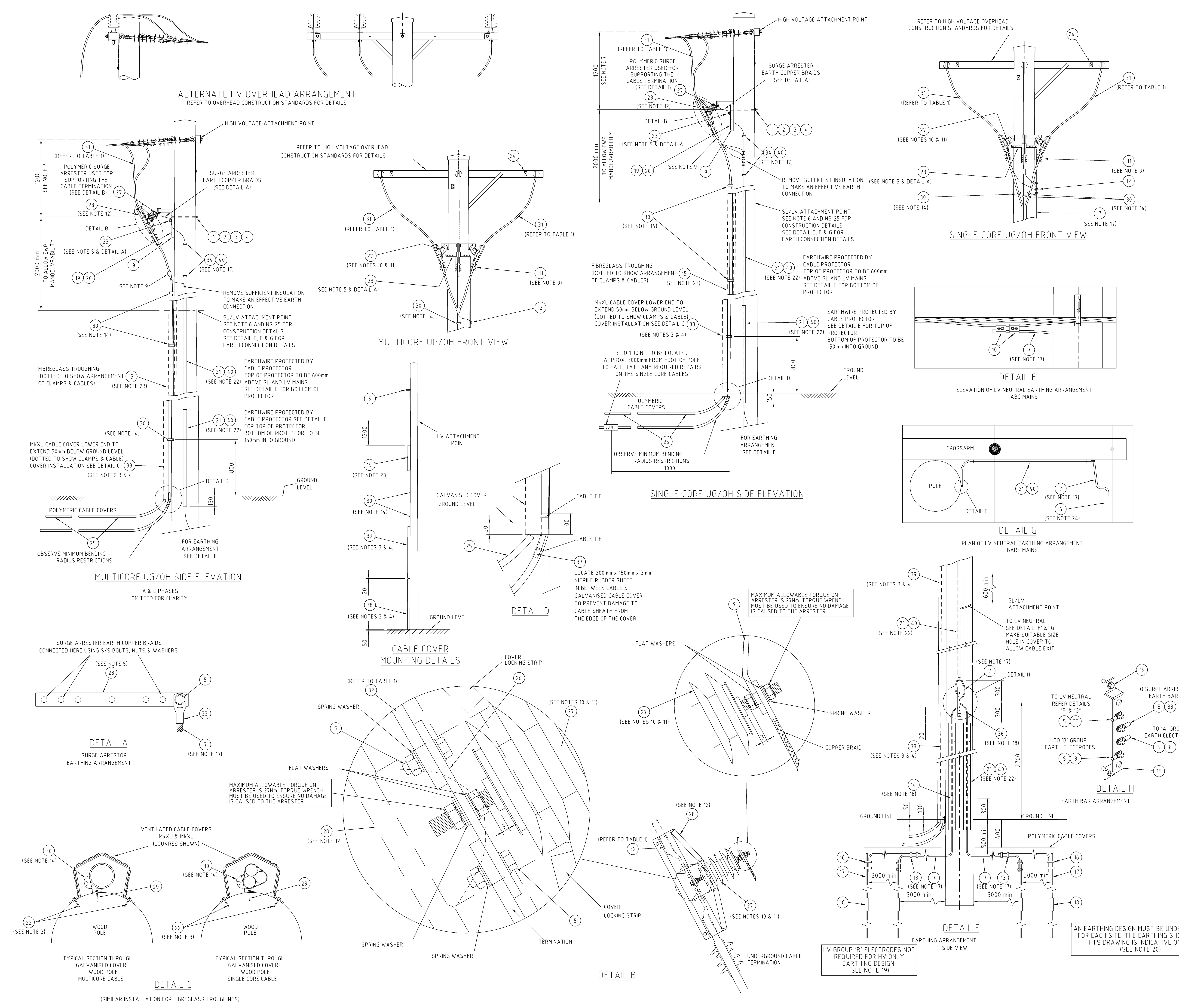

NOTES

1. FOR STRAIGHT THROUGH POLES, TERMINATE THE OVERHEAD DROPPER CABLE ONTO THE MAIN OVERHEAD CONDUCTOR AS PER NS126 FOR TEE-OFF CONSTRUCTIONS.
2. FEEDER IDENTIFICATION PLATE TO BE ATTACHED TO THE POLE 3000mm ABOVE GROUND LEVEL.
3. THE GALVANISED COVERS MUST BE INSTALLED USING SIX (6) 50mm LONG M10 COACH SCREWS THROUGH THE SECURING HOLES PROVIDED ON THE FLANGES OF THE COVER.
4. IMPORTANT: SINCE THE 11kV CABLE HAS AN EARTH SCREEN, BOTH THE UPPER AND LOWER GALVANISED STEEL CABLE COVERS (ITEMS 38 & 39) MUST NOT BE EARTHED. THE UPPER GALVANISED STEEL CABLE COVER AND THE LOWER GALVANISED STEEL CABLE COVER MUST BE SEPARATED BY THE 20mm AIR GAP AS SHOWN.
5. THE SURGE ARRESTER EARTHING BAR, BRAIDS, STAINLESS STEEL BOLTS, NUTS, AND WASHERS ARE PROVIDED AS A SINGLE KIT (STOCK CODE No. 74443).
6. FOR BARE LOW VOLTAGE OVERHEAD MAINS, THE CROSSARM IS TO BE INSTALLED ON THE SIDE OF THE POLE OPPOSITE TO THAT OF THE UNDERGROUND CABLES.
7. THE SPECIFIED CLEARANCE BETWEEN THE CABLE TERMINATION AND THE BARE OR CCT 11kV MAINS IS REQUIRED TO WORK ON THE CABLE TERMINATION WHILE THE BARE OR 11kV MAINS ARE ENERGISED. THIS CLEARANCE MEETS THE REQUIREMENTS OF THE ELECTRICAL SAFETY RULES FOR MINIMUM SAFE WORKING DISTANCE (FOR NORMAL WORK) FROM EXPOSED LIVE 11kV MAINS.
   THE SPECIFIED CLEARANCE MAY BE REDUCED TO 700mm IF THE PROVISION FOR WORKING NEAR 11kV ENERGISED MAINS IS NOT CONSIDERED ESSENTIAL, OR POLE HEIGHT PREVENTS WORK WITH MAINS ALIVE.
8. IF THE POLE IS A SHACKLE THROUGH-POLE FOR HV MAINS, THE PHASE BONDS SHOULD BE ROUTED OVER THE HV CROSSARM TO MAINTAIN ADEQUATE CLEARANCES FROM THE CABLE TERMINATION.
9. REFER TO THE TERMINATION KIT INSTALLATION INSTRUCTION FOR DETAILS.
10. THE SURGE ARRESTERS WHEN INSTALLED ON THE UGOH MUST ALLOW WATER TO DRAIN AWAY FROM THE SKIRT AND NOT ALLOW WATER TO ACCUMULATE. THEREFORE IDENTIFY THE CORRECT STUD OF THE SURGE ARRESTER THAT GOES INTO THE MOUNTING BRACKET (SEE DETAIL B). REMOVE ALL NUTS AND WASHERS FROM THE STUD, INSERT THE STUD INTO THE FIXING HOLE ON THE MOUNTING BRACKET AND THEN INTO THE HOLE OF THE FLEXIBLE EARTHING BRAID. PASS A FLAT WASHER AND THEN A SPRING WASHER ONTO THE STUD. THREAD IN THE NUT ONTO THE STUD. TIGHTEN THE NUT USING A TORQUE WRENCH TO A MAXIMUM OF 27Nm. A TORQUE WRENCH MUST BE USED TO ENSURE NO DAMAGE IS CAUSED TO THE ARRESTER. REPEAT FOR REMAINING PHASES.
11. REMOVE ALL NUTS AND WASHERS FROM THE REMAINING STUD OF THE SURGE ARRESTER. INSERT THE STUD INTO THE OBLONG HOLE OF THE TERMINATION PLATE. PASS A FLAT WASHER AND THEN A SPRING WASHER ONTO THE STUD. THREAD IN THE NUT ONTO THE STUD. LOCATE THE TERMINAL PLATE ON THE STUD SO THAT THERE IS NO STRAIN ON THE TERMINATION OR THE SURGE ARRESTER. TIGHTEN THE NUT USING A TORQUE WRENCH TO A MAXIMUM OF 27Nm. A TORQUE WRENCH MUST BE USED TO ENSURE NO DAMAGE IS CAUSED TO THE ARRESTER. REPEAT FOR REMAINING PHASES.
12. THE TERMINATION PLATE COVER MUST BE INSTALLED ON THE SURGE ARRESTER.
13. ENSURE THAT CABLES ARE NOT BENT TO LESS THAN THE SPECIFIED MINIMUM BENDING RADII.
14. ENSURE THAT NO CABLE CLAMP IS USED DIRECTLY ON THE CABLE WITHOUT THE RUBBER LINING. THE RUBBER LINER SUPPLIED WITH EACH CLAMP IS OF THE CORRECT WIDTH. THE LENGTH OF THE LINER MAY BE REDUCED TO SUIT THE CABLE SO THAT ONE (1) LAYER OF LINER WRAPS AROUND THE CABLE BEFORE PLACING THE STEEL BAND OF THE CLAMP CENTRALLY OVER THE LINER. DO NOT OVERTIGHTEN THE CLAMPS. MINIMUM CLAMP SPACING OF 1000mm WITH THE LOWEST CLAMP 800mm ABOVE GROUND LEVEL. TOP MOST CLAMP MUST BE A MINIMUM OF 1200mm BELOW THE LOWEST POINT OF THE UGOH CONNECTION SUPPORT BRACKET (ITEM 9).
15. REFER TO DRAWING 31318 FOR DETAILS ON INSTALLING AN EARTH FAULT INDICATOR.
16. THIS DESIGN IS FOR EWP ACCESS. FOR SITES WHERE EWP ACCESS IS NOT POSSIBLE, POLE STEPS CAN BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NS128.
17. THE EARTH CABLE IS TO BE SECURED TO THE POLE AS REQUIRED USING DOUBLE SIDED GALVANISED STEEL SADDLES. SADDLES MUST BE NO LESS THAN 100mm FROM EDGES OF REMOVED INSULATION.
18. 95mm² ALUMINIUM EARTH CONDUCTORS SHALL BE USED FROM THE EARTH BAR TO 300mm ABOVE GROUND WHERE 70mm² COPPER EARTH CONDUCTORS WILL BE EXTENDED VIA BI-METALLIC LINKS TO THE EARTH ELECTRODES. BLACK 95mm² ALUMINIUM EARTH CONDUCTOR MAY BE A SINGLE CORE OF ABC, PVC INSULATED OR XLPE INSULATED CABLE.
19. WHERE A HV ONLY EARTHING DESIGN IS SPECIFIED, THE FOLLOWING IS NOT REQUIRED:
   - LV CONNECTIONS SHOWN IN DETAIL 'F' AND 'G'.
   - LV GROUP 'B' ELECTRODES AND CABLE TO EARTH BAR.
20. THE EARTHING ARRANGEMENT SHOWN REPRESENTS THE MORE COMMONLY USED COMBINED EARTHING SYSTEM BUT IS INDICATIVE ONLY. SITE SPECIFIC REQUIREMENTS MUST BE TAKEN FROM THE EARTHING DESIGN FOR THE INDIVIDUAL SITE. IF THE SITE REQUIRES A SEGREGATE EARTHING SYSTEM, CONTACT NETWORK EARTHING FOR FURTHER DETAILS.
21. UGOH CABLES WHICH ARE TERMINATED ON THE TERMINATION PLATES (ITEM 26) BUT ARE NOT TO BE IMMEDIATELY CONNECTED TO THE OVERHEAD MAINS MUST BE SHORT CIRCUITED AND EARTHED. INSULATED BLACK CABLE OF NOT LESS THAN 25mm² Cu, LUGGED M12 STUD HOLE LUGS, IS TO BE USED. CONNECTIONS ARE TO BE MADE BETWEEN THE TOP OF THE TERMINATION PLATES AND THE SURGE ARRESTER EARTH BAR (ITEM 23).
22. THE EARTH CABLE PROTECTOR MUST BE IN CONTACT WITH THE POLE. IT CAN BE CUT INTO SMALLER SECTIONS TO OVERCOME THE NATURAL CHARACTERISTICS OF THE POLE TO ACHIEVE CONTACT.
23. IF THE VENTED CABLE COVER INHIBITS THE INSTALLATION OF THE FIBREGLASS COVER AT THE SPECIFIED LOCATION, POSITION THE FIBREGLASS COVER ABOVE THE CABLE CLAMP LOCATED DIRECTLY ABOVE THE VENTED COVER.
24. BI-METALLIC CLAMP TO BE INSTALLED WITH COPPER CONDUCTOR BELOW ALUMINIUM CONDUCTOR SO THAT COPPER SALTS DO NOT WASH ONTO ALUMINIUM CONDUCTOR.
25. REFER TO DESIGNER SAFETY REPORT D21/136567 FOR ATYPICAL HAZARDS ASSOCIATED WITH THIS STANDARD CONSTRUCTION.

TABLE 1

ITEM NUMBER	ITEM DESCRIPTION	OVERHEAD CABLE TYPE								
		7/4.5 AAC	19/3.25 AAC	CCT80	CCT120	CCT180	19/2.00 Cu	7/2.03 Cu	CCSX62	CCSX159
32	LUG - COMPRESSION, BI-METALLIC, Ø14mm HOLE	H19675	176951	176953	58321	176969	177900	180048	187542	187562
31	SLEEVING - INSULATION, STINGER COVER	176943	176944	-	-	-	176943	176943	-	-

ITEM	DESCRIPTION	DRG. No	STOCK CODE	QTY
40	SCREW - SELF DRILLING, TIMBER, TYPE 17, 10Gx25mm, GALVANISED		184996	A/R
39	COVER - UPPER, CABLE, VENTILATED, MkXU (SEE NOTES 3 & 4)		177882	1
38	COVER - LOWER, CABLE, VENTILATED, MkXL (SEE NOTES 3 & 4)		177711	1
37	SHEET - NITRILE RUBBER, 200x150x3mm		127225	1
36	CONDUCTOR - SINGLE CORE, ALUMINIUM, 95mm² LV ABC, PVC OR XLPE COVERED, BLACK (SEE NOTE 18)		67959	A/R
35	BAR - EARTH, FLAT, TINNED COPPER, 50.8mm x 6.3mm	222406	182110	1
34	SADDLE - 12.7mm, DOUBLE SIDED, GALVANISED (SEE NOTE 17)		176494	A/R
33	LUG - COMPRESSION, COPPER, M12 HOLE (TO SUIT 70mm² CABLE)		74831	3
32	LUG - COMPRESSION, BI-METALLIC, Ø14mm HOLE (TO SUIT CONDUCTOR) (REFER TO TABLE 1)			3
31	SLEEVING - INSULATION, STINGER COVER (TO SUIT CABLE SIZE) (REFER TO TABLE 1)			A/R
30	CLAMP - CABLE (WITH NITRILE RUBBER LINER) (SEE NOTE 14)		177651	A/R
29	SCREW - COACH, M12x50mm, GALVANISED		50476	A/R
28	COVER - TERMINATION PLATE (SEE NOTE 12)		176721	3
27	ARRESTER - SURGE, POLYMERIC, 9kV, 10kA, M12 MOUNTING STUD EACH END (SEE NOTES 10 & 11)		111948	3
26	PLATE - TERMINATION,11kV, TINNED COPPER	116989	91132	3
25	PROTECTOR - CABLE, COVER, 1200x300mm SLAB		151076	A/R
24	LETTERS - SET, PHASE, ALUMINIUM, 50mm (A, B & C)		108977	1
23	KIT - EARTHING, SURGE DIVERTER (SEE NOTE 5)	117782	74443	1
22	SCREW - COACH, M10x50mm, GALVANISED (SEE NOTE 3)		50559	A/R
21	GUARD - EARTH CABLE, 3m LENGTH, PVC, BLACK (SEE NOTE 22)	205775	157552	2
20	WASHER - FLAT, M12, GALVANISED	518081	177982	1
19	SCREW - COACH, M12x75mm, GALVANISED		50468	1
18	COUPLER - EARTH ELECTRODE (TO SUIT Ø15mm ROD)		H31649	A/R
17	ELECTRODE - DRIVEN EARTH, Ø15mm x 1800mm		H31631	A/R
16	CONNECTOR - COMPRESSION, COPPER, PROFILE 6 (70mm² CONDUCTOR TO Ø15mm ROD)		H31699	A/R
15	TROUGHING - FIBRGLASS, 1.2m, ITEM 2, 140mm DEPTH (SIZE TO SUIT CABLE) (SEE NOTE 23)	59886	177641	1
	TROUGHING - FIBRGLASS, 1.2m, ITEM 1, 85mm DEPTH (SIZE TO SUIT CABLE) (SEE NOTE 23)	59886	59360	
14	LINK - COMPRESSION, BI-METALLIC (95mm² Al TO 70mm² Cu CABLE) (SEE NOTE 18)		H107797	2
13	CONNECTOR - COMPRESSION, 'C' CRIMP, COPPER (70mm² TO 70mm²)		177942	A/R
12	CLAMP - SPLIT BOLT, TYPE C, BRASS (2 PER CONNECTION)	18908	61374	6
11	KIT - TERMINATION, 11kV (TO SUIT CABLE) (REFER TO NS129 FOR PAPER CABLE & NS177 FOR POLYMERIC CABLE) (SEE NOTE 9)			1
10	CONNECTOR - INSULATION PIERCING, BI-METALLIC (95-150mm² LVABC/50-150mm² Cu)		148387	2
9	BRACKET - UGOH, CONNECTION, SUPPORT	62011	66365	1
8	LUG - COMPRESSION, BI-METALLIC, PRE-INSULATED, Ø14mm HOLE (TO SUIT 95mm² Al CABLE)		58743	2
7	CONDUCTOR - 19/2.14(70mm²), COPPER, PVC COVERED, BLACK (SEE NOTE 17)		60111	A/R
6	CLAMP - PARALLEL GROOVE, BI-METALLIC, 2 BOLT, 25-150mm² Al/10-95mm² Cu (SEE NOTE 24)		H88013	1
5	BOLT - ASSEMBLY, STAINLESS STEEL (INCLUDES 1 x M12x30mm BOLT, 1 x M12 NUT, 2 x FLAT WASHERS & 1 x SPRING WASHER)		175911	14
4	WASHER - FLAT, M20, GALVANISED	518081	177986	1
3	WASHER - CONICAL, M20, GALVANISED	518082	H39655	1
2	WASHER - SQUARE, 75x75x6mm, GALVANISED (Ø22mm HOLE)	518081	H39231	2
1	BOLT & NUT - M20, HEX., GALVANISED (LENGTH TO SUIT POLE)	515466		1

CAD DRAWING
DO NOT MANUALLY AMEND

AMENDMENTS

AMD	DWN	CHKED	APP'D	DATE / DESCRIPTION
17	PATRICIA RIOS	PHILLIP JONES	GLENN FORD	23/04/2021 NOTES, MATERIAL LIST & ITEM NUMBERS AMENDED.
18	PATRICIA RIOS	PHILLIP JONES	GLENN FORD	17/06/2021 MATERIAL LIST AMENDED. ITEMS 32 & 27 ARROWS REALIGNED.
	P.RIOS	B.WEBSTER	G.FORD	19/02/2024 "SEE NOTE 8" CHANGED TO "SEE NOTE 7" IN SIDE ELEVATIONS.
20	P.RIOS	P.JONES	G.FORD	01/05/2025 TABLE 1 & MATERIAL LIST AMENDED

ASSOCIATED DRAWINGS

HV UGOH CONSTRUCTION INSTALLATION OF EARTH FAULT INDICATOR	31318

NETWORK STANDARD
Ausgrid
145 NEWCASTLE RD WALLSEND, NSW 2287

ISSUED FOR CONSTRUCTION

SCALE	N.T.S
DESIGNED	-
DRAWN	IWR
CHECKED	A.S.
APPROVED	EA
DATE	10/01/2002
TRIM REF	
PROJECT NUMBER	-

STANDARD CONSTRUCTION 11kV UNDERGROUND TO OVERHEAD (UGOH) ON TIMBER POLE CONSTRUCTION DETAILS

DRAWING No 160354 SHEET 1 AMD 20 SIZE A0

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