



REFERENCE DRAWINGS

1kV POLE MOUNTED VOLTAGE REGULATOR CONTROLLING INTELLI-DISCONNECT	244230
1kV POLE MOUNTED VOLTAGE REGULATOR WITH CONTROLLING INTELLI-DISCONNECT	224227
EATON COOPER POWER SYSTEM 100A & 200A POLE MOUNTED REGULATOR MOUNTING FRAME	181618
1kV POLE MOUNTED VOLTAGE REGULATOR GROUND MOUNTED FIBREGLASS CABINET CONCRETE FOOTING DETAILS	191227
1kV POLE MOUNTED VOLTAGE REGULATOR TIMBER CROSSARM DRILLING DETAIL	224230

EQUIPMENT WEIGHTS

EATON COOPER POWER SYSTEMS VR32 200A REGULATOR (PER UNIT)	1500kg
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106	CCT EARTHING POINT COVER (SEE NOTE 16)	144741	3
105	HEATSHRINK TERMINATION KIT FOR HV DROPPER LUGS	152207	1
104	ANTENNA (WHERE REQUIRED FOR COMMS INSTALL)		AS REQ.
103	COMMUNICATIONS COAXIAL CABLE (WHERE REQUIRED FOR COMMS INSTALL)		AS REQ.
102	NUT - M20, HEX, GALV.	515466	175361
101	WASHER - SPRING, M20, GALV.	518082	175569
100	NUT - M16, HEX, STAINLESS STEEL	515467	139421
99	WASHER - BEVELVILLE, M16, STAINLESS STEEL	518082	177296
98	WASHER - FLAT ROUND, M16, STAINLESS STEEL	518081	42411
97	SET SCREW - M10 x 30, HEX, STAINLESS STEEL	515467	45088
96	NUT - M12, HEX, STAINLESS STEEL	515467	8987
95	WASHER - BEVELVILLE, M12, STAINLESS STEEL	518082	175903
94	WASHER - FLAT ROUND, M12, STAINLESS STEEL	518081	42429
93	SET SCREW - M12 x LENGTH TO SUIT, HEX, STAINLESS STEEL	515467	177122
92	NUT - M16, HEX, NYLON, STAINLESS STEEL	515467	177122
91	NUT - M16, HEX, STAINLESS STEEL	515467	179756
90	WASHER - BEVELVILLE, M16, STAINLESS STEEL	518082	157487
89	WASHER - FLAT ROUND, M16, STAINLESS STEEL	518081	424221
88	SET SCREW - M16 x 40, HEX, STAINLESS STEEL	515467	177984
87	WASHER - FLAT ROUND, M12, GALV.	518081	177982
86	WASHER - CONICAL, M12, GALV.	517278	139639
85	BOLT & NUT - M12 x 140, HEX, GALV.	515466	46821
84	BOLT & NUT - M12 x 180, HEX, GALV.	515466	46888
83	WASHER - FLAT ROUND, M16, GALV.	518081	177984
82	WASHER - CONICAL, M16, GALV.	517278	139647
81	WASHER - SQUARE, M16, 50x50, GALV.	518081	139257
80	U BOLT - M16, SIZE TO SUIT POLE, C/W 4 NUTS & WASHERS, GALV.	514409	4
79	BOLT & NUT - M16 x 200, HEX, GALV.	515466	83725
78	EYEBOLT - M20, GALV.	519351	138853
77	WASHER - FLAT ROUND, M20, GALV.	518081	177986
76	WASHER - CONICAL, M20, GALV.	517278	139655
75	WASHER - SQUARE, M20, 75x75, GALV.	518081	139231
74	EYEBOLT - M20 x 200, C/W 2 HEX NUTS, GALV.	513653	137881
73	EYEBOLT - M20 x LENGTH TO SUIT POLE, C/W 2 HEX NUTS, GALV.	513653	1
72	BOLT & NUT - M20 x LENGTH TO SUIT POLE, HEX, GALV.	515466	2
71	WASHER - SPRING, M24, GALV. AS1111		PURCHASE 8
70	WASHER - FLAT ROUND, M24, GALV.	518081	177981
69	WASHER - CONICAL, M24, GALV.	517278	139663
68	WASHER - SQUARE, M24, 75x75, GALV.	518081	139273
67	WASHER - FLAT ROUND, M24, GALV.	518081	177982
66	BOLT & NUT - M24 x 85, HEX, GALV. AS1111		PURCHASE 6
65	BOLT & NUT - M24 x 90, HEX GALV. AS1111		PURCHASE 2
64	BOLT & NUT - M24 x LENGTH TO SUIT POLE, HEX, GALV.	515465	5
63	COACH SCREW - M6 x 40, HEX, GALV.	50591	AS REQ.
62	COACH SCREW - M12 x 100, HEX, GALV.	514404	7
61	CLOUT - 82.3 x 40, GALV.	50963	AS REQ.
60	CHARACTER TAGS - 50mm ALUMINIUM, BLACK ON YELLOW		PURCHASE AS REQ.
59	SIGN - "DANGER HIGH VOLTAGE"	503117	HL7012
58	BEND - 100mm HIGH IMPACT ABS (ABScon)		PURCHASE 1
57	SADDLE - TO SUIT CABLE		PURCHASE AS REQ.
56	SADDLE - 40mm, FULL, GALV.		PURCHASE AS REQ.
55	SADDLE - 100mm, FULL, GALV.		PURCHASE AS REQ.
54	CONDUIT - 40mm HIGH IMPACT ABS (ABScon)		PURCHASE AS REQ.
53	CONDUIT - 40mm HEAVY DUTY ORANGE (BELOW GROUND ONLY)		PURCHASE AS REQ.
52	CONDUIT - 100mm HIGH IMPACT ABS (ABScon)		PURCHASE AS REQ.
51	CONDUIT - 100mm HEAVY DUTY ORANGE (BELOW GROUND ONLY)		PURCHASE AS REQ.
50	COVER - UNDERGROUND CABLE PROTECTION, 150mm WIDE	151084	AS REQ.
49	COVERGUARD - PVC, HIGH IMPACT, BLACK	205775	151552
48	CONTROL CABLE - 12 CORE, 18m, EXTENSION	181674	2
47	CONDUCTOR - 35mm ² 19/17/53 CU, LDPE INSULATED, PVC SHEATHED	HL4578	AS REQ.
46	COVERED CONDUCTOR FOR THICK - CCT(1A) 174.751		AS REQ.
45	CONDUCTOR - SINGLE CORE OF 95mm ² ABC (SEE DGS18)	67959	AS REQ.
44	CONDUCTOR - 19/2.14 BLACK PVC INSULATED HD (70mm ² EARTH)	60111	AS REQ.
43	COVER - FOR CCT PARALLEL GROOVE CLAMP		144576
42	CLAMP - PARALLEL GROOVE, 2 BOLT, TO SUIT CCT		144568
41	CLAMP - PARALLEL GROOVE, TO SUIT FEEDER CONDUCTOR & CCT	514099	AS REQ.
39	CLAMP - PARALLEL GROOVE, 2 BOLT, COPPER	176946	2
38	LUG KIT - FOR 35mm ² CU LDPE INSULATED PVC SHEATHED CONDUCTOR	HL25260	1
37	LUG - COMPRESSION, TINNED CU, M10, FOR 35mm ² CU CONDUCTOR	SEE ITEM 38	3
36	LUG - COMPRESSION, TINNED CU, M12, FOR 35mm ² CU CONDUCTOR	SEE ITEM 38	3
35	LUG - COMPRESSION, BI-METALLIC, 2xM10 HOLES, FOR CCT120	517412	12
34	LUG - COMPRESSION, TINNED CU, M16, FOR 70mm ² CU CONDUCTOR	518772	2
33	LUG - COMPRESSION, BI-METALLIC, M12, FOR 95mm ² AL CONDUCTOR	58743	3
32	LUG - COMPRESSION, TINNED CU, M12, FOR 70mm ² CU CONDUCTOR	74831	19
31	LUG - COMPRESSION, BI-METALLIC, 95mm ² AL, TO 70mm ² CU	HL07771	AS REQ.
30	CONDUCTOR - CU, COMPRESSION, 70mm ² CONDUCTOR TO 815 ROD	HL3659	AS REQ.
29	COUPLING SLEEVE - TO SUIT 815 EARTH RODS	HL1649	AS REQ.
28	EARTH ROD - 1800 x 815 COPPERCLAD STEEL CORED	HL1631	AS REQ.
27	EARTH STUB - MCKEOWN	520088	HL0845
26	EARTH BAR - TINNED COPPER, FLAT, 58.8x3	182170	2
25	SURGE ARRESTER - 1kV, 10kA, POLYETHYLENE DISTRIBUTION TYPE	119418	3
24	ISOLATING LINK - SINGLE PHASE, 12kV, 630A	58750	3
23	HANGER - CABLE CLAMP, SUSPENSION	HL13472	3
22	LINK PLATE - TWISTED, 170x50x6, GALV.	176901	3
21	THE WIRE - PREFORMED, INSULATED FOR CCT120	144600	8
20	SAG LINK - 70kV (P.P. PART NO. CT5LEW-070-1)		PURCHASE 3
19	COVER - FOR STRAIN CLAMP	144543	3
18	STRAIN CLAMP - FOR CCT120	144527	3
17	INSULATOR - STRAIN, FOR 11kV CCT	144550	3
16	INSULATOR - M16 x 145 STD, FOR 11kV CCT	15	145052
15	INSULATOR - 23KV LONGROD	15	150375
14	REGULATOR CONTROLLER - (SUPPLIED WITH REGULATOR)		PURCHASE 1
13	CABINET - FIBREGLASS, FULTON INDUSTRIES AUSTR. PART NO. F11616A	191227	FABRICATE 1
12	CONCRETE FOOTING FOR FIBREGLASS CABINET	191227	FABRICATE 1
11	REGULATOR UNIT - EATON COOPER POWER SYSTEM VR32, 200AMP	176613	2
10	REGULATOR MOUNTING FRAME	181618	FABRICATE 1
9	BRACE - 60x60x5 FLAT BAR, FOR CROSSARM	516385	HL17738
8	GAIN BLOCK - 150mm, ALUMINIUM	146290	1
7	GAIN BLOCK - 100mm, ALUMINIUM	146274	1
6	CROSSARM 3 - WOOD, 2700x150x100	224230	H23761
5	CROSSARM 2 - WOOD, 2300x150x100	224230	H23820
4	CROSSARM 1 - WOOD, 2700x150x100	224230	H23361
3	11kV THROUGH TERMINATION (2-11C1)	174962	1
2	11kV THROUGH TERMINATION (2-11)	513915	1
1	POLE - WOOD, MIN 15.5m/124m, CONCRETED MIN 2.8m IN GROUND		1

GROUND MOUNTED CONTROL UNITS SHALL BE USED WHERE THE CONTROL UNIT HOUSING IS NOT LIKELY TO BE ADVERSELY AFFECTED. ADVERSE AFFECTS INCLUDE POTENTIAL INTERFERENCE BY LIVESTOCK OR INSTALLATION IN FLOOD PRONE SITES. IN SUCH SITES, POLE MOUNTED CONTROL UNITS MAY BE USED.

- NOTES:
- MINIMUM CLEARANCES: PHASE TO EARTH TO BE GREATER THAN 200mm. PHASE TO PHASE TO BE GREATER THAN 200mm.
 - REGULATOR CONTROL CABINET IS TO BE POSITIONED EITHER IN THE FOOTPATH ALLOCATED AREA OR IN THE LINE EASEMENT NO CLOSER THAN 2500 FROM THE POLE. A 1500 x 1300 CONCRETE FOOTING IS REQUIRED FOR THE CONTROL CABINET AS PER DRAWING 191227. THE CONTROL BOX MOUNTING FRAME AND EARTH BAR ARE SUPPLIED WITH FIBREGLASS CABINET (ITEM 13) PURCHASED FROM FULTON INDUSTRIES AUSTRALIA (PART NO. F11616A) PH. (02) 4323 4242.
 - FOR REGULATOR MOUNTING FRAME FABRICATION DETAIL REFER TO DRAWING 181618.
 - EARTH ROD IS NOT TO BE POSITIONED UNDER CONTROL CABINET CEMENT PLINTH. WHERE CCT MAINS ARE USED, STANDARD EARTHING POINTS & COVERS ARE TO BE INSTALLED AS DETAILED IN NS16.
 - ALL HV CONNECTIONS EXCEPT CONNECTIONS TO THE ARRESTERS ARE TO BE MADE USING 7/4.75 120mm² COVERED CONDUCTOR THICK (CCT120) WHERE THE CONDUCTOR IS REQUIRED TO BE STRIPPED PRIOR TO TERMINATION. THE ENTIRE STRIPPED LENGTH MUST BE CLEANED & WIRE BRUSHED VIGOROUSLY AND SUITABLE JOINTING COMPOUND APPLIED TO IT IMMEDIATELY.
 - THE HV CONNECTIONS TO THE ARRESTERS ARE TO BE MADE USING 35mm² COVERED COPPER CONDUCTOR (ITEM 47) AND SHALL HAVE UV STABILIZED MASTIC LINED LV HEATSHRINK TUBING SHRUNK OVER THE BARREL OF THE LUGS AND THE CABLE ENDS.
 - HV SURGE ARRESTERS ARE TO BE EARTHED BY DAISY CHAINING AND ELECTRICALLY BONDED TO TOP EARTH BAR USING 70mm² PVC INSULATED COPPER CONDUCTOR (ITEM 44).
 - 95mm² ALUMINIUM EARTH CONDUCTOR SHALL BE USED FROM THE BOTTOM EARTH BAR TO 300mm ABOVE GROUND WHERE 70mm² COPPER EARTH CONDUCTORS WILL BE EXTENDED VIA BI-METALLIC LINKS TO THE EARTH ELECTRODES. REFER TO DGS18A FOR FURTHER DETAILS.
 - REGULATOR (ASSET) NUMBER TO BE INSTALLED ON POLE APPROXIMATELY 3600mm ABOVE GROUND. LOAD LINK NUMBER TO BE INSTALLED IN ACCORDANCE WITH NS158 TABLE 4.6 - 'HV & LV LINK SET NUMBER LABELS (APPROXIMATELY 3000mm ABOVE GROUND)'. THE POLE NUMBER SHALL BE INSTALLED IN ACCORDANCE WITH NS148 BETWEEN 2400mm & 3000mm ABOVE GROUND.
 - PHASE LINK LABELS TO BE INSTALLED ADJACENT TO EACH LINK AS SHOWN USING MINIMUM 50mm ALUMINIUM (BLACK ON YELLOW) CHARACTER TAGS.
 - DANGER SIGNS TO BE INSTALLED ON BOTH FRONT & REAR OF POLE. SIGNS MUST BE BENT AROUND POLE BEFORE SECURING.
 - A POLE MOUNTED EXTERNAL ANTENNA CAN BE INSTALLED WHERE REQUIRED. THE ACTUAL LOCATION OF THE ANTENNA ON THE POLE IS TO BE DETERMINED DURING INSTALLATION OF COMMUNICATION EQUIPMENT. THE LOCATION IS ALWAYS TO COMPLY WITH THE MINIMUM SAFE WORKING DISTANCES SPECIFIED IN AUSGRID'S ELECTRICAL SAFETY RULES.
 - DRAW WIRE TO BE INSTALLED INSIDE 80 CONDUIT FOR FUTURE COMMS COAXIAL CABLE. SECURE DRAW WIRE AND SEAL END OF CONDUIT WITH SUITABLE PVC TIE.
 - INSTALL MEDIUM WALL ED MASTIC LINED BLACK HEATSHRINK OVER THE BARE LUG BARREL AND CABLE INSULATION.
 - STANDARD CCT EARTHING POINTS AND COVERS ARE TO BE INSTALLED ON THE CCT CABLE USED FOR REGULATOR SUPPLY (ITEM 44). THESE ARE NORMALLY LOCATED AT THE INTELLI-DISCONNECT POLE. HOWEVER IF THE INTELLI-DISCONNECT POLE IS NOT WITHIN LINE OF SIGHT OF THE REGULATOR POLE, STANDARD EARTHING POINTS AND COVERS ARE TO BE INSTALLED ON BOTH ENDS OF THE CCT CABLE.

AN EARTHING DESIGN MUST BE UNDERTAKEN FOR EACH SITE. THE EARTHING SHOWN ON THIS DRAWING IS INDICATIVE ONLY.

SCALE: AS SHOWN

DESIGNED: C. HABBITT

DRAWN: P. JARVIS

CHECKED: D. GURVEY

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PROJ/TRAJ NUMBER: A0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

CONSTRUCTION

2 UNIT 1kV POLE MOUNTED REGULATOR WITH GROUND MOUNTED CONTROL PANEL CONSTRUCTION DETAIL

SIZE: A0

DRAWING NO: 224401

SHEET: 1

NO: 4