



GENERAL NOTES:

1. CONSTRUCTION TEAM / COMMISSIONING OFFICER MUST ENSURE SUBSTATION IS IN CMEN CONFIGURATION- SEPARATE EARTHING CONSTRUCTIONS ARE IDENTIFIED ON OTHER ASSEMBLIES.
2. THE AMOUNT OF GRADING RING CONDUCTOR REQUIRED IS EQUAL TO 2X DISTANCE BETWEEN PADMOUNTS + 40m. THE AMOUNT OF COVERED CONDUCTOR FOR LV & HV BOND IS EQUAL TO 2X THE DISTANCE BETWEEN PADMOUNTS + 30m.
3. BOTH HV & LV ELECTRODE EARTH BONDS ARE 70mm² PVC COVERED COPPER, FOR THE FIRST RUN UP TO THE DEEP EARTH ELECTRODE FROM THE SUBSTATION.
4. ALL EARTHING CONDUCTORS SHALL BE THOROUGHLY CLEANED AND DEBURRED AT CONNECTION POINTS BEFORE CONNECTION.
5. TRANSFORMER TANK, LV SWITCHBOARD FRAME, PADMOUNT ENCLOSURE, HV SWITCHGEAR, AND HV CABLE SCREEN SHALL BE CONNECTED TO THE HV EARTH.
6. NEUTRALS OF LV CABLES AND TRANSFORMER NEUTRAL TO BE CONNECTED TO NEUTRAL BAR ON THE LV BOARD.
7. EACH EARTHING CONNECTION MADE TO AN EARTHING BAR MUST BE FIXED WITH A SEPARATE M12 STAINLESS STEEL BOLT. AS REQUIRED THE EARTH BAR MAYBE EXTENDED WITH ADDITIONAL COPPER BAR OF AT LEAST THE SAME SIZE, FIXED WITH TWO M12 BOLTS.
8. ALL EARTHING FASTENERS MUST BE STAINLESS STEEL.
9. ALL EARTHING CONDUCTORS CROSSING THE GRADING RING MUST MAINTAIN A MINIMUM 150mm CLEARANCE BELOW THE INSTALLED GRADING RING AT ALL CROSS OVER POINTS.
10. SEPARATION BETWEEN BURIED EARTHING AND NON-BONDED METALLIC EQUIPMENT IS REQUIRED. SEPARATION DISTANCE IS TO BE SPECIFIED IN THE PARTICULAR DESIGN FOR THE SUBSTATION.
11. ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED- NOT TO SCALE.
12. EARTHING CONDUCTORS MUST BE LABELLED IN ACCORDANCE WITH "PO07127 DISTRIBUTION EARTHING DESIGN MANUAL".
13. EARTHING CONDUCTORS ENTERING THE SUBSTATION MUST BE A MINIMUM 70MM² COPPER COVERED CABLE. COPPER BAR OR STRAP MUST NOT BE USED.
14. PADMOUNT SUBSTATION EARTHING TYPE LABELS ARE TO BE INSTALLED ON THE INSIDE END HV AND LV PADMOUNT DOOR.
15. EARTHING MUST BE ASSESSED, DESIGNED AND VALIDATED IN ACCORDANCE WITH THE EVOENERGY EARTHING DESIGN AND CONSTRUCTION MANUAL- SM1138.
16. TYPICAL CONNECTION SHOWN- REFERENCE INTERFACE TABLE FOR ACTUAL PART.
17. EXCESS JOINTING COMPOUND APPLIED TO EARTHING CONNECTIONS MUST BE REMOVED AFTER INSTALLATION.
18. PRE APPLIED JOINTING COMPOUND IN EARTHING CONNECTIONS MUST BE REMOVED PRIOR TO INSTALLATION WHEN INSTALLING INTO AN AQUATIC ENVIRONMENT.
19. ADDITIONAL EARTH ELECTRODES MAYBE REQUIRED AS PER THE EARTHING DESIGN FOR THE PARTICULAR SUBSTATION.

GRADING RING NOTES:

1. SITE EXCAVATION DETAILS PROVIDED IN DRAWING D303-0019.
2. TWO CONNECTION POINTS ARE REQUIRED BETWEEN THE EARTH GRADING RING AND THE HV EARTH BAR AT EACH SUBSTATION.
3. GRADING RING IS TO BE INSTALLED 1000mm FROM EACH FACE OF THE SUBSTATION SHELL.
4. IF THE SUBSTATION IS UPGRADED THE GRADING RING DISTANCE MUST BE CHECKED AND MOVED IF REQUIRED TO ACHIEVE 1000mm DISTANCE TO SUBSTATION SHELL.
5. AS REQUIRED ADDITIONAL EARTH STAKES MAYBE UTILISED TO ENSURE THE GRADING RING IS INSTALLED AT THE CORRECT DEPTH.

ITEM	UA TYPE	DESCRIPTION	STOCK CODE	QTY	DRAWING NO
1	P	EARTHING ROD, dia 13 x 1440mm, COPPER CLAD STEEL, EXTENDABLE, NO CLIP	1161222	8	D110-0001
2	P	CONDUCTOR, AERIAL, HDBC, 70mm ² , 19/2.14 (19/083)	1068830	AR	D102-0005
3	P	LUG, SHEAR-BOLT, 25-95mm ² , M13 BOLT HOLE, TINNED ALUMINIUM	1193219	8	D103-0022
4	P	CABLE, BUILDING, 70mm ² , 1C, 19/2.14, 0.6/1kV, V-75, BLACK, PVC INSULATED	1069603	AR	D102-0012
5	P	LABEL, EARTHING, GRADING RING FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202086	4	D107-0017
6	P	CABLE TIE FOR EARTHING CONDUCTOR LABELS 4.6 x 200mm S/STEEL GR316	1202042	28	D107-0027
7	P	LABEL, EARTHING, HV DEEP ELECTRODE, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202064	2	D107-0015
8	P	LABEL, EARTHING, LV DEEP ELECTRODE, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202075	2	D107-0016
9	P	LABEL, EARTHING, CMEN BOND FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202108	2	D107-0019
10	P	LABEL, EARTHING, HV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202119	2	D107-0020
11	P	LABEL, EARTHING, LV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL	1202130	2	D107-0021
12	P	LABEL, EARTHING, PADMOUNT, SUBSTATION EARTHING TYPE, CMEN EARTHED	1202207	4	D107-0029
13	S	SA, EARTHING, DEEP EARTH ELECTRODE FOR STATIONS	-	4	D303-0006
14	S	SA, EARTHING, ADDITIONAL DEEP EARTH ELECTRODE FOR STATIONS	-	4	D303-0013
15	I	INTERFACE, EARTHING PARTS, CONNECTIONS, CONNECTORS AND ACCESSORIES	SELECT	28	D199-0001

A	IMAGE UPDATED	JJP	WNI	
B	C CRIMP, IMAGE, NOTES UPDATE	BAN	WJC	15/11/2019
C	NOTES AND TITLE AMENDED - KV	NAA	WJC	12/08/2022
D	EARTH STOCK CODE UPDATE	JJP	WJC	17/11/2023

evenergy

Project: 3rd Dim
 Designed: J. Primmer
 Checked: J. Primmer 7/11/2016
 Branch Engineer: W. Ibrahim 18/11/2016
 Branch Manager: W. Cleland 15/11/2019

STANDARD CONSTRUCTION, DISTRIBUTION UNDERGROUND, STATIONS, SA, EARTHING, CMEN EARTHING WITH ELECTRODES HV & LV TWIN PADMOUNT SUBSTATION 3m - 10m SEPARATION

Scale: Project No.: Stock Code: Status: Current

Sheet No.: D110-0001
 Stock Code: -
 Drawing No. A1
 Rev: D303-0021