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## INVITATION TO TENDER

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Ref.: OS/24-25/8044&8045/Bunkers/18/018

Date: 20.09.2024

**Sub: Fabrication of Coal Bunkers against S.O. 8044 & 8045 at Lovagarden site of BHEL- HPVP, Visakhapatnam**

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Dear Sir,

Dear Sir,

Sealed tenders are invited for the subject work in **two part bid** system from Vendors who are experienced in fabrication of similar jobs and fulfil the eligibility criteria specified below in clause-1. Scope of work and techno-commercial terms and conditions are as follows.

**1. ELIGIBILITY CRITERIA:**

- 1.1 Bidders must have an experience of successful completion of similar works i.e., **Fabrication of Structural items** during last 7 years ending 31<sup>st</sup> August 2024 for a minimum of one project. Bidders shall enclose Work Order, Work Completion Certificate and all other relevant documents from the customer in support of successful and satisfactory completion of the work.
- 1.2 Average Annual Financial Turnover of the bidder for the last 3 financial years should be a minimum of ₹ **150 Lakhs**. Bidders shall enclose Financial turnover certificate for previous three years issued by Chartered Accountant / Audited Profit & Loss Accounts, Balance Sheets and other necessary documents in support of the same.  
*In case audited financial statements are not available for latest financial year, then the applicable audited statements of preceding three financial years shall be considered.*
- 1.3 Bidders shall also enclose the documents of Registration of Firm/ Factory License/ Certificate of Incorporation, EPF, ESI, PAN, GSTIN, Udyam Registration (if registered with MSME) etc.
- 1.4 The works executed in own name of the individual / firm of the tenderer will only be considered for eligibility criteria.

**2. LOCATION OF WORK SPOT:**

- 2.1) The fabrication work is to be carried out at Lovagarden site (a Sea Front facility of BHEL - HPVP near Hindustan Shipyard Limited - OPF Site), Visakhapatnam, Andhra Pradesh.

**3. SCOPE OF WORK:**

**Fabrication of Coal Bunkers (16 Nos.): 2070 MT (approx.)**

***It may be noted that the weight indicated above is tentative only and may vary on both sides due to revision in the drawings, if any.***

- 3.1 Fabrication of Coal Bunkers in segments which involves Marking, Cutting, Edge preparation, Rolling/Pressing, machining, Drilling of holes wherever required, Assembly, Fit-up, Welding & dressing, NDT requirement as per QAP/drawings, fabrication of openings in Bunkers, Trial Assembly, Drilling / Punching of holes in SS Liner plates in Hopper portion of Bunkers, Fixing & welding of SS Liner plates, Plug welding of SS Liner plates to Hopper plate etc., as per relevant drawings / specifications, Surface Preparation by Power Tool / Grit blast cleaning, Application of total no. of coats of Paints as per Painting Schedule, relevant Drawings, QAP, WPS, NDE procedures, Standards & Specifications, Trial assembly procedure etc.
- 3.2 Unloading of major materials like plates directly from trailers and stacking at Lovagarden site. Collection of major Free issue raw materials like Plates & BOCs at Lovagarden site.
- 3.3 Collection & Transportation of raw materials & BOCs other than major materials available at LG site i.e., off-cut Plates, Fasteners, Pipes & Tubes, fittings, Round Bars, Gaskets etc., if any, from BHEL-HPVP stores, Visakhapatnam.

- 3.4 Fabrication & Trial assembly of Bunkers shall be carried out in accordance to SIP:NP:21 Rev.00 (attached).
- 3.5 Assembly and Fit-up of L-seams of Shell segments as per drawings (L seams & C seams need not be welded).
- 3.6 Fit up, Assembly and welding of Stiffener Rings, Gussets, Ribs, Pads etc., as per drawings & QAP.
- 3.7 Trial assembly of C-seams including assembly and fit-up as per drawings, QAP, Procedure etc.
- 3.8 Rolling of Bunker Shell / Ring Girder / Hopper to required dimensions as per relevant drawings. Deployment of Rolling machine of suitable capacity is in vendor's scope.
- 3.9 Fabrication of Bunker Structure including Assembly, Fitup, welding, Drilling, machining etc., as per drawings & specifications.
- 3.10 Shearing / Cutting of SS plates preferably through CNC plasma cutting machine, Drilling / Punching of holes in SS Liner plates in Hopper portion of Bunkers, Fixing & welding of SS Liner plates to Hopper plates, Plug welding of SS Liner plates to Hopper plate etc., as per relevant drawings / specifications.
- 3.11 As the job is voluminous, the optimum utilization of fabrication yard is to be planned for accommodating maximum number of bunker shells.
- 3.12 Rectification of Raw materials such as straightening etc., if any and trial assembly of Bunker segments if required as per QAP / Drawings and rectification of defects, if any attributable to vendors, found after handing over to Logistics dept.
- 3.13 NDT (DPT, MPT, RT etc.) is to be carried out as per approved QAP / drawings.
- 3.14 The fabricated items shall strictly conform to the dimensions and tolerances indicated in the drawings. It must be ensured that correct dimensions and deviations, if any, are recorded properly and is made available to BHEL officials or their authorized agencies.
- 3.15 Surface preparation by Grit Blast Cleaning and application of total no. of coats of Paints as per approved Painting Schedule / drawings **is to be carried out in a closed enclosure. Painting is to be carried out by Painters qualified by HPVP.** All tests required as per Project Specifications and BHEL Painting Procedure shall be carried out by a qualified agency for testing of painting and obtaining stage wise inspection clearance from HPVP (QC) / TPIA / customer as per approved drawing / QAP/ ITP.  
**Paints shall be issued as Free Issue material by BHEL-HPVP.**
- 3.16 All the Bed materials required for fabrication, Scaffolding materials like Pipes, Clamps, GI sheets etc. required for closed enclosure for blasting and painting of the items are to be arranged by the vendor at their cost.
- 3.17 Free issue materials should be collected within 3 days from the date of intimation by Outsourcing without failure. Any delay beyond 3 days shall be considered for levying of LD.
- 3.18 Submission of economic cutting plans for all plate materials and sections issued by BHEL and obtaining approval of competent authority is mandatory before taking up fabrication.  
Wherever fabrication is done without proper approved cutting plans, any loss of materials arising due to the same will be recovered as per BHEL recovery rates.
- 3.19 No extra rates are applicable for the additional joints to be made in Plates / Rolled sections.
- 3.20 The work is to be executed as per the latest approved Drawings, Group Manufacturing Specification (GMS), Shipping List released for each PGMA, QAP, WPS, Standards & Specifications, SIP:NP:21 Rev.00 etc.
- 3.21 All indirect materials, consumables like electrodes, gases, grinding wheels etc. required for fabrication are in the scope of the Vendor.
- 3.22 Identification of all items shall be hard stamped by encircling with paint and Letter painting in a specific format with details of Project name, Customer No., Work Order No., PGMA No., DU No., Qty., Weight, match marking etc., for identification and dispatch as per the instructions of the concerned. Completed job without proper identification will not be accepted by HPVP - Stores / Logistics.
- 3.23 Vendors shall have to return the excess / balance materials including off-cuts and total scrap available with them exclusive of process allowance & invisible wastage to HPVP Stores after material reconciliation but before submission of their final bill. In case the same are not returned by the vendors, Recovery shall be made as per BHEL Rates / MSTC rates plus applicable taxes, prevailing at the time of processing of the final bills.
- 3.24 Cranes of suitable capacity, Chains / Slings preferably Felt slings required for handling of all materials during Pre-fabrication, Fabrication, Trial assembly and Post fabrication during handing over to BHEL etc., are in the scope of vendor.
- 3.25 Vendor has to take up all the Bunkers simultaneously and engage sufficient man power separately for each Bunker to meet HPVP delivery schedules.

- 3.26 Experienced Site-in-charge and Qualified Engineers & Supervisors shall be deployed for proper co-ordination of the job. **Vendor shall obtain certification of BHEL Engineer-in-charge for the same and submit along with Bills for processing.**
- 3.27 Vendors should deploy Experienced & Qualified QC personnel for carrying out the inspection activities in coordination with BHEL QC inspector / TPIA. **Vendor shall obtain certification of BHEL Engineer-in-charge for the same and submit along with Bills for processing.**
- 3.28 Vendors should deploy Qualified NDT personnel (Level III / Level II) at site for carrying out the NDT inspection activities in coordination with BHEL QC –NDT / TPIA. Vendors shall have to engage sufficient man power and resources for fabrication to meet HPVP delivery schedules.  
**Vendor shall obtain certification of BHEL Engineer-in-charge for the same and submit along with Bills for processing.**
- 3.29 Vendor shall deploy sufficient no. of calibrated Welding machines, MIG welding machines, Main Ovens & Portable Ovens required for baking of electrodes, other machinery at site. All relevant documents shall also be made available for verification & approval by BHEL - HPVP (QC) / TPIA.  
**Vendor shall obtain certification of BHEL Engineer-in-charge for the same and submit along with Bills for processing.**
- 3.30 Required tools & tackles like Measuring instruments like Tape, Fillet & Butt Weld Gauges, Plumb bobs with magnets etc., shall be calibrated and valid calibration certificates must be presented, whenever required.
- 3.31 All the Scaffolding materials like Pipes, Clamps, Jallies etc., for temporary platform works required during the complete course of the fabrication, blasting and painting are to be arranged by the Vendor.
- 3.32 Profile of the shell sections shall be maintained by temporary spiders / profile plates. Raw materials will be Free issue by BHEL HPVP. Transportation of these materials from HPVP stores to Lovagarden site is in vendor's scope.
- 3.33 Any modification work due to revision of the drawings during fabrication is to be carried out by the vendor without any additional cost.
- 3.34 Sufficient Area lighting at the work place shall be arranged by the vendor at their cost in addition of High mast lights presently available at site.
- 3.35 Loading of finished equipments onto the trailer by providing necessary manpower, tools & tackles and Welding of all temporary supports required for transportation of Bunkers.
- 3.36 Vendors shall abide by all the rules and statutory regulations in force from time to time as per the Factories Act. It is their responsibility to ensure the safety of their workmen and fulfilling the ESI, PF and other relevant statutory regulations.
- 3.37 Area required for fabrication, site office and Stores at Lovagarden site will be provided free of charge. All other arrangements for site enabling including Jungle Clearance & Surface Levelling etc., if required, shall be done by the vendor.
- 3.38 Power & Construction Water shall be provided free of charge at one point but further distribution to the desired location is in vendor's scope. Vendor's scope shall include arranging & laying of cables, arranging Distribution Boards with suitable capacity Switch Fuse units as incomer, all outgoings with necessary safe trips like MCB, ELCB etc., as per the industrial safety norms and their installation, all outgoing cables from Distribution Board, termination at the distribution board, arrangement of proper Working Area Lighting as per safety norms. Maintenance of the existing Electrical system is in the vendor's scope. **One Licensed Electrician and one Technician are to be deployed on continuous basis during all the working hours to avoid uninterrupted work due to Power.** In case of power failure, vendor has to make alternate arrangement at vendor's cost.
- 3.39 Though not mentioned specifically, any activity which is required for completion of the work is deemed to be included in the scope of work of vendors without any price implication.
- 4. BHEL SCOPE:** BHEL – HPVP shall provide the following as free issue:
- 4.1 Drawings, GMS, QAP, WPS, Painting Schedule, applicable Procedures, Standards & Specifications.
- 4.2 Raw materials like full / off-cut Plates, Pipes & Tubes, Round Bars, Structural items etc., Paints and BOCs as per GMS.
- 4.3 Raw materials required for providing temporary spiders / profile plates to maintain Profile of the shell segments.

- 4.4 Area required for fabrication, site office and Stores at Lovagarden site will be provided free of charge. All other arrangements for site enabling including Jungle Clearance & Surface Levelling etc., if required, shall be done by the vendor.
- 4.5 Power and construction Water shall be provided free of charge at one point but further distribution to the desired location is in vendor's scope. In case of power failure, the vendor has to make alternative arrangement without any extra cost to BHEL.

## **5. INSPECTION:**

- 5.1) Inspection shall be carried out by M/s. BHEL-HPVP, Vizag / BHEL Authorized Inspection Agency (TPIA) / Customer as per approved QAP/ITP. Contractor shall offer for Stage wise and Final inspection as per approved QAP and obtain necessary stage wise & final clearances before proceeding for further operations along with all necessary documentation.
- 5.2) Fabrication Vendor shall be solely responsible for preparation and submission of all Inspection Reports & documents duly certified by Inspection Authority along with the finished equipments.
- 5.3) All the documentation related to inspection clearance of M/s. BHEL/TPIA/Customer, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats etc., are included in the scope of vendor and scanned copy as well as hard copy of the same is to be submitted to BHEL-QA.

**Note:** QAP / MQP enclosed with the tender document is tentative only and may be subject to revision due to incorporation of comments of the approving authority. Hence, the approved QAP / MQP issued to the vendor after ordering shall only be followed for execution and inspection of the job.

## **6. DELIVERY:**

- 6.1) Fabricated Bunkers along with inspection documents and all other relevant certificates are to be handed over to BHEL-HPVP as per the following schedule:

**Within 3 months from the date of issue of First consignment of free issue materials or 6 weeks from the date of issue of Last consignment of materials (Excl. Gaskets, Fasteners & Paints), whichever is later.**

**Note:** a) Time schedule is very stringent and Vendor has to deliver the job as per Customer requirement and schedule which will be meticulously monitored by BHEL/Customer. All necessary steps to reduce the cycle time for the individual sub-activities and main activities will be mutually discussed and Vendor has to mobilize additional resources as per time to time requirement to achieve the same.

- b) In case the delivery period offered by the vendor is more than the tender delivery, Price quoted by the bidder shall be loaded for additional period @1/2 % per week or part thereof for the purpose of evaluation of Bidder Status.

## **7. SITE MOBILISATION:**

- 7.1) Successful bidders shall complete site mobilization within 7 days from the date of receipt of order (or) from the date of intimation for the same by BHEL whichever is later.

## **8. EARNEST MONEY DEPOSIT (EMD):**

- 8.1) The Bidder shall submit EMD for ₹ 6,00,000/- (Rupees Six Lakhs only) along with their bids in the following forms only:
- a) Electronic Fund Transfer credited in BHEL account before tender opening (Bank Mandate is enclosed).  
**Fund Transfer details to be submitted along with the offer.**
  - b) Banker's Cheque/ Pay Order/ Demand Draft, in favour of BHEL, Visakhapatnam (along with offer)
  - c) Fixed Deposit Receipt (FDR) issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Bidder, a/c BHEL)
  - d) Bank Guarantee from any of the Scheduled Banks
  - e) Insurance Surety Bonds
- 8.2) EMD by the Bidder will be forfeited as per NIT conditions, if:
- a) The bidder withdraws or amends its/his tender or impairs or derogates from the tender in any respect within the period of validity of the tender or if the successful bidder fails to furnish the required performance security within the specified period as per the order.

- b) EMD by the bidder shall be withheld in case any action on the bidder is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.
- 8.3) EMD given by all unsuccessful bidders shall be returned after expiry of the final bid validity period or within 30 days of award of the contract.
- 8.4) EMD shall not carry any interest.
- 8.5) EMD of successful bidders shall be refunded on conclusion of the order / receipt of Security Deposit.

**Note:**

- 1) **Micro & Small Enterprises (MSEs) or Start-ups as recognised by Department for Promotion of Industry and Internal Trade (DPIIT) are eligible for exemption of EMD as given below:**

MSE suppliers can avail the intended benefits only if they submit **valid UDYAM Registration for Micro / Small** category and relevant certificate for Start-ups along with the offer. Non-submission of such documents will lead to consideration of their bid at par with other Non-MSE bidders. No benefits shall be applicable against this tender enquiry if the above required document is not submitted before Price bid opening.

- 2) In case of submission of EMD as per 8.1 (b), (c), (d) & (e) above, the original documents are to be sent through Speed Post to the following address:

**The Sr. DGM (Outsourcing), R&D Building, HPVP Unit, BHEL, Visakhapatnam – 530012 (AP).**

**9. PRICE:**

- 9.1) The price shall be quoted in the **Price Bid** as per the Schedule of Quantities & Rates for the detailed scope of work and the quoted price shall be inclusive of all applicable taxes & duties except GST.
- 9.2) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 9.3) GST shall be reimbursable to the vendor as detailed in Clause - 9 and as per Annexure – GST.
- 9.4) Income tax will be deducted at applicable rates from RA & Final bills.

**10. EVALUATION, COUNTER OFFER & ORDERING:**

- 10.1) **L1 status shall be evaluated based on the total quoted value.**
- 10.2) **For ordering, 02 bidders shall be considered. Out of total 16 Nos. of Bunkers, 10 Nos. shall be ordered on L1 bidder and 06 Nos. shall be ordered on L2 bidder.**
- 10.3) Counter offer of L1 / negotiated rates shall be given to the respective L2 and next lowest bidders for acceptance. Vendor who accept counter offer rate shall only be considered for ordering.
- 10.4) In case any of the next lowest bidders does not accept the counter offered L1 / negotiated rates, Total Quantity shall be ordered on L1 bidder.
- 10.5) BHEL reserves the right to cancel any order partly (or) in full in case the performance of any of the vendors is not satisfactory in meeting the quality requirements (or) committed delivery schedules and to distribute the same quantity among the balance eligible vendors.

**11. GOODS & SERVICES TAX (GST):**

- 11.1) Bidders shall make a note of the following points of GST before submission of their offer:
  - a) Vendors shall have to mention their GSTIN no. (15 Digits) in their Technical Bid. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
  - b) Semi-finished goods are to be delivered by the Vendors in BHEL, HPVP premises within a maximum period of one year from the date of issue of the material, failing which the whole transaction will be considered as Supply & Sale and GST is required to be paid along with interest (calculated @ SBI Base Rate + 6%) along with penalty, if any, from the date of Challan on the whole value of materials. Hence vendors shall have to ensure that materials issued to them are returned within 365 days.
  - c) After fabrication, the vendors shall have to deliver the Semi - finished Goods by fulfilling the following formalities:

- i) GST invoice should be raised by the vendors by paying GST on job work charges at applicable rates and by incorporating the HPVP GSTIN no. in the invoice for availing the reimbursement of GST from HPVP.
- ii) The vendor shall also have to enter in their GST Return -1 (GSTR-1) the details of invoice raised for payment of GST so as to enable HPVP to avail input credit.

**12. REVERSE AUCTION:**

- 12.1) BHEL shall be resorting to Reverse Auction (RA) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Business Rules for Reverse Auction are given at Annexure – V and Guidelines for Reverse Auction are available on our website, [www.bhel.com](http://www.bhel.com) → supplier registration → Guidelines for Reverse Auction 2021, before submission of their offer.
- 12.2) Sealed envelope / Electronic Price bids of all the techno-commercially qualified bidders shall be opened and the same shall be considered as initial bids of the bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.
- 12.3) BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding. The bidders participating in the Reverse Auction shall have to necessarily submit ‘**Process Compliance Form**’ (PCF) to the designated Service Provider.
- 12.4) Bidders are advised to read the ‘Business Rules’ (Annexure – V) indicating details of RA event carefully, before reverse auction event.

**13. RISK PURCHASE:**

In case the contractor fails to execute the work within the scheduled time or due to any other reasons, BHEL - HPVP reserves the right to get the same completed through some other party at the risk & cost of the contractor and any additional expenditure incurred due to the same shall be charged to the contractor. Non-performance of contract attracts penal provisions in line with BHEL Guidelines for Suspension of Business Dealings.

**14. VALIDITY OF OFFER:**

The offer shall be valid for a period of **3 months** from the date of Reverse Auction.

**15. GENERAL:**

- 15.1) The bidders shall study the Tender documents, Drawings, Quality Documents and all other relevant documents in detail for understanding the scope of work and the processes involved before submission of offer. Bidders shall get clarifications, if any, from concerned officials on the scope of work or any other details of the tender document, over phone between 09:00 AM and 04:00 PM on any working day or through e-mail.
- 15.2) **Conditional / Partial Price Bids** and any other deviations to the tender terms & conditions are not acceptable and BHEL reserves the right to reject such offers without further correspondence. Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry in the Techno-commercial Bids without any deviations.
- 15.3) BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.
- 15.4) The General Terms & Conditions, if any, contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.
- 15.5) Other Terms & Conditions, whichever applicable, shall be as per Annexure – III enclosed.

**16. The following documents shall form part of the tender enquiry including this Notice Inviting Tender:****PART - 1: TECHNO-COMMERCIAL BID**

- i) Schedule of Quantities : Annexure – I
- ii) Reference Documents & Details of Equipments to be fabricated : Annexure – II
- iii) General Terms & Conditions : Annexure – III
- iv) Acceptance to tender terms & conditions : Annexure – IV
- v) Business Rules for Reverse Auction : Annexure – V
- vi) GST Compliance for Indigenous Suppliers : Annexure – GST
- vii) Integrity Pact : Annexure - A
- viii) Tentative Painting Schedule, Drawings, QAP / MQP, Trial assembly procedure etc.



**PART - 2: PRICE BID**

ix) Price Bid (Schedule of Quantities &amp; Rates)

**17. TENDER SUBMISSION (Through e-Procurement system):**

17.1) The tender completed in all respects shall be submitted in **Two parts** (Techno-commercial bid and Price Bid) through online e-procurement portal (<https://eprocurebhel.co.in>) latest by **13:00 Hrs. on 27.09.2024**.

**Note:** Techno-commercial bid along with all the tender documents shall be duly signed & stamped by the bidder on all pages.

17.2) Submission of offer by the bidder implies that all the tender documents were read by the bidder and the bidder is aware of the scope and specifications of the job.

17.3) **OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.**

**18. TENDER OPENING:**

18.1) Techno-commercial Bids will be opened on **27.09.2024 at 15:00 Hrs.** in online e-procurement portal.

18.2) After evaluation of the Techno-commercial Bids, intimation regarding date & procedure of conducting Reverse Auction shall be given by the service provider to all the eligible techno-commercially qualified bidders through an e-mail in advance at an appropriate time.

**19. INTEGRITY PACT:**

- a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl. No.	IEM	E-Mail ID
01	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
02	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
03	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

- b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEMs. All correspondence with the IEMs shall be done through e-mail only.

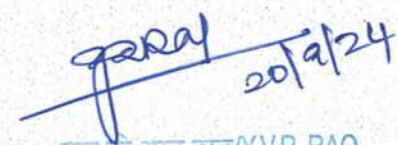
**Note:**

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name:	1. D N Murthy, Manager	2. Y V R Rao, Sr. DGM
Dept.:	Outsourcing Dept.	Outsourcing Dept.
Address:	BHEL – HPVP, Visakhapatnam - 12	BHEL – HPVP, Visakhapatnam - 12
Phone:	0891 – 288 1359	0891 – 288 1332
E-mail:	dnmurthy@bhel.in	yvr Rao@bhel.in

For Bharat Heavy Electricals Limited,

  
 वाइ.वी.आर.राव/Y.V.R. RAO  
 उच्च महा प्रबन्धक (ओ एस)/Dy.GM (OS)  
 बीएचईएल, एचपीवीपी/BHEL-HPVP,  
 विशाखपट्टणम/VISAKHAPATNAM-530 012

**SCHEDULE OF QUANTITIES**

Ref: OS/24-25/8044&amp;8045/Bunkers/18/018

Date: 20.09.2024

Sub: Fabrication of Coal Bunkers against S.O. 8044 &amp; 8045 at Lovargarden site of BHEL- HPVP, Visakhapatnam

Sl. No.	S.O. No.	Description of Work	Unit	Qty.
		Fabrication of Coal Bunkers against S.O. 8044 & 8045 at Lovargarden site of BHEL- HPVP, Visakhapatnam		
1	8044 & 8045	Fabrication of Coal Bunkers as detailed at Annexure-II (Total Qty.: 16 Nos.)	MT	2070
		<b>TOTAL</b>	<b>MT</b>	<b>2070</b>

**Notes :**

- 1) L1 status shall be evaluated based on the total quoted value and Load distribution shall be as per clause no. 10 of the tender enquiry.
- 2) The quoted price shall be inclusive of all applicable taxes & duties except GST. Income Tax shall be deducted at applicable rates from Bills and GST shall be reimbursable to the vendor as per applicable guidelines.
- 3) The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of work.
- 4) The quantity indicated above is tentative and may vary subject to the requirement at the time of ordering / execution. However, payment shall be made for the actual quantity only.
- 5) The bidders are advised to go through all the drawings & documents before quoting the tender.
- 6) The evaluation currency for this tender shall be **INR**.

**Signature of the Bidder with stamp**



Ref: OS/24-25/8044&amp;8045/Bunkers/18/018

Date: 20.09.2024

**REFERENCE DOCUMENTS & DETAILS OF EQUIPMENTS TO BE FABRICATED****Sub: Fabrication of Coal Bunkers against S.O. 8044 & 8045 at Lovargarden site of BHEL- HPVP, Visakhapatnam**

Sl. No.	S.O. No.	PGMA	Description of Item	Approx. Wt.	Unit	GA Drawing / Document ref. & Rev. No. (Tentative)
1	8044	66-101	Coal Bunker - 4 Nos.	517.50	MT	PE-DG-504-616-C014, REV.2
2	8044	66-102	Coal Bunker - 4 Nos.	517.50	MT	
3	8045	66-101	Coal Bunker - 4 Nos.	517.50	MT	
4	8045	66-102	Coal Bunker - 4 Nos.	517.50	MT	
5			Trial assembly procedure for Coal Bunker, Hopper & Ring Girder			SIP:NP:21, REV.00
6			Painting Schedule			PL:C3-PS/1832
7			Manufacturing Quality Plan			CQP/2554, REV.0
			<b>Total</b>	<b>2070</b>	<b>MT</b>	

**Note : The above weights are approximate and may vary as per the drawings issued at the time of order / during execution.**

**GENERAL TERMS & CONDITIONS****1. TECHNICAL DELIVERY CONDITIONS:**

The work should conform to the technical data given in our drawings, GMS, Shipping List Specifications, QAP, WPS etc.

**2. PARTY'S SCOPE:**

The scope of the party shall be as follows: -

- a) All welding equipments, baking oven, tools, jigs and fixtures, measuring instruments duly calibrated, handling facilities, testing facilities etc.
- b) All materials other than those mentioned under "Free Issue Materials", which are required for completion of the work.
- c) All consumables such as electrodes, gases, grinding wheels etc.

**Note: Electrodes of specification mentioned in the drawings / WPS and of BHEL approved brands only shall be used and MTCs of the same shall be submitted to BHEL for verification before use.**

**3. REVISION OF DRAWINGS:**

There may be minor changes in the drawings during execution. In such a case, party should accommodate the same without any extra claim.

**4. WELDING QUALIFICATION:** Qualification of required number of Welders is party's responsibility at their cost.**5. X-RAY:**

All welding shall be of X-ray quality where specified on drawings. Inspection would specify the quantum of X-ray based on drawings / code requirement. Party should strictly follow the WPS and QAP issued by BHEL during welding. Getting the welds radiographed and getting them cleared by inspection is the responsibility of the party.

**6. RECTIFICATIONS / REJECTIONS:**

Any rectification due to defective work, if required, shall be done by the party free of charge with a suitable technology approved before hand by BHEL in writing. The cost of material, if any used for rectification work / rejection work, will be estimated by BHEL and the same shall be debited to party's account. In case any rectification / rework is to be carried out due to defective material supplied by BHEL, the replacement material and consumables will be supplied by BHEL free of Cost.

**7. SECURITY DEPOSIT:**

- a) Vendors shall have to submit a Bank Guarantee for **10%** of the order value in case of **HPVP ADM / Lovagarden site** (or) **25%** of the material cost in case of Vendor works towards Security Deposit and safe custody of free issue materials within 15 days from the date of intimation by Outsourcing dept. The BG shall be valid for the contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL / Owner.

Bidder agrees to submit performance security required for execution of the contract within the time period mentioned above. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.

- b) **MODE OF DEPOSIT:** Security Deposit may be furnished in the following forms:

- i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- ii) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
- iii) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).
- iv) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).
- v) Insurance Surety Bond.

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith).

**8. PERFORMANCE BANK GUARANTEE:**

Vendors shall have to submit Performance Bank Guarantee (claim period of 12 months) for 10% of the order value covering for the defects liability period. If PBG is not submitted, 10% of the order value shall be deducted towards PBG from the final bill and shall be refundable after performance guarantee period, if no defects are found during this period.

**9. RAW MATERIALS ISSUE:**

Raw materials shall be issued with appropriate processing allowance and invisible wastage over the theoretical requirement of raw materials (**Plates, Sheets, Sections and Pipes**).

**10. TRANSFER / RETURN OF LEFT-OVER MATERIALS:**

Party should maintain proper records for receipt & use of all free issue materials. The left-over materials & scrap as per the material accounting statement shall be returned to HPVP stores along with finished job. Material Transfer Vouchers (MTV) from one order to another or from one vendor to another and Material Return Vouchers should be submitted immediately after transfer / return. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation.

**11. MATERIAL RECONCILIATION:**

Orders issued to the vendors have to be completed in all respects including Material Accounting within a maximum of **180 days** from the **date of issue of material** from BHEL - HPVP stores.

**Maximum of 0.5 %** on the requirement of materials (**Plates, Sections and Pipes**) is admitted towards **process allowance and invisible wastage**.

Scrap quantity is permissible up to a **maximum of 1% on Structural (Beams, Channels, Angles, Rods, Pipes etc.), 2% on Sheets, 3% for Plates** on the theoretical requirement of materials.

**If wastage and scrap is beyond the above limits**, it should be fully justified with cutting diagrams etc. which are to be approved in advance by BHEL. **Otherwise, the cost of raw materials beyond approved limits will be recovered from the contractor as per BHEL recovery rates including applicable taxes & duties.**

Material reconciliation including return of balance materials, off-cuts is to be completed within 20 days from the date of completion of the order. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL-HPVP along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation,

Repeated occurrence of inordinate delays in returning and settling the material accounting will entail BHEL the right to terminate the contract forthwith or impose a temporary suspension on further loading at the discretion of BHEL.

**12. SCRAP & OFF-CUT NORMS:**

Sl. No.	Description	Scrap Size (in mm)	Off-Cut (in MM)
1.	CS/AS Sheets & Plates	Below 500 × 250	500 × 250 & above
2.	Rolled sections Rod, angles etc. (other than -tubes, pipes)	Below 1000	1000 & above
3.	Tubes & Pipes	Below 500	500 & above
4.	Universal column	Below 1000	1000 & Above
5.	SS Sheets & Plates	Below 500 × 250	500 × 250 & above
6.	SS Structural, Rods, Tubes, Pipes	Below 250	250 & above
7.	Non – ferrous: sheets & plates, rods & tubes	Below 500 × 250 (S & PL), Below 250 (Rods & Tubes)	500 × 250 & above, 250 & above
8.	Big size Scrap	(2500 & above) × (150 to 249)	-

**13. INSPECTION:**

Party shall contact our Quality Control Dept. for stages of inspection before commencement of job and should strictly follow the stages of inspection as per QAP.

**14. WORKMANSHIP GUARANTEE:**

The vendors should give workmanship guarantee for fabricated items for a period of 18 months from the date of last delivery of the order. Any defects due to incomplete work, faulty workmanship found in the fabricated items after delivery during the defects liability period shall be rectified / replaced by the vendor free of cost. Otherwise, the expenditure incurred towards the same will be recovered from the pending bills of vendors.

**15. WORK PROGRESS:**

The fabricator shall furnish a weekly report on the progress of work along with the status of availability of free issue materials and requirement of further materials, if any.

Outsourcing dept. personnel will visit vendor's works from time to time to assess and review the work progress. Free access shall be provided to BHEL or its inspection agency at all reasonable times of the day / night.

In case the progress is not satisfactory or supplies are delayed abnormally beyond the contractual delivery date, BHEL-HPVP, Visakhapatnam reserves the right to cancel the order in part or full or get the balance job in as is where is condition completed elsewhere by another agency at the risk and cost of Fabricator. The value of the work carried out by the party will be assessed by BHEL and the same shall be final. No compensation will be given to the fabricator in case of cancellation of order or diversion of balance job even if the jobs have been processed partly.

**16. DELIVERY:**

Finished items should be handed over to BHEL-HPVP on party's delivery challans along with Job completion certificate / Final Inspection Report from inspection agency / HPVP-QC department.

**17. PENALTY:**

Penalty calculations will be done on DU wise (Dispatchable Unit) delivery. If delivery exceeds the stipulated delivery schedule, penalty @ 1/2 % of the value of each DU per week (or) part thereof subject to a maximum of 10% of the value of each DU will be levied. However, time taken for the following will not be considered as delay on the part of the Sub-Contractor.

- 1) Intermediate operations, if any, carried out by BHEL.
- 2) Waiting time for BHEL / Third party Inspection beyond a normal time of 3 days.

**18. PAYMENT TERMS:**

Payment shall be made against RA Bills within 45 days for MSE (Micro & Small Enterprise), 60 days for Medium Enterprise and 90 days for non-MSEs from the date of submission of Bill.

90% payment will be made after handing over of the finished equipments along with all inspection documents to HPVP shops / Logistics dept. / ADM site / Lova Garden site, duly inspected & cleared by Inspection authority. Balance 10% payment shall be made along with the Final Bill against completion of total order in all respects including documentation.

Vendors shall have to submit the bills in the formats specified by HPVP-Outsourcing and the bills submitted in the specified format along with necessary supporting documents are only admitted for processing. The following documents shall be submitted along with the Final Bill: -

1. No Claim Certificate from the contractor
2. No Dues Certificate from BHEL
3. Work Completion Certificate from BHEL
4. Material Reconciliation Statement submitted by the Contractor and certified by concerned authority of BHEL (if applicable)
5. Workmanship Guarantee certificate from the contractor

**19. SECRECY:**

All the documents of BHEL inclusive of Drawings, GMS and Standards made available to the fabricator should be kept in strict confidence and under no circumstance be made available to others or allow others to make use of them. Such documents shall be returned to BHEL on demand after completion of the job. This secrecy clause is binding on the employees of the fabricators also. Violation of the same may lead to suspension of business with the vendor and necessary legal action.

**20. SUB-LETTING:**

In general, sub-letting of jobs will not be permitted. But in special circumstances, this may be allowed. In such case, the party should obtain written approval from BHEL-HPVP, Visakhapatnam before sub-letting.

**21. FACTORY RULES AND REGULATIONS:**

Party shall abide by all the rules and statutory regulations in force from time to time as per factories act. It shall be party's responsibility to ensure the safety of their workmen and fulfilling the ESI, PF and other relevant statutory regulations.

**22. SAFETY:**

- a) Contractor shall adhere to safe construction practices, guard against hazardous & unsafe working conditions and shall comply with the safety rules of BHEL and local authorities. He shall maintain First Aid facilities for all his employees and labour. Contractor's responsibility includes supply of welder kit, all safety items such as safety belts, white and colour glasses, goggles, safety helmets, safety shoes etc.
- b) Contractor and his employees shall follow all fire & safety, security regulations of BHEL.

**23. HOUSE KEEPING:**

During execution of work, the contractor at all times keep the working place and storage area clean and free from accumulation of waste materials, rubbish etc.,

**24. ACCIDENT / DAMAGE / CONDUCT ETC.:**

Contractor will be held responsible for any disorderly conduct / misconduct, indiscipline, theft, smoking etc., on the part of his men. He will ensure summarily eviction of such men from his premises failing which BHEL would remove them from the factory on his responsibility. Any damage to and or loss of equipment, machinery, building etc., to BHEL or BHEL employees, visitors or other contractors resulting from his own or any of his men's negligence shall be liable to be made good by him. Contractor shall be solely responsible for any accident in which you or your men or your equipment may be involved during the execution of contract on account of any reason what so ever.

**25. TERMINATION OF CONTRACT:**

In the event of any failure on the part of the contractor, BHEL reserves the right to terminate the contract by giving a notice of 2 weeks for any of the following lapses and contractual violations: -

- a) Failure to make labour payments in time as per the rules
- b) Failure to progress the job according to the agreed schedule
- c) Failure to mobilize adequate man power, tools & tackles and consumables in time
- d) Failure to adhere to Quality Standards of BHEL
- e) Refused to co-operate with other agencies working in the same area
- f) Failure to resolve labour disputes like strikes etc., within 7 days of occurrence
- g) Failure to comply with statutory regulations applicable at BHEL

BHEL shall also be free to intervene and take necessary remedial measures. All costs incurred with interest and overheads shall be recovered from contractor by such foreclosing or off-loading any part of the contract work.

**26. CONFLICT OF INTEREST AMONG BIDDERS / AGENTS:**

A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. ***The bidder found to have a conflict of interest shall be disqualified.*** A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- a) they have controlling partner (s) in common; **or**
- b) they receive or have received any direct or indirect subsidy / financial stake from any of them; **or**
- c) they have the same legal representative / agent for purposes of this bid; **or**
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; **or**
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; **or**
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent / dealer. There can be only one bid from the following:
  - 1. The principal manufacturer directly or through one Indian agent on his behalf, and
  - 2. Indian/foreign agent on behalf of only one principal,
- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid, **or**
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sisters' common business/ management units in same/ similar line of business"

**27. OVER RUN COMPENSATION (ORC) / IDLE CHARGES:**

The contractor shall not be entitled to claim and the company shall not be liable to pay any amount on account of overrun compensation and idle charges, the overrun/ idling may be for whatsoever reasons.

**28. DISPUTES:**

Head of BHEL- HPVP Unit will be the final authority for any disputes arising out of this contract. The disputes / arbitration / settlement of contractual or legal issues shall be under the Jurisdiction of Visakhapatnam Court.

- 29.** For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of Contract / PO / WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

- 30.** The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

**31. Order Acceptance:**

If the order acceptance is not received within 03 days from the date of release of Sub-contract order, it shall be assumed that the same has been accepted by you thereof.

**Signature of the bidder with Stamp**



**Acceptance to Tender Terms & Conditions**

I / We hereby confirm that the Tender documents, Drawings, Quality documents etc. have been studied in detail and we have fully understood the scope of work.

I / We accept to all the Terms and Conditions of the Tender Enquiry without any deviations and the prices quoted are in accordance with the same.

I / We give our acceptance to participate in reverse auction for this tender.

Tender documents duly signed on all the pages by the Owner / authorized representative of the bidder are attached herewith.

**Signature of the bidder with Stamp**

**BUSINESS RULES FOR REVERSE AUCTION (RA)**

This has reference to tender no. **OS/24-25/8044&8045/Bunkers/18/018, dated 20.09.2024**. BHEL shall finalise the Rates for **Fabrication of Coal Bunkers against S.O. 8044 & 8045 at Lovagarden site of BHEL- HPVP, Visakhapatnam** through Reverse Auction mode. BHEL has made arrangement with an authorized Service provider (details will be shared before reverse auction) for conducting RA. Bidders should go through the instructions given below and submit acceptance of the same.

The technical & commercial terms are as per (a) BHEL Tender Enquiry No. **OS/24-25/8044&8045/Bunkers/18/018, dated 20.09.2024**, (b) Bidders' technical & commercial bid (in case of two-part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

**1. Procedure of Reverse Auctioning:**

- i) Price bids of all techno-commercially qualified bidders shall be opened.
- ii) **Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iii) The lowest bidder in sealed envelope price bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.
- iv) Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v) After the completion of the reverse auction, the Closing Price shall be available for further processing.
- vi) Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

**2. Schedule for reverse auction:** The Reverse Auction schedule will be intimated to the techno-commercially qualified bidders at a later stage.

**3. Auction extension time:** If a bidder places a bid in the last {...} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {...} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {...} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {...} minutes. In case, there is no bid in the last {...} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc. The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Reverse Auction.

**4. Bid price:** The Bidder has to quote the {...} Price inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document including loading (if indicated by BHEL due to deviations in technical/ commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).

**5. Bidding currency and unit of measurement:** Bidding will be conducted in *Indian Rupees per Unit* of the material as per the specifications mentioned in the tender.

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

6. **Validity of bids:** Price shall be valid for 90 days from the date of reverse auction. These shall not be subjected to any change whatsoever.
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.
9. **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
10. Any commercial/ technical loading shall be separately intimated to respective bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during Reverse Auction.  
Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.
11. Reverse auction shall be conducted by BHEL (through M/s {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

In order to ward-off contingent situation of connectivity failure bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

12. **Proxy bids:** Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

13. Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc. from M/s. {Service provider}.

14. M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.
15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure – VI) for price breakup, quoted during the Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL within two working days of Auction without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/24-25/8044&8045/Bunkers/18/018, dated 20.09.2024**. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com)).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
  - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
  - b. Bid Placed by the bidder
  - c. Start Price
  - d. Decrement value
  - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines for suspension of business dealings (as available on [www.bhel.com](http://www.bhel.com))*, shall be initiated by BHEL.

**Signature of the Bidder with Stamp**

**GST COMPLIANCE FOR INDIGENOUS SUPPLIERS**

1. In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GSTIN which should be clearly mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
2. Supplier shall mention their GSTIN in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.
3. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
4. A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.
5. All documents like Test Certificate, LR copy, Guarantee/Warranty certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment where ever applicable. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so.
6. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL.
7. For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.
8. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.
9. This is to inform that GST portion of invoice, shall be released only upon Vendor declaring such invoice in his GSTR-1 and receipt of goods and Tax invoice by BHEL and Confirmation of payment of GST thereon by vendor on GSTN portal. Alternatively, BG of appropriate value may be obtained from vendor which shall be valid At least one month after the confirmation of date of payment of GST by vendor on GSTN portal and receipt of Tax invoice and receipt of goods, whichever is later. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.
10. That in case vendor delays Declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

***Note: The above will be followed strictly for processing vendor payments to ensure GST Compliance.***

**Signature of the Bidder with Stamp**

INTEGRITY PACT (AGREEMENT FORMAT)**INTEGRITY PACT****Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

**And**

.....(description of the party along with address), hereinafter referred to as "The Bidder " which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

**Preamble**

The Principal intends to award, under laid-down organizational procedures, Contract/s for

.....  
 ..... The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ .

In order to achieve these goals, the Principal will appoint independent External Monitor(s), who will monitor the tender process and the execution of the Contract for compliance with the principles mentioned above.

**Section 1- Commitments of the Principal**

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.



## **Section 2 - Commitments of the Bidder(s)**

2.1 The Bidder(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender Process or during the execution of the contract.

2.1.2 The Bidder(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

2.2 The Bidder(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

## **Section 3 - Disqualification from Tender process and exclusion from future Contracts**

If the Bidder(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers " framed by the Principal.

## **Section 4 -Compensation for Damages**

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Bidder liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

## **Section 5 - Previous Transgression**

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

## **Section 6 -Equal treatment of all Bidders**

6.1 The Bidder(s) undertake(s) to obtain from all Sub Bidders a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-Bidder whose contract value is more than 20 % of Bidder's contract value with the

Principal. The Bidder(s) shall continue to remain responsible for any default by his Sub-Bidders

6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders.

6.3 The Principal will disqualify from the tender process all Bidders who do not sign this pact or violate its provisions.

### **Section 7 - Criminal Charges against violating Bidders**

If the Principal obtains knowledge of conduct of a Bidder, or of an employee or a representative or an associate of a Bidder, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

### **Section 8 -Independent External Monitor(s)**

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s) accepts that the Monitor has the right to access without restriction to all Contract documentation of the Principal including that provided by the Bidder(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub- Bidder(s). The Monitor is under Contractual obligation to treat the information and documents of the Bidder(s)/ / Sub- Bidder(s) with confidentiality,

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Bidder. The parties offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6 The Monitor will submit a written report to the CMD. BHFL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

### Section 9 - Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by Bidder(s). It expires for the Bidder 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

### Section 10 - Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Bidder is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those Bidders who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

.....  
For & On behalf of the Principal  
(Office Seal)

वा.वी.आर.राव/Y.V.R. RAO

उप महा प्रबन्धक (ओ एस)/Dy.GM (OS)

वीएचईएल, एचपीवीपी/BHEL-HPVP,

Place.....VISAKHAPATNAM-530 012

Date.....

Witness:.....

(Name & Address).....

.....D. N. MURTHY...

.....Manager (OS)...

Bharat Heavy Electricals Ltd

HPVP, Visakhapatnam-530 012

.....  
For & On behalf of the Bidder  
(Office Seal)

Place.....

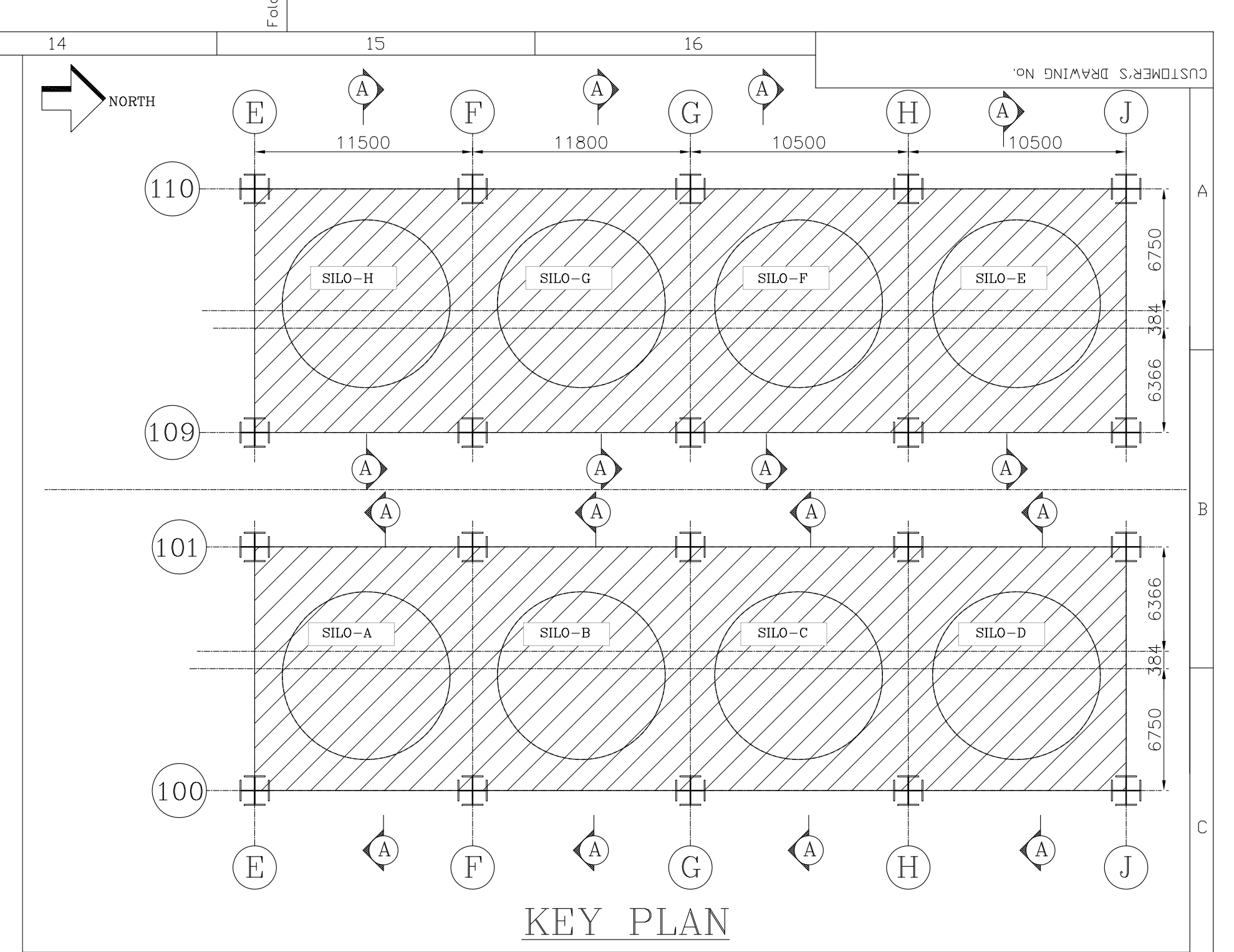
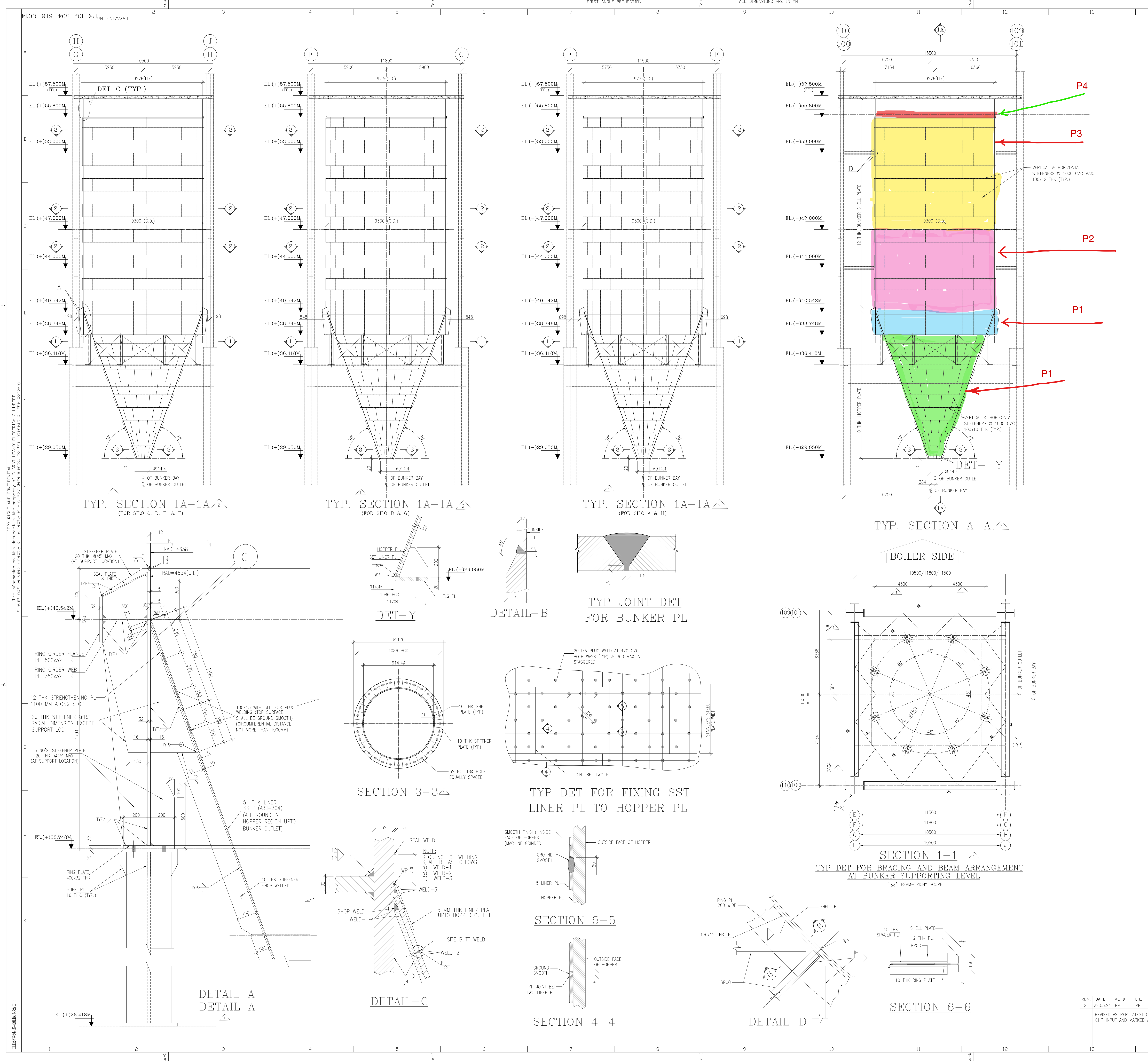
Date.....

Witness:.....

(Name & Address).....

.....  
.....





THIS DRAWING SHALL BE READ IN CONJUNCTION WITH  
DRAWING- PE-DG-504-616-C015

TOTAL APPROX. QTY. OF STR. STEEL = 2000.00 MT (APROX.)

PLATE ABOVE 12 THK. SHALL BE OF GR. E350

- NOTES:-**
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, SPECIFICATIONS AND SCHEDULE OF ITEMS.
  2. ALL ELEVATION LEVELS ARE REFERRED TO THE FINISHED GROUND FLOOR LEVEL OF POWER HOUSE BUILDING AS 0.0M .
  3. ALL DIMENSIONS ARE IN MILLIMETRE AND ALL LEVELS ARE IN METRE.
  4. PROPER CARE SHALL BE TAKEN IN WELDING OF BUNKER PLATES, HORIZONTAL & VERTICAL JOINTS IN BUNKER & HOPPER SHALL BE SUBJECT TO NOT AS PER FOP.
  5. VERTICAL JOINTS IN BUNKER PL. SHALL BE STAGGERED.
  6. PLATE SHALL BE CUT TO MAX WIDTH TO REDUCE NUMBER OF JOINTS.
  7. BEFORE COMMENCING REGULAR FABRICATION OF THE BUNKER TRIAL ASSEMBLY AT SITE OF THE BUNKER INCLUDING HOPPER SHALL BE MADE ATLEAST FOR ONE BUNKER.
  8. ALL END CONNECTIONS FOR BRCC SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS.
  9. STAINLESS STEEL LINER IN THE COAL HOPPER & SILO SHALL BE OF 5.0MM THICKNESS OF GRADE AISI 304L FINISH 2B, COLD ROLLED, ANNEALED AND DESCALE (PICKLED) & SKIN PASSED MATERIAL & SHALL BE PROVIDED ON THE INNER FACE OF INCINED PORTION OF HOPPERS UP TO BOTTOM 300 MM OF VERTICAL PORTION OF SILO, WITHOUT ALLOWING ANY PROJECTIONS IN COAL FLOW PATH.
  10. PLUG WELD IN SST LINER PLATE SHALL BE GROUND SMOOTH TO MATCH WITH PLATE PROFILE.
  11. ALL BUTT WELD OF BUNKER SUPPORTING STRUCTURE SHALL BE 100% RADIOGRAPHED. ELECTRODE E308L FOR WELD JOINTS BET SST PLATES & E309L FOR WELD JOINTS BETWEEN SST PL & MS PLATE.
  12. SPOT RADIOGRAPHY FOR BUTT WELDS SHALL BE CARRIED OUT IN TENSION ZONE AND IN COMPRESSION ZONE AS PER FOP.
  13. ALL SITE FILET WELDS OF BUNKER AND BUNKER SUPPORTING GRIDERS/BEAMS AS PER FOP.
  14. ADEQUATE TEMPORARY STIFFENER TO BE PRORATED TO AVOID BUCKLING DISTORTION OF BUNKER STRUCTURE DURING FABRICATION, HANDLING AND ERECTION STAGE.
  15. VERTICAL JOINT IN SIDE PLATE SHALL BE STAGGERED.
  16. BEAMS MARKED '\*' ARE IN EHEL TRICHY SCOPE.

**ENGG. REF. DRAWING :-**


1. MAIN EQUIPMENT LAYOUT PLAN -----PE-DG-504-100-M002
2. GA & LOAD DATA OF BUNKER CONVR TRIPPER FLOOR -----IS-1-GA-699-101-M019/M022
3. G.A. OF BOILER PLAN A-A-----0-00-022-77733
4. GENERAL NOTES AND STANDARD DETAILS FOR STRUCTURAL STEEL WORKS ----PE-DG-504-600-C002
5. BUNKER PROFILE-----CB-2S-R0.

**LEGEND :**

BOS - BOTTOM OF STEEL	LVL - LEVEL
C/C - CENTRE TO CENTRE	TOS - TOP OF STEEL
Q - CENTER LINE	TYP - TYPICAL
EL - ELEVATION	UNO - UNLESS NOTED OTHERWISE
N/S - NEAR SIDE	
F/S - FAR SIDE	


OWNER DRAWING NO.-552H-E-BTG-CIV-DC-G-V-0001					
PROJECT:	MAHAN ENERGEN LIMITED 2x800MW ULTRA SUPER CRITICAL THERMAL POWER PROJECT MAHAN (PH-II) SINGRAULI, MP				
CUSTOMER:	ADANI POWER LIMITED				
CONSULTANT:	TATA CONSULTING ENGINEERS LIMITED MUMBAI INDIA				
STATUS:	BHARAT HEAVY ELECTRICALS LTD				
COPY RIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED it must not be used directly or indirectly in any way detrimental to the interest of the company.					
DEPT	NAME	SIGN	DATE		
C	SRN	BP	-SD-	14.11.2023	
C	DESIN	PP	PAUL	-SD-	14.11.2023
C	CHD	ALAN	-SD-	14.11.2023	
C	APPD	TMSR	-SD-	14.11.2023	
TITLE					
MILL & BUNKER BUILDING G.A. OF BUNKERS & SUPPORTING DETAILS					
DEPT.	SCALE 1:250	DRAWING NO.			
SIGN		PE-DG-504-616-C014			
SHEET	1	OF	2	REV.	




		<b>MANUFACTURER'S NAME &amp; ADDRESS</b> BHEL VISAKHAPATNAM/ BHEL VISAKHAPATNAM APPROVED VENDOR		<b>MANUFACTURING QUALITY PLAN</b>				<b>PROJECT-</b> ADANI, Mahan Energen Ltd. 2x800 MW, Ph-II TPP , Unit-I		QP NO.: CQP 2554 REV.NO.00 DATE: 03.09.2024 PAGE: PAGE   1 OF 3				
<b>MAIN SUPPLIER'S NAME &amp; ADDRESS:</b> BHEL TRICHY		<b>Item/Sub system:</b> Bunker shells, Hopper & Ring girders				<b>BHEL HPVP SO: 8032</b>		TDC AA10108 R11/IS2062, TDC:301 REV12, TDC:AA10739						
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N						M	C	
1	2	3	4	5	6		7	8	9	D*	** 10			11

1.0	Raw material: The actual materials shall be as per Drawing supplied by BHEL-PS PEM Noida													
1.1	Plates & Rolled sections (As per BHEL approved drawing)	Chemical and Mechanical properties	A	T.C Verification	100%	100%	As per material specification, TDC & BHEL drawing	MTC	✓	P	V	-	For heat treatment and Mechanical tests requirements refer TDC.	
1.2		UT for plates of t>40 mm	A	T.C Verification	100%	100%	ASTM A435 or ASTM A578(Acceptance level A or B)	MTC	✓	P	V	-		
1.3	Stainless Steel Liner Plate	Chemical and mechanical properties	A	T.C Verification	100%	100%	ASTM A 240	MTC	✓	P	V	-	Refer Note 1	
2.0	Welding													
2.1	Procedure Qualification	Welding Parameter	B	Review of Document	100%	100%	AWS D1.1	WPS/ PQR	√	P	V	-		
2.2	Procedure Qualification	Performance	B	Review of Documents	100%	100%	AWS D1.1	WQR	√	P	V	-		
Note:- Weld consumable- BHEL approved make weld consumables are to be utilized.														


3.0	In process control													
3.1	Edge preparation	NDE	C	LPI/MPI	100%	-	BHE-NDT-PT-07026 (Latest) BHE-NDT-MT-07024 (Latest) AWS D1.1	-	-	P	V	-		

 03-09-2024 <b>वड्डि वंशी कृष्ण/Vaddi Vamsi Krishna</b> प्रबन्धक (गुणवत्ता आश्वासन) Manager (Quality Assurance) बीएचएल, एचपीवीपी, विशाखपट्टणम-530 012 BHEL, HPVP, VISAKHAPATNAM-530 012	<b>M</b> <b>JEYARAM</b>	<b>LEGEND:</b> D* Records, identified with "tick" ( ✓ ) shall be essentially included by manufacturer in final documentation. * M: Manufacturer's 'QC', N: Customer/Customer approved P: Perform, W: Witness, V: Verification, A: Critical, B: Major, C: Minor; LTC: Laboratory test certificate	Digitally signed by M JEYARAM Date: 2024.09.04 16:06:41 +05'30'
		Customer	

		MANUFACTURER'S NAME & ADDRESS BHEL VISAKHAPATNAM/ BHEL VISAKHAPATNAM APPROVED VENDOR		MANUFACTURING QUALITY PLAN				PROJECT- ADANI, Mahan Energen Ltd. 2x800 MW,Ph-II TPP , Unit-I			QP NO.: CQP 2554 REV.NO.00 DATE: 03.09.2024 PAGE: PAGE   2 OF 3			
		MAIN SUPPLIER'S NAME & ADDRESS: BHEL TRICHY		Item/Sub system: Bunker shells, Hopper & Ring girders				BHEL HPVP SO: 8032			TDC AA10108 R11/IS2062, TDC:301 REV12, TDC:AA10739			
SL. NO :	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1	2	3	4	5	6		7	8	9	D*	** 10			11


3.2	Fitup Check (checks for Forming/ Rolling of segments)	Radius, Ovality, Dimension, Thickness, Orientation	B	Visual & Measurement	100%	10%	As per BHEL drawing	R	√	P	W	-	Material traceability to be checked by BHEL
3.3	Back gouged area	Surface check & finish	B	LPI	100%	10%	BHE-NDE-PT-07026(Latest)	R	-	P	V	-	
3.4	Visual inspection of all welds	Weld quality	B	Visual	100%	10%	SIP NP 06 (latest)/ AWS D1.1	R	√	P	W	-	

4.0	NDT and PWHT for welds												
4.1	Butt Welds	Weld quality	B	*RT /UT	5%		BHE-NDT-RT-07023 (Latest)	R	√	P	V	-	* 100% RT for ring girders
4.2	Fillet welds	Weld quality	B	LPI	100%	10%	BHE-NDT-PT-07026 (Latest)	R	√	P	W	-	
4.3	Heat Treatment	Time & temperature	B	Review of Documents	100%	100%	As per WPS	R	√	P	W	-	All complete penetration joint of butt welds when t>50mm
4.4	Fitment of SS Liner to CS Shell & Welding	Weld Groove & Offset	B	Visual / Measurement	100%	10%	As per BHEL drawing	R	√	P	W	-	

 <b>वडडि वंशी कृष्ण/Vaddi Vamsi Krishna</b> <b>प्रबन्धन निर्माण (Quality Assurance)</b>	Main Supplier	<b>LEGEND:</b> D* Records, identified with "tick" ( √ ) shall be essentially included by manufacturer in final documentation. <b>** M:</b> Manufacturer, <b>C:</b> Manufacturer's 'QC, <b>N:</b> Customer/Customer approved TPIA, <b>P:</b> Perform, <b>W:</b> Witness, <b>V:</b> Verification, <b>A:</b> Critical, <b>B:</b> Major, <b>C:</b> Minor; <b>MTC:</b> Mill /manufacturer's test certificate, <b>LTC:</b> laboratory test certificate	Customer

**Manager (Quality Assurance)**  
 बीएचएल, एचपीवीपी, विशाखपट्टणम-530 012  
 BHEL, HPVP, VISAKHAPATNAM-530 012




		MANUFACTURER'S NAME & ADDRESS BHEL VISAKHAPATNAM/ BHEL VISAKHAPATNAM APPROVED VENDOR		MANUFACTURING QUALITY PLAN				PROJECT- ADANI, Mahan Energen Ltd. 2x800 MW,Ph-II TPP , Unit-I		QP NO.: CQP 2554 REV.NO.00 DATE: 03.09.2024 PAGE: PAGE   3 OF 3				
		MAIN SUPPLIER'S NAME & ADDRESS: BHEL TRICHY		Item/Sub system: Bunker shells, Hopper & Ring girders				BHEL HPVP SO: 8032		TDC AA10108 R11/IS2062, TDC:301 REV12, TDC:AA10739				
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
					M	C/N					M	C	N	
1	2	3	4	5	6		7	8	9	D*	** 10			11

5.0	<b>Final Inspection.</b>													
5.1	Final Check for Individual Pieces	Visual, Dimension, Hole pitch Ring girder, Identification, Stiffeners etc.,	B	Visual / Measurement	100%	10%	As per BHEL drawing	R	√	P	W	V		
5.2	Dimensional Inspection of each tier	Dimensions, Ovality, Orientation, Match marks, Identification (Erection mark)	B	Visual& Measurements	100%	100%	As per BHEL drawing	R	√	P	W	V		
5.3	Trial assembly of Coal bunkers	Orientation, Match marks,	B	Visual& Measurements	100%	100%	SIP NP 21 (latest)	R	√	P	W	V		
6	Painting , Preservation & protection	Surface preparation	B	Physical/Visual	100%	10%	As per BHEL drawing.	R	√	P	V	-		
		Painting thickness	C	Visual	100%	10%	As per BHEL drawing.	R	√	P	W	V		

**NOTES:**




- 1) SS 304 plates shall be HOT ROLLED NO .1 FINISH (ANNEALED AND PICKLED).




 03-09-2024 <b>वडडि वंशी कृष्ण/Vaddi Vamsi</b> प्रबन्धक (गुणवत्ता आश्वासन) Main Supplier		<b>LEGEND:</b> D* Records, identified with "tick" ( √ ) shall be essentially included by manufacturer in final documentation. ** M: Manufacturer, C: Manufacturer's 'QC, N: Customer/Customer approved TPIA, P: Perform, W: Witness, V: Verification, A: Critical, B: Major, C: Minor; MTC: Mill /manufacturer's test certificate, LTC: laboratory test certificate		Customer	
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**Manager (Quality Assurance)**  
 बीएचएल, एचपीवी, विशाखपट्टणम-530012  
 BHEL, HPVP, VISAKHAPATNAM-530 012

	BTG & AUXILIARIES	OWNER: 552H-E-BTG-BOA-DM-S-V-0001
		CONTRACTOR: PL:C3-PS/1832
MAHAN ENERGEN LTD. (PHASE-II)	PAINTING SCHEDULE	Page 1 of 13
BHEL		

## BTG & AUXILIARIES

	<b>OWNER</b> MAHAN ENERGEN LIMITED(MEL) 2x800 MW ULTRA SUPER CRITICAL THERMAL POWER PROJECT, MAHAN (PHASE-II), SINGRAULI, M.P.
	<b>OWNER'S ENGINEER</b>  TATA CONSULTING ENGINEERS LIMITED
	<b>BTG CONTRACTOR</b> BHARAT HEAVY ELECTRICALS LTD. CUSTOMER NO: U8-1832/1833, UNIT – I & II
<b>LOGO</b>	<b>SUB-CONTRACTOR / SUB-SUPPLIER</b> Not Applicable

<b>PLANT</b>	<b>HIGH PRESSURE BOILER PLANT, TIRUCHIRAPPALLI</b>
<b>DOCUMENT TITLE</b>	<b>PAINTING SCHEDULE</b>
<b>OWNER DOC. NO.</b>	<b>552H-E-BTG-BOA-DM-S-V-0001</b>
<b>CONTRACTOR / SUPPLIER DOC. NO.</b>	<b>PL:C3-PS/1832</b>
<b>PACKAGE DISCIPLINE</b>	<b>BTG &amp; AUXILIARIES</b>
<b>PREPARED BY</b>	<b>K. Srinivasan</b> 
<b>REVIEWED BY</b>	<b>K. Raj Mohan</b> 
<b>APPROVED BY</b>	<b>A. Santha Kumari</b> 

	BTG & AUXILIARIES	OWNER: 552H-E-BTG-BOA-DM-S-V-0001
		CONTRACTOR: PL:C3-PS/1832
MAHAN ENERGEN LTD. (PHASE-II)	PAINTING SCHEDULE	Page 2 of 13
BHEL		

### Revision Control History

Sr. No.	Revision No.	Date	Reasons for Change
1	0	24-10-23	Prepared in line with Annexure-1, ADANI's Technical Specification for painting & coating of equipment & structures and BHEL standard painting system.
2	1	27-11-23	Modified as per TCEL comments dt. 26.10.2023 on painting schedule submitted for approval
3	2	19-12-23	Modified as per TCEL comments dt. 01.12.2023 on painting schedule submitted for approval

Paint shade shall be as per colour coding specified in contract specification (Clause no. 9.3 of Annexure 1 - Painting & Coating of Equipment & Structures)

TATA CONSULTING ENGINEERS LIMITED CONTRACTOR DOCUMENT REVIEW STATUS	
<input checked="" type="checkbox"/>	1 Approved, Further work can Proceed
<input type="checkbox"/>	1* Approved with minor comments. No resubmission is required. To be incorporated in As-Built. Good for Manufacturing/Construction / Fabrication subject to incorporation of comments.
<input type="checkbox"/>	2 Approved with comments. Work can proceed subject to incorporation of comments
<input type="checkbox"/>	3 Not Approved. Revise according to comments & resubmit
<input type="checkbox"/>	4 Retained for Information
<input type="checkbox"/>	4* Incorporate Comments & resubmit for Information & records
<p>Approval conveyed herein neither relieves CONTRACTOR of his contractual obligations and his responsibilities for correctness of dimensions, materials of construction, weights, quantities, design details, assembly fits, system / performance requirements and conformity of supplies with National/ international statutory laws as may be applicable , nor does it limit the Employer's rights under the contract.</p>	
Reviewed by:	<div>DN</div> <div>22-12-2023</div> <div>Date:_____</div>

adani		Categories:
<div>Essakki appan M</div> <div>Digitally signed by Essakkiappan M Date: 2023.12.22 18:39:08 +05'30'</div> <div>Reviewer</div>	<input checked="" type="checkbox"/> Cat-I	Approved. Good for Manufacturing/Construction/Fabrication.
	<input type="checkbox"/> Cat-I*	Approved with minor comments. No resubmission is required. To be incorporated in As-Built. Good for Manufacturing/ Construction/ Fabrication subject to incorporation of comments.
<div>Pravin Kadbe</div> <div>Digitally signed by Pravin Kadbe Date: 2023.12.22 19:38:46 +05'30'</div> <div>Approver</div>	<input type="checkbox"/> Cat-II	Resubmission is required. Approved & Released for Manufacturing/ fabrication/ construction subjected to incorporation of comments.
	<input type="checkbox"/> Cat-III	Not Approved. Revise & Resubmit for Approval
	<input type="checkbox"/> Cat-IV	For Information & Records.
	<input type="checkbox"/> Cat-IV*	Incorporate Comments & resubmit for Information & records.
		<p><i>Note: "Approval of this document does not absolve the Contractor/ Supplier/Fabricator from fulfilling Contractual obligations in any way"</i></p>

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
1 PS1AC	<u>Collector &amp; Separator Vessels (Except Internals), Supports</u> 04-321,323;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	1	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 $\mu\text{m}$ per coat	2	International orange Shade No: 592 of IS5	70
2 PS5	<u>Collector &amp; Separator Vessels internals and Dd items (threaded and machined surfaces only)</u> 04-347;07-302,303,331,360,361,362,393; 08-911,912,913; 09-304; 12-306,314; 12-317,324,327,328,344,348,354,393; 17-304,306,319;19-306,307;21-602,605,700; 24-352,700,803,813,818,827,842,968; 28-700;32-700;34-721to726,730to733; 35-190, 721to727,730; 36-721to727,731to735; 39-700;41-710; 42-700,710;43-710; 45-710;47-710; 48-019,700; 65-710;67-710; <u>Foundation materials: 35-010, 39-010,012</u>	SSPC – SP3 Power Tool Cleaning	Rust Preventive Fluid to PR: CHEM: 09 – 04 DFT=25 $\mu\text{m}$ per coat	1	--	--	--	--	--	25
3 PS19C9	<u>Buck stays</u> 08-001,003,006,007,111,380,400, 08-501,503,901,910; <u>Boiler supporting structures,</u> <u>Columns, Girders, Bracings</u> 34-101 to 106,200,300,390, 34-441 to 446, 511, to 516, 35-131 to 137, 141 to 147, 151 to 157, 35-181 to 187, 211to214, 35-221,222,231,232,311,312,321, 35-322,331,332,341,342,351,352,361,362, 35-372, 381 to 387, 390, 35-441 to 447, 451 to 457, 511 to 517;	Blast cleaning to SA2 ½ (Near white metal) conforming to ISO 8501-1 with surface profile 50-75 $\mu\text{m}$	Inorganic Ethyl Zinc Silicate Primer DFT=75 $\mu\text{m}$ per coat  (refer sheet 12 Sl.no.11 for details)	1	High Build Epoxy MIO coating cured with polyamide hardener coat DFT = 100 $\mu\text{m}$ per coat  (refer sheet 12 Sl.no.10 for details)	1	High Build gloss Aliphatic acrylic Polyurethane paint DFT = 50 $\mu\text{m}$ per coat.  (refer sheet 12 Sl.no.2 for details)	1	Dark admiralty grey to Shade No. 632 of IS 5.	225

For structural steel, all coats shall be applied at shop.

S. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3 PS19C9 (Contd.)	35-521 to 527; 35-531 to 537, 995; <u>Galleries, Stair-ways &amp; inter connecting Walkways</u> 36-111to115,151to155, 36-311to316, 36-321to326,331to338,341to347, 36-351to356,361to366, 36-391 to 395, 36-610,613,620,740; 38-210,299,310,381,410,510,610, 710; <u>ID system structures,</u> 39-101,102,141,142,150,299,300,301, 39-304,305,306; <u>Duct supports</u> 48-015,115,145,205,225,235,265,345,355,365, 48-385,435,465,485,495,665; (Refer note 23 for handrails, step treads released under PGMA of this Sl.No.3) (Refer note 25 for bunker structures)	Blast cleaning to SA2 ½ (Near white metal) conforming to ISO 8501-1 with surface profile 50-75 $\mu\text{m}$	Inorganic Ethyl Zinc Silicate Primer DFT=75 $\mu\text{m}$ per coat  (refer sheet 12 Sl.no.11 for details)	1	High Build Epoxy MIO coating cured with polyamide hardener coat DFT 100 $\mu\text{m}$ per coat  (refer sheet 12 Sl.no.10 for details)	1	High Build gloss Aliphatic acrylic Polyurethane paint DFT 50 $\mu\text{m}$  (refer sheet 12 Sl.no.2 for details)	1	Dark admiralty grey to Shade No. 632 of IS 5.	225
4 PS3	<u>Components &gt;95° C Insulated other than components in Sl.No.7 &amp;9</u> Ring Headers, Down Comers, Hot air Headers outside the gas path etc. (Refer Note 8)  05-137,147,155,227,231,251,327,330,350; 07-102,110,125,223,231,232,317; 12-178, 850,852, 900; 17-776,807; 18-001,010,701; 19-701,702,903;21-600;24-811,824,828; 24-836,837;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	2	--	--	No paint	No paint	Red oxide	60
For structural steel, all coats shall be applied at shop.										

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
4 PS3 (Contd.)	Hot Air: 48-018, 022,116,202,204,207,208, 48-212,214,222,224, 262,264,267,662, 48-664,667; Flue Gas: 48-342,344,352,354,362,364,372, 48-382,384,386, 432,434,462,464,482,484,492, 48-494,496,498;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	2	--	--	No paint	No paint	Red oxide	60
5 PS 9	<u>Components &gt;95° C uninsulated other than components coming in gas path.</u>  Temp: >95°C & <400°C 24-807,820,860,865,867; 42-200,300; Instrument tappings, doors: 48-200,915;	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr. II DFT 20 $\mu\text{m}$ per coat	1	--	--	Heat Resistant Aluminium Paint to IS 13183 Gr. II DFT 20 $\mu\text{m}$ per coat	1	Aluminum	40
6 PS 10	Components uninsulated other than components coming in gas path. (Temp: >400°C & <600°C) 09-003,004,005; 28-220; Components insulated (Temp: >400°C & <600°C) RH & SH headers 10-135,174,176,178,191,235,274,276,278,283, 10-284,285,291; 15-136, 178,236,278;	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr. I DFT 20 $\mu\text{m}$ per coat	1	--	--	Heat Resistant Aluminium Paint to IS 13183 Gr. I DFT 20 $\mu\text{m}$ per coat	1	Aluminum	40
7 PS2	<u>Loose tubes, SH, RH &amp; Eco. coils</u> 11-074,078,374,378,406,467,469, 11-487,491,494,606,608,684,694,716,717,718, 11-767,768,769,787,791,916,917,918,967,968, 11-969,987,991;12-179,181,184,187,368, 12-403,405,514,515,524,544,554; 12-800,803,805,903,914,917,924,927,928,944,948, 12-954,968; 16-079,201,202,203,278,379; 19-092,402,804,814,824,853,884,914,924,984;	SSPC – SP2 or SSPC – SP3 Hand tool / Power tool cleaning	Red Oxide Zinc Phosphate Dip coat primer to PR: CHEM: 09 – 03 DFT=35 $\mu\text{m}$ per coat	1*	--	--	No paint	No paint	Red Oxide	35

\*-In lieu of dip painting, 2 coats of brush painting of Red oxide Zinc Phosphate primer to a coating thickness of 60 $\mu$  is also permitted in line with Sr.No.9.



Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate Coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
8 PS1A	<p>Miscellaneous and casing sheets 07-409,431,460,461,462,502,503,509,531,560; 12-506,906,907,916; 17-919; 21-601,604,606; 24-350,351,354, 800,801,804,805,806,808,809, 24-810,814,815,817,821,825,826,835,840,841,855, 24-950,955,960;30-233,234; 36-396; 39-302;</p> <p>04-147, 547 Fuel firing: 41-350,390,500; Steam blowing piping 42-001,002,005,010,046,065,070,152,154,157; 43-004,104, 200; 45-200,801,802, 804,805,858; 47-261,263, 858;</p> <p>Duct plates, expansion joints 48-911,912; Coal Feeding: 65-736; 67-204,272,277, 283,801,802,803; 95-088,089,091,485;97-585, 592;</p> <p>\$Handling equipment: 99-099,100,300,400,502,600; Nitrogen blanketing system:24-966,967,969; Seal air ducting: 43-005, 105; Cold Air duct:48-012,014, 112,114, 141 Tempering Air: 48-142,144 (Refer note 22 for chequered plates)</p>	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	1	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 $\mu\text{m}$ per coat	2	Smoke Grey Shade No: 692 of IS5	70

\$ - Final Shade is Golden yellow for Under hung crane, Chain Pulley Block, Ratchet Lever and Trolley with hoist. Black shade for Hook.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
9  PS3	<u>Components &gt;95° C coming in the gas path, Headers, Commissioning Spares &amp; erection Materials etc.,</u>  06-400,401,431,434,437,441,444, 06-447,451,452,453,455,500,501,515,731,732, 06-734,735,737,741,744,745,747,751,752,753, 06-755, 759; 07-309,315,316,318,423,993; 10-182,183,184,185; 11-416,474,484; 12-993;17-174,504,506,900,903,993; 19-753,763,783,793,802,850,851,852; 21-987,988; 24-822,823, 987,988, 989, 993; 30-103,105, 212,215,219,223,224,235; 31-010,104; 32-010,210,810; 35-993; 37-010;38-993; 39-993; 41-997; 42-858,997; 43-997;45-997;47-997;48-993; 65-200,997; 67-200,997; 96-193; 97-282,590; 99-501; 41-988; 42-988; (Refer note 20 for info about 32-210)	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	2	--	--	No paint	No paint	Red oxide	60
10  PS1AB	<u>Hand rails and posts, ladders / rungs</u> 34-820,850; 35-821,822,823,851; 36-820,821, 851,852,853; 38-820,850;39-820,850;	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	1	--	--	Synthetic Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 $\mu\text{m}$ per coat	2	BLACK	70
11  PS6	<u>Floor Grills, Step treads</u> 34-810; 35 – 811,812;36-811,812,813,814 38 – 810, 39 – 810;	SSPC – SP8/ Acid pickling	Hot dip Galvanizing to a coating weight of 610 g/m <sup>2</sup> (minimum) and to a coating thickness of 85 $\mu\text{m}$ .  Refer Notes given below **							

Notes \*\*: Guard plates shall be painted as per painting scheme prescribed in Sl. No: 03.

## PAINTING SCHEME FOR VALVES

Sl.No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
12  @PS 9/10	<u>Cast carbon steel valves (Conventional)</u> <u>Cast alloy steel valves (Conventional)</u> <u>All API valves, QCNRV, SV &amp; SRV Silencers,</u> 21-800,825, 24-885; Safety valves & ERV 21-850; 24-880,881,883;	SSPC-SP3/ Power Tool Cleaning	Heat Resistant <b>silicone</b> Aluminium Paint to IS 13183 Gr.II/I DFT= 20 $\mu\text{m}$ per coat	1	--	--	Heat Resistant <b>silicone</b> Aluminium Paint to IS 13183 Gr.II/I DFT= 20 $\mu\text{m}$ per coat	1	Aluminum	40
	Forged valves	Chemical cleaning	Phosphating to a coating weight of 1500 mg per Sq.ft.	--	--	--	--	--	--	--
1AS2	<u>Soot Blower components</u>  20-051,054,201,204,511,794,962.  (Refer note 19 for valve head assembly)	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc Phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 $\mu\text{m}$ per coat	2	--	--	Syn. Enamel paint (Long Oil Alkyd) to IS 2932 DFT= 20 $\mu\text{m}$ per coat	2	Verdigris Green Shade No. 280 of IS5	100
	HP / LP system	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr.I DFT= 20 $\mu\text{m}$ per coat	1	--	--	Heat Resistant Aluminium Paint to IS 13183 Gr.I DFT= 20 $\mu\text{m}$ per coat	1	Aluminum	40

@ Heat resistant **silicone** based aluminum paint to IS 13183 Gr.II shall be applied for temperature up to 400 deg.C, Gr. I shall be applied for temperature >400 deg.C and up to 600 deg.C.

Sl. No.	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$ (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
13 PS15	<u>For CLH &amp; VLH*</u> PGs 07,08,12,17,19,21,24,47,48 &80 07-402 to 405,505;12-517,528; 17-904,906 19-506,507,904,905, 906,907; 24-353; 48-206,395;	Blast cleaning to SA2 ½ (Near white metal) with surface profile 35-40 $\mu\text{m}$	Epoxy zinc rich primer To IS 14589 Gr. II (latest) % VS=35, (min) DFT=40 microns per coat	1	--	--	Aliphatic acrylic Poly-urethane paint to IS13213 (latest) % VS=40.0 (min) DFT= 30.0 microns per coat	1	Phirozi Blue Shade No. 176 of IS5	70
14 PS8C	<u>Components &gt; 95°C &amp; &lt;200°C, un-insulated Fuel pipes</u> 47-200, 267,269;	SSPC-SP3/ Power Tool Cleaning	Heat Resistant Aluminium Paint to IS 13183 Gr. III DFT 20 $\mu\text{m}$ per coat	1	--	--	Heat Resistant Aluminium Paint to IS 13183 Gr. III DFT 20 $\mu\text{m}$ per coat	1	Aluminum	40
15 PS5	All Columns below '0' level (embedded in concrete) PGs 34,35,36,38, 39	SSPC-SP3/ Power Tool Cleaning	Rust Preventive Fluid to PR: CHEM: 09 – 04 DFT=25 $\mu\text{m}$ per coat	1	--	--	--	--	--	25

\*- For components other than CLH & VLH, Painting scheme shall be as given in Sl. No. 8.

**NOTES:**

1. Rust Preventive Coating should be given on HSFG Bolt and nut threads.
2. Machined surfaces and all retainers are to be applied with a coating of Temporary Rust Preventive oil.
3. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves, shall be coated with Temporary Rust Preventive Fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.
4. Ground shade/ Colour of Finish paints & identification tag/Band for equipments, pipings pipe service, boiler supporting structures and other boiler components shall be followed as per Anneure-1, ADANI'S Technical specification for painting & coating of equipment.
5. PGMA's under Sub-Vendor items are not indicated. For all bought-out and sub-vendors items including PGMA's mentioned above falling under the scope of BHEL the same scheme as for main equipment as covered in this document shall be followed. Vendor standard practice has to be followed for PGMA not specified in this document.
6. This painting Schemes is valid for only Customer No: U8/1832 & 1833, MAHAN USTPP - 2X800 MW.
7. No painting is required for Stainless Steel, non-ferrous & galvanized components.
08. Wherever inside surfaces of components under PGMA 48 – XXX & others, need protection till erection, two coats of Red-oxide zinc phosphate primer paint to IS12744 to a DFT of 60 microns shall be applied, after power tool cleaning.
09. The Temporary Rust Preventive coating that already been applied on any components, tubes, pipes etc., shall be visually inspected for good adherence. If the coating is intact, direct coating of alkyd based red oxide paints over the coating is permitted. In case, the coating has peeled off over a large area, then the coating is to be removed by suitable solvents / heating to 350 –400 °C for an hour before primer paint application –but, in this case, it should be ensured that the minimum surface cleanliness required for primer paint application shall be SSPC – SP2 (equivalent – Hand Tool cleaning).
10. In components, wherever plates / sheets of thickness less than or equal to 5 mm and rods of  $\leq 25$ mm/tubes/drain pipes & bent rods are used, power tool / hand tool cleaning to SSPC – SP3 / SP2 shall be followed and the painting shall be done as described in Sl.No.8.
11. For all commissioning components-erection materials (xx-993) two coats of Red oxide Zinc Phosphate Primer shall be applied to meet the temporary protection till erection, after power tool cleaning.
12. Touch-up paintings, making good any damaged shop painting and completing any unfinished portion of the shop coat shall be carried out as per clause 5.0- repair of damaged areas, annexure-1, technical specification.
13. All components covered under different PGMA's are to be painted. In case any component is left out, the same shall be deemed to be included under the relevant section based on paint logic approved.
14. For very small components like clamps etc. which are not having feasible dimensions for blast cleaning, painting scheme of Sl.No.8 shall be followed.

15. For very small components with weldable primer at edges, the entire component shall be applied with weldable primer. Structural members having welded connections at site, relevant area can be painted with primer paint instead of Weldable primer.

16. Painting scheme for all temporary structures like 04-196 shall be PS 1AE i.e. 1 coat of Red oxide Zinc Phosphate primer (Alkyd Base) to IS 12744-DFT-30 $\mu$  and 2 coats of Synthetic Enamel paint (Long Oil Alkyd) to IS 2932-DFT-2X20 $\mu$  Shade Yellow –Shade No. 356 of IS 5- Total DFT 70 $\mu$ . These are to be cut & removed at site after erection. (It excludes components covered under Sr. No. 3 & 9 of description table).

17. For internal protection of Pipes, tubes, headers and other pressure parts, Volatile Corrosion Inhibitor (VCI) pellets shall be put (after sponge testing/ draining/ or drying) and subsequently end capped. The dosage of VCI pellets shall be approximately 100 g/ Cu.m. For tubes typically 4 – 5 tablets per end are to be put. For C & I items the dosage of self-indicating Silica Gel (colourless) shall be 250 g/ cu.m. (About 2 to 3 bags weighing approximately 100 grams each). VCI pellets shall not be used for stainless steel components and its composite associates.

18. All threaded components of spring assemblies and turnbuckles shall be galvanized and achromatized to 15 microns minimum thickness.

19. Soot blower components i.e Valve head assembly having high surface temperature (> 200 and <600 deg. C) shall be applied with protective coating as per PS9 (up to 400 deg.C) and PS10 (up to 600 deg.C)

20. Corner plate, sheet channel and fixing pins of PGMA 32-210, SD-210 shall be painted as per scheme PS3 to total DFT of 60 microns.

21. It is mandatory that for finish coat each layer shall have a permanent DFT and free from any paint defects like sags, wrinkles etc. Total DFT of a component correspond to respective painting scheme has to be ensured and recorded by inspection agency as per QP.

22. For chequered plates, surface preparation can be power tool cleaning to St3 and painting shall be in line with PS1A.

23. Handrails of PGMA under Sl. No. 3 need to be painted in line with scheme for handrails (i.e. Sl .No. 10). Step treads of PGMA under Sl. No. 3 need to be galvanized in line with scheme of Sl .No. 11.

24. Inside surfaces of fabricated structure (e.g. Box type column) shall be painted with two coats of red oxide primer paint during fit up stage.

25. Painting of bunker structures to be in line with painting scheme of supporting structures (Sl. No. 3).

26. All steel structures shall be provided with painting as given in the specification. Further, painting system shall also meet the requirements of corrosivity category C4 as per ISO 12944.

27. For items meant for Spares and subcontracting where no further processing is involved, the painting scheme selected shall be the same as that of similar product configuration/ description.

28. DFT of the coating system shall be determined in accordance with SSPC-PA2 in line with the following procedure.

- a. Ten readings shall be taken for every 10m<sup>2</sup> of painted areas.
- b. 90% of all readings shall be within the specified dry film thickness.

c. Where total dry film thickness accordance with the above procedure falls below the specified minimum, an additional coat of finish paint shall be applied.

Inspection and testing shall comply to 6.0 INSPECTION AND TESTING in ADANI's Technical specification for painting and coating of equipment. Following parameters to be inspected for surface preparation and painting of components.

Components	Surface preparation	Painting
Structures, CLH/VLH (Sl. No. 3,13)	a) Roughness – by comparator or stylus instrument (ISO 8503) b) Cleanliness – Visual comparator for blast cleaning to Sa2.5 level. c) Salt test – by using salt contamination kit	Visual examination & dry film thickness of each coat.
	Ambient and steel temperature, relative humidity, dew point to be recorded prior to blasting & painting	
Pressure parts, ducts, etc. (Sl. No. 1,2,4,5,6,7,8,9,10,12,14,15)	Cleanliness of power tool cleaned surfaces.	Visual examination & dry film thickness of each coat.

### Painting Scheme – Details for procurement & application purposes

Sl. No.	Generic nature of paint	Theoretical Covering Capacity Sq.m per Litre.	No. of pack	Volume solids, % (min)	DFT in microns per coat (approx.)	Shade	Shade No. to IS5	Mode of appln.	Over coating interval, Hrs.
1	Epoxy Zinc rich primer to IS14589 Gr.II (latest)	8	2	35	40	Grey	--	Spray	24
2	High Build gloss Aliphatic acrylic Polyurethane paint.	12	2	62	50	Dark admiralty grey	632 of IS5	Airless Spray	24
3	Heat resistant Aluminium paint to IS 13183 Grade I/II/III (latest)	10	1	-	20	--	--	Brush / Spray	24
4	Red oxide zinc phosphate primer paint to IS 12744 (latest)	10	1	--	30	-	--	Brush / Spray	12
5	Red oxide Zinc Phosphate Dip coat primer paint to PR: CHEM: 09-03	10	1	--	35	--	---	Dip	12
6	Long oil alkyd synthetic enamel finish paint to IS2932 (latest)	17	1	--	20	Reqd. shade	Corrpdg. Shade no.	Brush / Spray	12
7	Temporary Rust preventive fluid to PR: CHE: 09 – 04	10	1	--	25	--	--	--	12
8	General purpose Aluminium paint to IS 2339 (latest)	10	2	--	20	Aluminum	--	Brush	12
9	Self- priming surface tolerant high build epoxy paint	8	2	80	100	--	--	Brush / Spray	12

10	High Build Epoxy MIO coating cured with polyamide hardener, intermediate coat as per IS 16943. (containing lamellar MIO minimum 50% in the dry film)	6	2	60	100 (min)	Brown	--	Airless Spray	24
11	Inorganic ethyl self-curing zinc silicate primer as per IS 14946, metallic Zinc content 75% (min) in the dry film by weight, Zinc dust quality shall be as per ASTM D 520 Type 2.	8	2	60	75 (min)	Grey	--	Airless Spray	24

The covering capacity of paints specified is only approximate. The paints and Rust Preventive fluid shall be procured from BHEL's approved suppliers.

### Painting of Damaged Areas

(Areas where the paint has deteriorated badly by erosion and areas where the paint film has lost its adhesion and where the steel has rusted appreciably, should be repainted as follows)

Sl.No.	Components	Surface Preparation	Primer coat		Intermediate coat		Finish coat			Total DFT $\mu\text{m}$
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
1	Paint damaged components fall under Sl.no: 3	Power tool cleaning of minimum 25mm of surrounding areas to bare metal	Epoxy based surface tolerant paint	2  Total DFT 175 $\mu$ (min)	--	--	As given in scheme	1	As given in scheme	As given in scheme
2	Paint damaged components fall under Sl.no: 1,2,4,5,6,7,8,9,10,12,13,14,15	Power tool cleaning to bare metal	As given in scheme							








**BHARAT HEAVY ELECTRICALS LIMITED**  
**TIRUCHIRAPPALLI 620 014.**

**QUALITY ASSURANCE**

SIP: NP: 21 Rev 00

PAGE: 1 of 3

**Trial Assembly procedure for Coal Bunker, Hopper & Ring Girder**

REV.	DATE	PREPARED	REVIEWED	APPROVED
00	21.03.2015	 M. Jeyaram ,SQAE	 R.Ramasamy,DGM/QA	 U.Revisankaran,AGM/QA&BE

**1.0 Scope:**

This document describes the trial assembly of coal bunker, ring girder and hopper at vendor works to ensure correct matching of individual items during assembly and welding at site. Further, it describes necessary precautions w.r.t forming of shells, fabrication, and specific weld sequence to be followed during execution.

**2.0 Reference Document :**

- a. Drawing
- b. AWS D1.1 M:2010
- c. IS:7215

**3.0 Plate thickness details:**

- a. Bunker shell plate : 12mm ( IS 2062 Gr.A)
- b. Hopper plate : 12mm ( IS 2062 Gr.A)
- c. SS Liner plate : 4mm ( SA240 TP304)
- d. Stiffener / Ring plate : 12mm ( IS2062 Gr.A)
- e. Ring girder : 32 /36 mm ( IS2062 Gr.B)

**4.0 Forming of bunker shell / ring girder / hopper:**

- a. Bunker shell is formed out of 6 tiers each with 4 segments. Similarly, Hopper is formed out of 23 segments in total of 6 tiers. Ring girder is formed out of four segments (refer sketch given below).
- b. For making shell / ring girder / hopper , required rolling machine of suitable capacity and guide roll of required diameter shall be ensured
- c. All the plates used for shells / ring girder / hopper shall be rolled to required shape and radius as per drg. and joined by butt welding .
- d. Flange plates of ring girder shall be cut to the required profile to suit individual segment and all segmented plates shall be edge prepared to enable butt weld.
- e. SS liner plates shall be cut by plasma cutting and smooth finished
- f. Rolled plates shall be locked suitably by temporary attachments to avoid buckling / opening up due to springing action
- g. Welding shall be done as per approved WPS with proper welding sequence
- h. Welding consumables shall be as per approved WPS / Drg.
- i. SS liner plates plug welding shall be completed and ground smooth to match with plate profile as per drg. requirement

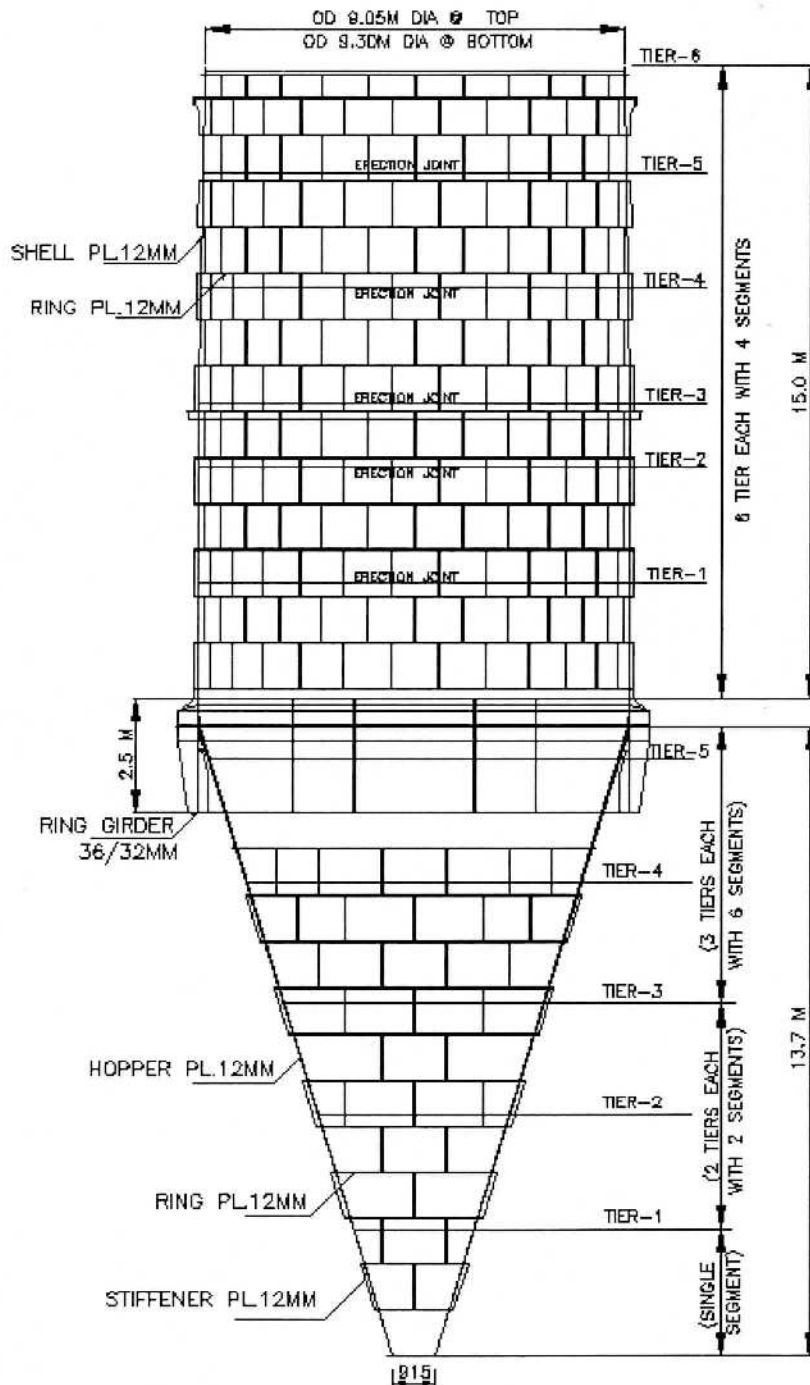
**5.0 Trial assembly****5.1 Individual wall segments of Bunker shell / Ring girder / Hopper**

- a. Fit-up of shell / ring girder/ hopper segments shall be done by making a template using suitable punch presses on the fabrication bed. The segmented plates thus fixed on the marking shall be checked for verticality by Tri-square and vertical piano wire method.
- b. Fit-up of hopper segments shall be done by positioning the segments with the top side ( larger diameter of the conical section ) facing up on the fabrication bed with suitable cross bars to restrain movement during fit-up
- c. Ensure proper fit up to maintain gap between shell segments by welding long cleats to maintain circularity.
- d. Ensure that the level of supporting lug is uniform throughout the circumference of the shell for water level  $\pm 1\text{mm}$
- e. Ensure OD / ID & height dimensions of the shell (segmental) as per drg. Deviation of  $\pm 4\text{mm}$  on diameter of the shell is acceptable.
- f. Ensure segments which are sent as loose (to be assembled at site) to be trial assembled at vendor works with unique match mark numbers / drg. Details (as applicable) and clearly marked on all the individual items / wall segments. The match marks are to be verified and certified before dismantling.

- g. Match marks shall be hard punched before dismantling, stenciled and bordered with white paint.
- h. Ensure suitable stiffeners to be provided on individual wall segments / ring girder for handling and transportation purpose.

## 5.2 Trial assembly of bunker shell / Hopper

- a. Bunker shell / hopper trial assembly shall be done between two consecutive tiers from bottom tier to top tier.
- b. Repeat stages mentioned in SI.No. 5.1 b to 5.1 g
- c. The matching ends shall be clearly recorded with supporting sketch for verification purpose.



**COAL BUNKER, HOPPER & RING GIRDER ARRANGEMENT**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**UNIT- HEAVY PLATES & VESSELS PLANT**  
**VISAKHAPATNAM – 530 012**  
(A Govt. of India Enterprise)

**MANDATE FORM**


**OPTION TO RECEIVE E-PAYMENT THROUGH NEFT & RTGS.**

1. NAME : **BHARAT HEAVY ELECTRICALS LTD (HPVP)**
2. ADDRESS : **NATHAYYAPALE,**  
**VISAKHAPATNAM**
3. PARTICULARS OF BANK ACCOUNT
  - a) BANK NAME : **STATE BANK OF INDIA**
  - b) BRANCH NAME : **BHPV BRANCH**
  - c) BRANCH ADDRESS : **BHPV POST, VISAKHAPATNAM**
  - d) IFSC CODE : **SBIN0001675**
  - e) ACCOUNT NUMBER ; **33276118389**
  - f) E-MAIL ID FOR RECEIVING SYSTEM GENERATED PAYMENT ADVICE :  
rsprakash@bhel.in

I hereby declare that the above account details are of our Receipts Bank Account and this is issued in lieu of cancelled cheque as we are not availing cheque facility for our Receipts Bank Account.

I hereby further declare that particulars furnished above are correct.

FOR **BHARAT HEAVY ELECTRICALS LIMITED**

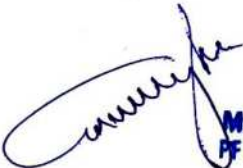
  
( Authorised Signatory ) **SURYA PRAKASH**  
(Manager Finance)  
**HPVP Unit, BHEL**  
**VISAKHAPATNAM-530 012**

**Bank Certification**

This is to certify that the particulars furnished at Point (3), above are correct and complete as per our records.

09/01/24



  
**Murali Krishna Sunkari**  
PF No. 5533805 SS.No. S-30284  
Dy. Manager  
Seal & Signature of Authorised Bank Official

HPVP Unit, VISAKHAPATNAM – 530 012, A.P.,INDIA. Tel.No: +91(0891) 2881280. Fax :+91(0891)2881700.

Registered Office : BHEL House, Siri Fort,NEW DELHI – 110049, India.

Website : <http://www.bhel.com>, Tel.Nos: (91)(11)66337000(Multiple lines),Fax: (91)(11)26493021(Gen.)