भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:PAL-M1126:TCN-02 Date:18-09-2010

Sub	Tender change notice (TCN) 02.	
Job	Erection, testing, commissioning etc of 2 x Fr 9FA gas turbine & generator with auxiliaries, 2 x 131 MW steam turbine & generator set with auxiliaries, 2x291 TPH HRSG with steel chimney, power cycle piping, LP piping, structural steel, other associated packages etc for 2 x 363.3 (726.6) MW Combined Cycle Power Plant at Palatana, Tripura.	
Ref	1.0	Tender no PSER:SCT:PAL-M1126:10.
	2.0	BHEL's NIT, vide reference no PSER:SCT:PAL-M1126:2356, dated 02-09-10.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:PAL-M1126:TCN-01, dated 08-09-10.
	4.0	All other pertinent issues till date.

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

1.0 Due date of submission of offer is extended from 23-09-10 to 30-09-2010 (15-00 hrs).
2.0 Modifications/ changes/ clarifications to NIT/ tender terms as per enclosed Annexure-A.
3.0 3 drawings for tender purpose, (i) GA of boiler - elevation, drawing no 0-00-561-93393; (ii) GA of boiler - plan, drawing no 0-00-565-93394 and (iii) Plot plan, drawing no PE-DG-319-100-M1001, are enclosed.
4.0 Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
5.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HYEAVY ELECTRICALS LTD

SDGM (SCT)

Encl
1.0 As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)
POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091
फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

JOB

Erection, testing, commissioning etc of 2 x Fr 9FA gas turbine & generator with auxiliaries, 2 x 131 MW steam turbine & generator set with auxiliaries, 2x291 TPH HRSG with steel chimney, power cycle piping, LP piping, structural steel, other associated packages etc for 2 x 363.3 (726.6) MW Combined Cycle Power Plant at Palatana, Tripura.

TENDER NO - PSER:SCT:PAL-M1126:10.

SL NO	**AMENDMENT/ MODIFICATION**					
1.0	**Volume-IF (TCC)**					
1.1	**Clause no 30.0 (TERMS OF PAYMENT) stands modified as under.**					
	30.0	**TERMS OF PAYMENT**				
	30.1	Stages of progressive pro-rata payments of HRSG (In terms of percentage of item rate/ price).				
		Activity description	Percentage allocated			
			Non-pr parts, stack	Structures	Pr parts	Insulation
	30.1.1	Erection/ placement.	45%	45%	40%	---
	30.1.2	Alignment/ welding/ bolting with permanent supports.	40%	50%	40%	---
	30.1.3	Gas tightness test/ kerosene leak test/ LPI test as applicable.	10%	---	---	---
	30.1.4	Radiography, heat treatment and other NDE test completion.	---	---	10%	---
	30.1.5	Application of thermal insulation.	---	---	---	95%
	30.1.6	On completion of hydraulic test of HRSG.	---	---	5%	---
	30.1.7	On completion of gas in/ ABO.	1%	1%	1%	1%
	30.1.8	On completion of safety valve floating.	1%	1%	1%	1%
	30.1.9	On completion of trial operation.	1%	1%	1%	1%
	30.1.10	On completion of final painting.	1%	1%	1%	1%
	30.1.11	On completion of all facilities of HRSG.	1%	1%	1%	1%
	30.1.12	Total	100%	100%	100%	100%
	30.1.13	For payment of temporary system for chemical cleaning and steam blowing of HRSG and piping the measurement for the piping, fitting, valves etc and equipments like tanks, structures provided by BHEL & not figuring in shipping list will be based on jointly measured quantity and corresponding standard weights. Payment will be made at the rate applicable for non-pressure parts for items. similarly, no payment will be made for temporary system installed for conducting hydraulic test of various piping systems , HRSG.				
	30.2	Stages of progressive pro-rata payments for STG package (In terms of				

		percentage of item rate/ price).	
		Activity Description	Percentage allocated
	30.2.1	Condenser (20%)	
	30.2.1.1	Foundation preparation.	2.00%
	30.2.1.2	Assembly and alignment of of base plate (9 %).	
	30.2.1.2.1	Completion of box.assy.including welding.	2.00%
	30.2.1.2.2	Erection & welding of tube support plates.	2.00%
	30.2.1.2.3	Erection of dome walls lower & upper and welding.	2.00%
	30.2.1.2.4	Erection of stiffeners/ bracing pipes of dome walls.	1.00%
	30.2.1.2.5	Welding of stiffeners/ bracing pipes.	1.00%
	30.2.1.2.6	Erection & welding of stiffeners etc of condenser.	1.00%
	30.2.1.3	Insertion of tubes & tube expansion (7%)	
	30.2.1.3.1	Insertion of tubes.	3.00%
	30.2.1.3.2	Trimming, expansion.	2.00%
	30.2.1.3.3	Water fill test of tubes from outside.	1.00%
	30.2.1.3.4	Erection and bolting of water boxes.	1.00%
	30.2.1.4	Hyd test of condenser spring adjustment & final setting (2%)	
	30.2.1.4.1	Hydraulic test of condenser tubes & water box.	0.50%
	30.2.1.4.2	Condenser neck erection, alignment with LP exhaust & welding, condenser painting.	1.50%
	30.2.2	Turbine (22%)	
	30.2.2.1	Pre-assembly of LP cylinder (2%).	
	30.2.2.1.1	Placement of LP outer casing B/H & alignment.	1.00%
	30.2.2.1.2	Erection & welding of LP top cover.	1.00%
	30.2.2.2	Placement of preliminary levelling & centering of LPC outer casing & bearing pedestals (3.5%)	
	30.2.2.2.1	Placement, centering & levelling of bearing pedestal/ base plates no.1, 2, 3.	1.00%
	30.2.2.2.2	Placement, centering & levelling of LP sole plate & IP valve sole plate.	1.00%
	30.2.2.2.3	Grouting of bearing pedestals/ sole plates no 1, 2 , 3 & 4.	1.00%
	30.2.2.2.4	Grouting of sole plates & IP valve sole plates.	0.50%
	30.2.2.3	Placement, levelling & alignment of LPC (3.5%).	
	30.2.2.3.1	Placement & preliminary alignment of LPC inner-inner & inner-outer casing B/H.	1.50%
	30.2.2.3.2	Placement of LPR & checking radial & axial clearances & final alignment/ positioning of LPT B/H.	1.00%
	30.2.2.3.3	Placement of & checking radial & axial clearance in LPT T/H.	1.00%
	30.2.2.4	Placement, levelling & alignment of HP & IPC (4%)	
	30.2.2.4.1	Placement of HP/IPC & preliminary alignment.	2.00%
	30.2.2.4.2	Final axial & radial key fitting.	2.00%
	30.2.2.5	Alignment of rotors (3%)	
	30.2.2.5.1	Alignment of LP-IP & IP-HP coupling & clearance for reaming.	1.50%
	30.2.2.5.2	Coupling holes reaming/ honning & bolts fittings and radial run out check.	1.00%
	30.2.2.5.3	Swing check & MOP alignment.	0.50%
	30.2.2.6	Erection of stop & control valves and governing control system (1%)	
	30.2.2.6.1	Erection of MS & RH stop cum control valves.	0.30%
	30.2.2.6.2	Erection of gov control rack & LPBP rack.	0.20%
	30.2.2.6.3	Erecion of LP bypass valves.	0.30%

30.2.2.6.4	Erection of governing system devices.	0.20%
30.2.2.7	Turbine box UP (5%)	
30.2.2.7.1	Assy.of breech nuts & exhaust elbow in HPC.	1.50%
30.2.2.7.2	Boxing up of HP/ IPC & heat tightening of parting joint bolts.	1.00%
30.2.2.7.3	Erection & welding of of extraction pipes inside the steam space of condenser.	1.50%
30.2.2.7.4	Erection & welding of LPC steam inlet pipe/ bellow joints.	0.50%
30.2.2.7.5	Erection of IPT to LPT pipings with supports.	0.50%
30.2.3	Generator (10%)	
30.2.3.1	Matching embedded plates & foundation frame.	1.00%
30.2.3.2	Lifting, placement of stator.	3.00%
30.2.3.3	Threading of rotor.	2.00%
30.2.3.4	Alignment of generator rotor with turbine rotor and coupling.	2.00%
30.2.3.5	Erection of CO2 system & ducting & all other works.	3.00%
30.2.4	Auxiliaries (20%)	
30.2.4.1	Erection & commissioning of CEPs (3%)	
30.2.4.1.1	Erection of CEP-A.	1.00%
30.2.4.1.2	First trial run (8 hrs.) for CEP-A.	0.50%
30.2.4.1.3	Erection of CEP-B.	1.00%
30.2.4.1.4	First trial run (8 hrs) for CEP-B.	0.50%
30.2.4.2	Erection & commissioning of boiler feed pumps (3%)	
30.2.4.2.1	Erection of first BFP.	1.00%
30.2.4.2.2	First trial run (8 hrs.) for BFP-A.	0.50%
30.2.4.2.3	Erection of second BFP-B.	1.00%
30.2.4.2.4	First trial run (8 hrs) for BFP-B.	0.50%
30.2.4.3	Erection & comm. of CW pumps (4.5%)	
30.2.4.3.1	Erection of first CW pump.	1.00%
30.2.4.3.2	Commissioning of first CW pump.	0.50%
30.2.4.3.3	Erection of second CW pump	1.00%
30.2.4.3.4	Commissioning of second CW pump.	0.50%
30.2.4.3.5	Erection of third CW pump.	1.00%
30.2.4.3.6	Commissioning of third CW pump.	0.50%
30.2.4.4	Erection & commissioning of ACW pumps (1.5%)	
30.2.4.4.1	Erection of first ACW pump.	0.50%
30.2.4.4.2	Commissioning of first ACW pump.	0.25%
30.2.4.4.3	Erection of second ACW pump.	0.50%
30.2.4.4.4	Commissioning of second ACW pump.	0.25%
30.2.4.5	Erection of static aux covered in turbine & generator oil & water system.	1.00%
30.2.4.6	Placement and alignment of all heaters.	1.00%
30.2.4.7	Placement and alignment of ejectors, drain coolers & gland steam condenser.	1.00%
30.2.4.8	Placement and alignment of deaerator.	2.00%
30.2.4.9	Placement and alignment of feed storage tanks.	1.00%
30.2.4.10	Erection of miscellaneous hoists.	1.00%
30.2.4.11	Erection of left out equipments.	1.00%
30.2.5	Misc equipment & TG integral piping (10%)	
30.2.5.1	Erection & Welding of TG lub oil piping	3.00%
30.2.5.2	Erection of gland steam piping covered in TG integral piping (BHEL/Hyd. supply)	1.50%
30.2.5.3	Erection of turbine drainage piping.	1.50%

30.2.5.4	Erection of generator oil & gas piping.	2.00%
30.2.5.5	Arrangement for preparation of TG lub oil system piping for starting of flushing.	1.00%
30.2.5.6	Completion of total pending works of TG integral piping.	1.00%
30.2.6	Pre-commissioning & commissioning (13%)	
30.2.6.1	Start of oil flushing.	1.00%
30.2.6.2	Completion of oil flushing & normalisation for TG on turning gear.	1.00%
30.2.6.3	Barring gear.	1.00%
30.2.6.4	Condenser flood test	1.00%
30.2.6.4	Generator air leakage test & dry out.	1.00%
30.2.6.5	Vacuum pulling with gland steam (first time commissioning)	1.00%
30.2.6.6	Commissioning of LP bypass system.	1.00%
30.2.6.7	Rolling.	1.00%
30.2.6.8	Synchronization.	1.00%
30.2.6.9	Full loading.	1.00%
30.2.6.10	Trial run completion (On handing over to customer).	1.00%
30.2.6.11	PG test completion.	2.00%
30.2.7	Finish painting.	3.00%
30.2.8	Liquidation of punch list of TG pkg.	2.00%
30.2.9	Total.	100.00%
30.3	Stages of progressive pro-rata payments for GTG package (In terms of percentage of item rate/ price).	
30.3.1	Placement of gas turbine on foundation.	15%
30.3.2	Placement of accessory package.	5%
30.3.3	Erection of air processing unit with interconnecting piping.	2%
30.3.4	Erection of GT inlet air filter system.	2%
30.3.5	Erection of inlet ducting.	6%
30.3.6	Erection of exhaust ducting.	6%
30.3.7	Erection of off base enclosure.	4%
30.3.8	Erection of exhaust frame blowers and bearing 2 cooling fan with interconnecting piping & frames.	2%
30.3.9	Erection of mist eliminator with interconnecting piping.	2%
30.3.10	Erection of gas interconnection and bleed heating piping.	2%
30.3.11	Readiness of CO_2 fire fighting system with interconnecting piping.	5%
30.3.12	Erection of lube oil piping for GT & GT generator including pumps.	5%
30.3.13	Erection of compressor water wash skid and water wash piping.	4%
30.3.14	Erection of ventilation ducting and supports.	3%
30.3.15	Erection of jacking oil piping system with pumps.	5%
30.3.16	Placement of gas turbine generator on foundation.	10%
30.3.17	Erection of static excitation system.	3%
30.3.18	Erection of generator seal oil system.	2%
30.3.19	Erection of generator H2 gas piping.	2%
30.3.20	Reaming of generator coupling.	2%
30.3.21	Oil flushing completion.	2%
30.3.22	GT cranking.	1%
30.3.23	FSNL testing completion.	2%
30.3.24	Synchronization of GT.	2%
30.3.25	Final painting of GT package.	2%

	30.3.26	Handing over of GT after reliability run.	2%
	30.3.27	Liquidation of all punch points pertaining to GTG package.	2%
	30.3.28	Total.	100.00%
	30.4	Stages of progressive pro-rata payments for power cycle piping (In terms of percentage of item rate/ price).	
	30.4.1	Completion of pre-assembly.	15%
	30.4.2	Placement in position.	20%
	30.4.3	Alignment & welding including bolting as required.	35%
	30.4.4	Completion of non destructive examination & stress relieving/ heat treatment.	10%
	30.4.5	Completion hangers & supports etc wherever necessary.	5%
	30.4.6	Completion of hydraulic test.	4%
	30.4.7	Completion of chemical cleaning.	1%
	30.4.8	On completion of steam blowing.	1%
	30.4.9	Full loading.	1%
	30.4.10	Submission of as-built drawings.	2%
	30.4.11	Completion of final painting.	2%
	30.4.12	Liquidation of pending points.	2%
	30.4.13	Reconciliation of issued materials.	1%
	30.4.14	Completion of all contractual obligation and de-mobilization of site office.	1%
	30.4.15	Total	100%
	30.5	Stages of progressive pro-rata payments for LP piping (In terms of percentage of item rate/ price).	
	30.5.1	After completion of erection	30%
	30.5.2	On completion of wrapping coating/ alignment and welding/ bolting etc.	40%
	30.5.3	On completion of radiography and other NDT as applicable.	15%
	30.5.4	On completion of hydraulic test/ pressure decay test or any other test as applicable for respective lines.	5%
	30.5.5	On completion of permanent supports, cold setting of hangers.	2%
	30.5.6	On completion blowing/ flushing, cleaning etc.	2%
	30.5.7	On synchronization of the unit.	2%
	30.5.8	On completion of final painting.	2%
	30.5.9	On completion in all respect.	2%
	30.5.10	Total	100%
	30.6	Stages of progressive pro-rata payments for GB compressor (In terms of percentage of item rate/ price).	
	30.6.1	Erection of compressor skid (Compressor + gearbox), @ 8% each.	24%
	30.6.2	Commissioning of compressors @ 5% each.	15%
	30.6.3	Erection of lube oil skid and overhead lube oil tank.	6%
	30.6.4	Completion of lube oil piping.	10%
	30.6.5	Completion of total gas piping.	15%
	30.6.6	Erection of dry gas seal filter skid.	2%
	30.6.7	Insulation of total gas piping.	4%
	30.6.8	Erection of dry gas seal control skid.	2%
	30.6.9	Erection of flow meter.	2%
	30.6.10	Erection of gas vent stack with flame arrester.	6%
	30.6.11	On successful gas charging.	10%
	30.6.12	Completion of all jobs/ liquidation of punch points.	4%

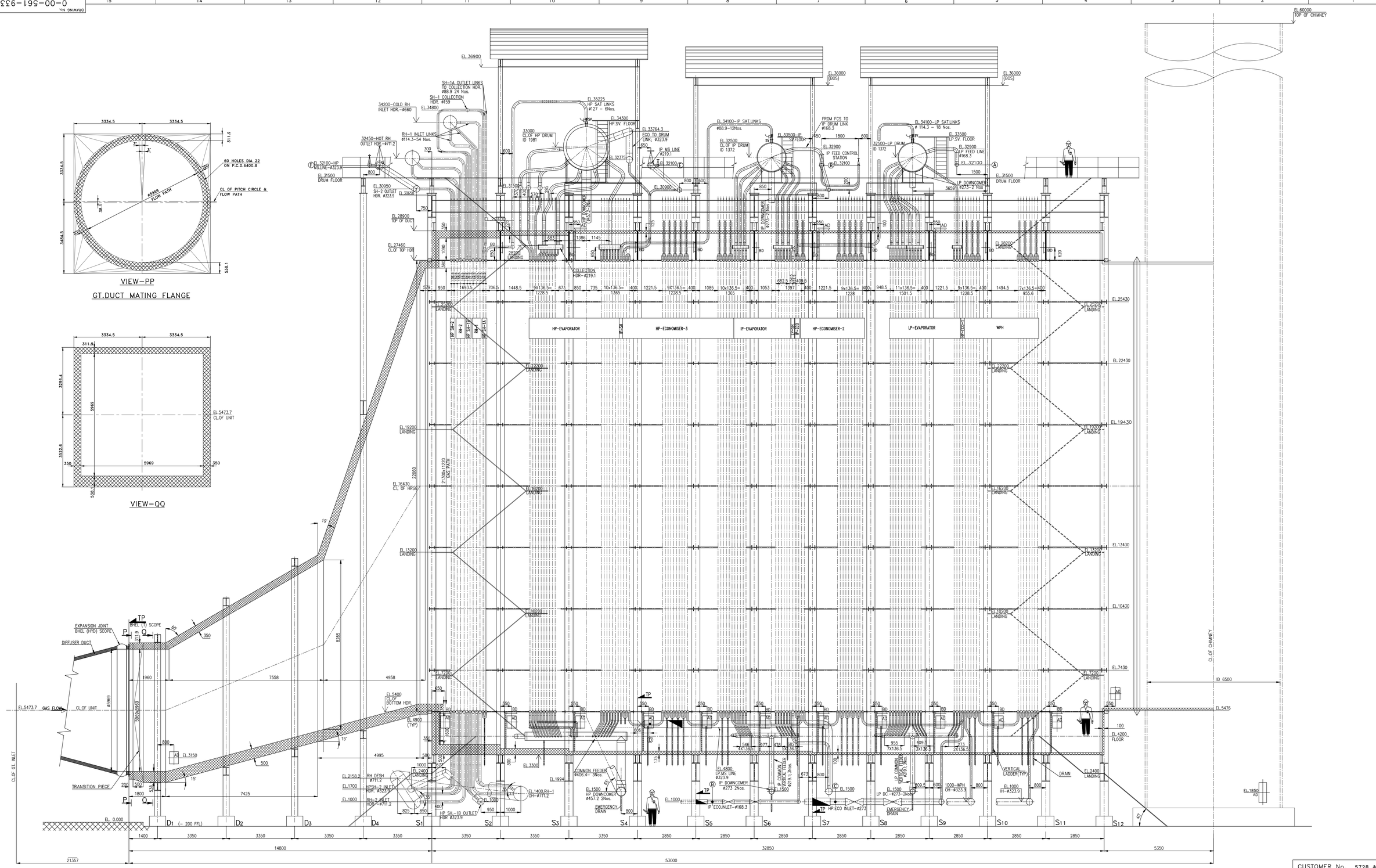
	30.6.13	Total	100%
	30.7	Stages of progressive payments for plant water system (In terms of percentage of item rate/ price).	
	30.7.1	Erection of raw water supply pumps @ 05% each.	15%
	30.7.2	Commissioning of raw water pumps @ 2% each.	6%
	30.7.3	Erection of CW make-up water supply pumps @ 7.5% each.	15%
	30.7.4	Commissioning of CW make-up water pumps @ 2.5% each.	5%
	30.7.5	Erection of DM plant water supply pumps @ 04% each.	12%
	30.7.6	Commissioning of DM plant water supply pumps @ 2% each.	6%
	30.7.7	Erection of service water pumps @ 05% each.	10%
	30.7.8	Commissioning of service water pumps @ 2% each.	4%
	30.7.9	Erection of fire water pumps.	5%
	30.7.10	Commissioning of fire water pumps.	3%
	30.7.11	Erection of GRP piping.	15%
	30.7.12	Erection of screen and stop log gates of raw water supply line.	4%
	30.7.13	Total.	100%
	30.8	Stage of progressive payment for structural steel work (In terms of percentage of item rate/ price).	
		For all items of work, interim payment shall be made based on item rates.	100%
	30.9	Interim payment shall be limited to 95 % of the gross value of interim bill on item rate basis (as per above break-up). All admissible recovered/ adjustments etc shall be made from the interim payable amount. The balance 5 % shall be payable along with final bill. However, this 5 %, retained from each RA bill, may be released against submission of performance bank guarantee, to be kept valid till final bill & guarantee period in prescribed proforma, subject to (i) Receipt of certificate that all works are completed in all respects; (ii) Reconciliation of materials/ T&P/ IMTE; (iii) Completion of final bill formalities and (iv) handing over to BHEL/ customer. Submission of bank guarantee towards performance guarantee is separate and the bank guarantee towards security deposit cannot be utilized for this purpose. The security deposit will be refunded as per GCC.	
	30.10	Out of this 95 %, 0.5 % of gross bill amount shall be paid in the following manner on certification by BHEL engineer after compliance of each of following activity in each month. In case of non-fulfilment of respective activity by vendor in each month, no payment shall be made by BHEL against corresponding activity and no claim of bidder at a later date, whatsoever, in this regard shall be entertained by BHEL.	
	30.10.1	0.2 % shall be paid on compliance of house keeping of vendor's working area and store/ office areas.	
	30.10.2	0.1 % shall be paid on compliance of general illumination of vendor's working area and stores, office area.	
	30.10.3	0.1 % shall be paid on compliance of applicable OHSAS requirement as per guidelines of BHEL/ PSER and as specified in the tender.	
	30.10.4	0.1 % shall be paid on compliance of applicable safety requirement as per guidelines of BHEL/ PSER and as specified in the tender.	
	30.11	Contractor's RA bill, complete & correct in all respects, certified by BHEL engineer, shall be paid in the following manner.	
	30.11.1	Minimum 60 % (sixty percent) of payable amount of RA bill shall be made	

		within 15 days of date receipt of bill certified by the BHEL engineer.
	30.11.2	Balance payment within 30 days of receipt of bill.
	30.12	BHEL site at its discretion may further split up the above percentages of break up and effect payment to suit the site condition, cash flow requirement, according to the progress of work.
	30.13	Such payment as above shall be effected only on certification by BHEL against completion of each stage.
	30.14	No bills including RA bills will be paid to individual consortium partners in case of consortium arrangement.
1.2	Clause no 36.4 stands deleted.	
2.0	**Volume-IIIA, R-0 (Both Package-A & package-B)**	
	Sl no 5.0 of Preamble shall stand modified as under.	
	Uless specified otherwise & except for lump sum packages, the quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains within ± 10 % (plus/ minus ten percent) for HRSG part and ± 30 % (plus/ minus thirty percent for power cycle piping, LP piping and structural steel parts.	
3.0	**General**	
3.1	Approximate weight of generator of gas turbine is 227 MT and this is to be erected with the help of strand jack arrangement.	
3.2	Approximate weight of generator of steam turbine is 196 MT and this is to be erected with strand jack arrangement.	
3.3	Anti corrosive tape of 4 mm thick conforming to IS-10221 and AWWAC 2003-93 need be supplied by the successful bidder within their quoted rate and no separate payment will be made against this supply. Bidder to quote the erection price of CW piping taking this in to consideration.	
3.4	Raw water piping is over ground FRP piping.	
3.5	CW piping from cooling tower to condenser and return is buried piping having 2100 mm & 1400 mm diameter.	
3.6	The supplies mentioned in the price schedule's structural steel items' description are standard incidental supplies that are required in fabrication/ erection of the structutal item (Example – electrode, gas, nut, bolt etc).	
3.7	Bidder shall submit offer strictly in compliance with technical specification and tender terms along with amendment/ clarifications issued till date within the due date.	
3.8	All other terms & conditions shall remain unchanged.	

VIEW–PP

GT.DUCT MATING FLANGE

VIEW–QQ



CUSTOMER No. 5728 & 5729

DESCRIPTION OF THE UNIT:–

TWO NUMBER, OUT DOOR, UNFIRED, WATER TUBE, TRIPLE PRESSURE, TRIPLE WIDTH, REHEAT, NATURAL CIRCULATION, HORIZONTAL TYPE HRSG.

COLUMN SIZE

D1 TO D3	I 300x400
D4	I 300x700
S1 TO S12	I 400x1100

NOTES.

1. ALL ACCESS DOORS ARE LOCATED ON BOTH SIDES UNLESS OTHERWISE SPECIFIED.
2. ALL DIMENSIONS OF DUCT INDICATED REPRESENTS INSIDE SIZE ONLY.
3. TP TERMINAL POINT FOR BHEL / TRICHY SCOPE OF SUPPLY
4. (A)(B)(C)(D)(E)(F)(G)&(H) ARE DESIGNATIONS OF ANCHOR POINTS.
5. ONE SKY CLIMBER COMMON FOR BOTH HRSGs TO BE PROVIDED.

REFERENCE DRAWINGS

1. GENERAL ARRANGEMENT OF BOILER – PLAN	– 0-00-561-93394
2. FLOOR PLAN AT EL.4200	– 0-00-562-93398
3. FLOOR PLAN AT EL.31500,33500&34300	– 0-00-562-93399
4. LAYOUT OF DUCTING – ELEVATION	– 0-00-565-93400
5. LAYOUT OF DUCTING – PLAN	– 0-00-565-93395
6. TERMINAL POINTS DETAILS	– 0-00-565-93396
7. GA OF GT&GENERATOR BY BHEL/HYDERABAD.	– 1-366-09-89009 (2 SHEETS)

LEGEND

1. ACCESS DOOR (450 x 600) (ON SIDE WALLS)	AD
2. ACCESS DOOR (450 x 450) (OTHER AREA)	AD
3. BOLTED DOOR (450 X 450)	BD
4. SAFETY VALVE	SV
5. STARTUP VENT	SUV
6. SAFETY RELIEF VALVE	SRV
7. ELECTROMATIC RELIEF VALVE	ERV
8. DOWNCOMER	DC
9. WATER PREHEATER	WPH
10.TERMINAL POINT	TP

REV	DATE	ALTD	K.FRANCIS
		CHD	P.K.SAHOO
01	15.04.09	APPD	S.GNANARAJ

ZONE

1. CL ELEVATION OF THE INLET DUCT IS RAISED BY 38.1 MM AS PER THE GA OF GT&GENERATOR DRG (No.1–366–09–89009 Rev.02) AND AS PER E–MAIL DT 14.02.09 FROM BHEL/HYDERABAD.

CUSTOMER: ONGC TRIPURA POWER COMPANY (OTPC) PRIVATE LIMITED

CONSULTANT: FICHTNER CONSULTING ENGINEERS (INDIA) PRIVATE LTD., CHENNAI

PROJECT: 726.6 MW COMBINED CYCLE POWER PROJECT
PALLATANA, TRIPURA
HEAT RECOVERY STEAM GENERATOR – BEHIND FRAME 9 FA GT.
289.6 t/h, 134kg/cm (g), 540°C/540°C, 35.6 t/h, 34.6kg/cm (g), 330°C & 36.7 t/h, 4.4kg/cm (g) 230°C

BHARAT HEAVY ELECTRICALS LTD.,
BOILER PLANT UNIT, TIRUCHIRAPALLI–620 014.

361-245/A

DRAWN	K.Francis
CHECKED	S.Gnanraj
APPROVED	T.Radhakrishnan
DATE	26.11.08

TITLE: GENERAL ARRANGEMENT OF BOILER – ELEVATION

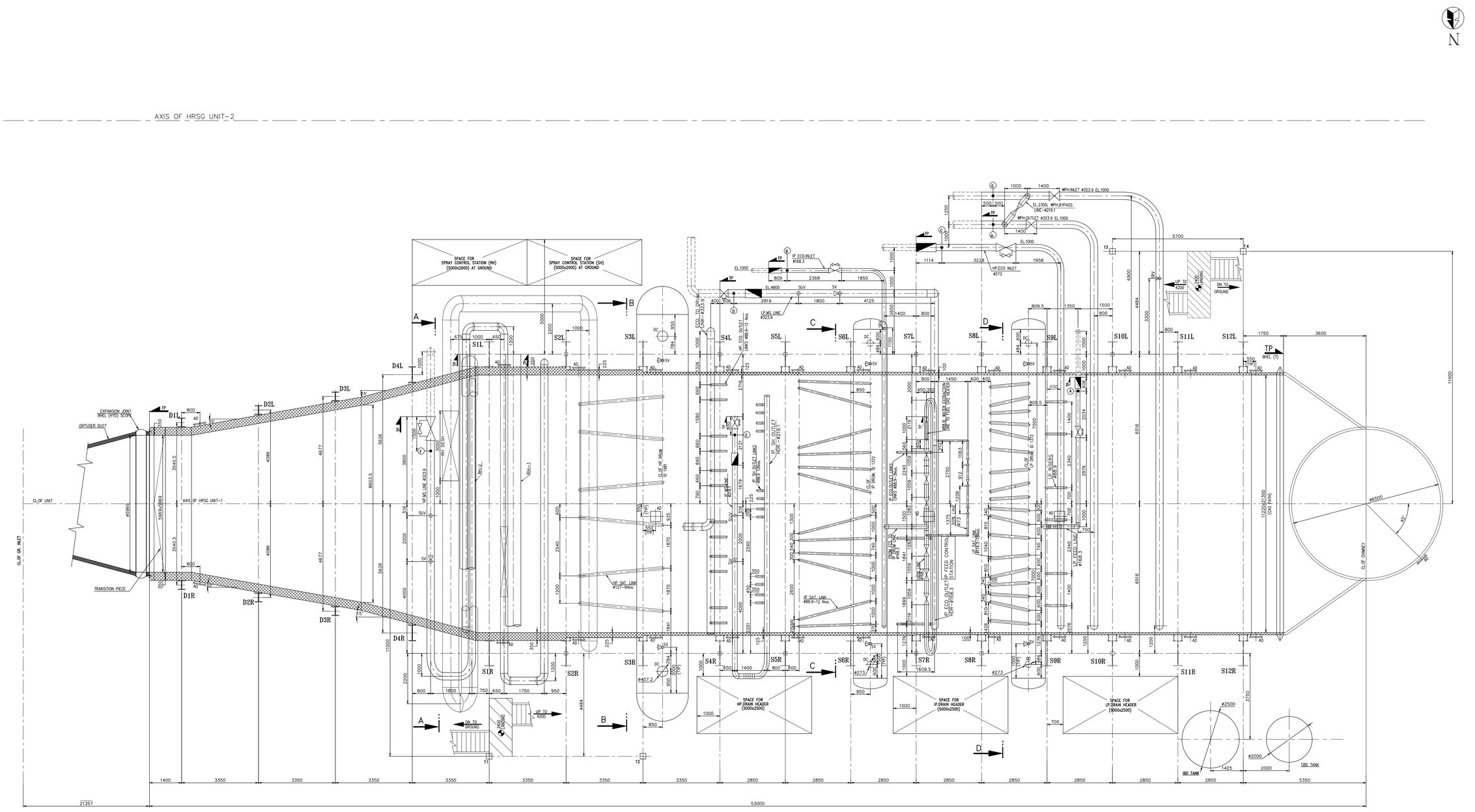
ALL DIMENSIONS ARE IN MILLIMETRES

SCALE 1:60

DRG No. 0-00-561-93393

REV. 01

A0 SIZE



NOTES.

1. SPACE IDENTIFIED FOR VARIOUS EQUIPEMENTS ARE AT GROUND, UNLESS OTHERWISE SPECIFIED.
2. (A)(B)(C)(D)(E)(F)(G)&(H) ARE DESIGNATIONS OF ANCHOR POINTS.

REFERENCE DRAWINGS

1. GENERAL ARRANGEMENT OF BOILER – ELEVATION – – – – – 0-00-561-93393
2. PLOT PLAN – PE-DG-319-100-M001

CUSTOMER No. 5728 & 5729

REV	DATE		
01	15.04.09	ALTD	K.Francis
		CHD	P.K.Sahoo
		APPD	S.Gnanraj

ZONE

1. DRAWING UPDATED INLINE WITH PPA DRAWINGS.

CUSTOMER: ONGC TRIPURA POWER COMPANY (OTPC) PRIVATE LIMITED

CONSULTANT: FICHTNER CONSULTING ENGINEERS (INDIA) PRIVATE LTD., CHENNAI

PROJECT: 726.6 MW COMBINED CYCLE POWER PROJECT
PALLATANA, TRIPURA

HEAT RECOVERY STEAM GENERATOR – BEHIND FRAME 9 FA GT.
289.6 t/h, 134kg/cm² (g), 540°C/540°C; 55.6 t/h, 34.6kg/cm² (g), 330°C & 36.7 t/h, 4.4kg/cm² (g) 230°C

361-245/A

BHARAT HEAVY ELECTRICALS LTD.,
BOILER PLANT UNIT, TIRUCHIRAPALLI-620 014.

DRAWN	K.Francis
CHECKED	S.Gnanraj
APPROVED	T.Rathakrishnan
DATE	26.11.08

TITLE: GENERAL ARRANGEMENT OF BOILER – PLAN

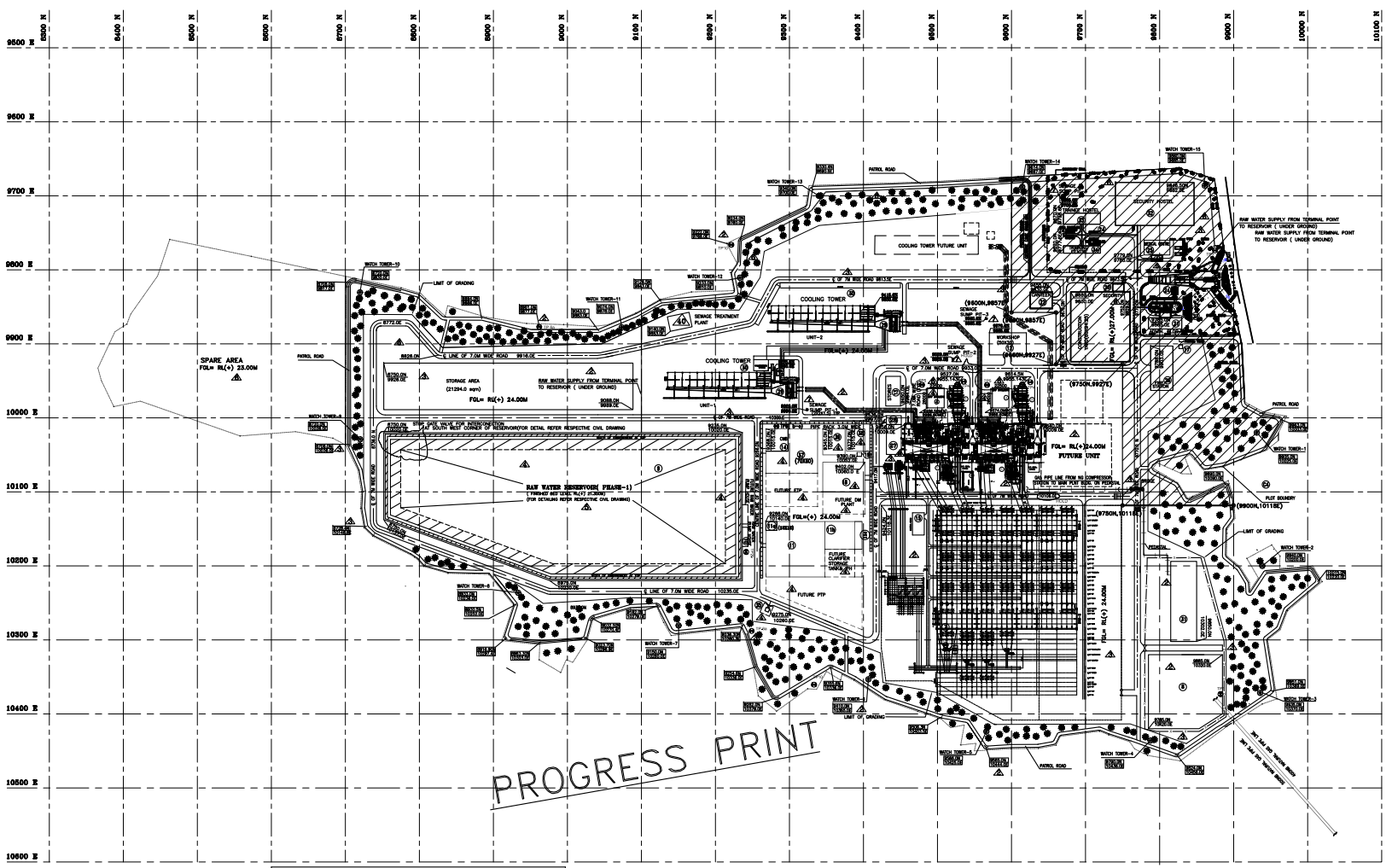
ALL DIMENSIONS ARE IN MILLIMETRES | SCALE 1:60

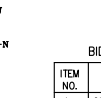
DRG No. 0-00-565-93394 | REV. 01

A0 SIZE

FIRST ANGLE PROJECTION

DWG. NO. PE-DG-319-100-M001-R07





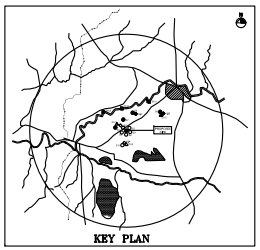
BIDDER SCOPE

ITEM NO.	DESCRIPTION	REMARKS
1	GAS TURBINE	BHEL SCOPE
2	STEAM TURBINE HALL	–do–
3	HRSG	–do–
4	B., F. P. BUILDING	–do–
5	TRANSFORMER YARD AREA	–do–
6	EMERGENCY D.G. SET	–do–
7	SWITCHYARD AREA	–do–
8	GAS STATION	–do–
9	RAW WATER RESERVOIR	–do–
10	RAW WATER PUMPHOUSE	–do–
11	PT PLANT	–do–
11a	CHEMICAL HOUSE	–do–
11b	CLARIFIED WATER STORAGE TANK	–do–
11c	CLARIFIED WATER PUMP HOUSE	–do–
12	WORKSHOP	–do–
13	STORES	–do–
14	CENTRAL MONITORING BASIN	–do–
15	GRID CONTROL ROOM	–do–
16	CONTRACTOR BUILDING	deleted in r01
17	FIRE DRILL TOWER	BHEL SCOPE
18	DM PLANT	–do–
19	SERVICE WATER OVERHEAD TANK	–do–
20	SECURITY	–do–
21	ADMIN. BUILDING (DOUBLE STORY)	–do–
22	CANTEEN	–do–
23	CAR PARKING	–do–
24	TWO WHEELER PARKING	–do–
25	MEDICAL CENTRE	–do–
26	FIRE STATION	–do–
27	CONTROL & FACILITY BUILDING	–do–
28	COMPRESSOR BUILDING	–do–
29	CW PUMP HOUSE	–do–
30	COOLING TOWER	–do–
31	NG COMPRESSOR STATION	–do–
32	SECURITY HOSTEL	–do–
33	TRAINEE HOSTEL(DOUBLE STOREY)	–do–
34	TRAINEE CENTRE(DOUBLE STOREY)	–do–
35	HYDROGEN PLANT	–do–
36	WATCH TOWERS (1 TO 15)	–do–
37	ETP	–do–
38	CHEMICAL STORAGE	–do–
39	CHEMICAL LAB AND O&M OFFICE	–do–
40	SEWAGE TREATMENT PLANT	–do–

CUSTOMER SCOPE

ITEM NO.	DESCRIPTION	REMARKS
C4	BOUNDARY WALL	BY CUSTOMER
C5	GREEN BELT	–do–
C7	MAIN ENTRY GATE	–do–

SCHEDULE OF TERMINAL POINT	
TP1	FUEL GAS
TP2(a-b)	a) FUEL OIL– EMERGENCY D.G. SET UNLOADING HOSE b) FUEL OIL– FIRE PUMP HOUSE UNLOADING HOSE
TP3	RAW WATER
TP4	EXHAUST GAS–OUTLET OF MAIN STACK
TP5(a-e)	a) TREATED EFFLUENT DISCHARGE b) TREATED EFFLUENT DISCHARGEFOR HORTICULTURE USE c) WASTE OIL : IN WASTE OIL TANKS
TP10	STORM WATER DISCHARGE
TP11a	POWER EVACUATION–400KV
TP12	APPROACH ROAD



NOTES:–

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED.
2. THE LOCATION OF BUILDINGS ARE PRELIMINARY, THE BUILDING DIMENSIONS ARE ALSO TENTATIVE.
3. **A.NON PLANT AREA(HATCHED)**

FINISHED GRADED LEVEL (FGL)	RL(+)27.0M
ROAD LEVEL	RL(+)27.3M
FINISH FLOOR LEVEL(FFL) INSIDE OF ALL BUILDING	RL(+)27.5M

B. REST OF THE PLANT / NON PLANT AREA

FINISHED GRADED LEVEL (FGL)	RL(+)24.0M
ROAD LEVEL	RL(+)24.4M
PAVEMENT LEVEL IN HRSG AREA	RL(+)24.3M
GROUND FLOOR LEVEL OF MAIN PLANT BLDG. (0.0M)	RL(+)24.5M

4. WIDTH OF PATROL ROAD ALONG PLANT BOUNDARY 3.0M
   WIDTH OF MAIN ROADS 7.0M
   WIDTH OF VARIOUS APPROACH/ACCESS ROADS 4.0M
5. BEYOND THE GRADED LEVEL , SUITABLE SLOPE TO MATCH EXISTING GROUND LEVEL AT BOUNDRY WALL SHALL BE PROVIDED

LEGENDS:–

PROPERTY LINE
BOUNDARY WALL
GREEN BELT
PIPE RACK

REV.	DATE	DESCRIPTION	DRN.	APPROVED BY
07	08.09.09	1. SEWAGE TREATMENT PLANT AND SEWAGE SUMP PIT INCORPORATED.	SS	MCV / GPA
06	03.04.2009	1. RAW WATER SUPPLY PIPING FROM CUSTOMER TERMINAL POINT TO RAW WATER RESERVOIR RELOCATED. 2. CONTROL AND FACILITY BUILDING SHIFTED 5.0M TOWARDS SOUTH INCORPORATED. 3. CUSTOMER COMMENTS DT. 19.03.09 ON PLOT PLAN #05 INCORPORATED. 4. DRAWING REVISED MARKED AS A.	SS	MCV / GPA
05	19.03.2009	1. FINISHED RED LEVEL OF RAW WATER RESERVOIR REVISED TO 31.50M AS FURNISHED BY CWL ON 19.03.2009. 2. DRAWING REVISED AS PER CUSTOMER COMMENTS NEAR MAIN ENTRY GATE AS MARKED A.	SS AS/	MCV AS/ GPA AS/
04	06.02.2009	1. CUSTOMER COMMENTS ON PLOT PLAN REV.–03 VIDE MAIL DT. 04.02.09 & AS DISCUSSED DURING MEETING WITH M/S CUSTOMER /CONSULTANT DT. 28–29.01.09 INCORPORATED. 2. ETP, PTP & DM PLANT AREA REARRANGED. 3. HYDROGEN PLANT ITEM NO.35 RELOCATED. 4. FINISHED GRADED LEVELS IN DIFFERENT AREA MODIFIED. 5. RAW WATER RESERVOIR SIZE MODIFIED. 6. SPP BUILDING APPROACH ROAD MODIFIED. 7. PLANT ENTRANCE AREA MODIFIED. 8. DRAWING REVISED MARKED AS A.	SS AS/	MCV AS/ GPA AS/
03	17.01.2009	1. CUSTOMER COMMENTS ON PLOT PLAN REV.–02 VIDE MAIL DT. 29.12.2008 INCORPORATED. 2. STATION TRANSFORMERS RELOCATED. 3. FINISHED GRADED LEVELS IN DIFFERENT AREAS MARKED. 4. MAIN ROAD WIDTH CORRECTED AS 7.0M. 5. RAW WATER RESERVOIR & STORAGE AREA MODIFIED. 6. NON PLANT AREA MODIFIED AS PER CUSTOMER'S SKETCH–4 7. G4G PIPE LINE FROM NG COMPRESSOR STATION TO MAIN PLANT AREA INCORPORATED. 8. DRAWING REVISED MARKED AS A.	SS AS/	MCV AS/ GPA AS/
02	19.12.2008	1. CUSTOMER COMMENTS ON PLOT PLAN REV.–01 VIDE MAIL DT. 28.11.08 INCORPORATED. 2. RAW WATER SUPPLY LINE FROM CUSTOMER TERMINAL POINT (TP–1) TO RESERVOIR INCORPORATED. 3. PIPE RACK AND PIT POINTS INCORPORATED. 4. DRAWING REVISED MARKED AS A.	SS AS/	MCV AS/ GPA AS/
01	17.11.2008	4.COOLING TOWER ARRANGEMENT IS REVISED AS PER WATER SYSTEM. 5.RAW WATER RESERVOIR & PUMP HOUSE IS REVISED AS PER WATER SYSTEM. 6. SWITCH YARD DRAWING INCORPORATED BY TBG. BORE WELL/SPP POINTS INSCRIED	SS	MCV / GPA
01	17.11.2008	1.SEQUENCE OF UNITS REVISED AS PER CUSTOMER COMMENTS. 2. GAS STATION, NON PLANT BUILDINGS ARE RELOCATED AS PER MEETING WITH CPC & FICHTNER DT. 07/11/08. 3. STORAGE AREA, FIRE STATION, COMP. HSE RELOCATED AS PER CUSTOMER COMMENTS	SS / MCV / GPA AS/	

OWNER: ONGC - Tripura Power Company Limited

PROJECT: 726.6 MW Combined Cycle Power Project
PALLATANA, TRIPURA, INDIA

OWNER'S ENGINEER: FICHTNER Consulting Engineers (India) Pvt. Limited
Chennai.

EPC CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD
UNIT : PROJECT ENGINEERING MANAGEMENT, NEW DELHI

DEPT	NAME	SIGN.	DATE
DRN	SS	AS/	17.09.08
CHKD	GS	AS/	17.09.08
DES	MCV	AS/	17.09.08
APPD	GP	AS/	17.09.08

TITLE: PLOT PLAN

CIV	ME	EL	MIS			
				DEPT	SCALE 1:3000	
				DRN		
				DATE		

BHEL/SUB VENDOR DRG NO.
PE-DG-319-100-M001

SHT. No. 1 OF 1 REV. 07

ANNEXURE-2

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	Erection, testing, commissioning etc of 2 x Fr 9FA gas turbine & generator with auxiliaries, 2 x 131 MW steam turbine & generator set with auxiliaries, 2x291 TPH HRSG with steel chimney, power cycle piping, LP piping, structural steel, other associated packages etc for 2 x 363.3 (726.6) MW Combined Cycle Power Plant at Palatana, Tripura.	
Ref	1.0	Tender no PSER:SCT:PAL-M1126:10.
	2.0	BHEL's NIT, vide reference no PSER:SCT:PAL-M1126:2356, dated 02-09-10.
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:PAL-M1126:TCN-01, dated 08-09-10.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:PAL-M1126:TCN-02, dated 18-09-10.
	5.0	All other pertinent issues till date.

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)