

Our Reference: RAL/2023/584
CS Portal Reference: N/A
Your Reference: E476
Contact Officer: Dennis Raccanello
Contact: 07 4688 6317
Email: development@tr.qld.gov.au

STREET LIGHTING PLAN REVIEW Stage 1

Colbar Street Developments Pty Ltd
C/- Robin Russell & Associates
204/6 Babarra Street,
Stafford, Qld. 4053

Email: td@robrus.com.au

9 April 2024

Dear Sir/Madam

Approval Number: RAL/2023/584
Application Description: Reconfigure 1 into 35 Lots
Location: Lot 101 SP257259 Colbar Street PITTSWORTH QLD 4356
Property Description: Lot 101 SP257259

Council concurs with the following lighting design plan proposed for the abovementioned development approval:

1. Electricity Reticulation - Residential, E476-01 Revision B Sheet 1 of 4, prepared by Robin Russell & Associates Pty Ltd and dated 18/09/2023.
2. Electricity Reticulation - Residential, E476-02 Revision B Sheet 2 of 4, prepared by Robin Russell & Associates Pty Ltd and dated 18/09/2023.
3. Electricity Reticulation - Residential, E476-03 Revision B Sheet 3 of 4, prepared by Robin Russell & Associates Pty Ltd and dated 18/09/2023.
4. Road Lighting Design, E476-04 Revision B Sheet 4 of 4, prepared by Robin Russell & Associates Pty Ltd and dated 18/09/2023.

In concurrence with the proposed design for this project, Council has carried out an audit check of information submitted by Robin Russell & Associates Pty Ltd. Accordingly, Council has placed reliance on the design signed by the Registered Professional Engineer Queensland (RPEQ) that the Approved Plans and specifications are correct and in accordance with required engineering standards. The RPEQ bears full responsibility for all aspects of the engineering design.

Council reserves the right to require further amendments and/or additions at a later stage, should design errors become apparent:

- a) Should any subsequent amendments, changes or alterations of the proposed lighting design occur as a result of an assessment/approval process of a relevant Council application (i.e. RAL/MCU/OW), it will become the responsibility of both the Civil and Electrical Registered Professional Engineer Queensland (RPEQ) to co-ordinate these changes.
- b) Any such changes must be to Council's satisfaction in order to obtain subsequent approval of the lighting design or other impacted Council assets prior to requesting "On-Maintenance" or endorsement of the survey plan.

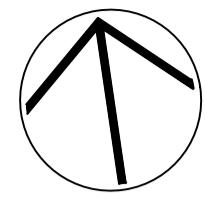
- c) Modification to any existing or approved infrastructure as a result of any changes is at no cost to Council.
- d) Review of this documentation does not include detailed review of adjoining development approvals.
- e) The construction method for any required road crossings (for service conduits or mains) that are to occur on existing roads will require separate approval from Council's Road Operations Branch as part of any Works in Road Permit.

Should you require further information or clarification of the above, please contact Council's Coordinator Operational Works, Dennis Raccanello on the above number.

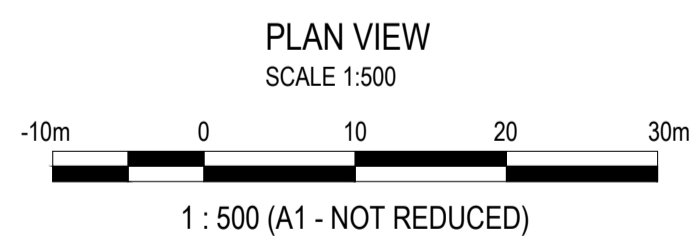
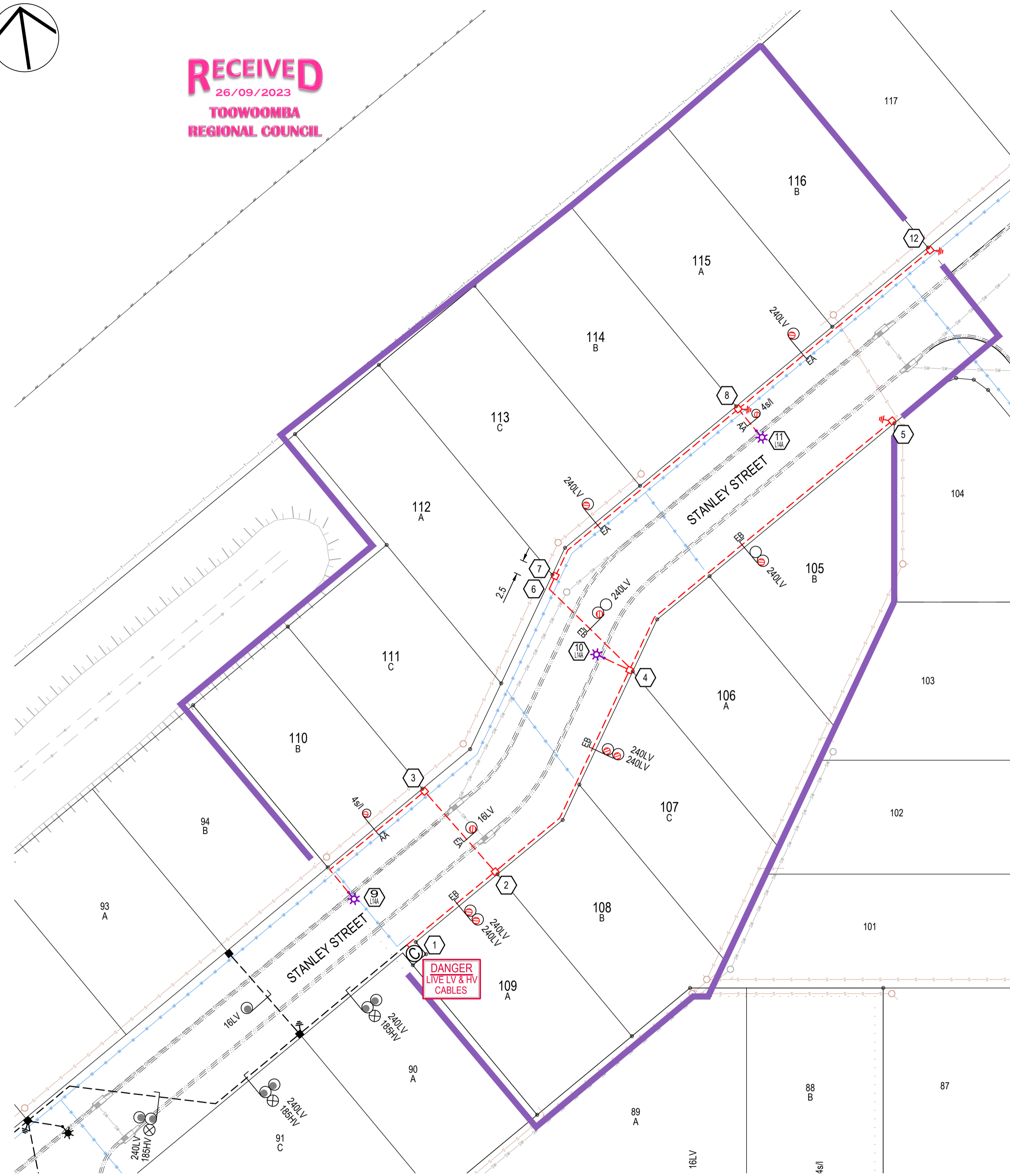
Yours faithfully



Clint Burgess
Principal Engineer, Development Infrastructure and Growth



RECEIVED
26/09/2023
TOOWOOMBA
REGIONAL COUNCIL



ERGON SCHEDULE OF WORKS

STN No.	SITE LABEL	ACTION	CONSTRUCTION CODE	SIZE And DESCRIPTION	QTY	DWG No.	REMARKS
1	GE583854	INST	ASSY 529-14	LV FUSE LINK, 250A, DIN SIZE 2	2		SUPPLIED AND INSTALLED BY ERGON
		INST	LVCTPM11240	LOW VOLTAGE CABLE TERMINATION 11kV PMT	2	5209	SUPPLIED AND INSTALLED BY ERGON

MATERIALS SUMMARY - WR1846927

UNDERGROUND			
MODEL No.	QTY	MODEL No.	QTY
152574	3	LVCTPM11240	2
ASSY 529-14	2	LVPN16/240	2
EIAU	3	LVPN26/240	2
EMEN/PIL	3	LVPN26S/240	2
		LVPX/6S/16CU	1

CABLES			
MODEL No.	QTY	MODEL No.	QTY
LV-240C4/673	343	LVI-4CU2NS/1671	58
LV-16CU4/614	24		

STREET LIGHTING			
MODEL No.	QTY	MODEL No.	QTY
810-2	3	SLEDSY0137A	3
SLBPM75/11/15CI	3	SUGSLPIL	3

CONDUIT BENDING RADIUS (mm)			
LOCATION	50mm Ø	100mm Ø	125mm Ø
HORIZONTAL BEND	600	1830	1830
PILLAR - MAIN CABLE	-	1200	-
PILLAR - X-ROAD CABLE	-	450	-
PILLAR - STREET LIGHT CABLE	600	-	-
STREET LIGHT	300	-	-
POLE TERMINATION	300	1200	1830
TRANSFORMER	no bends required		

ATTN: CIVIL CONTRACTOR
THE COVER ABOVE THE STORM WATER & SEWER MAINS HAS BEEN REVIEWED AT ALL ELECTRICAL CROSSING POINTS. THE ROAD CROSSING CONDUITS ARE TO BE INSTALLED ABOVE THE STORM WATER MAIN WITH 300mm MINIMUM SEPARATION, ABOVE THE SEWER MAIN WITH 300mm MINIMUM SEPARATION & AS PER THE 'SOUTHERN REGION: WIDE BAY & SOUTHERN - TRENCH SECTION DETAIL' SHOWN ON THIS DRAWING, WITH THE FOLLOWING EXCEPTIONS:
1. STN's 4 to 7 - 843mm COVER ON 375mm STORMWATER MAIN. INSTALL ELECTRICAL CONDUIT(S) UNDER STORMWATER MAIN.
WHERE THE ELECTRICAL CONDUITS ARE INSTALLED UNDER THE STORM WATER MAINS, THEY SHALL BE GRADUALLY BROUGHT BACK UP TO A MAXIMUM DEPTH OF 1.4m AT THE ENDS.

ROCK EXCAVATION BY ELECTRICAL CONTRACTOR
The electrical contractor shall:
• excavate electricity trenches to the depth required,
• excavate street light foundations to a depth of 1500mm.

GENERAL NOTES

IN THE EVENT OF CONFLICT BETWEEN THIS WORKS PLAN AND DRAWINGS AND SPECIFICATIONS OF THE RELEVANT FUTURE ASSET OWNER, I.E. ENERGEX, ERGON, LOCAL AUTHORITY, DEPARTMENT OF TRANSPORT & MAIN ROADS, NBN, ETC., THE DRAWINGS AND SPECIFICATIONS OF THE FUTURE ASSET OWNER SHALL TAKE PRECEDENCE. EXCEPTIONS APPLY WHERE RRA DESIGN DOCUMENTATION SPECIFY CLEARANCES, DEPTHS & SEPARATIONS GREATER THAN THE MINIMUM REQUIRED BY THE AUTHORITIES.
THE CONTRACTOR SHALL NOT ACCEPT A VERBAL INSTRUCTION FROM ANY PERSON TO DEPART FROM THE REQUIREMENTS OF THIS WORKS PLAN OR RRA GENERAL SPECIFICATION. ANY DEPARTURE FROM THE WORKS PLAN OR SPECIFICATION MUST FIRST BE AUTHORISED IN WRITING BY THE CONTRACT SUPERINTENDENT.

ELECTRICAL CONTRACTOR

THE WORKS DETAILED ON THIS DRAWING SHALL BE CONSTRUCTED IN ACCORDANCE WITH ROBIN RUSSELL & ASSOCIATES' GENERAL SPECIFICATION FOR INSTALLATION OF ELECTRICITY RETICULATION AND STREET LIGHTING - ISSUE 'AA'.
-THE ELECTRICAL CONTRACTOR SHALL SUPPLY ALL CABLES-

ALL CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING ERGON MANUALS AND SPECIFICATIONS:

- UNDERGROUND CONSTRUCTION MANUAL
- QUEENSLAND PUBLIC LIGHTING CONSTRUCTION MANUAL
- RSC14 - PROJECT MANAGEMENT SPECIFICATION
- RSC08 - UDC ELECTRICAL WORKS
- RSC10 - UDC ELECTRICAL TESTING

CIVIL CONTRACTOR

THE INSTALLATION OF ALL ELECTRICAL CONDUITS SHALL BE SUPERVISED BY THE HOLDER OF AN ELECTRICAL WORK LICENCE.
- ELECTRICAL SAFETY ACT 2002.

ERGON CONDUITS, FOUNDATIONS AND RETAINING WALLS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH ERGON'S SPECIFICATIONS (SEE BELOW). THEY WILL BE INSPECTED FOR COMPLIANCE UPON COMPLETION.

WHERE ROAD-CROSSING CONDUITS ARE INSTALLED DEEPER THAN USUAL (UNDER CULVERTS OR PIPES), THEY MUST RISE TO A DEPTH OF NOT MORE THAN 1200MM AT EACH END. IF UNCERTAIN, SEEK ADVICE FROM RRA CONSTRUCTION COORDINATOR.

THE CIVIL CONTRACTOR SHALL INSTALL ENVELOPING CONDUITS UNDER RETAINING WALLS BEHIND PILLARS WITH TWO 100MM CONDUITS INTO EACH LOT (ONE FOR ELECTRICITY, ONE FOR COMMUNICATIONS), 500MM DEEP BEHIND THE PILLAR, NEAR GROUND LEVEL INSIDE THE LOT.

THE CIVIL CONTRACTOR SHALL DELIVER A SIGNED ERGON CERTIFICATE OF COMPLETION TO THE ELECTRICAL CONTRACTOR BEFORE THE ELECTRICAL CONTRACTOR COMMENCES WORK.

ERGON'S DRAWINGS FOR INSTALLATION OF CONDUITS AND FOUNDATIONS SHOULD BE DOWNLOADED FROM ERGON'S WEBSITE AT: <http://www.ergon.com.au>. > CONTRACTORS & SUPPLIERS > DEVELOPER'S TOOLKIT > MANUALS.
THE RELEVANT EXTRACTS ARE:

- UNDERGROUND CONSTRUCTION MANUAL > TRENCHING
- UNDERGROUND CONSTRUCTION MANUAL > PADMOUNTED SUBSTATIONS
- QUEENSLAND PUBLIC LIGHTING CONSTRUCTION MANUAL > ASSEMBLIES

THE CIVIL CONTRACTOR SHALL ENSURE THAT ALL CONDUITS HAVE BEEN INSTALLED BEFORE CONSTRUCTING RETAINING WALLS, PATHS, DRIVEWAYS & WATER SERVICES.

CARE! LIGHTING OF NEW OR ALTERED EXISTING ROADS MIGHT NOT COMPLY WITH SPECIFIED STANDARDS UNTIL NEW ROAD LIGHTING HAS BEEN COMMISSIONED. THE CIVIL CONTRACTOR SHALL ENSURE THAT NECESSARY WARNING SIGNS ARE INSTALLED AND SPEED RESTRICTIONS ARE APPLIED IF NECESSARY.

ON-SITE SERVICES CHECKS

ROBIN RUSSELL & ASSOCIATES GIVES NO WARRANTY REGARDING THE PRESENCE OR LOCATION OF BURIED SERVICES, INCLUDING NEWLY-INSTALLED SERVICES. "AS CONSTRUCTED" LOCATIONS MAY DIFFER FROM WHAT IS DRAWN ON THIS WORKS PLAN. CONTRACTORS SHALL BE RESPONSIBLE TO IDENTIFY AND LOCATE ALL BURIED SERVICES. INITIAL IDENTIFICATION CAN BE OBTAINED FROM:

- DIAL BEFORE YOU DIG SERVICE - TELEPHONE 1100, FAX 1300 652 077, ON-LINE ENQUIRIES CAN BE MADE AT <http://www.1100.com.au>.

HAVING DETERMINED WHICH SERVICES MAY BE PRESENT, ON-SITE LOCATIONS SHOULD THEN BE ARRANGED WITH RELEVANT SERVICE AUTHORITIES.

SEWERAGE AND WATER PLANS FOR THE SUBDIVISION MAY BE OBTAINED ON REQUEST FROM THE SUPERINTENDENT.

INSTALLATION OF RRA DESIGNED TELECOMMUNICATIONS CONDUITS

TELECOMS CONDUITS AND PITS SHALL BE SUPPLIED AND INSTALLED BY THE CIVIL AND ELECTRICAL CONTRACTORS AS SPECIFIED ON THE ASSOCIATED RRA WORKS PLAN.

IN RESIDENTIAL SUBDIVISIONS, TELECOMMUNICATIONS CONDUITS SHALL BE INSTALLED GENERALLY IN SHARED TRENCHES, DIRECTLY ABOVE THE ELECTRICAL CONDUITS.

IN COMMERCIAL SUBDIVISIONS OR OTHER SITUATIONS WHERE THIS IS NOT POSSIBLE, TELECOMMUNICATIONS CONDUITS SHALL BE INSTALLED IN A SEPARATE TRENCH ON THE SPECIFIED COMMUNICATIONS ALIGNMENT.

TELECOMMUNICATIONS INFRASTRUCTURE	
CONDUITS & PITS	to be designed by: Robin Russell & Associates to be installed by: civil & electrical contractors to be owned by: to be provided by:
TELECOMMUNICATIONS INFRASTRUCTURE	

SOURCE DOCUMENTS				
CREATOR	DRAWING	DWG No.	REV	DATE
KEHOE MYERS	CIVIL	C2122448 - X CIVIL BASE	-	4/09/2023
ERGON	Electrical	mt068_816734_665_20230602_101918	-	20/06/2023

LEGEND: ELECTRICAL	
---	EXISTING UNDERGROUND CABLE / CONDUIT
---	PROPOSED UNDERGROUND CABLE / CONDUIT
---	FUTURE UNDERGROUND CABLE / CONDUIT
---	END OF CONDUIT POINT / CONDUIT CAP
---	BORED CONDUIT
12	STATION NUMBERS
⊙/⊙/⊙	PADMOUNT TRANSFORMER, EXISTING / PROPOSED / FUTURE
⊙/⊙/⊙	RING MAIN UNIT, EXISTING / PROPOSED / FUTURE
⊙/⊙/⊙	POLE TRANSFORMER, EXISTING / PROPOSED / FUTURE
●	CABLE FAULT INDICATOR
■/□/□	SERVICE PILLAR, EXISTING / PROPOSED / FUTURE
■/□/□	LINK PILLAR, EXISTING / PROPOSED / FUTURE
■/□/□	C&I PILLAR, EXISTING / PROPOSED / FUTURE
⊥/⊥/⊥	LV LINKS (OPEN), EXISTING / PROPOSED / FUTURE
⊥/⊥/⊥	LV LINKS (CLOSED), EXISTING / PROPOSED / FUTURE
---	EXISTING OVERHEAD ELECTRICITY MAINS
---	PROPOSED OVERHEAD ELECTRICITY MAINS
---	FUTURE OVERHEAD ELECTRICITY MAINS
○/○/○	HV POLE, EXISTING / PROPOSED / FUTURE
⊙/⊙/⊙	HV + LV POLE, EXISTING / PROPOSED / FUTURE
●/●/●	LV POLE, EXISTING / PROPOSED / FUTURE
⊥/⊥/⊥	EARTH, EXISTING / PROPOSED / FUTURE
⊙/⊙/⊙	STREET LIGHT, EXISTING / PROPOSED / FUTURE
---	EXISTING RATE 3 STREETLIGHT CABLE
---	PROPOSED RATE 3 STREETLIGHT CABLE
---	FUTURE RATE 3 STREETLIGHT CABLE
⊙/⊙/⊙	RATE 3 STREET LIGHT, EXISTING / PROPOSED / FUTURE
⊙/⊙/⊙	RATE 3 SWITCHBOARD, EXISTING / PROPOSED
---	EXISTING CONSUMERS UNDERGROUND CABLE
---	PROPOSED CONSUMERS UNDERGROUND CABLE
---	TO BE RECOVERED
●/●/●	CABLE, EXISTING / PROPOSED
○	32/40mm HD CONDUIT
○	80/100mm LD CONDUIT
⊙	125mm LD CONDUIT
⊙	CABLE MARKER POST
△	'ERGON ELECTRIC CABLE' MARKER PLATE

"AS CONSTRUCTED" DOCUMENTS
The electrical contractor shall email the "as constructed" drawing, test results & closure documents to:
• contestable@energyg.com.au
• as.constructed@robus.com.au

UNDERGROUND CABLE CERTIFICATION
All cables detailed on this drawing have been checked using the cable locator described below and are, according to measurements taken, on the correct alignment and at correct depths below the finished level, except as marked up. Alignments are subject to the accuracy of survey pegs placed at the time of measurement.
Make: _____ Model: _____
Serial No: _____ Date Cables Checked: ____/____/____
Name of Person Who Conducted Checks: _____
Certified (signature of checker): _____
Phone No. of checker: _____

CONSTRUCTION CONTACTS	
ELECTRICAL ENGINEER	ROBIN RUSSELL & ASSOCIATES PTY LTD
DESIGNER	WILLIAM SCHARDT Ph: 0419 778 552
CONSTRUCTION COORDINATOR	SHANE HYDE Ph: 0419 021 772
CIVIL ENGINEER	KEHOE MYERS
	GRANT PENDLEBURY Ph: (07) 4632 8100
SURVEYOR	BYRNE SURVEYORS
	GREG COOPER Ph: (07) 4632 1688

SITE INFORMATION	
TOTAL NUMBER OF LOTS	12
PROPERTY DESCRIPTION	PROPOSED LOTS 105 - 116 CANCELLING LOT 101 ON SP257259

DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:
10/07/2023	A	PRELIMINARY ISSUE	RR					LOT COUNT INCREASED TO INCLUDE LOTS 115 & 116
18/09/2023	B	CHANGE TO LOT COUNT AND STAGE	RR					

Robinson Russell & Associates Pty. Ltd.
CONSULTING ENGINEERS - ELECTRICAL
204/6 Sabana Street, Shalford, QLD 4053
Tel: (07) 3872 5555
Fax: (07) 3872 5566
Email: rr@robus.com.au
www.robus.com.au
A.B.N. 78 010 589 661

COUNCIL	TOOWOOMBA	DWT REV.	V53-3 20210504
COUNCIL REF	RAL2023/584		
DESIGNED	W.Schardt	DRAWN	B.Hyland
CHECKED	D.Lloyd RPEQ 5060	APPROVED	ROBIN RUSSELL RPEQ 1546
DATE	10/07/2023	SIGNED	<i>Robinson Russell</i>

DESCRIPTION: **ELECTRICITY RETICULATION - RESIDENTIAL**
CLIENT: Colbar Street Developments Pty. Ltd.

LOCATION: **PITTSWORTH ESTATE - STAGE 1 COLBAR STREET PITTSWORTH**
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DRAWING No.	REVISION
E476-01	B
ERGON PROJECT No.	SHEET No.
WR1846927	1 OF 4

URD CONDUIT SCHEDULE - FOOTPATHS - BY ELECTRICAL CONTRACTOR

LOCATION	STATIONS FROM - TO	CONDUIT LENGTH (m)						X-SECTION (m)				DRAW WIRE	KERB MARKERS	REMARKS
		50mm HD	No.	100mm LD	No.	125mm LD	No.	EOL 100mm COMMS MD	PVC CABLE PROTECTION (m)	EXCAV /TAPE	TRENCH DETAIL			
STANLEY STREET	1 2			21	2				21	EB	46			
	2 4			44	2				44	EB	92			
	3 9	28	1						28	AA	30			
	4 5			65	2				65	EB	134			
	4 10	6	1						6	AA	8			
	6 7			4	1				4	EA	6			
	7 8			44	1				44	EA	46			
	8 11	6	1						6	AA	8			
TOTAL			40m		352m				262m		416m			

- NOTES:
- POLYMERIC CABLE PROTECTION COVERS TO AS4702 SHALL BE LAID 75mm ABOVE ALL CONDUITS WHICH ARE NOT IN THE ELECTRICITY FOOTPATH ALLOCATION. COVERS SHALL BE LAPPED 40mm ALONG THE TRANSVERSE AXIS AND 100mm ALONG THE LONGITUDINAL AXIS. COVERS SHALL OVERLAP CONDUIT BY 40mm.
 - CONNECT EXISTING CONDUITS, INCLUDING ROAD CROSSING CONDUITS, TO NEW FOOTPATH CONDUITS.
 - THE INSTALLATION OF ALL ELECTRICAL CONDUITS SHALL BE IN ACCORDANCE WITH ERGON SPECIFICATION RSC07 & MAY BE INSPECTED BY ERGON DURING CONSTRUCTION, AT THEIR DISCRETION.
 - TELECOMMUNICATION CONDUITS SHALL BE INSTALLED ABOVE THE ERGON CONDUITS IN A JOINT USE TRENCH ARRANGEMENT.

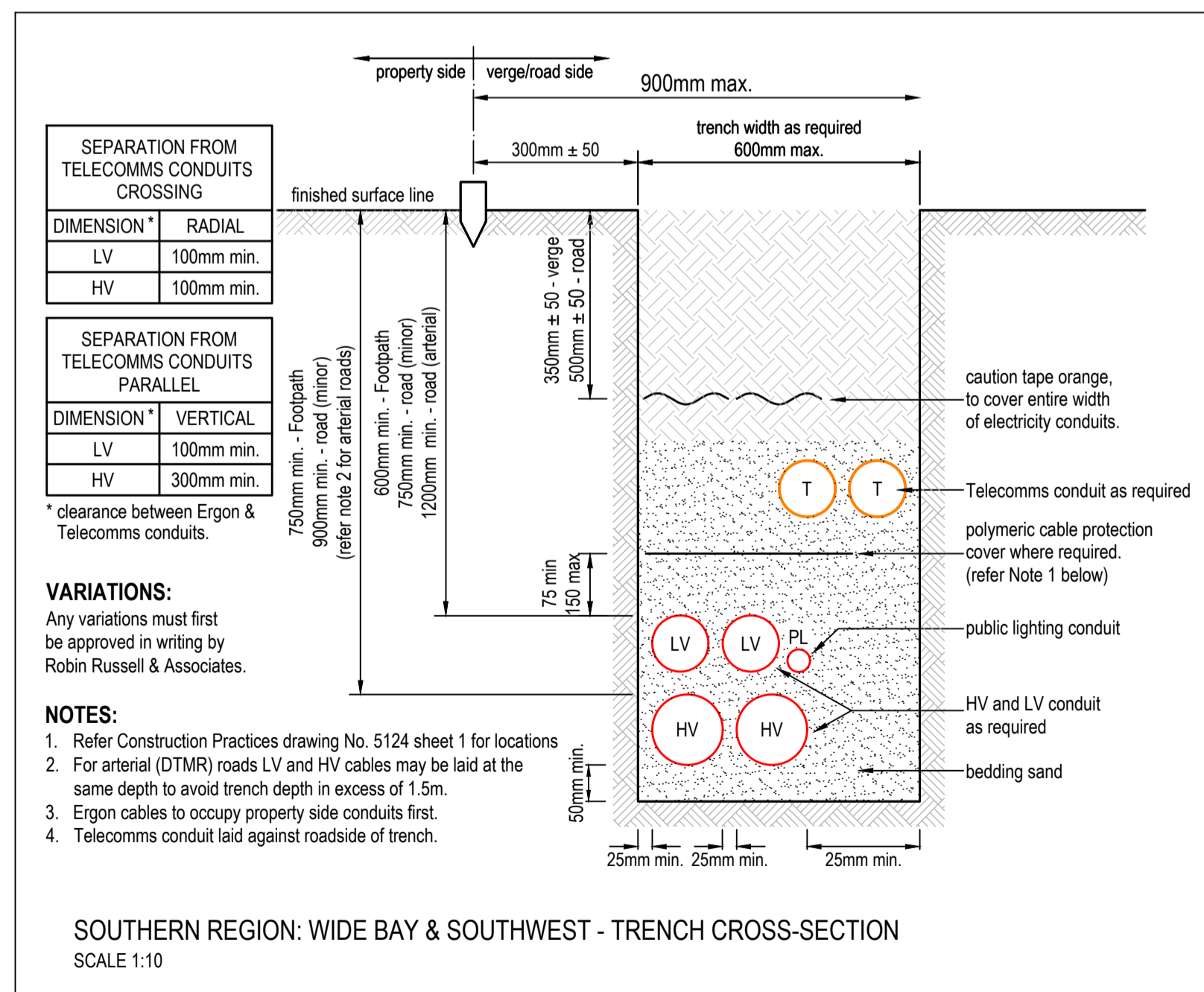
URD CONDUIT SCHEDULE - ROADWAYS - BY CIVIL CONTRACTOR

LOCATION	STATIONS FROM - TO	CONDUIT LENGTH (m)						X-SECTION (m)				DRAW WIRE	KERB MARKERS	REMARKS
		50mm HD	No.	100mm LD	No.	125mm LD	No.	EOL 100mm COMMS MD	PVC CABLE PROTECTION (m)	EXCAV /TAPE	TRENCH DETAIL			
STANLEY STREET	2 3			19	1				19	EA	21	2		
	4 6			21	2				21	EB	46	2	INSTALL UNDER STORMWATER	
TOTAL				61m					40m	40m	67m	4		

- NOTES:
- POLYMERIC CABLE PROTECTION COVERS TO AS4702 SHALL BE LAID 75mm ABOVE ALL CONDUITS WHICH ARE NOT IN THE ELECTRICITY FOOTPATH ALLOCATION, INCLUDING ROAD CROSSINGS. COVERS SHALL BE LAPPED 40mm ALONG TRANSVERSE AXIS AND 100mm ALONG THE LONGITUDINAL AXIS. COVERS SHALL OVERLAP CONDUITS BY 40mm.
 - ROAD CROSSING CONDUITS SHALL HAVE A MINIMUM COVER OF 900mm FOR LV & 1050mm FOR HV AT ALL PLACES UNDER THE ROAD, EXCEPT UNDER STATE-CONTROLLED "MAIN" ROADS, WHERE CONDUITS SHALL HAVE A MINIMUM COVER OF 1200mm FOR LV & HV.
 - BRASS "E" KERB MARKERS SHALL BE INSTALLED IN KERB ABOVE CONDUITS TO WITHIN 200mm.
 - ROAD-CROSSING CONDUITS TO STOP 900MM SHORT OF THE PROPERTY LINE.
 - THE INSTALLATION OF ALL ELECTRICAL CONDUITS SHALL BE IN ACCORDANCE WITH ERGON SPECIFICATION RSC07 & MAY BE INSPECTED BY ERGON DURING CONSTRUCTION, AT THEIR DISCRETION.

CONSUMER CONDUIT SCHEDULE - ELECTRICAL CONTRACTOR

LOCATION	STATIONS FROM - TO	CONDUIT LENGTH (m)		BENDS		X-SECTION (m)		DRAW ROPE 4mm	TRENCHING (m)	REMARKS
		50mm HD	No.	DEG	No.	EXCAV /TAPE	TRENCH DETAIL			
VARIOUS LOCATIONS	VARIOUS	1	13	90	13	13	AA	26	13	INSTALL 50mm BEND & 1.0m OF 50mm CONDUIT INTO EACH LOT AS PER ERGON SPECIFICATIONS
TOTAL ELECTRICAL			13		13		13	26	13	



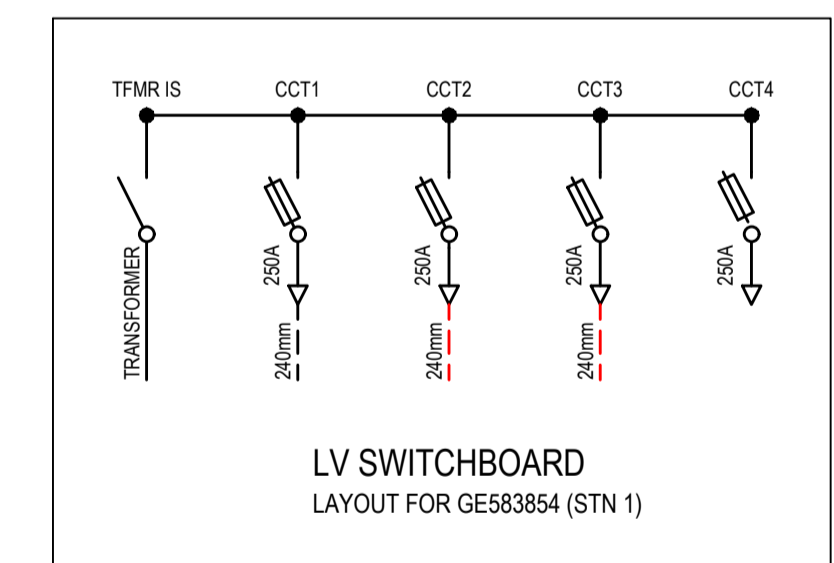
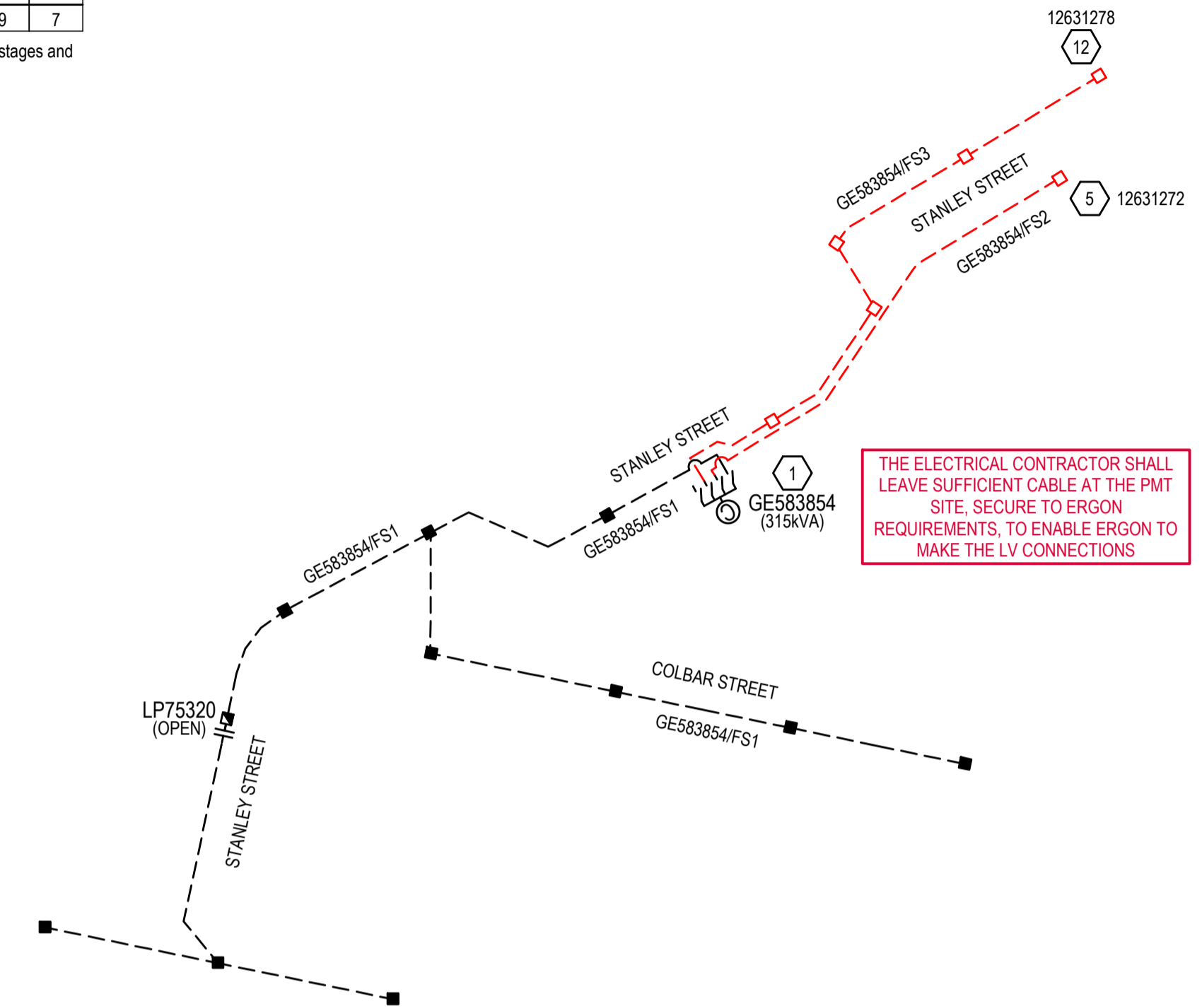
LABELS
The contractor shall check label details against existing labels on site. Report any discrepancies immediately to the Contract Superintendent.

LV SWITCHBOARD LABELS				AT STANLEY STREET (STN 1) GE583584	
CIRCUIT No.	LABEL SIZE	LABEL COLOUR	LETTER SIZE	LABEL INFORMATION	
TRANSF. ISOLATOR	80x35	WB	6	TRANSFORMER ISOLATOR	
1	80x35	WB	5	[EXIST]	
2	80x35	WB	5	TO STANLEY STREET 12631272 DIRECT	
3	80x35	WB	5	TO STANLEY STREET 12631278 AND SERVICES	
4	80x35	WB	5	[SPARE]	

PHASING

Transformer - FS#	A	B	C
GE583854 - FS1	5	4	4
GE583854 - FS2	0	1	0
GE583854 - FS3	4	4	3
GE583854 (25)	9	9	7

Calculation may include adjacent stages and may not equal final PMT Count.



DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:
10/07/2023	A	PRELIMINARY ISSUE	RR					LOT COUNT INCREASED TO INCLUDE LOTS 115 & 116
18/09/2023	B	CHANGE TO LOT COUNT AND STAGE	RR					

Robin Russell & Associates Pty. Ltd.
CONSULTING ENGINEERS - ELECTRICAL

SUBDIVISION ELECTRICAL SERVICES
20/15 Sabana Street, Sharnford, QLD 4053
Tel: (07) 3872 5555
Fax: (07) 3872 5566
Email: r@robrus.com.au
www.robrus.com.au
A.B.N. 78 010 589 661

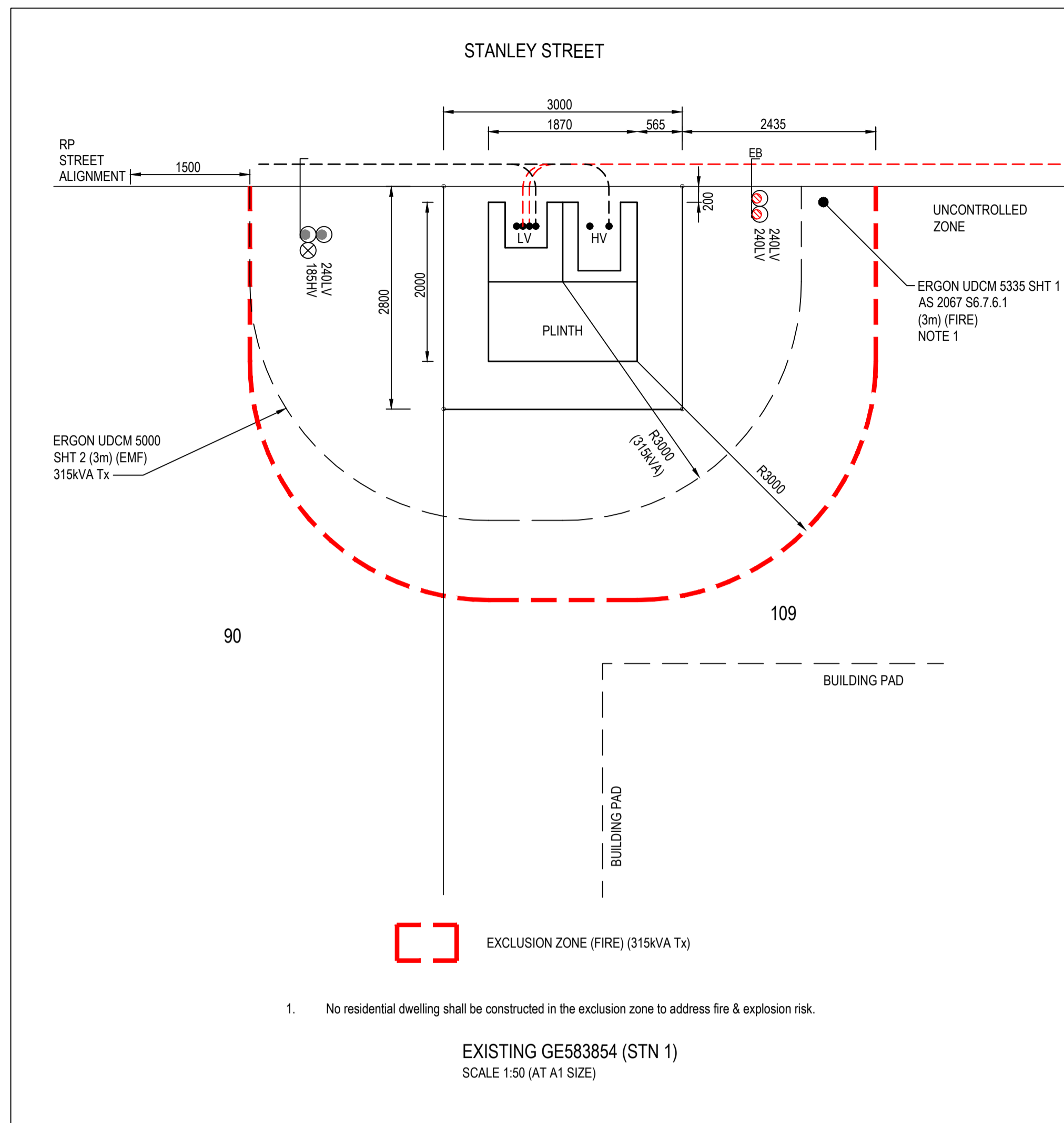
COUNCIL	TOOWOOMBA	DWT REV.	V53-3 20210504
COUNCIL REF	RAL2023/584		
DESIGNED	W.Schardt	DRAWN	B.Hyland
CHECKED	D.Lloyd RPEQ 5060	APPROVED	ROBIN RUSSELL RPEQ 1546
DATE	10/07/2023	SIGNED	<i>Robin Russell</i>

DESCRIPTION	LOCATION
ELECTRICITY RETICULATION - RESIDENTIAL	PITTSWORTH ESTATE - STAGE 1 COLBAR STREET PITTSWORTH
CLIENT	Colbar Street Developments Pty. Ltd.

DRAWING No.	REVISION
E476-02	B
ERGON PROJECT No.	SHEET No.
WR1846927	2 OF 4

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A1



CONSTRUCTION SCHEDULE

LOCATION	STN No.	SITE LABEL	ACTION	CONSTRUCTION CODE	SIZE And DESCRIPTION	DWG No	QTY	REMARKS
STANLEY STREET	1	GE583854	EXIST INST	ASSY 529-14 LVCTPM11/240	EXISTING PADMOUNT TRANSFORMER LV FUSE LINK, 250A, DIN SIZE 2 LOW VOLTAGE CABLE TERMINATION 11kV PMT	5209	2	EXISTING TO REMAIN BY ERGM
	2	12631269	INST	LVPN2/6/240	PILLAR, 2 WAY 6 FUSES	5026	1	
	3	12631270	INST	LVPX6S/16CU	PILLAR, CROSS-ROAD 6 FUSES + SL	5041	1	
	4	12631271	INST INST	LVPN2/6S/240 152574	PILLAR, 2 WAY 6 FUSES + SL ELECTRONIC CABLE MARKER	5026	1	
	5	12631272	INST INST INST	LVPN1/6/240 EMEN/PIL 152574	PILLAR, 1 WAY 6 FUSES MEN EARTHING - LV PILLAR ELECTRONIC CABLE MARKER	5025 5085	1 1	
	6		INST	152574	ELECTRONIC CABLE MARKER		1	
	7	12631273	INST	LVPN2/6/240	PILLAR, 2 WAY 6 FUSES	5026	1	
	8	12631274	INST INST	LVPN2/6S/240 EMEN/PIL	PILLAR, 2 WAY 6 FUSES + SL MEN EARTHING - LV PILLAR	5026 5085	1 1	
	12	12631278	INST INST	LVPN1/6/240 EMEN/PIL	PILLAR, 1 WAY 6 FUSES MEN EARTHING - LV PILLAR	5025 5085	1 1	

UNDERGROUND CABLE SCHEDULE

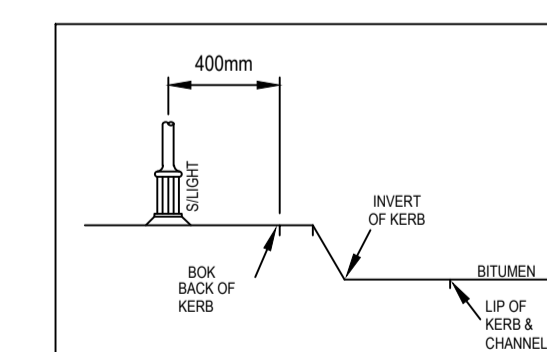
LOCATION	STATIONS FROM - TO		VOLTS	EX	REC	IN	CABLE SIZE/TYPE	CU CODE	CABLE LENGTH (m)		REMARKS
									NEW	REC	
STANLEY STREET	1	2	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	29		
	1	5	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	139		
	2	3	LV			*	LV 16mm ² 4C Cu XLPE	LV-16CUC4/614	24		
	2	4	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	49		
	3	9	SL			*	LV IP 4mm ² 2C Cu XLPE	LVI-4CU2NS/1671	34		
	4	7	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	28		
	4	10	SL			*	LV IP 4mm ² 2C Cu XLPE	LVI-4CU2NS/1671	12		
	7	8	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	49		
8	11	SL			*	LV IP 4mm ² 2C Cu XLPE	LVI-4CU2NS/1671	12			
8	12	LV			*	LV 240mm ² 4C Al XLPE	LV-240C4/673	49			
TOTALS	(Variance 2%)						LV 240mm ² 4C Al XLPE	LV-240C4/673	343		
							LV 16mm ² 4C Cu XLPE	LV-16CUC4/614	24		
							LV IP 4mm ² 2C Cu XLPE	LVI-4CU2NS/1671	58		

NOTES:
1. THE CONTRACTOR SHALL MEASURE ACTUAL CABLE LENGTHS REQUIRED, AFTER INSTALLATION OF CONDUITS, THEN ORDER CABLE ACCORDINGLY.

RATE 2 - STREETLIGHT SCHEDULE

LOCATION	STN No.	POLE OR COMPONENTS						LANTERN						OUTREACH BRACKET				MOUNT HT (m)	REMARKS				
		SITE ID (POLE No.)	COMP ID	EX (m)	REC (m)	ER (m)	POLE CODE	ALIGN (mm)	COMP ID	EX	RECOVER		ERECT		DATE ENERG	LUMINAIRE CODE	EX (m)			REC (m)	ER (m)	CU ID	UPCAST ANGLE
											LUMIN	CUST	LUMIN	CUST									
STANLEY STREET	9	12631275	P01			5.5m BPM	SLBPM/75/1/15CI	400 BOK	SL1							SLEDSY0137A			1.5		0°	7.5	
	10	12631276	P01			5.5m BPM	SLBPM/75/1/15CI	400 BOK	SL1							SLEDSY0137A			1.5		0°	7.5	
	11	12631277	P01			5.5m BPM	SLBPM/75/1/15CI	400 BOK	SL1							SLEDSY0137A			1.5		0°	7.5	

NOTES:
1. ALL LIGHTS TO BE CONNECTED ON EQL RATE 2.
2. CHECK CLEAR OF ALL SERVICES BEFORE EXCAVATING.
3. "BOK" ALIGNMENT MEASURED FROM BACK OF KERB TO CENTRE OF POLE.



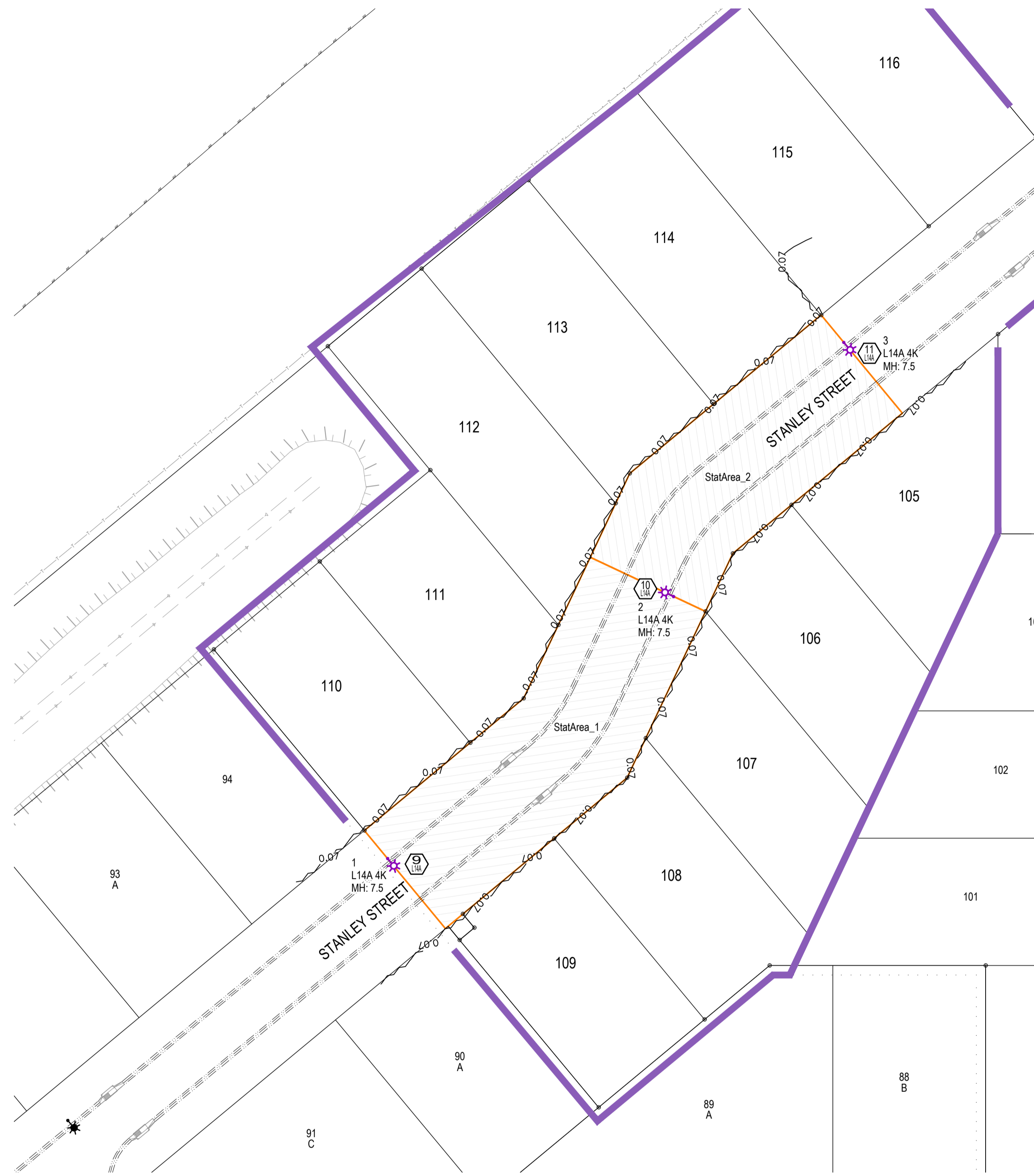
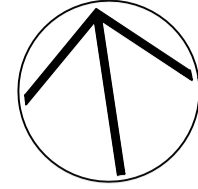
TOOWOOMBA REGIONAL COUNCIL STREETLIGHT ALIGNMENT DETAIL

DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:	COUNCIL	TOOWOOMBA	DWT REV.	V53-3 20210504	DESCRIPTION	LOCATION	DRAWING No.	REVISION
10/07/2023	A	PRELIMINARY ISSUE	RR					LOT COUNT INCREASED TO INCLUDE LOTS 115 & 116	COUNCIL REF	RAL2023/584			ELECTRICITY RETICULATION - RESIDENTIAL	PITTSWORTH ESTATE - STAGE 1 COLBAR STREET PITTSWORTH	E476-03	B
18/09/2023	B	CHANGE TO LOT COUNT AND STAGE	RR						DESIGNED	W.Schardt	DRAWN	B.Hyland	CLIENT	Colbar Street Developments Pty. Ltd.	ERGM PROJECT No.	SHEET No.
									CHECKED	D.Lloyd RPEQ 5060	APPROVED	ROBIN RUSSELL RPEQ 1546		WR1846927	3	4
									DATE	10/07/2023	SIGNED	RR		A1		

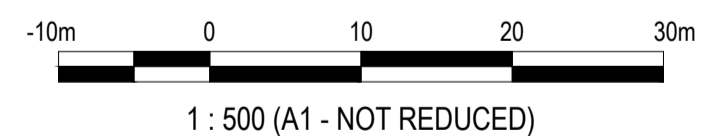
Robin Russell
& ASSOCIATES PTY. LTD.
CONSULTING ENGINEERS - ELECTRICAL

SUBDIVISION ELECTRICAL SERVICES
2016 Sabana Street, Sharnford, QLD 4053
Tel: (07) 3872 5555
Fax: (07) 3872 5556
Email: m@robrus.com.au
www.robrus.com.au
A.B.N. 78 010 589 661

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PLAN VIEW
SCALE 1:500



1: 500 (A1 - NOT REDUCED)

LEGEND:
NOTE: NOT ALL ITEMS MAY HAVE BEEN USED IN THIS DESIGN

- AS1158 DESIGN AREA Eph
- AS1158 DESIGN AREA 0.5 Eph
- TRAFFIC ISLAND

Isolines	Value (Lux)
0.07	0.07
0.14	0.14
1.75	1.75
3.5	3.5
3.75	3.75
7.5	7.5

GENERAL NOTES:

CALCULATIONS WITHIN THIS DESIGN ARE SUBJECT TO THE TOLERANCES OUTLINED IN AS/NZS 1158.2 & AS/NZS 3827.1.
ILLUMINANCE CALCULATION FIELDS USE A 1m X 1m HORIZONTAL GRID ARRAY.
SETTINGS HAVE BEEN ADJUSTED TO ENSURE ALL CALCULATIONS ARE UNDERTAKEN TO A MINIMUM OF 2 DECIMAL PLACES.
LINEAR ILLUMINANCE ARRAYS CREATED HAVE BEEN SET UP WITH A MAXIMUM SPACING OF 2.0m.
ISOLUX VALUES, WHERE SHOWN ON DIAGRAMS, HAVE BEEN ROUNDED TO 2 DECIMAL PLACES TO ENSURE CLARITY.
LUMINAIRES MAY BE MOVED BY UP TO 200mm IN EITHER DIRECTION LATERALLY, AND/OR AWAY FROM THE PATHWAY, WHILE REMAINING COMPLIANT.
AS PER S4.4.3.1 (1158.1:2022) & S4.1.1 (1158.3:1:2020), BLOCKING OBJECTS HAVE BEEN EMPLOYED IN ORDER TO EXCLUDE LIGHT THAT MAY CROSS PROPERTY BOUNDARIES.

DEFINITIONS:

OFFSET: THE HORIZONTAL DISTANCE BETWEEN THE PHOTOMETRIC CENTRE OF A LUMINAIRE AND THE RP BOUNDARY OR EDGE OF PATH.
OVERHANG: THE HORIZONTAL DISTANCE BETWEEN THE PHOTOMETRIC CENTRE OF A LUMINAIRE AND THE ADJACENT KERB OR CARRIAGEWAY EDGE.
OUTREACH: THE HORIZONTAL DISTANCE BETWEEN THE PHOTOMETRIC CENTRE OF A LUMINAIRE, TO—
(a) THE CENTRE OF THE POLE (E.G. STANDALONE STREET LIGHT POLES); OR
(b) THE FACE OF POLE FOR BRACKET ARMS (E.G. TIMBER POWER POLES).

ROAD LIGHTING INFORMATION

Design documentation in accordance with the requirements of:
AS1158.3.1:2020 Appendix C

ARRANGEMENT / GEOMETRY				
Category	Road Name(s)			
PR6	STANLEY STREET			
Arrangement	Height (m)	Outreach (m)	Upcast	Offset (m)
Single Sided	7.5	1.81	0°	7.394
LUMINAIRE / LAMP DETAILS				
Type / Wattage	Lumens	IP Rating	Origin of Data	
86W S70	5600	IP64	Sylvania Schreder	
Luminaire Type	Sylvania Suburban S70D			
I Table No.	203352.cie			
TECHNICAL PARAMETERS				
Average Horizontal Illuminance (E _h)	≥0.7			
Min Point Horizontal Illuminance (E _{Ph})	≥0.07			
Illuminance Uniformity (U _{Ez})	≤10			
Upward Waste Light Ratio % (UWLR)	≤1			
Road Reserve Lighting Design Width (m)	20			
Perfect Lite Maximum Spacing (m)	97.1			

ROAD LIGHTING INFORMATION

Design documentation in accordance with the requirements of:
AS1158.3.1:2020 Appendix C

ARRANGEMENT / GEOMETRY				
Category	Road Name(s)			
PR6	STANLEY STREET			
Arrangement	Height (m)	Outreach (m)	Upcast	Offset (m)
Staggered	7.5	1.81	0°	7.193
LUMINAIRE / LAMP DETAILS				
Type / Wattage	Lumens	IP Rating	Origin of Data	
13.7W LED	1819	IP66	Sylvania Schreder	
Luminaire Type	L14A StreetLED3 4k			
I Table No.	StreetLED3 13.7W 4K Aero - 200376BPH.cie			
TECHNICAL PARAMETERS				
Average Horizontal Illuminance (E _h)	≥0.7			
Min Point Horizontal Illuminance (E _{Ph})	≥0.07			
Illuminance Uniformity (U _{Ez})	≤10			
Upward Waste Light Ratio % (UWLR)	≤1			
Road Reserve Lighting Design Width (m)	20			
Perfect Lite Maximum Spacing (m)	75.7			

ROAD LIGHTING INFORMATION

Design documentation in accordance with the requirements of:
AS1158.3.1:2020 Appendix C

ARRANGEMENT / GEOMETRY				
Category	Road Name(s)			
PR6	STANLEY STREET			
Arrangement	Height (m)	Outreach (m)	Upcast	Offset (m)
Staggered	7.5	1.81	0°	7.193
LUMINAIRE / LAMP DETAILS				
Type / Wattage	Lumens	IP Rating	Origin of Data	
13.7W LED	1819	IP66	Sylvania Schreder	
Luminaire Type	L14A StreetLED3 4k			
I Table No.	StreetLED3 13.7W 4K Aero - 200376BPH.cie			
TECHNICAL PARAMETERS				
Average Horizontal Illuminance (E _h)	≥0.7			
Min Point Horizontal Illuminance (E _{Ph})	≥0.07			
Illuminance Uniformity (U _{Ez})	≤10			
Upward Waste Light Ratio % (UWLR)	≤1			
Road Reserve Lighting Design Width (m)	20			
Perfect Lite Maximum Spacing (m)	74.5			

PROJECT SPECIFIC DETAILS:

THIS DESIGN IS COMPLIANT WITH AND PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF:
AS/NZS 1158.3.1:2020 APPENDIX C
AS DETAILED BELOW

LIGHTING SUBCATEGORIES:
STANLEY STREET - PR6

APPLICABLE CLAUSES:
P CATEGORY
S4.2.2(c) FOR CURVED SECTIONS OF ROAD AND BENDS.

DESIGN METHODS:
SPACING TABLES AND DESIGN RULES FOR ROADWAYS.
NB! ALL LUMINAIRES WITHIN THIS DESIGN ARE WITHIN THE MAXIMUM ALLOWABLE SPACING FOR THEIR CATEGORY.

ILLUMINANCE DESIGN FOR CURVES/BENDS.
ROAD SURFACE REFLECTION CHARACTERISTICS:
R3

COMPUTER PROGRAM DETAILS
Name of Computer Program - Perfect Lite v5.06 & AGI32 v20.11.0.12
Source of program - Constant Energy & Lighting Analysts
Compliance - AS1158.2:2005

NON-CONFORMANCES:
NIL

ROAD LIGHTING MAINTENANCE SCHEDULE:
THE MAINTENANCE FACTOR AND THE MAINTENANCE REGIME ARE THE RESPONSIBILITY OF THE ASSET OWNER (ENERGY QUEENSLAND).

THIS DESIGN UTILISES A MAINTENANCE FACTOR OF 0.75 BASED ON THE IP RATING OF 6X & 0.7 BASED ON THE IP RATING OF 5X AS SPECIFIED BY ENERGY QUEENSLAND.

NOTE: THIS CERTIFICATION IS ONLY APPLICABLE IF LUMINAIRES ARE REPLACED WITH EXACT EQUIVALENTS AND MAINTENANCE IS UNDERTAKEN AS SPECIFIED.

Calculation Summary					
Label	CalcType	Avg	Max	Min	Max/Avg (UE2)
StatArea_1	Illuminance	0.89	4.59	0.15	5.16
StatArea_2	Illuminance	1.14	4.62	0.31	4.05

Luminaire Location Summary				
LumNo	Description	Orient (°)	Tilt (°)	MH (m)
1	SYLVANIA StreetLED3 L14A 4K	301.118	0	7.5
2	SYLVANIA StreetLED3 L14A 4K	146.287	0	7.5
3	SYLVANIA StreetLED3 L14A 4K	301.14	0	7.5

Luminaire Schedule					
Qty	Configuration	Description	MF	Filename	Arm
3	Single	SYLVANIA StreetLED3 L14A 4K	0.750	StreetLED3 13.7W 4K Aero - 200376BPH.IES	1.5

DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:
10/07/2023	A	PRELIMINARY ISSUE	RR					LOT COUNT INCREASED TO INCLUDE LOTS 115 & 116
18/09/2023	B	CHANGE TO LOT COUNT AND STAGE	RR					

Robin Russell
& ASSOCIATES PTY. LTD.
CONSULTING ENGINEERS - ELECTRICAL

SUBDIVISION ELECTRICAL SERVICES
20168 Sabana Street,
Stafford, QLD 4053
Tel: (07) 3872 5556
Fax: (07) 3872 5566
Email: rr@robinrussell.com.au
www.robinrussell.com.au
A.B.N. 78 010 589 661

COUNCIL	TOOWOOMBA	DWT REV.	V53-3 20210504	DESCRIPTION
COUNCIL REF	RAL2023/584			ROAD LIGHTING DESIGN
DESIGNED	W.Schardt	DRAWN	B.Hyland	
CHECKED	D.Lloyd RPEQ 5060	APPROVED	ROBIN RUSSELL RPEQ 1546	
DATE	10/07/2023	SIGNED	<i>Robin Russell</i>	

LOCATION
PITTSWORTH ESTATE - STAGE 1
COLBAR STREET
PITTSWORTH

CLIENT
Colbar Street Developments Pty. Ltd.

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DRAWING No.	REVISION
E476-04	B
ERGN PROJECT No.	SHEET No.
WR1846927	4 OF 4