

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

RELEASED FOR CONTRUCTION

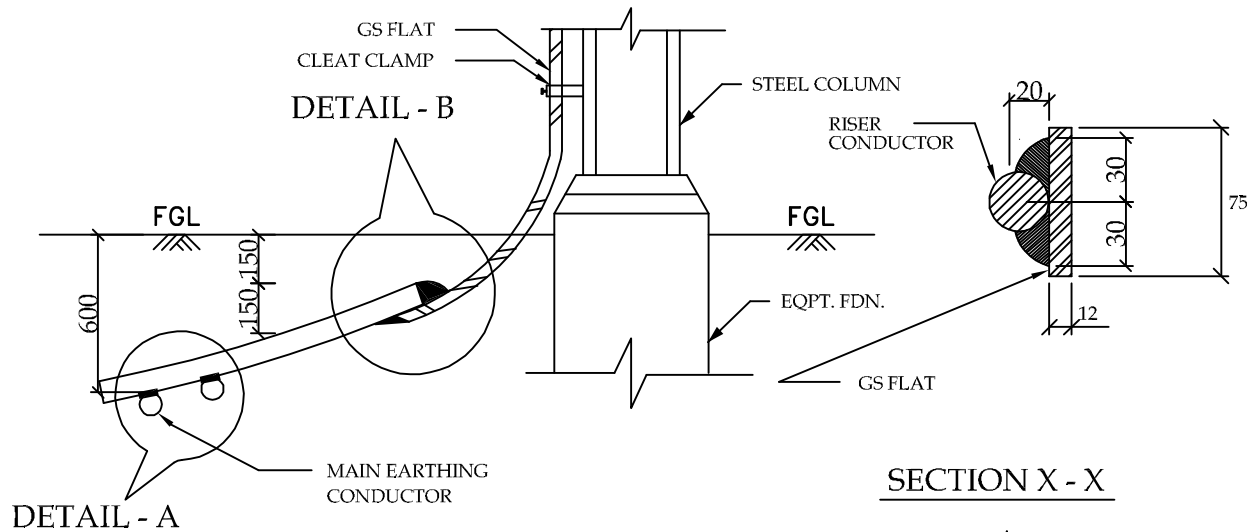
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



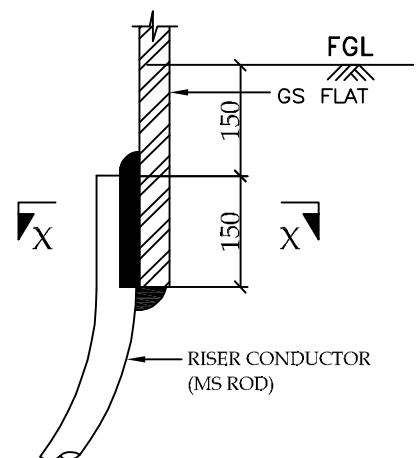
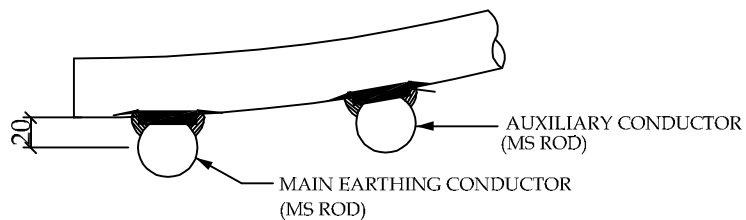
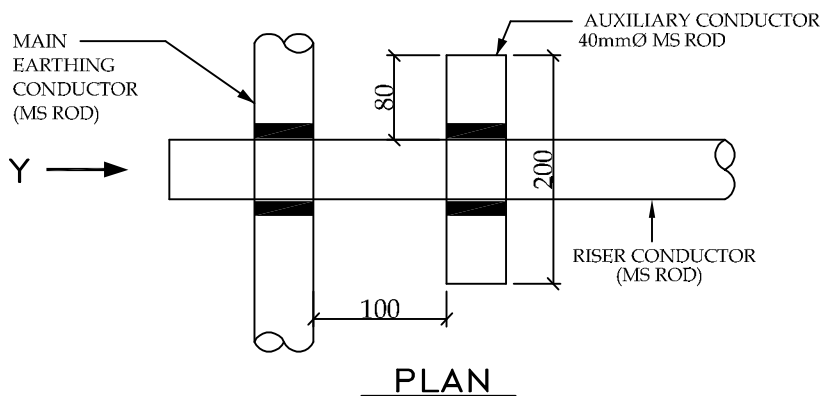
PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

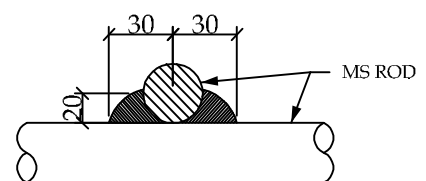
<i>HK Parkar</i>	<i>HK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 1



TYPICAL DETAILS OF RISER



ELEVATION
DETAIL - B



RELEASED FOR CONTRUCTION

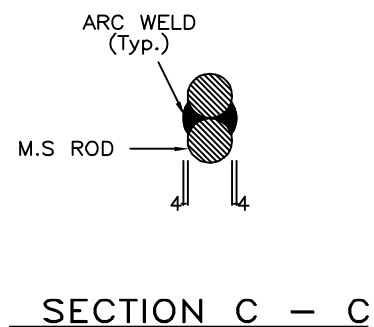
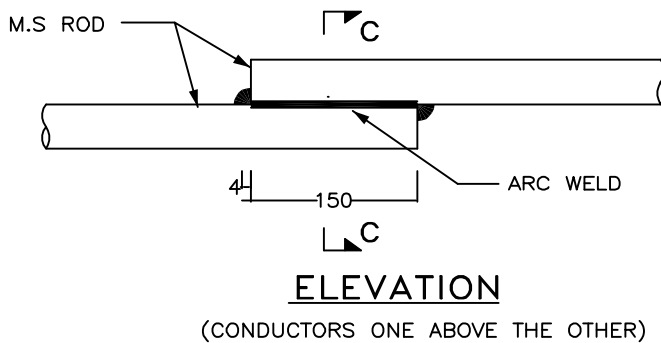
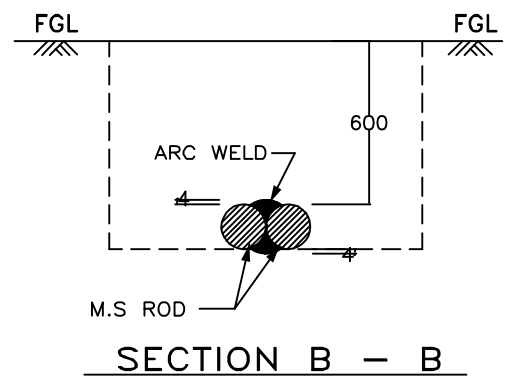
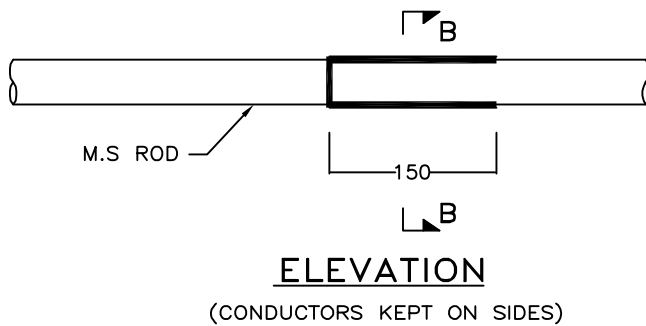
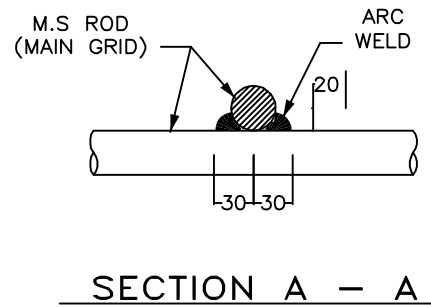
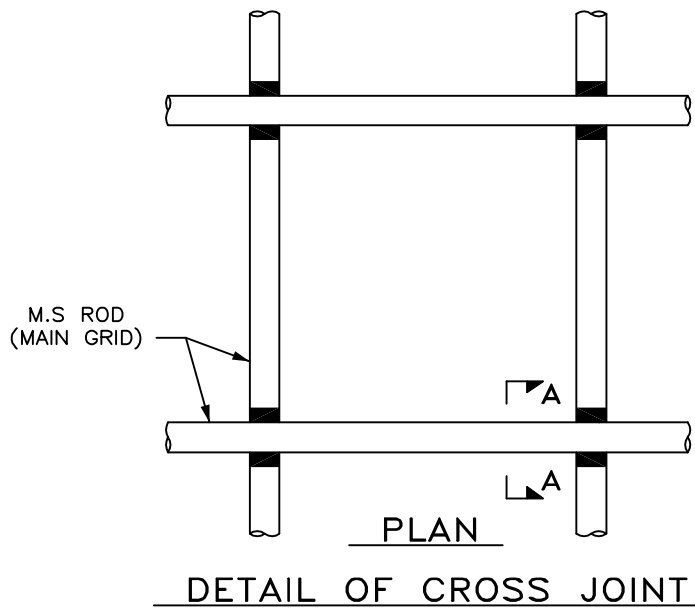
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 2
H/K Parkar	H/K Parkar	Dec-2013	



DETAIL OF LAP JOINT

RELEASED FOR CONTRUCTION

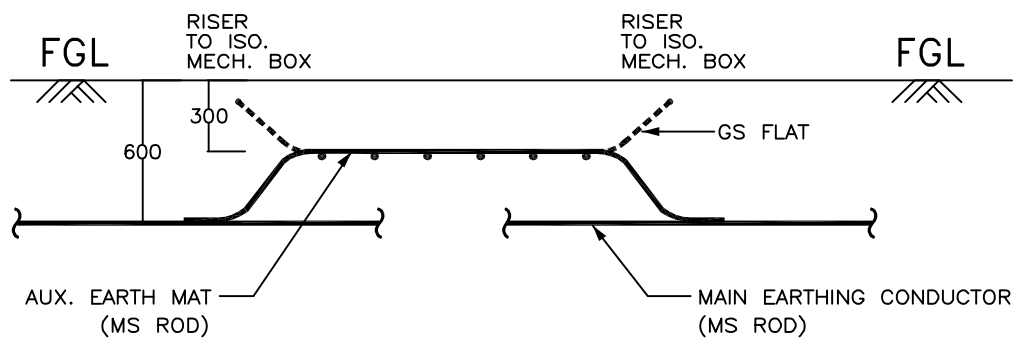
**POWER GRID CORPORATION
OF INDIA LIMITED**
(A Government of India Enterprise)



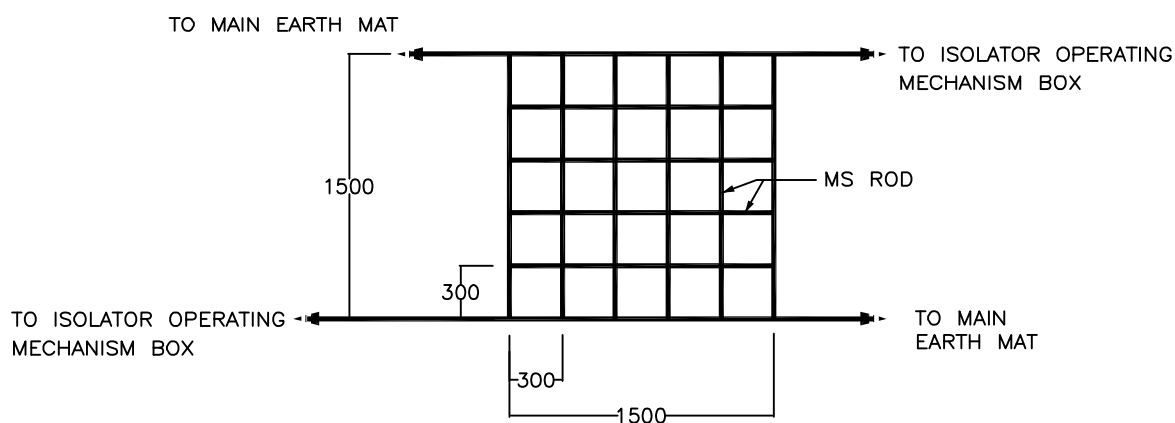
**PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION**

TITLE:- STANDARD EARTHING DETAILS

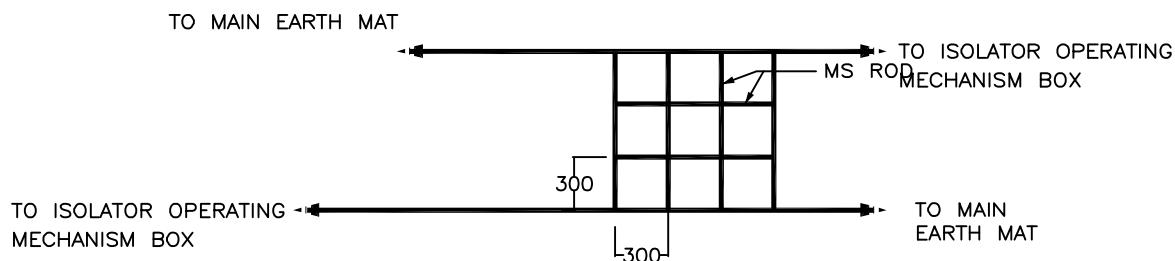
<i>H.K. Parkar</i>	<i>H.K. Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 3



ELEVATION



PLAN (For 220kV & above class isolators)



PLAN (For 132kV & below class isolators)

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

KK Parkar

KK Parkar

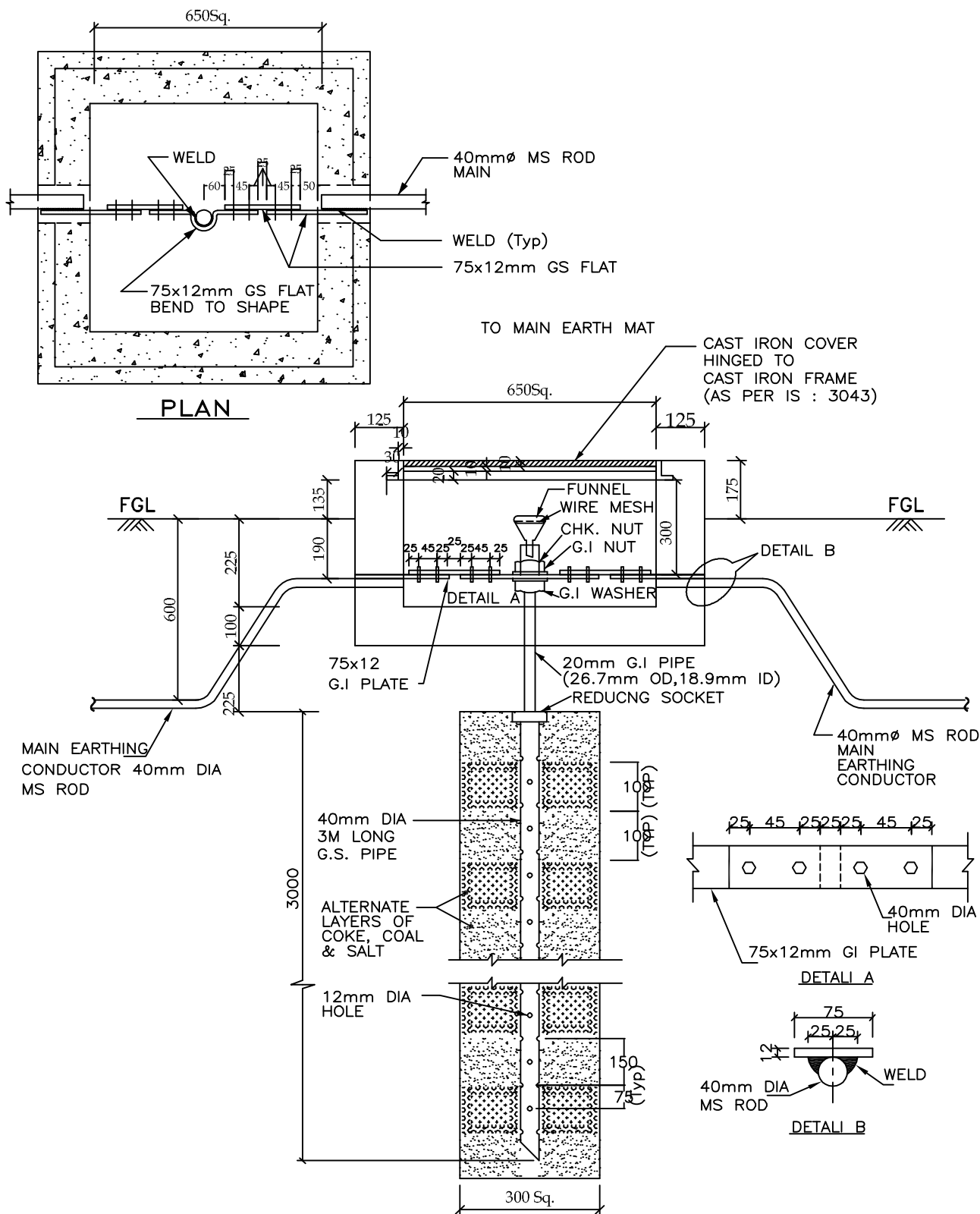
Dec-2013

Drawing No.:
C/ENG/STD/EARTHINGS/09
SHEET # 4

CKD BY

PRPD BY

Date



RELEASED FOR CONSTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY

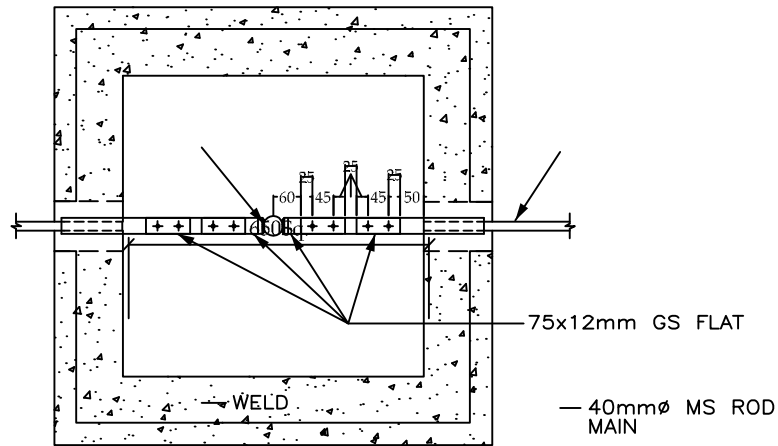
PRPD BY

Dec-2013

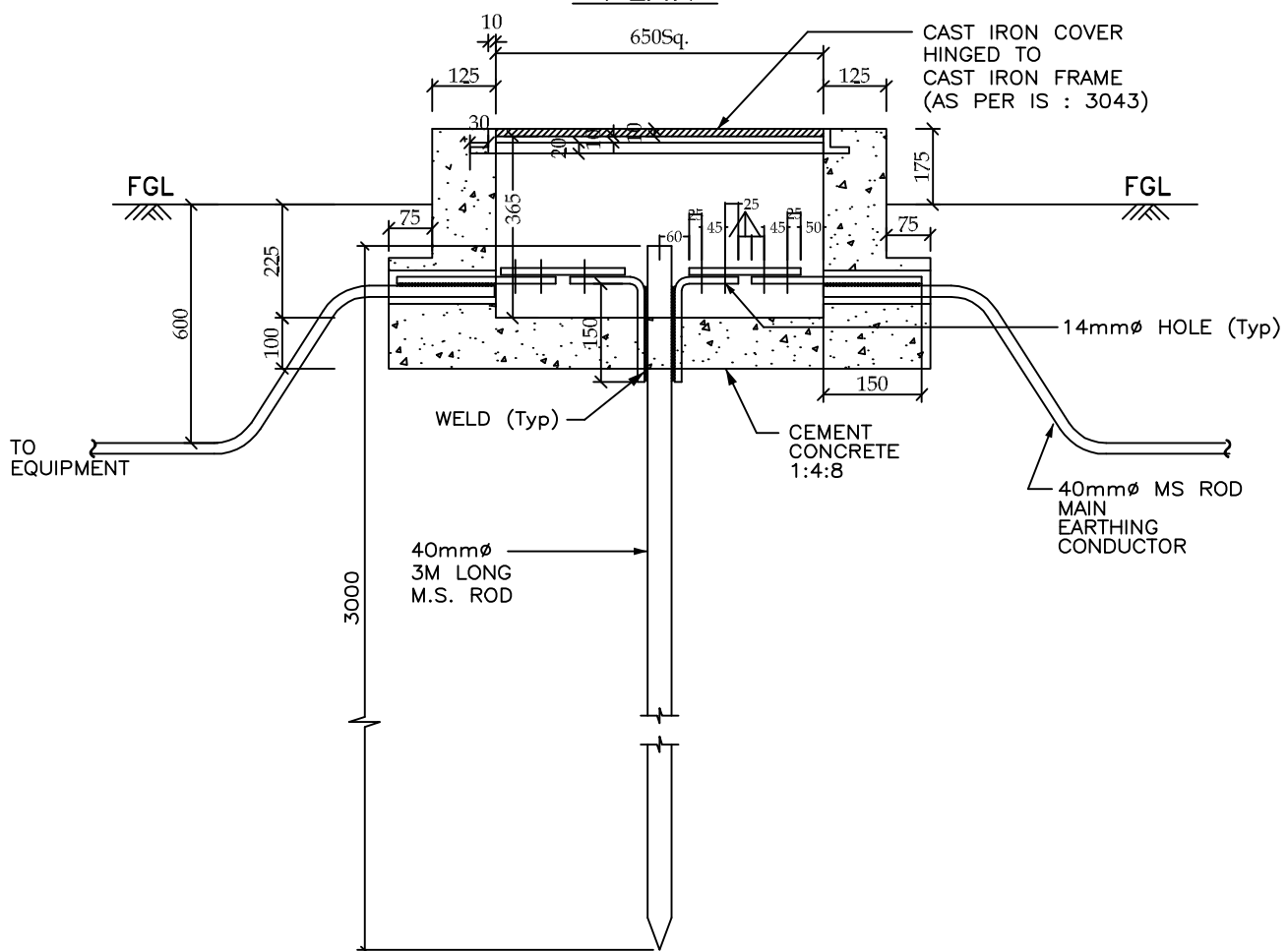
Drawing No.:
C/ENG/STD/EARTHINGS/09
SHEET # 5

Date

ROD ELECTRODE WITH TEST LINK FOR LM, TOWER WITH PEAK, CVT, LA



PLAN



ELEVATION

RELEASED FOR CONTRUCTION

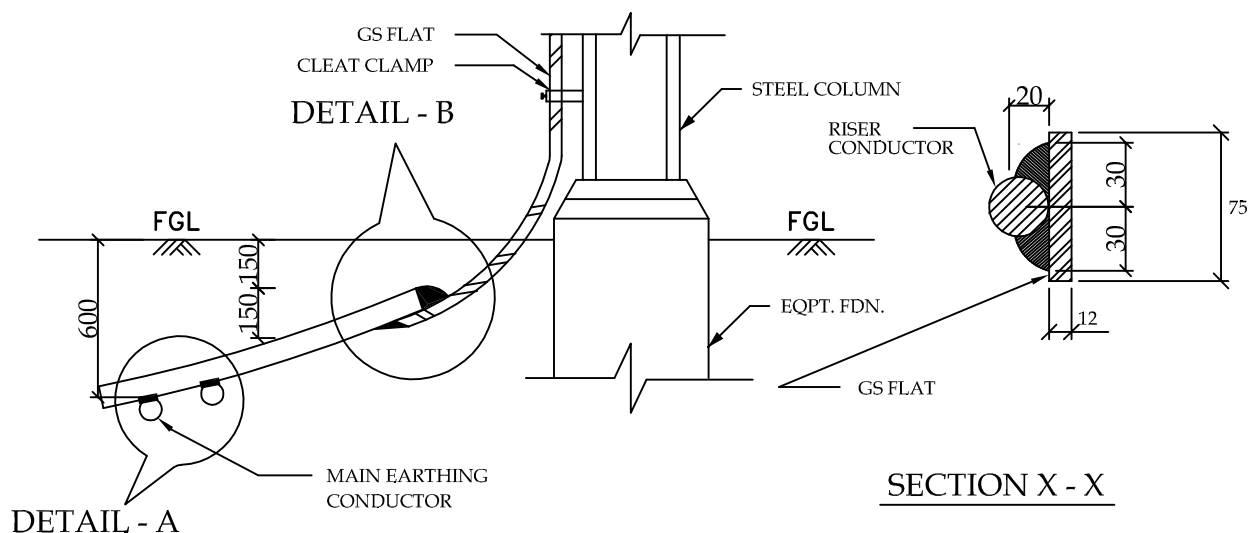
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



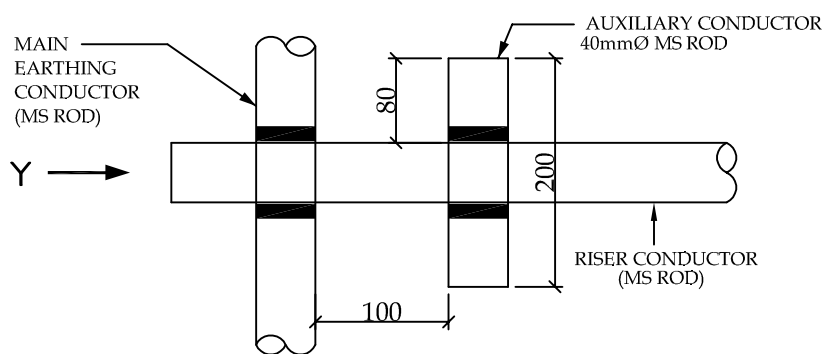
PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

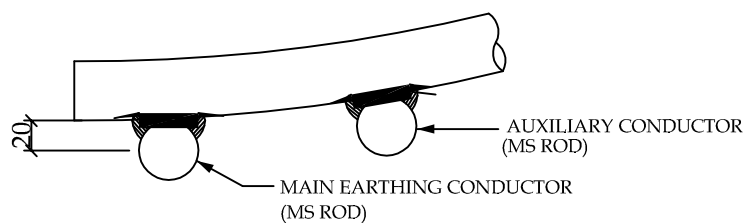
CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 6
<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	



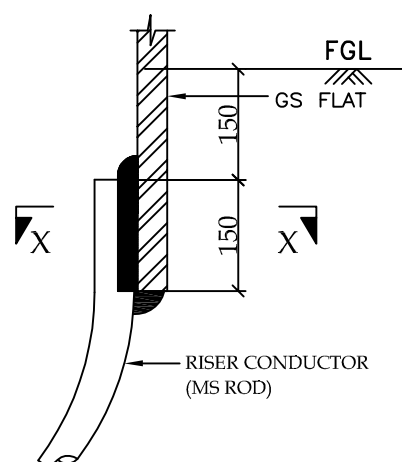
TYPICAL DETAILS OF RISER



PLAN

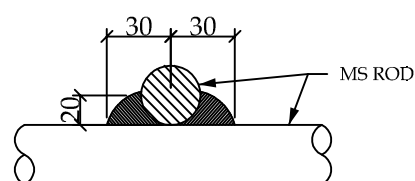


ELEVATION
DETAIL - A



ELEVATION

DETAIL - B



VIEW - Y

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

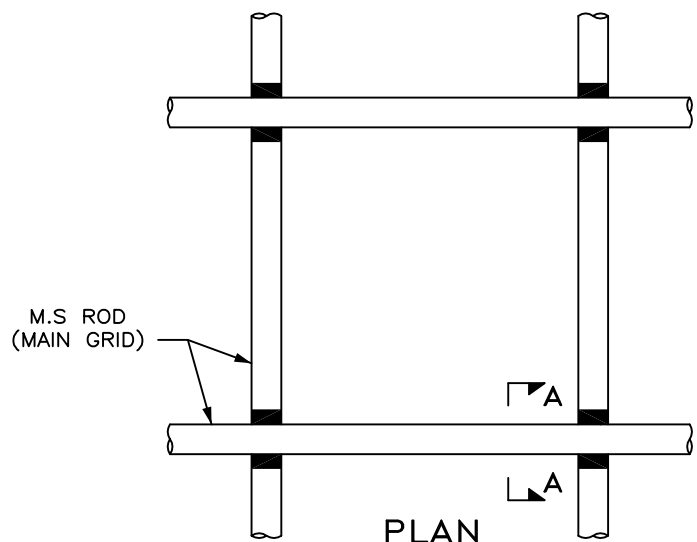
CKD BY

PRPD BY

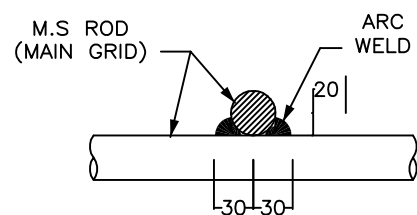
Dec-2013

Date

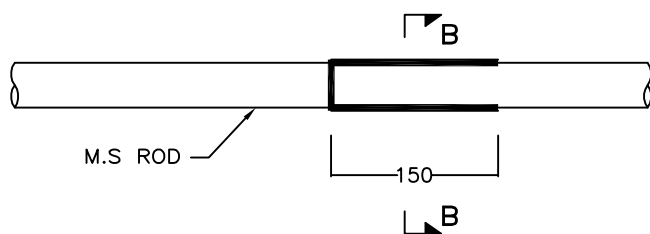
Drawing No.:
C/ENG/STD/EARTHINGS/09
SHEET # 2



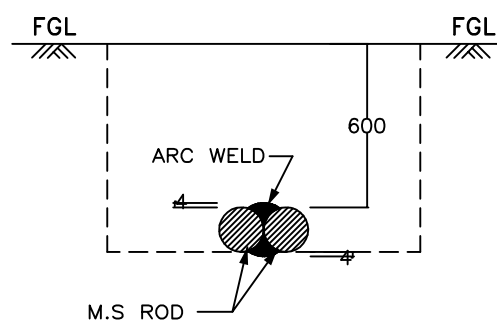
DETAIL OF CROSS JOINT



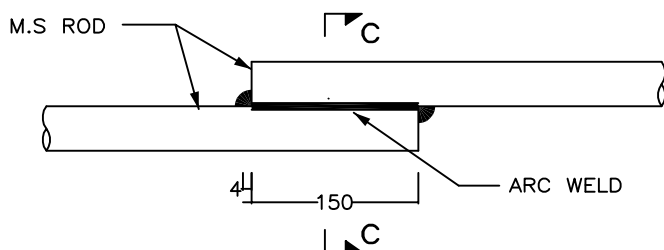
SECTION A - A



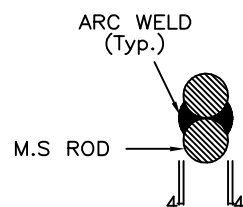
(CONDUCTORS KEPT ON SIDES)



SECTION B - B



(CONDUCTORS ONE ABOVE THE OTHER)



SECTION C - C

DETAIL OF LAP JOINT

RELEASED FOR CONTRUCTION

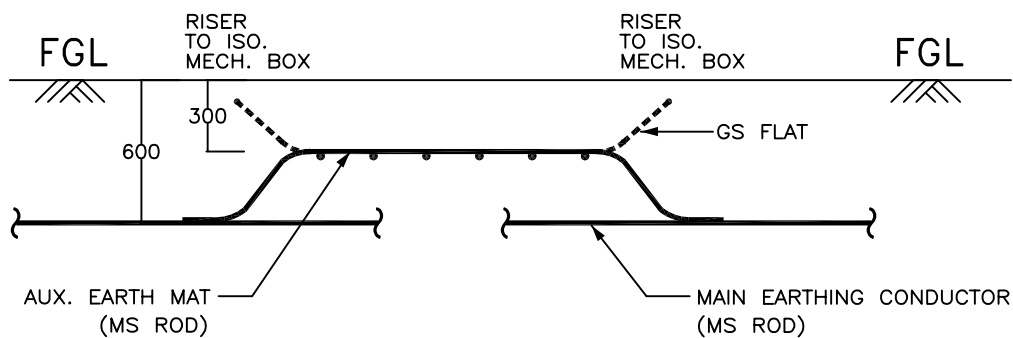
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



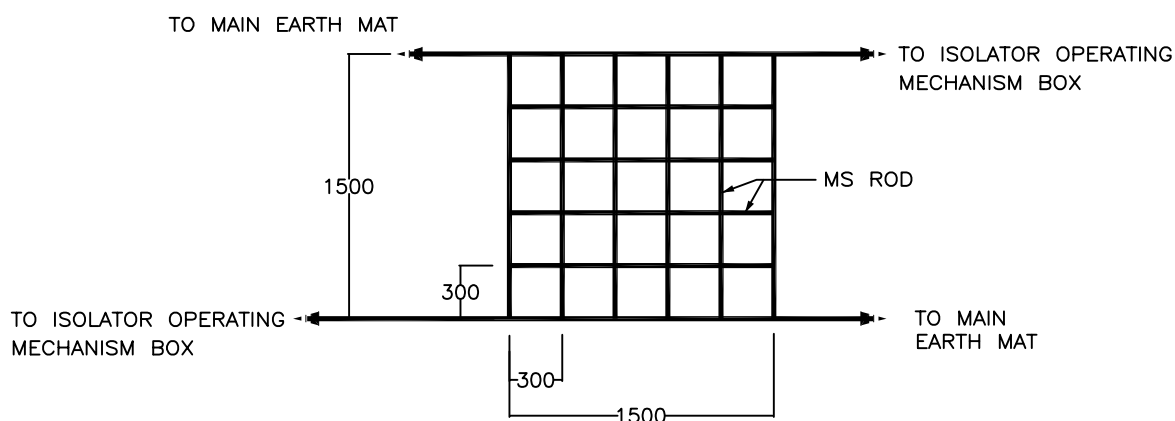
PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

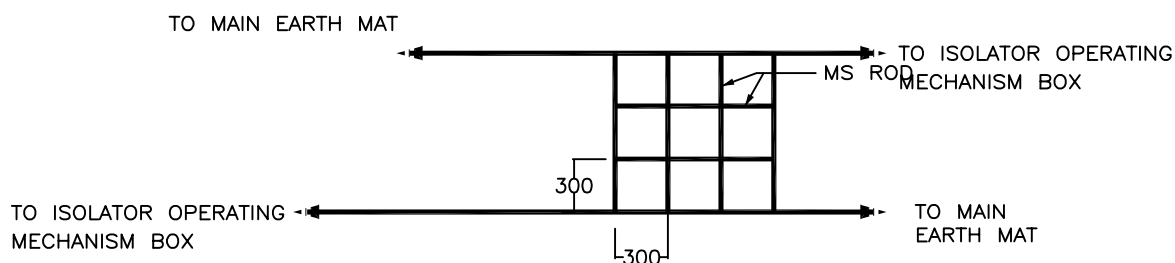
<i>KK Parhar</i>	<i>KK Parhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 3



ELEVATION



PLAN (For 220kV & above class isolators)



PLAN (For 132kV & below class isolators)

RELEASED FOR CONTRUCTION

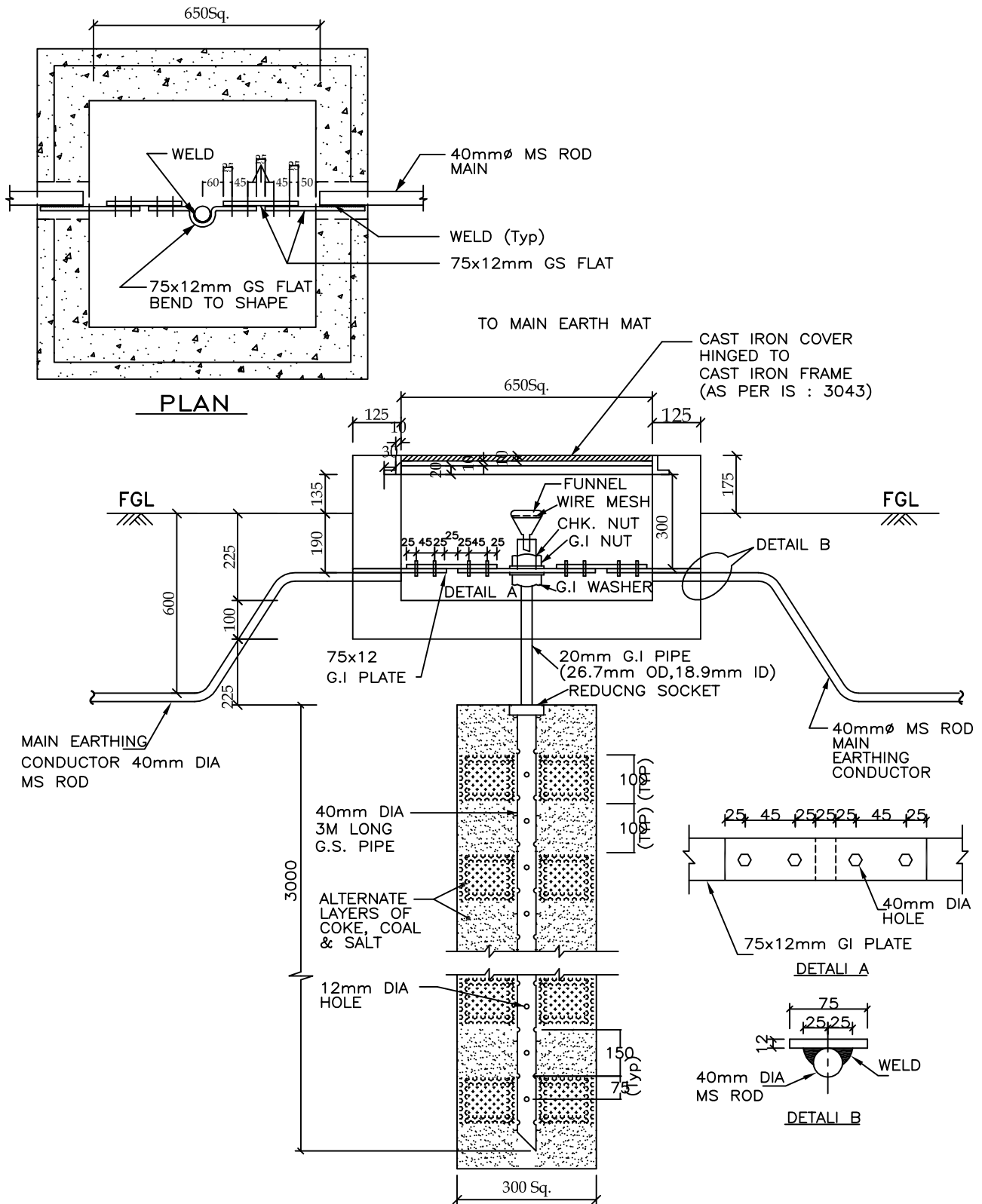
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 4
<i>KK Parshar</i>	<i>KK Parshar</i>	Dec-2013	



RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

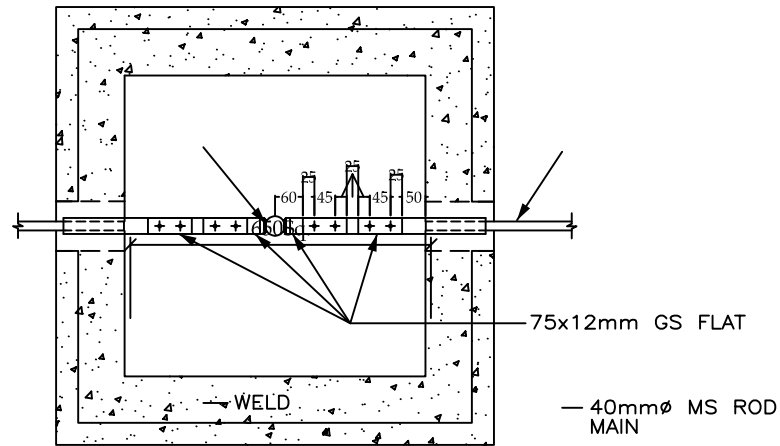


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

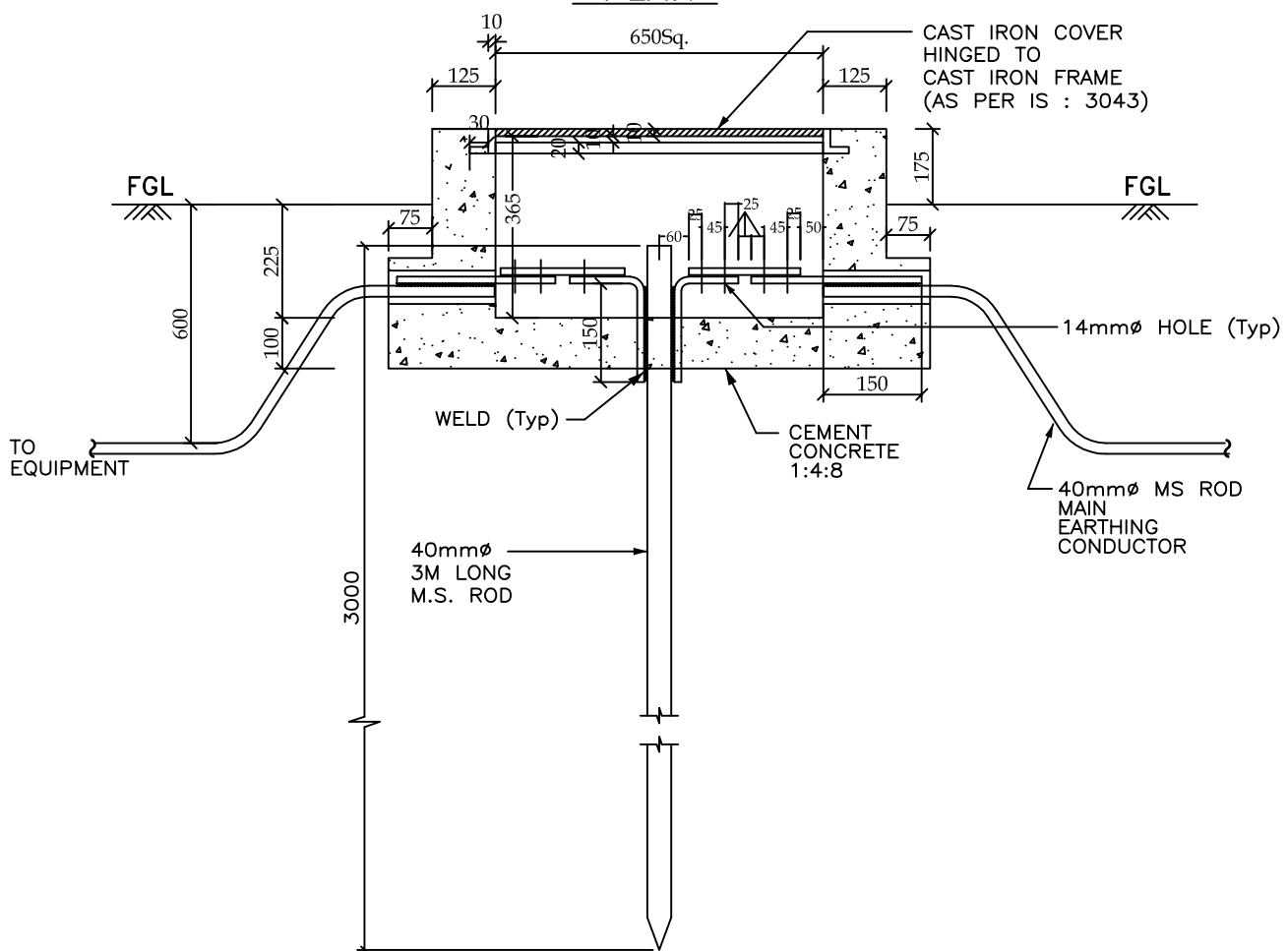
TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Dec-2013	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 5
		Date	

ROD ELECTRODE WITH TEST LINK FOR LM, TOWER WITH PEAK, CVT, LA



PLAN



ELEVATION

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

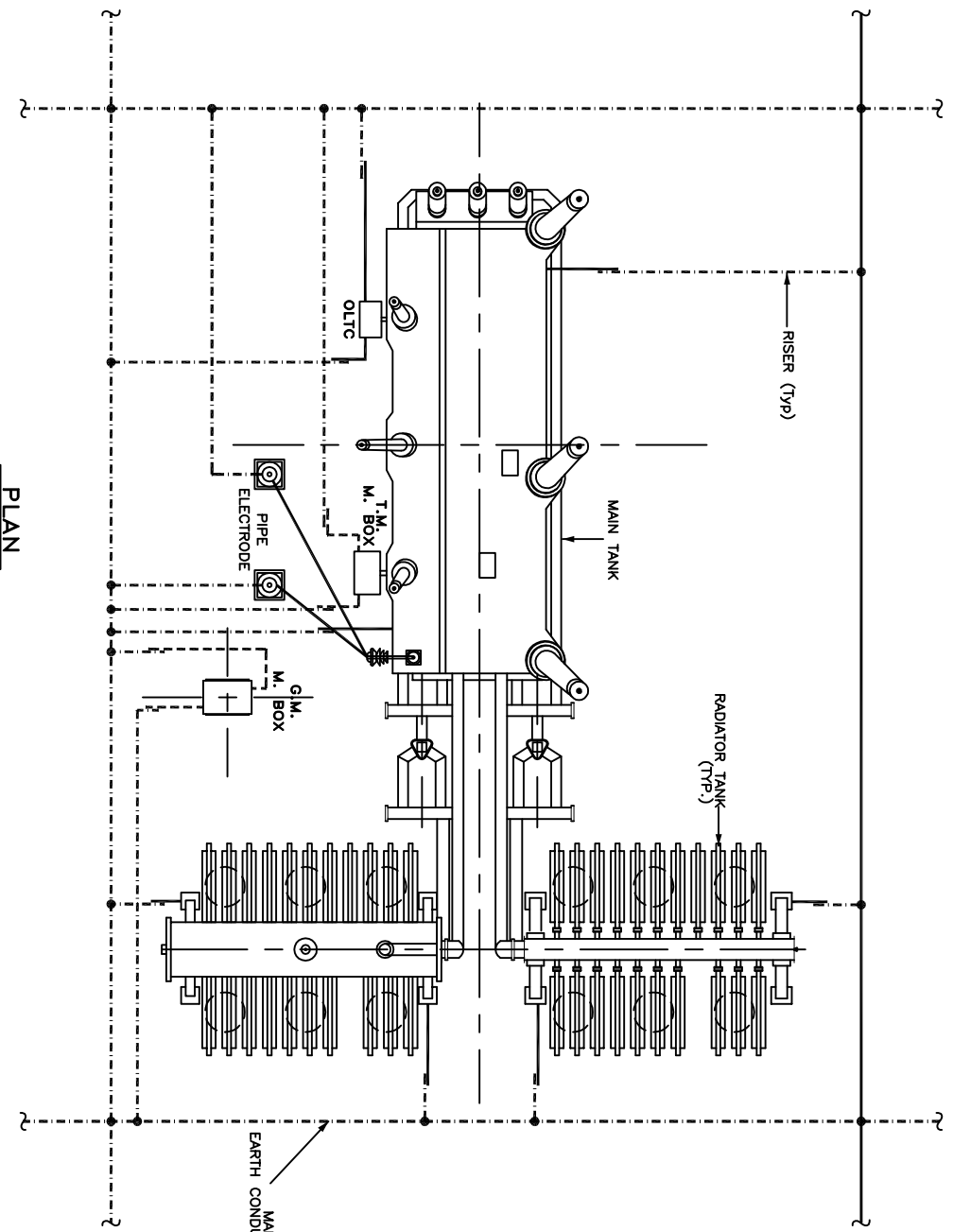


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 6
KKPurkhar	KKPurkhar	Dec-2013	

EARTHING OF TRANSFORMER / REACTOR



PLAN

LEGEND

- 40mm ϕ MS ROD
- 75 x 12 mm GS FLAT
- 50 x 6 mm GS FLAT

NOTES :-

- No. OF RISERS :-
 - MAIN TANK - 2 Nos.
 - RADIATOR TANK - 4 Nos.
 - OLTG - 2 Nos. (ICT only)
 - M. BOX - 2 Nos./M. BOX
 - NEUTRAL EARTH ELECTRODE - 2 Nos.
- No. OF PIPE ELECTRODE REQUIRED = 2 Nos.
- PYLON SUPPORTS SHALL BE EARTHED TO THE MAIN EARTHING CONDUCTOR BY GS FLAT.

RELEASED FOR CONTRUCTION

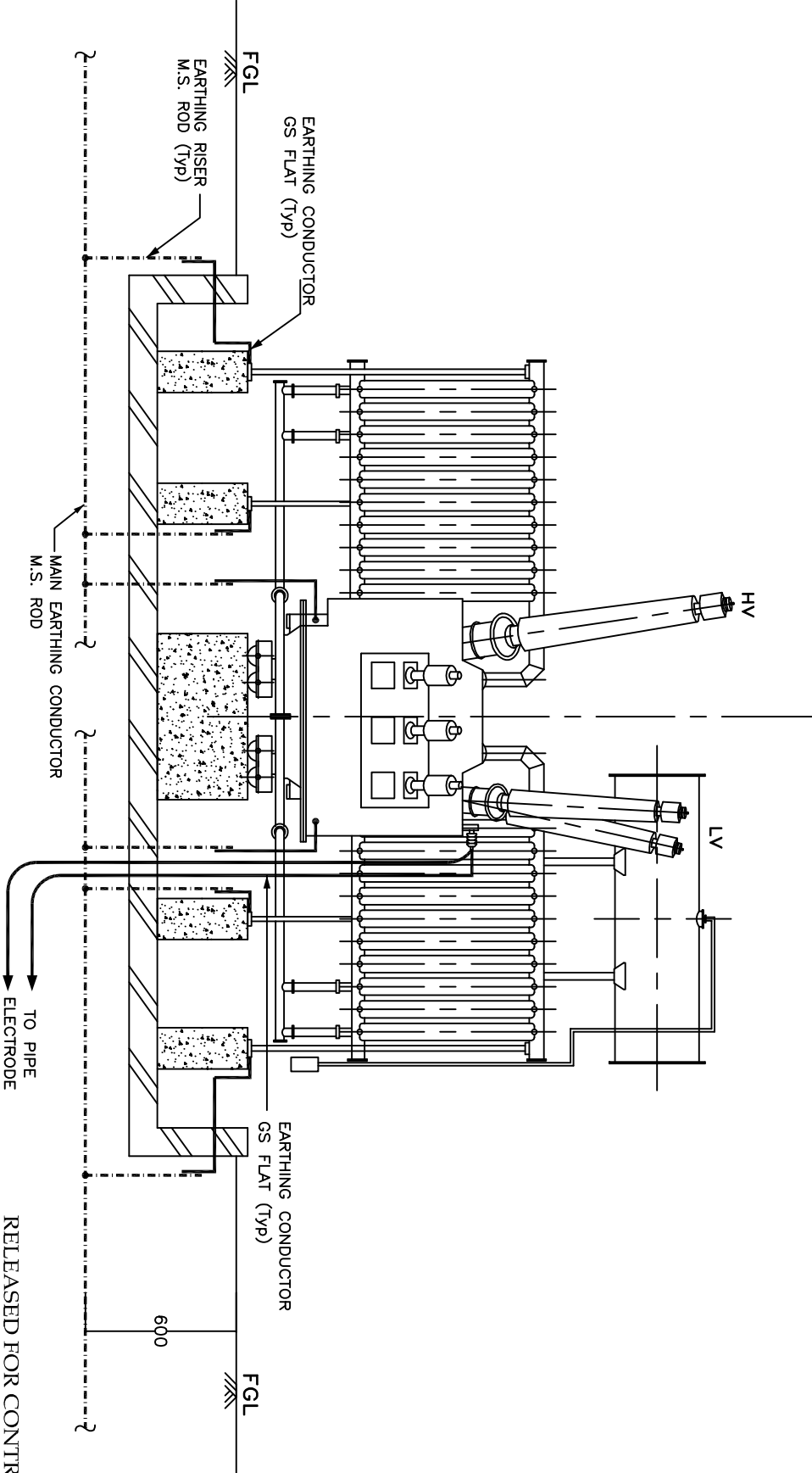
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 7
JKK/Indus	JKK/Indus	Dec-2013	

EARTHING OF TRANSFORMER / REACTOR



LEGEND

- 40mm ϕ MS ROD
- 75 x 12 mm GS FLAT
- 50 x 6 mm GS FLAT

END VIEW

RELEASED FOR CONTRUCTION

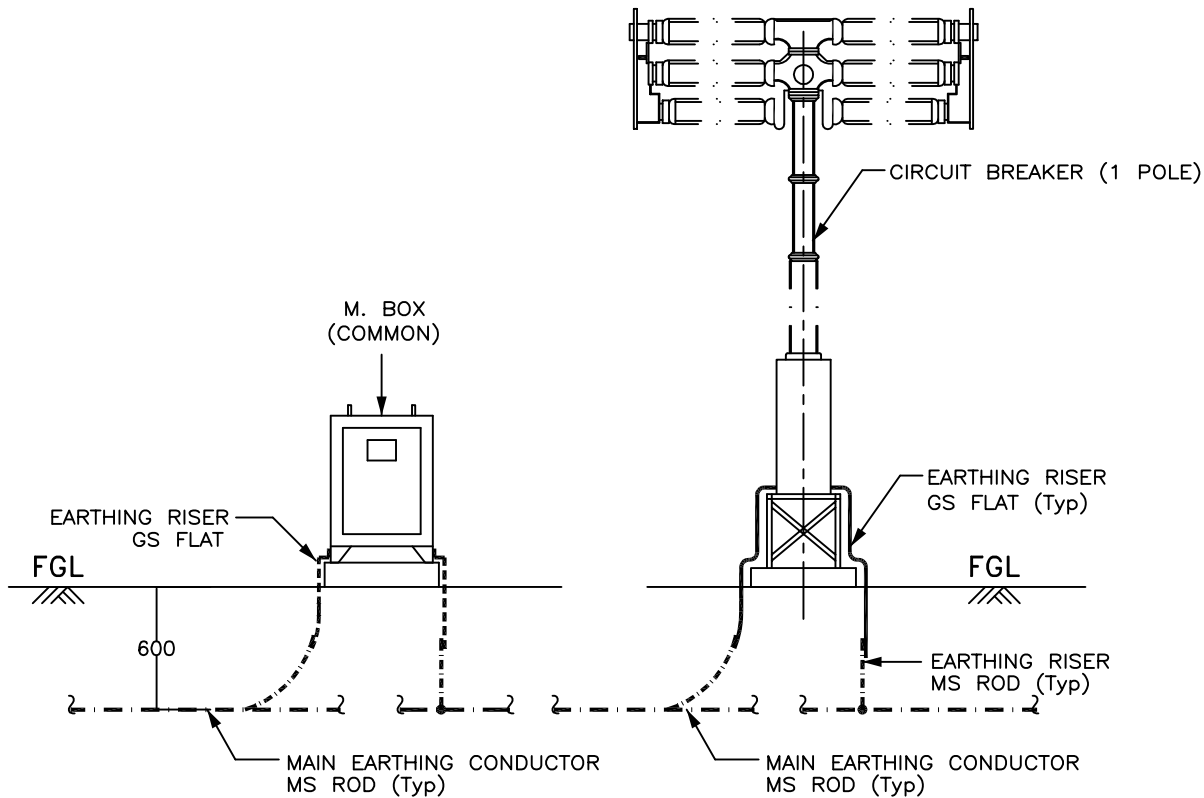
POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)
पुनर्विभाग

PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 8
श्रीकृष्ण	श्रीकृष्ण	Dec-2013	

EARTHING OF CIRCUIT BREAKER



ELEVATION

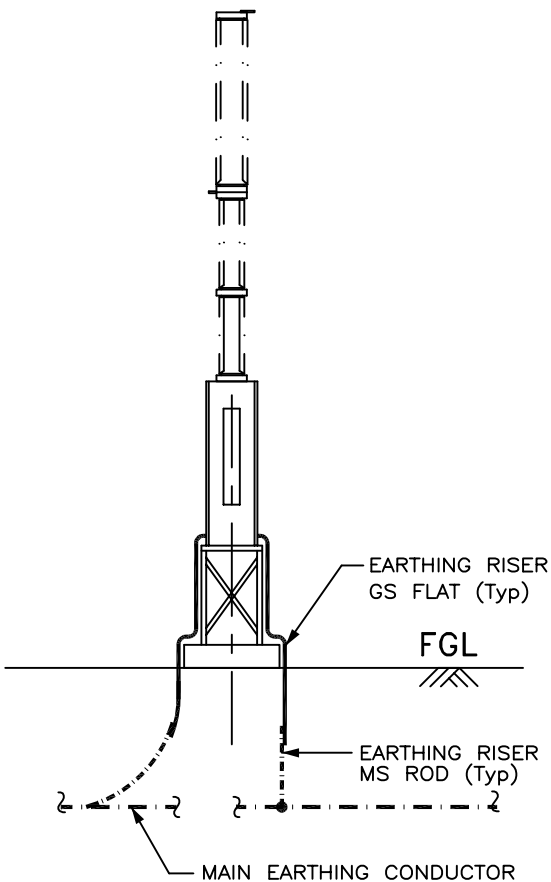
NOTES :-

1. No. OF RISERS FOR CIRCUIT BREAKER = 2 Nos. / PHASE
1. No. OF RISERS FOR LADDER (IF Applicable) = 2 Nos.
2. No. OF RISERS FOR MAR. BOX = 2 Nos.
3. CLEAT CLAMP SHALL BE PROVIDED AT 1000mm INTERVAL.

LEGEND

- · — · — · — · — 40mm ϕ MS ROD
- 75 x 12 mm GS FLAT
- 50 x 6 mm GS FLAT

RELEASED FOR CONTRUCTION



**POWER GRID CORPORATION
OF INDIA LIMITED**
(A Government of India Enterprise)

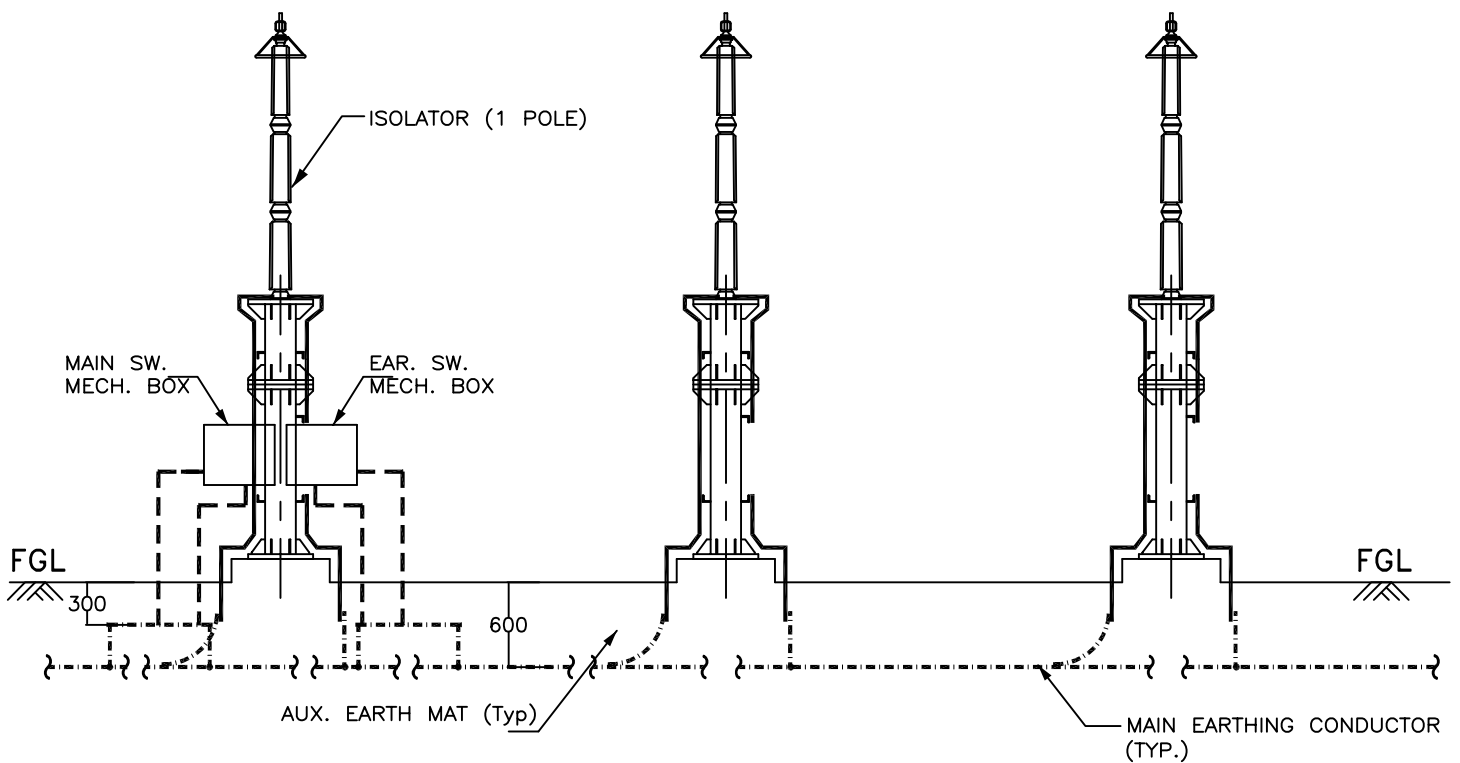


**PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION**

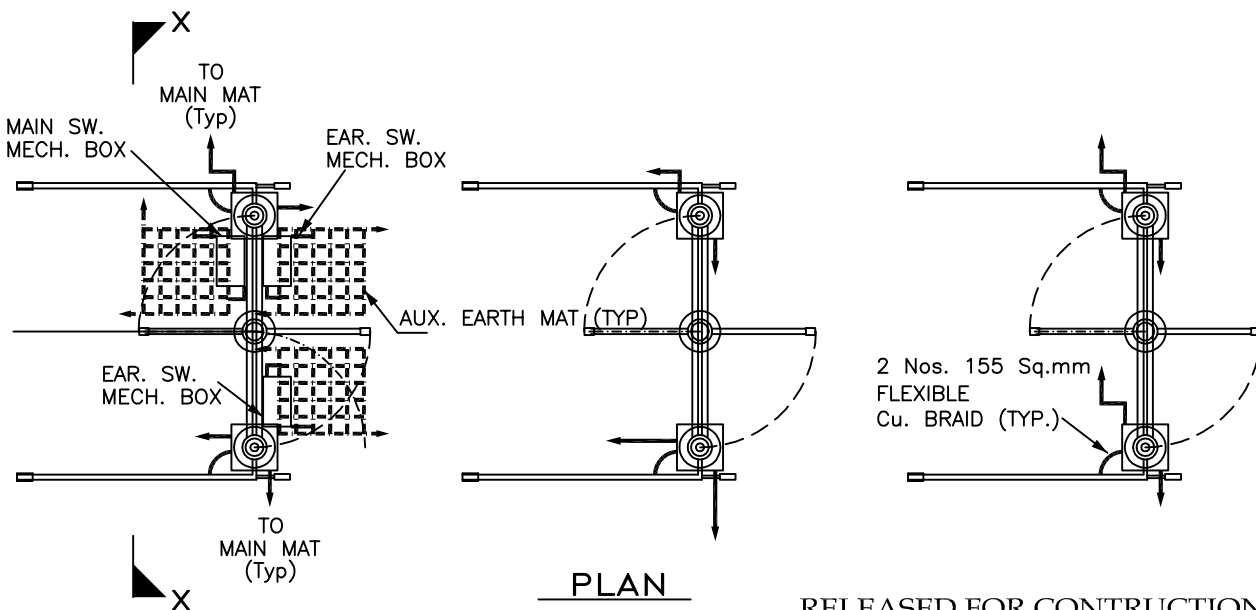
TITLE:- STANDARD EARTHING DETAILS

<i>KKPurkhar</i>	<i>KKPurkhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 9

EARTHING OF ISOLATOR



ELEVATION



PLAN

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)



PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

KK Parshar

CKD BY

KK Parshar

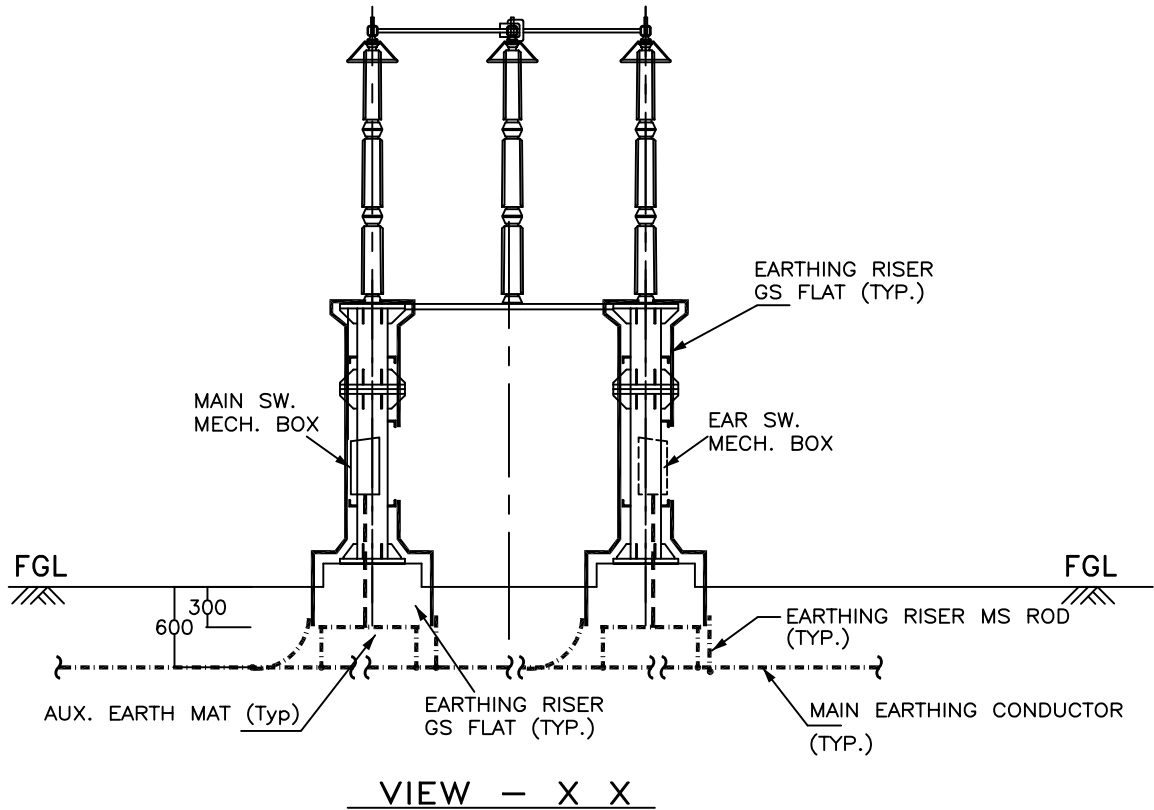
PRPD BY

Dec-2013

Date

Drawing No.:
C/ENG/STD/EARTHINGS/09
SHEET # 10

EARTHING OF ISOLATOR (1 PH)



LEGEND

	40mm ϕ MS ROD
	75 x 12 mm GS FLAT
	50 x 6 mm GS FLAT

NOTES :-

1. No. OF RISERS FOR ISOLATOR = 4 Nos. / PHASE.
2. No. OF RISERS FOR MAIN MECH. BOX = 2 Nos.
3. No. OF RISERS FOR EARTH SW. MECH. BOX = 2 Nos. / BOX.
4. No. OF AUXILIARY EARTH MAT = 1 Nos. FOR EACH MB
5. CLEAT CLAMP SHALL BE PROVIDED AT 1000mm INTERVAL.
6. NO. OF AUX. EARTH MAT IS INDICATIVE ONLY. IT SHALL BE EXECUTED AS PER ACTUAL NUMBER/POSITION OF EARTH SWITCHES.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

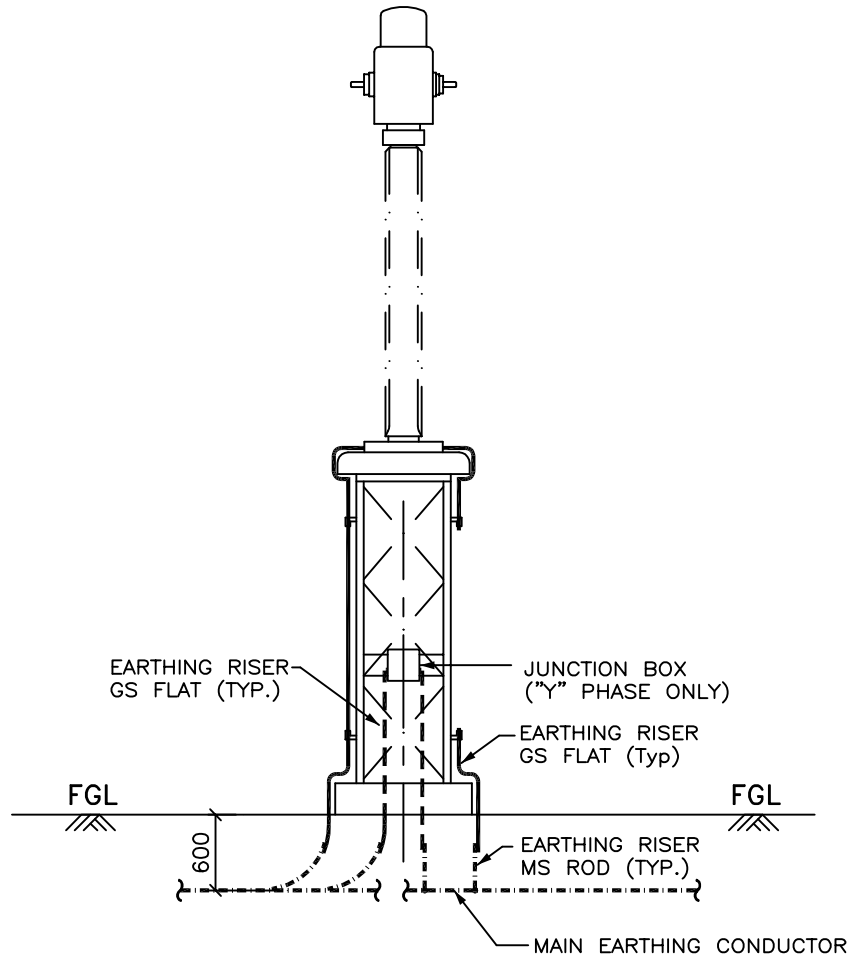


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS




<i>KK Parhar</i>	<i>KK Parhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 11

EARTHING OF CURRENT TRANSFORMER (1 PH)



ELEVATION

LEGEND

	40mm \varnothing MS ROD
	75 x 12 mm GS FLAT
	50 x 6 mm GS FLAT

NOTES :-

1. No. OF RISERS = 2 Nos. / PHASE.
2. No. OF RISERS FOR JUN. BOX = 2 Nos.
3. CLEAT CLAMP SHALL BE PROVIDED AT 1000mm INTERVAL.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

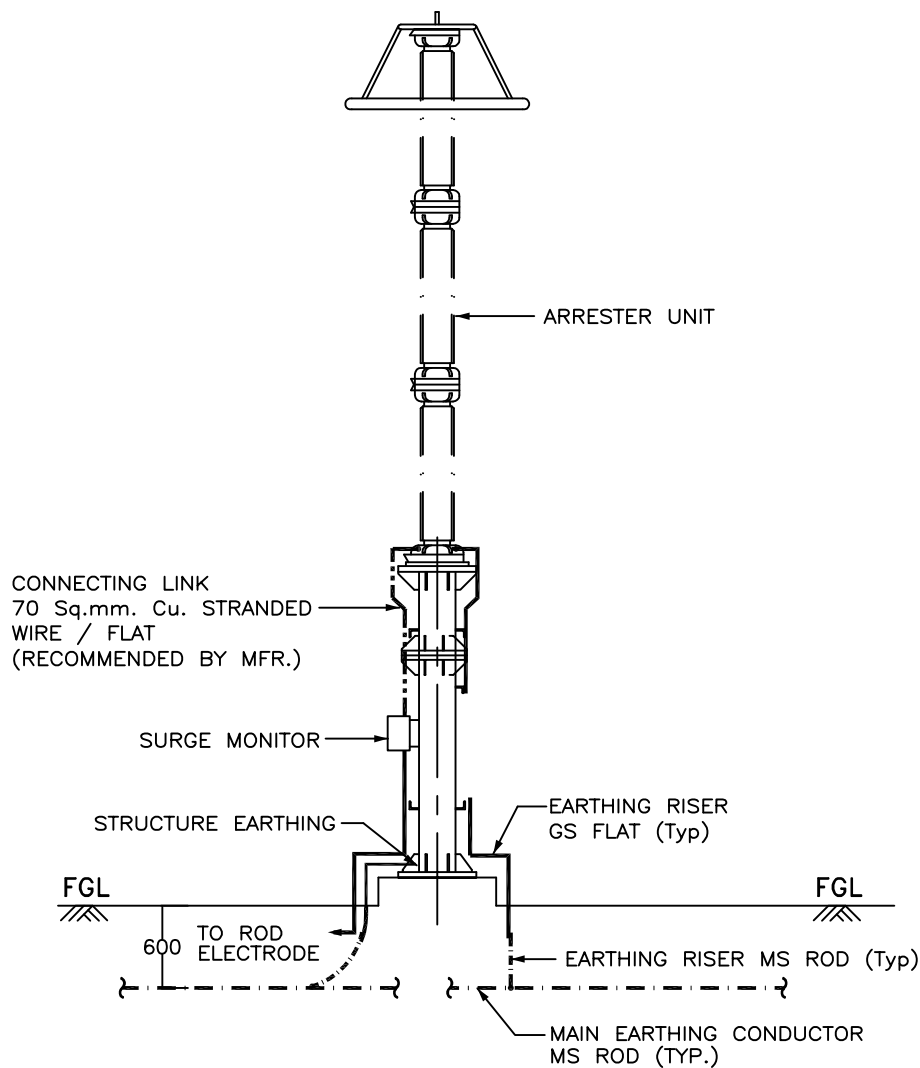


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 12

EARTHING OF SURGE ARRESTER (1PH)



ELEVATION

LEGEND

- · — · — 40mm ϕ MS ROD
- 75 x 12 mm GS FLAT

NOTES :-

- 1 . No. OF RISERS = 3 Nos. / PHASE.
- 2 . No. OF ROD ELECTRODE REQUIRED = 1 No. / PHASE.
- 3 . CLEAT CLAMP SHALL BE PROVIDED AT 1000mm INTERVAL.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

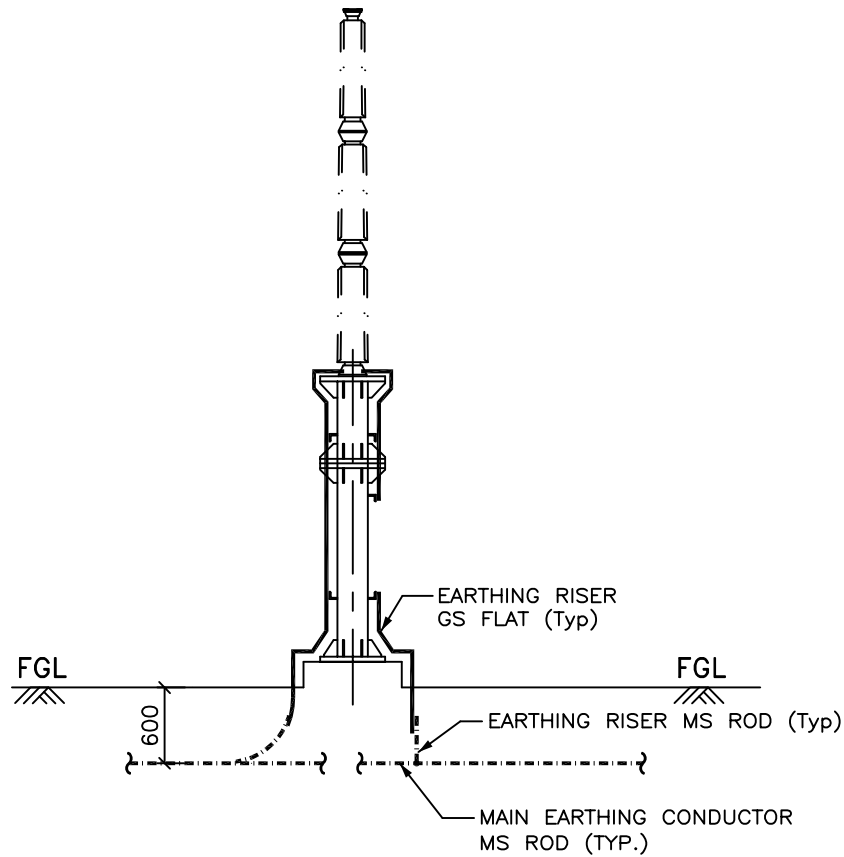


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 14

EARTHING OF POST INSULATOR (1PH)



ELEVATION

LEGEND

- · — · — 40mm ϕ MS ROD
— 75 x 12 mm GS FLAT

NOTES :-

1. No. OF RISERS = 2 Nos. / PHASE.
2. CLEAT CLAMP SHALL BE PROVIDED AT 1000mm INTERVAL.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

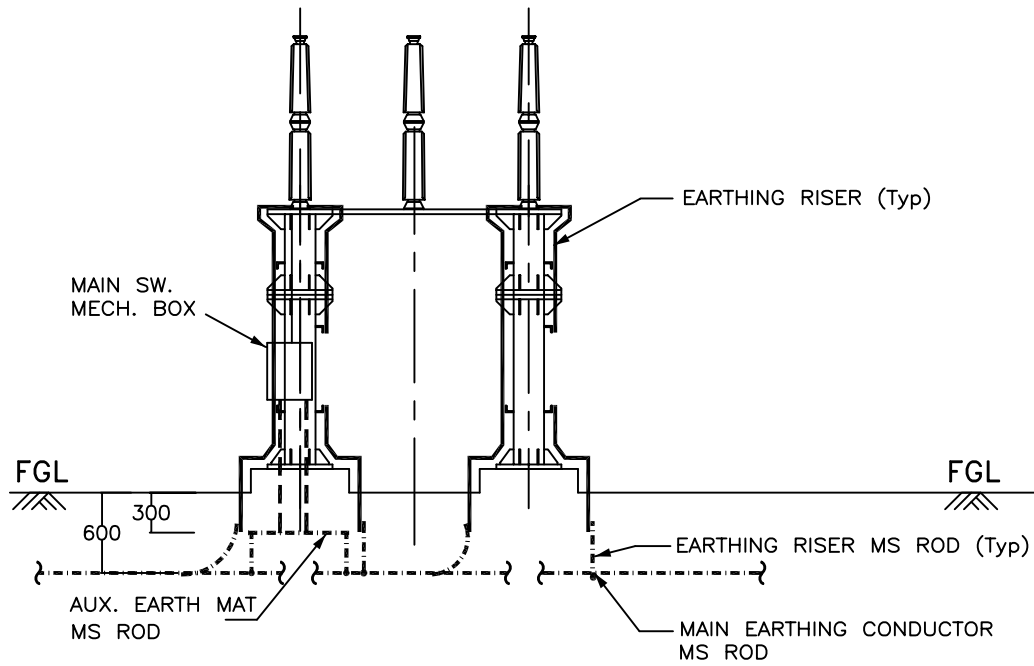


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

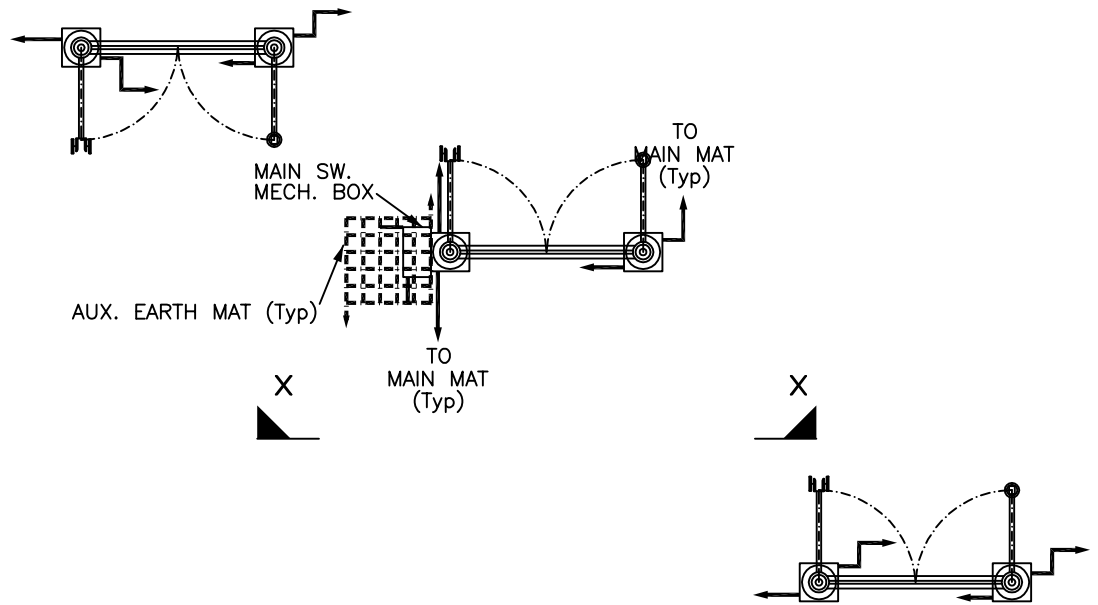
TITLE:- STANDARD EARTHING DETAILS

<i>KK Parhar</i>	<i>KK Parhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 16

TANDEM ISOLATOR



VIEW - X X



PLAN

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

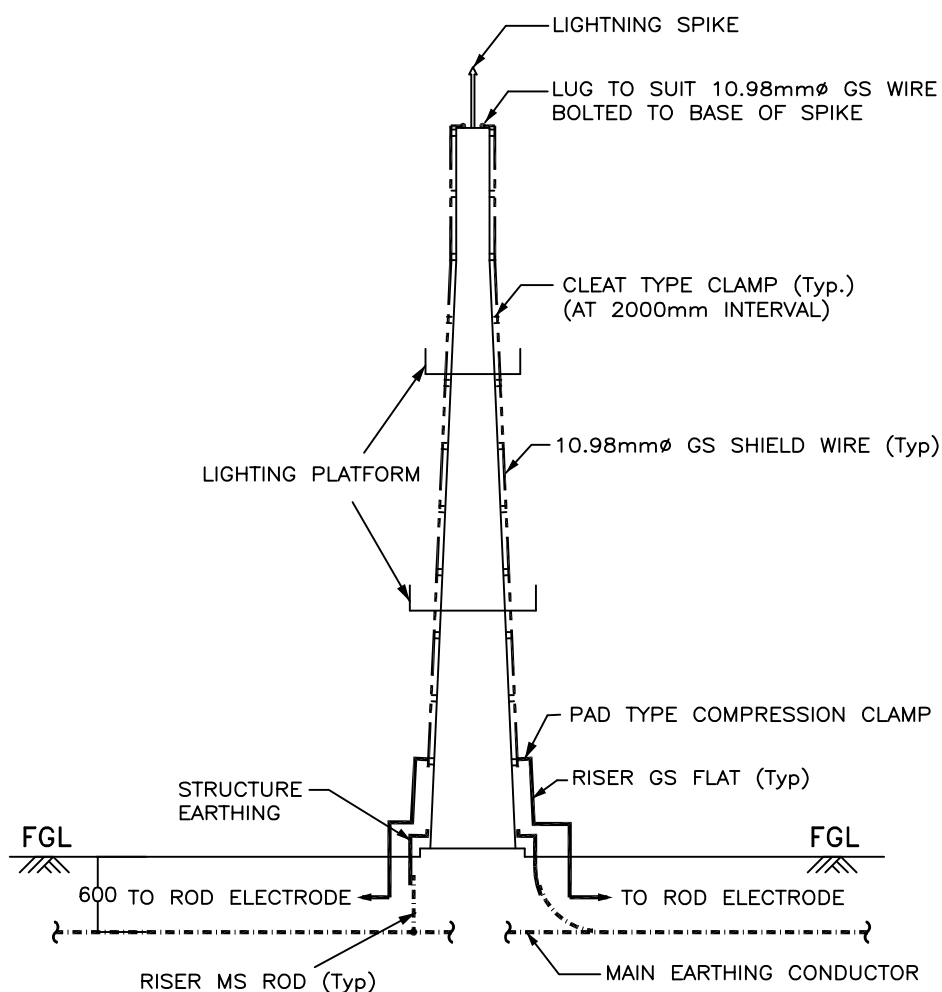


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 17

EARTHING OF LIGHTNING MAST



ELEVATION

NOTES :-

1. No. OF RISERS = 4 Nos.
2. No. OF ROD ELECTRODE REQUIRED = 2 Nos.
3. No. OF PAD TYPE CLAMP = 2 Nos.

LEGEND

- · — · — 40mm ϕ MS ROD
—— 75 x 12 mm GS FLAT

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

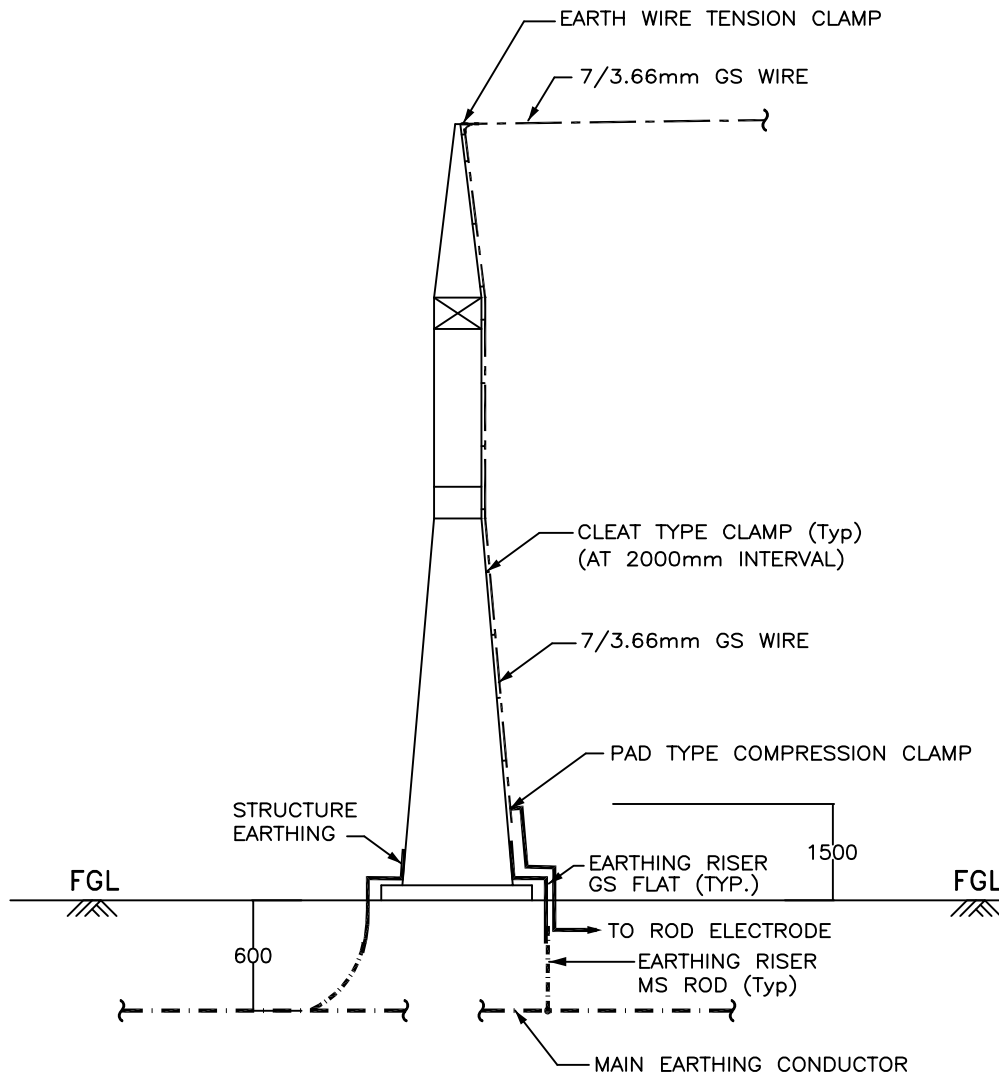


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 18

EARTHING OF TOWER WITH PEAK



ELEVATION

LEGEND

- 40mm ϕ MS ROD
— 75 x 12 mm GS FLAT

NOTES :-

1. No. OF RISERS = 3 Nos.
2. No. OF ROD ELECTRODE REQUIRED = 1 No.
3. No. OF PAD TYPE CLAMP = 1 No.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

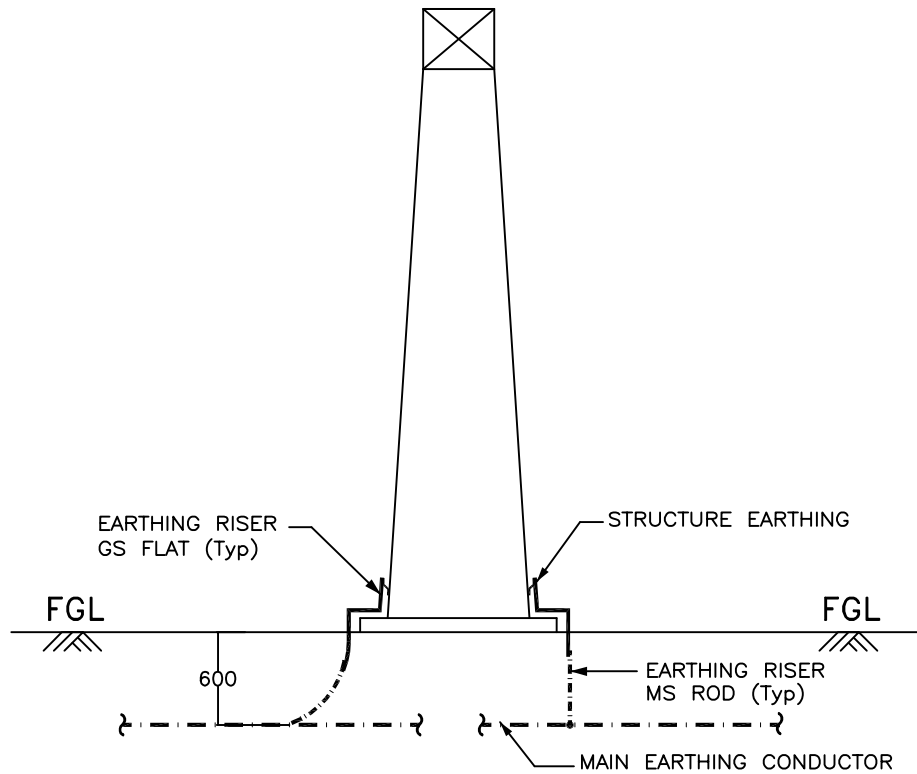


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS



CKD BY	PRPD BY	Date	Drawing No.: C/ENG/STD/EARTHINGS/09 SHEET # 19
<i>KK Parshar</i>	<i>KK Parshar</i>	Dec-2013	

EARTHING OF TOWER WITHOUT PEAK



ELEVATION

LEGEND

	40mm \varnothing MS ROD
	75 x 12 mm GS FLAT

NOTES :-

1. No. OF RISERS = 2 Nos.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

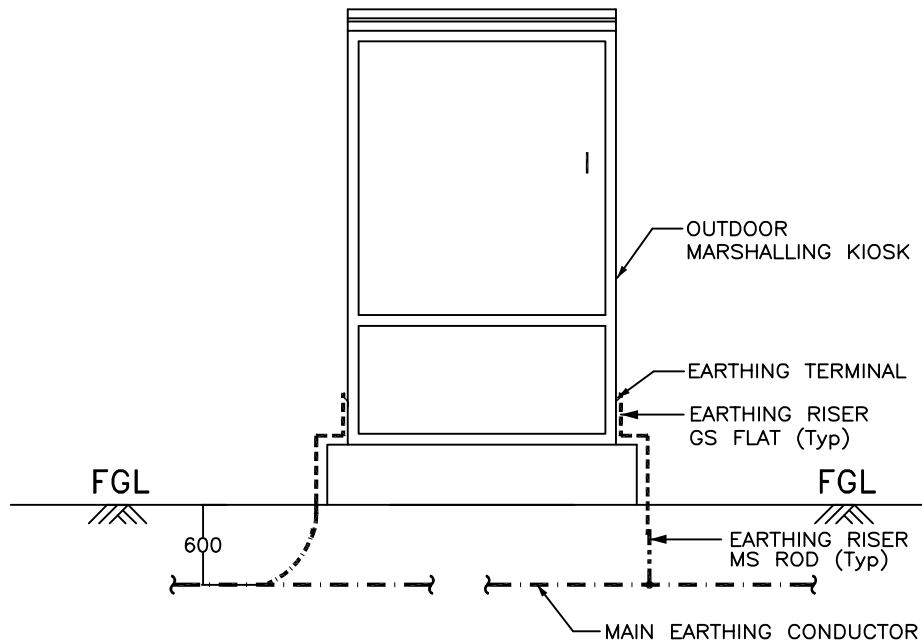


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 20

EARTHING OF BAY MARSHALLING BOX



ELEVATION

LEGEND

— · — · — · —	40mm \varnothing MS ROD
—————	75 x 12 mm GS FLAT
-----	50 x 6 mm GS FLAT

NOTE :-

1. No. OF RISERS = 2 Nos.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

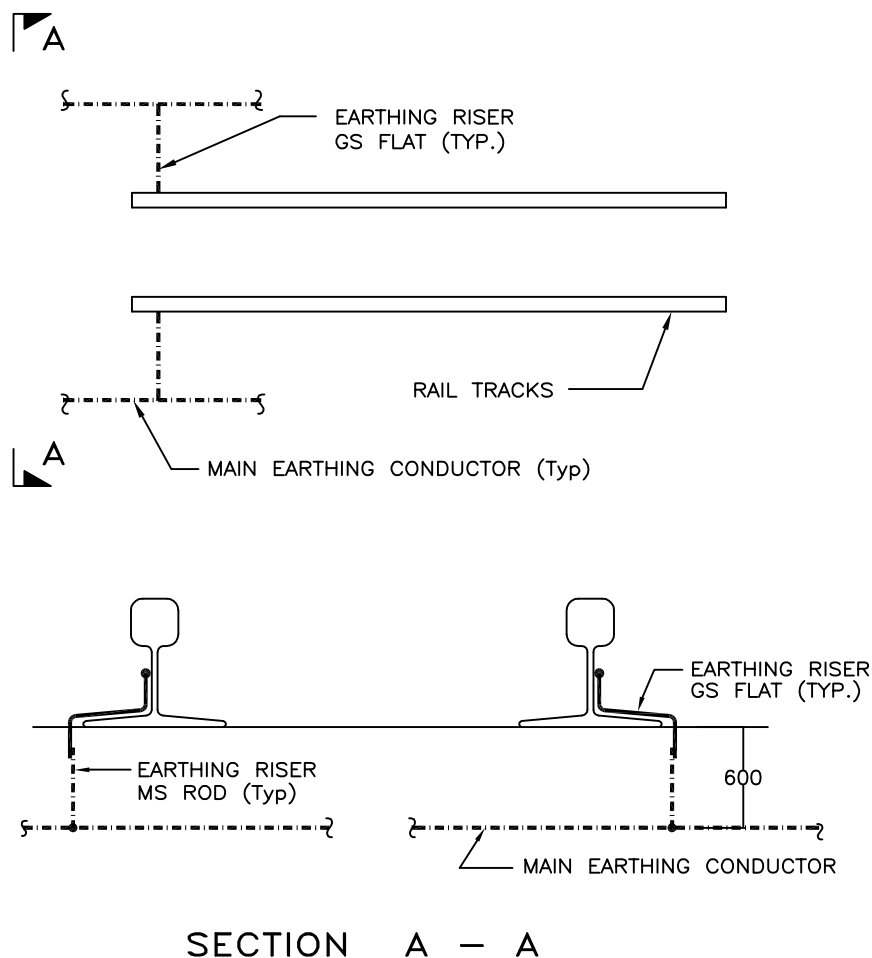


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION



TITLE:- STANDARD EARTHING DETAILS

<i>KK Parhar</i>	<i>KK Parhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 21

EARTHING OF RAIL TRACK



LEGEND

	40mm \varnothing MS ROD
	75 x 12 mm GS FLAT

NOTES :-

1. EACH RAIL SHALL BE EARTHED AT 30M INTERVAL AND ALSO AT BOTH ENDS.

RELEASED FOR CONTRUCTION

POWER GRID CORPORATION
OF INDIA LIMITED
(A Government of India Enterprise)

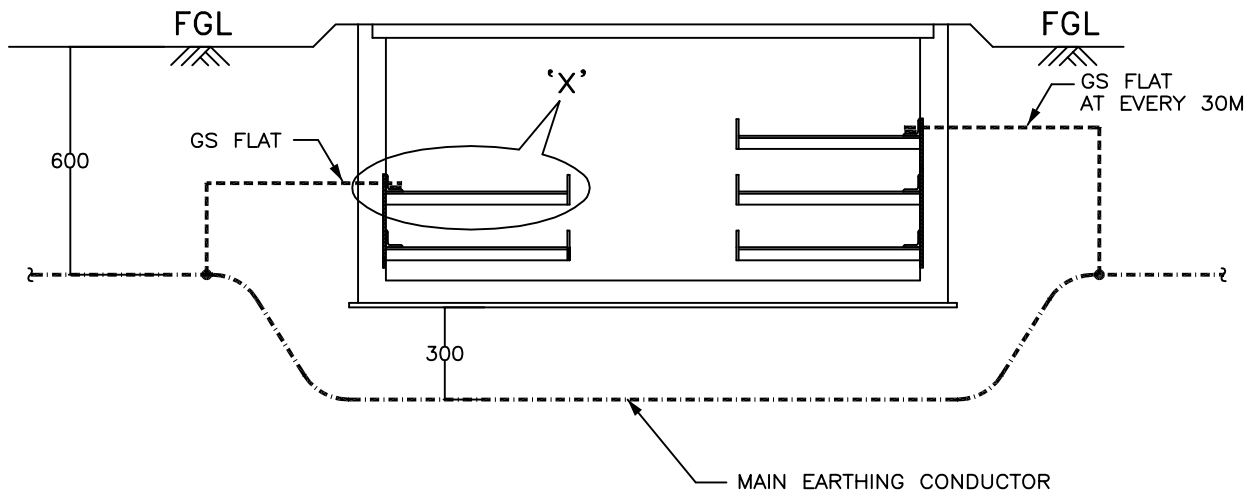


PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION

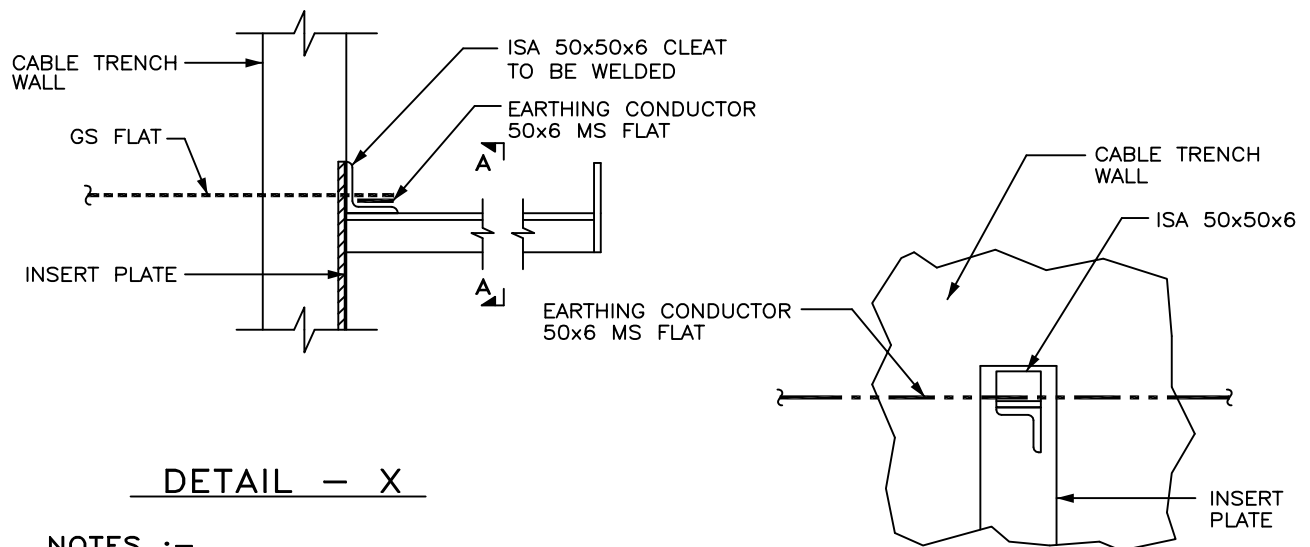
TITLE:- STANDARD EARTHING DETAILS

<i>KK Parkar</i>	<i>KK Parkar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09 SHEET # 22

EARTHING OF CABLE TRENCH



TYPICAL CROSS SECTION OF CABLE TRENCH



DETAIL - X

SECTION A - A

NOTES :-

1. MS FLAT SHALL RUN ON TOP TIER ALL ALONG THE CABLE TRENCHES & WELDED TO EACH OF THE RACKS.
2. MS FLAT SHALL BE EARTHED AT 30M INTERVAL AND ALSO AT BOTH ENDS.

RELEASED FOR CONTRUCTION

**POWER GRID CORPORATION
OF INDIA LIMITED**
(A Government of India Enterprise)



**PROJECT :- TECHNICAL SPECIFICATION-
SWITCHYARD ERECTION**

TITLE:- STANDARD EARTHING DETAILS

<i>KK Parhar</i>	<i>KK Parhar</i>	Dec-2013	Drawing No.:
CKD BY	PRPD BY	Date	C/ENG/STD/EARTHINGS/09
			SHEET # 23