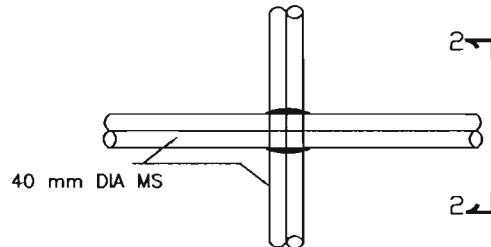


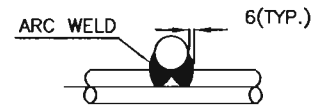
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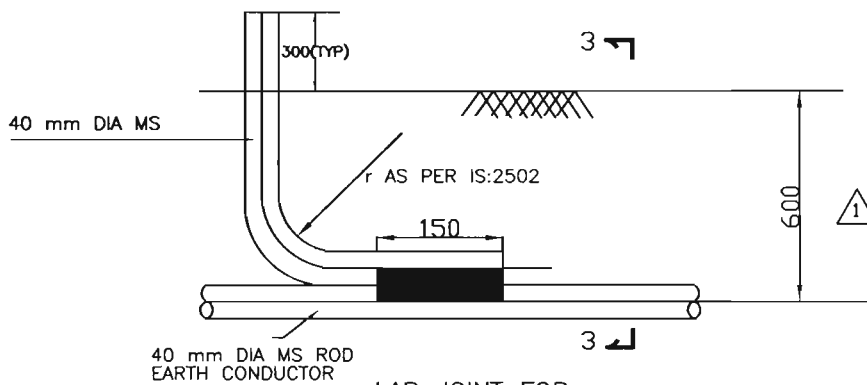
SECTION 1-1



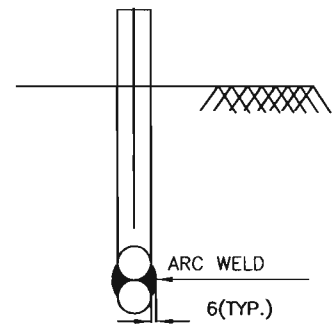
CROSS JOINT



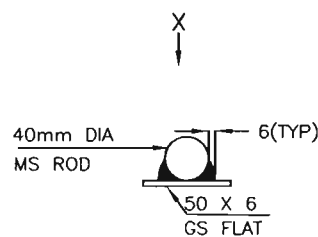
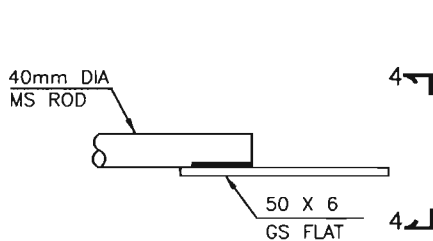
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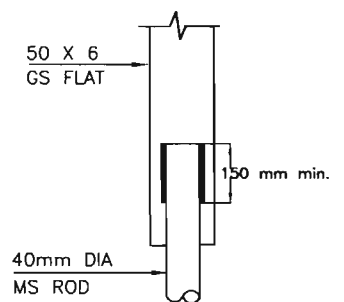
LAP JOINT FOR  
RISER PIGTAIL



SECTION 3-3



SECTION 4-4  
ROD FLAT JOINT



VIEW-X

WELDED JOINTS

Page 1

TITLE

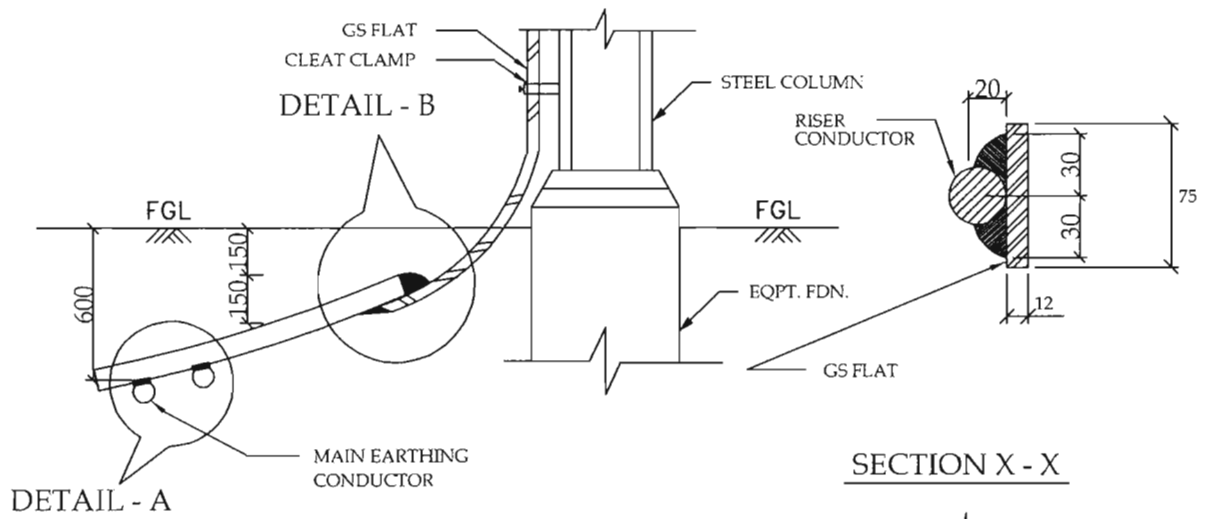
TYPICAL BELOW GROUND EARTHING DETAILS

BHEL DRAWING No.

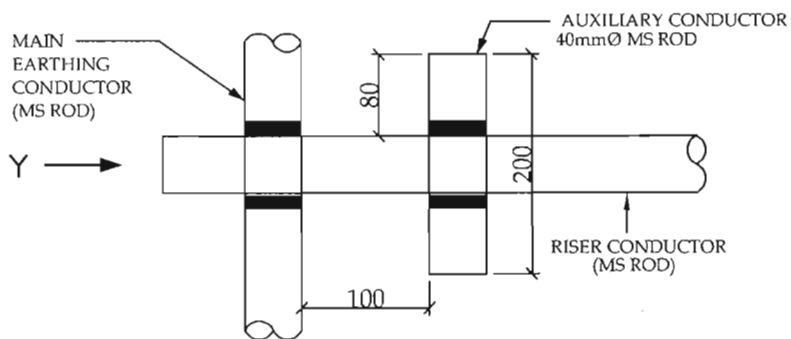
PE-DG-412-509-E005

REV. No. 02

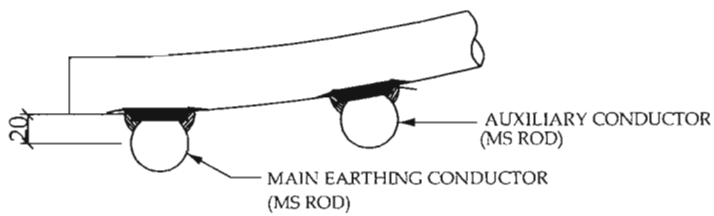
SHEET



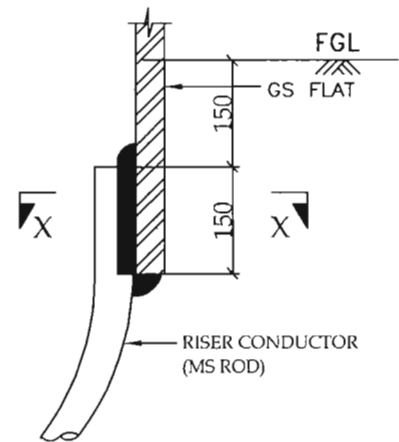
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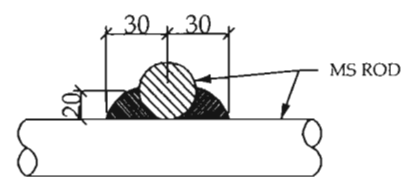
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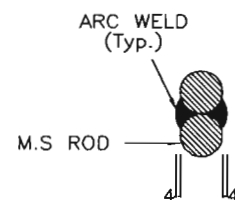
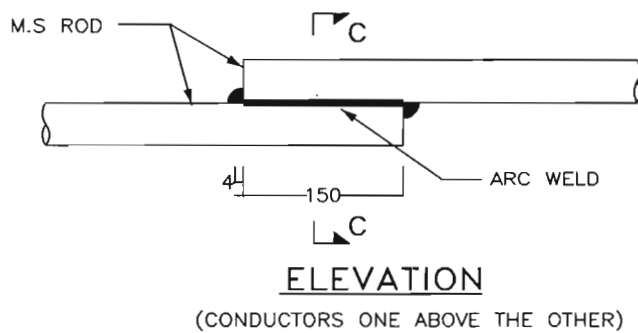
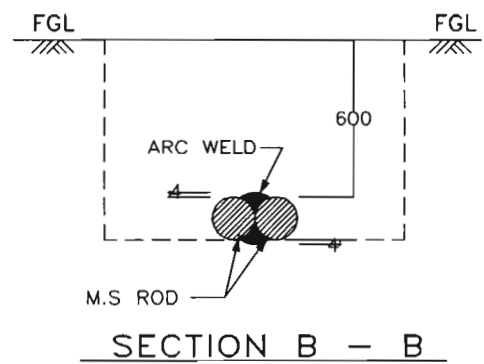
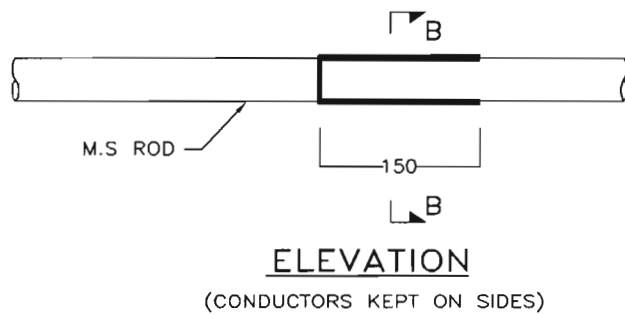
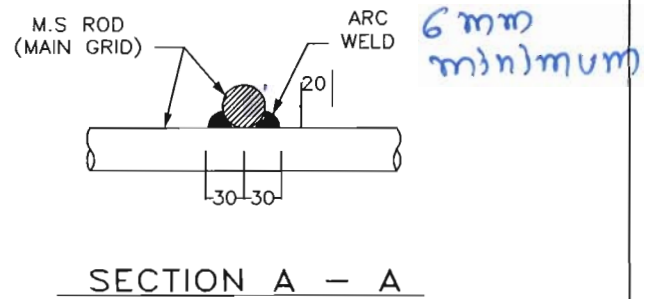
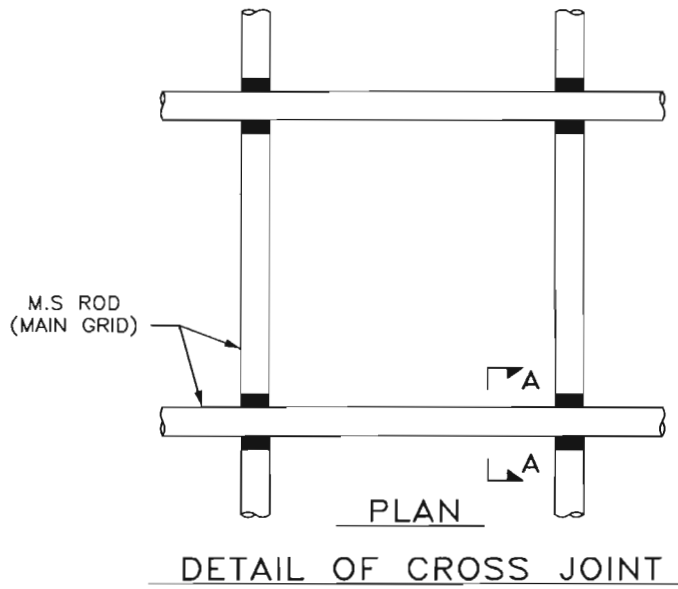
ELEVATION  
DETAIL - A



ELEVATION  
DETAIL - B



VIEW - Y



SECTION C - C

DETAIL OF LAP JOINT

## NOTES:—

### WELDING:

#### (A) BARE MS

- a) ALL EARTH CONDUCTOR CONNECTIONS SHALL BE MADE BY ELECTRIC ARC WELDING ALL WELDING SHALL BE CARRIED OUT BY QUALIFIED AND EXPERIENCED WORKERS.
- b) ALL ARC WELDING SHALL BE CARRIED OUT WITH LOW HYDROGEN CONTENT ELECTRODE.
- c) ALL WELDED JOINTS SHALL BE ALLOWED TO COOL DOWN GRADUALLY TO ATMOSPHERIC TEMPERATURE BEFORE PUTTING ANY LOAD ON THEM. NO ARTIFICIAL COOLING SHOULD BE ADOPTED TO COOL WELDED JOINTS
- d) THE WELDING REQUIRED FOR GROUNDING SHALL HAVE ADEQUATE STRENGTH.
- e) BEFORE WELDING, THE EARTH CONDUCTOR SHALL BE CLAMPED TIGHTLY TO ENSURE GOOD SURFACE CONTACT AT WELDING POINTS.
- f) TWO COATS OF RED OXIDE PAINT, FOLLOWED BY A COAT OF BITUMEN COMPOUND SHALL BE APPLIED ON ALL WELDED JOINTS.

#### (B) GALVANISED MS

- a) CLEANING OF WELD AREA WITH WIRE BRUSH.
- b) REMOVAL OF GALVANISATION COATING IN THE WELD AREA.
- c) WELDING OF CONDUCTORS AS PER DETAILS SHOWN IN THIS DRAWING BY ELECTRIC ARC WELDING PROCESS USING LOW HYDROGEN CONTENT WELDING ELECTRODES.
- d) NATURAL COOLING OF WELDED JOINT.
- e) POST TREATMENT OF WELDED AREA :
  - i) ONE COAT OF ZINC CHROMATE PRIMER.
  - ii) ONE COAT OF ZINC RICH PAINT

THE ABOVE TREATMENT SHALL EXTEND MINIMUM 100 MM ON BOTH SIDES OF THE WELD LENGTH.

BENDING OF THE CONDUCTOR, WHEREVER NECESSARY, SHALL BE DONE BY GAS HEATING.

Page 9

TITLE

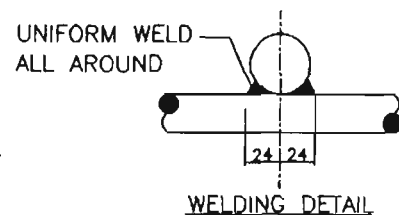
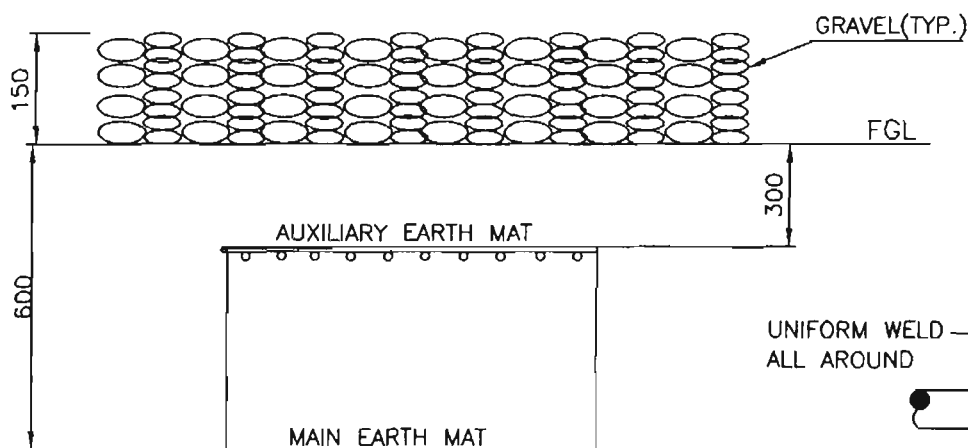
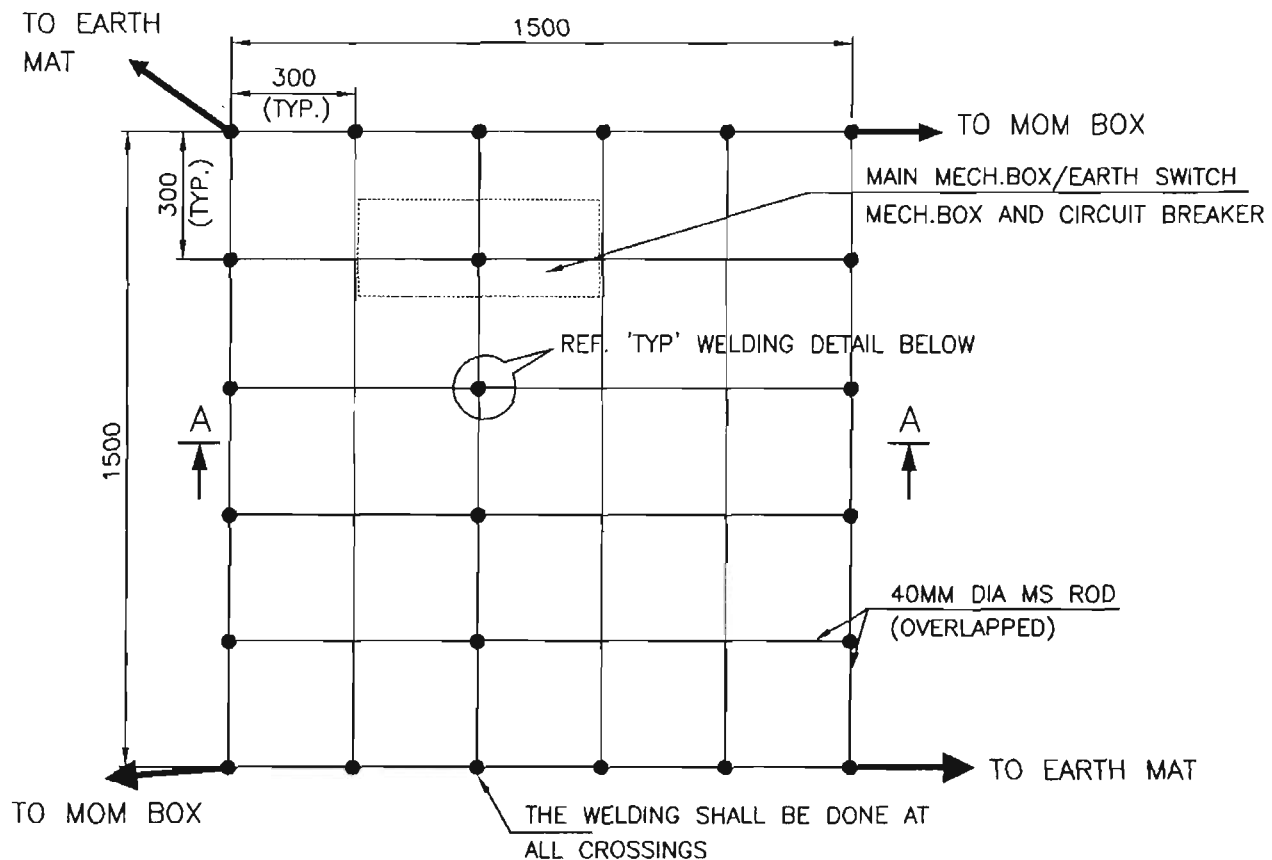
**TYPICAL BELOW GROUND EARTHING DETAILS**

BHEL DRAWING No.

PE-DG-412-509-E005

REV. No. 02

SHEET



SECTION AA

NOTE:

AUX. EARTHMAT SHALL BE SO POSITIONED THAT THE FOOT OF THE OPERATOR ALWAYS LIE OVER THE AUX. EARTHMAT AREA WHILE ATTENDING / OPERATING THE MECH. BOX. THE CABLE TRENCH ROUTING SHALL BE PLANNED ACCORDINGLY.

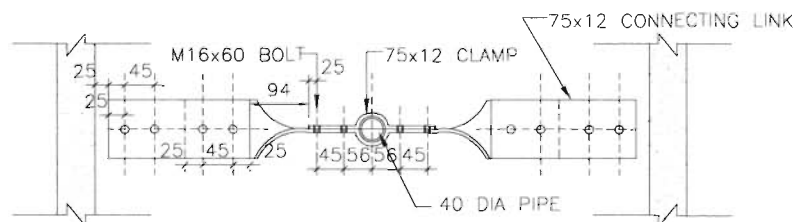
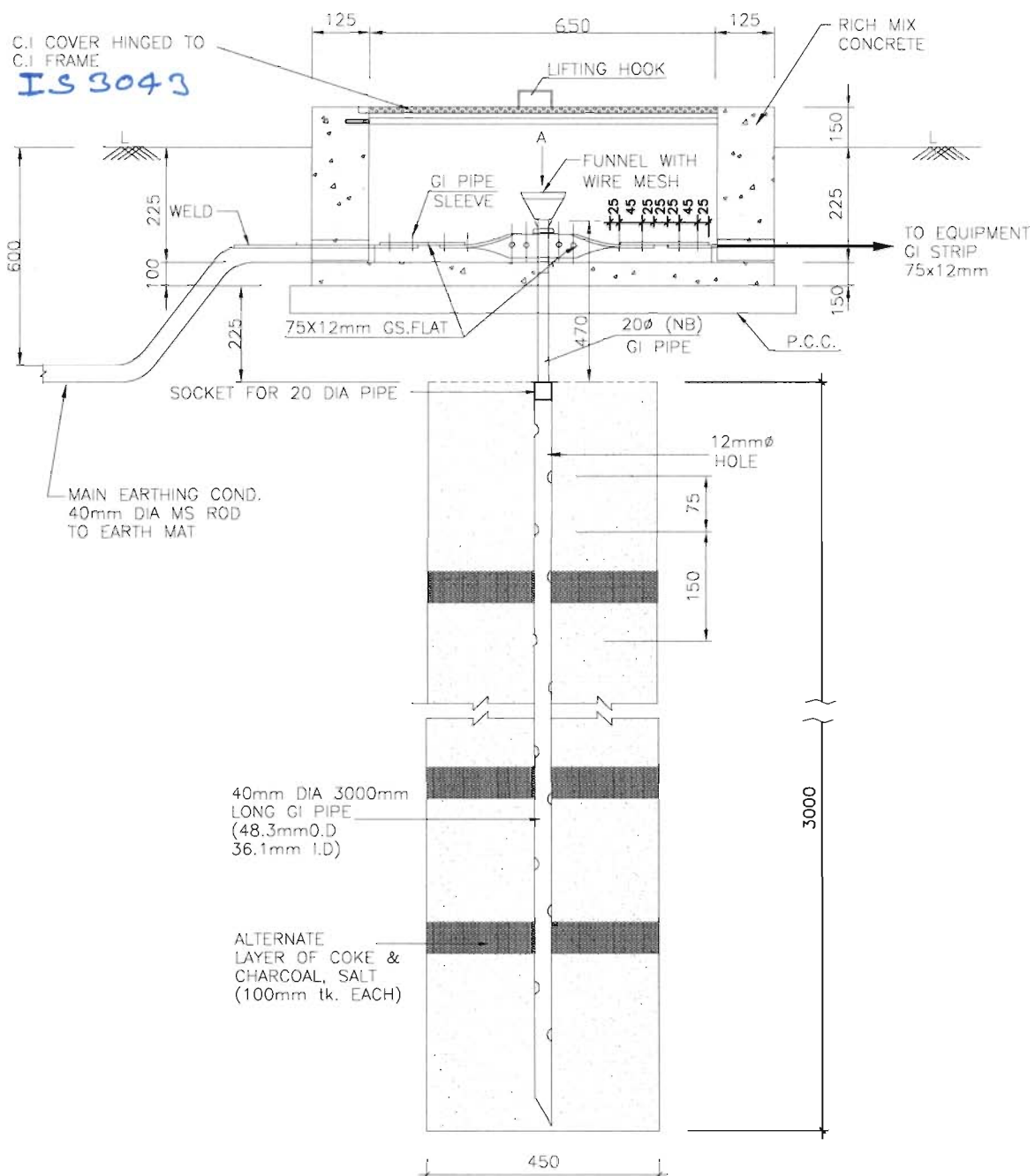


EQUIPMENT & STRUCTURE EARTHING DETAILS  
AUXILIARY EARTHMAT FOR ISOLATOR MAIN MECH., E/S  
MECH. BOX & CB (TYP.)

COMPU. DRG. REF.

Report No.

TB-STD-316-AUX. MAT



**NOTE:**

1. ALL NUTS, BOLTS AND WASHERS, FUNNEL GI PIPE AND WIRE MESH SHALL BE GALVANISED AS PER SPECIFICATION.
2. FUNNEL SHALL BE SECURELY HELD TO THE PIPE.
3. TO BE USED FOR CONNECTING TO NEUTRAL OF POWER TRANSFORMER/REACTOR/NGR



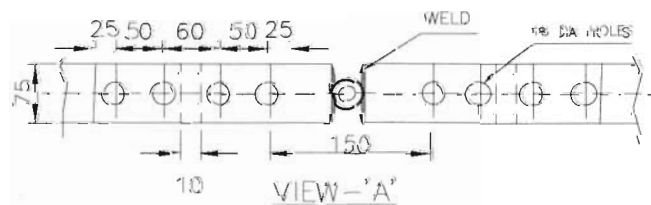
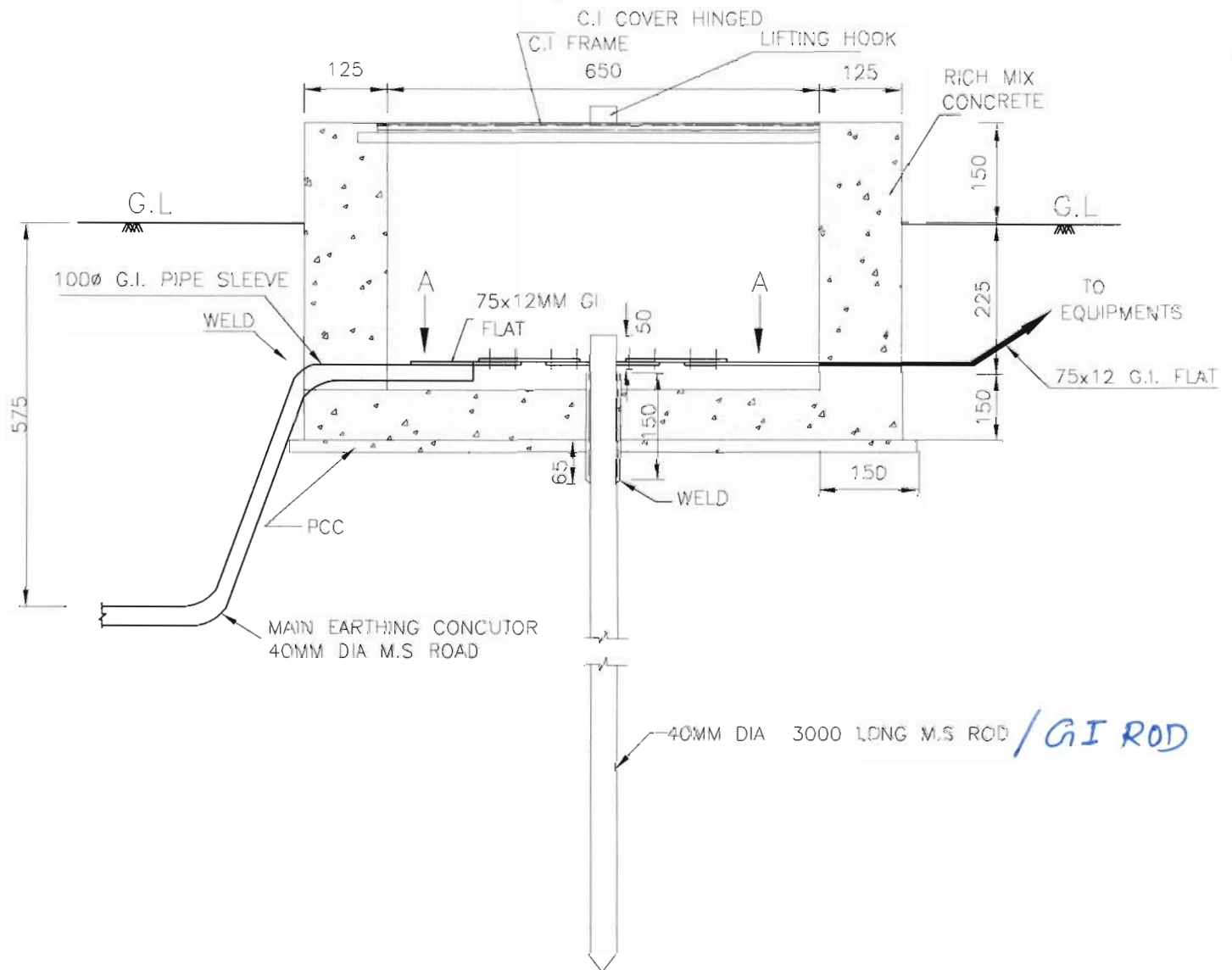
**EQUIPMENT EARTHING DETAILS  
DETAILS OF PIPE EARTH ELECTRODE  
IN TREATED EARTH PIT (ET)**

COMPUTER REF. NO.

DRG. No.

TB-STD-316-PIPE ELECTRODE REV. 00

IS 3043



NOTE:-

1. TO BE USED FOR CONNECTING DOWN CONDUCTOR OF LIGHTNING PROTECTION SYSTEM.



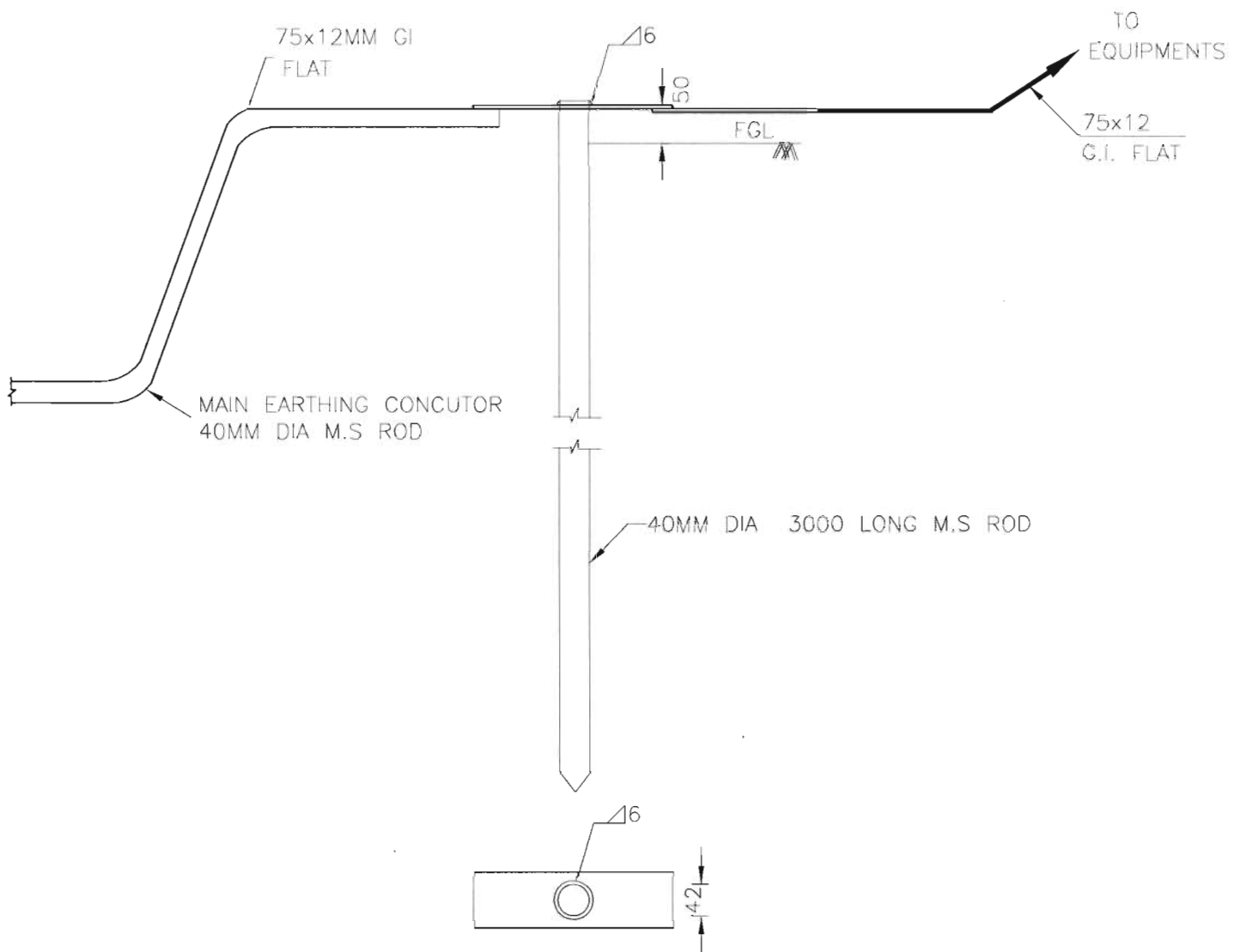
## EQUIPMENT EARTHING DETAILS

### ROD EARTH ELECTRODE WITH TEST LINK

COMPU. DRG. REF.

DRG. No.

TB-STD-316-ROD ELECTRODE WITH PIT



NOTE:-

1. TO BE USED FOR CONNECTING NEUTRAL OF CVT AND SURGE COUNTER OF LA



# EQUIPMENT EARTHING DETAILS ROD EARTH ELECTRODE WITHOUT TEST LINK

COMPU. DRG. REF.

DRG. No.

TB-STD-316-ROD ELECTRODE W/O PIT



### GENERAL INSTRUCTION FOR EARTHING:

1. Location of earthing conductors / risers shown in the earthing drawing may change to suit the site condition.
2. Two different risers of one structure/equipment shall be connected to different conductors of main earthmat.
3. Earthing conductor around the building shall be buried at a minimum distance of 1500 mm from the outer boundary of the building.
4. Minimum distance of 6000 mm shall be maintained between two treated (pipe) electrode.
5. For surge arrester, earthing lead from surge counter to main earthmat shall be shortest in length as practically as possible. Earthing lead from surge arrester shall not be passed through any pipe.
6. No welding is allowed in the over ground earthing leads/risers if the length is less than 6m .
7. All ground connections shall be made by electric arc welding. All welded joints shall be allowed to cool down gradually to atmospheric temperature before putting any load on it. Artificial cooling shall not be allowed.
8. All arc welding with MS ROD shall be done with low hydrogen content electrodes. the welds should be treated with red oxide primer and afterwards coated with two layers bitumen compound to prevent corrosion.
9. Wherever earthing conductor crosses cable trenches, underground service ducts, pipes, tunnels, railway tracks etc., it shall be laid minimum 300 mm below them and shall be circumvented in case it fouls with equipment/structure foundations.
10. Earthing conductor around the building shall be buried in earth at a minimum distance of 1500 mm from the outer boundary of the building.
11. Earthing conductors crossing the road shall be laid 300mm below road or at greater depth to suit the site conditions.
12. Earthing conductors embedded in the concrete shall have approximately 50mm concrete cover