

**WORK 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**

LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES EXIST IN THIS AREA. PLEASE CONTACT - DIAL BEFORE YOU DIG' ON TEL-1100 FOR SEARCH INFORMATION A MINIMUM TWO DAYS PRIOR TO EXCAVATION.

ALL WORKS TO BE CONSTRUCTED ARE TO BE COMPLETED IN ACCORDANCE WITH ENDEAVOUR ENERGY'S GENERIC ENVIRONMENTAL PLAN - EMS 0001.

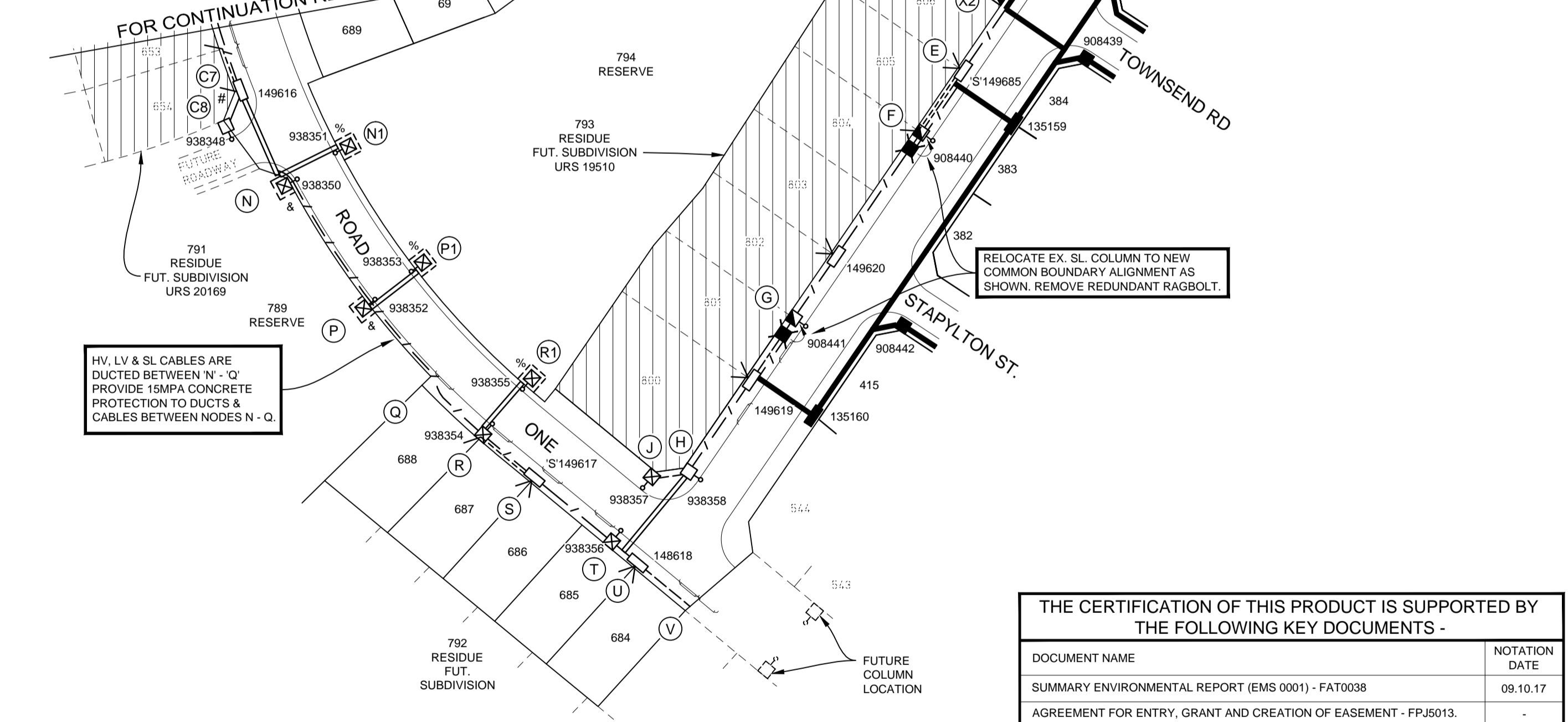
- NOTES**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ENDEAVOUR ENERGY'S MCI 0006, MDI 0028, THE RELEVANT SDI & EDI 100 & THE DUCT, EASEMENT AND TRENCH REQUIREMENTS DRAWING.
  - ENDEAVOUR ENERGY CONTACT PHONE No. 131081.
  - DESIGN CERTIFICATION SHALL LAPSE WHERE:
    - (I) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
    - (II) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS, WHERE DESIGN CERTIFICATION HAS LAPSED, THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.
  - ATTENTION - PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO THE COMMENCEMENT OF WORK.
  - ATTENTION - ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
  - WARNING - LIVE ENDEAVOUR ENERGY CABLES AND OTHER SERVICES IN THIS AREA. PLEASE CONTACT - DIAL BEFORE YOU DIG' ON TEL-1100 FOR SEARCHES A MINIMUM TWO DAYS PRIOR TO EXCAVATION.
  - ATTENTION - SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S ASSET DATA CUSTOMER DEPT. DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131 081.
  - OPERATIONAL LIMITS - UNLESS APPROVED OTHERWISE, INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
    - LIVE LINEWORK.
    - DESIGN ALTERNATIVES.
    - LOW VOLTAGE PARALLELS.
    - WORK PRACTICES / STANDARDS.
 THE COST IS TO BE FUNDED BY THE CUSTOMER / DEVELOPER.
  - REIMBURSEMENTS WILL BE CREDITED TO THE DEVELOPER ONLY FOR LENGTHS AND QUANTITIES SHOWN IN THE SCOPE OF WORKS. ANY DISCREPANCIES SHOULD BE RESOLVED PRIOR TO THE CONTRACT AGREEMENT.
  - HAVE ALL THE EXISTING ASSETS BEEN FIELD CHECKED AND ARE ACCURATE AT THE TIME OF DESIGN: YES / NO.
  - ALL NEW LANTERNS TO BE CONTROLLED BY PHOTO ELECTRIC CELLS.
  - HATCHED LOTS MUST NOT BE CONNECTED UNTIL APPROPRIATE PAYMENTS ARE RECEIVED BY ENDEAVOUR ENERGY.

ALL COLUMNS INDICATED THIS ARE TO BE INSTALLED 3 METRES BEHIND REAR OF KERB & GUTTER ALIGNMENT (REFER TYPICAL COLUMN EASEMENT DIAGRAM ON THE DUCT, TRENCH & EASEMENT REQ'S DRAWING).

ALL COLUMNS INDICATED THIS ARE TO BE INSTALLED 3.8 METRES BEHIND REAR OF KERB & GUTTER ALIGNMENT (REFER TYPICAL COLUMN EASEMENT DIAGRAM ON THE DUCT, TRENCH & EASEMENT REQ'S DRAWING).

ALL SL. COLUMNS ARE TO BE INSTALLED 350mm FROM THE FRONT PROPERTY BOUNDARIES UNLESS SHOWN OTHERWISE.

- LEGEND**
- PROPOSED PADMOUNT SUBSTATION
  - EXISTING PADMOUNT SUBSTATION
  - PROPOSED LV PILLAR
  - EXISTING LV PILLAR
  - PROPOSED S.L. COLUMN (REFER TO SCHEDULE)
  - EXISTING S.L. COLUMN
  - RELOCATE EXISTING SL COLUMN
  - RELOCATED SL COLUMN LOCATION
  - HV CABLE TRENCH
  - LV CABLE TRENCH
  - INSTALL 40mm PVC SERVICE CONDUIT
  - EXISTING UNDERGROUND CABLE
  - PROPOSED ROAD CROSSING DUCT LOCATIONS (INSTALLED BY CIVIL CONTRACTOR)
  - EXISTING DUCT LOCATIONS
  - PILLAR EARTHING LOCATIONS
  - LV ISOLATION SWITCH (CLOSED)
  - LV ISOLATION SWITCH (OPEN)



**FUNDING ARRANGEMENTS FOR SCOPE OF WORKS**

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER FUNDED
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
NIL	SWITCHING, INSPECTION AND COMMISSIONING COSTS. - 1 x ZONE SUB ACCESS & SUPERVISION - \$3,963.418 - 1 x PROTECTION SETTING - \$4,767.873 - 1 x TESTING PRIOR TO COMMISSIONING - \$5,412.440 - 1 x ZONE SUB 11kV CB TERMINATION - \$4,300.252	INCLUDES BUT NOT LIMITED TO: - PEGGING OF EASEMENTS, PROPERTY BOUNDARIES AND INFRASTRUCTURE LOCATIONS. - REGISTRATION OF EASEMENTS. - PROVIDING ACCESS. - OWN SERVICE & SERVICE CONNECTION. - CONFIRM FINISHED GROUND LEVELS.
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED	CUSTOMER FUNDED - CONTESTABLE	EXISTING DUCT USAGE CHARGE
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT.	ALL OTHER WORKS & MATERIALS INCLUDING BUT NOT LIMITED TO: - INSTALLATION & ESTABLISHMENT OF THE PM SUBSTATION. - TRENCHING. - DUCT INSTALLATIONS. - CABLE LAYING AND / OR INSTALLATIONS. - JOINTING.	EX. DUCTS UTILISED ON THIS PROJECT WERE DEVELOPER FUNDED AND INSTALLED UNDER URS 17794 DRG. 501447 (REFER TO PVC DUCT SCHEDULE ON SHEET FOUR FOR BREAK-UP).
NIL	URS 18621Q	COORDINATION SUPPLY REQUIRED DATE (TO BE CONFIRMED WITH PROJECT MANAGER)
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSED	TRENCHING & DUCTS: - (T&R) HV LIGHT TRENCHING & REINSTATEMENT - 1630m = \$16,463 - (LD) LAY HV. 125mm DUCTS IN TRENCH - 414m = \$2,484 - (D) LAY HV. DUCTS IN SL/LV TRENCH - 2004m = \$46,092 - 1 x EXCAVATE FOR HV JOINT (Ø 11") = \$892.  LV CABLE: - (PC) LAY CABLE PULL CONDUCTOR THROUGH DUCTS - 699m = \$2,796 - (LC) LAY HV CABLE (DIRECTLY BURIED) IN TRENCH - 1681m = \$16,810 - (C) 11kV 240mm <sup>2</sup> AL 3C XLPE - 2105m = \$69,465 - (C) 11kV 240mm <sup>2</sup> CU 3C XLPE - 275m = \$23,100  JOINTS: - 4 x STJ IN TRENCH (HV) = \$5,908 - 7 x PM SUB TERMINATION (HV) = \$21,357  PADMOUNT SUBSTATION: - INSTALL 3 x NEW PM SUBSTATION = \$8,580 - INSTALL 3 x SUB CULVERT = \$6,360 - 3 x VALUE OF 500kVA 11kV TRANSFORMER ONLY = \$40,791 - 1 x SIEMENS RTRR-C HV SWITCHGEAR = \$17,154 - 2 x SIEMENS RTRR HV SWITCHGEAR = \$21,490 - 3 x CAT 1 FEEFF = \$20,391 - 3 x SIZE 14 FIBREGLASS CUBICLE = \$11,784 - 3 x SIZE 14-16 CONCRETE PLINTH = \$3,699 - 3 x PM SUBSTATION CULVERT = \$3,669  - 1 x ZONE SUB ACCESS & SUPERVISION - \$3,963.418 - 1 x PROTECTION SETTING - \$4,767.873 - 1 x TESTING PRIOR TO COMMISSIONING - \$5,412.440 - 1 x ZONE SUB 11kV CB TERMINATION - \$4,300.252  TOTAL EE CAPITAL CONTRIBUTION = \$357,828.98 (EXCLUDING PM & DESIGN)  TOTAL EE CAPITAL CONTRIBUTION = \$392,539 (HV REIMBURSED)	ASSETS TO BE RETURNED TO THE NEAREST ENDEAVOUR ENERGY DEPOT BY LEVEL 1 ASP.
WORKS REQUIRED PRIOR TO COMPLETION OF CUSTOMER CONTESTABLE PROJECT.	URS 18621Q	NIL

THIS DRAWING SUPPLIES 104 LOTS & 53 FUT. LOTS

CAP No.	FILE No.	LOT No.	No OF LOTS	DEVELOPER	DEVELOPER'S REP.	TEL No.
URS 18621	2016/04943/001	684 - 787	104	NORTH RICHMOND JOINT VENTURE	ANDREW FLAHERTY	4760 1502
URS 20169	2017/04224/001	791	FUT. 3	NORTH RICHMOND JOINT VENTURE	ANDREW FLAHERTY	4760 1502
URS 19510	2017/01705/001	793	FUT. 7	NORTH RICHMOND JOINT VENTURE	ANDREW FLAHERTY	4760 1502
URS 19511	2017/01707/001	795	FUT. 12	NORTH RICHMOND JOINT VENTURE	ANDREW FLAHERTY	4760 1502
URS 19509	2017/01704/001	796	FUT. 31	NORTH RICHMOND JOINT VENTURE	ANDREW FLAHERTY	4760 1502

**THE CERTIFICATION OF THIS PRODUCT IS SUPPORTED BY THE FOLLOWING KEY DOCUMENTS -**

DOCUMENT NAME	NOTATION DATE
SUMMARY ENVIRONMENTAL REPORT (EMS 0001) - FAT0038	09.10.17
AGREEMENT FOR ENTRY, GRANT AND CREATION OF EASEMENT - FPJ5013.	-
EQUIPMENT TO BE RETURNED TO ENDEAVOUR ENERGY - FPJ4252 (SWITCH GEAR TRANSFORMERS & BARE COPPER CONDUCTOR).	-
EQUIPMENT TO BE RETURNED TO ENDEAVOUR ENERGY - FPJ4253 (TREATED TIMBER POLES AND CONCRETE POLES).	-
TELECOMMUNICATION ASSET AGREEMENT - FPJ4184.	-
PROJECT DEFINITION.	-
ESTATE POWER DESIGN SAFETY REPORT.	09.10.17

PIONEER COST SHARE REIMBURSEMENT SCHEME - EXPIRY DATE: N/A  
PRO-RATA REIMBURSEMENT FOR CUSTOMER'S LOAD OVER 50kVA

ASSET	ASSET COST ESTIMATE (\$)	UNIT QUANTITY	NET ASSET CAPACITY (kVA)	ORIGINAL CUSTOMER UTILISATION (kVA)	MAXIMUM REIMBURSEMENT AMOUNT (\$)
HV MAINS	(nm)	(nm)			N/A
LV MAINS	(nm)	(nm)			N/A
SUBSTATION					

**DESIGN COMPLIANCE AND INDEMNITY**

This design complies with the 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
- EDI : Earthing 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.

ESTATE POWER DESIGN (Company name) indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: BRIAN JUDE  
Name: ..... Service Provider Number: 1033 Date: 06/02/2018

**AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS FOR URS18621**

Signed:

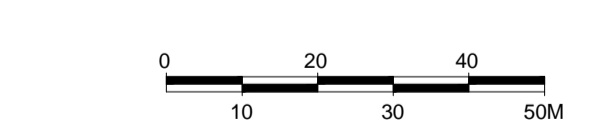
Print Name: Tony Kavaliuskas  
Service Number: 23469  
Funding Amount: \$416,539.00  
Date: 7/02/2018

**APPROVAL TO CONNECT TO PUBLIC LIGHTING**

Date Approved 30/10/2017  
Reviewers Name: David Castro  
Reviewers Signature:

**CERTIFIED BY ENDEAVOUR ENERGY**

AMENDMENT: A  
DATE APPROVED: 7/02/2018  
EXAMINER'S SIGNATURE:   
PRINT NAME: WAHEED EBRAHIMI  
THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.



EPD REFERENCE No.  
**10/233/ER11NA**

AMENDMENTS ORIGINAL ISSUE

**ESTATE POWER DESIGN PTY LIMITED**  
ABN 69 002 331 142  
ELECTRICAL RETICULATION CONSULTANTS  
P.O. BOX 1872, PENRITH BC, 2751  
TEL: (02) 4731-8333 FAX (02) 4731-1594  
EMAIL: brian@estatepower.com.au

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REFERENCE DRAWING'S	WORK ORDERS	CAP / SAMP No.	URS 18621	ORIGINAL SCALE	DO NOT SCALE
505306	DUCT, EASEMENT & TRENCH REQ'S	AM PROJ. No.		1:1000	
	GENERAL	HV SWITCHING			
	OVERHEAD	UBD/PENGUIN REF	MAP 63 REF.G13	DRAWN	E.C.
	UNDERGROUND	GIS MAP No	6482.94	DATE	06.02.18
	SUBSTATIONS	HV OP DIAGRAM	NORTH RICHMOND.J4	CHD	B.H.
		LOCAL GOV AREA	HAWKESBURY		

REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A' OFF ARTHUR PHILLIP DR, NORTH RICHMOND URS 18621 ELECTRICAL RETICULATION

**Endeavour Energy**

A1 **505307** A

SHEET No. 1 OF 7 SHEETS



**ESTABLISH NEW PADMOUNT SUBSTATION 36106.**  
 TRANSFORMER SIZE: 11KV 433V, 500 KVA.  
 HV. SWITCHGEAR: RTRR-C (SIEMENS).  
 HV. FUSES: 12KV, 63A HRC.  
 LV. SWITCHGEAR: 4 FEEDER CAT. 1  
 LV. FUSE SIZES: LV 250A (DIN).  
 SUBSTATION CUBICLE: FIBREGLASS SIZE 14.  
 EARTHING: COMMON EARTHING TO EDI 100.

**ESTABLISH NEW PADMOUNT SUBSTATION 36105.**  
 TRANSFORMER SIZE: 11KV 433V, 500 KVA.  
 HV. SWITCHGEAR: RTR (SIEMENS).  
 HV. FUSES: 12KV, 63A HRC.  
 LV. SWITCHGEAR: 4 FEEDER CAT. 1  
 LV. FUSE SIZES: LV 250A (DIN).  
 SUBSTATION CUBICLE: FIBREGLASS SIZE 14.  
 EARTHING: COMMON EARTHING TO EDI 100.

**ESTABLISH NEW PADMOUNT SUBSTATION 36104.**  
 TRANSFORMER SIZE: 11KV 433V, 500 KVA.  
 HV. SWITCHGEAR: RTR (SIEMENS).  
 HV. FUSES: 12KV, 63A HRC.  
 LV. SWITCHGEAR: 4 FEEDER CAT. 1  
 LV. FUSE SIZES: LV 250A (DIN).  
 SUBSTATION CUBICLE: FIBREGLASS SIZE 14.  
 EARTHING: COMMON EARTHING TO EDI 100.

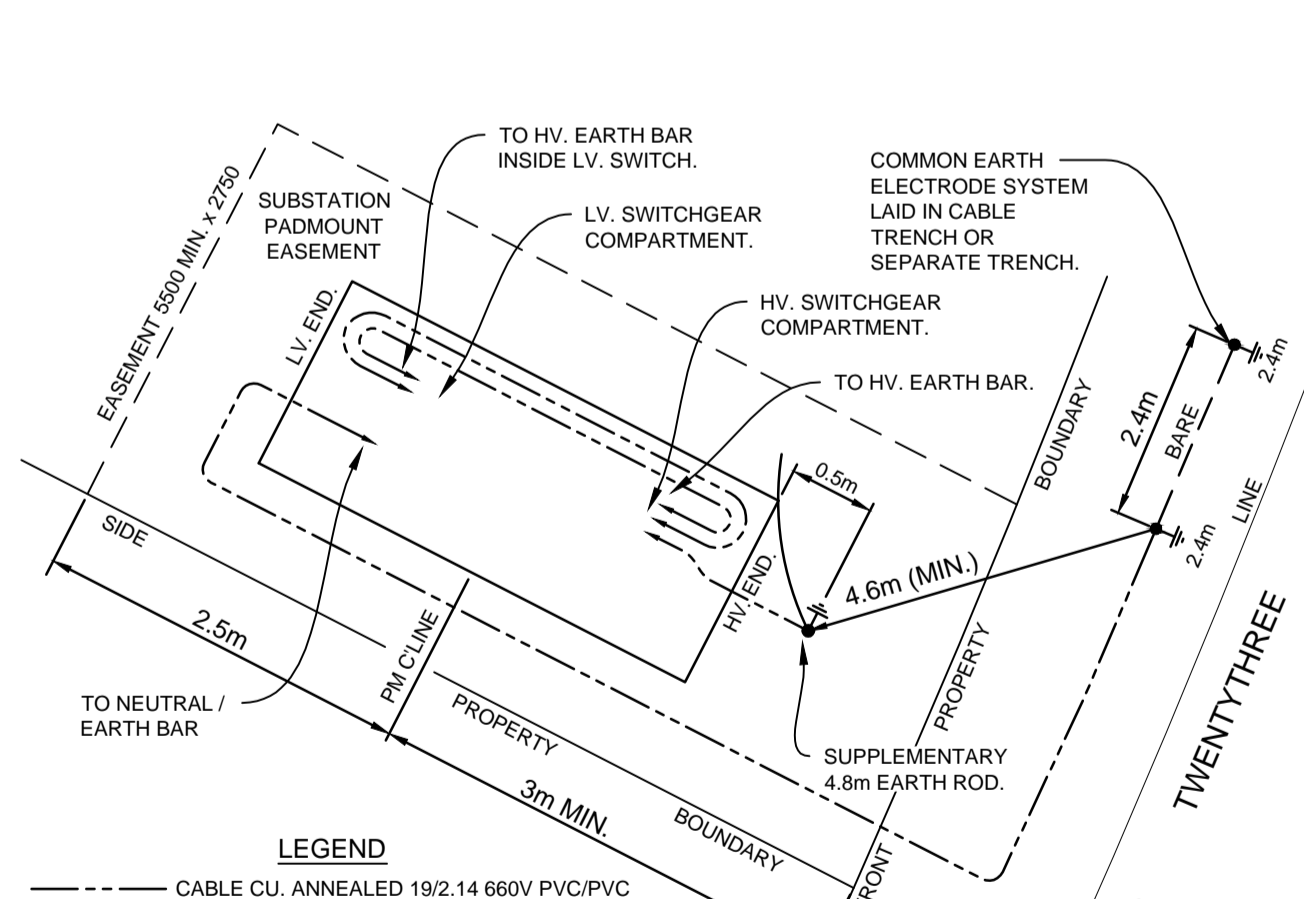
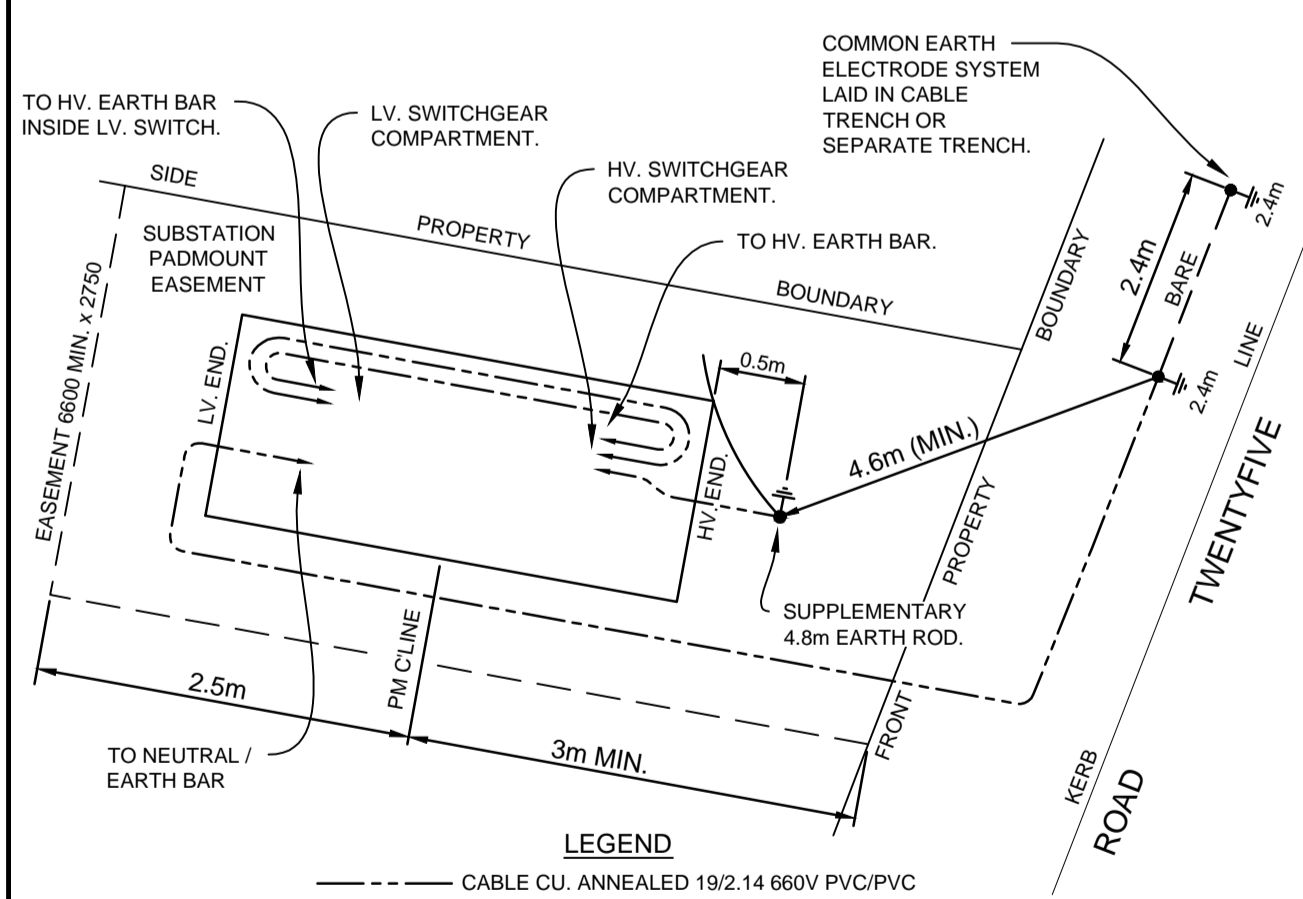
PILLAR 149666A IS FOR FUTURE FUTURE SUPPLY TO A TEMPORARY SEWER PUMP (LOCATION TO BE CONFIRMED)

BEWARE - DRAINAGE LINE IN THESE AREAS WHERE INDICATED THIS \*

INSTALL SERVICE CONDUIT CLEAR OF PROPOSED EASEMENTS, DRIVEWAYS DRAINAGE LINE ETC. WHERE INDICATED THIS #

EARTHING DATA TO BE CAPTURED TO GIS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	268.46	DEPTH (m)	0.93
	LAYER 2	62.98		INFINITY
DESIGNED EARTH RESISTANCE LIMIT (ohms)	21.36			
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES	2			
LENGTH OF BARE ELECTRODES (m)	2.4			
CONNECTOR TYPE (CAD OR CRIMP)	CRIMP			

EARTHING DATA TO BE CAPTURED TO GIS				
SOIL RESISTIVITY (ohms.m)	LAYER 1	268.46	DEPTH (m)	0.93
	LAYER 2	62.98		INFINITY
DESIGNED EARTH RESISTANCE LIMIT (ohms)	21.36			
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES	2			
LENGTH OF BARE ELECTRODES (m)	2.4			
CONNECTOR TYPE (CAD OR CRIMP)	CRIMP			



**SUBSTATION No. 36104 COMMON 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 EARTHING CONSTRUCTION TO EDI-0006. INFORMATION UPDATED AFTER COMMISSIONING ON \_\_\_\_\_

**SUBSTATION No. 36105 COMMON 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 EARTHING CONSTRUCTION TO EDI-0006. INFORMATION UPDATED AFTER COMMISSIONING ON \_\_\_\_\_

**WORK COMPLETED / FIELD BOOK**

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WORKS COMPLETED .....

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**ASSET RECORDING**

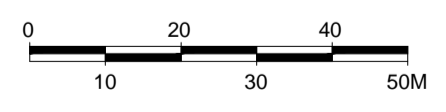
I ..... OF .....

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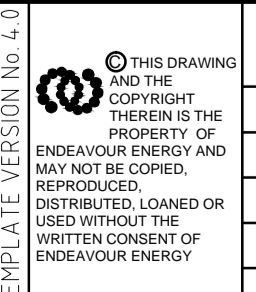
SIGNATURE ..... DATE .....

**CERTIFIED BY ENDEAVOUR ENERGY**  
 AMENDMENT A  
 DATE APPROVED: 7/02/2018  
 EXAMINER'S SIGNATURE: .....  
 PRINT NAME: WAHEED EBRAHIMI  
 THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.



EPD REFERENCE No.  
**10/233/ER11NA**

**ESTATE POWER DESIGN PTY LIMITED**  
 ABN 69 002 331 142  
 ELECTRICAL RETICULATION CONSULTANTS  
 P.O. BOX 1872, PENRITH BC, 2751  
 TEL: (02) 4731-8333 FAX (02) 4731-1594  
 EMAIL: brian@estatepower.com.au



REFERENCE DRAWING'S	WORK ORDERS	CAP / SAMP No.	URS 18621
595306	DUCT, EASEMENT & TRENCH REQ'S	AM PROJ. No.	
	GENERAL	HV SWITCHING	
	OVERHEAD	UBD/PENGUIN REF	MAP 63 REF.G13
	UNDERGROUND	GIS MAP No	6482.94
	SUBSTATIONS	HV OP DIAGRAM	NORTH RICHMOND.J4
		LOCAL GOV AREA	HAWKESBURY

ORIGINAL SCALE	DO NOT SCALE
1:1000	DIMENSIONS IN METRES
DRAWN: E.C.	DESIGN: B.H.
DATE: 06.02.18	

**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A'**  
 OFF ARTHUR PHILLIP DR,  
 NORTH RICHMOND  
 URS 18621  
 ELECTRICAL RETICULATION

**Endeavour Energy**

**A1 505307 A**

SHEET No. 2 OF 7 SHEETS

**WORK 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 .....

**NEW LABELS SUB 36106**

R - PILLAR 'S'149645  
S - PILLAR 'S'149644  
T - TRANSFORMER  
U - PILLAR 'S'149643  
V - PILLAR 'S'149642

**NEW LABELS SUB 36105**

R - PILLAR 'S'149668  
S - PILLAR 'S'149670  
T - TRANSFORMER  
U - PILLAR 'S'149680  
V - PILLAR 'S'149681

**NEW LABELS SUB 36104**

R - SPARE  
S - PILLAR 'S'149665  
T - TRANSFORMER  
U - PILLAR 'S'149661  
V - PILLAR 'S'149663

**EARTHING DATA TO BE CAPTURED TO GIS**

SOIL RESISTIVITY (ohms.m)	LAYER 1	268.46	DEPTH (m)	0.93
	LAYER 2	62.98		INFINITY
DESIGNED EARTH RESISTANCE LIMIT (ohms)	21.36			
MEASURED EARTH RESISTANCE (ohms)				
NUMBER OF ELECTRODES	2			
LENGTH OF BARE ELECTRODES (m)	2.4			
CONNECTOR TYPE (CAD OR CRIMP)	CRIMP			

VD = VOLTAGE DROPS FOR NORMAL SUPPLY FROM PM. SUBSTATIONS @ 6.5 KVA.

VDe1 = VOLTAGE DROPS FOR EMERGENCY / BACKUP FROM PM. SUB. 36104 TO PM. SUB. 36104 @ 3.9 KVA.

VDDe2 = VOLTAGE DROPS FOR EMERGENCY / BACKUP FROM PM. SUB. 36104 TO PM. SUB. 36105 @ 3.9 KVA.

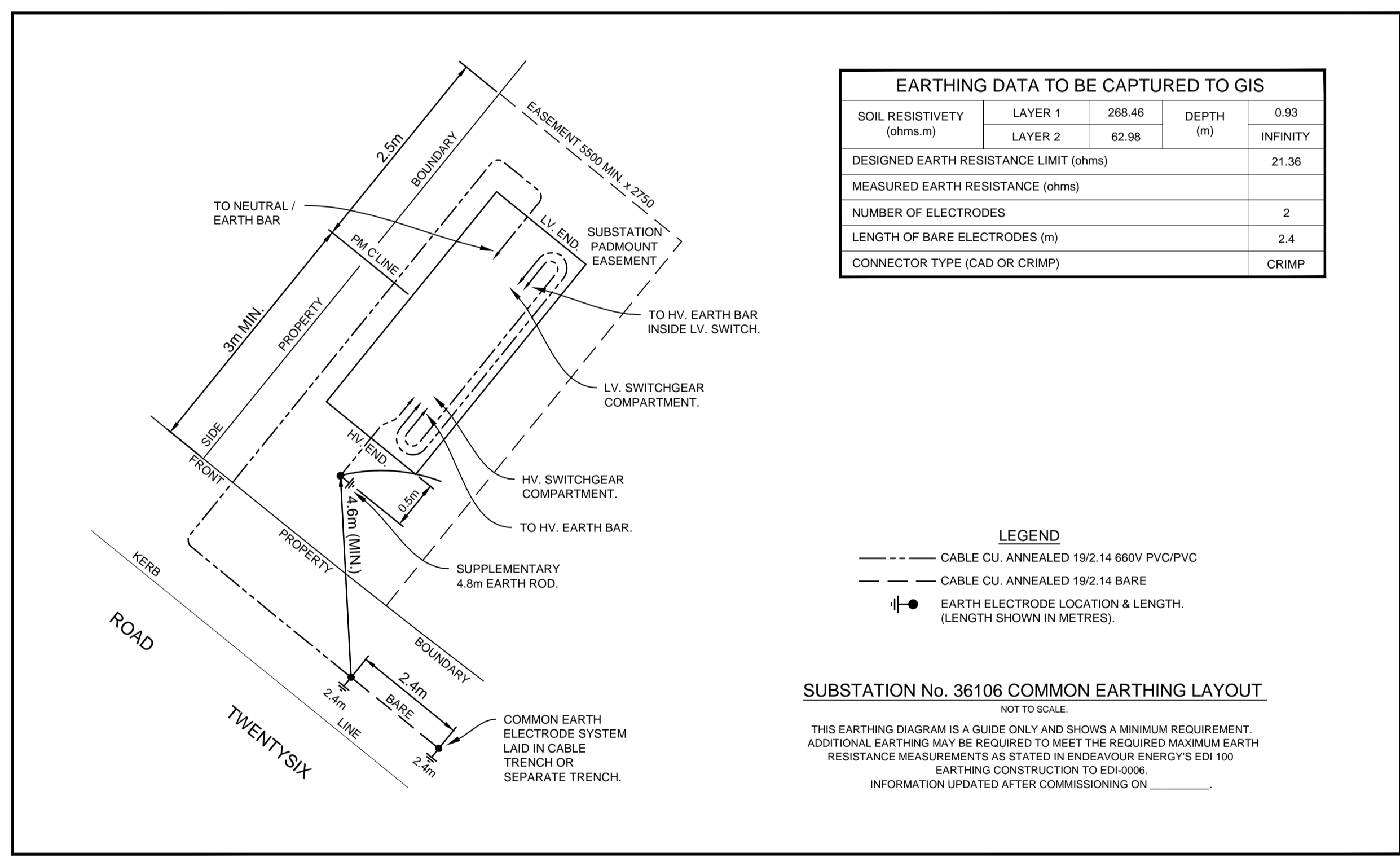
VDDe3 = VOLTAGE DROPS FOR EMERGENCY / BACKUP FROM PM. SUB. 36105 TO PM. SUB. 36104 @ 3.9 KVA.

VDDe4 = VOLTAGE DROPS FOR EMERGENCY / BACKUP FROM PM. SUB. 36105 TO PM. SUB. 36106 @ 3.9 KVA.

VDDe5 = VOLTAGE DROPS FOR EMERGENCY / BACKUP FROM PM. SUB. 36106 TO PM. SUB. 36105 @ 3.9 KVA.

C 1234 NEW COLUMN No.  
L 1234 NEW LANTERN No.

C 1234 OLD COLUMN No.  
L 1234 OLD LANTERN No.



**LEGEND**

--- CABLE CU, ANNEALED 19/2.14 660V PVC/PVC

--- CABLE CU, ANNEALED 19/2.14 BARE

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

**LIGHTING EQUIPMENT & BILLING SCHEDULE**

ITEM I.D.	LUMINAIRE	RATE CODE	RAGBOLT	FOUNDATION	POLE	RATE CODE	OUTREACH	RATE CODE	UPCAST	POLE QTY	LANTERN QTY	LTG CAT.	CHARGE TO	
18W SLA STREET LED	JLB99G01L22	885	TYPE 2	TYPE 2	4.5m STANDARD	IE / EB 4.5	995	1.5m STANDARD	IE 1.5 PCS/25	990	5'	15	P4	HAWKESBURY COUNCIL
18W SLA STREET LED	JLB99G01L22	885	TYPE 2	TYPE 2	4.5m STANDARD	IE / EB 4.5	995	3.0m STANDARD	IE 3.0 PCS/25	991	5'	35	P4	HAWKESBURY COUNCIL
18W SLA STREET LED	JLB99G01L22	885	TYPE 2	TYPE 2	6.0m HINGED	REFER IE DRG.074569/C	995	0.5m STANDARD	REFER IE DRG.074569/C	990	5'	2	P4	HAWKESBURY COUNCIL
150W MH SLI ROADSTER	PR42G35	860	TYPE 2	UNIVERSAL	8.5m IMPACT ABSORBING	IE / IA 8.5	995	3.0m STANDARD	IE 3.0 PCS/32	991	5'	10	V5	HAWKESBURY COUNCIL

**FINAL LV. CIRCUIT**

--- X --- LAY 240 SQmm 4 CORE 1KV AL XLPE/PVC CABLE - RL 2870m CL 3400m

--- // --- LAY 50 SQmm 4 CORE CU XLPE/PVC CABLE - RL 140m CL 160m

--- z --- LAY 2 x 16 SQmm 1 CORE CU PVC/PVC IN 50mm PVC CONDUIT OR ROAD CROSSING RL 1375m CL 3250m

--- --- EXISTING UG. CABLE

..... REDUNDANT UNDERGROUND CABLE

**CERTIFIED BY ENDEAVOUR ENERGY**

AMENDMENT A .....

DATE APPROVED: 7/02/2018 .....

EXAMINER'S SIGNATURE: .....

PRINT NAME: WAHEED EBRAHIMI

THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.

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REFERENCE DRAWING'S	WORK ORDERS
505306 DUCT, EASEMENT & TRENCH REQ'S	GENERAL OVERHEAD UNDERGROUND SUBSTATIONS

CAP / SAMP No.	URS 18621
AM PROJ. No.	
HV SWITCHING	
UBD/PENGUIN REF	MAP 63 REF.G13
GIS MAP No	6482.94
HV OP DIAGRAM	NORTH RICHMOND.J4
LOCAL GOV AREA	HAWKESBURY

ORIGINAL SCALE	DO NOT SCALE
1:1000	
DRAWN	E.C.
DATE	06.02.18
CHD	B.H.
DESIGN	B.H.

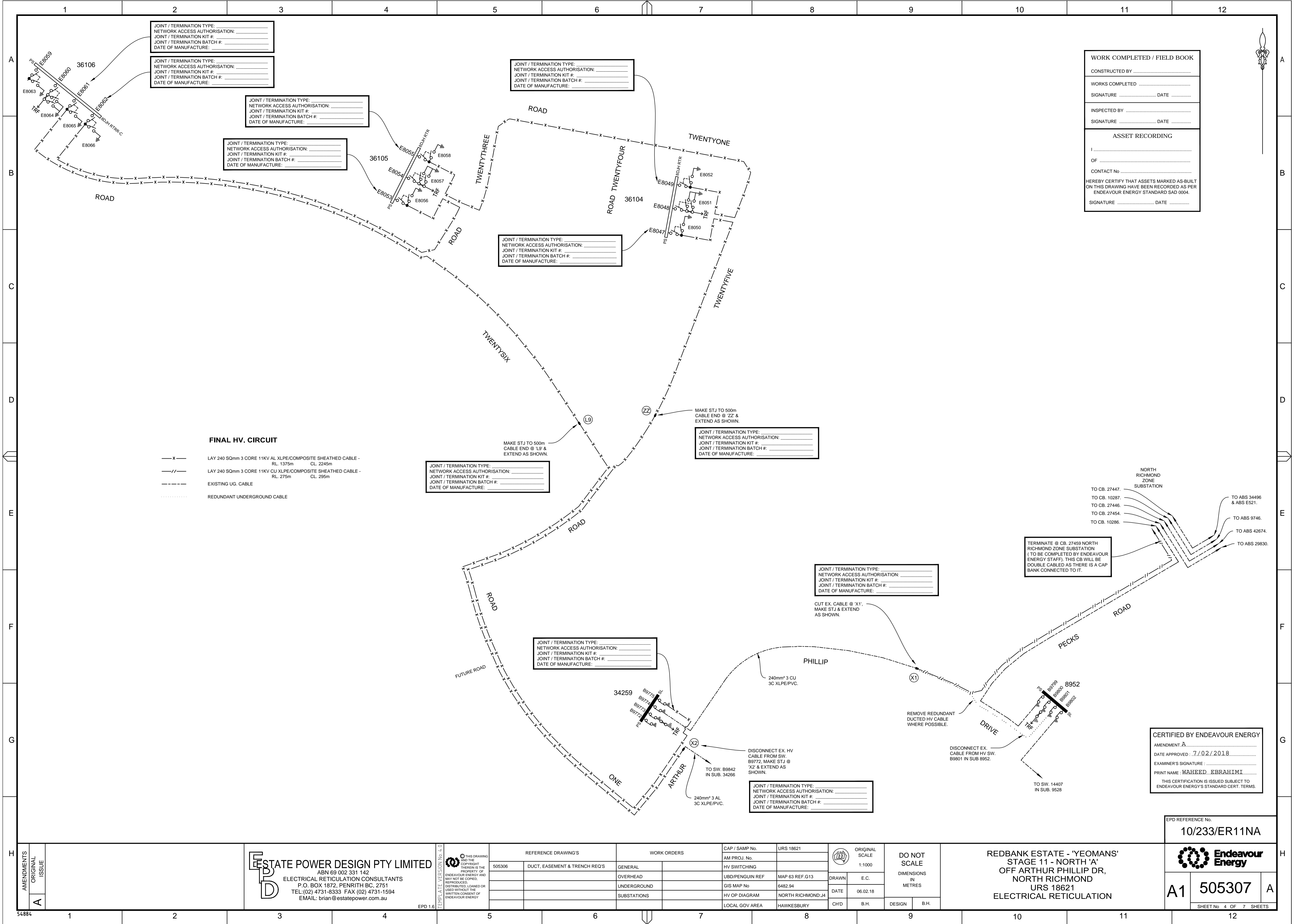
**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A' OFF ARTHUR PHILLIP DR, NORTH RICHMOND URS 18621 ELECTRICAL RETICULATION**

**Endeavour Energy**

**A1 505307 A**

SHEET No 3 OF 7 SHEETS





**FINAL HV. CIRCUIT**

- X — LAY 240 SQmm 3 CORE 11KV AL XLPE/COMPOSITE SHEATHED CABLE - RL. 1375m CL. 2245m
- // — LAY 240 SQmm 3 CORE 11KV CU XLPE/COMPOSITE SHEATHED CABLE - RL. 275m CL. 295m
- - - - - EXISTING UG. CABLE
- ..... REDUNDANT UNDERGROUND CABLE

**WORK COMPLETED / FIELD BOOK**

CONSTRUCTED BY .....

WORKS COMPLETED .....

SIGNATURE ..... DATE .....

INSPECTED BY .....

SIGNATURE ..... DATE .....

**ASSET RECORDING**

.....

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: 7/02/2018

EXAMINER'S SIGNATURE: .....

PRINT NAME: WAHBEED EBRAHIMI

THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.

EPD REFERENCE No.  
**10/233/ER11NA**

**ESTATE POWER DESIGN PTY LIMITED**  
 ABN 69 002 331 142  
 ELECTRICAL RETICULATION CONSULTANTS  
 P.O. BOX 1872, PENRITH BC, 2751  
 TEL:(02) 4731-8333 FAX (02) 4731-1594  
 EMAIL: brian@estatepower.com.au

EPD 1.6

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TEMPLATE VERSION No. 4.0

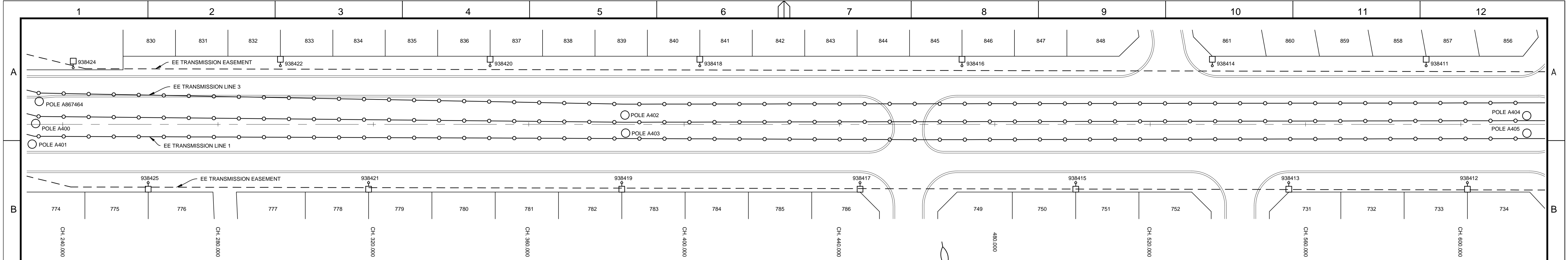
REFERENCE DRAWING'S	WORK ORDERS	CAP / SAMP No.	URS 18621	ORIGINAL SCALE	DO NOT SCALE DIMENSIONS IN METRES
505306	DUCT, EASEMENT & TRENCH REQ'S	AM PROJ. No.		1:1000	
	GENERAL	HV SWITCHING			
	OVERHEAD	UBD/PENGUIN REF	MAP 63 REF.G13	DRAWN	E.C.
	UNDERGROUND	GIS MAP No	6482.94	DATE	06.02.18
	SUBSTATIONS	HV OP DIAGRAM	NORTH RICHMOND.J4	CHD	B.H.
		LOCAL GOV AREA	HAWKESBURY		

**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A' OFF ARTHUR PHILLIP DR, NORTH RICHMOND URS 18621 ELECTRICAL RETICULATION**

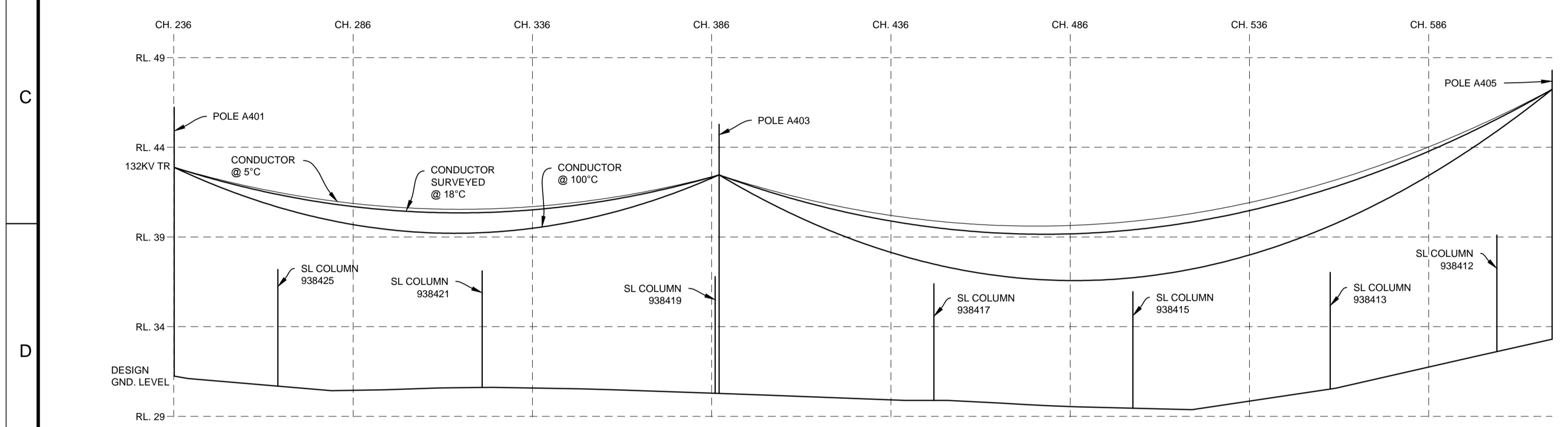
**Endeavour Energy**

**A1 505307 A**

SHEET No. 4 OF 7 SHEETS



SITE PLAN EXISTING 132KV TR MAINS A401 & A405  
SCALE 1:500

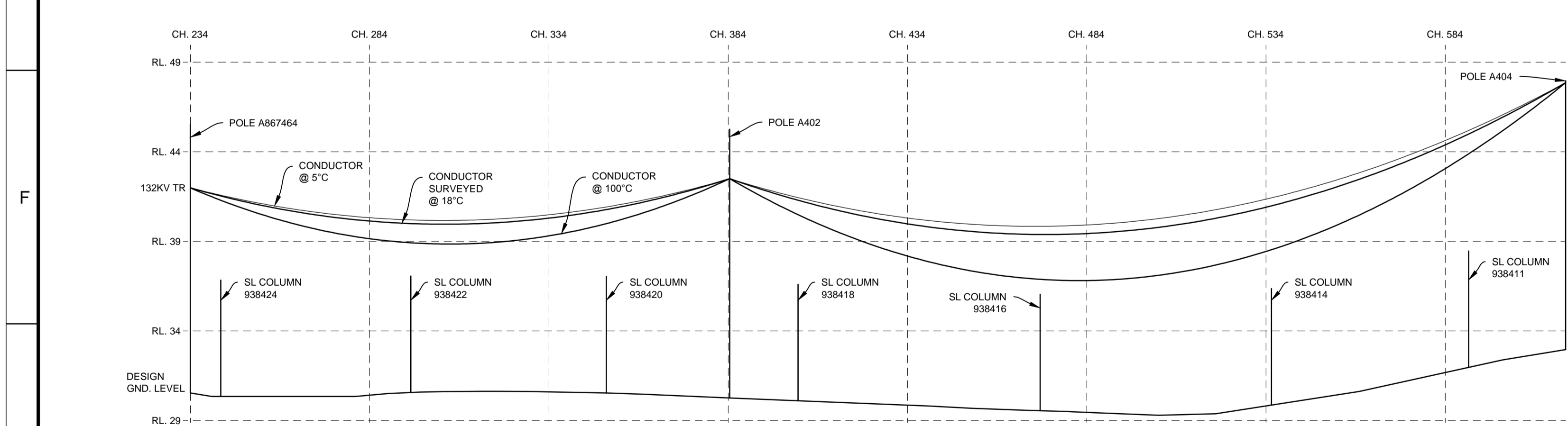
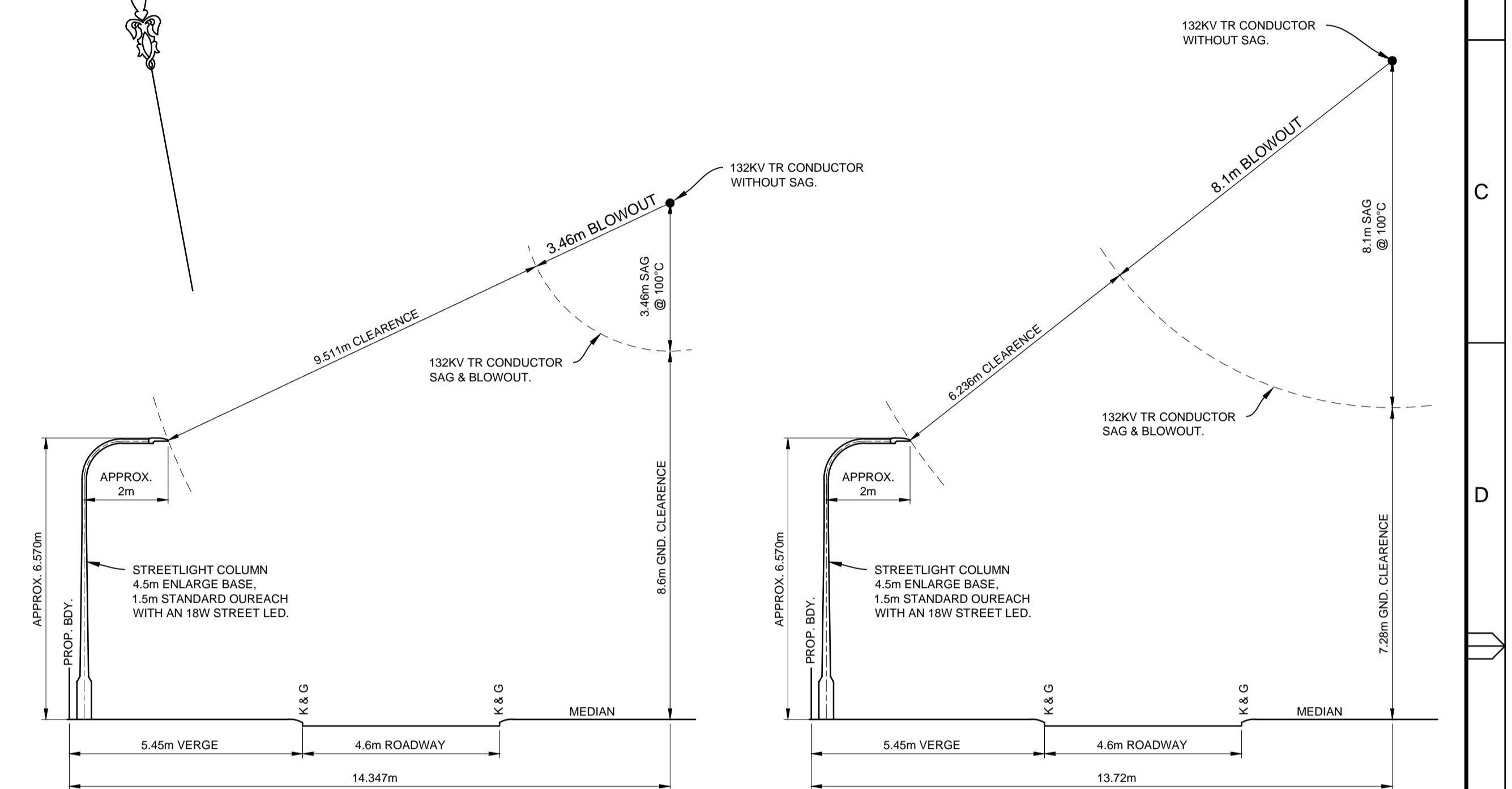


132KV TR LINE 1 MAINS PROFILE BETWEEN POLES A401 & A405  
SCALE 1:1000 (H)  
SCALE 1:200 (V)

ID	Conductor	RS	Tension	Temperatures	Poles
132KVL1	1 x COY - Coyote	204.37	15 (%CBL)	uplift (0); cold (5); standard (18); hot (100)	A401, A403, A405

Circuit ID	L pole	L att ht	R pole	R att ht	Conductor	Sag	Span	Temperature	MES/RS	Tension	Tension Units	Segment	Actual no wind tens	Min clearance @ Ch	Blowout
cold	A401	11.64	A403	12.18	COY	2.12	151.95	5	204.37	15	%CBL	132KVL1	6.96	9.94 @ 323.12	2.574
standard	A401	11.64	A403	12.18	COY	2.32	151.95	18	204.37	15	%CBL	132KVL1	6.339	9.74 @ 319.12	2.708
hot	A401	11.64	A403	12.18	COY	3.46	151.95	100	204.37	15	%CBL	132KVL1	4.258	8.61 @ 317.12	3.472
cold	A403	12.18	A405	13.93	COY	4.95	232.34	5	204.37	15	%CBL	132KVL1	6.96	9.89 @ 463.07	6.025
standard	A403	12.18	A405	13.93	COY	5.43	232.34	18	204.37	15	%CBL	132KVL1	6.339	9.47 @ 466.07	6.339
hot	A403	12.18	A405	13.93	COY	8.1	232.34	100	204.37	15	%CBL	132KVL1	4.258	7.01 @ 478.07	8.131

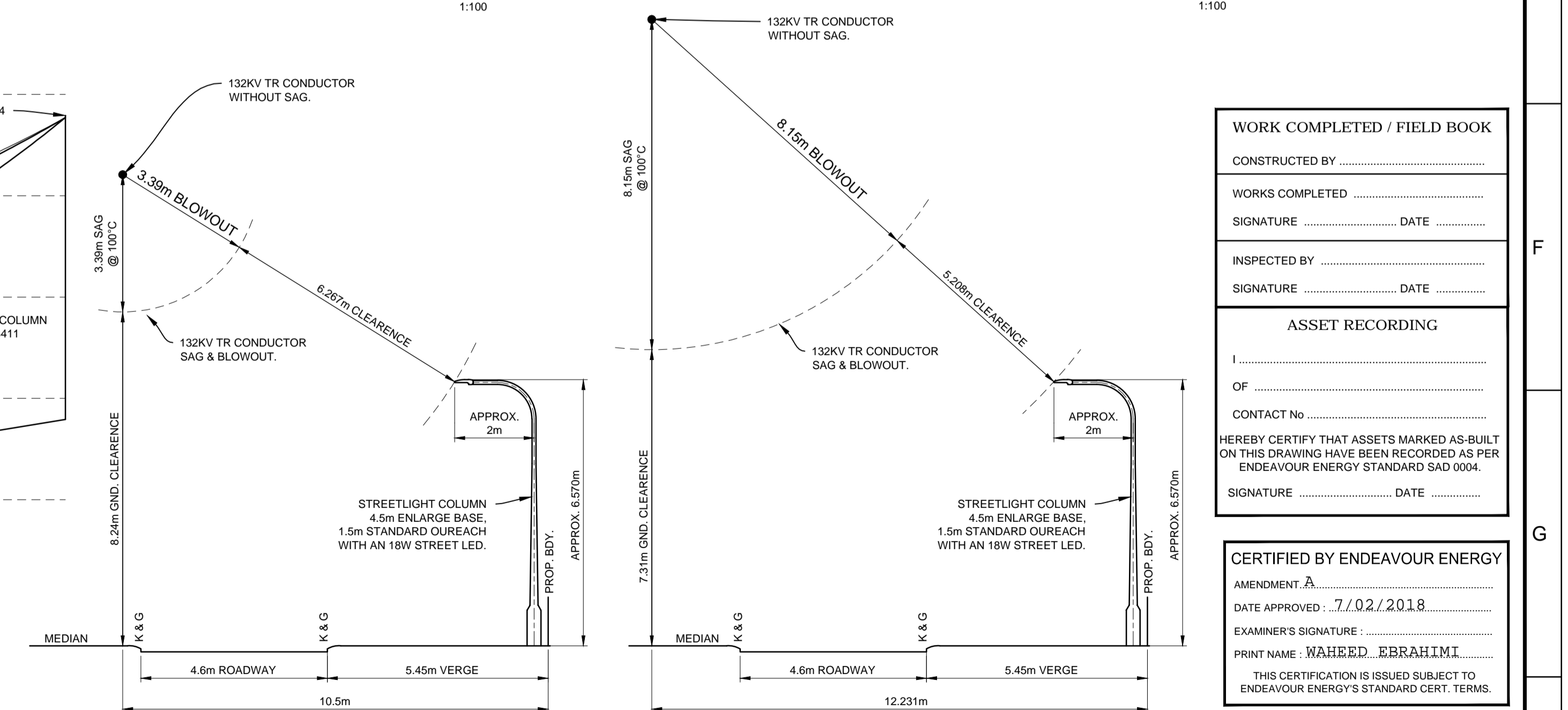


132KV TR LINE 1 MAINS PROFILE BETWEEN POLES A867464 & A404  
SCALE 1:1000 (H)  
SCALE 1:200 (V)

ID	Conductor	RS	Tension	Temperatures	Poles
132KVL3	1 x COY - Coyote	204.74	15 (%CBL)	uplift (0); cold (5); standard (18); hot (100)	A867464, A402, A404

Circuit ID	L pole	L att ht	R pole	R att ht	Conductor	Sag	Span	Temperature	MES/RS	Tension	Tension Units	Segment	Actual no wind tens	Min clearance @ Ch	Blowout
cold	A867464	11.45	A402	12.24	COY	2.07	150.45	5	204.74	15	%CBL	132KVL3	6.96	9.56 @ 306.97	2.522
standard	A867464	11.45	A402	12.24	COY	2.28	150.45	18	204.74	15	%CBL	132KVL3	6.341	9.35 @ 306.97	2.652
hot	A867464	11.45	A402	12.24	COY	3.39	150.45	100	204.74	15	%CBL	132KVL3	4.263	8.24 @ 307.97	3.399
cold	A402	12.24	A404	14.9	COY	4.98	233.16	5	204.74	15	%CBL	132KVL3	6.96	10.25 @ 459.42	6.065
standard	A402	12.24	A404	14.9	COY	5.47	233.16	18	204.74	15	%CBL	132KVL3	6.341	9.82 @ 463.42	6.379
hot	A402	12.24	A404	14.9	COY	8.15	233.16	100	204.74	15	%CBL	132KVL3	4.263	7.31 @ 477.42	8.179



132KV TR LINE 3 SECTION AT CH 295.5 (COLUMN 938422) 1:100  
132KV TR LINE 3 SECTION AT CH 471 (COLUMN 938416) 1:100

**WORK COMPLETED / FIELD BOOK**

CONSTRUCTED BY .....

WORKS COMPLETED .....

SIGNATURE ..... DATE .....

INSPECTED BY .....

SIGNATURE ..... DATE .....

**ASSET RECORDING**

OF .....

CONTACT No .....

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AMENDMENT: A

DATE APPROVED: 7/02/2018

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EPD 1.6

REFERENCE DRAWING'S	WORK ORDERS	CAP / SAMP No.	URS 18621
505306	DUCT, EASEMENT & TRENCH REQ'S	AM PROJ. No.	
	GENERAL	HV SWITCHING	
	OVERHEAD	UBD/PENGUIN REF	MAP 63 REF.G13
	UNDERGROUND	GIS MAP No	6482.94
	SUBSTATIONS	HV OP DIAGRAM	NORTH RICHMOND.J4
		LOCAL GOV AREA	HAWKESBURY

ORIGINAL SCALE 1:1000

DO NOT SCALE DIMENSIONS IN METRES

DESIGN B.H.

**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A'**  
 OFF ARTHUR PHILLIP DR,  
 NORTH RICHMOND  
 URS 18621  
 ELECTRICAL RETICULATION

EPD REFERENCE No.  
**10/233/ER11NA**

**Endeavour Energy**

**A1 505307 A**

SHEET No 5 OF 7 SHEETS

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
**NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.**

**DUCT & CABLE SCHEDULE CODE**

T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS

LD - LAY HV. 125mm DUCTS IN TRENCH  
 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SLV/TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
A - B	HV EXISTING	235m	-	-	-	-	235m	-	235m	-	NIL EE FUNDED
B - X1	HV EXISTING	40m	-	-	-	-	40m	-	40m	-	NIL DEV. FUNDED URS 16032 DRG. 404605/B
X2 - E	LV HV NEW	18m	1 x 125mm	-	-	36m	-	36m	-	18m	-
E - F	SL LV HV NEW	18m	1 x 50mm 1 x 125mm	-	-	36m	-	36m	-	18m	-
F - G	LV HV NEW	54m	1 x 125mm	-	-	108m	-	108m	-	54m	-
G - H	SL LV HV NEW	45m	1 x 50mm 1 x 125mm	-	-	90m	-	90m	-	45m	-
H - J	SL NEW	7m	1 x 50mm	-	-	-	-	-	-	-	-
H - T	LV HV NEW ROAD CROSSING	25m	INSTALLED UNDER CIVIL WORKS	-	-	-	50m	50m	-	75m	-
N - N1	SL NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
P - P1	SL NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
R - R1	SL NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
N - Q	SL LV HV NEW	60m	1 x 50mm 2 x 125mm	-	-	-	120m	120m	-	180m	-
Q - S	SL LV HV NEW	35m	1 x 50mm 1 x 125mm	-	-	70m	-	70m	-	35m	-
S - T	LV HV NEW	24m	1 x 125mm	-	-	48m	-	48m	-	24m	-
T - U	SL LV NEW	8m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-
U - V	LV NEW	16m	2 x 125mm	-	-	-	-	-	-	-	-
C5 - C6	LV HV NEW	18m	1 x 125mm	-	-	36m	-	36m	-	18m	-
C6 - C7	SL LV HV NEW	28m	1 x 50mm 1 x 125mm	-	-	56m	-	56m	-	28m	-
C7 - C8	SL NEW	7m	1 x 50mm	-	-	-	-	-	-	-	-
C7 - N	LV HV NEW ROAD CROSSING	23m	INSTALLED UNDER CIVIL WORKS	-	-	-	46m	46m	-	69m	-
E2 - E3	SL NEW	39m	1 x 50mm	-	-	-	-	-	-	-	-
E3 - F1	SL LV HV NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
E4 - E6	LV NEW	150m	1 x 125mm	-	-	-	-	-	-	-	-
E6 - E7	LV NEW	19m	1 x 125mm	-	-	-	-	-	-	-	-
E5 - Z3	LV NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
E6 - L3	LV NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
**NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.**

**DUCT & CABLE SCHEDULE CODE**

T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS

LD - LAY HV. 125mm DUCTS IN TRENCH  
 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SLV/TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
E8 - E9	SL NEW	7m	1 x 50mm	-	-	-	-	-	-	-	-
E9 - F1	SL LV HV NEW	30m	1 x 50mm 1 x 125mm	-	-	60m	-	60m	-	30m	-
F1 - F2	LV HV NEW	27m	2 x 125mm	-	-	54m	-	54m	-	27m	-
F2 - C5	LV HV NEW ROAD CROSSING	26m	INSTALLED UNDER CIVIL WORKS	26m	78m	-	52m	52m	-	-	-
H5 - H6	LV NEW	14m	1 x 125mm	-	-	-	-	-	-	-	-
H6 - H7	LV HV NEW ROAD CROSSING	16m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
H7 - H8	LV HV NEW	30m	1 x 125mm	-	-	-	-	-	-	60m	-
H8 - H9	SL LV HV NEW	26m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	52m	-
H9 - Q3	LV HV NEW ROAD CROSSING	26m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	78m	-
H9 - J1	SL LV HV NEW	25m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-
J1 - J2	LV NEW	30m	1 x 125mm	-	-	-	-	-	-	-	-
J2 - J3	SL LV HV NEW	15m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-
J3 - J4	LV NEW	12m	1 x 125mm	-	-	-	-	-	-	-	-
J4 - J6	LV HV NEW ROAD CROSSING	25m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
H3 - J5	LV HV NEW	32m	-	32m	96m	-	-	-	-	-	-
J5 - P8	LV HV NEW ROAD CROSSING	30m	INSTALLED UNDER CIVIL WORKS	30m	90m	-	-	-	-	-	-
J5 - J6	SL NEW	7m	1 x 50mm	-	-	-	-	-	-	-	-
J6 - J7	SL LV HV NEW	30m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-
J7 - J8	LV NEW	48m	1 x 125mm	-	-	-	-	-	-	-	-
J8 - J9	SL LV HV NEW	49m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-
J9 - K1	LV NEW	25m	1 x 125mm	-	-	-	-	-	-	-	-
K1 - K2	LV HV NEW	7m	1 x 125mm	-	-	-	-	-	-	-	-
K1 - N8	LV HV NEW ROAD CROSSING	30m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
K2 - K3	LV NEW	32m	1 x 125mm	-	-	-	-	-	-	-	-
K3 - K4	SL LV HV NEW	66m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	-

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
**NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.**

**DUCT & CABLE SCHEDULE CODE**

T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS

LD - LAY HV. 125mm DUCTS IN TRENCH  
 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SLV/TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
K4 - K5	LV NEW	33m	1 x 125mm	-	-	-	-	-	-	-	-
K6 - K9	LV NEW	104m	1 x 125mm	-	-	-	-	-	-	-	-
K7 - N5	LV HV NEW ROAD CROSSING	15m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	-
K9 - L1	SL LV HV NEW	30m	1 x 50mm 1 x 125mm	-	-	30m	-	30m	-	30m	-
L1 - L2	SL LV HV NEW	40m	1 x 50mm 1 x 125mm	-	-	40m	-	40m	-	40m	-
L2 - L3	LV HV NEW	27m	2 x 125mm	-	-	27m	-	27m	-	81m	-
L2 - R9	LV HV NEW ROAD CROSSING	45m	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	135m	-
L3 - L4	LV HV NEW	20m	1 x 125mm	-	-	20m	-	20m	-	20m	-
L4 - L5	SL LV HV NEW	15m	1 x 50mm 1 x 125mm	-	-	15m	-	15m	-	15m	-
L5 - L6	LV HV NEW	30m	1 x 125mm	-	-	30m	-	30m	-	30m	-
L6 - L7	SL LV HV NEW	45m	1 x 50mm 1 x 125mm	-	-	45m	-	45m	-	45m	-
L7 - L8	LV HV NEW	62m	1 x 125mm	-	-	62m	-	62m	-	62m	-
L8 - E9	LV HV NEW ROAD CROSSING	33m	INSTALLED UNDER CIVIL WORKS	-	-	-	66m	66m	-	99m	-
L8 - L9	SL LV HV NEW	35m	1 x 50mm 1 x 125mm	-	-	35m	-	35m	-	35m	-
L9 - M1	LV HV NEW	17m	1 x 125mm	-	-	17m	-	17m	-	17m	-
M1 - M2	SL HV NEW	37m	1 x 50mm	-	-	37m	-	37m	-	37m	-
M2 - M3	LV HV NEW ROAD CROSSING	25m	INSTALLED UNDER CIVIL WORKS	25m	50m	-	25m	25m	-	-	-
M3 - M4	SL HV NEW	29m	1 x 50mm	-	-	29m	-	29m	-	29m	-
M4 - M5	SL LV HV NEW	33m	1 x 50mm 1 x 125mm	-	-	33m	-	33m	-	33m	-

**PLAN SYMBOLS**

- DIRECT BURIED CABLE
- ⊖ ⊕ SPARE 50mm DUCT
- ⊖ ⊕ SPARE 125mm DUCT
- ⊖ ⊕ DUCT WITH EXISTING CABLE
- DUCT WITH NEW CABLE

**WORK 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: 7/02/2018

EXAMINER'S SIGNATURE: .....

PRINT NAME: WAHEED EBAHIMI

THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.

AMENDMENTS ORIGINAL ISSUE

**ESTATE POWER DESIGN PTY LIMITED**  
 ABN 69 002 331 142  
 ELECTRICAL RETICULATION CONSULTANTS  
 P.O. BOX 1872, PENRITH BC, 2751  
 TEL: (02) 4731-8333 FAX (02) 4731-1594  
 EMAIL: brian@estatepower.com.au

EPD 1.6

REFERENCE DRAWING'S	WORK ORDERS	CAP / SAMP No.	URS 18621
505306 DUCT, EASEMENT & TRENCH REQ'S	GENERAL	AM PROJ. No.	
	OVERHEAD	HV SWITCHING	
	UNDERGROUND	UBD/PENGUIN REF	MAP 63 REF.G13
	SUBSTATIONS	GIS MAP No	6482.94
		HV OP DIAGRAM	NORTH RICHMOND J4
		LOCAL GOV AREA	HAWKESBURY

ORIGINAL SCALE 1:1000

DO NOT SCALE DIMENSIONS IN METRES

**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A' OFF ARTHUR PHILLIP DR, NORTH RICHMOND URS 18621 ELECTRICAL RETICULATION**

A1 505307 A

EPD REFERENCE No. 10/233/ER11NA

SHEET No 6 OF 7 SHEETS

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.

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T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS  
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 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SL/LV TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
M5 - M6	LV NEW	33m	1 x 125mm	-	-	-	-	-	-	-	
M5 - N9	HV NEW ROAD CROSSING	25m EXIST.	INSTALLED UNDER CIVIL WORKS	25m	50m	-	25m	25m	-	-	
M6 - M7	LV NEW	12m	1 x 125mm	-	-	12m	-	12m	-	-	
M7 - M8	SL LV HV NEW	16m	1 x 50mm 1 x 125mm	-	-	16m	-	16m	-	-	
M8 - M9	LV HV NEW	65m	1 x 125mm	-	-	65m	-	65m	-	-	
M9 - N2	SL LV HV NEW	16m	1 x 50mm 1 x 125mm	-	-	16m	-	16m	-	-	
N2 - N3	LV HV NEW	13m	1 x 125mm	-	-	13m	-	13m	-	-	
N3 - K9	HV NEW ROAD CROSSING	25m EXIST.	INSTALLED UNDER CIVIL WORKS	25m	50m	-	25m	25m	-	-	
N3 - N4	LV NEW	35m	1 x 125mm	-	-	-	-	-	-	-	
N4 - N5	SL LV NEW	33m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
N5 - N6	SL NEW	16m	1 x 50mm	-	-	-	-	-	-	-	
M6 - N7	LV HV NEW ROAD CROSSING	15m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	15m	15m	-	30m	-	
N7 - N8	LV HV NEW	30m	1 x 125mm	-	-	30m	-	30m	-	-	
N8 - N9	LV HV NEW	7m	1 x 125mm	-	-	7m	-	7m	-	-	
N9 - P2	SL LV HV NEW	30m	1 x 50mm 1 x 125mm	-	-	60m	-	60m	-	30m	
P2 - P3	LV HV NEW	33m	1 x 125mm	-	-	66m	-	66m	-	33m	
P3 - P4	SL LV HV NEW	16m	1 x 50mm 1 x 125mm	-	-	32m	-	32m	-	16m	
P4 - P5	LV HV NEW	33m	1 x 125mm	-	-	66m	-	66m	-	33m	
P5 - P6	SL LV HV NEW	35m	1 x 50mm 1 x 125mm	-	-	70m	-	70m	-	35m	
P6 - P7	SL NEW	5m	1 x 50mm	-	-	-	-	-	-	-	
P6 - P8	LV HV NEW	26m	1 x 125mm	-	-	52m	-	52m	-	26m	
P8 - P9	SL LV HV NEW	17m	1 x 50mm 1 x 125mm	-	-	34m	-	34m	-	17m	
P9 - Q2	LV HV NEW	41m	1 x 125mm	-	-	82m	-	82m	-	41m	
Q2 - Q3	SL LV HV NEW	23m	1 x 50mm 1 x 125mm	-	-	46m	-	46m	-	23m	
Q3 - Q4	SL LV NEW	20m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.

**DUCT & CABLE SCHEDULE CODE**

T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS  
 LD - LAY HV. 125mm DUCTS IN TRENCH  
 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SL/LV TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
Q4 - Q7	LV NEW	80m	1 x 125mm	-	-	-	-	-	-	-	
Q5 - T9	LV NEW ROAD CROSSING	15m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	
Q7 - Q8	LV NEW	33m	1 x 125mm	-	-	-	-	-	-	-	
Q8 - Q9	SL LV NEW	16m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
Q9 - R3	LV NEW	23m	1 x 125mm	-	-	-	-	-	-	-	
R2 - R3	SL NEW	5m	1 x 50mm	-	-	-	-	-	-	-	
R3 - R4	SL LV NEW	34m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
R4 - R5	LV NEW	65m	1 x 125mm	-	-	-	-	-	-	-	
R5 - R6	SL LV NEW	16m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
R6 - R7	LV NEW	45m	1 x 125mm	-	-	-	-	-	-	-	
R7 - N7	LV NEW	60m	1 x 125mm	-	-	-	-	-	-	-	
R7 - S9	LV HV NEW ROAD CROSSING	38m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	
R8 - R9	LV HV NEW ROAD CROSSING	14m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	42m	-	
R9 - S2	SL LV NEW	6m	1 x 50mm 2 x 125mm	-	-	-	-	-	-	-	
S4 - Z6	LV NEW ROAD CROSSING	12m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	
S3 - Z5	SL NEW	28m	1 x 50mm	-	-	-	-	-	-	-	
Z5 - S4	SL LV NEW	28m	1 x 50mm 2 x 125mm	-	-	-	-	-	-	-	
S4 - S5	LV NEW	7m	2 x 125mm	-	-	-	-	-	-	-	
S4 - S6	LV NEW ROAD CROSSING	24m EXIST.	INSTALLED UNDER CIVIL WORKS	-	-	-	-	-	-	-	
S6 - S7	LV NEW	27m	1 x 125mm	-	-	-	-	-	-	-	
S7 - S8	SL LV NEW	14m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
S8 - T2	LV NEW	40m	1 x 125mm	-	-	-	-	-	-	-	
T2 - T3	SL LV NEW	27m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	
T3 - T4	LV NEW	54m	1 x 125mm	-	-	-	-	-	-	-	
T4 - T5	SL LV NEW	54m	1 x 50mm 1 x 125mm	-	-	-	-	-	-	-	

**URBAN SUBDIVISION RELATED REIMBURSEMENT - DUCT & HV. CABLE SCHEDULE**  
NOTE - ALL TRENCH SECTIONS ARE TO BE READ & VIEWED FROM NODE TO NODE AS NOMINATED.

**DUCT & CABLE SCHEDULE CODE**

T & R - HV LIGHT TRENCHING & REINSTATEMENT  
 LC - LAY HV. CABLE - DIRECTLY BURIED IN TRENCH  
 C - CABLE - MATERIALS  
 LD - LAY HV. 125mm DUCTS IN TRENCH  
 PC - LAY CABLE - PULL CABLE THROUGH DUCTS  
 D - LAY HV. DUCT IN SL/LV TRENCH

\* ALL LENGTHS ENTERED IN METRES (m)

NODES	DUCT CONFIG.	ROUTE LENGTH (m)	CUSTOMER FUNDED DUCTS	CAPITAL CONTRIBUTION - HV CABLE & DUCT CONSTRUCTION IN URBAN SUBDIVISIONS (m)						OTHER DUCT REIMBURSEMENT (m) x (\$)	EXISTING DUCT USAGE (m) x (\$)
				T & R	LD	LC	PC	C (AL)	C (CU)		
T5 - T6	LV NEW	27m	1 x 125mm	-	-	-	-	-	-	-	
T6 - T7	SL NEW	8m	1 x 50mm	-	-	-	-	-	-	-	
T7 - T8	SL NEW	20m	1 x 50mm	-	-	-	-	-	-	-	
Q6 - U2	SL NEW	52m	1 x 50mm	-	-	-	-	-	-	-	
TOTAL NEW (m)		3519m	50mm = 1301m 125mm = 2808m	163m	414m	1681m	699m	2105m	275m	2004m	
TOTAL (\$)				\$16,463	\$2,484	\$16,810	\$69,465	\$23,100	\$46,092	WB	

**PLAN SYMBOLS**

- DIRECT BURIED CABLE
- ⊖ ⊕ SPARE 50mm DUCT
- ⊖ ⊕ SPARE 125mm DUCT
- ⊖ ⊕ DUCT WITH EXISTING CABLE
- DUCT WITH NEW CABLE

**WORK 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: 7/02/2018

EXAMINER'S SIGNATURE: .....

PRINT NAME: WAHEED EBRAHIMI

THIS CERTIFICATION IS ISSUED SUBJECT TO ENDEAVOUR ENERGY'S STANDARD CERT. TERMS.

EPD REFERENCE No.  
**10/233/ER11NA**

**ESTATE POWER DESIGN PTY LIMITED**  
 ABN 69 002 331 142  
 ELECTRICAL RETICULATION CONSULTANTS  
 P.O. BOX 1872, PENRITH BC, 2751  
 TEL: (02) 4731-8333 FAX (02) 4731-1594  
 EMAIL: brian@estatepower.com.au

EPD 1.6

REFERENCE DRAWINGS	WORK ORDERS	CAP / SAMP No.	URS 18621
505306	DUCT, EASEMENT & TRENCH REQ'S	AM PROJ. No.	
	GENERAL	HV SWITCHING	
	OVERHEAD	UBD/PENGUIN REF	MAP 63 REF.G13
	UNDERGROUND	GIS MAP No	6482.94
	SUBSTATIONS	HV OP DIAGRAM	NORTH RICHMOND.J4
		LOCAL GOV AREA	HAWKESBURY

ORIGINAL SCALE  
1:1000

DO NOT SCALE DIMENSIONS IN METRES

DESIGN B.H.

**REDBANK ESTATE - 'YEOMANS' STAGE 11 - NORTH 'A'**  
 OFF ARTHUR PHILLIP DR,  
 NORTH RICHMOND  
 URS 18621  
 ELECTRICAL RETICULATION

**Endeavour Energy**

**A1 505307 A**

SHEET No 7 OF 7 SHEETS