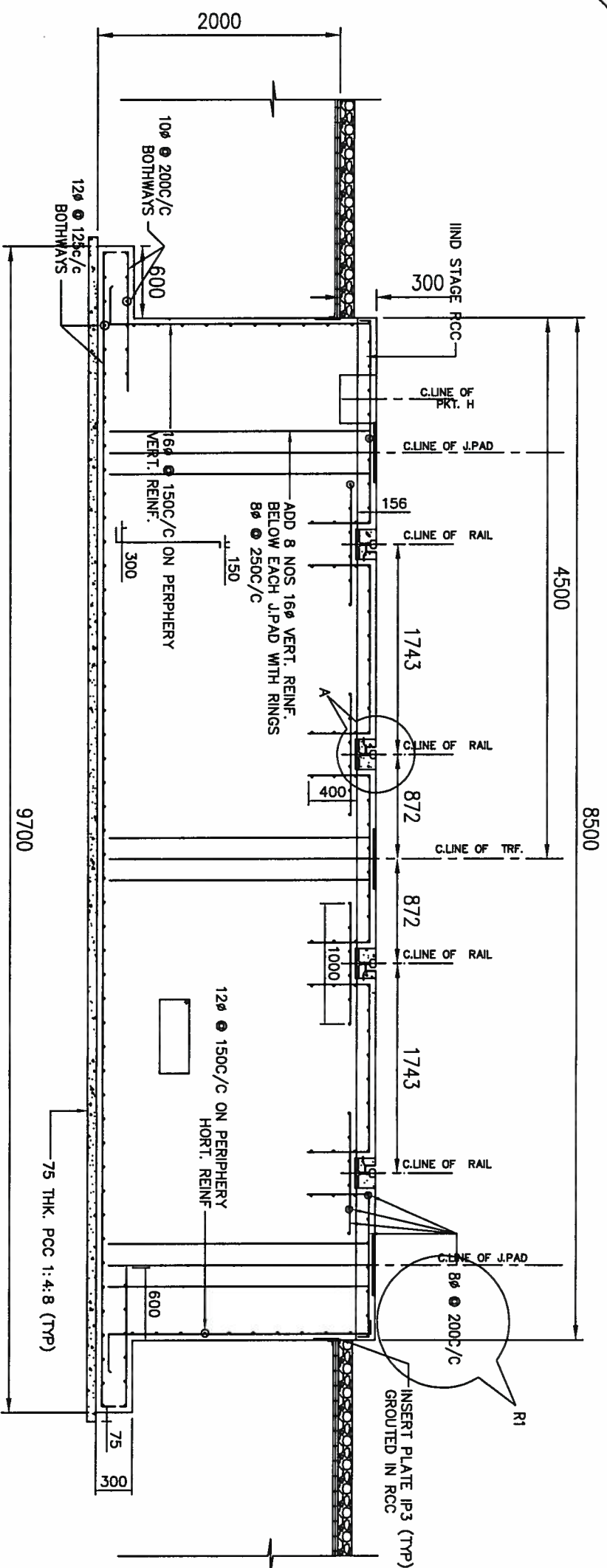
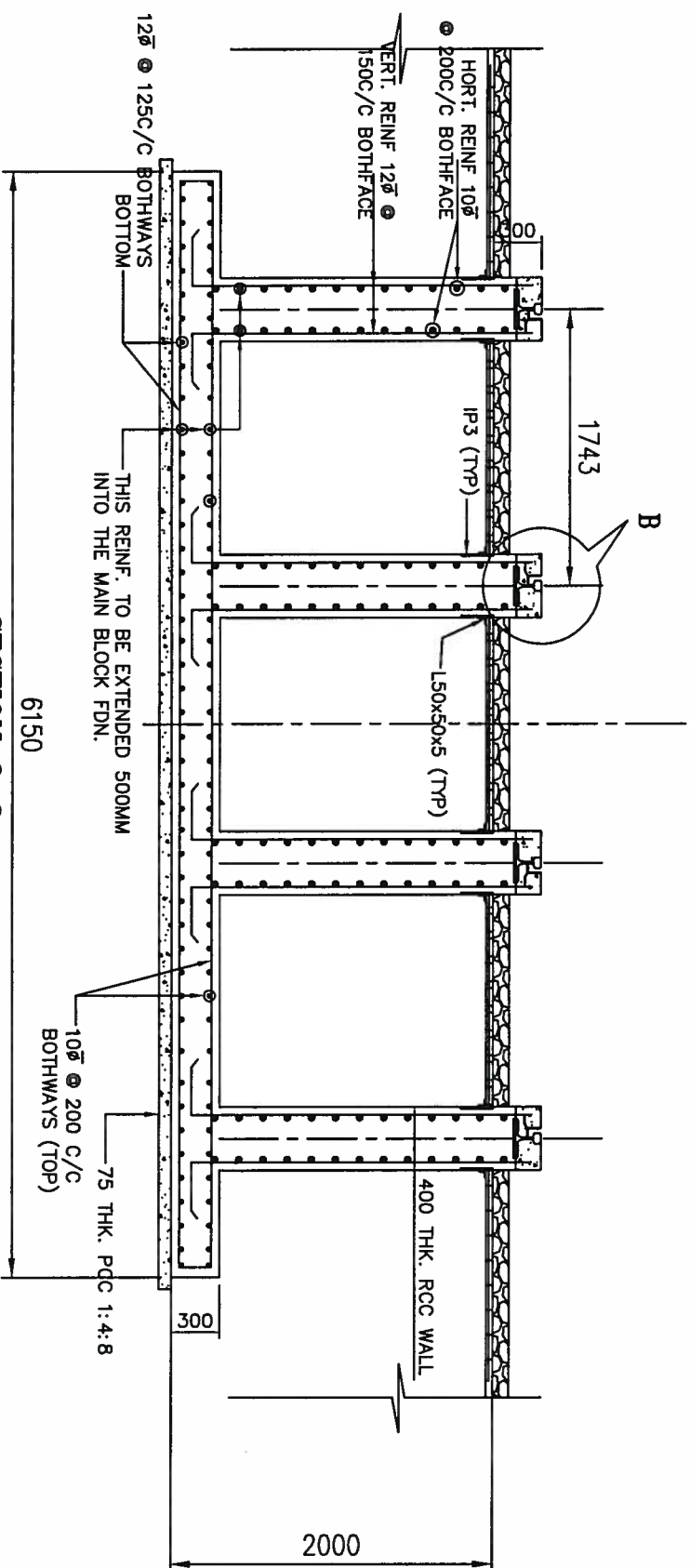
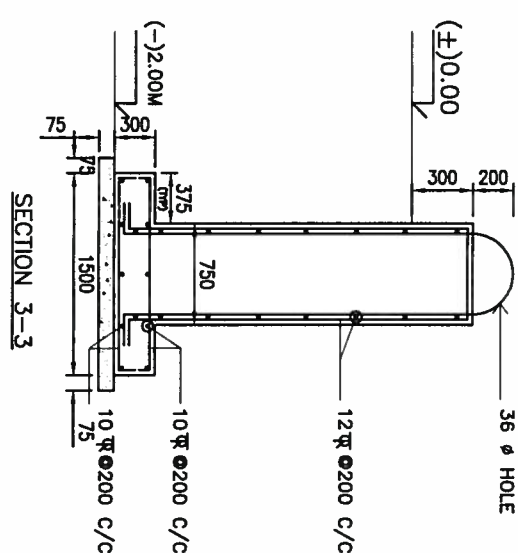




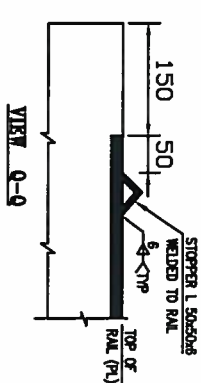
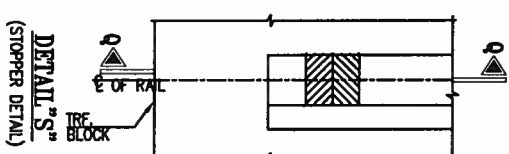
SECTION 1-1



SECTION 2-2



SECTION 3-3

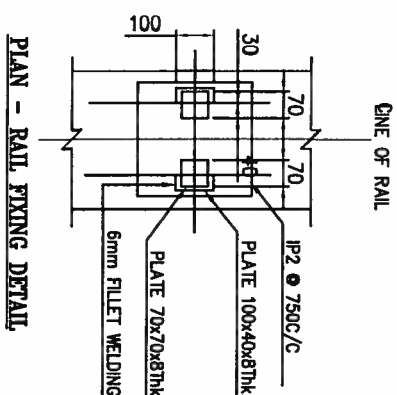
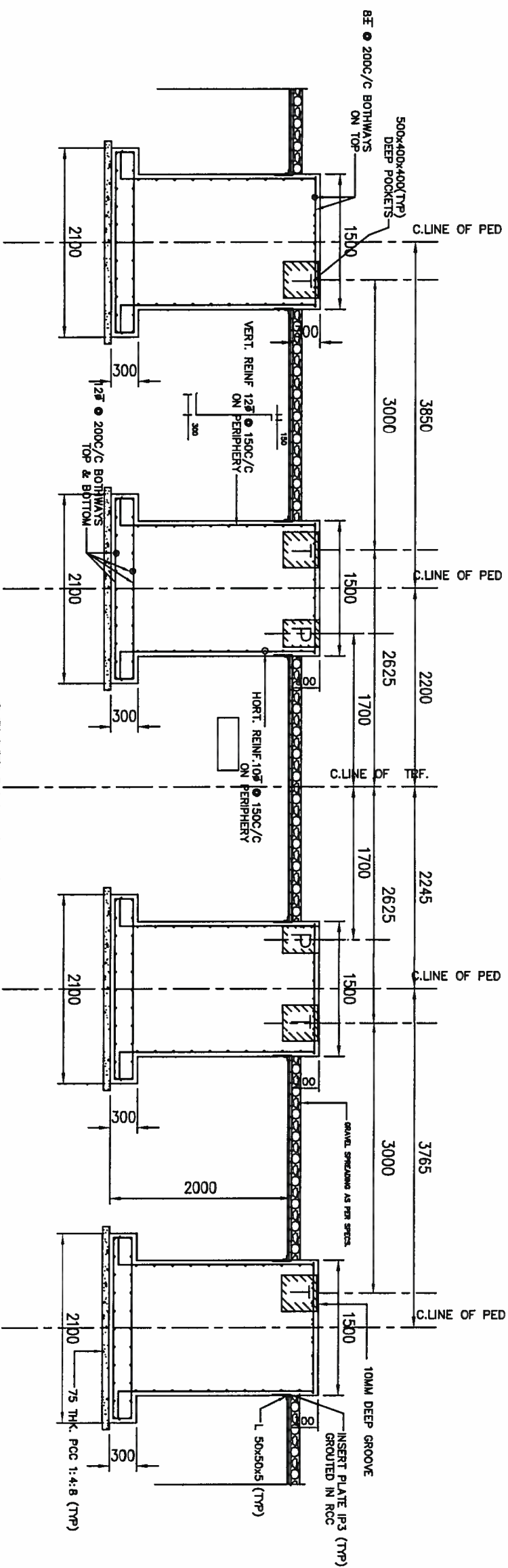


VIEW 0-0

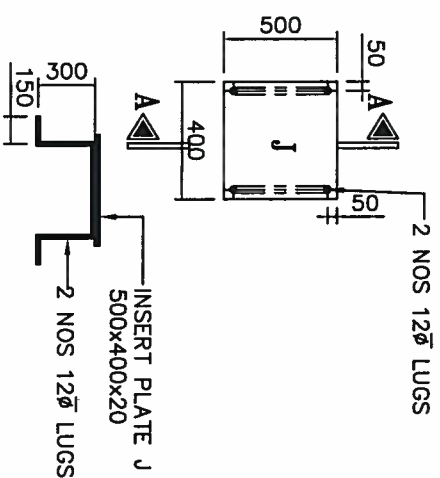
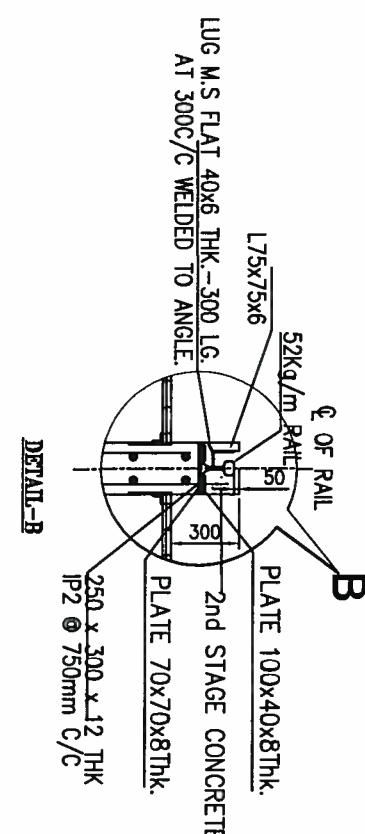
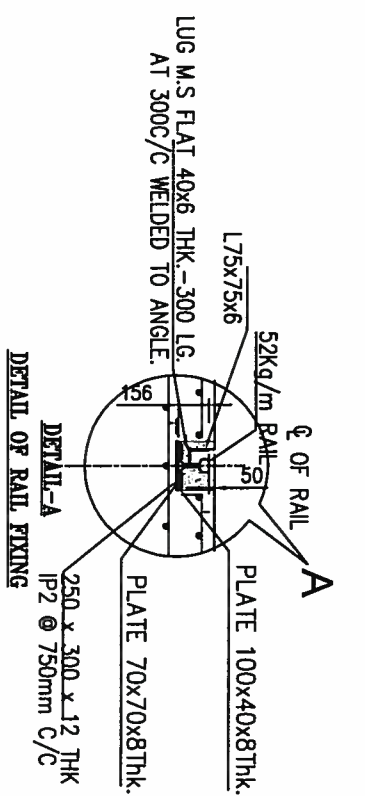
FOR GENERAL NOTES REFER SH. 1 OF 3

PREP.	REV'D. ELEC.	REV'D. ELEC.	REV'D.	REV'D.	APPD.	DATE
8/2/16	8/2/16	8/2/16	8/2/16	8/2/16	8/2/16	8/2/16

1.	RO	08/02/16
No.	Revision/Issue	Date
POWER GRID CORPORATION OF INDIA LIMITED		
(A Government of India Enterprise)		
PROJECT: 765/400KV BANASKANTHA S/S		
TITLE: RCC SEC. DETAILS FOR 765KV 500MVA TRANSFORMER MAIN BLOCK & RADIATOR BANK - SIEMENS MAKE		
DRAWING NO: C/ENG/BA/500/SNMS/TRF/AB/BDN/01		
SCALE	N.T.S.	Sheet 2 OF 3
		RO

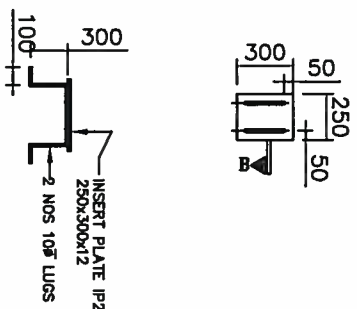


SECTION 4-4



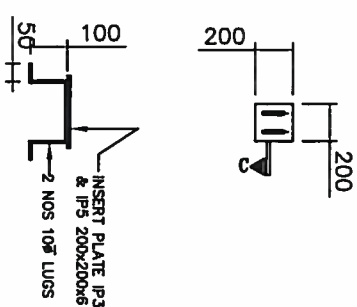
SECTION A-A

TYP. DETAILS OF INSERT
PLATE MARKED 'J'



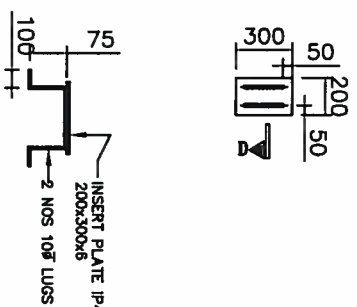
SECTION B-B

TYP. DETAILS OF INSERT
PLATE MARKED 'IP2'



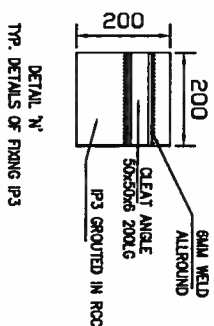
SECTION C-C

TYP. DETAILS OF INSERT
PLATE MARKED 'IP3' & 'IP5'

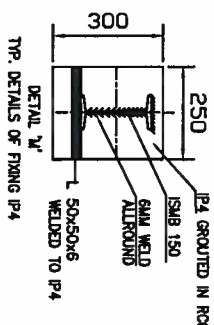


SECTION D-D

TYP. DETAILS OF INSERT
PLATE MARKED 'IP4'



DETAIL 'N'
TYP. DETAILS OF FIXING IP3



DETAIL 'N'
TYP. DETAILS OF FIXING IP4

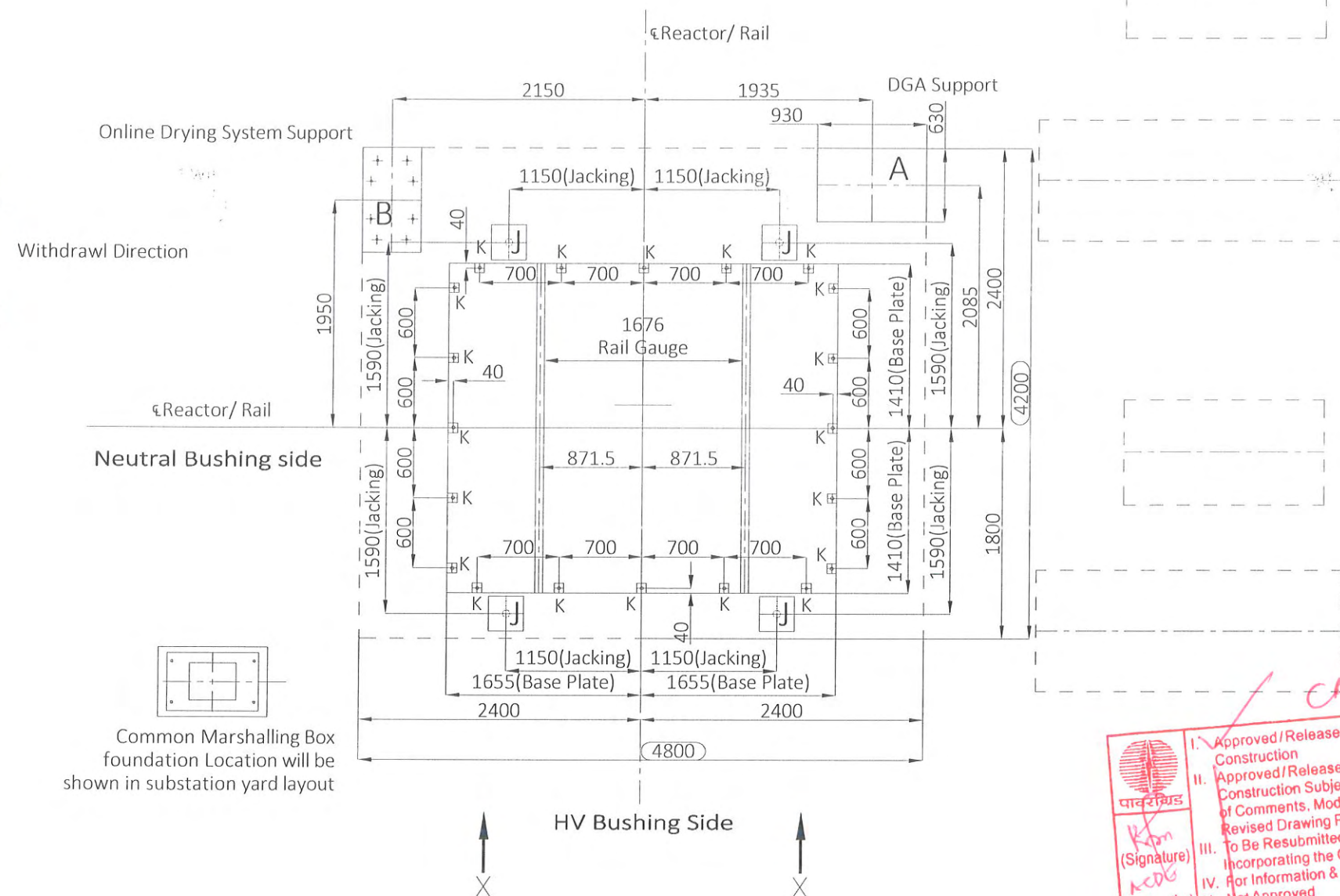
FOR GENERAL NOTES REFER SH. 1 OF 3

PREP.	REV. ELEC.	REV. ELEC.	REV.	REV.	APPD.	DATE
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

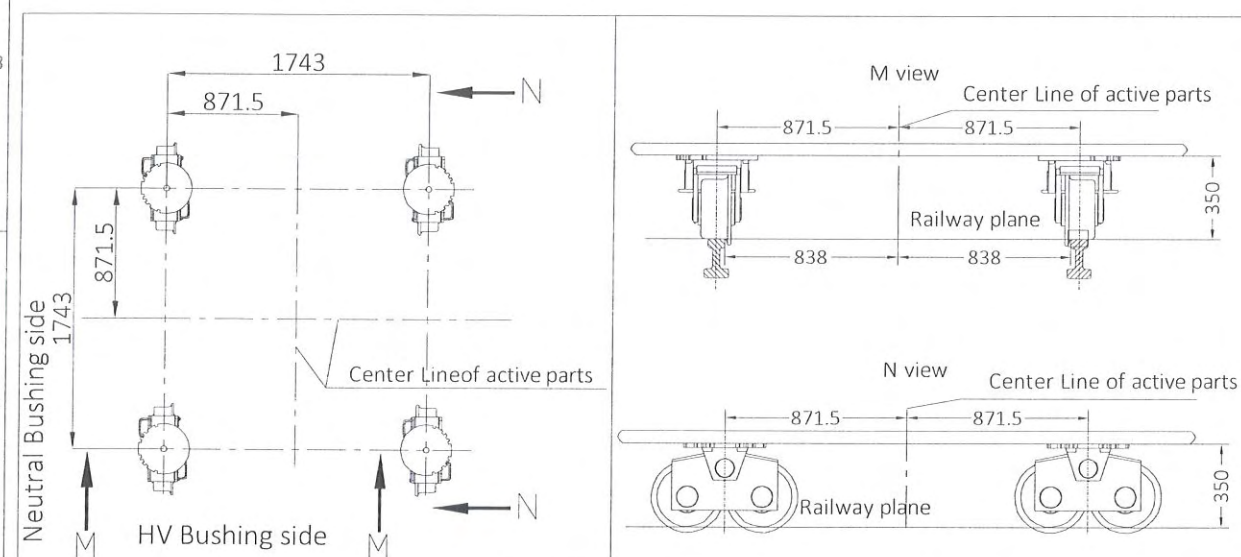
1.	RO	08/02/16
No.	Revision/Issue	Date
POWER GRID CORPORATION OF INDIA LIMITED (A Government of India Enterprise)		
PROJECT: 765/400KV BANASKANTHA S/S		
TITLE: RCC SEC. DETAILS FOR 765KV 500MVA TRANSFORMER MAIN BLOCK & RADIATOR BANK - SIEMENS MAKE		
DRAWING NO: C/ENG/BA/500/SMNS/TRF/MB/7DM/01		
SCALE	N.T.S.	Sheet 3 of 3
		RO

Note : — — — line shows powergrid standard foundation.

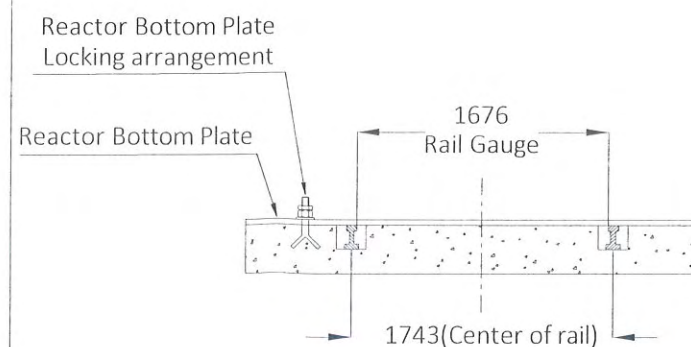
Note : Please note that reactor centre is 300 mm offset in Y axis from foundation center line.



Roller Assembly View



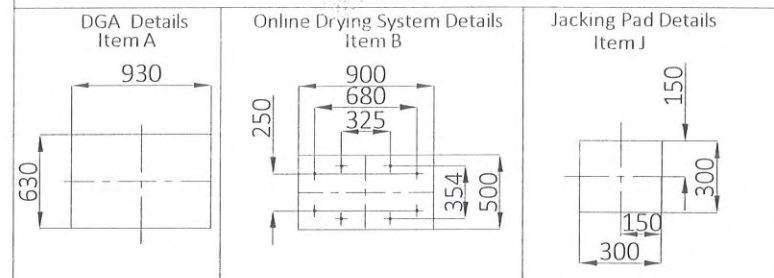
VIEW X-X



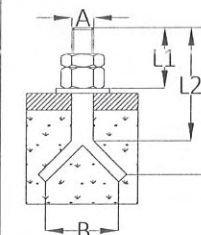
TECHNICAL NOTES

1. Reactor body foundation shall be made in one as a whole.
2. Grouting of foundation bolts shall be done only after complete erection at site.
3. Suitable foundation pocket shall be decided by civil engineer as per site conditions.
4. Foundation bolts are in TBEA scope of supply.
5. Rollers are only to shift Reactor up to plinth level. After reaching at its location, rollers shall be removed & base plate shall be locked directly on plinth using foundation bolt as shown below.
6. The deviation in level of foundation shall not be more than 2mm.
7. Rail top & plinth shall be at same level. Rail top shall not project above plinth in any condition.

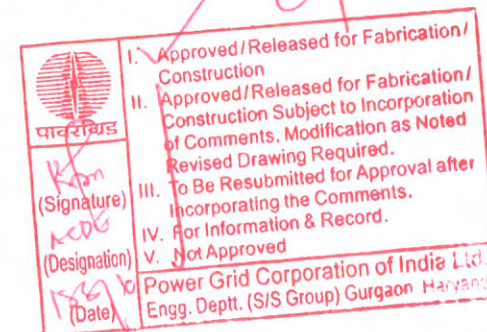
Weight of reactor on plinth with oil and radiators = 136.7 tonnes $\pm$ 10 %



Foundation Bolt View



SR. No.	Used For	Qty	Load on each	Dimensions					
				A	B	L	L1	L2	
1	Jacking Pad (Item J)	4	70 T	-	-	-	-	-	
2	Base Plate Locking (Item K)	20	10 T	M24	75	380	100	340	
3	DGA Support (Item A)	4	1 T	-	-	-	-	-	
4	Online Drying System Support (Item B)	8	1 T	M12	50	280	50	200	



REV. No.	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
01	19.07.2016	Withdrawal Direction Changed & Reactor Center line moved towards HV Line Side	Malvi	Malvi	Ashish	Satyam
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam

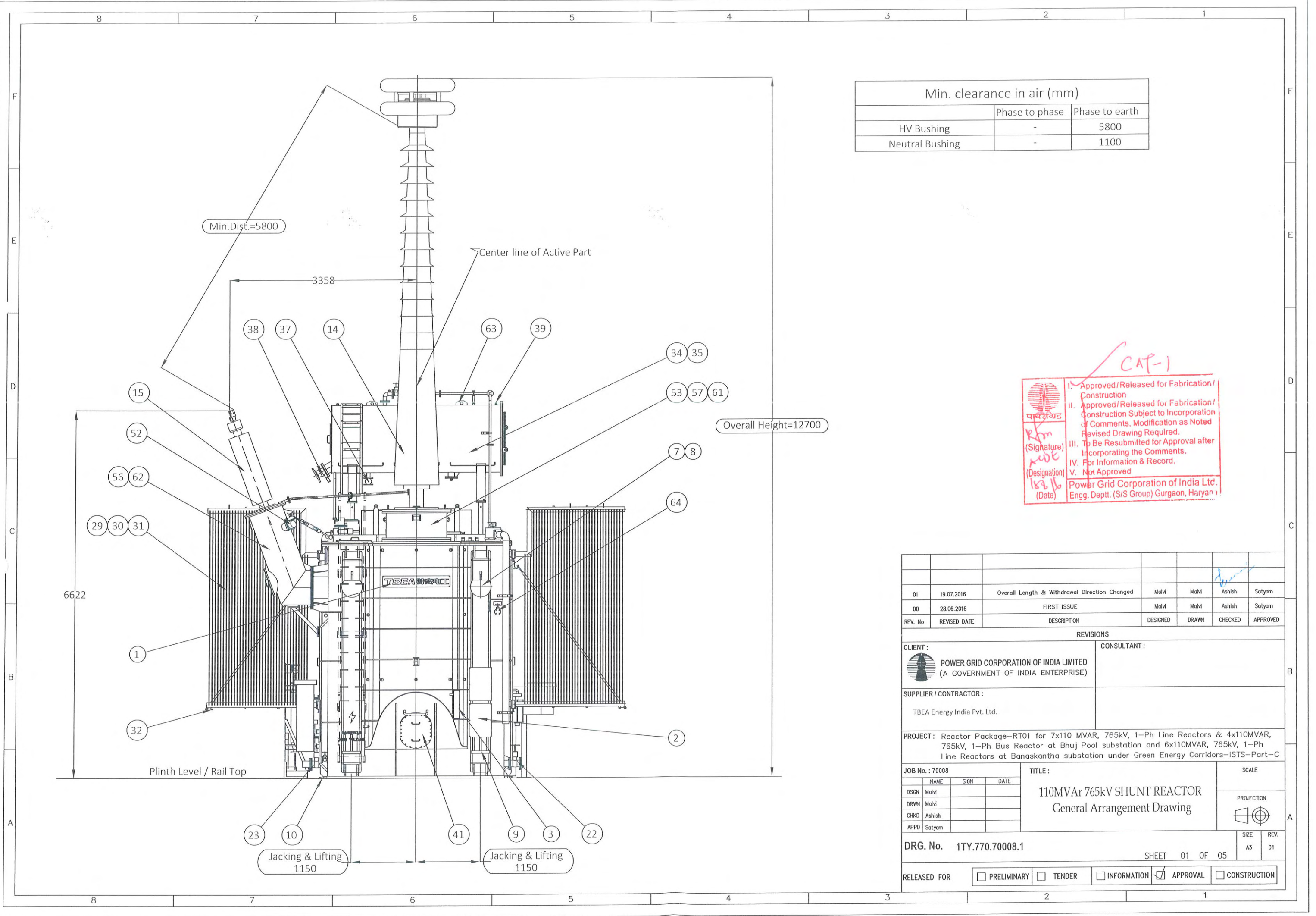
CLIENT :			CONSULTANT :		
POWER GRID CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)					
SUPPLIER / CONTRACTOR :					
TBEA Energy India Pvt. Ltd.					

PROJECT: Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C

JOB No. : 70008				TITLE :		SCALE	
DSGN	Malvi	SGN	DATE	110MVar 765kV SHUNT REACTOR Foundation Drawing		PROJECTION 	
DRWN	Malvi						
CHKD	Ashish						
APPD	Satyam						

DRG. No. 1TY.770.70008.FD

RELEASED FOR				SHEET 01 OF 01				SIZE	REV
								A3	01



Min. clearance in air (mm)		
	Phase to phase	Phase to earth
HV Bushing	-	5800
Neutral Bushing	-	1100

✓ CAP-1



I. Approved/Released for Fabrication/Construction
II. Approved/Released for Fabrication/Construction Subject to Incorporation of Comments, Modification as Noted Revised Drawing Required.
III. To Be Resubmitted for Approval after Incorporating the Comments.
IV. For Information & Record.
V. Not Approved

Power Grid Corporation of India Ltd.
Engg. Deptt. (S/S Group) Gurgaon, Haryana

(Signature)
Rm
KBE
(Designation)
18/10/16
(Date)

01	19.07.2016	Overall Length & Withdrawal Direction Changed	Malvi	Malvi	Ashish	Satyam
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

CLIENT :
 POWER GRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)

CONSULTANT :

SUPPLIER / CONTRACTOR :
TBEA Energy India Pvt. Ltd.

PROJECT : Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C

JOB No. : 70008

TITLE :
110MVar 765kV SHUNT REACTOR
General Arrangement Drawing

SCALE

DSGN	Malvi	SIGN	DATE
DRWN	Malvi		
CHKD	Ashish		
APPD	Satyam		

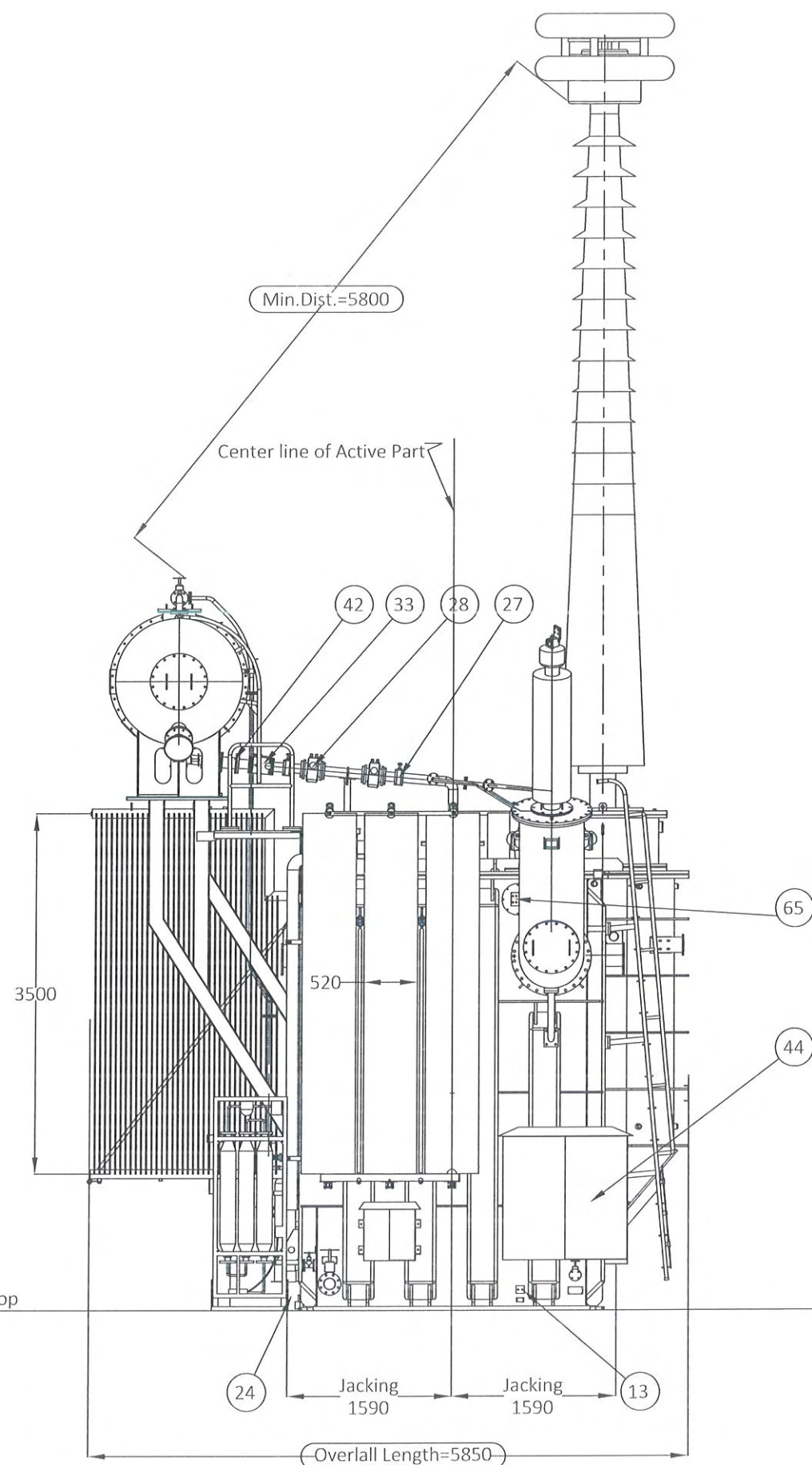
SIZE
A3

REV.
01

DRG. No. 1TY.770.70008.1

SHEET 01 OF 05

RELEASED FOR ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☒ APPROVAL ☐ CONSTRUCTION



01	19.07.2016	Overall Length & Withdrawal Direction Changed	Malvi	Malvi	Ashish	Satyam
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

CLIENT : **POWER GRID CORPORATION OF INDIA LIMITED**
(A GOVERNMENT OF INDIA ENTERPRISE)

SUPPLIER / CONTRACTOR :
TBEA Energy India Pvt. Ltd.

PROJECT : Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C

JOB No. : 70008

TITLE : **110MVar 765kV SHUNT REACTOR**
General Arrangement Drawing

SCALE :

PROJECTION :

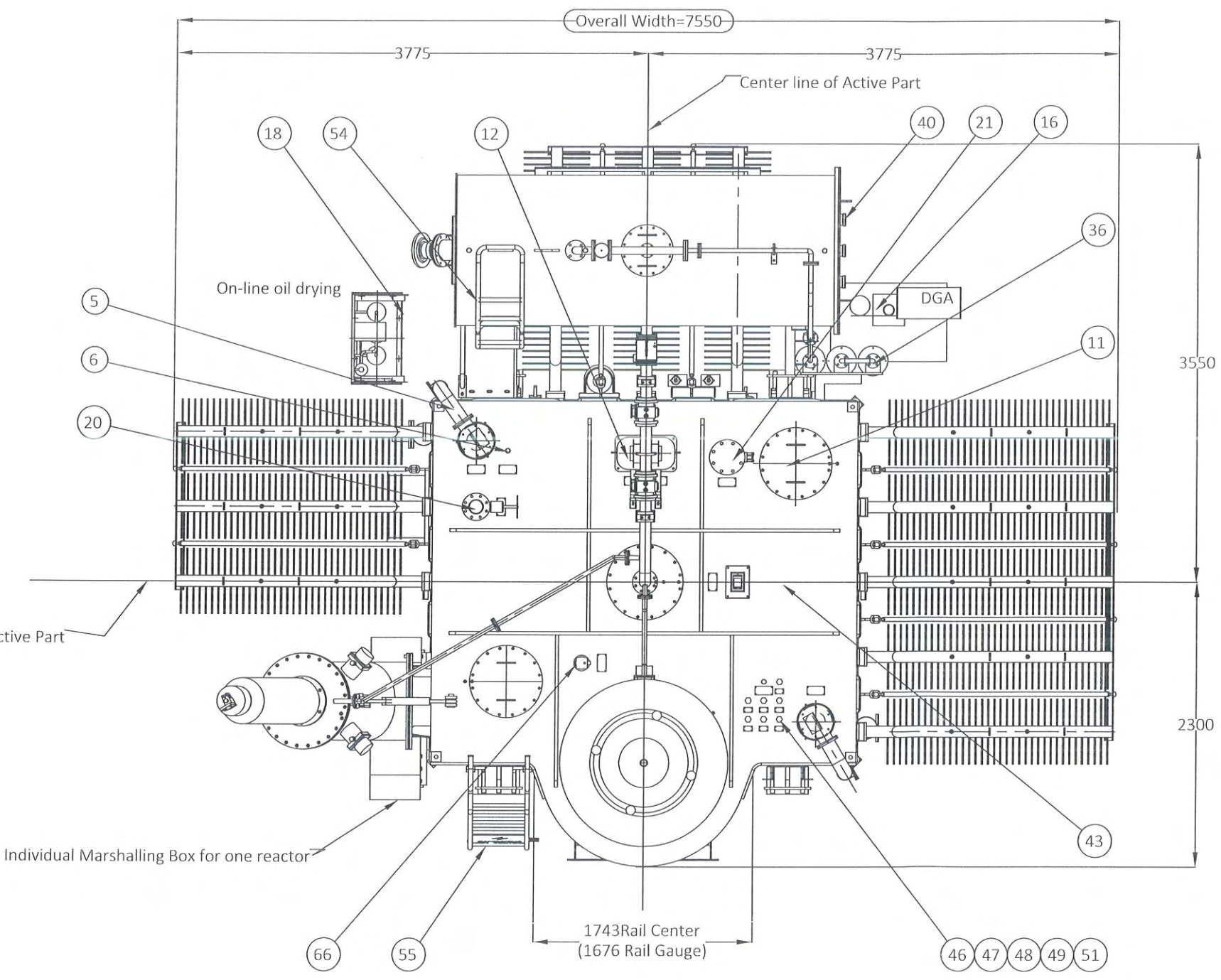
DRG. No. 1TY.770.70008.1

SHEET 02 OF 05

SIZE A3

REV. 01

RELEASED FOR ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☒ APPROVAL ☐ CONSTRUCTION



01	19.07.2016	Overall Length & Withdrawal Direction Changed	Malvi	Malvi	Ashish	Satyam
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED

CLIENT :			CONSULTANT :			
POWER GRID CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)						
SUPPLIER / CONTRACTOR :						
TBEA Energy India Pvt. Ltd.						

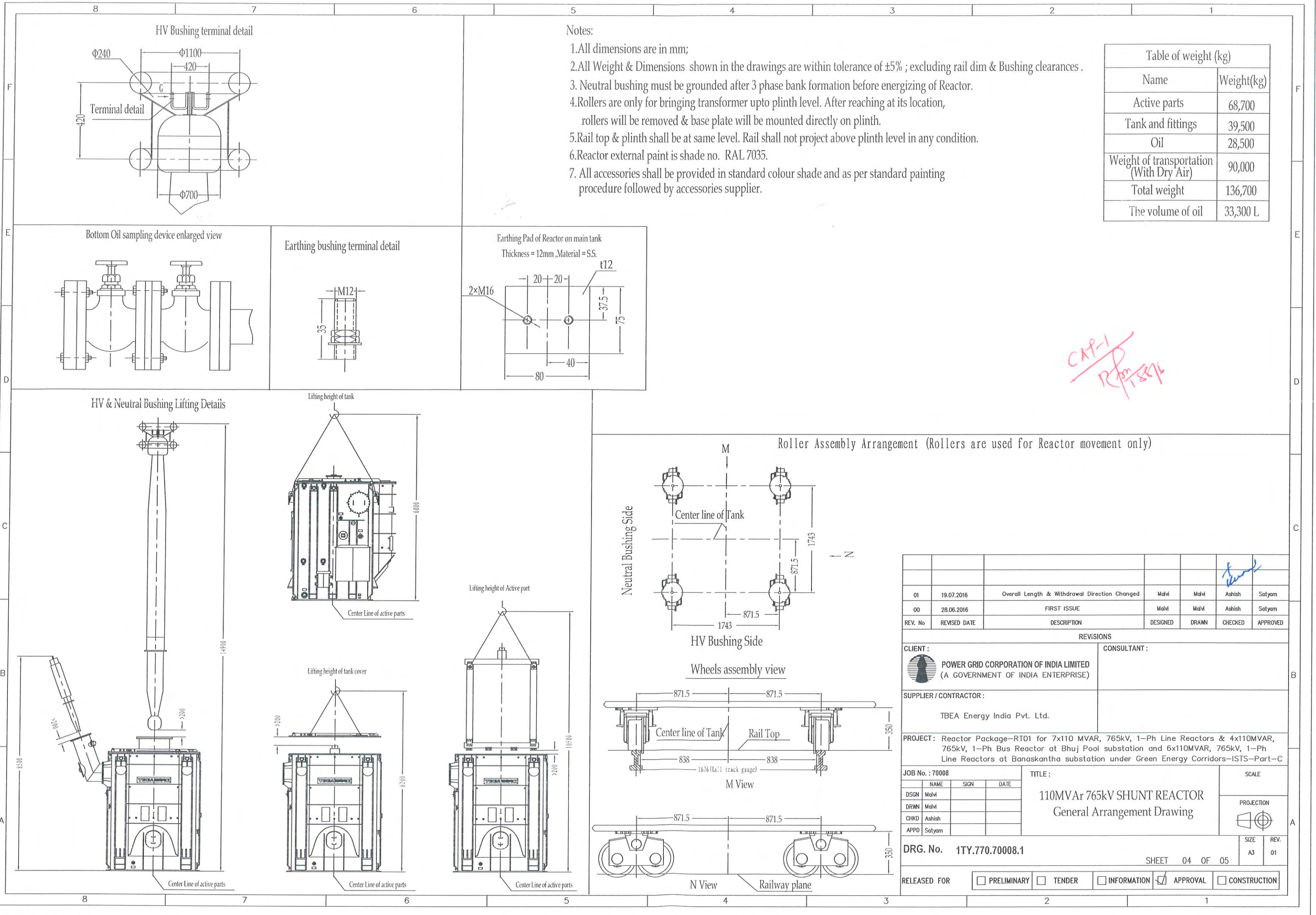
PROJECT : Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C

JOB No. : 70008				TITLE :		SCALE	
DSGN	Malvi	SIGN	DATE	110MVA 765kV SHUNT REACTOR		PROJECTION	
DRWN	Malvi			General Arrangement Drawing		A	
CHKD	Ashish					SIZE	
APPD	Satyam					REV.	

DRG. No. 1TY.770.70008.1

SHEET 03 OF 05

RELEASED FOR ☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☒ APPROVAL ☐ CONSTRUCTION



Notes:

- 1.All dimensions are in mm;
- 2.All Weight & Dimensions shown in the drawings are within tolerance of $\pm 5\%$; excluding rail dim & Bushing clearances .
3. Neutral bushing must be grounded after 3 phase bank formation before energizing of Reactor.
- 4.Rollers are only for bringing transformer upto plinth level. After reaching at its location, rollers will be removed & base plate will be mounted directly on plinth.
- 5.Rail top & plinth shall be at same level. Rail shall not project above plinth level in any condition.
- 6.Reactor external paint is shade no. RAL 7035.
7. All accessories shall be provided in standard colour shade and as per standard painting procedure followed by accessories supplier.

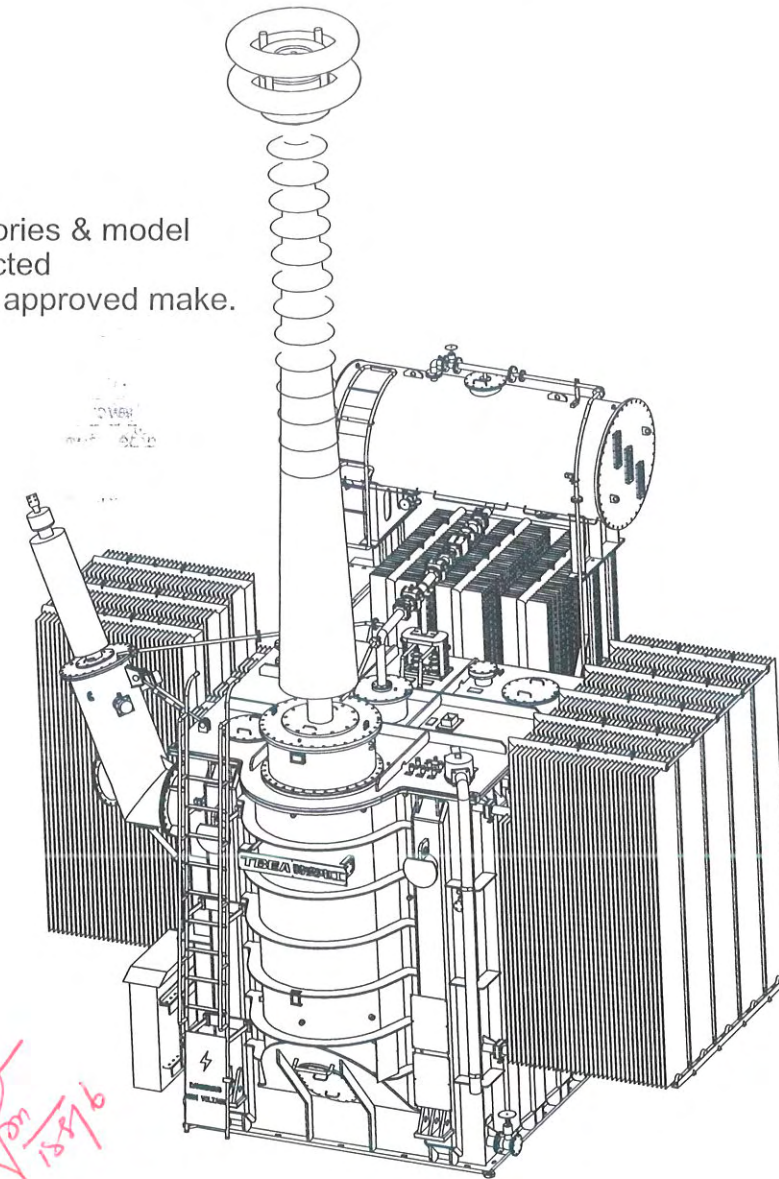
Table of weight (kg)	
Name	Weight(kg)
Active parts	68,700
Tank and fittings	39,500
Oil	28,500
Weight of transportation (With Dry Air)	90,000
Total weight	136,700
The volume of oil	33,300 L

CAP-1
Rm
15/07/16

01	19.07.2016	Overall Length & Withdrawal Direction Changed	Malvi	Malvi	Ashish	Satyam	
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam	
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED	
REVISIONS							
CLIENT :  POWER GRID CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)			CONSULTANT :				
SUPPLIER / CONTRACTOR : TBEA Energy India Pvt. Ltd.							
PROJECT: Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C							
JOB No. : 70008			TITLE : 110MVar 765kV SHUNT REACTOR General Arrangement Drawing			SCALE	
	NAME	SIGN				DATE	PROJECTION 
DSGN	Malvi						
DRWN	Malvi						
CHKD	Ashish						
APPD	Satyam						
DRG. No. 1TY.770.70008.1					SIZE A3	REV. 01	
RELEASED FOR			☐ PRELIMINARY	☐ TENDER	☐ INFORMATION	☒ APPROVAL	☐ CONSTRUCTION

	8	7	6	5			4	3	2	1
	67	Sludge Removal Valve	1	GG/PGCIL approved make						
	66	Sudden Pressure Relief Relay	1	Qualitrol/PGCIL approved make	B7	3				
	65	Fiber Optical Sensors with Temperature monitoring system	1	Neoptix/PGCIL approved make	C5	2				
	64	UHF Sensor valve , 25NB , Gate Valve	4	GG/PGCIL approved make	C4	1				
F	63	Lifting Lug for Conservator	2		D6	1				
	62	Neutral Turret	1		C8	1				
	61	HV Turret	1		D4	1				
	60	Common Marhalling Box (For 3 Phase Bank)	1		-	-				
	59	Lifting Hole for tank cover	4		-	-				
	58	Cable Tray Assembly (Fixing the various cables)	1		-	-				
	57	CT in HV Turret	4		D4	1				
	56	CT in Neutral Turret	4		C8	1				
	55	Detachable ladder for access to top of tank cover	1		B6	3				
	54	Welded ladder for access to top of Main Conservator	1		E7	3				
	53	CT terminal box for HV Bushing	1	Sukrut /PGCIL approved make	D4	1				
	52	CT terminal box for Neutral Bushing	2	Sukrut /PGCIL approved make	D8	1				
E	51	Spare pocket	2		B4	3				
	50	RTD for WTI	1	Precimeasure	B4	3				
	49	RTD for OTI	1	Precimeasure	B4	3				
	48	Mercury Thermometer	1		B4	3				
	47	WTI (Winding Temperature indicator)	1	Precimeasure	B4	3				
	46	OTI (Oil Temperature indicator)	1	Precimeasure	B4	3				
	45	Gas collection device	1	Sukrut/PGCIL approved make	-	-				
	44	Individual Marhalling box	1		B5	1				
	43	Impact recorder (returnable basis)	1		B4	3				
	42	Expansion joint for Buchholz relay pipe, 80NB	1		D6	2				
	41	Inspection cover for HV line Bushing	1		A6	1				
D	40	Prismatic oil level gauge for Main Conservator	3		E4	3				
	39	Air release plug on main conservator	2		D5	1				
	38	MOLG for main conservator	1	Sukrut/PGCIL approved make	D7	1				
	37	Oil filling& drain valve for main conservator 50NB, Gate Type	1	GG/PGCIL approved make	D7	1				
	36	Dehydrating Silicagel breather for main conservator(3 In series)	1	Yogya/PGCIL approved make	E4	3				
	35	Flexible separator in main conservator	1	SHENYANG HONGDA/PGCIL approved make	D4	1				
	34	Aircell type Conservator for main tank	1		D4	1				
	33	Flow sensitive conservator isolation valve, 80NB	1		D6	2				
	32	Drain plug of radiator	1 Each		B8	1				
	31	Air release plug of radiator	1 Each		C8	1				
	30	Radiator isolating valve, 80NB, Butterfly Type	22	Petson/PGCIL approved make	C8	1				
C	29	Radiator	11	PGCIL approved make	C8	1				
	28	Buchholz relay (2 In series)	2	CEDASPE/PGCIL approved make	D6	2				
	27	Buchholz relay isolation valve , 80NB, Butterfly valve	2	Petson/PGCIL approved make	D6	2				
	26	Top oil sampling valve, 15NB, Globe Valve	2	GG/PGCIL approved make	-	-				
	25	Middle oil sampling valve, 15NB, Globe Valve	2	GG/PGCIL approved make	-	-				
	24	Bottom oil sampling valve, 15NB, Globe Valve (2 In series)	2	GG/PGCIL approved make	A7	2				
	23	Oil draining valve , 100NB, Gate Type	1	GG/PGCIL approved make	A7	1				
	22	Bottom Oil filling (Filter) , 100NB, Gate Type	1	GG/PGCIL approved make	A5	1				
	21	Vaccum valve on cover,150NB, Butterfly valve	1	Petson/PGCIL approved make	E4	3				
	20	Top Oil filter valve , 100NB, Gate Type	1	GG/PGCIL approved make	D8	3				
	19	Online insulating oil drying System connection valve, 25NB, Globe Type	2	GG/PGCIL approved make	-	-				
	18	Online insulating oil drying System	1	Transec/PGCIL approved make	E7	3				
B	17	DGA connection valve, 25NB, Globe Type	2	GG/PGCIL approved make	-	-				
	16	Online Dissolve Gas Analyser	1	Serveron/PGCIL approved make	E4	3				
	15	Neutral Bushing-145kV, 1250A	1	TBEA/PGCIL approved make	D8	1				
	14	HV bushing-800kV, 2500A	1	TBEA/PGCIL approved make	D7	1				
	13	Earthing pad for main tank	2		A5	2				
	12	Earthing bushing for core and clamp	1+1		E6	3				
	11	Inspection Cover on tank cover	2		D4	3				
	10	Haulage hole	4		A7	1				
	9	Jacking pad	4		A5	1				
	8	Latching Lug	4		D4	1				
	7	Lifting Bollards	4		D4	1				
	6	Air release plug on Tank cover	2		D8	3				
A	5	Pressure relief device with spill pipe arrangement	2	Sukrut/PGCIL approved make	D8	3				
	4	Bidirectional flanged twin roller	4	Disassemble during Operation	-	-				
	3	Valve schedule plate	1		A5	1				
	2	Reactor Rating and diagram plate (English+Hindi)	2		B4	1				
	1	TBEA monogram plate (Tank +Conservator)	2		B8	1				
	Sr.No.	Item Description	Qty.	Make	Grid Location	Sheet No.				

Note : Accessories & model shall be subjected POWERGRID approved make.



01	19.07.2016	Overall Length & Withdrawal Direction Changed	Malvi	Malvi	Ashish	Satyam
00	28.06.2016	FIRST ISSUE	Malvi	Malvi	Ashish	Satyam
REV. No	REVISED DATE	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
CLIENT :  POWER GRID CORPORATION OF INDIA LIMITED (A GOVERNMENT OF INDIA ENTERPRISE)						
CONSULTANT : TBEA Energy India Pvt. Ltd.						
SUPPLIER / CONTRACTOR : TBEA Energy India Pvt. Ltd.						
PROJECT : Reactor Package-RT01 for 7x110 MVAR, 765kV, 1-Ph Line Reactors & 4x110MVAR, 765kV, 1-Ph Bus Reactor at Bhuj Pool substation and 6x110MVAR, 765kV, 1-Ph Line Reactors at Banaskantha substation under Green Energy Corridors-ISTS-Part-C						
JOB No. : 70008		TITLE :		SCALE		
DSGN	Malvi	SIGN	DATE	110MVar 765kV SHUNT REACTOR		
DRWN	Malvi			General Arrangement Drawing		
CHKD	Ashish			PROJECTION		
APPD	Satyam					
DRG. No. 1TY.770.70008.1				SHEET 05 OF 05		
RELEASED FOR				☐ PRELIMINARY ☐ TENDER ☐ INFORMATION ☒ APPROVAL ☐ CONSTRUCTION		

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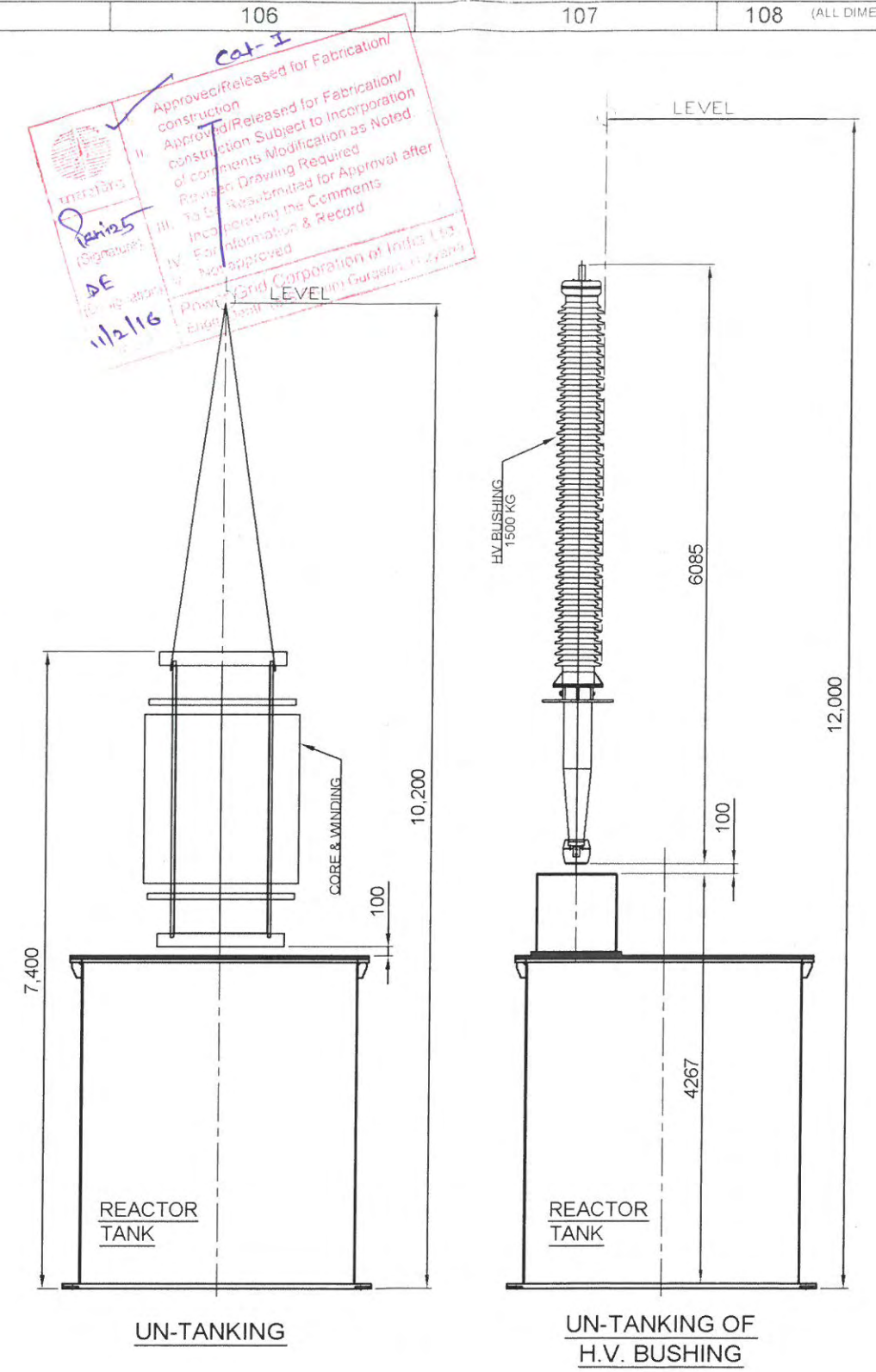
NOTES :-

- 1. WHEN REFERRING THIS DRAWING PLEASE QUOTE MVAR & W.O. NO.
- 2. 320 DIA. TWIN BI-DIRECTIONAL ROLLERS MOUNTED AT 1676 mm RAIL GAUGE IN BOTH DIRECTION ARE PROVIDED FOR MOVEMENT OF REACTOR AT SITE AND ROLLERS ARE TO BE REMOVED BEFORE ERECTION
- 3. PAINTING SHALL BE AS PER POWER GRID SPECIFICATION.
- 4. WIRING FROM INSTRUMENT CTS. ETC. ARE NOT SHOWN FOR CLARITY.
- 5. FOUNDATION BOLTS ARE IN THE SCOPE OF BHEL SUPPLY.
- 6. FOR PART LIST OF OGA REFER DRAWING NO. 3 469 00 01501.
- 7. DIMNS. SHOWN THUS ARE OVERALL SHIPPING DIMENSIONS EXCLUSIVE OF PACKING.
- 8. DIMENSIONS SHOWN ARE WITH REF. TO PLINTH LEVEL. ~~PLEASE NOTE THAT PLINTH LEVEL IS 450 MM ABOVE THE GROUND LEVEL.~~
- 9. FOR TANK COVER BOLTING REFER DETAIL 'B' SHT. NO. 04.

IMPORTANT NOTE :-

- 1. THE DESIGN FEATURES SHOWN ON THIS DRAWING (GENERALLY INLINE WITH IEC : 60076-6 APPLICABLE STANDARD & AGREED CUSTOMER SPECIFICATION) MEETS THE STATUTORY, REGULATORY & SAFETY REQUIREMENTS WITH RESPECT TO EARTHING ARRANGEMENT, DANGER & OTHER LABELS, CLEARANCES IN AIR PROVISION FOR PRESSURE RELIEF DEVICE, GAS ACTUATED RELAY AND ANTI-EARTHQUAKE CLAMPING ARRANGEMENT.

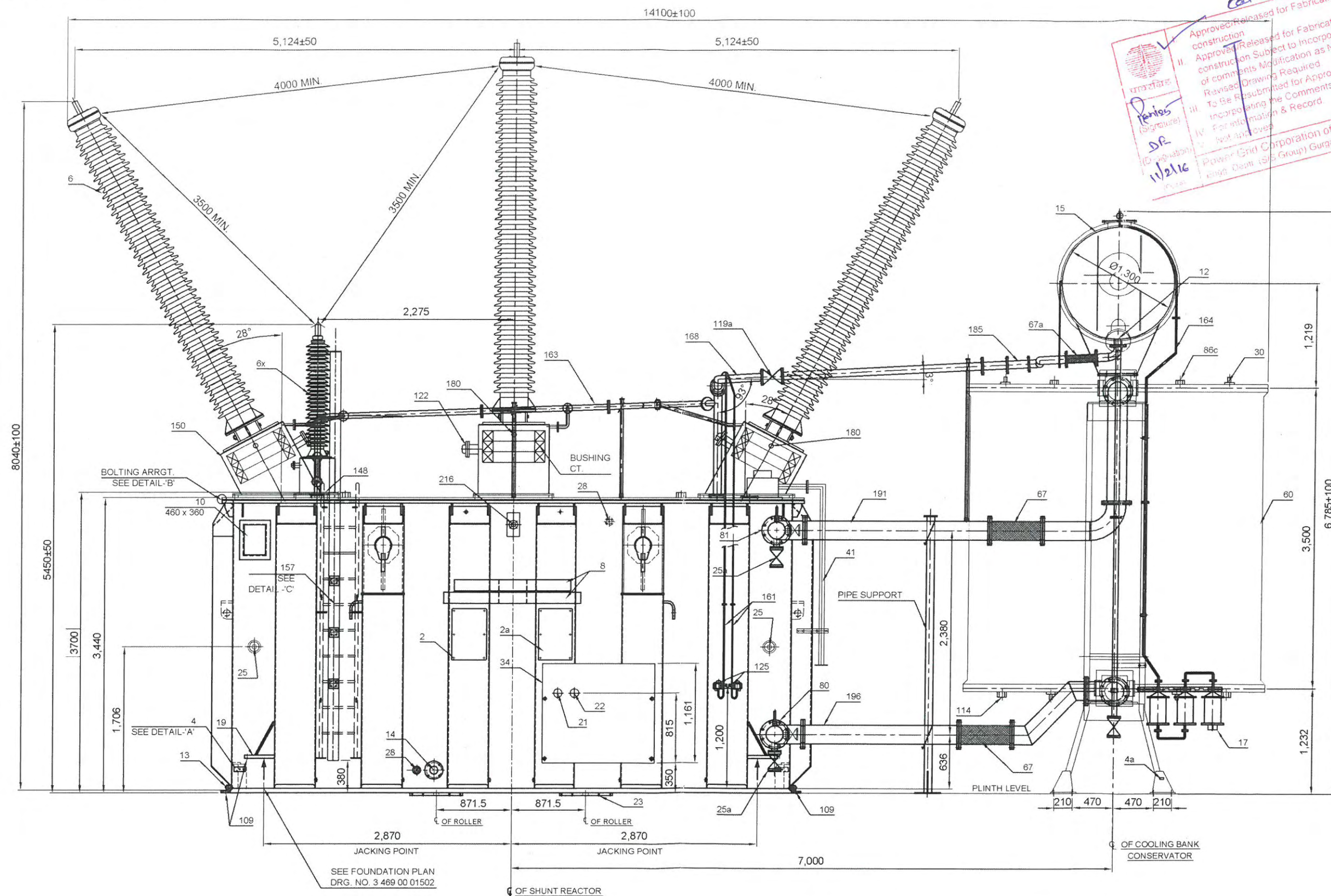
MIN. AIR CLEARANCES		
	420 KV	145 KV
PHASE TO PHASE	4000	NA
PHASE TO EARTH	3500	1050



REF. DRG. NO.

SIGN. DATE

INVENTORY NO.



cat-I

Approved/Released for Fabrication/
construction

II. Approved/Released for Fabrication/
construction Subject to Incorporation
of comments Modification as Noted.
Revised Drawing Required

III. To Be Resubmitted for Approval after
Incorporating the Comments

IV. For Information & Record.
Not approved

Power Grid Corporation of India Ltd.
Engineering Dept. (SS Group) Gurgaon, Haryana

प्राप्त संदिग्ध

Paries
(Signature)

DR

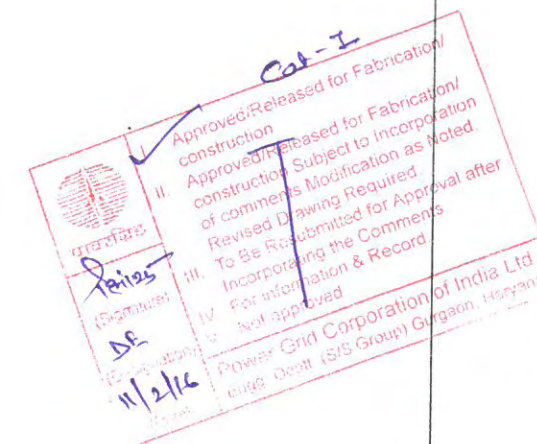
(Date)

11/2/16

10/2/16

STATUS OF DRAWING		"U"	 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL					NAME	SIGN	DATE	
WORK ORDER 64017-A-517-01 64024-A-517-01			DEPT	CODE	WEIGHT(kg)	SCALE		DRN.	RAKESH		02.06.15
			TRE	406	-----	NTS		CHD.	KD/AC		04.06.15
DISTRIBUTION OF PRINTS			TITLE <u>OUTLINE GENERAL ARRANGEMENT</u> <u>ELEVATION VIEW</u>				APPD.	KD/AC		06.06.15	
TRE-1, TRM-3							DRG. NO.	3 469 00 01500		SHEET	
206			207				208				

7,500 (INCLUDING N2 GAS CYLINDER)



DIRECTION OF
WITHDRAWAL

DETAIL-C
NEUTRAL GROUNDING
ARRGT

Technical drawing of a bridge pier cross-section. The drawing shows a rectangular pier with a central vertical channel. Dimensions are indicated: a total width of 2870 and a height of 1525. A horizontal dashed line represents the center of gravity (C.G. OF S.R.). A circular feature at the base of the pier is labeled 'JACKING POINT' with a leader line pointing to it.

TABLE FOR
GROUNDING (S.S)
1.6X40X50

75

EARTH

EARTHING PAD
COPPER STRIP
12 X 75

2 X M4 BOLT

2 X M12 BOLT

20

LOCKING BAR

DETAIL - A
EARTHING ARRGT
(DETAIL OF IT. 4)
SUITABLE FOR 12 X 75 FLAT

LEAD FROM CORE

LEAD FROM END FRAME

LEAD FROM TANK

EARTHING DETAILS OF
CORE, END FRAME & TANK

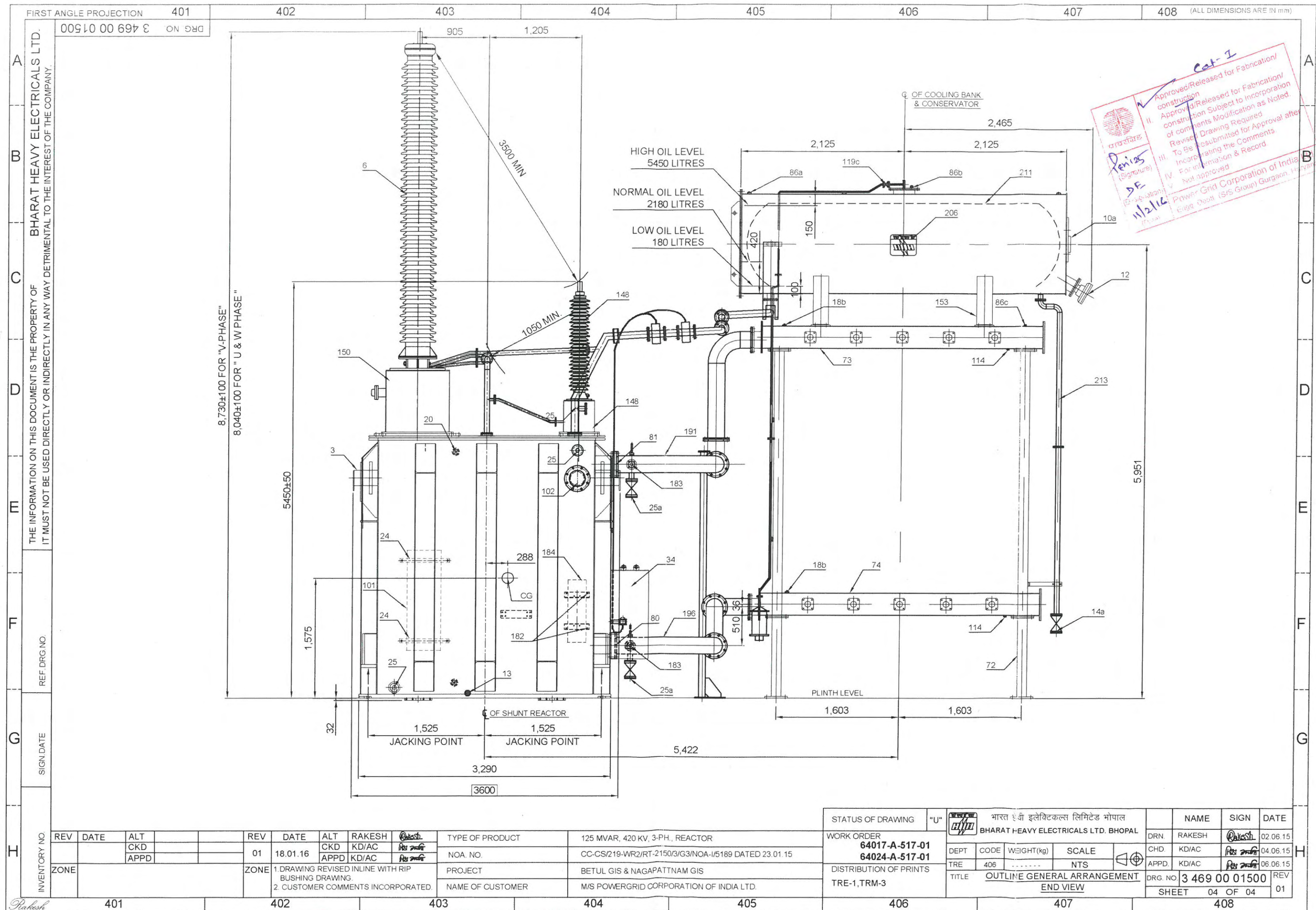
STATUS OF DRAWING	"U"
WORK ORDER	
64017-A-517-01	
64024-A-517-01	
DISTRIBUTION OF PRINTS	
TRE-1, TRM-3	

 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL				
DEPT	CODE	WEIGHT(kg)	SCALE	
TRE	406	-----	NTS	
TITLE <u>OUTLINE GENERAL ARRANGEMENT</u> PLAN VIEW				

	NAME	SIGN	DATE
DRN.	RAKESH	<i>Rakesh</i>	02.06.15
CHD.	KD/AC	<i>Rakesh</i>	04.06.15
APPD.	KD/AC	<i>Rakesh</i>	06.06.15
DRG. NO.	3 469 00 01500		REV
SHEET 03 OF 04			01

REV	DATE	ALT		REV	DATE	ALT	RAKESH	<i>Rakesh</i>
		CKD		01	18.01.16	CKD	KD/AC	<i>for audit</i>
		APPD				APPD	KD/AC	<i>for audit</i>
ZONE				ZONE	1. DRAWING REVISED INLINE WITH RIP BUSHING DRAWING. 2. CUSTOMER COMMENTS INCORPORATED.			

TYPE OF PRODUCT	125 MVAR, 420 KV, 3-PH., REACTOR
NOA. NO	CC-CS/219-WR2/RT-2150/3/G3/NOA-I/5189 DATE
PROJECT	BETUL GIS & NAGAPATTNAM GIS
NAME OF CUSTOMER	M/S POWERGRID CORPORATION OF INDIA LTD



REF. DRG. NO.

SIGN. DATE

INVENTORY NO.

APPROXIMATE WEIGHT & OIL QTY.		
DESCRIPTION	WT. IN KG	OIL (L)
CORE AND WINDING	91700	
TANK & FITTINGS	23705	47040
BUSHINGS	2301	
RADIATOR BANK & DRG.	16020	7410
CONTROL CABINET	500	
TOTAL OIL	47375	54450
TOTAL WEIGHT	181601	

Part-2



प्रमाणित

Permit
(Signature)
DE
19/06/2016
11/06/16

Approved/Released for Fabrication/ construction
Approved/Released for incorporation of construction Subject to incorporation of comments Modification as Noted
Revised Resubmitted for Approval after
To Be resubmitted for Comments
Incorporating the Comments
For information & Record
Not approved

Power Grid Corporation of India Ltd.
Engg. Dept. (SS Group) Gurugram, Haryana

10a	INSPECTION COVER FOR OIL CONSERVATOR (BOLTED) 20 KG	1	407-B
12	OIL GAUGE MAGNETIC TYPE WITH LOLA	1	407-C
14a	50 NB DRAIN GATE VALVE FOR OIL CONSERVATOR	1	407-F
15	OIL CONSERVATOR 1300 DIA (WITH MAGNETIC OIL LEVEL GAUGE WITH POTENTIAL FREE HIGH AND LOW OIL LEVEL ALARM CONTACTS)	1	206-B
17	DEHYDRATING BREATHER WITH SILICAGEL (3 IN SERIES)	1	207-F
26	BUCHHOLZ RELAY (80 NB)	2	304-D
67a	FLEXIBLE HOSE (80 NB)	1	206-C
79a	LADDER WITH LOCKING DEVICE	1	306-D
86a	AIR RELEASE PLUG (3/4"BSP) ON CONSERVATOR	2	405-B
86b	AIR RELEASE PLUG (1/4"BSP) FOR CONSERVATOR	1	406-B
119a	ISOLATING VALVE BUTTERFLY FOR BUCHHOLZ RELAY(80 NB) (1- GATE 1-BUTTER FLY)	2	205-C
119c	15 NB GATE VALVE FOR BREATHER	1	406-B
125	GAS COLLECTING DEVICE	2	205-F
153	CONSERVATOR SUPPORTS	2	406-C
164	BREATHER PIPE (15 NB)	1	207-C
168	CONSERVATOR PIPE (80 NB)	1	205-C
185	FLOW SENSITIVE ISOLATION VALVE FOR CONSERVATOR	1	206-C
206	BHEL MONOGRAM	1	406-B
211	ATMOSEAL ARRANGEMENT (INSIDE THE CONSERVATOR)	1	407-B
213	CONSERVATOR DRAIN PIPE (50 NB)	1	407-D

TABLE OF FITTINGS			
ITEM NO	DESCRIPTION	QTY	ZONE
2	RATING AND DIAGRAM PLATE	1	203-E
2a	DO'S & DONT'S INSTRUCTION PLATE	1	204-E
3	LIFTING BOLLARD (60000 KG EACH)	4	402-D
3a	LIFTING LUGS FOR TANK COVER	6	304-A
4	EARTHING TERMINAL (SIZE 20 TK X 50 X 120 LG.)	2	202-I
8	NAME PLATES (ENGLISH & HINDI)	1+1	204-E
10	INSPECTION COVERS (25 Kgs EACH) 6 NOS. ON TANK COVER (SIZE-Ø460) 1 NO. ON TANK (360X460)	7	202-D 303-A
13	DRAIN PLUGS ON TANK 1"BSP	2	202-F
14	100 NB DRAIN GATE VALVE	1	203-F
18	POCKET FOR OTI	1	304-C
18a	POCKET FOR WTI	1	305-C
18b	ORDINARY THERMOMETER WITH POCKET	2+1	304-C 405-C
18c	RTD POCKET FOR OTI	1	304-B
18d	RTD POCKET FOR WTI	1	304-C
18e	RTD POCKET FOR OTI (SPARE)	1	305-C
18f	RTD POCKET FOR WTI (SPARE)	1	305-B
19	JACKING PADS 60000 KG EACH	4	202-F
20	15 NB GATE VALVE FOR ONLINE INSULATING DRY KEEP SYSTEM	2	403-D
21	OIL TEMPERATURE INDICATOR.	1	204-F
22	WINDING TEMPERATURE INDICATOR DIAL TYPE WITH REPEATER	1	204-F
23	MOUNTING PAD FOR 320 DIA TWIN BI-DIRECTIONAL ROLLERS. ROLLERS ONLY FOR REACTOR MOVEMENT AT SITE.	4	204-G
24	MTG BRACKET FOR ONLINE INSULATING OIL DRY KEEP SYSTEM	1	403-E
25	50 NB GATE VALVE ON TANK AND COVER	6+1	302-B 403-F
27	PRESSURE RELIEF DEVICE WITH OIL COLLECTOR ASSY. (WITH TRIP CONTACTS)	2	305-C
28	15 NB GATE VALVE FOR OIL SAMPLING	2	203-F
34	COOLER CONTROL CABINET (TANK MOUNTED) (BHEL MAKE)	1	304-D
41	OIL COLLECTING ARRGT. FOR PRV WITH PIPE WORK	1	205-E
42	VALVE FOR CONNECTION TO VACUUM PUMP(100 NB BUTTERFLY)	1	305-B
79	LADDER WITH LOCKING DEVICE	1	302-B
80	BUTTERFLY VALVE (200 NB) AT INLET.	1	205-F
81	BUTTERFLY VALVE (200 NB) AT OUTLET.	1	205-E
86	AIR RELEASE PLUG 1/2"BSP.	1	303-B
101	ON LINE INSULATING OIL DRYING SYSTEM	1	403-F
102	FIBRE OPTICS FEED THROUGH PLATE (8 CHANNEL) (BOX)	1	404-E
109	PULLING HOLE DIA 64	8	202-G
182	BRACKET FOR ON LINE GAS MONITORING SYSTEM.	1	404-F
184	ON LINE GAS MONITORING SYSTEM (Multi-Gas & moisture Analyser as per spec).	1	404-E
212	COVER EARTHING OF CORE AND CORE CLAMPS.	1	305-B
215	EARTHING STRIP (30mm ²) FOR TURRET WITH TANK	16	303-B
216	MTG. PAD FOR SUDDEN PRESSURE RELAY	1	303-D

4a	EARTHING TERMINAL (20 TK X 50 X 120 LG.) (FOR RADIATOR SUPPORT)	2	207-F
25a	DRAIN/FILTER VALVE (50 NB GATE) FOR COOLING SYSTEM	2	205-E
30	LIFTING LUGS FOR RADIATORS (LIFTING CAPACITY 800 KG EACH)	12	208-C
60	RADIATOR BANK (NO OF INDIVIDUAL UNITS = 10)	1	208-D

STATUS OF DRAWING		"U"		 भारत हेवी इलेक्ट्रिकल्स लिमिटेड भोपाल BHARAT HEAVY ELECTRICALS LTD. BHOPAL				NAME	SIGN	DATE			
WORK ORDER					DEPT	CODE	WEIGHT(kg)	SCALE		DRN.	RAKESH		02.06.15
64017-A-517-01										CHD	KD/AC		04.06.15
64024-A-517-01										APPD.	KD/AC		06.06.15
DISTRIBUTION OF PRINTS					TRE	406	-----	NTS		DRG NO.	3 469 00 01501		REV
TRE-1,TRM-3					TITLE				O.G.A PART LIST		SHEET	01 OF 01	01