



ITEM	DESCRIPTION	DWG NO.	STOCK CODE	QTY.	
1	POLE - COMPOSITE			1	
1a	14m x 244N NOT DRILLED	244221	185015		
1b	15.5m x 244N NOT DRILLED	244222	185016		
1c	14m x 244N MANUFACTURER DRILLED	251878	185444		
1d	15.5m x 244N MANUFACTURER DRILLED	251879	185445		
2	POLE STEP FOR COMPOSITE POLES	244223	184743	AS REQ.	
3	SINGLE PHASE TRANSFORMER - POLE HUNG			1	
3a	10kVA 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 70mm ² TO Ø15 ELECTRODE		H31699	AS REQ.	
12	C CRIMP CONNECTOR - COPPER, COMPRESSION, 70mm ² TO 70mm ²		177942	AS REQ.	
13	CONDUCTOR - 19/2 14 BLACK PVC INSULATED HD 170mm ² 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 - CRMP, M12, FOR 70mm ² COPPER EARTH CABLE	31077	74831	AS REQ.	
21	NA				
22	GALVANISED SADDLE FOR 70mm ² COPPER EARTH CABLE		176949	AS REQ.	
23	CLAMP 2 BOLT PARALLEL GROOVE - COPPER		176946	1	
24	SPLIT BOLT CLAMP (HENLEY B26)		H8815	1 or 2	
25	LUG - CRMP, M12, FOR 10mm ² COPPER			1	
26					
27	BRACE CROSSARM 600 x 40 x 5mm	516385	H17738	2 or 3	
28	BOLT HEX HEAD STAINLESS STEEL M12 x 30mm	515467	H38528	8	
29	NUT M12 STAINLESS STEEL	515467	8987	21	
30	SCREWS SELF DRILLING - M12 x 45mm		175567	AS REQ.	
31	WASHER - FLAT, M12, STAINLESS STEEL	518081	41429	AS REQ.	
32	WASHER - BELLEVILLE, M12, STAINLESS STEEL	518082	175903	AS REQ.	
33	BOLT & NUT HEX HEAD GALV M16 x 120mm	515466	44939	2	
34	LUG - COMPRESSION 2 x MID AT 30mm CENTRES, FOR 70mm ² Cu		176967	1	
35	SIGN - DANGER HIGH VOLTAGE		HL7012	2	
36	BOLT & NUT - HD, 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, GALVANISED	518082	H39655	6 or 7	
39	WASHER - FLAT, M20, GALVANISED	518081	177864	8 or 12	
40	WASHER - SQUARE, M20 x 50 x 50 x 6mm	518082	H39765	8 or 10	
41	COACH SCREW - M10 x 40mm, GALVANISED		50567	2	
42	WASHER - M10 x 24mm x 2.7mm, GALVANISED	518081	177983	2	
43a	FUSE BASE AND CARRIER LV 630A SINGLE CIRCUIT		110717	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	17195	1	
46	BRACE CROSSARM 740 x 38 x 5mm	46	99119	1	
47	GAIN BLOCK - ALUMINIUM 100mm		146274	AS REQ.	
48	LV ABC NEUTRAL CONNECTION PLATE	151570	149361	1	

49	BOLT & NUT HEX HEAD GALV M12 x 180mm	515466	44888	2	
50	BOLT & NUT HEX HEAD GALV M16 x 150mm	515466	175672	2	
51	BOLT EYE GALV M20 x 200mm	513653	H37881	AS REQ.	
52	BOLT & NUT - M12, HEX., GALVANISED (LENGTH TO SUIT POLE)	515466		1	
53	NUT, EYE, M20 GALV.	513951	H38853	AS REQ.	
54	WASHER FLAT GALV M12 x 32 x 2.7mm	518081	177982	10	
55	WASHER FLAT GALV M16 x 38 x 3.23mm	518081	177984	16	
56	WASHER - CONICAL, M12, GALVANISED	518082	H39639	5	
57	WASHER - CONICAL, M16, GALVANISED	518082	H39647	7	
58	WASHER - SQUARE GALVANISED, M16 x 50 x 50 x 6mm	518081	H39757	4	
59	NUT HEX, M20 GALV.	515466	175361	2	
60	SURGE ARRESTER LV 500V SKA		H31893	1	
61	COVER LV BUSHING		H22032	2 or 4	
62a	LUG COMPRESSION LONG BARREL M12 TO SUIT 95mm ² CU CABLE		151050	2	
62b	LUG COMPRESSION M12 TO SUIT 35mm ² CU CABLE		H20501	6	
63	LUG COMP 2 HOLE 100mm CENTRES M12 TO SUIT 95mm ² CU CABLE		176968	1	
64					
65	BOLT HEX HEAD STAINLESS STEEL M12 x 40mm	515467	45146	13	
66	CABLE TIE BLACK 380 x 76mm		59907	AS REQ.	
67	CABLE - REFER TO TABLE 1 ON DRAWING 228834				
67a	CABLE 95mm ² CU PVC INSULATED		59584	AS REQ.	
67b	CABLE 35mm ² CU PVC INSULATED		H13629	AS REQ.	
68	HEATSHRINK - MEDIUM AND THICK WALL MASTIC LINED				
69	BOLT HEX HEAD STAINLESS STEEL M12 x 25mm	515467	44693	5 or 10	
70	LUG Bi-METALLIC COMPRESSION M12 TO SUIT 95mm ² CABLE		58743	1 or 2	
71	LUG Bi-METALLIC COMPRESSION 2 x M12 TO SUIT 95mm ² CABLE		177074	1 or 2	
72					
73a	DROPOUT FUSE BASE AND CARRIER 12/24kV TYPE EXPULSION		H84350	2	
73b	FUSE BASE, DROPOUT, 24kV, S & C TYPE SMD-20		H7029	2	
73c	FUSE BASE, DROPOUT, 24kV, S & C TYPE SMD-20		18141	2	
74	CROSSARM 2400 x 100 x 100	566345	176222	1	
75	INSULATOR 22kV POLYMERIC LONG-ROD		150375	2	
76	CLAMP SUSPENSION LV		H13472	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	515466	44805	1	
80	BOLT & NUT HEX HEAD GALV M16 x 160mm	515466	47043	2	
81	SCREW COACH HEX HEAD GALV M12 x 90mm		50443	2 or 3	
82	BOLT HEX HEAD STAINLESS STEEL M16 x 40mm	515467	H38413	2	
83	WASHER - FLAT, M16, 30 x 15mm STAINLESS STEEL	518081	H39621	4	
84	NUT NYLOC, M16 STAINLESS STEEL		177122	2	
85	CABLE 11kV 35mm ² Cu LPOE INSULATED 19/153		H16578	AS REQ.	
86	LUG KIT HEAVY DUTY TO SUIT 11kV LPOE CABLE (10 TX SET1)		H125252	1	
87	LUG COMPRESSION M12 TO SUIT 16mm ² 11kV LPOE CABLE		H10270	4	
88a	ARRESTERS SURGE 11kV		119948	2	
88b	ARRESTERS SURGE 22kV		H32182	2	
89	HEATSHRINK TERMINATION KIT FOR HV DROPPER LUGS		152207	1	
90	CABLE 11kV 16mm ² Cu LPOE 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	17589	AS REQ.	

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH NS122
- 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.
- THE DISTANCE BETWEEN THE HV FEEDER AND HV DROP-OUT FUSE CROSSARM MUST BE INCREASED TO 1000mm (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 WHERE THE DISTANCE BETWEEN THE HV FEEDER AND HV DROP-OUT FUSE CROSSARMS 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.
- 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.
- 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.
- 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.
- SEGREGATED EARTHING SIGN (ITEM 122 - REFER DRAWING 224403) ONLY REQUIRED WHERE A SEGREGATED EARTHING SYSTEM IS INSTALLED.
- DANGER SIGN TO BE BENT AROUND POLE BEFORE SECURING.
- IF A LV UGDR 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.
- COMMUNICATIONS CABLES MUST BE INSTALLED ON THE CROSSARM, MOUNTING DIRECTLY ON THE POLE OR USING STANDOFF BRACKET IS NOT PERMITTED. COMMUNICATION CABLE 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.
- REFER TO NS158 FOR REQUIREMENTS REGARDING DISTRIBUTOR LABELLING AND SUBSTATION NUMBER PLATE. REFER TO NS148 FOR REQUIREMENTS REGARDING MASTER MAP POLE NUMBER.
- 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.
- 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.
- THE POLE FOUNDATION IS TO BE DESIGNED TO CONFORM TO ONE OF THE ARRANGEMENT OPTIONS SPECIFIED ON DRAWING 248464. IF THE FOUNDATION DESIGN OPTION CONSISTS OF CONCRETE OR CEMENT STABILISED BACKFILL, THE BACKFILL MUST STOP 600mm BELOW GROUND LEVEL SO THERE IS NO IMPACT ON THE EARTH CONDUCTOR INSTALLATION.
- REFER TO DESIGNER SAFETY REPORT D20/186662 FOR ATYPICAL HAZARDS ASSOCIATED WITH THIS STANDARD CONSTRUCTION.

REFERENCE DRAWINGS	
TITLE	DRAWING No.
POLE TRANSFORMER - 1 PHASE COMPOSITE POLE DRILLING	244228
POLE TRANSFORMER - 1 PHASE COMPOSITE 14m x 244N POLE MANUFACTURER DRILLED	251878
POLE TRANSFORMER - 1 PHASE COMPOSITE 15.5m x 244N 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

ASSOCIATED DRAWINGS	
TITLE	DRAWING No.
COMPOSITE POLE (TITANIUM) FOOTING ARRANGEMENT	248464

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR CONSTRUCTION
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR CONSTRUCTION
4	ISSUED FOR CONSTRUCTION

Ausgrid CONSTRUCTION ISSUE

145 NEWCASTLE RD WALLSEND, NSW 2287

SCALE: AS SHOWN

DESIGNED: P. JARVIS

DRAWN: P. JARVIS

CHECKED: C. HABBUTT

APPROVED: D. GREY

DATE: 01/05/18

PROJECT NUMBER: STD

PROJ/BK NUMBER: -

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

SHEET: 01

NO. OF SHEETS: 4

DRAWING NO: 244227