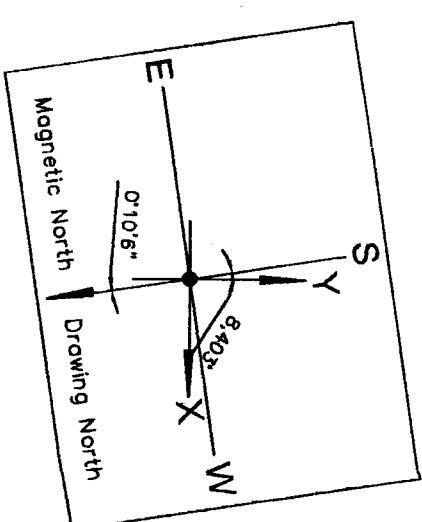




SYSTEM PARAMETERS :-

CLEARANCE TABLE :-

(FROM PLINTH LEVEL)

STRINGING DETAILS :-

1. ALL DIMENSIONS ARE IN MM. UNLESS SPECIFIED OTHERWISE.
 2. LIGHTNING PROTECTION SHALL BE WITH SHIELD WIRE FOR 400kV SWITCHYARD.
 3. PLUMB LEVEL 300mm ABOVE F.O.L.
 4. GRAVEL 100mm ABOVE 75mm THICK LAYER OF CEMENT CONCRETE.
 5. CONDUCTOR TENSION - 400 kg/PH.
 - a) MAIN BUS 1000kg / SUB CONDUCTOR
 - b) EARTH WIRE 800kg / CONDUCTOR
 6. THE REQUIRED CLEARANCES AS PER CLEARANCE TABLE ABOVE AND AS PER PROVISIONS OF THE RULE & OTHER STATUTORY REGULATION ETC SHALL BE MAINTAINED BY THE CONTRACTOR.
 7. LINE SIZE INSULATOR STRING FOR LINE TERMINATION & TENSION CLAMP FOR EARTH WIRE TERMINATION IS IN BHEL SCOPE.
 8. ROAD, BOUNDARY WALL, FENCE IS NOT IN PRESENT SCOPE.
 9. SUPPLY, ERECTION, TESTING AND COMMISSIONING OF 220KV BAYWATER SHUNT REACTOR ALONG WITH NGR IS NOT IN PRESENT SCOPE. ONLY THE PROPOSED TOWER AND RIGGING WORKS AND CONCRETE FOUNDATION, ROOF, SWITCHYARD FENCE, ROAD TO REACH TO AND APPROX NGR BE PASSING SCHEME IS UNDER CONTRACT. ALL SWITCHGEAR, EQUIPMENT, INSULATION STRINGS, BUSHINGS, B-1 SHALL BE DELIVERED TO SITE BY THE CONTRACTOR.
 10. DISTANCE OF SHUNT REACTOR FROM ADVANCED LATTICE AND PIPE STRUCTURES (EXCEPTED) SHALL BE AS PER THE RATE OF LIND COING.
 11. ALL STRUCTURES SHALL NOT BE LESS THAN 900MM/SO. M.
BOLTS & WASHERS REQUIRED FOR THE SUBSTATION IS HIGHLY ESTIMATED. COASTAL POLLUTION, OUTDOOR ATMOSPHERE AROUND THE SUBSTATION IS HIGHLY POLLUTED. COASTAL POLLUTION, SURFACE POLLUTION, AIR POLLUTION, HUMIDITY, RAINFALL, WIND, SAND, DUST, ATMOSPHERIC CONDITION, USED TO WITHSTAND THE OUTDOOR ATMOSPHERIC CONDITION.
 12. THE BASIC WIND SPEED IS 50M/SEC. ✓
 13. LEAST ATTENUATION OF WAVE TAPER IS INDICATIVE. THE SAME SHALL BE FINALISED DURING COMMISSIONING BASED ON THE MEASUREMENTS.
 14. LEAST ATTENUATION, HOWEVER, FOUNDATION SHALL BE CASTED IN ALL THE THREE PHASES.
-
- Page 10

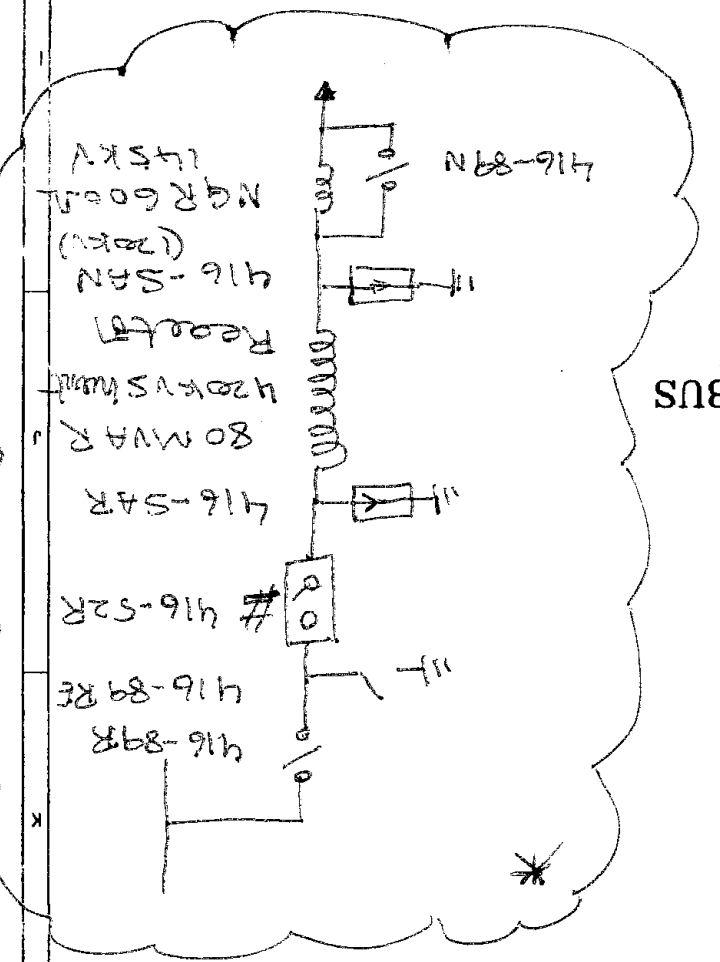
LEGEND:-

EXISTING/FUTURE/NOT IN BHEL SCOPE

INFORMATION	NOA NO: CC/CS/380-SR/SS-2049/3/G4/NOA-1/4/13 DTD: 28.06.2013 CC-CS/380-SR2/SS-2049/3/G4/NOA-1/4/714 DTD: 28.06.2013
शक्ति/शक्तिदाता का नाम POWER GRID CORPORATION OF INDIA LTD. NAME OF CUSTOMER/PROJECT (In case of Invoicing) PROJECT: ANNU RAY EXTN. AT KARAKUMB, PUGAUB,	

BILL OF QUANTITY-400KV (UNDER BHEL SCOPE)									
SL.	DESCRIPTION	QTY.	SYMBOL	413-52, 414-52	416-52, 417-52	418-52	02	04	02
01	CURRENT BREAKER WITH CR	400KV, 3-Ph, 3150A, 40KA, 1 SEC.	⌘	413-52	416-52, 417-52	418-52	02	04	02
02	CURRENT BREAKER WITHOUT CR	400KV, 3-Ph, 3150A, 40KA, 1 SEC.	⌘	413-52	416-52, 417-52	418-52	02	04	02
03	CURRENT BREAKER WITHOUT CR	400KV, 3-Ph, 3150A, 40KA, 1 SEC.	⌘	413-52R, 416-52R	413-52R, 416-52R	418-52R	02	04	02
04	ISOLATOR WITH ONE EARTH SWITCH	400KV, 3-Ph, 3150A, 40KA, 1 SEC.	⌘	413-89BE, 414-89BE, 415-89BE, 416-89BE, 417-89BE, 418-89BE	413-89BE, 414-89BE, 415-89BE, 416-89BE, 417-89BE, 418-89BE	418-89BE, 418-89BE	16	16	02
05	ISOLATOR WITH ONE EARTH SWITCH	400KV, 3-Ph, 2000A, 40KA, 1 SEC.	⌘	413-89R, 414-89R, 415-89R, 416-89R	413-89R, 414-89R, 415-89R, 416-89R	418-89R, 418-89R	02	02	02
06	CURRENT TRANSFORMER	400KV, 1-Ph, 3000A, 120%	⌘	413-CT, 414-CTA, 416-CT, 417-CTA, 418-CT	413-CT, 414-CTA, 416-CT, 417-CTA, 418-CT		24	24	
07	CAPACTIVE VOLTAGE TRANSFORMER	400KV, 1-Ph	⌘	413-CVT, 416-CVT	413-CVT, 416-CVT		06	06	
08	SURGE ARRESTER	1-Ph, 336KV	⌘	413-SA, 413-SAR, 415-SA	413-SA, 413-SAR, 415-SA		18	18	
09	WAVE TRAP	3150A, 40KA	⌘	413-WT, 418-WT	413-WT, 418-WT		04	04	
10	145KV ISILATOR FOR NGR BY PASSING	1-Ph, 1250A, 40KA, 1 SEC.	⌘	413-89N, 416-89N	413-89N, 416-89N		02	02	

- 1) SUPPLY, ERECTION, TESTING AND COMMISSIONING OF 20KV, 80MVAR SHUNT REACTOR AND ASSOCIATED LA ALONG ROOM/SWITCHGEAR PANEL ROOM TO REACTOR M/N/6M/6, NGR BY PASSING SCHEME IS UNDER PRESENT SCOPE.
- 2) ALL SWITCHGEAR/EQUIPMENTS, INSULATOR STRINGS, BUSHINGS, BPI SHALL BE DESIGNED FOR MINIMUM CREEPAGE DISTANCE OF 31MM/KV.
- 3) THE RATE OF ZINC COATING FOR GALVANIZED LATITE AND PIPE STRUCTURES (EXCLUDING FOUNDATION BOLTS & FASTENERS) SHALL NOT BE LESS THAN 900GM/SD.M
- 3) OUTDOOR ATMOSPHERE AROUND THE SUBSTATION IS HIGHLY POLLUTED COUPLED WITH COASTAL POLLUTION. SUITABLE PAINT & CORROSDING PRIMERS ETC. AS RECOMMENDED BY PAINT MANUFACTURER SHALL BE USED TO WITHSTAND THE OUTDOOR ATMOSPHERIC CONDITION.
- 4) THE BASIC WIND SPEED IS 50M/SEC.
- 5) WAVE TRAPS SHALL BE MOUNTED ON TWO PHASES BASED ON LEAST ATTENUATION DURING COMMISSIONING.



3000A, 40KA, 1SEC

Comments

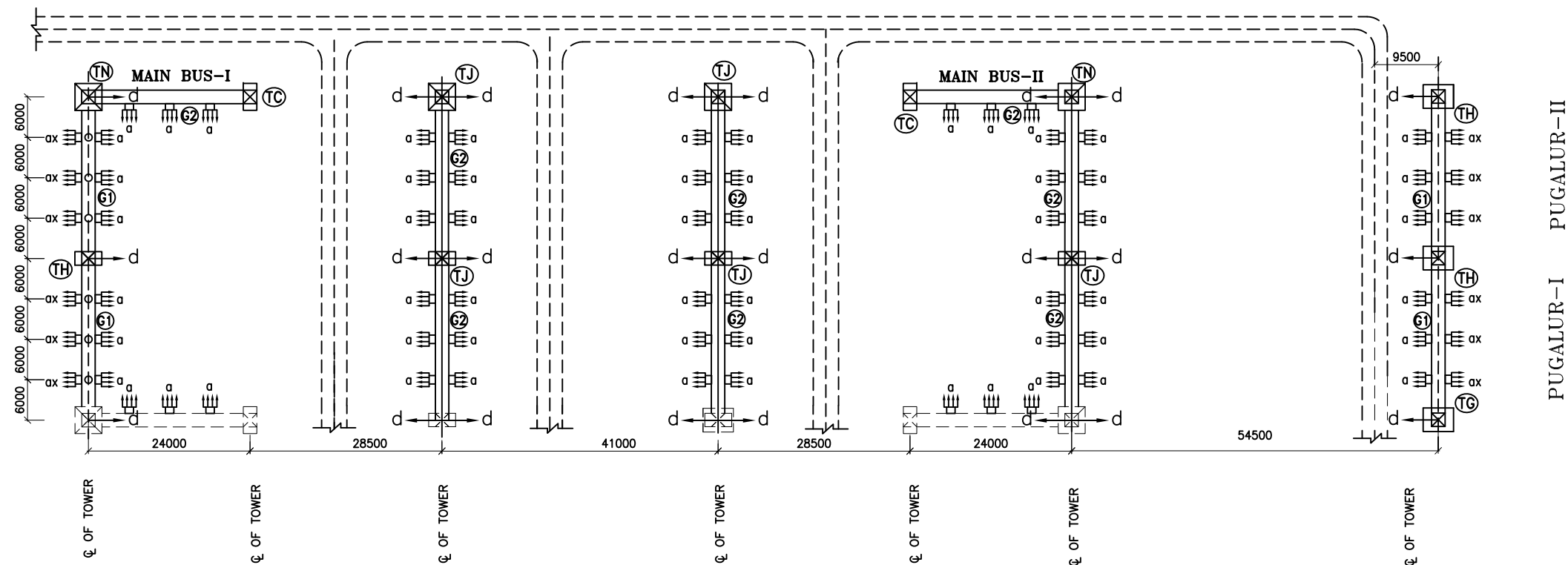
① Modify the equipment description as per worked up

② Compare. Mount treated as per included

_____ BHEL SCOPE

_____ FUTURE/EXISTING

_____ In paragraph 1 & 2 as per mounted up.



NOTATION	No. & Type of Cond./ Shield Wire per Phase	Normal Tension Per Phase(kg)	S/C Tension Per Phase(kg)	Separation Between Spacers (meters)
a	QUAD. ACSR MOOSE	4000	5100	5.0 m
ax	QUAD. ACSR MOOSE	4000 with 30° deviation	5100	5.0 m
d	SHIELD WIRE	800	NOT APPLICABLE	NOT APPLICABLE
dx	SHIELD WIRE	800 with 30° deviation	NOT APPLICABLE	NOT APPLICABLE

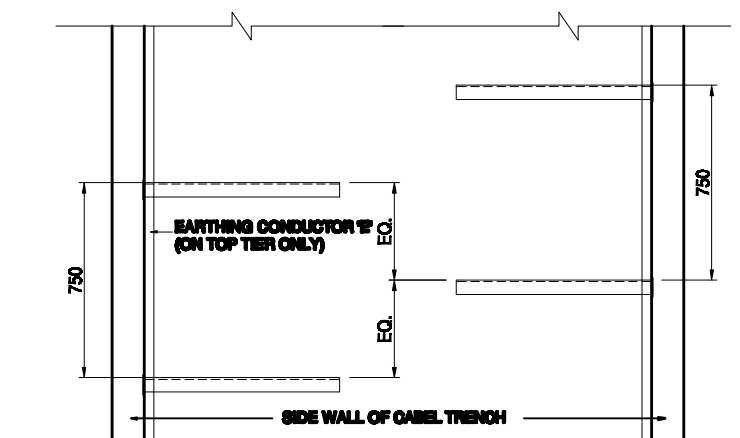
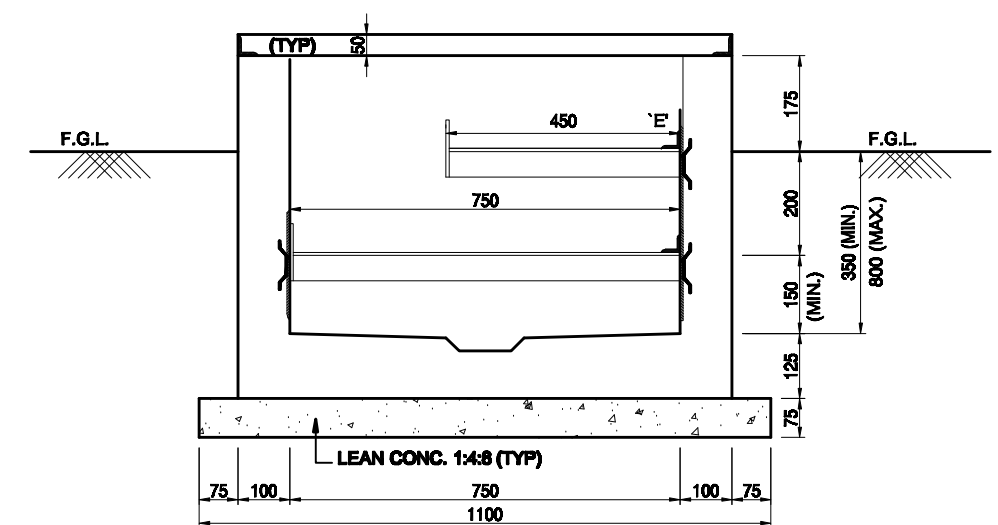
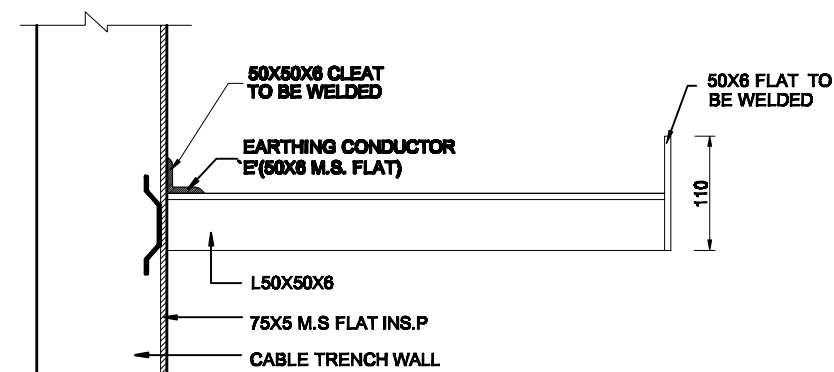
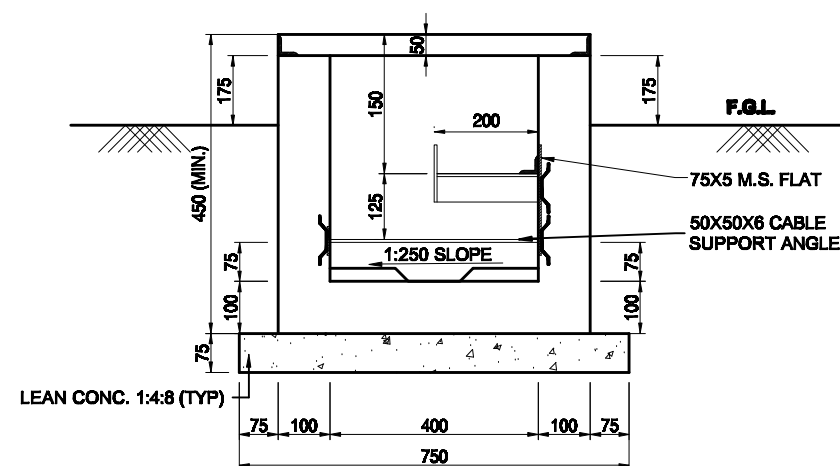
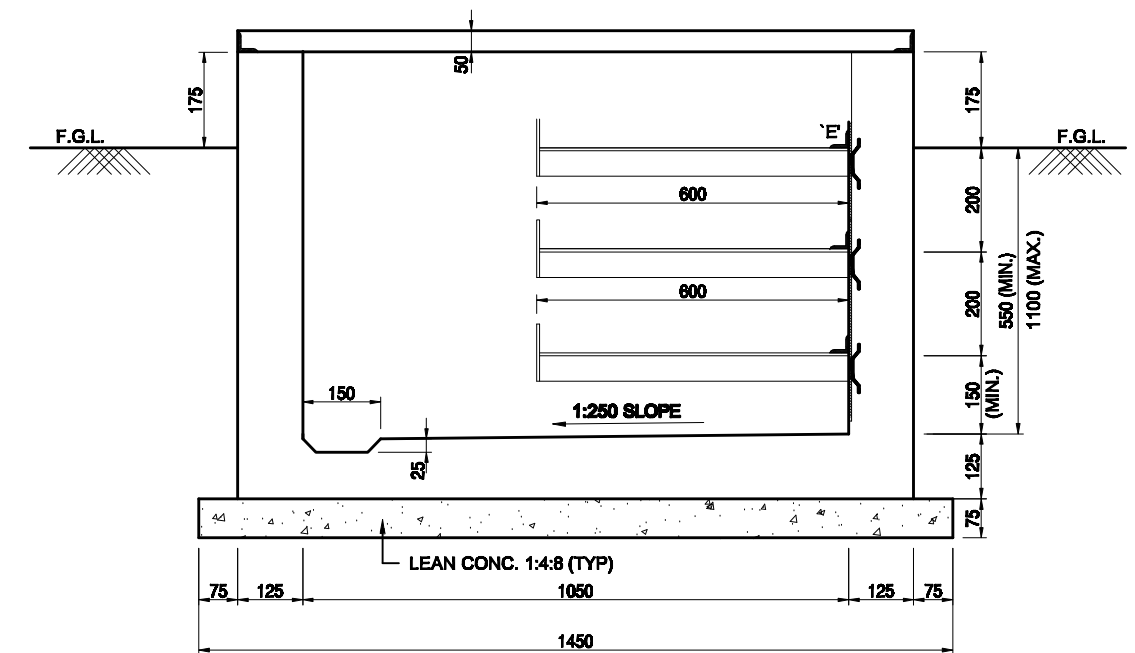
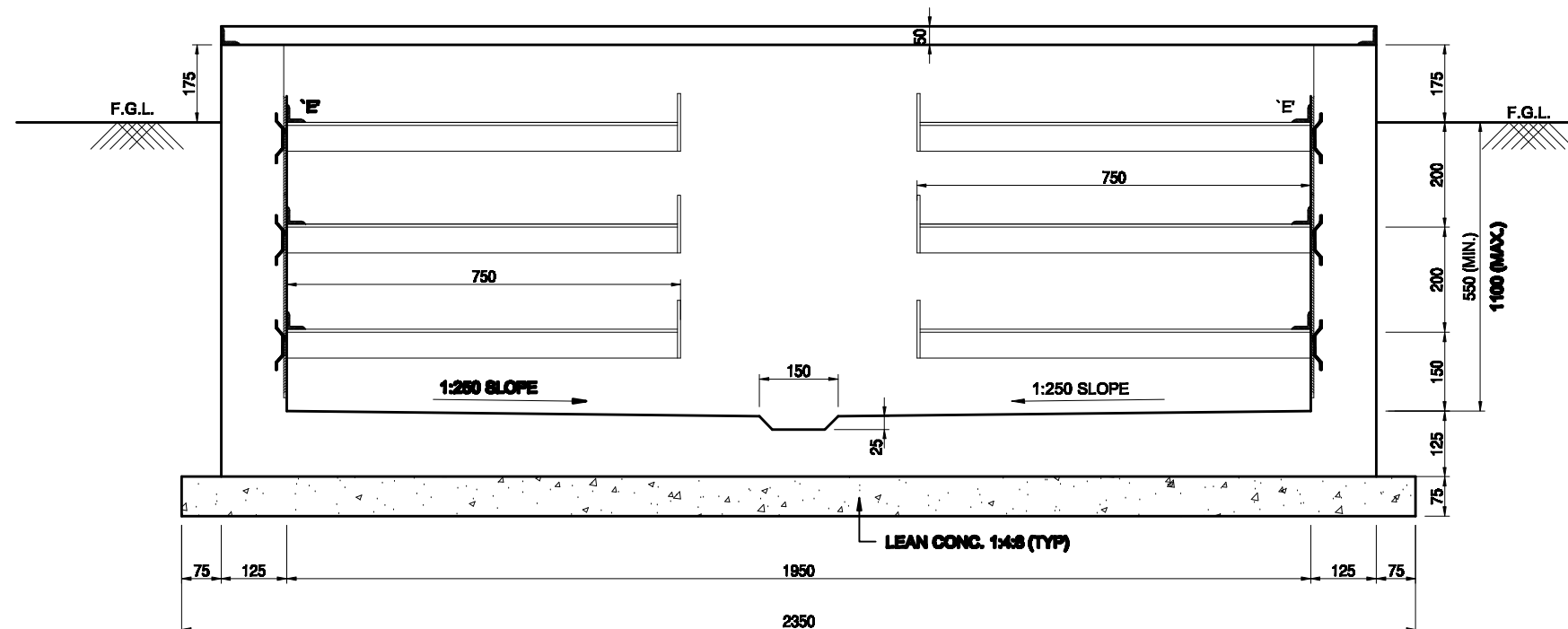
DETAILS OF TOWERS/BEAMS : 400kV			
S.NO.	STR DESIGNATION	STR. HT/SPAN	QTY.
1	TC	15M	02 Nos.
2	TG	22M+7.5M	01 No.
3	TH	22M+7.5M	03 Nos.
4	TJ	22M+7.5M	05 Nos.
5	TN	15M+7M+7.5M	02 Nos.
6	G1	24M	04 Nos.
7	G2	24M	08 Nos.

1 ALL DIMENSIONS ARE IN MM
2 ROAD, BOUNDARY WALLS AND FENCE IS NOT IN PRESENT SCOPE.

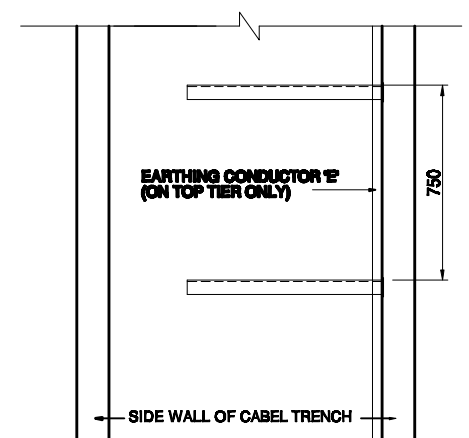
NOA NO: CC-CS/380-SR2/SS-2049/3/G4/NOA-I/4713 DTD. 28.06.2013
CC-CS/380-SR2/SS-2049/3/G4/NOA-II/4714 DTD. 28.06.2013

ADDITIONAL INFORMATION W.O.No.			ग्राहक/परियोजना का नाम POWER GRID CORPORATION OF INDIA LTD.																			
STATUS OF DRAWING			NAME OF CUSTOMER/PROJECT PROJECT: 400kV BAY EXTN. AT KARAIKUDI, PUGALUR, KALIVANTHAPATTU & ABHISHEKPATTY SUBSTATION																			
DISTRIBUTION OF PRINTS			 भारत हेवी इलेक्ट्रिकल्स लिमिटेड संरचनात्मक परियोजना विभाग BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION PROJECTS DIVISION			<table border="1"> <tr> <td rowspan="3"> कर्ता DRAWN चेखा CHECKED स्वीकृत APPROVED </td> <td>नाम /NAME</td> <td>हस्ता /SIGN.</td> <td>दि./DATE</td> </tr> <tr> <td>RK</td> <td>--SD--</td> <td>22.07.13</td> </tr> <tr> <td>NK</td> <td>--SD--</td> <td></td> </tr> <tr> <td></td> <td>MK</td> <td>--SD--</td> <td></td> </tr> </table>			कर्ता DRAWN चेखा CHECKED स्वीकृत APPROVED	नाम /NAME	हस्ता /SIGN.	दि./DATE	RK	--SD--	22.07.13	NK	--SD--			MK	--SD--	
कर्ता DRAWN चेखा CHECKED स्वीकृत APPROVED	नाम /NAME	हस्ता /SIGN.	दि./DATE																			
	RK	--SD--	22.07.13																			
	NK	--SD--																				
	MK	--SD--																				

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	RK	विभाग DEPT.	 अनुपात / SCALE 1 : 700	कार्ड कोड CARD CODE			
		CHECKED			CHECKED	01	03.08.13	CHECKED	NK	कोड					
		APPROVED			APPROVED			APPROVED	MK	कोड					
ZONE			ZONE			ZONE		REVISED BASED ON POWERGRID COMMENTS DATED 29.07.13 BY LETTER NO. C/ENGG/SR/ 4713&4714/BHEL/CIVIL/LAYOUT/06			शीर्षक/TITLE STRUCTURAL LAYOUT PLAN FOR 400/230kV KALIVANTHAPATTU (MELAKOTTAUR) SUBSTATION EXTN.			ड्राइंग नं./DRAWING NO. TB-3-362-316-007	पुनः/REV. 01
														पृष्ठ नं./SHEET No. 01 अगला पृष्ठ/NEXT SHEET -	



PLAN
CABLE TRAY SUPPORT FOR SECTION 1-1



PLAN
CABLE TRAY SUPPORT FOR
SECTION 2-2 & 3-3

NOTE:

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE SPECIFIED.
2. R.C.C. MIX.SHOULD BE 1:1.5:3 (1 CEMENT: 1.5 COARSE SAND:3 STONE AGGREGATE 20mm NOMINAL SIZE.)
3. LEAN CONC. SHALL BE IN THE RATIO.1:4:8.
(1 CEMENT:4 COURSE SAND: 8STONE AGGREGATE 40MM NORMAL SIZE)
4. FOR ALL OTHER NOTES REF. DRG. No. C/ENGG/STD/CT-1(SHEET-2)

RELEASED FOR CONSTRUCTION.

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

PROJECT:	STANDARD DRAWING FOR CABLE TRENCH
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TITLE:	DETAIL FOR CABLE TRENCH SECTIONS.
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							TITLE: DETAIL FOR CABLE TRENCH SECTIONS.			
PREP	REVD	REVD	REVD	REVD	APPD	DATE	SCALE NTS	DRAWING NO.	C/ENGG/STD/CT-1	REV R-0