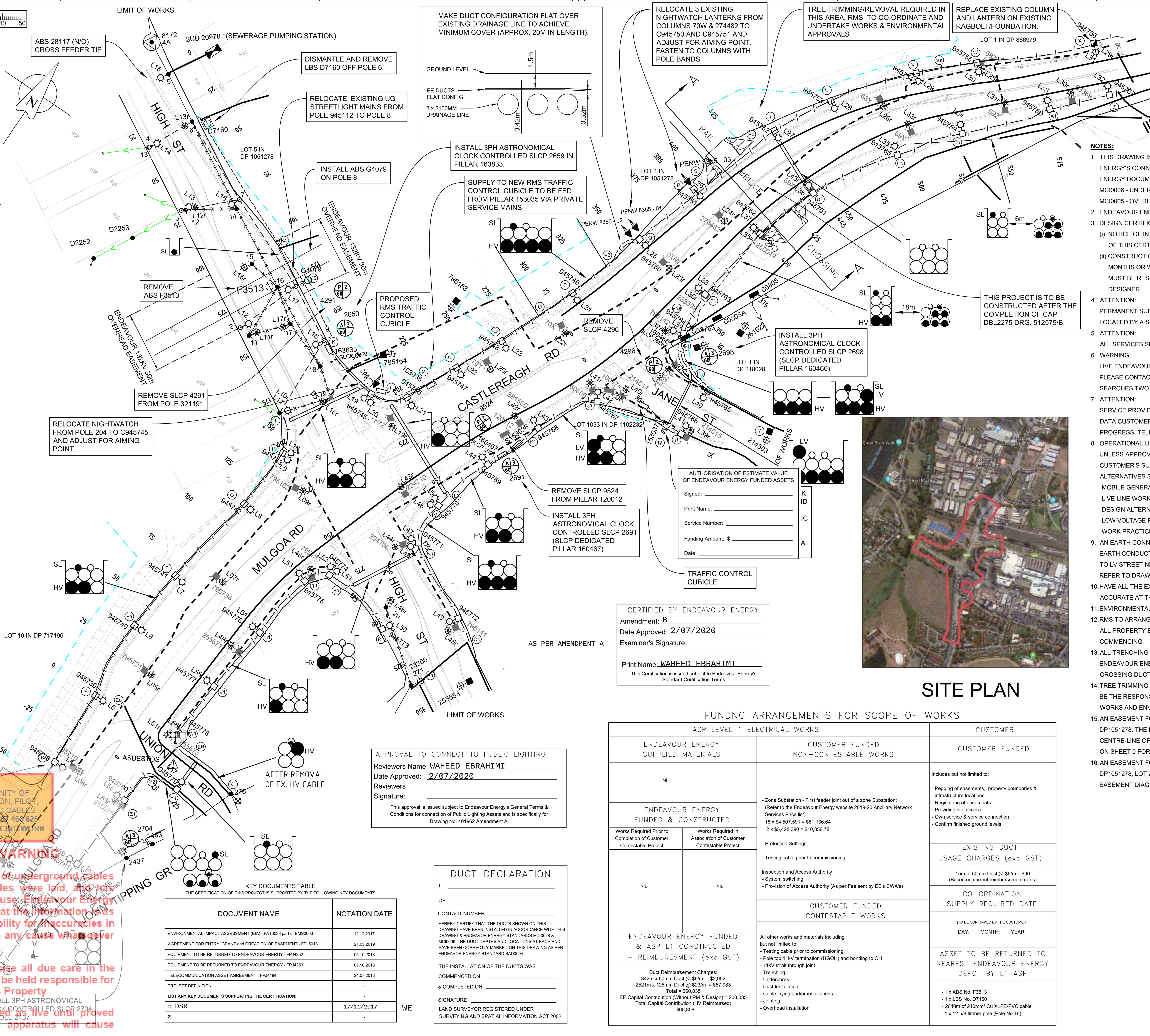
JOB No.	DRAWING No.	REV
	L3-13	1

APPENDIX E – DBYD

SITE PLAN

1:1000 - A1

- EXISTING & NEW LV PILLAR
- REMOVE LV PILLAR
- EXISTING, REPLACE & NEW SL COLUMN
- SL COLUMN TO BE REMOVED
- EXISTING UNDERGROUND CABLE
- EXISTING OVERHEAD MAINS
- NEW OVERHEAD MAINS
- REMOVE OVERHEAD MAINS
- MODIFIED OVERHEAD MAINS
- EXISTING DUCT LOCATION
- REMOVE REDUNDANT DUCTS WHERE POSSIBLE
- ROAD CROSSING DUCT (BY RMS)
- HV TRENCH
- LV SERVICE
- MODIFIED LV SERVICE
- LV/SL TRENCH
- OPERATIONAL BOUNDARY
- PROPOSED NEW PROPERTY BOUNDARY
- PROPOSED NEW ENDEAVOUR EASEMENT
- EXISTING & NEW POLE
- POLE TO BE REPLACED
- POLE TO BE REMOVED
- EXISTING POLE MOUNTED SUBSTATION
- AIR BREAK SWITCH (N/O/N/C)
- HV LOAD BREAK SWITCH (N/O/N/C)
- EXISTING LANTERN
- LANTERN TO BE REMOVED
- LANTERN TO BE REPLACED
- NEW LANTERN ARE CONTROLLED BY SLCP
- NIGHTWATCH CONTROLS
- STREETLIGHT CONTROL POINT



LIMIT OF WORKS
ABS 28117 (N/O) CROSS FEEDER TIE
SUB 20978 (SEWERAGE PUMPING STATION)
DISMANTLE AND REMOVE LBS D7160 OFF POLE 6.
RELOCATE EXISTING UG STREETLIGHT MAINS FROM POLE 945112 TO POLE 8
MAKE DUCT CONFIGURATION FLAT OVER EXISTING DRAINAGE LINE TO ACHIEVE MINIMUM COVER (APPROX. 20M IN LENGTH).
GROUND LEVEL
EE DUCTS FLAT CONFIG.
3 x 2100MM DRAINAGE LINE
RELOCATE 3 EXISTING NIGHTWATCH LANTERNS FROM COLUMNS 70W & 274482 TO C945750 AND C945751 AND ADJUST FOR AIMING POINT. FASTEN TO COLUMNS WITH POLE BANDS
TREE TRIMMING/REMOVAL REQUIRED IN THIS AREA. RMS TO CO-ORDINATE AND UNDERTAKE WORKS & ENVIRONMENTAL APPROVALS
REPLACE EXISTING COLUMN AND LANTERN ON EXISTING RAGBOLT/FOUNDATION.
NON STANDARD ALIGNMENT
DUE TO THE ROADWAY WIDENING OF MULGOA ROAD AND CASTLEREAGH ROAD BY RMS, SOME TRENCH ALIGNMENT HAS BEEN LOCATED OUTSIDE ENDEAVOUR STANDARD ALLOCATION TO FOLLOW RMS NEW ROADWAY ALIGNMENT.
PENRITH TRANSMISSION SUBSTATION 9521
INSTALL 3PH ASTRONOMICAL CLOCK CONTROLLED SLCP 2659 IN PILLAR 163833.
INSTALL ABS G4079 ON POLE 8
SUPPLY TO NEW RMS TRAFFIC CONTROL CUBICLE TO BE FED FROM PILLAR 153035 VIA PRIVATE SERVICE MAINS
LOT 5 IN DP 1051278
LOT 4 IN DP 1051278
LOT 1 IN DP 866979
ENDEAVOUR 132kV 30m OVERHEAD EASEMENT
REMOVE ABS F3513
PROPOSED RMS TRAFFIC CONTROL CUBICLE
REMOVE SLCP 4296
THIS PROJECT IS TO BE CONSTRUCTED AFTER THE COMPLETION OF CAP DBL2275 DRG. 512575/B.
INSTALL 3PH ASTRONOMICAL CLOCK CONTROLLED SLCP 2698 (SLCP DEDICATED PILLAR 160466)
LOT 1 IN DP 218028
REMOVE SLCP 4291 FROM POLE 321191
RELOCATE NIGHTWATCH FROM POLE 204 TO C945745 AND ADJUST FOR AIMING POINT.
CASTLEREAGH RD
JANE ST
HIGH ST
MULGOA RD
UNION RD
JOHN TIPPING GR
LOT 1033 IN DP 1102232
REMOVE SLCP 9524 FROM PILLAR 120012
INSTALL 3PH ASTRONOMICAL CLOCK CONTROLLED SLCP 2691 (SLCP DEDICATED PILLAR 160467)
TRAFFIC CONTROL CUBICLE
LOT 10 IN DP 717196
AS PER AMENDMENT A
AFTER REMOVAL OF EX. HV CABLE
ASBESTOS
PROVIDE NON STANDARD FOOTING FOR COLUMN 945738 ENGINEERED "COLUMN FOUNDATION DETAIL" ON SHEET 9.
CUT EXISTING HV FEEDER CABLES PH1234-PANTHERS AND PH1264-PRESTON ST AND MAKE 11kV 240 Cu/240 Cu STJ'S
INSTALL 3PH ASTRONOMICAL CLOCK CONTROLLED SLCP 2704 ON POLE 2437.

SITE PLAN

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: ______

WARNING
THIS EXCAVATION IS IN THE VICINITY OF ENDEAVOUR ENERGY TRANSMISSION, PILOT, COMMUNICATION OR FIBRE OPTIC CABLES
PLEASE RING 9853 7121 or MOB. 0417 468 626
4 WORKING DAYS BEFORE COMMENCING WORK

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour's own use. Endeavour Energy takes reasonable steps to ensure that the information is as accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's Property

All Electrical apparatus shall be considered as live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches

KEY DOCUMENTS TABLE

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

DOCUMENT NAME	NOTATION DATE
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) - FAT0038 part of EMS0003	12.12.2017
AGREEMENT FOR ENTRY, GRANT and CREATION OF EASEMENT - FPJ5013	21.05.2019
EQUIPMENT TO BE RETURNED TO ENDEAVOUR ENERGY - FPJ4252	05.10.2018
EQUIPMENT TO BE RETURNED TO ENDEAVOUR ENERGY - FPJ4253	05.10.2018
TELECOMMUNICATION ASSET AGREEMENT - FPJ4184	24.07.2018
PROJECT DEFINITION	-
LIST ANY KEY DOCUMENTS SUPPORTING THE CERTIFICATION:	-
1) DSR	17/11/2017
2)	-

WE

APPROVAL TO CONNECT TO PUBLIC LIGHTING

Reviewers Name: WAHEED EBRAHIMI

Date Approved: 2/07/2020

Reviewers Signature: ______

This approval is issued subject to Endeavour Energy's General Terms & Conditions for connection of Public Lighting Assets and is specifically for Drawing No. 401962 Amendment A.

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: ______

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: B

Date Approved: 2/07/2020

Examiner's Signature: ______

Print Name: WAHEED EBRAHIMI

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

FUNDNG ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS			CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS		CUSTOMER FUNDED NON—CONTESTABLE WORKS	CUSTOMER FUNDED
NIL		- Zone Substation - First feeder joint out of a zone Substation: (Refer to the Endeavour Energy website 2019-20 Ancillary Network Services Price list). 18 x $4,507.591 = $81,136.64; 2 x $5,428.390 = $10,856.78 - Protection Settings - Testing cable prior to commissioning Inspection and Access Authority - System switching - Provision of Access Authority (As per Fee sent by EE's CWA's)	Includes but 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 (exc GST)
Works Required Prior to Completion of Customer Contestable Project	Works Required in Association of Customer Contestable Project		15m of 50mm Duct @ $6/m = $90 (Based on current reimbursement rates)
NIL	NIL	CUSTOMER FUNDED CONTESTABLE WORKS	CO—ORDINATION SUPPLY REQUIRED DATE (TO BE CONFIRMED BY THE CUSTOMER) DAY: MONTH: YEAR:
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED — REIMBURESMENT (exc GST)		All other works and materials including but not limited to: - Testing cable prior to commissioning - Pole top 11kV termination (UGOH) and bonding to OH - 11kV strait through joint - Trenching - Underbores - Duct Installation - Cable laying and/or installations - Jointing - Overhead installation	ASSET TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY L1 ASP
Duct Reimbursement Charges: 342m x 50mm Duct @ $6/m = $2,052 2521m x 125mm Duct @ $23/m = $57,983 Total = $60,035 EE Capital Contribution (Without PM & Design) = $60,035 Total Capital Contribution (HV Reimbursed) = $65,858			- 1 x ABS No. F3513 - 1 x LBS No. D7160 - 2640m of 240mm² Cu XLPE/PVC cable - 1 x 12.5/8 timber pole (Pole No.16)

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ENDEAVOUR ENERGY'S CONNECTION POLICY AND THE FOLLOWING ENDEAVOUR ENERGY DOCUMENTS:
   MCI0006 - UNDERGROUND CONSTRUCTION STANDARDS
   MCI0005 - OVERHEAD CONSTRUCTION STANDARDS
2. ENDEAVOUR ENERGY CONTACT PHONE: 131081.
3. DESIGN CERTIFICATION SHALL LAPSE WHERE:
   (i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
   (ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX MONTHS OR WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.
4. ATTENTION:
   PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO COMMENCEMENT OF WORK.
5. ATTENTION:
   ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
6. WARNING:
   LIVE ENDEAVOUR ENERGY CABLES & OTHER SERVICES IN THIS AREA. PLEASE CONTACT DIAL BEFORE YOU DIG ON TELEPHONE: 1100 FOR SEARCHES TWO DAYS PRIOR TO EXCAVATION.
7. ATTENTION:
   SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSET DATA CUSTOMER DEPT DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131081
8. OPERATIONAL LIMITS:
   UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
   -MOBILE GENERATORS AND SUBSTATIONS
   -LIVE LINE WORK
   -DESIGN ALTERNATIVES
   -LOW VOLTAGE PARALLELS
   -WORK PRACTICES/STANDARDS.
9. AN EARTH CONNECTION WARNING LABEL MUST BE INSTALLED WHERE EARTH CONDUCTOR OR AN EXTENDED EARTH GRID IS TO BE CONNECTED TO LV STREET NEUTRAL TO ACHIEVE AN MEN SYSTEM AS PER EDI100. REFER TO DRAWING No.348245.
10. HAVE ALL THE EXISTING ASSETS BEEN FIELD CHECKED AND ARE ACCURATE AT THE TIME OF DESIGN? YES
11. ENVIRONMENTAL MANAGEMENT PLAN: EMP YES IS PART OF THIS DESIGN.
12. RMS TO ARRANGE FOR THE PROVISION OF SURVEYING SERVICES TO PEG ALL PROPERTY BOUNDARIES AS REQUIRED PRIOR TO CONSTRUCTION COMMENCING
13. ALL TRENCHING IS TO BE UNDERTAKEN IN ACCORDANCE WITH ENDEAVOUR ENERGY TRENCHING POLICY MCI0006 SECTION 4. ROAD CROSSING DUCT TO BE CONCRETE ENCASED REF DRG 060786.
14. TREE TRIMMING AND REMOVALS AND THEIR ASSOCIATED APPROVALS TO BE THE RESPONSIBILITY OF RMS. RMS TO CO-ORDINATE AND UNDERTAKE WORKS AND ENVIRONMENTAL APPROVALS.
15. AN EASEMENT FOR OVERHEAD POWER LINES IS REQUIRED WITHIN LOT 5 DP1051278. THE EASEMENT IS TO HAVE A MINIMUM OFFSET OF 4.5M FROM CENTRE-LINE OF THE NEW POLES. REFER TO THE EASEMENT DIAGRAM ON SHEET 9 FOR DETAILS.
16. AN EASEMENT FOR UNDERGROUND CABLES IS REQUIRED WITHIN LOT 4 DP1051278, LOT 2 DP218028 AND LOT 1033 DP1102232. REFER TO THE EASEMENT DIAGRAM ON SHEET 9 FOR DETAILS.

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 SAI Global Ltd and other relevant Australian Standards

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

Signed: ______

Name: SUNNY MEHFOOZ

Service Provider Number: 4863 Date: 04/05/2020

AMENDMENTS					
A	ORIGINAL ISSUE	DRAFT No. 01			
B	04/05/2020		CHK'D S.M.	DRWN B.H.	REVISED HV CABLE ROUTE FOR PH1238 TO NORTHERN SIDE OF HIGH ST AND MINOR CHANGES DURING CONSTRUCTION

SITE PLAN

AUSCONNEX
ENABLING COMMUNITIES THROUGH INFRASTRUCTURE
49 Glendenning Road
Glendenning NSW 2761
www.ausconnex.com.au

TEMPLATE VERSION No. 4.3

REFERENCE DRAWING'S		WORK ORDERS	
		GENERAL	
		OVERHEAD	
		UNDERGROUND	
		SUBSTATIONS	

CAP / SAMP No.	ARP3555
AM PROJ. No.	SMEC0004
HV SWITCHING	
UBD/PENGUIN REF	163 - F8
GIS MAP No	U6460 - 61
HV OP DIAGRAM	PENRITH 11kV
LOCAL GOV AREA	PENRITH C. C.

ORIGINAL SCALE 1:1000

DRAWN	S MEHFOOZ
DATE	28/03/2019
CH'D	K TANG
DESIGN	S MEHFOOZ

DO NOT SCALE
DIMENSIONS IN METRES

HIGH ST, MULGOA RD & CASTLEREAGH RD
PENRITH
ARP3555
ASSET RELOCATION

Endeavour Energy

A1 507467 B

SHEET No 1 OF 10 SHEETS

61212

Issue Date: 29/09/2021, DBYD Sequence No: 203516263