

URD CONDUIT SCHEDULE - FOOTPATHS - BY ELECTRICAL CONTRACTOR

LOCATION	STATIONS FROM - TO	CONDUIT LENGTH (m)						PVC CABLE PROTECTION (m)	X-SECTION (m)		KERB MARK 'E'	REMARKS	TRENCH
		40mm HD	No	100mm LD	No	125mm LD	No		EXCAV/ TAPE	TRENCH DETAIL			
Christensen Road South, Stapylton Road 1	2	2L1	3	1					3	O			3
		5							94	AA			94
	5	9	56	1	56	2	56	4	56		56	BB	56
	6	6L1	3	1					3	O			3
	7	8			28	2	28	2	28		28	N	3
	8	8L	39	1					39	O			39
	9	10			53	2	53	4	53		53	AA	53
	10	11	38	1	38	2	38	4	38		38	BB	38
		11L	3	1					3	O			3
ALL STREETS	AT PILLARS & POLES							15	9	O		PVC COVER STRIP AT PILLARS AND TO LIGHT POLES	
TOTAL			142		538		1020		269		24	317	317

NOTES

- CONDUITS SHALL BE INSTALLED WITHIN A CORRIDOR 300-900mm FROM PROPERTY ALIGNMENT, IN ACCORDANCE WITH ENERGEX UNDERGROUND DISTRIBUTION CONSTRUCTION (UDC) MANUAL.
- FOOTPATH CONDUITS SHALL HAVE MINIMUM 700mm COVER, REGARDLESS OF ENERGEX'S REQUIREMENTS.
- CONNECT EXISTING CONDUITS, INCLUDING ROAD CROSSING CONDUITS, TO NEW FOOTPATH CONDUITS
- TELECOMMUNICATION CONDUITS SHALL BE INSTALLED ON AN ALIGNMENT OF 2.1 - 3.0M FROM THE PROPERTY BOUNDARY.

EQUIPMENT SCHEDULE - SERVICE PILLARS

LOCATION	STN NO.	SITE I.D.	EX	REC	IN	SIZE AND DESCRIPTION	COMP I.D.	CU/SC/ CONST. CODE	QTY	REMARKS
Christensen Road South, Stapylton	1	U714386	*	*	*	2 WAY PILLAR, MEN 2 WAY C&I PILLAR, CFS, MEN	PI1	LVSP17-CFS 1037-1	1	2x240
	2	U2210992			*	3 WAY PILLAR & S/L	PI1	LVSP9-6SL	1	3x240
	3	U714387	*		*	3 WAY PILLAR & S/L 240mm² Al 4C PILLAR TERMINATION	PI1	1044-1-240	1	3x240
	4	U2210993			*	2 WAY C&I PILLAR, CFS, MEN & S/L	PI1	LVSP17-CFS 1043-3 1037-1	1	2x240
Road 1	5	U2210994			*	4 WAY PILLAR, NO FUSE PANEL 185mm² Cu TERMINATION	PI1	LVSP21-NF LVSP185	1	3x240, 1x185
	6	U2210995			*	1 WAY C&I PILLAR, CFS, MEN & S/L 185mm² Cu TERMINATION	PI1	LVSP17-CFS 1043-3 1037-1 LVSP185	1	1x185
	8	U2210996			*	1 WAY C&I PILLAR, CFS, MEN & S/L	PI1	LVSP17-CFS 1043-3 1037-1	1	1x240
	11	U2210997			*	1 WAY C&I PILLAR, CFS, MEN & S/L	PI1	LVSP17-CFS 1043-3 1037-1	1	1x240
VARIOUS LOCATIONS						SL SERVICE DIRECT FROM PILLAR (FUSE)		SUG SL PIL	6	
						ADDITIONAL EARTH		ADE	6	

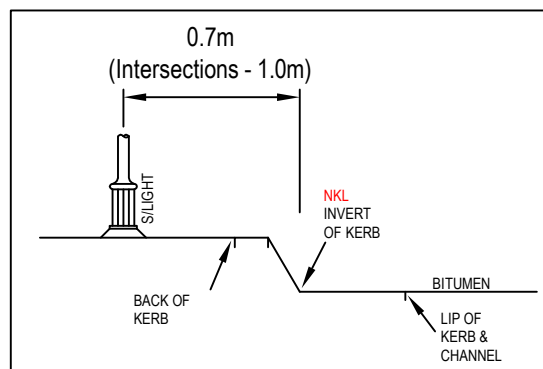
SITE INFORMATION

TOTAL NUMBER OF LOTS
8
PROPERTY DESCRIPTION
LOTS 10-17 CANCELING LOT 334 ON SP193431

SOURCE DOCUMENTS

CREATOR	DRAWING	DWG. NO.	REV. NO.	DATE
13 (I Cubed) Consulting Engineer	Civil Base	17-209-abase	-	14/05/2019
ENERGEX Ltd.	Augmentation	C0572039	REV B	03/05/2018

ELECTRICAL CONTRACTOR
REINSTATE ALL AREAS TO SAME



GOLD COAST CITY COUNCIL
STREETLIGHT ALIGNMENT DETAIL
NTS

CONSTRUCTION CONTACTS

ELECTRICAL ENGINEER ROBIN RUSSELL & ASSOCIATES PTY LTD DESIGNER Chris Allen - 0417 612 168 CONSTRUCTION COORDINATOR Shane Hyde - 0419 021 772	CIVIL ENGINEER 13 (I Cubed) Consulting Engineer Travis Smith - (07) 3870 8888	SURVEYOR AJS Surveys Pty Ltd Anthony Schmidt - (07) 3823 2144
---	--	--

"AS CONSTRUCTED" DOCUMENTS

The electrical contractor shall email the "as constructed" drawing, test results & closure documents to:
• subdivision@energex.com.au
• asconstructed@robus.com.au

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'.

CIVIL CONTRACTOR

The installation of all electrical conduits shall be supervised by the holder of an electrical work licence - Electrical Safety Act 2002.

Energex conduits and transformer site retaining walls shall be installed strictly in accordance with Energex'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 - two 100mm conduits into each lot (one for Electricity, one for Communications), 500mm deep behind the pillar, near ground level inside the lot.

Relevant specifications in Energex's Underground Distribution Construction Manual are found at -

Section C1: Conduits
Section C2: Excavation
Section C3: Transformer Sites

These sections of the manual can be downloaded from the following Energex web site:
https://swp.energex.com.au/service_providers/technical_docs/asp/technical_documents.asp

Civil engineers who have registered for access to the following RRA website may download extracts from Energex's manual at:
<http://www.robus.com.au>

The civil contractor shall ensure that all conduits have been installed before constructing retaining walls, paths, driveways & water services. The civil contractor shall please inform the electrical contractor of any 'as constructed' departures from the civil design.

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:
TELECOMMUNICATIONS INFRASTRUCTURE	to be provided by:



LEGEND: ELECTRICAL

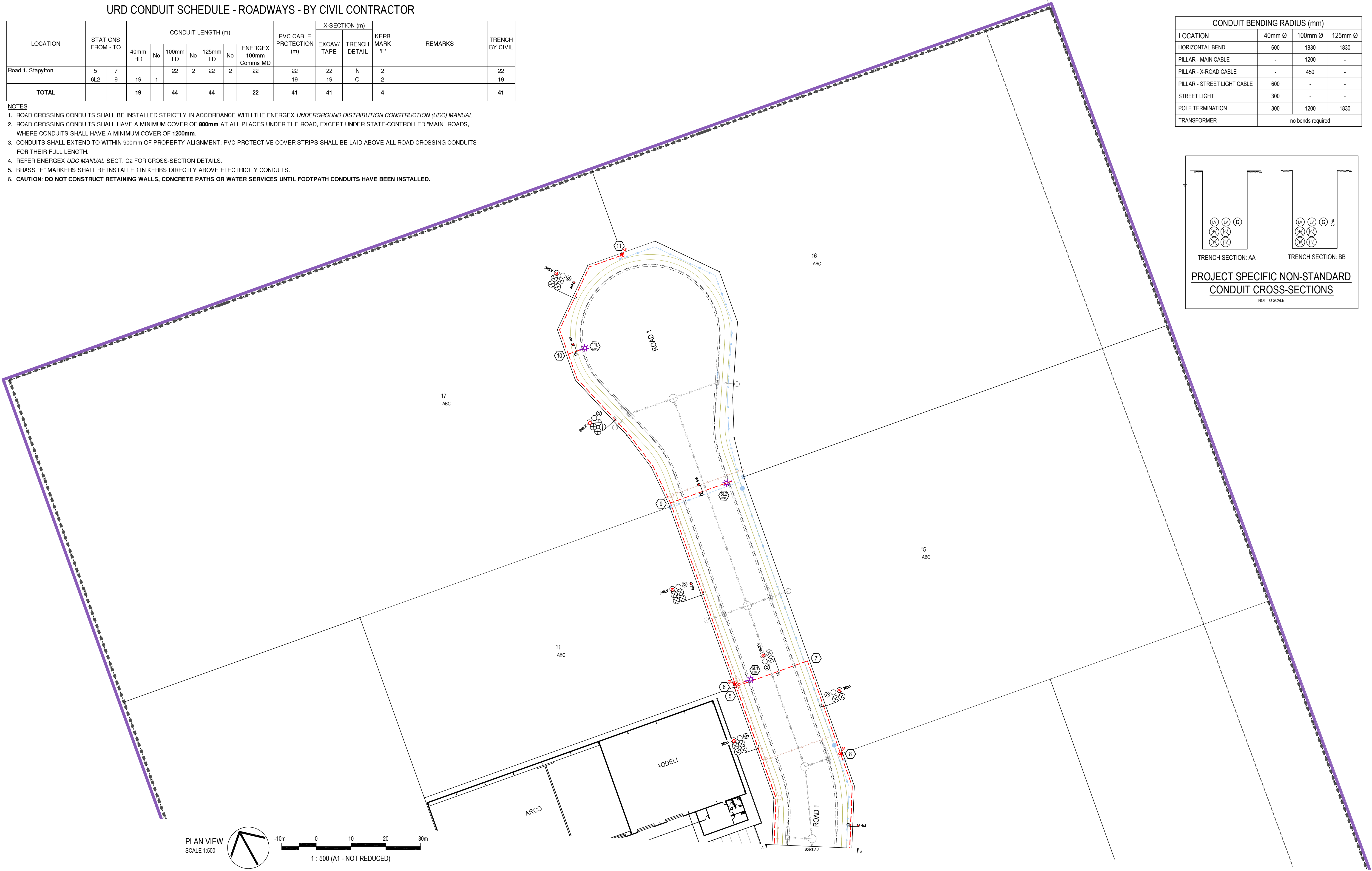
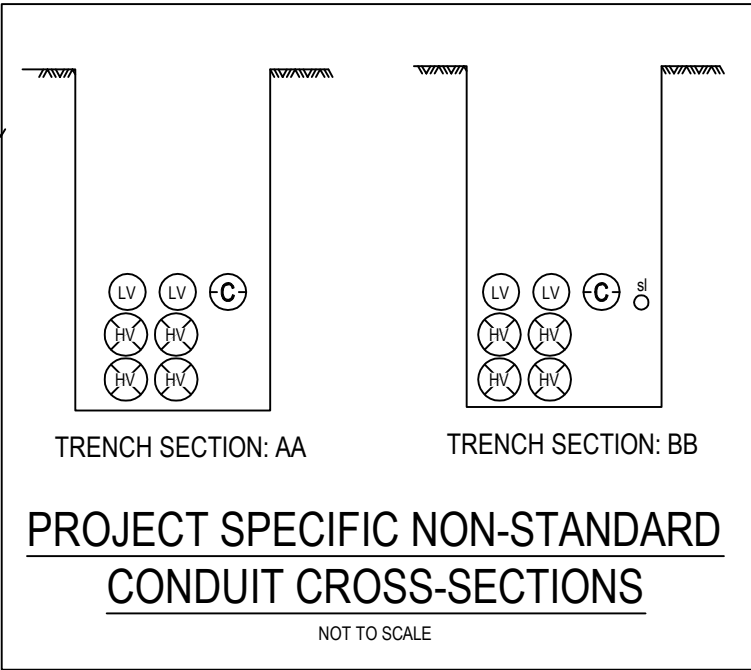
---	EXISTING UNDERGROUND CABLE
---	PROPOSED UNDERGROUND CABLE
---	FUTURE UNDERGROUND CABLE
---	BORED CONDUIT
---	GAS IN SHARED TRENCH
12 14	STATION NUMBERS
⊙	

URD CONDUIT SCHEDULE - ROADWAYS - BY CIVIL CONTRACTOR

LOCATION	STATIONS FROM - TO		CONDUIT LENGTH (m)						PVC CABLE PROTECTION (m)	X-SECTION (m)		KERB MARK 'E'	REMARKS	TRENCH BY CIVIL	
			40mm HD	No	100mm LD	No	125mm LD	No		ENERGEX 100mm Comms MD	EXCAV/ TAPE				TRENCH DETAIL
Road 1, Stapylton	5	7			22	2	22	2	22	22	N	2		22	
	6L2	9	19	1						19	O	2		19	
TOTAL			19		44		44		22	41	41		4		41

- NOTES
- ROAD CROSSING CONDUITS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE ENERGEX *UNDERGROUND DISTRIBUTION CONSTRUCTION (UDC) MANUAL*.
 - ROAD CROSSING CONDUITS SHALL HAVE A MINIMUM COVER OF **800mm** AT ALL PLACES UNDER THE ROAD, EXCEPT UNDER STATE-CONTROLLED "MAIN" ROADS, WHERE CONDUITS SHALL HAVE A MINIMUM COVER OF **1200mm**.
 - CONDUITS SHALL EXTEND TO WITHIN 900mm OF PROPERTY ALIGNMENT; PVC PROTECTIVE COVER STRIPS SHALL BE LAID ABOVE ALL ROAD-CROSSING CONDUITS FOR THEIR FULL LENGTH.
 - REFER ENERGEX *UDC MANUAL* SECT. C2 FOR CROSS-SECTION DETAILS.
 - BRASS "E" MARKERS SHALL BE INSTALLED IN KERBS DIRECTLY ABOVE ELECTRICITY CONDUITS.
 - CAUTION: DO NOT CONSTRUCT RETAINING WALLS, CONCRETE PATHS OR WATER SERVICES UNTIL FOOTPATH CONDUITS HAVE BEEN INSTALLED.**

CONDUIT BENDING RADIUS (mm)			
LOCATION	40mm 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		



DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:	 Robin Russell & ASSOCIATES PTY. LTD. CONSULTING ENGINEERS - ELECTRICAL	SUBDIVISION ELECTRICAL SERVICES	ENERGEX SPECIFICATION	WCS47.1	DESIGNED	CHRIS ALLAN	DESCRIPTION	LOCATION	DRAWING No.
30/05/2019	A	INITIAL ISSUE	RR					REV A: PRELIMINARY DESIGN FOR REVIEW & ISSUE.		204/6 Barbara Street, Stapylton, QLD 4053	COUNCIL	GCCC	DRAWN	CHRIS ALLAN	ELECTRICAL RETICULATION	84-160 CHRISTENSEN ROAD SOUTH STAPYLTON	C923-02A
										Tel: (07) 3872 5555 Fax: (07) 3872 5566 Email: ri@robruss.com.au www.robruss.com.au A.B.N. 76 010 989 661	COUNCIL REF	OPW/2019/160	APPROVED BY	ROBIN RUSSELL RPEQ 1546	CLIENT	BURNSIDE DEVELOPMENTS P/L & YELLOWSTONE INVESTMENTS P/L	ENERGEX PROJECT No.
											UBD REF	Map 285 Grid E13	SIGNED				SHEET No.
											DWT REV	V45 - 20181219	DATE	30/05/2019			2 OF 3
														THIS DOCUMENT IS COPYRIGHT AND THE PROPERTY OF ROBIN RUSSELL & ASSOCIATES PTY LTD AND MUST NOT BE RETAINED, COPIED OR USED WITHOUT AUTHORITY.		A1	S0106535

STREET LIGHT SCHEDULE - RATE 2

LOCATION	STN No.	SITE I.D.	POLE OR COMPONENTS								LANTERN							OUTREACH BRACKET					MOUNT HT (m)	REMARKS	SL CABLE (m)			
			COMP I.D.	EXIST (m)	REC (m)	POLE + O/R CODE	ACTION	ERECT (m)	POLE TYPE	ASSY	ALIGN	COMP I.D.	EXIST	RECOVER LANTERN	CUST.	LUMINAIRE CODE	ACTION	ERECT LANTERN	CUST.	ASSY / SC	EXIST (m)	REC (m)	ACTION	ERECT (m)	ASSY			
Christensen Road South, Stapylton	2L1	F2210998	P01			S B 90 1 30 U C11	INST	7.0	BPM	809-6	1.0 NKL	SL1				SLED PH0808A	INST	L80CA L2	GCCC	913-10			INST	1 x 3.0	808-2	9.0	One Way Outreach	8
	2L2	F1477744	P01	7.0	7.0		REC		BPM		EX	SL1	S100D	S100D-L2	GCCC		REC					3.0	3.0	REC			Recover SL Pole & Foundation	
Road 1	6L1	F2210999	P01			S B 75 1 15 C1	INST	5.5	BPM	872-4	0.7NKL	SL1				SLED GL 0244 A	INST	L24A L2	GCCC	817-36			INST	1x1.5	815-1	7.5		8
	6L2	F2211000	P01			S B 75 1 15 C1	INST	5.5	BPM	872-4	0.7NKL	SL1				SLED GL 0244 A	INST	L24A L2	GCCC	817-36			INST	1x1.5	815-1	7.5		
	8L	F2211001	P01			S B 75 1 15 C1	INST	5.5	BPM	872-4	0.7NKL	SL1				SLED GL 0244 A	INST	L24A L2	GCCC	817-36			INST	1x1.5	815-1	7.5		
	11L	F2211002	P01			S B 75 1 15 C1	INST	5.5	BPM	872-4	0.7NKL	SL1				SLED GL 0244 A	INST	L24A L2	GCCC	817-36			INST	1x1.5	815-1	7.5		
TOTAL																							16					

- NOTES
- ALL LIGHTS TO BE CONNECTED ON ENERGEX RATE 2.
 - CHECK CLEAR OF ALL SERVICES BEFORE EXCAVATING.
 - "NUK" ALIGNMENT MEASURED FROM NOMINAL KERB LINE TO POLE FACE.

LABELS

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

UNDERGROUND CABLE SCHEDULE

LOCATION	STATIONS FROM - TO		VOLTS	EX	REC	IN	CABLE SIZE/TYPE	MODEL ID	ROUTE LENGTH (m)	CABLE LENGTH (m)		REMARKS
										NEW	REC	
Christensen Road South, Stapylton	2	2A	LV	*			240mm² Al 4C XLPE/PVC		72			Cut Cable at Stn 2 & Turn Up Into New Pillar
		4	LV	*	*		240mm² Al 4C XLPE/PVC		124		124	Via Stn 3
		11	LV			*	240mm² Al 4C XLPE/PVC	SCS820364	124	130		
	2L2	3	SL	*	*		4mm² Cu 2C PVC/PVC	LVC24PVPV	77		82	
		4	SL	*	*		4mm² Cu 2C PVC/PVC		43		43	
	4	4L	SL	*			4mm² Cu 2C PVC/PVC		35			Cut cable and Turn up into Stn 4.
		4A	LV	*			240mm² Al 4C XLPE/PVC		42			Cut cable and Turn up into Stn 4.
Road 1	5	6	LV			*	185mm² Cu 1C PVC	SC0007181	1	12		
		8	LV			*	240mm² Al 4C XLPE/PVC	SCS820364	51	54		
	6	6L2	SL			*	4mm² Cu 2C PVC/PVC	LVC24PVPV	74	79		
	8	8L	SL			*	4mm² Cu 2C PVC/PVC	LVC24PVPV	39	44		
	11	11L	SL			*	4mm² Cu 2C PVC/PVC	LVC24PVPV	41	46		
ALL STREETS	AT PILLARS		LV			*	16mm² Cu 4C XLPE/PVC	SCS820365		12		BRIDGING
	STREETLIGHTS		SL			*	4mm² Cu 2C PVC/PVC	LVC24PVPV		16		
VARIANCE	5 %											
TOTALS							240mm² Al 4C XLPE/PVC	SCS820364		181	371	
							185mm² Cu 1C PVC	SC0007181		13		
							16mm² Cu 4C XLPE/PVC	SCS820365		13		
							4mm² Cu 2C PVC/PVC	LVC24PVPV		195	125	

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

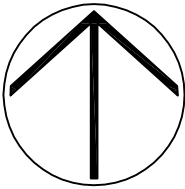
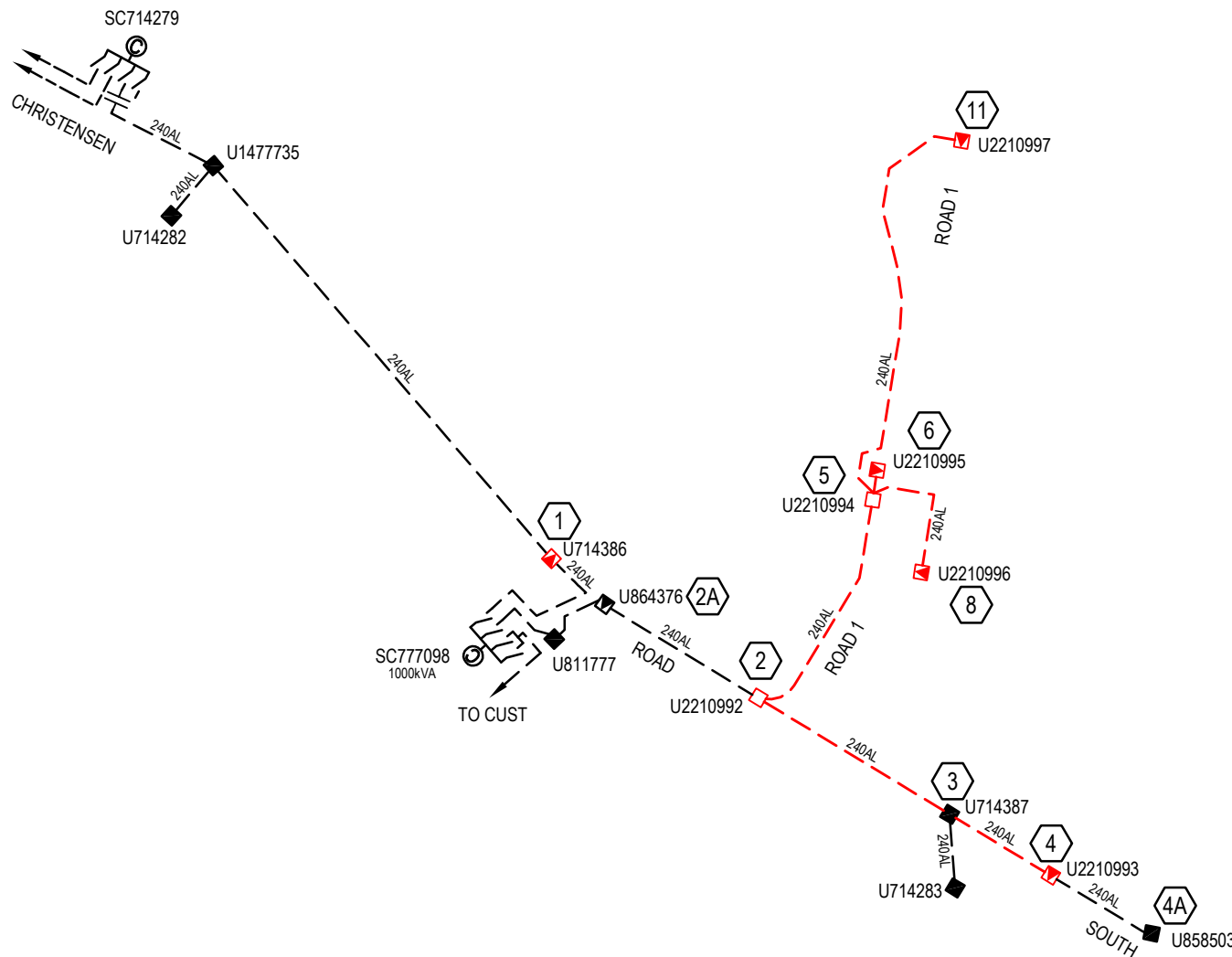
PROPOSED COMMISSIONING PLAN

Tentative only; subject to amendment by ENERGEX outage coordinator.

LV Switching

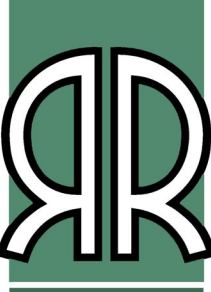
- OPEN SC777098 FS3 & FS4 - Christensen Road South
- Perform LV Works as Required.
- CLOSE SC777098 FS3 & FS4 - Christensen Road South

Where interruptions to existing consumers are required, they shall be notified in line with ENERGEX policies.



PROPOSED LV SCHEMATIC
SCALE 1:2500

LV SWITCHBOARD LABELS					AT CHRISTENSEN ROAD SOUTH SC777098
CIRCUIT No.	LABEL SIZE	LABEL COLOUR	LETTER SIZE	LABEL INFORMATION	
TRANSF. ISOLATOR	80x35	WB	6	TRANSFORMER ISOLATOR	
1	80x35	WB	5	[EXISTING]	
2	80x35	WB	5		
3	80x35	WB	5	TO CHRISTENSEN RD STH U858503 / ROAD 1 U2210997 & SERVICES	
4	80x35	WB	5	TO CHRISTENSEN RD U714386 DIRECT THEN SC714279 & SERVICES.	

DATE	REV	REVISION	APP.	DATE	REV	REVISION	APP.	CURRENT REVISION CHANGES:	 Robin Russell & ASSOCIATES PTY. LTD. CONSULTING ENGINEERS - ELECTRICAL	SUBDIVISION ELECTRICAL SERVICES 204/6 Barbara Street, Stapylton, QLD 4053 Tel: (07) 3872 5555 Fax: (07) 3872 5556 Email: ri@robus.com.au www.robus.com.au A.B.N. 76 010 989 661	ENERGEX SPECIFICATION	WCS47.1	DESIGNED	CHRIS ALLAN	DESCRIPTION ELECTRICAL RETICULATION	LOCATION 84-160 CHRISTENSEN ROAD SOUTH STAPYLTON	DRAWING No. C923-03A
30/05/2019	A	INITIAL ISSUE	RR					REV A: PRELIMINARY DESIGN FOR REVIEW & ISSUE.			COUNCIL	GCCC	DRAWN	CHRIS ALLAN			
											COUNCIL REF	OPW/2019/160	APPROVED BY	ROBIN RUSSELL RPEQ 1546	CLIENT BURNSIDE DEVELOPMENTS P/L & YELLOWSTONE INVESTMENTS P/L	© THIS DOCUMENT IS COPYRIGHT AND THE PROPERTY OF ROBIN RUSSELL & ASSOCIATES PTY LTD AND MUST NOT BE RETAINED, COPIED OR USED WITHOUT AUTHORITY.	A1
											UBD REF	Map 285 Grid E13	SIGNED	<i>Robin Russell</i>			
											DWT REV	V45 - 20181219	DATE	30/05/2019			