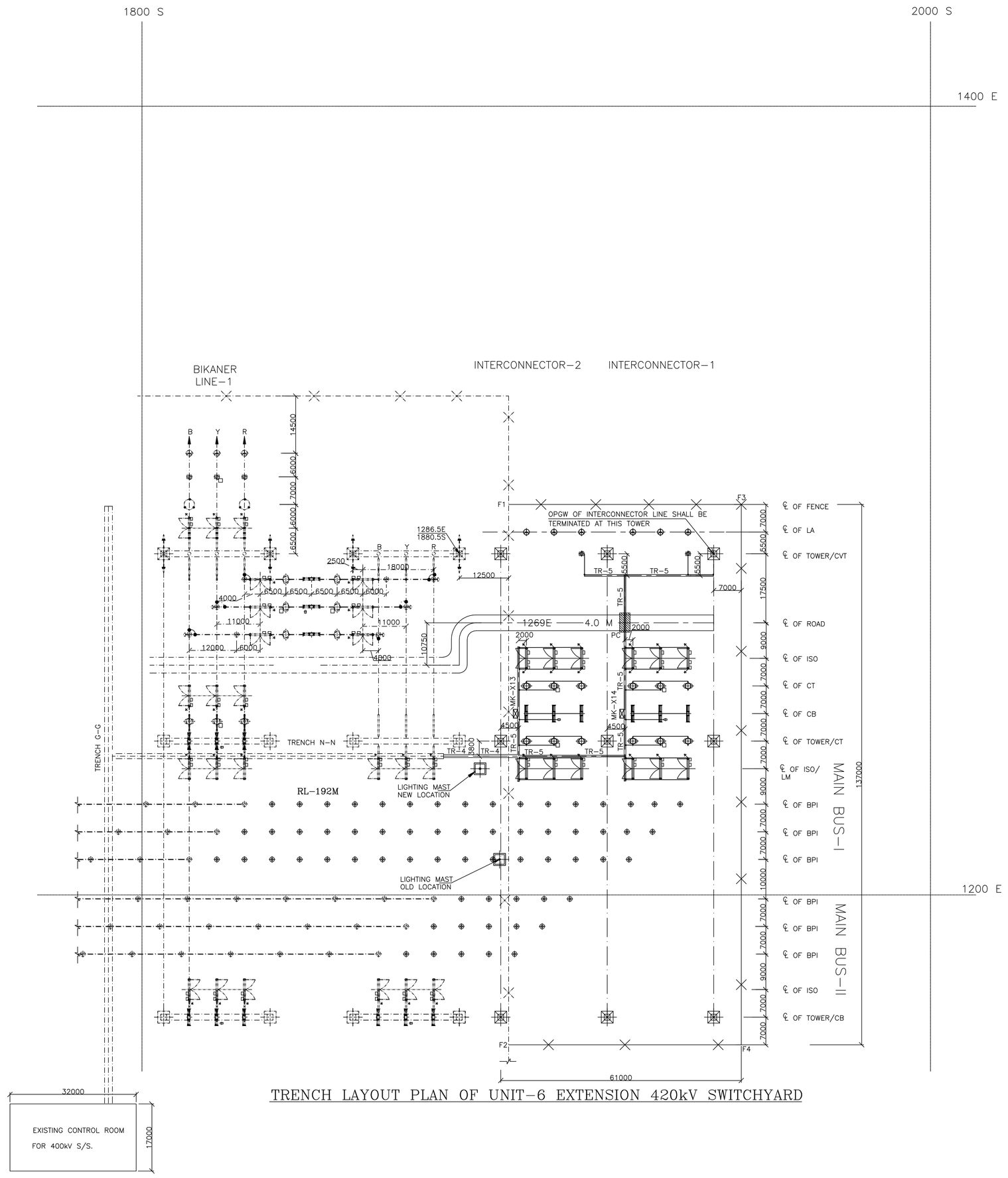
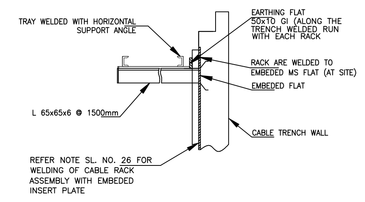
FIRST ANGLE PROJECTION

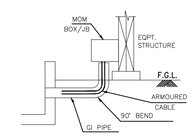
DRG. NO. TB-0-360-316-005



TRENCH LAYOUT PLAN OF UNIT-6 EXTENSION 420kV SWITCHYARD



TYPICAL CABLE RACK FIXING DETAIL



DETAIL SHOWING ROUTING OF CABLE INSIDE GI PIPE CABLE TRENCH TO EQUIPMENT

R2

TABLE-2

QUANTITY OF NP3 RCC PIPE FOR CONTROL ROOM ENTRY

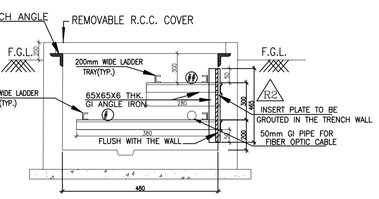
TRENCH TYPE	300MM OD	RCC PIPE LAYING ARRANGEMENT
TR-2	12NOS.	125, 300 (TYP.), 125 (TYP.)

R2

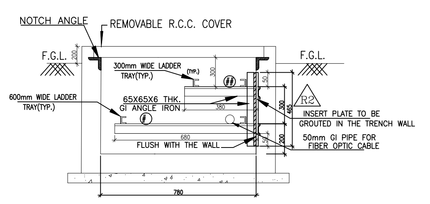
TABLE-1

QUANTITY OF NP3 RCC PIPE FOR ROAD CROSSING

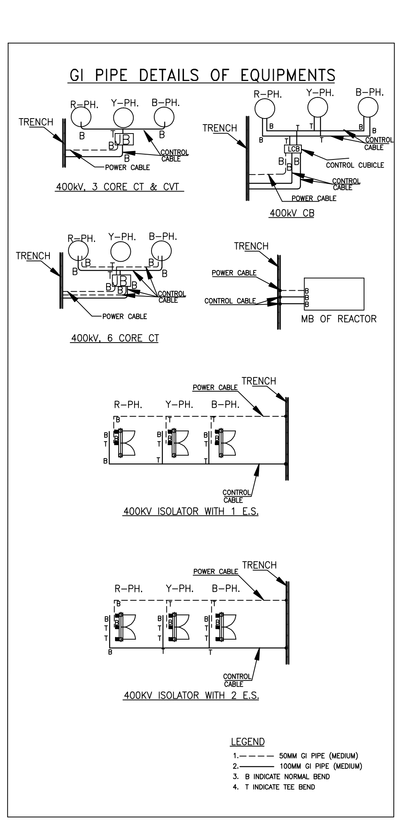
TRENCH TYPE	450MM OD	RCC PIPE LAYING ARRANGEMENT
TR-2	08NOS.	125, 450 (TYP.), 125 (TYP.)
TR-3	04NOS.	125, 450, 125
TR-5	02NOS.	125, 650

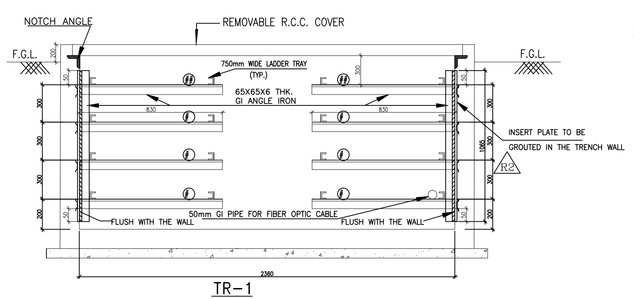


TR-5

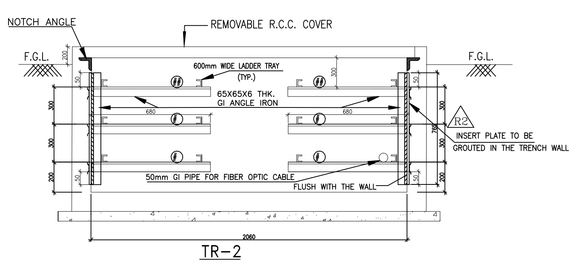


TR-4

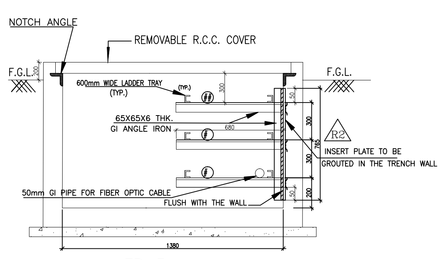




TR-1



TR-2



TR-3

LEGENDS :-

- ● – CABLE ENTRY/EXIT FROM TRENCH.
- PC – PIPE CULVERT.
- ——— – 50/100MM GI PIPE.
- ⓘ – CABLE TRAY ARRANGEMENT FOR CONTROL CABLE.
- ⓟ – CABLE TRAY ARRANGEMENT FOR POWER CABLE.
- R2 – INDICATES CHANGES IN CURRENT REVISION NO.2

NOTES :-

1. ALL DIMENSIONS ARE IN mm.
2. THE LOCATION OF CABLE TRENCHES MARKED IN THIS DWG MAY BE SLIGHTLY MODIFIED TO SUIT SITE CONDITIONS.
3. OPENINGS FOR TAKING OUT GI PIPES TO EQUIPMENTS SHALL BE PROVIDED IN CABLE TRENCHES. OPENING OF SIZE SUITABLE TO DIA. 50/100 PIPE SHALL BE PROVIDED BELOW TOP CABLE SUPPORT.
4. MK = INDICATES MARSHALLING KIOSK.
5. MK SHALL BE PLACED IN THE LOCATION SHOWN. EXACT COORDINATES TO BE SUITABLY DECIDED AT SITE.
6. 1.1kV CABLE SHALL BE PLACED ON 2.5M LONG GI LADDER TRAY SUPPORTED ON RACK (GI ANGLE).
7. CABLE SUPPORT SHALL BE PROVIDED AT EVERY 1500mm INTERVAL.
8. INSERTS MUST BE EMBEDDED AT EVERY 1500mm INTERVAL FOR FIXING CABLE SUPPORT.
9. AUXILIARY POWER CABLES SHALL BE LAID IN TOP TIERS AND CONTROL CABLES IN BOTTOM TIERS,
10. FIBER OPTIC CABLE BETWEEN OPGW OF INTERCONNECTOR LINE AND CONTROL ROOM SHALL BE LAID IN 50mm DIA GI PIPE AND SAME SHALL BE ROUTED ON TRAY. 50mm DIAI GI PIPE USED FOR FIBER OPTICS CABLES SHALL BE SUITABLY CLAMPED WITH TRAY TO AVOID MOVEMENT.
11. CABLES FOR LIGHTING PURPOSE SHALL BE LAID IN GI PIPE/ TRENCH. SEPARATE DRAWING SHALL BE SUBMITTED FOR LIGHTING SYSTEM.
12. LOCATION OF CABLE TRENCHES INSIDE CONTROL ROOM SHALL BE SHOWN IN SEPARATE DRAWINGS.
13. EARTH CONDUCTOR 50x10 GI FLAT TO BE WELDED IN VERTICAL ON THE CABLE SUPPORT BEFORE INSTALLATION OF CABLES.
14. CABLES CROSSING THROUGH ROAD SHALL BE LAID IN HUME PIPE CULVERT (FOR QUANTITY OF PIPE REFER TABLE-1) . CABLES CROSSING THROUGH CONTROL ROOM SHALL BE LAID IN HUME PIPE (FOR QUANTITY OF PIPE REFER TABLE-2)
15. FOR POWER & CONTROL CABLES, SEPARATE PIPES SHALL BE USED CONSIDERING 60% VOID FOR EACH PIPE I.E., 40% FILLING CRITERIA.
16. GI PIPES OF 50/100mm OUTER DIA SHALL BE LAID AT A DEPTH OF 300mm (MAX.) CABLE FROM EQUIPMENT TO CABLE TRENCH SHALL RUN IN GI PIPES.
17. ALL OTHER DETAILS PERTAINING TO CIVIL WORKS SHALL BE REFLECTED IN THE RESPECTIVE CIVIL DRAWINGS
18. GI PIPES SHALL BE SECURELY FIXED AT BOTH ENDS.
19. AFTER LAYING THE CABLES THE ENDS OF GI PIPES SHALL BE FULLY SEALED TO PREVENT INGRESS OF WATER INSIDE THE PIPE.
20. CONTROL CABLES & POWER CABLES MUST BE LAID IN SEPARATE GI PIPES.
21. THE PURPOSE OF TRENCH LAYOUT DRAWING IS FOR USE AS FOLLOWS:
    - TO BE USED AS CIVIL INPUT FOR CABLE TRENCHES.
    - FOR ERECTION OF CABLE RACKS AT SITE.
    - FOR CABLE LAYING AND ROUTING AT SITE.
22. CONTROL CABLE SHALL BE LAID UP TO A MAXIMUM THREE LAYERS IN TRAY. POWER CABLE UP TO 120SQMM SIZE SHALL BE LAID UP TO A MAXIMUM TWO LAYERS IN TRAY. POWER CABLE ABOVE 120SQMM SIZE SHALL BE LAID IN SINGLE LAYER IN TRAY.
23. LONGITUDINAL SLOPE IN CABLE TRENCH SHALL BE TYPICALLY 1:250
24. THE CONTROL CABLE OF SIX CORE CT BETWEEN SECONDARY TERMINAL BOX AND JUNCTION BOX SHALL BE LAID IN 1 NO. 100MM GI PIPE AND 1 NO. 50MM GI PIPE. THE CONTROL CABLE OF THREE CORE CT AND FOUR CORE CVT BETWEEN SECONDARY TERMINAL BOX AND JUNCTION BOX SHALL BE LAID IN 100MM GI PIPE.
25. CABLE TRAYS SHALL BE WELDED WITH HORIZONTAL CABLE SUPPORT RACK ANGLE.
26. THE CABLE RACK ASSEMBLY SHALL BE WELDED TO EMBEDED INSERT PLATE AS MENTIONED BELOW. "6mm WELD 50mm LONG ON BOTH SIDES OF VERTICAL ANGLE AT TOP AND BOTTOM AND NEAR EVERY INTERMEDIATE HORIZONTAL CABLE SUPPORT ANGLE, IT MEANT THAT IF CABLE RACK ASSEMBLY HAS THREE TIERS THEN IT SHALL BE WELDED TO FIVE LOCATION AT BOTH SIDE".
27. CABLES SHALL BE ROUTED THROUGH SHORTEST ROUTE AS POSSIBLE.
28. DETAILED OF ROAD CROSSING THROUGH PIPES AND CONTROL ROOM ENTRY THROUGH PIPES SHALL BE SHOWN IN CIVIL DRAWING .
29. SUMP AND DRAINAGE SHALL BE SHOWN IN SEPARATE CIVIL DRAWING.
30. CABLE RUNS SHALL BE UNIFORMLY SPACED, PROPERLY SUPPORTED AND PROTECTED. ALL BEND IN RUNS SHALL BE AS PER SPECIFICATION. THE BENDING RADIUS OF VARIOUS TYPE OF CABLE SHALL NOT BE LESS THAN THOSE SPECIFIED BY CABLE MANUFACTURERS OR THAT SPECIFIED IN IS1255.

REFERENCE

1. SINGLE LINE DIAGRAM FOR 400 kV SURATGARH SUBSTATION – DRG. TB-1-360-510-001
2. PLOT PLAN DRAWING NO. PE-DG-392-100-M001
3. LAYOUT OF TRANSFORMER YARD DRAWING NO. PE-DG-392-100-E001
4. 400kV SWITCHYARD LAYOUT PLAN & SECTION DRAWING NO. TCE.5750A-739-GA-3011,P4
5. 400/220kV SWITCHYARD LAYOUT PLAN OF UNIT-6 DRAWING NO. 3VYN191103
6. SWITCHYARD CONTROL ROOM DRAWING NO. TB-3-360-316-009
7. LAYOUT & ELEVATION OF 11kV S/S DRAWING NO. TB-3-360-316-016
8. LAYOUT & ELEVATION OF INTERCONNECTION LINE DRAWING NO. TB-0-360-316-017
9. CABLE TRENCH LAYOUT FOR EXTENSION SWITCHYARD DRAWING NO. YNIH300335
10. SWITHYARD LAYOUT S/S DRAWING NO. TB-0-360-316-002
11. EARTHMAT LAYOUT DRAWING NO. TB-0-360-316-007
12. STRUCTURE LOADING DIAGRAM DRAWING NO. TB-0-360-316-010

REV.	DATE	REASONS FOR REVISION	DRN.	PREPARED BY	CHECKED BY	APPROVED BY
02	30/01/15	AS PER TCE COMMENT LTR. DTD. 19/1/15.	DM	SK	SKS	RS
01	2/01/15	AS PER TCE COMMENT LTR. DTD. 29/9/14.	DM	SK -SD-	SKS -SD-	RS -SD-

OWNER

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED

PROJECT

2X660MW THERMAL POWER PLANT,SURAT GARH STAGE -V, UNIT 7 & 8 AT SURATGARH , RAJASTHAN

OWNER'S ENGINEER

TATA CONSULTING ENGINEERS LIMITED

EPC CONTRACTOR

BHARAT HEAVY ELECTRICALS LTD TRANSMISSION BUSINESS GROUP

DEPT CODE		NAME	SIGN.	DATE
422	DRN	DM	-SD-	20.08.13
	DESN	SK	-SD-	
	CHD	SKS	-SD-	
	APPD	RS	-SD-	

TITLE

TRENCH LAYOUT PLAN FOR 400kV S/S AT SURATGARH

CV	ME	EL	I&C			DEPT.	SCALE 1:600	BHEL/SUB VENDOR DRG NO. TB-0-360-316-005
						SIGN		
						DATE		SHT. No 01 OF 02 REV. 02

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