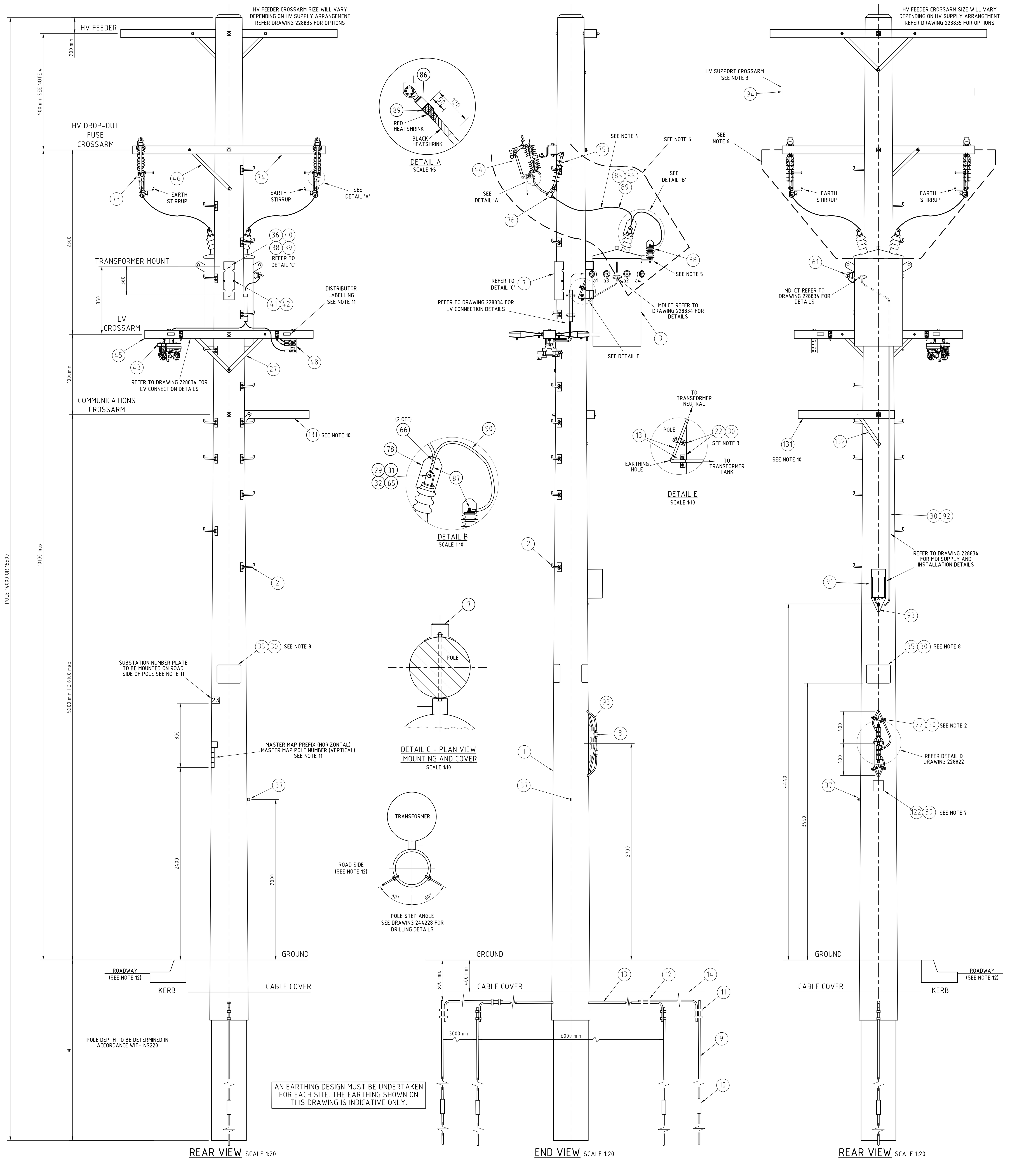

ITEM	DESCRIPTION	DWG. NO.	STOCK CODE	QTY.
1	POLE - COMPOSITE			1
1a	14m x 24kN NOT DRILLED	244221	185015	
1b	15.5m x 24kN NOT DRILLED	244222	185016	
1c	14m x 24kN MANUFACTURER DRILLED	251878	185464	
1d	15.5m x 24kN MANUFACTURER DRILLED	2518791	185465	
2	POLE STEP FOR COMPOSITE POLES	244223	184743	AS REQ.
3	SINGLE PHASE TRANSFORMER - POLE HUNG			1
3a	16kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180380	
3b	25kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180375	
3c	63kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180365	
3d	25kVA 22000/500-250V SINGLE PHASE TRANSFORMER		180373	
4				
5a	SADDLE 25mm - GALV.		66043	AS REQ.
5b	SADDLE 40mm - GALV.		H9290	AS REQ.
5c	SADDLE 50mm - GALV.		66019	AS REQ.
6a	CONDUIT 25mm FLEXIBLE PVC		H8919	AS REQ.
6b	CONDUIT 40mm FLEXIBLE PVC		H8935	AS REQ.
6c	CONDUIT 50mm FLEXIBLE PVC		176570	AS REQ.
7	FIBREGLASS COVER FOR TRANSFORMER MOUNTING BRACKET	566374	176961	1
8	LINK EARTH BAR FOR POLE SUBSTATIONS	151592	177069	1
9	ELECTRODE - DRIVEN EARTH, Ø15 x 1800mm		H31631	AS REQ.
10	COUPLER - EARTH ELECTRODE, TO SUIT Ø15 ROD		H31649	AS REQ.
11	'P' CRIMP CONNECTOR - CU, 70mm² TO Ø15 ELECTRODE		H31699	AS REQ.
12	'C' CRIMP CONNECTOR - COPPER, COMPRESSION, 70mm² TO 70mm²		177942	AS REQ.
13	CONDUCTOR - 19/2.14 BLACK PVC INSULATED HD (70mm² EARTH)		60111	AS REQ.
14	PVC/POLYMERIC CABLE COVER - 150mm WIDE		151084	AS REQ.
15	NA			
16	NA			
17	NA			
18	NA			
19	NA			
20	LUG - CRIMP, M12, FOR 70mm² COPPER EARTH CABLE	31077	74831	AS REQ.
21	NA			
22	GALVANISED SADDLE FOR 70mm² COPPER EARTH CABLE		176494	AS REQ.
23	CLAMP 2 BOLT PARALLEL GROOVE - COPPER		176946	1
24	SPLIT BOLT CLAMP (HENLEY B26)		H18815	1 or 2
25	LUG - CRIMP, M12, FOR 10mm² COPPER			1
26				
27	BRACE CROSSARM 690 x 40 x 5mm	514385	H17738	2 or 3
28	BOLT HEX HEAD STAINLESS STEEL M12 x 30mm		H38528	8
29	NUT M12 STAINLESS STEEL		8987	21
30	SCREWS SELF DRILLING - #12 x 45mm		175567	AS REQ.
31	WASHER - FLAT, M12, STAINLESS STEEL	518081	49429	AS REQ.
32	WASHER - BELLEVILLE, M12, STAINLESS STEEL	518082	175903	AS REQ.
33	BOLT & NUT HEX HEAD GALV M16 x 130mm		46979	2
34	LUG - COMPRESSION 2 x M12 AT 30mm CENTRES , FOR 70mm² Cu.		176967	1
35	SIGN - DANGER HIGH VOLTAGE		H47012	2
36	BOLT & NUT - M20, HEX, GALVANISED, LENGTH TO SUIT POLE	515466		6 or 7
37	EYED LAG BOLT, M8 x 110mm, STAINLESS STEEL		182589	1
38	WASHER - CONICAL, M20, STAINLESS STEEL - VOLUTE		146316	6 or 7
39	WASHER - FLAT ROUND, M20 x 44.5 x 3.23, GALV.	518081	177986	8 or 12
40	WASHER - SQUARE, M20 x 50 x 50 x 6mm		H39265	8 or 10
41	COACH SCREW - M10 x 40mm, GALVANISED		50567	2
42	WASHER - M10 x 24mm x 2.21mm, GALVANISED		177983	2
43a	FUSE BASE AND CARRIER LV 630A SINGLE CIRCUIT	117077	90522	1
43b	FUSE BASE AND CARRIER LV 630A DUAL CIRCUIT	31700	90563	1
44	FUSE (REFER NS122 - SECTION 10.2)			
45a	CROSSARM 2100 x 100 x 150	566345	176224	1
45b	CROSSARM 1200 x 100 x 75	15233	71795	1
46	BRACE CROSSARM 740 x 38 x 38 x 5mm	46	99119	1
47	GAIN BLOCK - ALUMINIUM 100mm		146274	AS REQ.
48	LV ABC NEUTRAL CONNECTION PLATE	151570	149161	1
49	BOLT & NUT HEX HEAD GALV M12 x 180mm		46888	2
50	BOLT & NUT HEX HEAD GALV M16 x 150mm		175672	2
51	BOLT EYE GALV M20 x 200mm	513653	H37881	AS REQ.
52				
53	NUT, EYE M20 GALV.	513951	H38853	AS REQ.
54	WASHER FLAT GALV M12 x 32 x 2.71mm		177982	9
55	WASHER FLAT GALV M16 x 38 x 3.23mm		177984	14
56	WASHER - CONICAL, M12, STAINLESS STEEL - VOLUTE		179601	4
57	WASHER - CONICAL, M16, STAINLESS STEEL - VOLUTE		146308	7
58	WASHER - SQUARE GALVANISED, M16 x 50 x 50 x 6mm		H39257	4
59	NUT HEX., M20 GALV.		175361	2
60	SURGE ARRESTER LV 500V 5KA		H31893	1
61	COVER LV BUSHING		H22032	2 or 4
62a	LUG COMPRESSION LONG BARREL M12 TO SUIT 95mm² CU CABLE		151050	2
62b	LUG COMPRESSION M12 TO SUIT 35mm² CU CABLE		H20501	6
63	LUG COMP. 2 HOLE (30mm CENTRES) M12 TO SUIT 95mm² CU CABLE		176968	1
64				
65	BOLT HEX HEAD STAINLESS STEEL M12 x 40mm		45146	13
66	CABLE TIE BLACK 380 x 7.6mm		59907	AS REQ.
67	CABLE - REFER TO TABLE 1 ON DRAWING 228834			
67a	CABLE 95mm² CU PVC INSULATED		59584	AS REQ.
67b	CABLE 35mm² CU PVC INSULATED		H13629	AS REQ.
68	HEATSHRINK - MEDIUM AND THICK WALL MASTIC LINED			AS REQ.
69	BOLT HEX HEAD STAINLESS STEEL M12 x 25mm		44693	5 or 10
70	LUG BI-METALLIC COMPRESSION M12 TO SUIT 95mm² CABLE		58743	1 or 2
71	LUG BI-METALLIC COMPRESSION 2 x M12 TO SUIT 95mm² CABLE		177074	1 or 2
72				
73a	DROPOUT FUSE BASE AND CARRIER 12/24KV TYPE EXPULSION		H84350	2
73b	FUSE BASE, DROPOUT, 12KV, S & C TYPE SMD-20		H70029	2
73c	FUSE BASE, DROPOUT, 24KV, S & C TYPE SMD-20		181441	2
74	CROSSARM 2400 x 100 x 100	566345	176222	1
75	INSULATOR 22kV POLYMERIC LONG-ROD		150375	2
76	CLAMP SUSPENSION LV		H113472	2
77	PLATE, TWISTED, GALV 150 x 50 x 6mm	151086	176901	2
78	COVER HV BUSHING		H21858	2
79	BOLT & NUT HEX HEAD GALV M12 x 130mm		46805	1
80	BOLT & NUT HEX HEAD GALV M16 x 160mm		47043	2
81	SCREW COACH HEX HEAD GALV M12 x 90mm		50443	2 or 3
82	BOLT HEX HEAD STAINLESS STEEL M16 x 40mm		H38413	2
83	WASHER - FLAT, M16, 30 x 1.5mm STAINLESS STEEL		H39621	4
84	NUT NYLOC, M16 STAINLESS STEEL		177122	2
85	CABLE 11kV 35mm² Cu LDPE INSULATED 19/1.53		H14578	AS REQ.
86	LUG KIT HEAVY DUTY TO SUIT 11kV LDPE CABLE (1Ø TX SET)		H125252	1
87	LUG COMPRESSION M12 TO SUIT 16mm² 11kV LDPE CABLE		H110270	4
88a	ARRESTERS SURGE 11kV		111948	2
88b	ARRESTERS SURGE 22kV		H32182	2
89	HEATSHRINK TERMINATION KIT FOR HV DROPPER LUGS		152207	1
90	CABLE 11kV 16mm² CU LDPE INSULATED		6205	AS REQ.
91	MAXIMUM DEMAND INDICATOR /ENCLOSURE AND WIRED UNIT	164578	178641	1
92	SADDLE CONDUIT GALV M20		176493	AS REQ.
93	COACH BOLT M12 x 50mm		50476	2 or 4
94	CROSSARM 2400 x 100 x 100	228833	71589	AS REQ.
	SEGREGATED EARTHING OPTION			
121	LV SURGE ARRESTER NEUTRAL (SEGREGATED ONLY)		98939	1
122	SEGREGATED EARTHING SIGN	224403	182387	NOTE 8
	COMMUNICATION CROSSARM OPTION			
131a	CROSSARM 1200 x100 x 75 (LS1)	15233	71795	
131b	CROSSARM 1800 x 150 x 100 (ITEM D)	566345	176225	
132	BRACE CROSSARM 490 x 40 x 5mm	46	76745	
	LV CROSSARM SUPPORT OPTION			
141	DEADEND PRE-FORMED TO SUIT 19/2.00 GALV. STEEL		58859	3 or 6
142	INSULATOR GUY TYPE GY2		74997	1 or 2
143	CONDUCTOR 19/2.00 GALV. STEEL		H10485	AS REQ.
144	THIMBLE CLEVIS TO SUIT 19/2.00 GALV. STEEL		448	1 or 2
145	GUY LOCK TO SUIT 19/2.00 GALV. STEEL		59063	1 or 2

REFER NOTE 13 (items 1a–1d)

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH NS122.
2. 70mm² COPPER CONDUCTORS SHALL BE USED FOR ALL EARTHING UNLESS OTHERWISE STATED. EARTHING CONDUCTORS FROM THE TRANSFORMER TO THE EARTH BAR AND FROM THE EARTH BAR TO THE EARTH ELECTRODES SHALL BE RUN INSIDE THE POLE. ALL EARTHING CABLES ARE TO BE SECURED TO THE POLE WITH SADDLES (ITEM 22) BEFORE ENTERING POLE EARTHING CABLE HOLES.
3. THE DISTANCE BETWEEN THE HV FEEDER AND HV DROP-OUT FUSE CROSSARM MUST BE INCREASED TO 1200mm (UP TO A MAXIMUM OF 1500mm) WHERE HOT LINE CLAMPS ARE USED. THIS IS TO ACHIEVE INCREASED HV FEEDER CLEARANCE OR TO ALLOW FOR SAFE WORKING CLEARANCE TO HV. A HV SUPPORT CROSSARM IS REQUIRED FOR ALL POLES WHICH ARE GREATER THAN 12.5m AND THE DISTANCE BETWEEN HV FEEDER AND HV DROP-OUT FUSE CROSSARM IS EQUAL TO OR GREATER THAN 1500mm. THE SUPPORT CROSSARM IS TO BE CONSTRUCTED AS SHOWN IRRESPECTIVE OF THE TYPE OF HV MAINS CABLE, MIDWAY BETWEEN THE HV FEEDER AND HV DROP-OUT FUSE CROSSARM. REFER TO DRAWINGS 228833 AND 228835 FOR DETAILS.
4. HV DROPPER CABLES TO BE SUPPORTED AT THE TOP USING INSULATOR AND SUSPENSION CLAMP (ITEMS 75 AND 76). THE BOTTOM CABLES ARE TO BE SECURED USING TWO 7.6mm WIDE CABLE TIES (ITEM 66). HEAVY DUTY 35mm² LUGS MUST BE USED ON DROPPER CABLES. TWO (2) CRIMP OPERATIONS ARE REQUIRED FOR COMPLETE TERMINATION OF CABLE INTO LUG TUNNEL. HEAVY DUTY 16mm² LUGS WITHOUT HEATSHRINK ACCEPTABLE ON SURGE ARRESTER. REFER TO DRAWING 228834.
5. SURGE ARRESTER MOUNTING BRACKETS ARE SUPPLIED ON EACH AUSGRID SPECIFIED AND APPROVED TRANSFORMER. SURGE ARRESTERS ARE SUPPLIED AND FITTED DURING CONSTRUCTION OF THE POLE TRANSFORMER SUBSTATION. MAXIMUM ALLOWABLE TORQUE ON ARRESTER IS 27Nm. TORQUE WRENCH MUST BE USED TO ENSURE ARRESTER IS NOT DAMAGED.
6. NO LV SERVICE CABLES OR COMMUNICATION CABLES SHALL BE INSTALLED THROUGH HV DROPPER CABLES AND A MINIMUM 350mm DISTANCE BE MAINTAINED BETWEEN LV AND HV.
7. SEGREGATED EARTHING SIGN (ITEM 122 - REFER DRAWING 224403) ONLY REQUIRED WHERE A SEGREGATED EARTHING SYSTEM IS INSTALLED.
8. DANGER SIGN TO BE BENT AROUND POLE BEFORE SECURING.
9. IF A LV UGOH IS REQUIRED IT IS TO BE INSTALLED TO THE REQUIREMENTS OF NS127. DRILL SUITABLY SIZED PILOT HOLES FOR SELF DRILLING SCREWS TO FIX CABLE COVERS AND SADDLES TO THE POLE.
10. COMMUNICATIONS CABLES MUST BE INSTALLED ON THE CROSSARM, MOUNTING DIRECTLY ON THE POLE OR USING STANDOFF BRACKET IS NOT PERMITTED. COMMUNICATION CROSSARM SHALL ONLY BE INSTALLED IN EXISTING AREAS IF A COMMUNICATION CABLE ALREADY EXISTS. THERE ARE 2 OPTIONAL CROSSARM SIZES (ITEMS 131a & 131b) THAT CAN BE USED DEPENDING ON LOCATION OF EXISTING CABLE AND STANDOFF THAT IS REQUIRED. ENSURE GROUND CLEARANCES ARE MAINTAINED AS PER NS220. THE COMMUNICATIONS CATENARY CABLE SHALL BE INSULATED 2000mm EITHER SIDE OF THE POINT OF ATTACHMENT USING MINIMUM 0.6/1kV RATED INSULATION, UV STABILISED. THE COMMUNICATIONS CABLE SHALL BE INSTALLED ON THE PROPERTY SIDE OF POLE.
11. REFER TO NS158 FOR REQUIREMENTS REGARDING DISTRIBUTOR LABELLING AND SUBSTATION NUMBER PLATE. REFER TO NS148 FOR REQUIREMENTS REGARDING MASTER MAP POLE NUMBER.
12. THE ORIENTATION OF THE POLE SHALL BE ALIGNED WITH CORRECT HV PHASING. HV CROSSING IS NOT PERMITTED AT THE POLE TRANSFORMER. WHERE POSSIBLE POLE CLIMBING ACCESS IS TO BE ON THE POLE SIDE OPPOSITE TO TRAFFIC DIRECTION AS PER NS122.
13. POLES ARE AVAILABLE NON DRILLED OR PARTIALLY DRILLED BY THE MANUFACTURER. MANUFACTURER DRILLED POLES ARE ONLY TO BE USED IF THE DESIGN OF THE INSTALLATION CAN UTILISE THE HOLES SHOWN ON DRAWINGS 251878 AND 251879. IF HOLES DO NOT ALIGN A NON DRILLED POLE IS TO BE USED AS THE MANUFACTURER WILL NOT VARY HOLE LOCATIONS TO SUIT INDIVIDUAL SITES.

REFERENCE DRAWINGS

TITLE	DRAWING No
POLE TRANSFORMER - 1 PHASE COMPOSITE POLE DRILLING	244228
POLE TRANSFORMER - 1 PHASE COMPOSITE 14m x 24kN POLE MANUFACTURER DRILLED	251878
POLE TRANSFORMER - 1 PHASE COMPOSITE 15.5m x 24kN POLE MANUFACTURER DRILLED	251879
POLE TRANSFORMER - 1 PHASE - EARTHING CONNECTION DETAILS	228832
POLE TRANSFORMER - 1 PHASE - CROSSARM DETAILS	228833
POLE TRANSFORMER - 1 PHASE - LV TRANSFORMER AND ABC CONNECTIONS	228834
POLE TRANSFORMER - 1 PHASE - HV OVERHEAD SUPPLY OPTIONS	228835
POLE TRANSFORMER - 1 PHASE - STREET LIGHTING DETAIL OPTION	228836
POLE TRANSFORMER - 1 PHASE - LV OPEN WIRE CONNECTIONS	228837

CONSTRUCTION

NETWORK STANDARD
Ausgrid
ASSET ENGINEERING, POLICY AND STANDARDS
TRANSMISSION & DISTRIBUTION SUBSTATION ENGINEERING
24 CAMPBELL STREET, SYDNEY

SCALE	AS SHOWN
DESIGNED	P.JARVIS
DRAWN	P.JARVIS
CHECKED	C.MABBUTT
APPROVED	D.GRCEV
DATE	1.5.18
PROJECT NUMBER	129021840
PROJTRAK NUMBER	

STANDARD CONSTRUCTION
SINGLE PHASE - 11/22kV COMPOSITE POLE MOUNTED DISTRIBUTION TRANSFORMER
0-63kVA
GENERAL ARRANGEMENT

SIZE A0 | DRAWING No 244227 | SHEET 1 | AMD 1

CAD DRAWING DO NOT MANUALLY AMEND
AMENDMENTS
1. ITEMS 1c AND 1d ADDED. REFERENCE DRAWINGS 251878 AND 251879 ADDED. NOTE 13 ADDED. OUTLINE OF HV/DO ALTERED TO SHOW PARKING BOLT CHANGE. PN 129021840 P.JARVIS 1.5.18 CHECKED: C.MABBUTT APPROVED: D.GRCEV

20110714