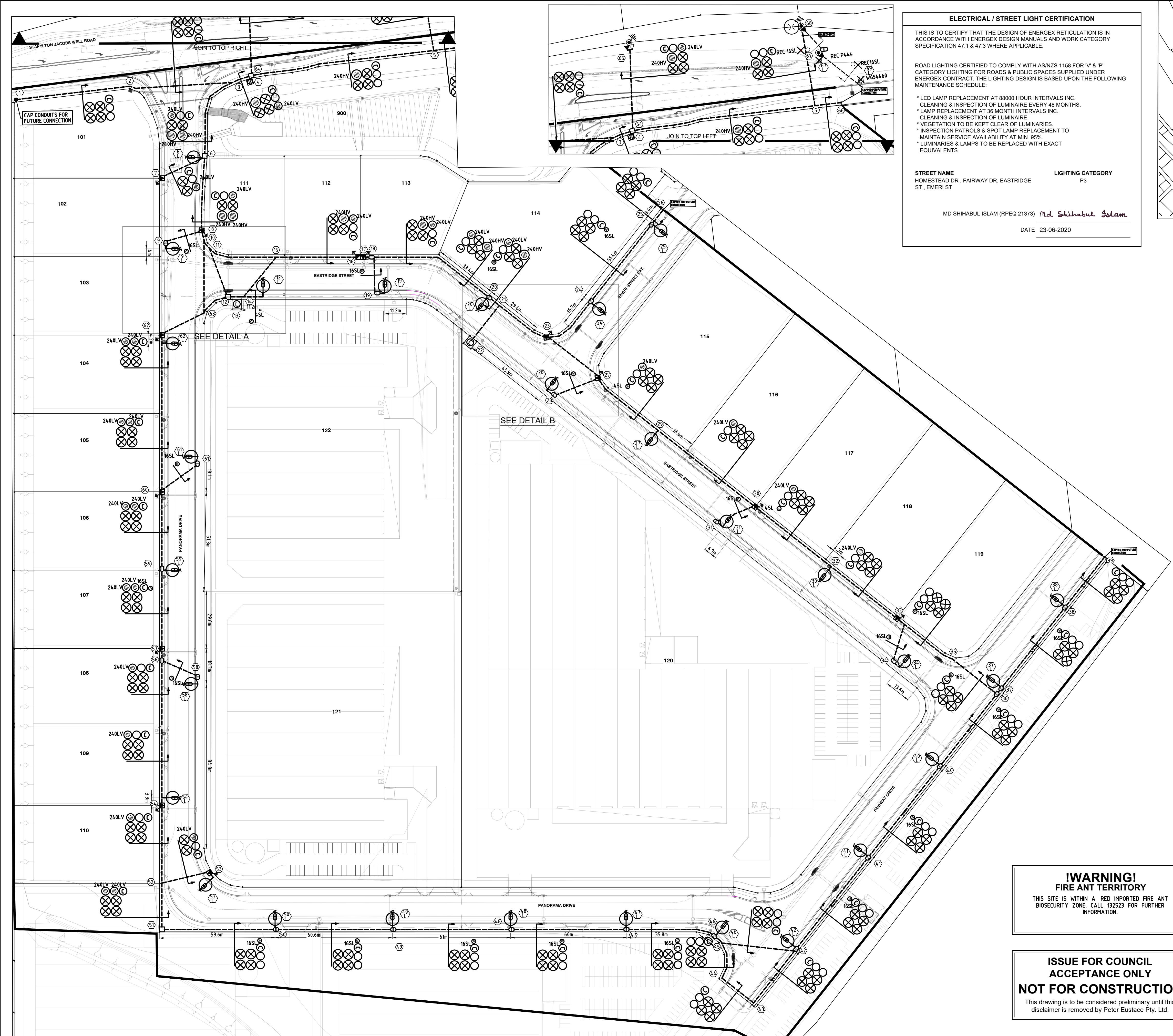




ELECTRICAL / STREET LIGHT CERTIFICATION

THIS IS TO CERTIFY THAT THE DESIGN OF ENERGEX RETICULATION IS IN ACCORDANCE WITH ENERGEX DESIGN MANUALS AND WORK CATEGORY SPECIFICATION 47.1 & 47.3 WHERE APPLICABLE.

ROAD LIGHTING CERTIFIED TO COMPLY WITH AS/NZS 1158 FOR 'V' & 'P' CATEGORY LIGHTING FOR ROADS & PUBLIC SPACES SUPPLIED UNDER ENERGEX CONTRACT. THE LIGHTING DESIGN IS BASED UPON THE FOLLOWING MAINTENANCE SCHEDULE:

- * LED LAMP REPLACEMENT AT 88000 HOUR INTERVALS INC. CLEANING & INSPECTION OF LUMINAIRE EVERY 48 MONTHS.
- * LAMP REPLACEMENT AT 36 MONTH INTERVALS INC. CLEANING & INSPECTION OF LUMINAIRE.
- * VEGETATION TO BE KEPT CLEAR OF LUMINAIRES.
- * INSPECTION PATROLS & SPOT LAMP REPLACEMENT TO MAINTAIN SERVICE AVAILABILITY AT MIN. 95%.
- * LUMINAIRES & LAMPS TO BE REPLACED WITH EXACT EQUIVALENTS.

STREET NAME
HOMESTEAD DR, FAIRWAY DR, EASTRIDGE ST, EMERI ST

LIGHTING CATEGORY
P3

MD SHIHABUL ISLAM (RPEQ 21373) Md Shihabul Islam.

DATE 23-06-2020

SYMBOL LEGEND

- PROPOSED 40mm S/L
- PROPOSED ENERGEX 100mm COMMS
- PROPOSED 100mm
- PROPOSED 125mm
- EXISTING 40mm S/L
- EXISTING ENERGEX 100mm COMMS
- EXISTING 100mm
- EXISTING 125mm
- PROPOSED CABLE (AS MARKED)
- EXISTING CABLE (AS MARKED)
- PROPOSED UNDERGROUND HV/LV ROUTE
- EXISTING UNDERGROUND HV/LV ROUTE
- PROPOSED OVERHEAD HV/LV ROUTE
- EXISTING OVERHEAD HV/LV ROUTE
- PROPOSED S/L CABLE
- EXISTING S/L CABLE
- PADMOUNT TRANSFORMER
- PMT LV GEOGRAPHIC
- PMT HV GEOGRAPHIC
- RING MAIN UNIT
- RMU HV SCHEMATIC
- PROPOSED SUPPLY PILLAR
- EXISTING SUPPLY PILLAR
- PROPOSED LINK PILLAR
- EXISTING LINK PILLAR
- COMMERCIAL PILLAR
- EARTH
- PROPOSED TYPE 4 PIT
- EXISTING TYPE 4 PIT
- RECOVER EQUIPMENT
- 11kV STRAIGHT JOINT
- OVERHEAD POLE TRANSFORMER
- OVERHEAD POLE (HV ONLY)
- OVERHEAD POLE (LV ONLY)
- OVERHEAD POLE (HV & LV)
- OVERHEAD HV TERMINATION
- OVERHEAD LV TERMINATION
- AIR BREAK SWITCH (OPEN)
- AIR BREAK SWITCH (CLOSED)
- DISCONNECT LINKS (OPEN)
- DISCONNECT LINKS (CLOSED)
- WATER METER
- SURVEY PEG

STREET LIGHT SYMBOL LEGEND

- RATE 2 L50A
- EXISTING RATE 2 L50A
- RECOVER S150 (RATE 2)
- RECOVER M125 (RATE3)

LOCALITY PLAN
N.T.S.

MAINTENANCE REGIME

Maintenance Factor Assumed: The maintenance factor assumed in the calculations is as follows:

- * Luminaire Maintenance Factor (refer AS 1158.1.1:2005 APPENDIX E).
- * Lamp Lumen Depreciation Factor (Refer Lamp Manufacturer's "Lamp Lumen Depreciation Curves").

Maintenance Factor Calculated **0.75**

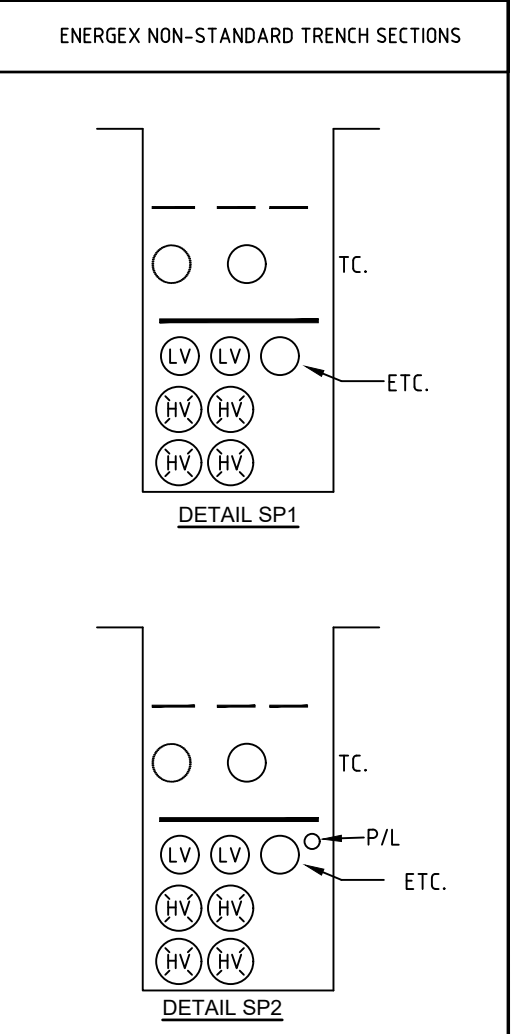
Schedule of Maintenance: This road lighting design is based on the following maintenance schedule:

- * LED lamp replacement carried out at 88000 hrs intervals. Cleaning regime every 48 months.
- * All other luminaires lamp replacement & cleaning carried out at 36 month intervals.

At this time the following shall also occur:

- * All optical surfaces, both internal and external, of the luminaire shall be cleaned.
- * All gaskets shall be checked for deterioration and replaced where necessary.
- * Damaged/weathered visors shall be replaced.
- * All accessible screws, nuts etc. shall be checked for tightness.
- * A visual check shall be made of the electrical components and wiring for signs of overheating.
- * If required, the luminaire shall be realigned/adjusted to the design specification.

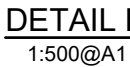
CERTIFICATE OF COMPLIANCE		
DESIGN DOCUMENTATION IN ACCORDANCE WITH THE REQUIREMENTS OF COMPLIANCE OF AS/NZS 1158		
* Refer AS1158.1:2005 Appendix D for information regarding V category		
* Refer AS1158.3.1:2005 Appendix E for information regarding P category		
* PerfectiLite 5.06 computer software used		
ITEM		PROJECT SPECIFICATION
LIGHTING CATEGORY		
Road Name		HOMESTEAD DR , FAIRWAY DR, EASTRIDGE ST, EMERI ST
Nominated Lighting Category		P3
Road Surface Reflection Characteristic		R3
INSTALLATION GEOMETRY		
Road Reserve Lighting Design Width		23m
Mounting Height		9m
Overhang		1.5m
Lighting Arrangement		ARR3
Pole Setback		0.8 BKI
Upcast Angle		5°
LUMINAIRE/LAMP 1 DETAILS		
Lamp Type / Wattage		L50A
Luminaire Identification		Philips RoadFlair
Lamp Flux (Lumens)		6000
I-Table Number (.cie)		BRP391 LED60NW 50W DWV
Lighting Tariff		2
Power Factor		HPF (> 0.95)
Start/Run Currents (Amps)		0.223
IP Rating		IP66
LUMINANCE BASED DESIGN - CATEGORY V LUMINAIRE/LAMP 1 TECHNICAL PARAMETER COMPLIANCE		
Spacing (m)		
Traffic Direction		
Average carriageway luminance (L) cd/m ²		
Overall uniformity (U_o)		
Longitudinal Uniformity (U_l)		
Upward wasted light ratio (UWLR) %		
Threshold increment (TI) %		
Surround verge illuminance (E_v) %		
Complies with standard		
ILLUMINANCE BASED DESIGN - CATEGORY V TECHNICAL PARAMETER COMPLIANCE - "design area" i.e. intersection of x and x roads		
Point Horizontal Illuminance (E_h)		
Illuminance (Horizontal Uniformity) Cat V (U_h)		
CATEGORY Px LUMINAIRE/LAMP 1 MAXIMUM SPACING CALCS		
Average Horizontal Illuminance (E_h)		≥1.75 lx
Minimum Point Horizontal Illuminance (E_n)		≥0.3 lx
Illuminance Uniformity (U_o)		≤10
Upward wasted light ratio (UWLR) %		≤ 0%
Road Reserve Lighting Design Width (m)		Maximum Spacing (m)
23		60.2



DATE	23.06.2020	R DESCRIPTION	A ISSUED FOR COUNCIL ACCEPTANCE	PE CONSULTING ENGINEERS STREET ADDRESS U14, 39 Lawrence Dr, Naring QLD 4211 POSTAL ADDRESS PO Box 2835, Naring QLD 4211 TELEPHONE (07) 5596 1425 EMAIL mail@pece.com.au WEB peter.eustace.com.au	NORTH 19-0515- 01	<table><tr><td colspan="2">SITE CONTACT DETAILS</td><td colspan="2">COUNCIL STANDARD ALIGNMENTS</td><td colspan="2">WORKS COORDINATOR</td><td colspan="2">PETER EUSTACE & ASSOCIATES</td><td colspan="2">APPROVED</td><td colspan="2">SHIHABUL ISLAM</td><td colspan="2">Peter Eustace & Associates</td><td colspan="2">WORKSPLAN VERSION 5.5</td></tr><tr><td>NAME TBC COMPANY</td><td>Energex OH Energex UG NBN</td><td>Energex OH Energex UG REFER NBN</td><td>PARENT PROJECT NO. WORK REQUEST NO.</td><td></td><td></td><td></td><td></td><td>CHECKED DESIGNER PLANNER PHONE</td><td>DAVID PRUSS ABRAHAM IKORO KRIS BOVEINIS (07) 5596 1425</td><td colspan="2">INSTALL CABLE , CONDUIT , PILLARS, PITS AND STREET LIGHT</td><td colspan="2">23 LOTS SUBDIVISION HESTER -YATALA STAPLYTON JACOBS WELL ROAD YATALA</td><td colspan="2">SCALE: 1:1000@A1 PROJECT / SUB PROJECT NO.</td></tr></table>	SITE CONTACT DETAILS		COUNCIL STANDARD ALIGNMENTS		WORKS COORDINATOR		PETER EUSTACE & ASSOCIATES		APPROVED		SHIHABUL ISLAM		Peter Eustace & Associates		WORKSPLAN VERSION 5.5		NAME TBC COMPANY	Energex OH Energex UG NBN	Energex OH Energex UG REFER NBN	PARENT PROJECT NO. WORK REQUEST NO.					CHECKED DESIGNER PLANNER PHONE	DAVID PRUSS ABRAHAM IKORO KRIS BOVEINIS (07) 5596 1425	INSTALL CABLE , CONDUIT , PILLARS, PITS AND STREET LIGHT		23 LOTS SUBDIVISION HESTER -YATALA STAPLYTON JACOBS WELL ROAD YATALA		SCALE: 1:1000@A1 PROJECT / SUB PROJECT NO.		S1301346 Sheet 1 of 3 ISSUE NO: A
						SITE CONTACT DETAILS		COUNCIL STANDARD ALIGNMENTS		WORKS COORDINATOR		PETER EUSTACE & ASSOCIATES		APPROVED		SHIHABUL ISLAM		Peter Eustace & Associates		WORKSPLAN VERSION 5.5																			
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23 LOTS SUBDIVISION HESTER -YATALA STAPLYTON JACOBS WELL ROAD YATALA																																							

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!WARNING!
FIRE ANT TERRITORY
THIS SITE IS WITHIN A RED IMPORTED FIRE ANT
BIOSECURITY ZONE. CALL 132523 FOR FURTHER
INFORMATION.



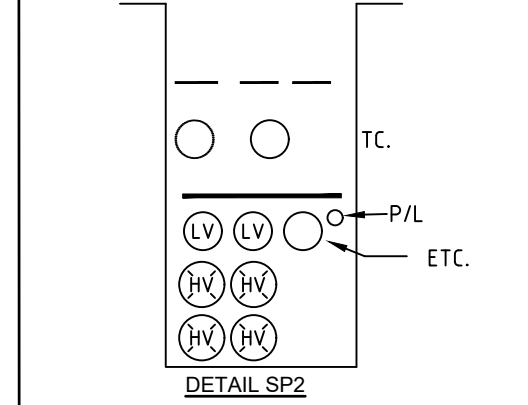
STREET LIGHT SYMBOL LEGEND

	RATE 2 L50A
	EXISTING RATE 2 L50A
	RECOVER S150 (RATE 2)
	RECOVER M125 (RATE3)

Diagram illustrating a trench section with various components labeled:

- LV (Low Voltage)
- HV (High Voltage)
- ETC. (Electrical Trench Cable)
- TC. (Trench Cable)

The diagram shows a cross-section of a trench with multiple layers and components. The labels LV, HV, and ETC. are placed within the trench, while TC. is placed outside the trench. The diagram is labeled DETAIL SP1.



PILLAR OFFSET TO ONE
SIDE OF SHARED RP BDY



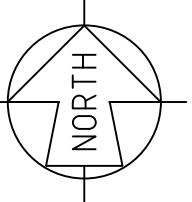
- | | | | | | |
|---|----|--|--|--|----|
| 1. PILLARS MAY BE SET CENTRED ON BODY PEG OR OFFSET TO ONE SIDE AS SHOWN. | SL | | | | 10 |
| 2. PILLARS TO BE OFFSET 150 (+/-50) FROM RP BODY. | SL | | | | 4 |
| 3. SERVICES EXCLUSION ZONE IS FOR ABOVE GROUND SERVICES ONLY. (PITS, MANHOLES ETC). UNDERGROUND PIPES MAY PASS THROUGH THIS AREA AS LONG AS THEY DO NOT CONFLICT WITH ELECTRICITY ASSETS. | | | | | |
| 4. IF ROADS/DRIVEWAYS ARE WITHIN 1000 OF PILLAR 2 X PROTECTION BOLLARDS WILL BE REQUIRED. | | | | | |
| 5. FLAT AREA IN FRONT OF PILLAR TO BE MAINTAINED FOR ACCESS AND MAINTENANCE. | | | | | |

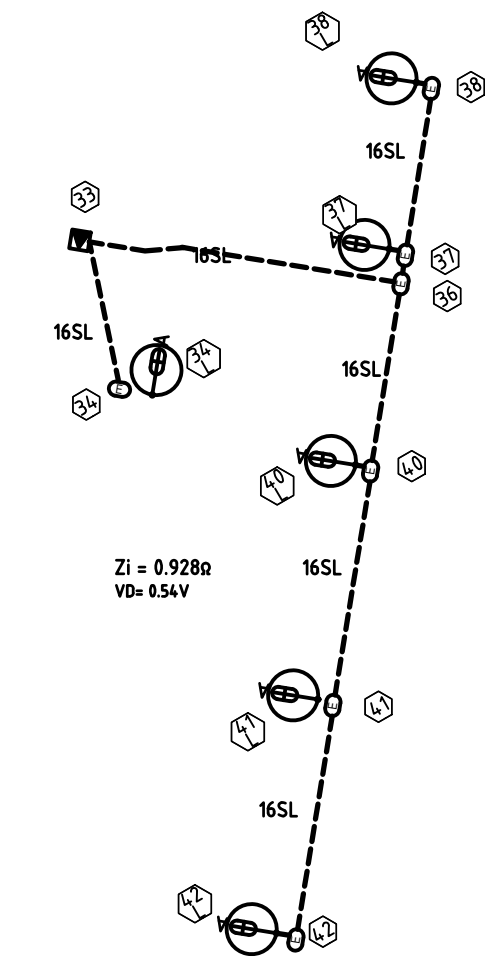


PE CONSULTING ENGINEERS

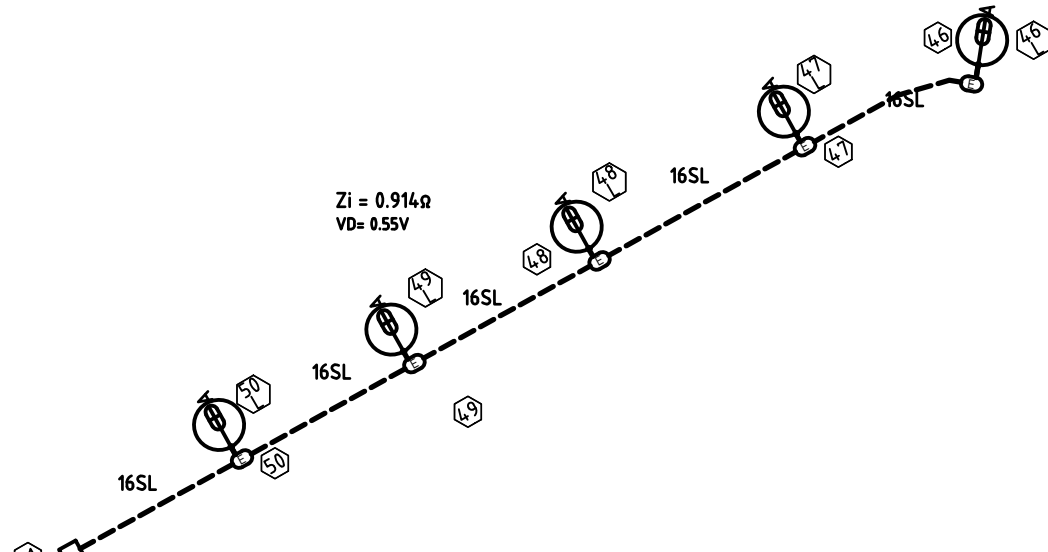
STREET ADDRESS
POSTAL ADDRESS
TELEPHONE
EMAIL
WEB

U14, 39 Lawrence Dr, Nerang QLD 4211
PO Box 2835, Nerang DC QLD 4211
(07) 5596 1428
mail@pece.com.au
pelereustace.com.au

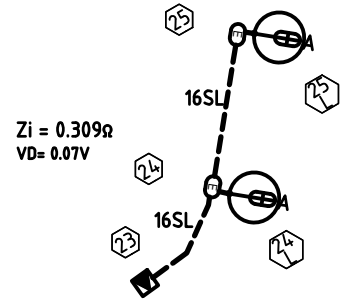
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PROPOSED SL GEOGRAPHIC
MAX ALLOWABLE EFLI = 1024Ω
MAX ALLOWABLE VDrop = 9V



PROPOSED SL GEOGRAPHIC
MAX ALLOWABLE EFLI = 1024Ω
MAX ALLOWABLE VDrop = 9V

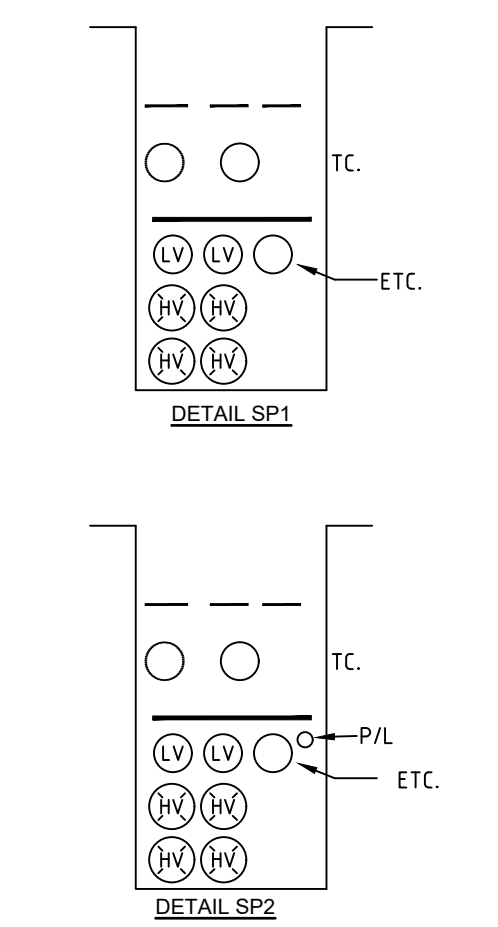


PROPOSED SL GEOGRAPHIC
MAX ALLOWABLE EFLI = 1024Ω
MAX ALLOWABLE VDrop = 9V

SYMBOL LEGEND	
	PROPOSED 4.0mm S/L
	PROPOSED ENERGEX 100mm COMMS
	PROPOSED 100mm
	PROPOSED 125mm
	EXISTING 4.0mm S/L
	EXISTING ENERGEX 100mm COMMS
	EXISTING 100mm
	EXISTING 125mm
	PROPOSED CABLE (AS MARKED)
	EXISTING CABLE (AS MARKED)
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	EXISTING UNDERGROUND HV/LV ROUTE
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	EXISTING OVERHEAD HV/LV ROUTE
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	EXISTING S/L CABLE
	PADMOUNT TRANSFORMER
	PMT LV GEOGRAPHIC
	PMT HV GEOGRAPHIC
	RING MAIN UNIT
	RMU HV SCHEMATIC
	PROPOSED SUPPLY PILLAR
	EXISTING SUPPLY PILLAR
	PROPOSED LINK PILLAR
	EXISTING LINK PILLAR
	COMMERCIAL PILLAR
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	PROPOSED TYPE 4 PIT
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	RECOVER EQUIPMENT
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	OVERHEAD POLE (HV ONLY)
	OVERHEAD POLE (LV ONLY)
	OVERHEAD POLE (HV & LV)
	OVERHEAD HV TERMINATION
	OVERHEAD LV TERMINATION
	AIR BREAK SWITCH (OPEN)
	AIR BREAK SWITCH (CLOSED)
	DISCONNECT LINKS (OPEN)
	DISCONNECT LINKS (CLOSED)
	WATER METER
	SURVEY PEG

STREET LIGHT SYMBOL LEGEND	
	RATE 2 L50A
	EXISTING RATE 2 L50A
	RECOVER S150 (RATE 2)
	RECOVER M125 (RATE3)

ENERGEX NON-STANDARD TRENCH SECTIONS



**ISSUE FOR COUNCIL
ACCEPTANCE ONLY
NOT FOR CONSTRUCTION**
This drawing is to be considered preliminary until this disclaimer is removed by Peter Eustace Pty. Ltd.

**!WARNING!
FIRE ANT TERRITORY**
THIS SITE IS WITHIN A RED IMPORTED FIRE ANT BIOSECURITY ZONE. CALL 132523 FOR FURTHER INFORMATION.

DATE	23.06.2020	 STREET ADDRESS PC32AL ADDRESS TELEPHONE EMAIL WEB U14, 39 Lawrence Dr, Nerang QLD 4211 PO Box 2835, Nerang DC QLD 4211 (07) 5596 1425 mail@pece.com.au peter.eustace.com.au		SITE CONTACT DETAILS		COUNCIL STANDARD ALIGNMENTS		WORKS COORDINATOR	PETER EUSTACE & ASSOCIATES	APPROVED	SHIHABUL ISLAM	Peter Eustace & Associates	WORKSPLAN VERSION 5.5
R DESCRIPTION	A ISSUED FOR COUNCIL ACCEPTANCE			NAME	Energex OH	Energex OH	PARENT PROJECT NO.			CHECKED	DAVID PRUSS		SCALE: N.T.S.
				TBC	Energex UG	Energex UG	WORK REQUEST NO.			DESIGNER	ABRAHAM IKORO	INSTALL CABLE , CONDUIT , PILLARS, PITS AND STREET LIGHT	PROJECT / SUB PROJECT NO.
				COMPANY	NBN	REFER NBN				PHONE	(07) 5596 1425		S1301346
				-	GAS	REFER GAS	LOTS	101-122 , 900		PLANNER	KRIS BOVEINIS	23 LOTS SUBDIVISION HESTER -YATALA STAPYLTON JACOBS WELL ROAD YATALA	Sheet 3 of 3
				PHONE	-	HP GAS	REFER GAS	LOT 501 on SP295894		PHONE	(07) 5596 1425		ISSUE NO: A
				MOBILE	-	WATER	REFER CIVIL	CANCELLING LOTS					
				FAX	-	STORMWATER	REFER CIVIL	LOCAL AUTHORITY	GOLD COAST CITY COUNCIL				
						SEWERAGE	REFER CIVIL	UBD REF		ISSUE DATE	23 JUNE 2020		
						OTHER	REFER CIVIL	PEGGED?					