



**GENERAL NOTES:**

1. THE CMEN LINK MUST BE A MINIMUM 70mm<sup>2</sup> COVERED COPPER CONDUCTOR.
2. CONSTRUCTION TEAM/ COMMISSIONING OFFICER MUST ENSURE SUBSTATION IS IN CMEN CONFIGURATION.
3. ALL EARTHING CONDUCTORS SHALL BE THOROUGHLY CLEANED AND DEBURRED AT CONNECTION POINTS BEFORE CONNECTION.
4. TRANSFORMER TANK, LV SWITCHBOARD FRAME, PADMOUNT ENCLOSURE, HV CABLE SCREENS AND HV SWITCHGEAR FRAME MUST BE CONNECTED TO THE HV EARTH BAR.
5. NEUTRALS OF LV CABLES AND TRANSFORMER NEUTRAL TO BE CONNECTED TO NEUTRAL BAR ON THE LV BOARD.
6. EACH EARTHING CONNECTION MADE TO AN EARTHING BAR MUST BE FIXED WITH A SEPARATE M12 BOLT. AS REQUIRED THE EARTH BAR MAYBE EXTENDED WITH ADDITIONAL COPPER BAR OF AT LEAST THE SAME SIZE, FIXED WITH TWO M12 BOLTS.
7. ALL EARTHING FASTENERS ARE STAINLESS STEEL.
8. SEPARATION BETWEEN BURIED EARTHING AND NON-BONDED METALLIC EQUIPMENT IS REQUIRED. SEPARATION DISTANCE IS TO BE SPECIFIED IN THE PARTICULAR DESIGN FOR THE SUBSTATION.
9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
10. EARTHING CONDUCTORS MUST BE LABELLED IN ACCORDANCE WITH THE EVOENERGY EARTHING DESIGN MANUAL (P007127).
11. PADMOUNT SUBSTATION EARTHING CONFIGURATION / TYPE LABELS MUST BE INSTALLED ON THE INSIDE OF THE LV AND HV ACCESS DOORS.
12. CONFIGURATION / CONSTRUCTION IDENTIFIED IS TWIN PADMOUNT SUBSTATIONS WITH LESS THAN 2.5m SEPARATION DISTANCE IN A CMEN CONFIGURATION UTILISING AN EARTH GRID. SEPARATE EARTHING CONFIGURATIONS, SINGLE PADMOUNT SUBSTATIONS, TWIN PADMOUNT SUBSTATIONS WITH GREATER SEPARATION THAN 2.5m AND THOSE USING EARTH ELECTRODES ARE SHOWN ON OTHER ASSEMBLIES.
13. EARTHING CONDUCTORS ENTERING THE SUBSTATION MUST BE A MINIMUM 70mm<sup>2</sup> COVERED COPPER CABLE. COPPER BAR OR STRAP MUST NOT BE USED.
14. TYPICAL CONNECTION SHOWN- REFERENCE INTERFACE TABLE FOR ACTUAL.
15. EARTHING MUST BE ASSESSED, DESIGNED AND VALIDATED IN ACCORDANCE WITH THE EVOENERGY EARTHING DESIGN MANUAL- P007127.
16. EXCESS JOINTING COMPOUND APPLIED TO EARTHING CONNECTIONS MUST BE REMOVED AFTER INSTALLATION.
17. PRE APPLIED JOINTING COMPOUND IN EARTHING CONNECTIONS MUST BE REMOVED PRIOR TO INSTALLATION WHEN INSTALLING INTO AN AQUATIC ENVIRONMENT.
18. 2X MINIMUM 70mm<sup>2</sup> COPPER CONDUCTORS MUST BE CONNECTED BETWEEN THE INSTALLED EARTH GRID AND EACH PADMOUNT SUBSTATION.
19. EARTHING CONDUCTORS CONNECTING THE EARTH GRID AND ADJACENT SUBSTATION MUST MAINTAIN A MINIMUM 150mm CLEARANCE BELOW THE GRADING RING AT ALL CROSS OVER POINTS.

**GRADING RING NOTES:**

1. SITE EXCAVATION DETAILS PROVIDED IN DRAWING D303-0015.
2. TWO CONNECTION POINTS ARE REQUIRED BETWEEN THE EARTH GRADING RING AND THE HV EARTH BAR IN CASE ONE CONNECTION FAILS.
3. THE SECTION OF GRADING RING BETWEEN THE SUBSTATIONS MUST BE INSTALLED AT AN EQUAL DISTANCE FROM EACH SUBSTATION ENCLOSURE, THE REMAINDER OF GRADING RING MUST BE INSTALLED 1m FROM THE SUBSTATION.
4. IF THE SUBSTATION IS UPGRADED THE GRADING RING POSITION MUST BE CHECKED AND RELOCATED AS REQUIRED- THE DISTANCE BETWEEN THE SUBSTATIONS MUST BE LESS THAN 2.5m.
5. AS REQUIRED ADDITIONAL EARTH STAKES MAYBE INSTALLED AND ATTACHED TO THE GRADING RING ENSURING THE RING IS BURIED TO THE CORRECT DEPTH.

...LEGACY DRAWING...  
DO NOT USE FOR NEW CONSTRUCTION

THIS PADMOUNT SUBSTATION IS CMEN EARTHED  
INSIDE OF RH DOOR

| ITEM | UA TYPE | DESCRIPTION   | STOCK CODE | QTY | DRAWING NO |
|------|---------|---|------------|-----|------------|
| 1    | P       | EARTHING ROD, dia 13 x 1440mm, COPPER CLAD STEEL, EXTENDABLE, NO CLIP                   | 1161222    | 6   | D110-0001  |
| 2    | P       | CONDUCTOR, AERIAL, HDBC, 70mm <sup>2</sup> , 19/2.14 (19/083)                           | 1068830    | 34m | D102-0005  |
| 3    | P       | LUG, SHEAR-BOLT, 25-95mm <sup>2</sup> , M13 BOLT HOLE, TINNED ALUMINIUM                 | 1193219    | 12  | D103-0022  |
| 4    | P       | CABLE, BUILDING, 70mm <sup>2</sup> , 1C, 19/2.14, 0.6/1kV, V-75, BLACK, PVC INSULATED   | 1069603    | 30m | 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 EARTH GRID FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL            | 1202097    | 4   | D107-0018  |
| 8    | P       | LABEL, EARTHING, CMEN BOND FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL                | 1202108    | 2   | D107-0019  |
| 9    | P       | LABEL, EARTHING, HV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL | 1202119    | 2   | D107-0020  |
| 10   | P       | LABEL, EARTHING, LV BOND TO PADMOUNT ADJ, FOR EARTHING CONDUCTORS, 90 x 10.5mm, S/STEEL | 1202130    | 2   | D107-0021  |
| 11   | P       | LABEL, EARTHING, PADMOUNT, SUBSTATION EARTHING TYPE, CMEN EARTHED                       | 1202207    | 4   | D107-0029  |
| 12   | I       | INTERFACE, EARTHING PARTS, CONNECTIONS, CONNECTORS AND ACCESSORIES                      | SELECT     | 20  | D199-0001  |

| No. | DESCRIPTION                 | OKD | AUTH | DATE       |
|-----|-----------------------------|-----|------|------------|
| B   | C CRIMP, NOTES & DEPICT UPD | BA  | WJC  |            |
| C   | PART, POLICY NUMBERS AMEND  | NA  | WJC  | 13/07/2021 |
| D   | ADD STAMP & CHANGED TO LEG  | NA  | WJC  | 12/08/2022 |
| E   | EARTH STOCK CODE UPDATE     | JJP | WJC  | 17/11/2023 |

**evoenergy**

STANDARD CONSTRUCTION, DISTRIBUTION UNDERGROUND, STATIONS, SA, EARTHING, CMEN EARTHING WITH GRID PADMOUNT SUBSTATION <2.5m SEPARATION

Scale: 3/10/2016  
Project No.:  
Status: Legacy  
Sheet No.: A1 D303-0018 Rev E