



## NOTICE INVITING TENDER

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**Ref: OS/WC/2025-26/77/51**

**Date: 11.09.2025**

**Sub:** Works Contract for Mechanical works of Erection and Commissioning of 65 TPH Utility Boiler-II Revamp Project for TATA STEEL-NEELACHAL ISPAT NIGAM LIMITED (TS -NINL), DUBURI, JAIPUR (DIST), Odisha - Reg.

Tenders are invited under **two bid system**, Techno-Commercial Bid (Part-I) and Price Bid (Part-II) from reputed and experienced contractors with sound technical and financial capability for the subject work.

SL. No.	NAME OF THE WORK	EMD ₹
01	Works Contract for Mechanical works of Erection and Commissioning of 65 TPH Utility Boiler-II Revamp Project for TATA STEEL-NEELACHAL ISPAT NIGAM LIMITED (TS -NINL), DUBURI, JAIPUR (DIST), Odisha	2,00,000/-

### 1. PRE-QUALIFICATION REQUIREMENT:

- I) Average annual turnover of the contractor during the last 3 years ending 31<sup>st</sup> March 24 should be **₹120 Lakhs**).

Tenderer should enclose EPF, ESI, PAN, GSTIN New registration no., Income tax returns for last three years (AY2022-23, 2023-24 & 2024-25), Profit & Loss account and Balance Sheet certified by the Practicing Chartered Accountant for the last 3 years.

- II) The Contractor should have experience of completing similar works during the last 7 years ending **31<sup>st</sup> July 2025** as given below: -

a) Three similar completed works costing not less than the amount **₹160** Lakh each.

OR

b) Two similar completed works costing not less than the amount **₹200** Lakh each.

OR

c) One similar completed work costing not less than the amount **₹320** Lakh.

#### Notes :

- i) Similar Works means Erection & Commissioning of Boilers of Capacity not less than 65TPH  
ii) The works executed in the own name of the tenderer will only be considered for eligibility criteria.  
iii) Work orders & Job Completion Certificates from the customer shall be enclosed in support of successful and satisfactory completion of the orders.

**Note: While scrutiny it is found that If any bidder has made false declaration and/ or provided false information and/ or forged documents or has forged BHEL documents, certificates etc. for securing business, meeting PQR, such offers shall be rejected and action will be initiated as per BHEL extant Guide lines.**

### 2. SCOPE OF THE WORK:

The detailed scope of work is as given at Annexure-I, SOQR, Drawings, Standards & Specifications, enclosed to the NIT.

**3. LOCATION OF SITE:**

TATA STEEL-NEELACHAL ISPAT NIGAM LIMITED (TS -NINL), DUBURI, JAJPUR (DIST), ODISHA-755026 (120 KMS FROM BHUBANESHWAR)

**4. EARNEST MONEY DEPOSIT:**

I. The tenderer shall submit EMD for **₹2,00,000/- (Rupees Two Lakh only)** in the following forms only:

- a) Cash Deposit as permissible under the extant Income Tax Act (before tender opening).
- b) Electronic Fund Transfer credited in BHEL account (before tender opening).
- c) Banker's Cheque/ Pay Order/ Demand Draft, in favour of BHEL, Visakhapatnam (along with offer)
- d) 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 Contractor, a/c BHEL)
- e) Insurance Surety Bonds

In addition to above, the EMD amount in excess of ₹Two lakh may also be accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months

II. EMD by the tenderer will be forfeited as per NIT conditions, if:

- a) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
- b) The contractor fails to deposit the required security deposit or commence the work within the period as per LOI/ Contract.
- c) EMD by the tenderer shall be withheld in case any action on the tenderer 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.

III. EMD given by all unsuccessful tenderers shall be refunded normally within 15 days of award of work.

IV. EMD shall not carry any interest.

V. EMD of successful tenderer will be retained as part of Security Deposit.

**Note: Micro & Small Enterprises (MSEs) 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 along with the offer. Non-submission of such documents will lead to consideration of their bid at par with other bidders. No benefits shall be applicable for this enquiry if any deficiency in the above required documents is not submitted before price bid opening.

**5. SECURITY DEPOSIT (SD):**

Security Deposit shall be collected from the successful tenderer **@5% Contract Value** (Value of actual Quantity Ordered).

A. Security deposit means the security provided by the contractor towards fulfilment of any obligations in terms of the provisions of the contract.

B. The total amount of the security deposit will be **5% of the contract value**. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security deposit.

**C. Modes of Deposit:**

The balance amount to make up the required Security Deposit of **5%** of the contract value may be accepted in the following forms:

- a) Cash (as permissible under the extant Income Tax Act)
- b) Local Cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- c) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the company's act. The bank guarantee format should have the approval of BHEL.
- d) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the company's act (FDR should be in the name of the contractor, a/c BHEL.
- e) Insurance Surety Bonds

(**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)

**D. Collection of Security deposit:**

At least 50% of the required Security Deposit, including the EMD, should be collected before start of the work. Balance of the Security Deposit can be collected by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected.

**In case of delay in submission of performance security, enhanced performance security which would include interest (Repo rate + 4%) for the delayed period, shall be submitted by the bidder.**

If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor.

The recoveries made from running bills (cash deduction towards balance SD amount) can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of the authority competent to award the work.

**Note: In case of (a) small value contracts not exceeding Rs. 20 lakhs or (b) SAS jobs, work can be started before the required Security Deposit is collected. However, payment can be released only after collection/ recovery of initial 50% Security Deposit.**

**E. Refund of Security Deposit:**

- i. The security deposit shall be refunded after successful completion of the Workmanship Guarantee as per agreement and subject to deduction of any amount due to BHEL.
- ii. Security deposit shall not be refunded to the Contractor except in accordance with the terms of the Contract.
- iii. The successful tenderers shall furnish Security Deposit within 15 days from the date of Work Order / Letter of Intent. The Security Deposit shall be furnished by the successful tenderers before commencement of work by them.
- iv. The security deposit shall not carry any interest.

**Note:** Acceptance of Security Deposit against Sl. No. (d) and (e) above will be subject to hypothecation or endorsement on the documents in favour of BHEL. However, 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).

Security Deposit / Bank Guarantee will be released after the maintenance **period of 2 months** or on **closure of contract whichever is later**.

#### 6. **WORK COMPLETION PERIOD:**

Complete Boiler along with commissioning and inspection documents and all other certificates are to be handed over to HPVP/ customer within 06 months from the date of issue of First consignment of free issue materials or 12 weeks from the date of issue of Last consignment of materials, whichever is later.

Note: Time schedule is very stringent and Contractor 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 by BHEL -HPVP and Contractor

#### 7. **DEFECT LIABILITY PERIOD:**

Defect liability period will be **18 (Eighteen) months** from the date of mechanical completion or **12 (Twelve) months** from the date of commissioning, whichever is earlier.

#### 8. **SITE MOBILISATION:**

Successful bidder shall have to complete site mobilization within 15 days from the date of receipt of order or within one week from the date of intimation by BHEL for mobilization, whichever is later. Any delay in mobilization beyond the scheduled period will attract LD.

#### 9. **LIQUIDATED DAMAGES:**

In the event of any delay in completion of work or part thereof as per the contractual completion period due to the reasons attributable to contractor, BHEL - HPVP shall have the right to impose Liquidated Damages at the rate of **0.5%** of the contract value for every complete week of delay or part thereof subject to a maximum of **10.0%** of the contract value.

#### 10. **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.

#### 11. **PRICE VARIATION COMPENSATION (PVC):**

The contractor shall be paid at the contract rates for the actual quantities of work executed only and the contractor shall **not be entitled to claim or receive any extra amount on account of any price escalation either in materials, labour, taxes / duties etc.**, or for any reasons whatsoever and the contract rates are firm and fixed till the completion of the work in all respects.

#### 12. **INCOME TAX:**

Income tax as per statutory requirement will be deducted on each payment made to the contractor and TDS certificate will be issued to this effect.

#### 13. **TDS ON GST:**

TDS on GST amount as per statutory requirement as applicable will be deducted on each payment made to the contractor. Present TDS on GST is 2%.

**14. TERMS OF PAYMENT:**

- **80%** progressive payment against monthly RA bills based on work completed within 45 days for MSE / 60 Days for Medium and 90 days for Large Enterprises from Date of submission of RA Bill.
- **5%** against final painting
- **5%** against mechanical completion & acceptance by BHEL.
- Balance **10 %** on total completion & final acceptance by the customer and after submission of final bill along with all supporting documents as per contract terms and after expiry of Workmanship Guarantee period / Defect Liability Period. However, this 10% retention amount will be released on submission of **Performance Bank Guarantee for an equivalent amount valid up to completion of Defect Liability Period plus a claim period of 3 months.**

**15. MODE OF PAYMENT:**

Payment will be released only through RTGS / NEFT and all documents required for the same are to be submitted by the contractor along with the bill.

**A. R.A Bill:**

- a) Tax Invoice
- b) Measurement sheets duly filled and signed by officials of BHEL and contractor
- c) Proof of GST payment as per Annexure - GST.
- d) RTGS form
- e) WAM 06 duly filled & signed

**B. Final Bill**

- a) Tax Invoice
- b) Work Completion Certificate by BHEL Site in- charge.
- c) Measurement sheets duly filled and signed by officials of BHEL and contractor
- d) No Dues Certificate by BHEL Site in- charge
- e) No Claim certificate by the Contractor.
- f) Proof of GST payment as per Annexure - GST.
- g) RTGS form
- h) WAM 07 duly filled & signed
- i) In case of release of security deposit, WAM-10 to be filled and submitted.

**16. PRICE SCHEDULE, TAXES & DUTIES:**

- a. Prices shall be quoted in the price schedule attached to the tender for the complete scope of work.
- b. The quoted prices shall be exclusive of **GST**. GST as applicable shall be payable by the contractor and the same will be reimbursed as per Annexure-GST on submission of proof of GST payment.
- c. In addition to existing taxes, any new taxes imposed by Central / State Govt. shall be payable by the contractor and same shall be reimbursed on submission of relevant documents/proof of payment.
- d. Any new tax is imposed by Central / State Govt. or there is any variation in taxes after expiry of delivery / contract period, the same shall be borne by contractor only.
- e. All terms & conditions of the contract in respect of taxes & duties are subject to new taxation laws introduced time to time by Govt. and terms & conditions will deemed to be modified in accordance with the provisions of New Laws (i.e., GST).

- f. The quoted prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- g. BOCW CESS applicable at 1% of work order value for this contract and same shall be deducted from RA bills & Final Bill.

#### 17. REVERSE AUCTION:

- A. BHEL shall be resorting to Reverse Auction (RA) (**Guidelines as available on <https://www.bhel.com/guidelines-reverse-auction-2024>**) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of 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.”

This will be decided after techno-commercial evaluation. Bidders have to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider).

#### **B. PROCEDURE OF REVERSE AUCTIONING:**

- 1) Price bids of all techno-commercially qualified bidders shall be opened.
- 2) Reverse Auction: The 'bid decrement' will be decided by BHEL.
- 3) 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.
- 4) 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.
- 5) After the completion of the reverse auction, the Closing Price shall be available for further processing.
- 6) Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

#### **C. REVERSE AUCTION PROCESS:**

- 1) Reverse Auction will be conducted if two or more bidders are techno-commercially qualified.
- 2) The techno-commercially qualified H1 will not be allowed to participate in RA. In case more than one H1 bidder quote the same rate, the Price Offer received last, as per the time log of the Portal, shall be removed first, on the principle of last in, first out by the system.
- 3) However, H1 will be allowed to participate in RA in the following cases:
  - a) If number of techno-commercially qualified bidders are only 2 or 3.
  - b) In case Primary product of only one OEM is left in contention for participation in RA on elimination of H1.
  - c) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MSE and H-1 is eligible MSE and H-1 price is coming within price band of 15% of Non-MSE lowest bidder.
  - d) For cases where there are more than 3 techno-commercially qualified bidders, if lowest bidder in sealed price bid is non-MII and H-1 is eligible MII and H-1 price is coming within price band of 20% of Non-MII lowest bidder.

- 4) Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed price bid along with applicable loading, if any, shall be considered for ranking.
- 5) Start price for RA shall be lowest of sealed envelope price bid.
- 6) If the start price is lower than the lowest sealed envelope price bid, on acceptance of such start price by any bidder this bid would be indicated as current L1 for further bidding. However, if no bidder accepts the start price, RA shall be treated as cancelled for the respective line item(s) and the tender shall be processed accordingly.
- 7) In case of no further bidding, RA will be deemed to have been successful with current L1 bidder. During RA, all bidders will see their rank and current L1 price on the screen. Once the RA is done, the ranking status would be based on the last quoted price of the bidder(s) irrespective of the quote received in RA or sealed envelope price bid.

**For detailed Guidelines visit our website:** <https://www.bhel.com/guidelines-reverse-auction-2024>

- a. 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.
- b. After the completion of the reverse auction, the Closing Price shall be available for further processing.
- c. Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

**For detail Guidelines, visit our website :** <https://www.bhel.com/guidelines-reverse-auction-2021>

#### **18. VALIDITY OF OFFER:**

The offer shall be valid for a period of **3 months** from the last date for tender submission.

#### **19. COMPENSATION IN CASES OF DEATH / PERMENENT INCAPACITATION OF PERSON DUE TO UNINTENDED / UNFORESEEN OCCURENCES DURING MANUFACTURING / OPERATION AND WORK AT BHEL PROJECT SITES / OFFICES:**

BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life / permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employees as detailed below.

- a) **Victim:** Any person who suffers permanent disability or dies in an accident as defined below.
- b) **Accident:** Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious occurrence caused during the manufacturing / operation and works incidental thereto at BHEL Project Sites / offices and precincts thereof, project execution, erection and commissioning, services, repairs and maintenance, trouble shooting, servicing, overhaul, renovation and retrofitting, trial operation, performance guarantee testing undertaken by company or during any works/during working at BHEL project Sites/offices and premises.
- c) Compensation in respect of each of the victims:
  - (i) In the event of death or permanent disability resulting from Loss of both limbs: **₹10,00,000/-** (Rupees Ten Lakhs)

- (ii) In the event of other Permanent disability: **₹7,00,000/-** (Rupees Seven Lakhs)
- d) Permanent Displacement: A displacement that is classified as a permanent total disablement under the provision to Section 2(I) of the Employees Compensation Act, 1923".

**20. RISK PURCHASE:**

**In case the contractor fails to execute the work due to any reason, BHEL 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. Risk & Cost will be implemented as per STANDARD OPERATINGPROCEDURE FOIMPLEMENTATION OF RISK & COST of BHEL.**

**21. BREACH OF CONTRACT:**

In case of Breach of Contract, 10% of the contract value will be recovered from the contractor and necessary action will be initiated as per contract terms and conditions and BHEL extant Guide Lines.

**22. GENERAL:**

**22.1 Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry.**

Deviations to the tender conditions are not acceptable and BHEL-HPVP reserves the right to reject such offers which do not meet Technical / Commercial requirements without any / further correspondence.

**Bids not accompanied with requisite EMD, late / delayed bids, incomplete / conditional offers, bids not conforming to the terms & conditions specified in the tender documents are liable for rejection.**

22.2 BHEL reserves the right to modify or cancel or short close the tender at any stage at its discretion without assigning any reason thereof.

22.3 The bidders shall study the Tender documents and all other relevant documents in detail for understanding the scope of work involved in various items before submission of offers.

For any clarifications required on this tender document, scope of work etc., the bidders shall depute their authorized representatives to HPVP, Visakhapatnam with prior intimation to get clarifications from concerned authorities.

22.4 Shri B.K Singh, **AGM (E&C)** shall be the Engineer-in-charge for herein after referred to as such in the tender. (Contact Details: e-mail: [bk.singh@bhel.in](mailto:bk.singh@bhel.in), Ph.No:0891-288 1818)

22.5 Lowest offer need not be the rate acceptable to BHEL-HPVP. BHEL-HPVP reserves the right for negotiation with the L1 bidders as per applicable guidelines.

22.6 The following documents (enclosed) shall form part of the contract including this Notice Inviting Tender:

Sl. No.	Description of Documents	Documents/ Drawing/ Standard/ Specifications
1	Scope of Work	Annexure- I
2	General Conditions of Contract (Works / Services)	Annexure- II
3	Special Conditions of Contract	Annexure – III
4	Acceptance to the Tender terms & Conditions	Annexure- IV
5	Contractor Information	Annexure-V
6	Check List	Annexure-VI
7	Price Bid (SOQR)	Annexure-VII



**23. TENDER SUBMISSION:**

The tender completed in all respects **shall be submitted** in two parts through online e-procurement portal **<https://eprocurebhel.co.in>** latest by **14.00 Hrs. on 18.09.2025:**

Submission of offer by a tenderer implies that all the tender documents were read by the tenderer and the tenderer is aware of the scope and specifications of the work, site condition, local conditions and rates at which stores, tools and plant, free / chargeable materials etc., will be issued to him by BHEL - HPVP and other factors having bearing on the execution of the work.

**24. OPENING OF TENDERS:**

Bid will be opened on **18.09.2025 at 15.00 Hrs. in online e-procurement portal.**

**If bids are not accompanied by requisite EMD along with part- i (Techno commercial bid), then Part-ii (Price bid) will not be considered for opening.**

**25. INTEGRITY PACT:**

25.1 INTEGRITY PACT (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.

A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those Bidders who have entered to such an IP with BHEL would be competent to participate in the bidding. In other words, entering to this Pact would be a preliminary qualification.

Details of IEM for this tender is furnished below:

Details of IEM for this tender is furnished below:

<u>Sl. No.</u>	<u>IEM</u>	<u>Email</u>
1	Shri Bishwamitra Pandey, IRAS (Retd.)	e-mail : <a href="mailto:iem2@bhel.in">iem2@bhel.in</a>
2	Shri Mukesh Mittal, IRS (Retd.)	e-mail : <a href="mailto:iem3@bhel.in">iem3@bhel.in</a>

25.2 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.

**26. 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.

**27. The Bidder shall declare 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.**

Yours Faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED,

(D Gowri Sankar)  
Sr Manager (OS)

**SCOPE OF WORK**

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**1.0. SCOPE OF WORK:**

1. Material handling scope is limited to shifting from storage location to erection site during execution period.
2. Dismantling, erection and commissioning work.
3. Material will be replaced as per BHEL scope of supply for pressure parts, non-pressure parts and BOCs.
4. Conducting Hydrotest of Boiler Pr. Parts and ATT of duct after completion of erection. Commissioning of MOV actuators, CV, steam blowing & alkali boil out except safety valve floating under BHEL scope

**2. CONTRACTOR'S SCOPE OF WORK:**

**2.1 Erection and Commissioning of 65 TPH UTILITY BOILER-II** as per attached SOQR including NDT, Hydro Test, Alkali boil out, Steam blowing, blasting & painting etc., as per the approved drawings, QAP / ITP, WPS, Procedures, Specifications & Standards, Obtaining Stagewise & Final Inspection Clearance,

**2.2** Contractor's scope of work includes the following activities but it is not limited to the same:

- 2.2.1** Dismantling of existing boiler and associated materials. (including BOC's) and disposal of same to designated places shown by customer (Within 2 kms)
- 2.2.2** All free issue materials like Plates, Structural sections, Pipes, headers, Pipe fittings, Flanges, BOC's etc., in BHEL scope shall be stored at Customer Storage Yard at Dubri.
- 2.2.3** However, shifting from customer storage yard to contractor fabrication yard/ erection location is in Contractor's scope. (Within 2 km).
- 2.2.4** Surface preparation by Blast Cleaning and Coating of Primer & Finish Paints as per approved Painting Schedule including supply of all required paints, wherever applicable. Final painting before handing over shall be in contractor's scope. Painting is to be carried out only by Painters qualified by customer.
- 2.2.5** Supply of all Welding Consumables as per requirement/ specifications at site yard is in Contractor's scope. Contractor has to provide arrangements for storage of the electrodes with Dehumidifier to prevent ingress of moisture and safe custody.
- 2.2.6** Welding is to be carried out by ASME and IBR qualified welders only. Contractor shall arrange for Qualification of Welders including Test Coupons at their own cost
- 2.2.7** Supply of all other consumables like gases, grinding wheels, etc.
- 2.2.8** All Tools & tackles required during fabrication, handling & erection of boiler are in Contractor's scope.
- 2.2.9** Pit-room & Dark Room for Radiography is to be developed by the Contractor at fabrication yard
- 2.2.10** Certified Safety officer is to be deputed by the contractor during the entire contract period.
- 2.2.11** Mobilization: Contractor has to mobilize the site including office space, manpower, tools & tackles, etc within two weeks from the date of intimation of the same from BHEL.
- 2.2.12** Standby generator is to be deployed by the Contractor in case of power failure.
- 2.2.13** Contractor should deploy adequate no. of Qualified Quality Engineer/ NDT personnel (Level III / Level II) at site for carrying out the NDT inspection activities in coordination with BHEL QC –NDT / TPIA. Contractor's shall have to engage sufficient man power and resources for execution to meet HPVP delivery schedules. Non-deployment will attract penalty @rate decided by BHEL and same will be deducted in RA Bills.

**SCOPE OF WORK**

:: 2 ::

- 2.2.14 Contractor shall deploy sufficient no. of calibrated Welding machines, Main Ovens & Portable Ovens required for baking of electrodes etc., at site. All relevant documents shall also be made available for verification & approval by BHEL - HPVP (QC) / TPIA.
- 2.2.15 Required tools & tackles like Measuring instruments like Tape, Fillet & Butt Weld Gauges, Plumb bobs with magnets, Thermal Chalks / Pyrometer etc., shall be calibrated and valid calibration certificates must be presented, if required.
- 2.2.16 All the Scaffolding materials like Pipes, Clamps, Gratings, etc., for temporary platform works required during the complete course of the erection are to be arranged by the Contractor as per customer requirements.
- 2.2.17 Safety PPE's shall be in line with customer mandate.
- 2.2.18 Preparation and submission of Job procedure and schedules in line with customer requirement shall be done by contractor.
- 2.2.19 Arrangement of proper storage and security for BHEL materials till erection shall be arranged by contractor.
- 2.2.20 Contractor's scope shall include arranging & laying of cables, arranging Distribution Boards with suitable capacity Switch Fuse units as incomer, all outgoing 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, Working Area Lighting.
- 2.2.21 Housekeeping of working and surrounding area in scope of vendor
- 2.2.22 For site work, all liaisoning with Director of Factories & Boiler, Govt of Odisha in the scope of vendor
- 2.2.23 Alkali boil out and steam blowing in scope of vendor
- 2.2.24 Fixing of spring support in boiler parts in scope of vendor
- 2.2.25 Any job which required for dismantling, erection & commissioning of boiler during execution but not mentioned above will be in scope of vendor

**3 BHEL SCOPE :** BHEL – HPVP shall provide the following as free issue:

- 3.1 Drawings, GMS, QAP, PQR, WPS, Painting Schedule, applicable Procedures, Standards & Specifications etc.
- 3.2 Raw materials and finished products as per GMS. Transportation of these materials from BHEL-HPVP, Visakhapatnam to Dubri Storage Space is in BHEL scope.
- 3.3 For flaring joints, Expansion Tools will be supplied by BHEL other T&P shall be in contractor scope
- 3.4 Area required for Site Office and Stores inside Dubri site will be provided free of charge. Contractor to mobilize Office container preferably and temporary storage shed for storing their tools and tackles and also pipes, pipe fittings, gaskets, studs, bolts and Nuts etc., which are issued as Free Issue Material by BHEL.

Contd...3

**SCOPE OF WORK**

**:: 3 ::**

**4 NDT & INSPECTION:**

- 4.1 Inspection shall be carried out by M/s. BHEL / BHEL Authorized Inspection Agency (TPIA) / Customer as per approved QAP. Contractor shall have to offer for Stage wise and Final inspection as per approved QAP and obtain necessary stage wise & final clearances before proceeding for further operations.
- 4.2 All the documentation related to inspection clearance of M/s. BHEL / TPI / 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.
- 4.3 All NDT activities like DPT, MPT, RT, UT, etc., shall be carried out as per approved QAP/ drawings by NDT personnel qualified by BHEL as per BHEL Procedure
- 4.4 NDT agency engaged by fabrication contractors shall have to ensure that their NDE personnel are qualified by customer in advance before starting of the job.

**SIGNATURE OF THE TENDERER WITH SEAL**

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 1 OF 40

**TABLE OF CONTENTS****Chapter-1:** General Instructions to Tenderers

- 1.1. Despatch Instructions
- 1.2. Submission of Tenders
- 1.3. Language
- 1.4. Price Discrepancy
- 1.5. Qualification of Tenderers
- 1.6. Evaluation of Bids
- 1.7. Data to be enclosed
- 1.8. Authorization and Attestation
- 1.9. Earnest Money Deposit
- 1.10. Security Deposit
- 1.11. Return of Security Deposit
- 1.12. Bank Guarantee
- 1.13. Validity of offer
- 1.14. Execution of Contract Agreement
- 1.15. Rejection of Tender and other Conditions
- 1.16. Intimation of change of name/re-constitution of the Organization

**2. Chapter-2**

- 2.1 Definitions
- 2.2 Law Governing Contract and Court Jurisdiction
- 2.3 Issue of Notice
- 2.4 Use of Land
- 2.5 Commencement of Work
- 2.6 Measurement of Work and Mode of Payment
- 2.7 Rights of BHEL
- 2.8 Responsibilities of Contractor in respect of Local Laws, Employment of Workers etc
- 2.9 Progress Monitoring, Monthly Review and Performance Evaluation
- 2.10 Time of Completion
- 2.11 Extension of Time for Completion
- 2.12 Over Run Compensation
- 2.13 Secured Recoverable Advances
- 2.14 Quantity Variation
- 2.15 Extra Works
- 2.16 Supplementary Items
- 2.17 Price Variation Clause
- 2.18 Insurance
- 2.19 Strikes & Lockout
- 2.20 Force Majeure
- 2.21 Settlement of Disputes

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 2 OF 40

- 2.22 Retention Amount
- 2.23 Payments
- 2.24 Performance Guarantee for Workmanship
- 2.25 Closing of Contracts
- 2.26 Suspension of Business Dealings
- 2.27 Limitation on Liability
- 2.28 Non-Disclosure Agreement (NDA):
- 2.29 Cartel Formation
- 2.30 Fraud Prevention Policy
- 2.31 Fraud Prevention Policy
- 2.32 Other Issues

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**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 3 OF 40

**CHAPTER -1****1. GENERAL INSTRUCTION TO TENDERERS****1.1. DESPATCH INSTRUCTION**

- i) The General Conditions of Contract form part of the Tender specifications. **For this tender, bidders shall use electronic Signature viz Digital Signature Certificate while uploading the tender documents on the e-procurement portal.** The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages.
- ii) Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. Should the tenderers have any doubt about the meaning of any portion of the Tender Specification or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarification on any of the technical aspect, the scope of work etc., he shall at once, contact the authority inviting the tender well in time (so as not to affect last date of submission) for clarification before the submission of the tender. Tenderer's request for clarifications shall be with reference to Sections and Clause numbers given in the tender documents. The specifications and terms and conditions shall be deemed to have been accepted by the tenderer in his offer. Non-compliance with any of the requirements and instructions of the tender enquiry may result in the rejection of the tender.
- iii) Integrity pact (IP) shall be applicable for all tenders / contracts if indicated in NIT. This IP shall be issued as part of the Tender documents and shall be submitted by the bidder along with Techno-commercial bid duly filled, signed and stamped by the authorized signatory who signs the bid. . Entering into this pact shall be a preliminary qualification.

**1.2. SUBMISSION OF TENDERS**

- 1.2.1. The tenderers must submit their tenders to Officer inviting tender as per instructions in the NIT.
- 1.2.2. Tenders shall be submitted through E-Procurement portal as per instruction in NIT. Tenderers to upload offers well in advance in order to avoid last minute congestion in e-procurement website. However, after submission of the tender, the tenderer can re-submit revised tender but before due date and time of submission of tender as notified.
- 1.2.3. Tenders shall be opened by Officer of BHEL at the time and date as specified in the NIT. For this tender, bidders may attend through online mode, if provisions are available in e-procurement portal.
- 1.2.4. Tenderers whose bids are found techno commercially qualified shall be notified through e-procurement system about the date and time of opening of the Price Bids. BHEL's decision in this regard shall be final and binding.
- 1.2.5. The information given in the tender documents is for general guidance and shall not be construed as contractually binding on BHEL/ Owner. All relevant site data/ information as may be necessary for bidding shall have to be obtained/ collected by the Tenderer.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES		PAGE 4 OF 40	

- 1.2.6. The Tenderers are advised to physically visit the site to acquaint and satisfy themselves about the weather conditions, working culture in the area, socio-political environment, safety & security aspects, law & order situation, law of the land, transportation routes, various distances, surroundings of plant/ project premises together with all statutory, obligatory, mandatory requirements of various authorities and obtain for themselves all necessary information as to the risks, contingencies and all other circumstances, which may influence or affect the discharge of various obligations under the Contract during contract period including extended period (if any).
- 1.2.7. The submission of bid will tantamount to due diligence having been done and it shall be deemed that:
- a) the Tenderer has obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Works
  - b) the Tenderer accepts total responsibility for having foreseen all difficulties and costs of successfully completing the Works
  - c) the Tenderer accepts that, the Contract Price shall not be adjusted to take account of any unforeseeable or unforeseen difficulties or costs and the Tenderer shall not raise any claims/ disputes against BHEL and/ or Owner at later date in any manner whatsoever.
- 1.2.8. The Tenderer shall mandatorily be required to submit “Site Visit Confirmation Declaration” along with the Technical Bid.

### **1.3. LANGUAGE**

- 1.3.1 The tenderer shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words. Tenderers are requested to refer the clauses of NIT/ Vol-II “Price Bid” for more details. For the purpose of the tenders, the metric system of units shall be used.
- 1.3.2 All entries in the tender shall either be typed or written legibly in ink. Erasing and over-writing is not permitted and may render such tenders liable for rejection. All cancellations and insertions shall be duly attested by the tenderer.

### **1.4 PRICE DISCREPANCY:**

- 1.4.1 **Price Bid opening:** During opening of price bids, if there is any difference between the amount in figures and in words, the amount quoted by the bidder in words shall be taken as correct.
- 1.4.2 **Reverse Auction:** In case of Reverse Auction, the successful bidder shall undertake to execute the work as per overall price offered by him during the Reverse Auction process. (Guidelines as available on [www.bhel.com](http://www.bhel.com) on “supplier registration page”).

### **1.5 QUALIFICATION OF TENDERERS**

- i) Only tenderers who have previous experience in the work of the nature and description detailed in the Notice Inviting Tender and/or tender specification are expected to quote for this work duly detailing their experience along with offer.
- ii) Offers from tenderers who do not have proven and established experience in the field shall not be considered.
- iii) The offers of the bidders who are on the debarred list shall be rejected. Further, offer of the bidders, who engage the services of the debarred firms or associated with the debarred firm, for present bid, shall also be rejected. The list of debarred firms is available on BHEL web site [www.bhel.com](http://www.bhel.com). (Refer clause 28.0 of NIT).
- iv) Offers from tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt. of India shall not be considered.

### **1.6. EVALUATION OF BIDS**



**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 5 OF 40

- i) Technical Bids submitted by the tenderer will be opened first and evaluated for fulfilling the Pre-Qualification criteria and other conditions in NIT/Tender documents, based on documentary evidences submitted along with the offer.
- ii) In case the same qualifying experience is claimed by more than one agency, then:
  - a. The agency who has executed the work as per documentary evidence submitted shall only be qualified. Scope of qualifying work should be totally with the agency who has executed and in case it is only labour and consumables without T&P, then the credentials of execution is assigned to the first agency and not to the agency who has executed only as labour supply contractor. Further, BHEL reserves the right to ask for any other proof for the said job.
  - b. However, if the same is on account of subletting, part of scope by one agency to another agency in a project of BHEL, experience of both the agencies may be considered for the sublet portion of the work provided subletting has been done with the approval of BHEL.
- iii) In case the qualifying experience is claimed by bidder is based on 'Work Order' and 'Experience Certificates' from any organization other than BHEL (main agency), then it shall be the responsibility of the bidder to submit (in addition to the experience certificate from main agency) relevant certificate regarding qualifying experience from the end Customer or the Turnkey-Contractor (if any) who has awarded the work to main agency, as a proof for having executed subject qualifying work. BHEL reserves the right to ask for any other proof for the said job.
- iv) Assessing Bidder's Capacity for executing the current tender shall be as per Notice Inviting Tender.
- v) Price Bids of shortlisted bidders shall only be opened through the electronic price bid opening with/without Reverse Auction, at the discretion of BHEL. Unless specified otherwise in the tender, the L1 bidder amongst all the shortlisted bidders shall be considered for award. However, the L1 bidder shall have no claim on the award & BHEL reserves the right to award the tender at its sole discretion.
- vi) Price Bids of unqualified bidders shall not be opened. Reasons for rejection shall be intimated in due course either through system generated e-mail or through letter/e-mail after award to successful bidder.
- vii) Bidders are advised to also refer to clause no 2.9.4 regarding evaluation of their performance in ongoing projects.

**1.7. DATA TO BE ENCLOSED**

**Full information shall be given by the tenderer in respect of the following. Non submission of this information may lead to rejection of the offer.**

- i) **INCOME TAX PERMANENT ACCOUNT NUMBER**  
Certified copies of Permanent Account Numbers as allotted by Income Tax Department for the Company/Firm/Individual Partners etc. shall be furnished along with tender.
- ii) **ORGANIZATION CHART**  
The organization chart of the tenderer's organization, including the names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.
- iii) An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor.
- iv) **IN CASE OF INDIVIDUAL TENDERER:**  
His / her full name, address, PAN and place & nature of business.
- v) **IN CASE OF PARTNERSHIP FIRM:**  
The names of all the partners and their addresses, copy of the partnership deed/instrument of partnership duly certified by the Notary Public shall be enclosed.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 6 OF 40

**vi) IN CASE OF COMPANIES:**

- a) Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished).
- b) Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.

**1.8 AUTHORIZATION AND ATTESTATION**

Tenders shall be signed by a person duly authorized/empowered to do so, for which a Power of Attorney is to be submitted along with the tender offer. For company, a Power of Attorney (as per format in Volume-I D) shall be submitted.

**1.9 EARNEST MONEY DEPOSIT**

1.9.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

- i) EMD shall be furnished before tender opening / along with the offer in full as per the amount indicated in the NIT.
- ii) **The EMD up to an amount of Rs. 2 Lakh** is to be paid only in the following forms:
  - a) Cash deposit as permissible under the extant Income Tax Act (before tender opening).
  - b) Electronic Fund Transfer credited in BHEL account (before tender opening).
  - c) Banker's cheque / Pay order / Demand draft, in favour of 'Bharat Heavy Electricals Limited' and payable at Regional HQ issuing the tender (along with offer).
  - d) 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 Contractor, a/c BHEL) duly marking lien in favour for BHEL (along with offer). The Fixed Deposit in such cases shall be valid for at least six months from the due date of tender submission.
  - e) Insurance Surety Bonds
  - f) **In case EMD amount is more than Rs. Two Lakhs**, Tenderer has the option to submit the amount in excess of Rs. Two lakhs in the forms described above in clause no. 1.9.1. ii) (a) to (e) or in the form of Bank Guarantee from Scheduled Bank (along with the Offer). The Bank Guarantee in such cases shall be valid for at least six months from the due date of tender submission. The Bank Guarantee format for EMD shall be in the prescribed formats.
- iii) No other form of EMD remittance shall be acceptable to BHEL.
- iv) Proof of EMD: Bidder shall upload the scanned copy of EMD along with bid submission through BHEL e-procurement Portal. However, for the purpose of realization, the bidder shall send the demand draft/ banker's cheque/ pay order/ Bank Guarantee/ FDR/ Insurance Surety Bonds, in original, to the designated officer through post/courier or by hand within reasonable time.

1.9.2 EMD by the Tenderer will be forfeited as per NIT conditions, if:

- i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.OR
- ii) The successful Contractor, on whom the work has been awarded, fails to deposit the required Security deposit or commence the work within the period as per LOI/ LOA/ Contract or refuse to accept the LIO/LOA/Contract.

EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" of BHEL and forfeited/ released based on the action as determined under these guidelines.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 7 OF 40

1.9.3 EMD shall not carry any interest.

1.9.4 EMD given by all unsuccessful tenderers shall be refunded normally within fifteen days of award of work.

1.9.5 Cash portion of EMD of successful tenderer will be retained as part of Security Deposit. EMD submitted in the form of Bank Guarantee/ FDR shall be retained by BHEL until the receipt of the Security Deposit.

#### **1.10 SECURITY DEPOSIT**

1.10.1 Upon acceptance of Tender, the successful bidder shall be required to deposit the 5% of the contract value as Security Deposit towards fulfilment of any obligations in terms of the provisions of the contract.

1.10.2 The Security Deposit shall be furnished before start of the work by the contractor.

1.10.3 The required Security Deposit may be accepted in the following forms.

- i) Cash (as permissible under the extant Income Tax Act).
- ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- iii) 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).
- iv) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats.
- v) 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). Specific lien in favour of BHEL on the FDR shall be marked and letter from the Bank having created such lien in the format shall be submitted along with FDR.
- vi) Insurance Surety Bonds.

#### **Note:**

- i. 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.
- ii. In case of delay in submission of Security Deposit, enhanced security deposit which would include interest (Repo rate + 4%) for the delayed period, shall be submitted by the bidder before submission of first bill

1.10.4 The Security Deposit shall not carry any interest.

1.10.5 In case the value of work exceeds the awarded / accepted value, the Security Deposit shall be correspondingly enhanced as given below:

- i) The enhanced part of the Security Deposit shall be immediately deposited by the Contractor or adjusted against payments due to the Contractor.
- ii) Contract value for the purpose of operating the increased value of Security Deposit due to Quantity Variation, shall be exclusive of Price Variation Clause, Over Run Compensation and Extra works done on man-day rates.
- iii) The recoveries made from running bills can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of competent authority of BHEL.

1.10.6. The validity of Bank Guarantees towards Security Deposit shall be valid till actual completion of work + Guarantee Period + 3 months,.

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 8 OF 40

1.10.7 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims, damages and remedies in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL by giving prior notice to the contractor.

**1.11 RETURN OF SECURITY DEPOSIT**

Security Deposit shall be released to the contractor upon fulfilment of contractual obligations as per terms of the contract including completion of Guarantee Period after deducting all expenses / other amounts due to BHEL under the contract.

**1.12 BANK GUARANTEES**

Where ever Bank Guarantees are to be furnished/submitted by the contractor, the following shall be complied with

- i) Bank Guarantees shall be from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. Bank Guarantees issued by Co-Operative Banks/ Financial Institutions shall not be accepted.
- ii) The Bank Guarantees shall be as per prescribed formats.
- iii) It is the responsibility of the bidder to get the Bank Guarantees revalidated/extended for the required period as per the advice of BHEL Site Engineer / Construction Manager. BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.
- iv) In case extension/further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by the Construction Manager and submitted to the Regional HQ issuing the LOI/LOA.
- v) In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder.
- vi) Bidders to note that any corrections to Bank Guarantees shall be done by the issuing Bank, only through an amendment in an appropriate non judicial stamp paper.
- vii) The Original Bank Guarantee shall be submitted to Subcontracting Department of CPC (Central Procurement Cell) - PSHQ of BHEL unless specified otherwise in TCC.

**1.13 VALIDITY OF OFFER**

The rates in the Tender shall be kept open for acceptance for a minimum period of **SIX MONTHS** from latest due date of offer submission (including extension, if any). In case BHEL (Bharat Heavy Electricals Ltd) calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderers.

**1.14 EXECUTION OF CONTRACT AGREEMENT**

The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Award by Bharat Heavy Electricals Limited.

The successful tenderer shall be required to execute an agreement in the prescribed form, with BHEL, within a reasonable time after the acceptance of the Letter of Award, and in any case before releasing the first running bill. The contract agreement shall be signed by a person duly authorized/empowered by the tenderer. The expenses for preparation of agreement document shall be borne by BHEL.

**1.15 REJECTION OF TENDER AND OTHER CONDITIONS**

1.15.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender nor any tender and reserves to itself full rights for the following without assigning any reasons whatsoever: -

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 9 OF 40

- a) To reject any or all of the tenders.
- b) To split up the work amongst two or more tenderers as per NIT.
- c) To award the work in part if specified in NIT.
  - d) In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.

1.15.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc. are liable to be rejected.

1.15.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL or tenderer under suspension (debarred) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India. BHEL reserves the right to not consider a bidder for further processing of tender in case it is observed that they are overloaded and may not be in a position to execute this job as per the required schedule in line with clause no. 9.0 of the 'NIT'. The decision of BHEL will be final in this regard.

1.15.4 If a tenderer who is a proprietor expires after the submission of his tender or after the acceptance of his tender, BHEL may at their discretion, cancel such tender. If a partner of a firm expires after the submission of tender or after the acceptance of the tender, BHEL may then cancel such tender at their discretion, unless the firm retains its character. In case BHEL resolves to cancel the tender under this clause, BHEL will issue a notice in this regard containing reasons as to the cancellation of tender. The contractor shall be required to furnish his response to such notice within a period of 14 days from the date of receipt of such notice through any means (BHEL reserves the right to decrease the period up to 05 days). BHEL after due consideration of the representation made by contractor shall communicate its final decision within a reasonable period.

In case contractor fails to submit any response to the notice issued by BHEL within the period stipulated in the notice, BHEL at its discretion may proceed to cancel the contract.

Contractor shall not be eligible for any compensation whatsoever for the cancellation of contract under this clause

1.15.5 BHEL will not be bound by any Power of Attorney granted by changes in the composition of the firm made subsequent to the execution of the contract. BHEL may, however, recognize such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

1.15.6 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract if awarded and forfeit the Earnest Money/Security Deposit/any other money due.

1.15.7 Canvassing in any form in connection with the tenders submitted by the Tenderer shall make his offer liable to rejection.

1.15.8 In case the Proprietor, Partner or Director of the Company/Firm submitting the Tender, has any relative or relation employed in BHEL, the authority inviting the Tender shall be informed of the fact as per specified format, along with the Offer.

**1.16 INTIMATION OF CHANGE OF NAME/ RECONSTRUCTION OF THE ORGANIZATION:**

In the event of the organization (Proprietorship/Partnership/Company) undergoing any change of name or reconstitution, prior intimation of the same shall be given to BHEL. Upon such changes coming into effect, the same is to be intimated to BHEL immediately with supporting documents as applicable.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 10 OF 40

## **CHAPTER-2**

### **2.1 DEFINITION:**

The following terms shall have the meaning hereby assigned to them except where the context otherwise requires.

- i) BHEL shall mean Bharat Heavy Electricals Limited, a company registered under Indian Companies Act 1956, having its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, and its office at HPVP, Visakhapatnam-530012 (inviting tenders) or its Authorized Officers.
- ii) **“EXECUTIVE DIRECTOR”** or **“GENERAL MANAGER (In- charge)”** or **“GENERAL MANAGER”** shall mean the Officer in Administrative charge of the respective UNIT/Power Sector Region.
- iii) **“COMPETENT AUTHORITY”** shall mean BHEL Officers who are empowered to act on behalf of BHEL
- iv) **“ENGINEER”** or **“ENGINEER IN CHARGE”** shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as “Engineer” on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes **‘CONSTRUCTION MANAGER’** or **‘SITE IN CHARGE’** as well as Officers at Site or at the Headquarters of the respective Power Sector Regions. For the purpose of joint measurement, verification, certification and/ or approval of the work and/ or documents under the contract the word "Engineer" or "Engineer In charge" shall be deemed to include the Engineers of the Customer and/ or his Consultant also.
- v) **“SITE”** shall mean the places or place at which the plants/ equipment are to be erected and services are to be performed as per the specification of this Tender.
- vi) **“CLIENT OF BHEL”** or **“CUSTOMER”** shall mean the project authorities with whom BHEL has entered into a contract for supply of equipment or provision of services.
- vii) **“CONTRACTOR”** shall mean the successful Bidder/Tenderer who is awarded the Contract and shall include the Contractor’s successors, heirs, executors, administrators and permitted assigns.
- viii) **“CONTRACT”** or **“CONTRACT DOCUMENT”** shall mean and includes the Agreement or Work Order, the accepted appendices of Rates, Schedules, Quantities if any, Offer submitted by contractor including acceptance to General Conditions of Contract, Special.

Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments /corrigendum to Tender mutually agreed upon and the Letter of Intent/ Award/ Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES		PAGE 11 OF 40	

not form part of the contract unless, specifically accepted in writing by BHEL in the Letter of Intent/Award and incorporated in the agreement or amendment thereof.

- ix) **“GENERAL CONDITIONS OF CONTRACT”** shall mean the ‘**Instructions to Tenderers**’ and ‘**General Conditions of Contract**’ pertaining to the work for which above tenders have been called for.
- x) **“TENDER SPECIFICATION”** or **“TENDER”** or **“TENDER DOCUMENTS”** shall mean General Conditions, Common Conditions, Special Conditions, Price Bid, Rate Schedule, Technical Specifications, Appendices, Annexures, Corrigendum, Amendments, Forms, Procedures, Site information etc. and drawings/documents pertaining to the work for which the tenderers are required to submit their offers. Individual specification number will be assigned to each Tender Specification.
- xi) **“LETTER OF INTENT/ AWARD”** shall mean the intimation by a Letter/Fax/email to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all terms and conditions of the contract are applicable from this date.
- xii) **“COMPLETION TIME”** shall mean the period by ‘date/month’ specified in the ‘Letter of Intent/Award’ or date mutually agreed upon for handing over of the intended scope of work, the erected equipment/plant which are found acceptable by the Engineer, being of required standard and conforming to the specifications of the Contract.
- xiii) **“PLANT”** shall mean and connote the entire assembly of the plant and equipment covered by the contract.
- xiv) **“EQUIPMENT”** shall mean equipment, machineries, materials, structural, electricals and other components of the plant covered by the contract.
- xv) **“TESTS”** shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL in order to ascertain the quality, workmanship, performance and efficiency of the contractor or part thereof.
- xvi) **“APPROVED”, “DIRECTED”** or **“INSTRUCTED”** shall mean approved, directed or instructed by BHEL.
- xvii) **“WORK or CONTRACT WORK”** shall mean and include supply of all categories of labour, specified consumables, tools and tackles and Plants required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipment to the entire satisfaction of BHEL.
- xviii) **“SINGULAR AND PLURALS ETC”** words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting the masculine Gender shall be taken to include the feminine Gender and words imparting persons shall include any Company or Associations or Body of Individuals, whether incorporated or not.
- xix) **“HEADING”** – The heading in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken as instructions thereof or of the contract.
- xx) **“MONTH”** shall mean calendar month unless otherwise specified in the Tender.
- xxi) **‘Day’** or **‘Days’** unless herein otherwise expressly defined shall mean calendar day or days of twenty-four (24) hours each. A Week shall mean continuous period of seven (7) days.
- xxii) **“COMMISSIONING”** shall mean the synchronization testing and achieving functional operation of the Equipment with associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and Equipment with associated system is ready for taking into service.
- xxiii) **“WRITING”** shall include any manuscript type written or hand written or printed statement or electronically transmitted messages, under the signature or seal or transmittal of BHEL.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES			PAGE 12 OF 40

- xxiv) “**TEMPORARY WORK**” shall mean all temporary works for every kind required in or for the execution, completion, maintenance of the work.
- xxv) ‘**CONTRACT PRICE**’ or ‘**CONTRACT VALUE**’ shall mean the sum mentioned in the LOI/ LOA/ Contract Agreement subject to such additions thereto or deductions there from as may be made under provisions hereinafter contained.
- xxvi) ‘**EXECUTED CONTRACT VALUE**’ shall mean actual value of works executed by the contractor and certified by BHEL. This value shall not include PVC, ORC, Extra Works and Taxes.
- xxvii) “**COMMENCEMENT DATE**” or “**START DATE**” shall mean the commencement/start of work at Site as per terms defined in the Tender.
- xxviii) “**SHORT CLOSING**” or “**FORE CLOSING**” of Contract shall mean the premature closing of Contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor.
- xxix) “**TERMINATION**” of Contract shall mean the pre-mature closing of contract due to reasons as mentioned in the contract.
- xxx) “**DE MOBILIZATION**” shall mean the temporary winding up of Site establishment by Contractor leading to suspension of works temporarily for reasons not attributable to the contractor.
- xxxi) “**RE MOBILIZATION**” shall mean the resumption of work with all resources required for the work after demobilization.
- xxxi) “**OVERRUN CHARGES (ORC)**” shall mean and include all the costs incurred by the Contractor during the extended period of the contract, including but not limited to any cost arising out of idle labour, administrative cost, T & P and machinery.

## 2.2 LAW GOVERNING THE CONTRACT AND COURT JURISDICTION

The contract shall be governed by the Laws of India. Subject to clause 2.21.1.1 of this contract, the Civil Court having original Civil Jurisdiction at .....( e.g. **Delhi for PSNR/ Kolkata for PSER/ Nagpur for PSWR/ Chennai for PSSR**, shall alone have exclusive jurisdiction in regard to all matters in respect of the Contract.

## 2.3 ISSUE OF NOTICE

### 2.3.1 Service of notice to the Contractor

Any notice to be given to the Contractor under the terms of the contract shall be served by sending the same by **Email/ Registered Post/Speed Post to or leaving the same at** the Contractor’s last known address of the principal place of business (or in the event of the contractor being a company, to or at its Registered Office). In case of change of address, the notice shall be served at changed address as notified in writing by the Contractor to BHEL. Such dispatch or display ~~posting or leaving~~ of the notice as the case may be shall be deemed to be good service of such notice and the time mentioned to the condition for doing any act after notice shall be reckoned from the date so mentioned in such notice.

### 2.3.2 Service of notice to on BHEL

Any notice to be given to BHEL In-charge of the Region under the terms of the Contract shall be served by sending the same by Registered/AD or Speed post to BHEL address or changed address as notified in writing by BHEL to the Contractor.

## 2.4 USE OF LAND

No land belonging to BHEL or their Customer under temporary possession of BHEL shall be occupied by the contractor without written permission of BHEL.

## 2.5 COMMENCEMENT OF WORK



Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES		PAGE 13 OF 40	

**2.5.1** The contractor shall commence the work as per the time indicated in the Letter of Intent/Award from BHEL and shall proceed with the same with due expedition without delay.

**2.5.2** If the contractor fails to start the work within stipulated time as per LOI/ LOA or as intimated by BHEL, then BHEL at its sole discretion shall have the right to cancel the contract. The Earnest Money and/or Security Deposit furnished by the contractor to under this tender will stand forfeited without any further reference to him and without prejudice to BHEL's other rights and remedies under this contract and the applicable laws in this regard.

**2.5.3** All the work shall be carried out under the direction and to the satisfaction of BHEL.

## **2.6 MEASUREMENT OF WORK AND MODE OF PAYMENT:**

**2.6.1** All payments due to the contractors shall be made by e mode only, unless otherwise found operationally difficult for reasons to be recorded in writing and approved by contract executing department.

**2.6.2** For progress running bill payments: - The Contractor shall present detailed measurement sheets in triplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per contract. The basis of arriving at the quantities, weights shall be relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with BHEL Engineers and signed by both the parties.

**2.6.3** These measurement sheets will be checked by BHEL Engineer and quantities and percentage eligible for payment under various groups shall be decided by BHEL Engineer. The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in Measurement Book and signed by both the parties.

**2.6.4** Based on the above quantities, contractor shall prepare the bills, along with statutory documents, in prescribed format and work out the financial value. These will be entered in Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.

**2.6.5** All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained to the contrary.

**2.6.6** Measurement shall be restricted to that portion of work for which it is required to ascertain the financial liability of BHEL under this contract.

**2.6.7** The measurement shall be taken jointly by persons authorized on the part of BHEL and by the Contractor.

**2.6.8** The Contractor shall bear the expenditure involved if any, in making the measurements and testing of materials to be used/ used in the work. The contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.

**2.6.9** If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re measurements shall be borne by the contractor unless such re measurements are warranted solely for reasons not attributable to contractor.

**2.6.10** Passing of bills covered by such measurements does not amount to acceptance of the completion of the work measured. Any left out work has to be completed, if pointed out at a later date by BHEL.

Final measurement bill shall be prepared in the final bill format prescribed for the purpose based on the certificate issued by BHEL Engineer that entire works as stipulated in tender specification has been completed in all respects to the entire satisfaction of BHEL. The Contractor shall submit

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 14 OF 40

the final bill in line with WAM 7 format as per tender documents with an additional recording of the dispute, if any and shall sign with the following declaration:

*I/ We hereby certify that I/We have performed the work as per the terms and conditions of Contract Agreement/Work Order No.....dated.....for which payment is claimed as above and that I/We have no further claim under this agreement/work order\* except for the following (nature of claim with details & amount claimed, if any. NIL may be mentioned if there are no further claims). –*

a).....

b).....

c) .....

It is agreed that the authorized signatory of Contractor shall necessarily record his claims/ dispute in Form WAM 7 only and any claim(s)/ dispute in any other form/ letter shall not be taken cognizance of by BHEL and admissible before any forum. BHEL shall make the payment of undisputed amount within the stipulated time without any unreasonable delay.

All the tools and tackles loaned to him should be returned in satisfactory condition to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Books and signed by both parties to the contract. The Final Bill shall be prepared and paid within a reasonable time after completion of work.

## **2.7 RIGHTS OF BHEL**

BHEL reserves the following rights in respect of this contract during the original contract period or its extensions if any, as per the provisions of the contract, without entitling the contractor for any compensation.

**2.7.1** To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to fulfil BHEL's commitment to its customer or the date of completion is advance due to other emergent reasons/ BHEL's obligation to its customer.

Where the contractor fails to deploy adequate manpower to meet the contractual target, BHEL reserves the right to deploy manpower to meet such shortfall, through any other agency for expediting activities in the interest of the project. Supplied manpower shall be put on job by the contractor. Fulfilling of all obligations towards payments and other statutory compliances related to such manpower shall be the contractor's responsibility. In case of contractor's failure to fulfil his obligations in respect of such manpower, BHEL shall be entitled to take action as provided herein.

### **2.7.2 BREACH OF CONTRACT, REMEDIES AND TERMINATION:**

**2.7.2.1** The following shall amount to breach of contract:

- I. Non-supply of material/ non-completion of work by the Supplier/Vendor within scheduled delivery/ completion period as per contract or as extended from time to time.
- II. The Supplier/Vendor fails to perform as per the activity schedule and there are sufficient reasons even before expiry of the delivery/ completion period to justify that supplies shall be inordinately delayed beyond contractual delivery/ completion period.
- III. The Supplier/Vendor delivers equipment/ material not of the contracted quality.

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 15 OF 40

- IV. The Supplier/Vendor fails to replace the defective equipment/ material/ component as per guarantee clause.
- V. Withdrawal from or abandonment of the work by the Supplier/Vendor before completion as per contract.
- VI. Assignment, transfer, subletting of Contract by the Supplier/Vendor without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- VII. Non-compliance to any contractual condition or any other default attributable to Supplier/Vendor.
- VIII. Any other reason(s) attributable to Vendor towards failure of performance of contract. In case of breach of contract, BHEL shall have the right to terminate the Purchase Order/ Contract either in whole or in part thereof without any compensation to the Supplier/Vendor.  
Any of the declarations furnished by the contractor at the time of bidding and/ or entering into the contract for supply are found untruthful and such declarations were of a nature that could have resulted in non-award of contract to the contractor or could expose BHEL and/ or Owner to adverse consequences, financial or otherwise.
- IX. Supplier/Vendor is convicted of any offence involving corrupt business practices, antinational activities or any such offence that compromises the business ethics of BHEL, in violation of the Integrity Pact entered into with BHEL has the potential to harm the overall business of BHEL/ Owner.

**Note**—Once BHEL considers that a breach of contract has occurred on the part of Supplier/Vendor, BHEL shall notify the Supplier/Vendor by way of notice in this regard. Contractor shall be given an opportunity to rectify the reasons causing the breach of contract within a period of 14 days.

In case the contractor fails to remedy the breach, as mentioned in the notice, to the satisfaction of BHEL, BHEL shall have the right to take recourse to any of the remedial actions available to it under the relevant provisions of contract.

**LD against delay in executed work in case of Termination of Contract:**

LD against delay in executed work shall be calculated in line with LD clause no. 2.7.9 of GCC, for the delay attributable to contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination of contract.

Method for calculation of "LD against delay in executed work in case of termination of contract" is given below.

- i) Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor = T1
- ii) Let the value of executed work till the time of termination of contract = X
- iii) Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were planned for execution till termination of contract = Y
- iv) Delay in executed work attributable to contractor i.e.  $T2 = [1 - (X/Y)] \times T1$
- v) LD shall be calculated in line with LD clause (clause 2.7.9) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

**2.7.2.2 REMEDIES IN CASE OF BREACH OF CONTRACT.**

- i) Wherein the period as stipulated in the notice issued under clause 14.1 has expired and Contractor has failed to remedy the breach, BHEL will have the right to terminate the contract on the ground of "Breach of Contract" without any further notice to contractor.

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 16 OF 40

- ii) Upon termination of contract, BHEL shall be entitled to recover an amount equivalent to 10% of the Contract Value for the damages on account of breach of contract committed by the Contractor. This amount shall be recovered by way of encashing the security instruments like performance bank guarantee etc available with BHEL against the said contract. In case the value of the security instruments available is less than 10% of the contract value, the balance amount shall be recovered from other financial remedies (i.e. available bills of the contractor, retention amount, from the money due to the Contractor etc. with BHEL) or the other legal remedies shall be pursued.
- iii) wherever the value of security instruments like performance bank guarantee available with BHEL against the said contract is 10% of the contract value or more, such security instruments to the extent of 10% contract value will be encashed. In case no security instruments are available or the value of the security instruments available is less than 10% of the contract value, the 10% of the contract value or the balance amount, as the case may be, will be recovered in all or any of the following manners:
- iv) In case the amount recovered under sub clause (a) above is not sufficient to fulfil the amount recoverable then; a demand notice to deposit the balance amount within 30 days shall be issued to Contractor.
- v) If Contractor fails to deposit the balance amount within the period as prescribed in demand notice, following action shall be taken for recovery of the balance amount:
  - a from dues available in the form of Bills payable to defaulted Contractor against the same contract.
  - b If it is not possible to recover the dues available from the same contract or dues are insufficient to meet the recoverable amount, balance amount shall be recovered from any money(s) payable to Contractor under any contract with other Units of BHEL including recovery from security deposits or any other deposit available in the form of security instruments of any kind against Security deposit or EMD.
  - c In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted Contractor.
- vi) It is an agreed term of contract that this amount shall be a genuine pre-estimate of damages that BHEL would incur in completion of balance contractual obligation of the contract through any other agency and BHEL will not be required to furnish any other evidence to the Contractor for the purpose of estimation of damages.
- vii) In addition to the above, imposition of liquidated damages, debarment, termination, descoping, short-closure, etc., shall be applied as per provisions of the contract.

**Note:** The defaulting contractor shall not be eligible for participation in any of the future enquiries floated by BHEL to complete the balance work. The defaulting contractor shall mean and include:

- (a) In case defaulted contractor is the Sole Proprietorship Firm, any Sole Proprietorship Firm owned by same Sole Proprietor.
- (b) In case defaulted contractor is The Partnership Firm, any firm comprising of same partners/ some of the same partners (but not including any new partner); or sole proprietorship firm owned by any partner(s) as a sole proprietor.

In case Contractor fails to deploy the resources as per requirement informed by BHEL in writing to expedite the work, BHEL can deploy own/hired/otherwise arranged resources and recover the

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 17 OF 40

expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.

**2.7.4** To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contract with their customer are terminated for any reason, whatsoever.

**2.7.5** Whenever any Claim or Claims for payment of any sum of money(s) arises under this or any other contract against the contractor, BHEL shall be entitled to withhold and also have a lien to retain such sum of money(s) in whole or in part from any money(s) payable to contractor and/or security deposits furnished or deducted in cash from the bills of contractor, (if any) under this contract. In the event of the securities or the amounts payable to Contractor, being insufficient to cover BHEL claims, then BHEL shall be entitled to withhold and have a lien to the extent of such claims from any sum or sums found payable or which at any time thereafter may become payable to the contractor under this or any other contract with BHEL.

- a) Claim or Claims for payment of any sum of money(s) arising from the Contractor under this or any other contract against the contractor, shall mean, the sum of money(s) actually incurred by BHEL in fulfilling the contractual responsibilities of contractor under the contract, to which he has failed to fulfil plus applicable overheads (@ 5%) along with interest as applicable under the Contract on total amount (i.e. money actually incurred plus overheads)
- b) It is an agreed term of the contract that, the sum or sums of money so withheld or retained under the lien by BHEL will be kept withheld or retained as such by BHEL till the claims arising out of this or any other contract are finally adjudicated wither through Arbitration or a Court of competent jurisdiction as the case may be in accordance with the terms of contract. Intimation given by the BHEL Engineer regarding withholding of such money(s) shall be considered as sufficient and relevant date for all purposes. No Interest shall be payable on such sum(s) of money which becomes due or as the case may be adjudged to be due from BHEL to Contractor, whether under contract or otherwise.
- c) Where the contractor is a partnership firm, BHEL shall be entitled to withhold and also have a lien to retain towards such claims in whole or in part, from any other money(s) payable to any partner, whether in his individual capacity or otherwise.
- d) If any money(s) shall, as a result of any claim or application made under the relevant provisions of any Labour Welfare Act and/ or Rules, including but not limited to Contract Labour Regulation & Abolition Act, Minimum Wages Act, Payment of Gratuity Act, BOCW (RE&CS ) Act, Provident Fund Act, Employee State Insurance Act, be directed to be paid by the BHEL, such money shall be deemed to be moneys payable to the BHEL by the Contractor.
- e) Where the Contractor fails to repay to BHEL such moneys along with applicable overheads (@ 5%) and interest, as aforesaid within seven days of being demanded, BHEL shall be entitled to recover the same from Contractor's bills/ Security Deposit or any other money(s) payable to Contractor under this Contract or any other Contract with BHEL.

**2.7.6** While every endeavour will be made by BHEL to this end, yet BHEL cannot guarantee uninterrupted work due to conditions beyond its control. The Contractor will not be normally entitled for any compensation/extra payment on this account unless otherwise specified elsewhere in the contract.

**2.7.7** BHEL may permit or direct contractor to demobilize and remobilize at a future date as intimated by BHEL in case of following situations for reasons other than Force majeure conditions and not attributable to contractor:

- i) suspension of work(s) at a Project either by BHEL or Customer,
- or

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 18 OF 40

- ii) where work comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than three months

In such cases, charges towards demobilization and remobilization shall be as decided by BHEL after successful remobilization by contractor at site, and decision of BHEL shall be final and binding on the contractor. After remobilization, all conditions as per contract shall become applicable. In case Contractor does not remobilize with adequate resources or does not start the work within the period as intimated, then BHEL reserves the right to terminate the contract and effect remedies under Clause 2.7.2.2. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.

**2.7.8** In the unforeseen event of inordinate delay in receipt of materials, drawings, fronts etc. due to which inordinate discontinuity of work is anticipated, BHEL on its own or contractor's request at its discretion may consider to short close the contract in any of the following cases:

- a) The balance works (including but not limited to Trial Operation, PG Test etc.) are minor vis a vis the scope of work envisaged as per the contract.
- b) There has been no significant work in past 6 months OR no significant work is expected in next 6 months (example in Hydro projects or in projects where work has stopped due to reasons beyond the control of BHEL).
- c) The balance works cannot be done within a reasonable period of time as they are dependent on unit shut down or on other facilities of customer or any other such reasons not attributable to the contractor.

At the point of requesting for short closure, contractor shall establish that he has completed all works possible of completion and he is not able to proceed with the balance works due to constraints beyond his control. In such a case, the estimated value of the unexecuted portion of work (or estimated value of services to be provided for carrying out milestone/stage payments like Trial Operation/PG Test etc.) as decided by BHEL, shall however be reduced from the final contract value.

**Note:** The Contractor shall not be eligible for any compensation on account of Quantity Variation arising out of short-closure of contract as per clause no. 2.7.8 (b) above.

**2.7.9 LIQUIDATED DAMAGES**

Liquidated Damages, wherever referred under this Tender/Agreement, shall mean and refer to the damages, not in the nature of penalty, which the contractor agrees to pay in the event of delay in delivery of stores, installation, commissioning, breach of contract etc. as the case may be.

Liquidated Damages leviable upon the contractor is a sum which is agreed by the parties as a reasonable and genuine pre-estimate of damages which will be suffered by BHEL on account of delay/breach on the part of the contractor.

Liquidated Damages shall be calculated in the manner stipulated hereinafter:

In case the work is not completed within the stipulated time period, BHEL at its discretion may grant provisional time extension to contractor for the sole purpose of completion of balance works keeping its right reserved under the contract and law.

Grant of any provisional time extension shall by no means be considered as waiver of BHEL rights under the contract or law.

After the completion of work, duly certified by Engineer in charge, a comprehensive delay analysis shall be carried out to ascertain the attribution of delays in the provisional time extensions granted to contractor. The delay analysis shall record:

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 19 OF 40

a) Delays solely attributable to contractor

b) Delays attributable to BHEL

c) Delays on account of Force Majeure (as specified elsewhere in the contract)

The total period under the final time extension shall be equal to the period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/ levied for the portion of time

extensions solely attributable to contractor and recoverable from the dues payable to the contractor.

For the periods, wherein the delay as per the comprehensive delay analysis carried out is solely attributable to contractor, BHEL shall have the right to impose Liquidated Damage at the rate of 0.5% of the contract value, per week of delay or part thereof subject to a maximum of 10% of the contract value.

Contract Value for this purpose, shall be the final executed value exclusive of ORC, Extra Works executed on Man-day rate basis, Supplementary/ Additional Items and PVC. Before levying LD, the contractor shall be duly intimated the amount and reasons thereof for imposition of LD.

## **2.8 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC.**

The following are the responsibilities of the contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The subcontractor shall fully indemnify BHEL against any claims of whatsoever nature arising due to the failure of the contractor in discharging any of his responsibilities hereunder:

- 2.8.1** As far as possible, Unskilled Workers shall be engaged from the local areas in which the work is being executed.
- 2.8.2** The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religious and other customs.
- 2.8.3** The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Regulations, Notifications etc. such as Payment of Wages Act, Minimum Wages Act, Workmen Compensation Act, Employer's Liability Act, Industrial Disputes Act, Employers Provident Fund and Miscellaneous Provisions Act, 1952, Employees State Insurance Scheme, Contract Labour (Regulation and Abolition) Act, 1970, Payment of Bonus & Gratuity Act, Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, The Building and Other Construction Workers' Welfare Cess Act 1996 and other Acts, Rules, and Regulations for labour/workers as applicable and as may be enacted by the State Government and Central Govt. during the tenure of the Contract and having force or jurisdiction at Site. The Contractor shall also comply with provisions of and give all such notices to the local Governing Body, Police and other relevant Authorities as may be required by the Law. The Contractor shall without any fail maintain all the registers/records in proper formats as per all the Acts, Rules and Regulations mentioned in this clause 2.8.3.
- 2.8.4** The Contractor shall obtain independent License under the Contract Labour (Regulations and Abolition) Act, 1970 for engaging contract labour as required from the concerned Authorities based on the certificate (Form- V or as applicable) issued by the Principal Employer/Customer.
- 2.8.5** The contractor shall pay and bear all taxes, fees, license charges, Cess, duties, deposits, tolls, royalties, commission or other charges which may be leviable on account of his operations in executing the contract.
- 2.8.6** While BHEL would pay the inspection fees and Registration fees of Boiler/Electrical Inspectorate, all other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES			PAGE 20 OF 40

etc. will have to be made by contractor. However, BHEL will not make any payment to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.

- 2.8.7** Contractor shall be responsible for provision of Health and Sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act), Safety precautions etc. as may be required for safe and satisfactory execution of contract.
- 2.8.8** The contractor shall be responsible for proper accommodation including adequate medical facilities for personnel employed by him.
- 2.8.9** The contractor shall be responsible for the proper behaviour and observance of all regulations by the staff employed by him.
- 2.8.10** The contractor shall ensure that no damage is caused to any person/property of other parties working at site/company" premises. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.
- 2.8.11** All the properties/equipment/components of BHEL/their Client/Customer loaned with or without deposit to the contractor in connection with the contract shall remain properties of BHEL/their Client/Customer.
- 2.8.12** The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipment/components shall be deemed to be in good condition when received by the contractor unless he notifies within 48 hours to the contrary. The contractor shall return them in good condition as and when required by BHEL/their Client. In case of non-return, loss, damage, repairs etc. the cost thereof as may be fixed by BHEL Engineer will be recovered from the contractor.
- 2.8.13** In case the contractor is required to undertake any work outside the scope of this contract, the rates payable shall be those mutually agreed upon if the item rates are not mentioned in existing contract.
- 2.8.14** Any delay in completion of works/or non-achievement of periodical targets/or non execution of contract due to the reasons attributable to the contractor, the same may have to be compensated by the contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.
- 2.8.15** The contractor shall arrange, coordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.
- 2.8.16** All safety rules and codes applied by the Customer /BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract.  
The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices.  
Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL/Customer. The contractor has to assist in HSE audit by BHEL/Customer and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL/Customer.
- 2.8.17** The contractor shall be directly responsible for payment of wages to his workmen/labours



Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 21 OF 40

before the expiry of seven days from the last day of wage period and to ensure disbursement of wages in the presence of the representative from BHEL. A pay roll sheet giving all the payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL site for the purpose of maintaining the records for compliance,

Contractor shall create awareness amongst their workforce by helping & encouraging in opening bank accounts and to encourage them to adopt digital mode of transactions. While releasing wages/ salary to their workers/ supervisors/ staff, Contractor shall comply with the GOI's guidelines for maximizing such transactions through Non-Cash / digital means.

- 2.8.18** In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.
- 2.8.19** Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor's labour and Tools & Plants being rendered idle due to any reason at any time.
- 2.8.20** The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL or their Customer whichever is earlier.
- 2.8.21** The contractor shall not stop the work or abandon the site for whatsoever reason of dispute, excepting force majeure conditions. All such problems/disputes shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly.
- 2.8.22** The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor.
- 2.8.23** The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.
- 2.8.24** The Contractor to note that some of BHEL's T&Ps/MMDs may not be insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is caused due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time, BHEL shall be to recover the loss from the contractor.
- 2.8.25** For all works having contract value of Rs. 5,00,000/- or above, BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life/ permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employees as detailed below.
- Victim: Any person who suffers permanent disablement or dies in an accident as defined below.
  - Accident: Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious occurrence caused during the manufacturing/ operation and works incidental thereto at BHEL factories/ offices and precincts thereof, project execution, erection and commissioning, services, repairs and maintenance, trouble

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 22 OF 40

shooting, serving, overhaul, renovation and retrofitting, trial operation, performance guarantee testing undertaken by the company or during any works/ during working at BHEL Units/ Offices/ townships and premises/ Project Sites.

c) Compensation in respect of each of the victims:

i. In the event of death or permanent disability resulting from Loss of both limbs: ₹10,00,000/- (Rupees Ten Lakh).

ii. In the event of other permanent disability: ₹.7,00,000/- (Rupees Seven Lakh)

d) Permanent Disablement: A disablement that is classified as a permanent total disablement under the proviso to section 2 (I) of the Employee's Compensation Act, 1923.

**2.8.26** Contractor shall be fully responsible for the safety of their T&Ps and other material mobilized at site. In any case, BHEL shall not be liable for any damage/loss/misuse of any item(s) belong to the contractor.

**2.8.27** Contractor will ensure that the work/job is executed through his/her employees on and under no circumstances, the contractor shall subcontract the job without prior written permission from BHEL.

**2.8.28** The liability for any compensation on account of injury sustained by an employee of the contractor will be exclusively that of the contractor.

## **2.9 EXECUTION PLAN, PROGRESS MONITORING, MONTHLY REVIEW AND PERFORMANCE EVALUATION**

**2.9.1** A tentative plan/ programme for completion of the contractual scope of work as per the time schedule given in the contract shall be made jointly by BHEL and Contractor, before commencement of work. The above programme shall be supported by month wise deployment of resources viz Manpower, T&P, Consumables, etc. Progress will be reviewed periodically (Daily/Weekly/Monthly) vis-à-vis this jointly agreed programme.

Subsequently, every month, quarterly rolling plan will be made by BHEL based on budgeted targets.

Monthly plan in F-14 format shall be drawn from this Quarterly plan. Monthly plan shall necessarily include activities required for achieving targets/ milestones unless inputs/ fronts are not available. While planning and arriving on asking rate all available inputs shall be taken into consideration.

Vendor will be required to execute the monthly plan in that month in addition to make full efforts to minimize the cumulative shortfall attributable to him up to the month.

BHEL may require monthly work plan up to one and half times of average monthly value and demand matching manpower.

Where, Average Monthly Value = Total Contract Value (as per latest revision) / Period of Contract (in months) Provided, this requirement is reflected in the rolling quarterly plan two months in advance.

If the Contractor refuses to sign the F-14 format, those F-14 formats requiring Contractor's signature shall be deemed to have been signed and accepted by the Contractor, if communicated to the Contractor through email or any other mode as stated in clause 2.3.1.

The Contractor shall submit periodical progress reports (Daily/Weekly/Monthly) and other reports/information including manpower, consumables, T&P mobilization etc. as desired by BHEL.

**2.9.2** Monthly progress review between BHEL and Contractor shall be based on the agreed programme as above, availability of inputs/fronts etc., and constraints if any, as per prescribed formats (i.e. Form F-14). Manpower, T&P and consumable reports as per prescribed formats shall be

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 23 OF 40

submitted by contractor every month. Release of RA Bills shall be contingent upon certification by BHEL Site Engineer of the availability of the above prescribed formats duly filled in and signed.

**2.9.3** The burden of proof that the causes leading to any shortfall is not due to any reasons attributable to the contractor is on the contractor himself. The monthly progress review shall record shortfalls attributable to (i) Contractor, (ii) Force Majeure Conditions, and (iii) BHEL

**2.9.4** Performance of the Contractor shall be assessed as per prescribed formats and shall form the basis for 'Assessment of Capacity of Bidder' for Tenders where the Contractor is a bidder. BHEL reserves the right to revise the evaluation formats during the course of execution of the works.

## **2.10 TIME OF COMPLETION**

**2.10.1** The time for completion shall be as mentioned in the LOA/Contract. The time for completion shall be reckoned from the date of commencement of work at Site as certified/notified in writing by BHEL Engineers.

**2.10.2** Time being the essence of the contract, the entire work shall be completed by the contractor within the time schedule or within such extended periods of time as may be allowed by BHEL under clause 2.11.

## **2.11 EXTENSION OF TIME FOR COMPLETION**

**2.11.1** If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract. If the completion of work gets delayed for reasons not attributable to the contractor, the contract period may be suitably extended at the sole discretion of BHEL.

**2.11.2** Based on the F-14 formats, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.

**2.11.3** However, if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take under Clause 2.7.2 of GCC i.e. Breach of Contract, Remedies and Termination.

**2.11.4** Planning, progress monitoring, monthly review and performance monitoring shall be carried out as per clause 2.9 of GCC.

## **2.12 OVERRUN COMPENSATION –**

**2.12.1 ORC during original contract period:** No ORC shall be applicable during the original contract period.

**2.12.2 ORC during extended period for the reasons solely attributable to contractor:** No ORC shall be applicable during the extended period granted for the reasons solely attributable to contractor and work executed during this period shall be paid as per original contract rates.

**2.12.3 ORC during extended period for the reasons not attributable to contractor:** ORC shall be payable as per following procedure:

**2.12.3.1** For initial period of twelve months of extended period, ORC rate applicable over executed value shall be 5%. For every subsequent period of twelve months, ORC rate shall be further increased

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 24 OF 40

by 5% over the previous rate. For example, ORC rates applicable for initial period of 12 months and subsequent period of 12 months are given below.

Sl. No.	Extended Period for the reasons attributable to BHEL	ORC rate applicable over executed value
1	First 12 months	5%
2	13 <sup>th</sup> -24 <sup>th</sup> month and so on	10.25% $\{[(1.05 \times 1.05) - 1] \times 100\}$

This process of increasing ORC rate for each subsequent period of 12 months shall continue till applicability of ORC.

**2.12.3.2** On completion of original contract period as well as on completion of each subsequent period of twelve months i.e. at the time of change in applicable ORC rate, Delay Analysis shall be carried out and percentage shortfall attributable to both BHEL & Contractor shall be calculated.

**2.12.3.3** For the purpose of calculation of ORC, executed value of work in the month shall be divided in Part-1 and Part-2 in proportion of percentage shortfall attributable to BHEL and contractor respectively, based on the last delay analysis as worked out in 2.12.3.2.

ORC shall be payable only on Part-1 and no ORC shall be payable on Part-2.

Value of Part-1 shall be further limited to the value of actual inputs provided by BHEL i.e.

“Plan - Shortfall attributable to BHEL” for the month, as per Form-14 for calculation of ORC.

**2.12.3.4** Payment of ORC amount shall be further regulated as follows:

- (i) 50% of the ORC is allocated for deployment of matching resources (with weightages) agreed as per the joint programme drawn vide 2.11.4. ORC Payment against resources shall be calculated in proportion to percentage of resources actually deployed w.r.t. planned resources, as per Form-14.
- (ii) 50% of ORC is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. ORC Payment shall be reduced in proportion to percentage shortfall attributable to contractor w.r.t. “Plan - Shortfall attributable to BHEL” for the month, as per Form-14.

**2.12.3.5** The maximum amount of ORC payable for the month shall be limited to Rs. 10,00,000/- (Rupees Ten Lakhs).

**2.12.3.6** In case, there is no shortfall attributable to contractor for the month and also contractor has deployed the resources as agreed in Form-14 but ORC amount payable for the month worked out as per procedure mentioned in clause 2.12.3.3, 2.12.3.4 and 2.12.3.5, is less than Rs.1,00,000/-, then ORC amount payable for the month shall be Rs.1,00,000/- otherwise ORC amount payable for the month shall be as per procedure mentioned in Clauses clause 2.12.3.3, 2.12.3.4 and 2.12.3.5.

**2.12.3.7** In case execution is on **HOLD** (Other than Force Majeure), ORC shall be payable as per following:

- i). Contractor has not been permitted by BHEL to de-mobilize  
ORC amount of Rs. 1,00,000/- per month shall be applicable during the period of HOLD
  - a) provided resources as planned are deployed (not demobilised) during the period of hold.
  - b) Subsequent to lifting of HOLD, Period of HOLD shall not be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.
- ii). Contractor has been permitted to demobilize and to remobilize after lifting of HOLD
  - a) No ORC shall be payable to contractor for the period of HOLD.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES			PAGE 25 OF 40

- b) Subsequent to lifting of HOLD, Period of HOLD shall not be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.

**2.12.3.8** In case **Force Majeure** is invoked:

- i). No ORC shall be applicable during the period of Force Majeure.
- ii). Subsequent to revocation of Force Majeure, period of Force Majeure shall be excluded in calculation of period for deciding applicable ORC rate as per clause 2.12.3.1.

**2.12.4** Applicability of ORC: ORC shall not be applicable for following activities.

- i). Area cleaning, removal of temporary structures and return of scrap.
- ii). Punch list points / pending points liquidation pending due to reasons attributable to contractor
- iii). Submission of “As built Drawing”
- iv). Material Reconciliation
- v). Completion of Contract Closure formalities like HR Clearance/ No dues from various dept./ Statutory Authorities etc.

**2.12.5** Total Over Run Compensation shall be limited to 10% of the cumulatively executed contract value till the month (excluding Taxes and Duties if payable extra). For this purpose, executed contract value excludes PVC, ORC and Extra/Supplementary Works.

**2.13 SECURED RECOVERABLE ADVANCES:**

**2.13.1 INTEREST FREE MOBILIZATION ADVANCE:** Competent Authority of BHEL may approve proposals for payment of Interest Free Secured Mobilization Advance (limited to a maximum of 5% of the Contract Value) only in Installation Works in Power Plants under exceptional circumstances.

Interest Free Mobilization Advance shall be disbursed in specifically mentioned stages of major resource mobilization in the beginning of the contract, as specified in the TCC, in three or more instalments with the value of any instalment not more than 2.5% of the Contract Value. The next instalment will be due only on completion of the activities linked to the previous instalment.

Each such instalment is to be secured through BG of 100% of the instalment amount. Recovery of Interest Free Secured Advance shall be made @ 10% of Running Bill Amount. As and when the total recovered amount exceeds any of the BG value submitted against the advance, that BG shall be returned. In any case, Interest Free Advance shall be fully recovered by the time the contract reaches 50% of the original contract period either from Running Bills or by the Contractor directly depositing the amount. If the Contractor fails to deposit the total amount by the stipulated date, the recovery shall be made by encashing BGs/ Securities available with BHEL for the balance amount.

**2.13.2 INTEREST BEARING ADVANCE:**

**2.13.2.1 INTEREST BEARING MOBILIZATION ADVANCE:** Competent authority may also approve need based Interest Bearing Mobilization advance after a certification from the Contractor for having achieved a financial progress of 10% of the original contract price. However, the total mobilization advance (including Interest Free Mobilization Advance) shall not exceed 10% of the Contract Value. Bank Guarantee towards ‘Interest Bearing Recoverable Advance’ shall be 110% of the advance so as to enable recovery of not only principle amount but also the interest portion, if so required.

**2.13.2.2 INTEREST BEARING SECURED ADDITIONAL INTERIM ADVANCE:** In exceptional circumstances, with due justification, Competent Authority of BHEL may approve proposals for payment of additional interim interest-bearing advance against Bank Guarantee, for resource augmentation towards expediting work for project implementation. Contractor shall establish

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 26 OF 40

the utilization of advance drawn in the form of Utilization Certificate before the release of next instalment.

Bank Guarantee shall be 110% of the advance so as to enable recovery of not only principle amount but also the interest portion, if so required. Unadjusted amount of advances (including Interest Free Mobilization Advance) paid shall not exceed 10% of the total contract value at any point of time.

**NOTES for INTEREST BEARING ADVANCE:**

- (a) Recovery of Interest Bearing Advances shall be made from the Running Bills progressively. Recovery rate per month for Interest Bearing Advances shall be the sum of:
  - i) Not less than 10% of Running Bill amount
  - ii) Simple interest up to the date of RA Bill on the outstanding Principle amount/amounts
- (b) In any case, Interest Bearing Advance shall be fully recovered by the time the contractor's billing reaches 90% of contract value either from Running Bills or by the Contractor directly depositing the amount. If the Contractor fails to deposit the total amount by the stipulated date, the recovery shall be made by encashing BGs/ Securities available with BHEL for the balance amount along with interest.
- (c) Payment and recovery of any of the above advance(s) shall be at the sole discretion of BHEL and shall not be a subject matter of arbitration.
- (d) The rate of interest applicable for the above advances shall be the repo rate prevailing on the date of release of advance plus 4%, and such rate will remain fixed till the total advance amount is recovered.
- (e) Contractor to submit Bank Guarantee as per prescribed formats for each of the advance and shall be valid for at least one year or the recovery duration whichever is earlier. In case the recovery of dues does not get completed within the aforesaid BG period, the contractor shall renew the BG or submit fresh BG for the outstanding amount, valid for at least one year or the remaining recovery duration whichever is earlier. For each advance, the Contractor will be allowed to submit more than one BG so that the BGs can be returned progressively based on recovered amount. In case, the Contractor prefers to submit single BG against an advance, the amount of BG may be progressively reduced by the amount repaid by the Contractor. (f) BHEL is entitled to make recovery of the entire outstanding amount in case the contractor fails to comply with the BG requirement.

**2.13.3 SECURED ADVANCE AGAINST MATERIAL BROUGHT TO SITE:**

Secured advance on the security of materials (which are not combustible, fragile or perishable in nature) brought to the site but not yet incorporated in the works will be made up to 75% of Invoice value, or the 75% of the corresponding value of the materials determined on the basis of BOQ rates, whichever is less, subject to the condition that their quantities are not excessive and shall be used within a period of 90 days and subject to the stipulations, as mentioned below:

- (i) Contractor shall obtain prior permission of Engineer-in-charge before procurement of materials against which advance is being sought. Engineer-in-charge shall ensure formal approval of Construction Manager before communicating the permission to Contractor.
- (ii) Secured advance shall not be allowed/ payable for materials procured by Contractor before the date of such permission.
- (iii) Secured Advance shall be allowed only once against a single invoice. Multiple Secured Advance against single invoice is not allowed.
- (iv) Secured advance against materials shall be paid only against non-perishable items. Engineer-in-charge to ensure that such items are adequately covered under insurance cover (to be taken by the Contractor if not covered under BHEL Insurance Policy).

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 27 OF 40

- (v) At any point of time, the unadjusted secured payments against material brought to site shall not be more than 5% of the Contract Value.
- (vi) The advance will be repaid from each succeeding Running bill(s) to the extent materials for which advance has been previously paid have been incorporated into the works. In any case, such advance payment shall be fully recovered maximum from 3-4 subsequent RA bills whether the material is consumed in the work or not. In absence of sufficient value of RA bills for making the required recovery, the Contractor shall deposit the balance amount. If the Contractor fails to deposit the total amount by the stipulated date, the recovery shall be made by encashing the Securities available with BHEL for the balance amount.
- (vii) Contractor has to give a formal deed of hypothecation, drawn up on non-judicial stamp paper under which the BHEL secures a lien on the materials and is safeguarded against losses, due to the contractor postponing the execution of the work or due to the shortage or misuse of materials and against the expenses incurred on their watch and safe custody.

**2.14 QUANTITY VARIATION****2.14.1 Variation in Final Executed Contract Value**

The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). No compensation becomes payable in case the variation of the final executed contract value is within the limits of Minus (-) 15% of awarded contract value. Also, no compensation becomes payable in case the contract gets partially executed/ short closed/ terminated/ work withdrawn under Rights of BHEL mentioned in Clause 2.7 of GCC. In case of work terminated/ short closed under clause 2.7.4 of GCC, compensation may be considered only if BHEL receives compensation from customer.

Compensation due to variation of final executed contract value in excess of the limits defined in clause above, shall be as follows:

- i) In the event the finally executed contract value reduces below the lower limit of awarded Contract Value due to quantity variation specified above, the Contractor will be eligible for compensation @ 15% of the difference between the lower limit of the awarded contract value and the actual executed contract value.
- ii) In the event the finally executed contract value increases above the awarded Contract Value due to quantity variation, the Contractor is not eligible for any compensation.

**2.14.2 Variation in Individual Quantities of BOQ Item(s)**

The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). No compensation becomes payable in case the variation of the quantity of individual BOQ item(s) is within the limits of Plus (+) 100% of the quantity in the original price schedule in this regard.

In case executed quantity for a particular BOQ item(s) exceeds two times the quantity in the original price schedule (100% increase), then the revision in rates for such BOQ item(s) for the quantity in excess of two times the quantity in the original price schedule including any subsequent increase in quantity, may be considered based on request from the Contractor, however, BHEL decision in this regard shall be final. Revised rates for subject BOQ item(s) shall be worked out on the basis of prevailing market rates mutually agreed between BHEL and Contractor. PVC/ ORC will not be applicable for these revised rates.

BHEL, however, retains the right to arrange the excess quantity through any other source for expediting activities in the interest of the Project.

**Note:**

- (a) Revision in rates under clause 2.14.2 will remain admissible in those cases also, where, the Contractor is eligible for compensation under clause 2.14.1 i).

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 28 OF 40

- (b) The value of work executed at revised rates due to variation in Individual Quantities of BOQ Item(s) shall be included while calculating the finally executed contract value in clause no. 2.14.1 above.

## 2.15 EXTRA WORKS

- 2.15.1** All rectifications/modifications, revamping and reworks required for any reasons not due to the fault of the contractor, or needed due to any change in deviation from drawings and design of equipment, operation/maintenance requirements, mismatching or due to damages in transit, storage and erection/commissioning and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, will be considered as extra works.
- 2.15.2** Extra works arising on account of the contractor's fault, irrespective of time consumed in rectification of the damage/loss, will have to be carried out by the contractor free of cost. Under such circumstances, any material and consumable required for this purpose will also have to be arranged by the contractor at his cost.
- 2.15.3** All the extra work should be carried out by a separately identifiable gang, without affecting routine activities. Daily log sheets in the pro-forma prescribed by BHEL should be maintained and shall be signed by the contractor's representative and BHEL engineer. No claim for extra work will be considered/entertained in the absence of the said supporting documents i.e. daily log sheets. Signing of log sheets by BHEL engineer does not necessarily mean the acceptance of such works as extra works.
- 2.15.4** BHEL retains the right to award or not to award any of the major repair/ rework/ modification/ rectification / fabrication works to the contractor, at their discretion without assigning any reason for the same.
- 2.15.5** After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

**MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS:** Single composite average labour man-hour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework/repairs/ rectification/ modification/ fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit ,storage and erection damages, payment, if found due will be at Rs139/- per man hour.

- 2.15.6** The above composite labour man hour rate towards extra works shall remain firm and not subject to any variation during execution of the work. PVC will not be applicable for extra works. Rate revision, Over Run Charges/compensation etc. will not be applicable on extra works.

### **2.15.7 Extra Works for Civil Packages** shall be regulated as follows –

- i) Rates for Extra Works arising due to (1) non availability of BOQ (Rate Schedule), OR (2) change in Specifications of materials/works (3) rectification/modification/dismantling & re-erecting etc. due to no fault of Contractor, shall be in the order of the following:
  - a) Item rates are to be derived from similar nature of items in the BOQ (Rate Schedule) with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities.
  - b) As per latest edition of CPWD-DSR with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities OR Notification issued by the office of CPWD for 'Cost Index' in that Region where the project is being executed with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities, whichever is less.



Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 29 OF 40

- c) Item rates are to be worked out on the basis of market rates prevailing on the date of execution mutually agreed between BHEL and Contractor.
- ii) PVC and ORC will not be applicable for (i) above.

## 2.16 SUPPLEMENTARY ITEMS

### 2.16.1 For NON-Civil Works

Supplementary items are items/works required for completion of entire work but not specified in the scope of work. Subject to certification of such items/works as supplementary items by BHEL Engineer, rates shall be derived on the basis of any one of the following on mutual agreement:

- i) Based on percentage breakup/rates indicated for similar/nearby items.
- ii) In case (i) above does not exist, then BHEL/site may derive the percentage breakup/rates to suit the type of work.

### 2.16.2 For Civil Works

- i) Rates for Supplementary Works/Additional Works arising out due to additions/alterations in the original scope of works as per contract subject to certification of BHEL Engineer shall be worked out as under:
  - a) Item rates which are available in existing BOQ (Rate Schedule) shall be operated with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities  
Items of works which are not available in existing BOQ shall be operated as an 'Extra Works' and rate shall be derived as per clause no 2.15.7
- ii) Execution of Supplementary Works/Additional Works through the Contractor shall be at the sole discretion of BHEL, and shall be considered as part of executed contract value for the purpose of Quantity Variation as per clause 2.14
- iii) BHEL Engineer's decision regarding fixing the rate as above is final and binding on the contractor.
- iv) PVC and ORC will not be applicable for (i) above.

## 2.17 PRICE VARIATION COMPENSATION –

2.17.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS, Price Variation Formula as described herein shall be applicable.

2.17.2 85% component of Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index, shall be as under:

SL NO.	CATEGORY	INDEX/ AVERAGE MINIMUM WAGE	PERCENTAGE COMPONENT ('K')		
			CIVIL PACKAGES (See Note A/B/C)	MECHANICAL PACKAGES	Electrical , C&I Material Management/ Handling and

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 30 OF 40

							other labour oriented Packages
			A	B	C		
i)	LABOUR (ALL CATEGORIES)	(a) 'MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India. (50% weightage out of component 'K') (Website: labourbureau.nic.in)  (b) Arithmetical average of minimum wages of Unskilled, Semi-skilled, Skilled and Highly skilled workers as applicable at project site location (50% weightage out of component 'K')	40	25	30	65	80
ii)	HIGH SPEED DIESEL OIL	Name of Commodity: HSD Commodity Code: 1202000005 (See Note E)	5	3	5	5	5
iii)	WELDING ROD	Name of Commodity: MANUFACTURE OF BASIC METALS Commodity Code: 1314000000 (See Note E)				15	
iv)	CEMENT	Name of Commodity: ORDINARY PORTLAND CEMENT Commodity Code: 1313050003 (See Note E)		20	30		
v)	STEEL (Structural and Reinforcement Steel)	Name of Commodity: MILD STEEL: LONG PRODUCTS Commodity Code: 1314040000 (See Note E)		25			

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 31 OF 40

vi)	All OTHER MATERIALS (Other than Cement & Steel)	Name of Commodity: ALL COMMODITIES  Commodity Code:1000000000 (See Note E)	40	12	20		
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**Note:**

- A) Cement & Steel: Free Issue (BHEL Scope)**  
**B) Cement & Steel: In Contractor Scope**  
**C) Cement in Contractor Scope, and Steel is Free Issue (BHEL Scope)**  
**D) For Composite packages (i.e. Civil + Mechanical + Electrical and/or C&I or Civil + Mechanical or Mechanical + Electrical and/or C&I), the COMPONENT ('K') for various categories shall be as per respective packages as above.**  
**E) As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: [eaindustry.nic.in](http://eaindustry.nic.in)). Revisions in the index or commodity will be re-adjusted accordingly.**

2.17.3 # Not Applicable

2.17.4 Payment/recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified COMPONENT ('K') viz LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, MATERIALS.

$$P = K \times R \times \frac{(X_N - X_0)}{X_0}$$

Where,

P = Amount to be paid/recovered due to variation in the Index for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

K = Percentage COMPONENT ('K') applicable for Labour, High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties if payable extra)

X<sub>N</sub> = Revised Index for Labour, Revised Average Minimum Wages for Labour, Revised Index for High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials for the billing month under consideration

X<sub>0</sub> = Index for Labour, Average Minimum Wages for Labour, Index for High Speed Diesel Oil, Welding Rod, Cement, Steel and Materials as on the Base date

2.17.5 PVC shall not be payable for the ORC amount, Supplementary/Additional Items, Extra works. However, PVC will be payable for items executed under quantity variation of BOQ items under originally awarded contract.

2.17.6 Base date shall be calendar month of the 'last date of submission of Tender'.

2.17.7 The contractor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.

2.17.8 The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 32 OF 40

(final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.

2.17.9 PVC shall be applicable for the entire original contract period plus the extended period, i.e. for the complete execution period, as follows:

**For PVC computation of the  $n^{\text{th}}$  month:**

Let the cumulative delay attributable to the Contractor is  $D_n$  in the  $n^{\text{th}}$  month as per Form-14.

Considering  $R_n$  as the billing value for the  $n^{\text{th}}$  month, PVC for the  $n^{\text{th}}$  month shall be calculated as follows:

- a) PVC for the portion of  $R_n$  for an amount of  $D_{(n-1)}$  shall be payable as per indices for the  $(n-1)^{\text{th}}$  month.
- b) PVC for the balance portion of  $R_n$  shall be payable as per indices for the  $n^{\text{th}}$  month

In case  $D_{(n-1)}$  is greater than  $R_n$ , then entire  $R_n$  shall be payable as per indices for the  $(n-1)^{\text{th}}$  month and the balance portion of  $D_{(n-1)}$  shall be adjusted from  $R_{(n+1)}$  of the  $(n+1)^{\text{th}}$  month and will be payable as per indices for the  $(n-1)^{\text{th}}$  month. The above process shall be continued for subsequent month(s) also till full  $D_{(n-1)}$  is consumed.

- i) For milestones mentioned in the contract, PVC shall be applicable as per average of the indices from the month of base date till the month of execution of milestone. ii) PVC shall not be applicable for time extension provided for the delays solely attributable to the contractor. No PVC is payable during the period of Provisional Time Extension till grant of final time extension. Applicability of PVC will be decided at the time of grant of final time extension.
- ii) The total amount of PVC shall not exceed 15% of the cumulatively executed contract value. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary/Additional Items and Extra works except items due to quantity variation.

**Note:** Work Planning in F-14 format to be meticulously done as per Clause 2.9 of this GCC.

## **2.18 INSURANCE**

2.18.1 BHEL/their customer shall arrange for insuring the materials/properties of BHEL/customer covering the risks during transit, storage, erection and commissioning.

2.18.2 It is the sole responsibility of the contractor to insure his materials, equipment, workmen etc. against accidents and injury while at work and to pay compensation, if any, to workmen as per Workmen's compensation Act. The work will be carried out in a protected area and all the rules and regulations of the client /BHEL in the area of project which are in force from time to time will have to be followed by the contractor.

2.18.3 If due to negligence and or non-observation of safety and other precautions by the contractors, any accident/injury occurs to the property / manpower belong to third party, the contractor shall have to pay necessary compensation and other expense, if so decided by the appropriate authorities.

2.18.4 The contractor will take necessary precautions and due care to protect the material, while in his custody from any damage/ loss due to theft or otherwise till the same is taken over by BHEL or customer. For lodging / processing of insurance claim, the contractor will submit necessary documents. BHEL will recover the loss including the deductible franchise from the contractor, in case the damage / loss is due to carelessness / negligence on the part of the contractor. In case of any theft of material under contractor's custody, matter shall be reported to Police by the contractor immediately and copy of FIR and subsequently police investigation report shall be

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 33 OF 40

submitted to BHEL for taking up with insurance. However, this will not relieve the contractor of his contractual obligation for the material in his custody.

## **2.19 STRIKES & LOCKOUT**

2.19.1 The contractor will be fully responsible for all disputes and other issues connected with his labour.

In the event of the contractor's labour resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of one month, it may be considered as 'Breach of Contract' under Clause 2.7 and the remedies under Clause 2.7.2.2 may be executed, at the discretion of BHEL.

2.19.2 For all purposes whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL.

## **2.20 FORCE MAJEURE**

2.20.1 "Force Majeure" shall mean circumstance which is:

- a) beyond control of either of the parties to contract,
- b) either of the parties could not reasonably have provided against the event before entering into the contract,
- c) having arisen, either of the parties could not reasonably have avoided or overcome, and
- d) is not substantially attributable to either of the parties And Prevents the performance of the contract,

Such circumstances include but shall not be limited to:

- i) War, hostilities , invasion, act of foreign enemies.
- ii) Rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war.
- iii) Riot, commotion or disorder by persons other than the contractor's personnel and other employees of the contractor and sub-contractors.
- iv) Strike or lockout not solely involving the contractor's personnel and other employees of the contractor and sub-contractors.
- v) Encountering munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the contractor's use of such munitions, explosives, radiation or radio- activity.
- vi) Natural catastrophes such as earthquake, tsunami, volcanic activity, hurricane or typhoon, flood, fire, cyclones etc.
- vii) Epidemic, pandemic etc.

2.20.2 The following events are explicitly excluded from Force Majeure and are solely the responsibilities of the non-performing party: a) any strike, work-to-rule action, go-slow or similar labour difficulty (b) late delivery of equipment or material (unless caused by Force Majeure event) and (c) economic hardship.

2.20.3 If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 15 (fifteen) days after the occurrence of such event.

2.20.4 The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party's performance is prevented, hindered or delayed. The Time for Completion shall be extended by a period of time equal to period of delay caused due to such Force Majeure event.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II	
BHARAT HEAVY ELECTRICALS LIMITED Heavy Plates & Vessels Plant, Visakhapatnam			
GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES		PAGE 34 OF 40	

2.20.5 Delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall not

- a) Constitute a default or breach of the Contract.
- b) Give rise to any claim for damages or additional cost expense occasioned thereby, if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.

2.20.6 BHEL at its discretion may consider short closure of contract after 1 year of imposition of Force Majeure in line with extant guidelines. In any case, Supplier/Vendor cannot consider deemed short-closure after 1 year of imposition of Force Majeure.

## 2.21 SETTLEMENT OF DISPUTE:

If any dispute or difference of any kind whatsoever shall arise between BHEL and the Supplier/Vendor, arising out of the contract for the performance of the work whether during the progress of contract termination, abandonment or breach of the contract, it shall in the first place referred to Designated Engineer for amicable resolution by the parties. Designated Engineer ( to be nominated by BHEL for settlement of disputes arising out of the contract ) who within 60 days after being requested shall give written notice of his decision to the contractor. Save as hereinafter provided, such decision in respect of every matter so referred shall forthwith be given effect to by the Supplier/Vendor who shall proceed with the work with all due diligence, whether he or BHEL desires to resolve the dispute as hereinafter provided or not.

If after the Designated Engineer has given written notice of this decision to the party and no intention to pursue the dispute has been communicated to him by the affected party within 30 days from the receipt of such notice, the said decision shall become final and binding on the parties. In the event the Supplier/Vendor being dissatisfied with any such decision or if amicable settlement cannot be reached then all such disputed issues shall be resolved through conciliation in terms of the BHEL Conciliation Scheme 2018 as per Clause 2.21.1.

### 2.21.1 Conciliation:

Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the “Dispute”) shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure as per BHEL Conciliation Scheme 2018. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in - “Procedure for conduct of conciliation proceedings” (as available in [www.bhel.com](http://www.bhel.com))).

**Note:** Ministry of Finance has issued OM reference No. 1/2/24 dated 03.06.2024 regarding “Guidelines for Arbitration and Mediation in Contracts of Domestic Public Procurement. In the said OM it has been recommended that Government departments/

Entities/agencies are to encourage mediation under the Mediation Act. 2023 . The said Act has not yet been notified by the Government. Therefore, the clause “Settlement of Disputes” shall be modified accordingly as and when the Mediation Act 2023 gets notified.

### 2.21.2 ARBITRATION:

2.21.2.1 Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided in Clause 21.1 herein above or otherwise) in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or. in any manner touching upon the Contract (hereinafter referred to as the ‘Dispute’), then, either Party may,

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 35 OF 40

refer the disputes to Arbitral Institution ( to be identified by the contract issuing agency (eg. "IIAC" (India International Arbitration Centre) for Delhi/NCR offices) and such dispute to be adjudicated by Sole Arbitrator appointed in accordance with the Rules of said Arbitral Institution.

- 2.21.2.2 A party willing to commence arbitration proceeding shall invoke Arbitration Clause by giving notice to the other party in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the 'Notice') before referring the matter to arbitral institution. The Notice shall be addressed to the Head of the Region, Power Sector/ Unit, BHEL, executing the Contract and shall contain the particulars of all claims to be referred to arbitration with sufficient detail and shall also indicate the monetary amount of such claim including interest, if any.
- 2.21.2.3 After expiry of 30 days from the date of receipt of aforesaid notice, the party invoking the Arbitration shall submit that dispute to the Arbitral Institutions..... ( to be identified by the contract issuing agency) and that dispute shall be adjudicated in accordance with their respective Arbitration Rules. The matter shall be adjudicated by a Sole Arbitrator who shall necessarily be a Retd Judge having considerable experience in commercial matters to be appointed/nominated by the respective institution. The cost/expenses pertaining to the said Arbitration shall also be governed in accordance with the Rules of the respective Arbitral Institution. The decision of the party invoking the Arbitration for reference of dispute to a specific Arbitral institution for adjudication of that dispute shall be final and binding on both the parties and shall not be subject to any change thereafter. The institution once selected at the time of invocation of dispute shall remain unchanged.
- 2.21.2.4 The fee and expenses shall be borne by the parties as per the Arbitral Institutional rules.
- 2.21.2.5 The Arbitration proceedings shall be in English language and the seat and venue of Arbitration shall be ( to be identified by the contract issuing agency) .....( i. e. New Delhi for Delhi/NCR based Units).
- 2.21.2.6 Subject to the above, the provisions of Arbitration & Conciliation Act 1996 and any amendment thereof shall be applicable. All matters relating to this Contract and arising out of invocation of Arbitration clause are subject to the exclusive jurisdiction of the Court(s) situated at..... (i.e. New Delhi for Delhi/NCR based Units).
- 2.21.2.7 Notwithstanding any reference to the Designated Engineer or Conciliation or Arbitration herein, a. the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree. Settlement of Dispute clause cannot be invoked by the Contractor, if the Contract has been mutually closed or 'No Demand Certificate' has been furnished by the Contractor or any Settlement Agreement has been signed between the Employer and the Contractor.
- 2.21.2.8 It is agreed that Mechanism of resolution of disputes through arbitration shall be available only in the cases where the value of the dispute is less than Rs. 10 Crores.
- 2.21.2.9 In case the disputed amount (Claim, Counter claim including interest is Rs. 10 crores and above, the parties shall be within their rights to take recourse to remedies other than Arbitration, as may be available to them under the applicable laws after prior intimation to the other party. Subject to the aforesaid conditions, provisions of the Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment thereof as amended from time to time, shall apply to the arbitration proceedings under this clause.
- 2.21.2.10 In case, multiple arbitrations are invoked (whether sub-judice or arbitral award passed) by any party to under this contract, then the cumulative value of claims (including interest claimed or awarded) in all such arbitrations shall be taken in account while arriving at the total claim in

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 36 OF 40

dispute for the subject contract for the purpose of clause 21.2.9. Disputes having cumulative value of less than 10 crores shall be resolved through arbitration and any additional dispute shall be adjudicated by the court of competent jurisdiction.

**2.21.3 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:**

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD (Administrative Mechanism for Resolution of CPSEs Disputes) as mentioned in DPE OM No. 05/0003/2019-FTS10937 dated 14-12-2022 as amended from time to time.

**2.21.4 NO INTEREST PAYABLE TO CONTRACTOR**

Notwithstanding anything to the contrary contained in any other document comprising in the Contract, no interest shall be payable by BHEL to Contractor on any moneys or balances including but not limited to the Security Deposit, EMD, Retention Money, RA Bills or the Final Bill, or any amount withheld and/or appropriated by BHEL. etc., which becomes or as the case may be, is adjudged to be due from BHEL to Contractor whether under the Contract or otherwise.

**2.22 RETENTION AMOUNT**

2.22.1 Retention Amount shall be 5% of contract value and shall be furnished before the first RA Bill becomes due for payment. In case of increase in contract value, additional 5% of differential amount shall be submitted by Contractor before payment of next RA Bill due.

The Retention amount of 5% of the contract value may be accepted in the following forms: -

- i. Cash (as permissible under the extant Income Tax Act).
- ii. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
- iii. 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).
- iv. Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act and in line with clause 1.12 of GCC. The Bank Guarantee format for Retention Amount shall be in the prescribed formats. The validity of BG shall be initially for the contract period & shall be extended up to acceptance of final bill if the final bill is not settled during the contract period.
- v. 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).
- vi. Insurance Surety Bonds.

**Alternatively,** on successful bidder's request, the Retention Amount can also be recovered at the rate of 10% of the gross amount, progressively, from each of the running bills of the contractor till the total amount of the required retention amount is collected.

In case, contractor opts cash deduction from RA bills in the beginning & subsequently submit 5% of the Contract Value as Retention amount in any form as mentioned above, then refund of deducted retention amount may be permitted to contractor.

**Note:**



Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 37 OF 40

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.

#### 2.22.2 Refund of Retention Amount shall be as follows:

100% of Retention Amount/ BG shall be released along with Final Bill after deduction all expenses/ other amounts due to BHEL under the contract/ other contracts entered into with them (contractor) by BHEL provided that.

#### 2.22.3 In case of short closure of contract

- a) due to the premature termination of BHEL contract with customer for any reason whatsoever;
- b) upon the request of contractor for any reason, prior to completion and acceptance of Trial Run by the end customer

The retention money equivalent to the 5% of contract value executed by the contractor shall not be refundable and the contractor shall be discharged of his liabilities as provided in the clause 2.22.1

### 2.23 PAYMENTS

Payments to Contractors are made in any one of the following forms: -

#### 2.23.1 Running Account Bills (RA Bills)

- i) These are for interim payments when the contracts are in progress. The bills for such interim payments are to be prepared by Contractor in prescribed formats (RA Bill forms).
- ii) Payments shall be made according to the extent of work done as per measurements taken up to the end of the calendar month and in line with the terms of payments described in the Tender documents.
- iii) Recoveries on account of electricity, water, statutory deductions etc. are made as per terms of contract.
- iv) Full rates for the work done shall be allowed only if the quantum of work has been done as per the specifications stipulated in the contract. If the work is not executed as per the stipulated specifications, BHEL may ask the contractor to redo the work according to the required specifications, without any extra cost. However, where this is not considered necessary 'OR' where the part work is done due to factors like non-availability of material to be supplied by BHEL 'OR' non availability of fronts 'OR' non availability of drawings, fraction payment against full rate, as is considered reasonable, may be allowed with due regard for the work remaining to be done. BHEL decision in this regard will be final and binding on the contractor.
- v) In order to facilitate part payment, BHEL at its discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work, subject to following:
  - a) Provided no 'part' payment is recommended till 25% of work in the item rate is executed.
  - b) Payment of item rate to be made in not more than three instalments, last stage payment to be not lower than 20% of the item rate.

#### 2.23.2 Final Bill

Final Bill' is used for final payment on closing of Running Account for works or for single payment after completion of works. 'Final Bill' shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following:

- i) 'No Claim Certificate' by Contractor as per Clause 2.6.11 of the GCC.
  - ii) Clearance certificates where ever applicable viz. Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department etc.
  - iii) Indemnity Bond as per prescribed format.
- BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 38 OF 40

## 2.24 PERFORMANCE GUARANTEE FOR WORKMANSHIP:

2.24.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of Twelve months from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works by itself, without prejudice to any other rights and recover the cost incurred for the same along with 5% overheads from the Security Deposit.

2.24.2 BHEL shall release the Security Deposit subject to the following

- i) Contractor has submitted 'Final Bill'
- ii) Guarantee period as per contract has expired
- iii) Contractor has furnished 'No Claim Certificate' as per clause 2.6.11 of GCC
- iv) BHEL Site Engineer/Construction Manager has furnished the 'No Demand Certificate' in specified format
- v) Contractor has carried out the works required to be carried out by him during the period of Guarantee and all expenses incurred by BHEL on carrying out such works is included for adjustment from the Security Deposit refundable.

## 2.25 CLOSING OF CONTRACTS

The Contract shall be considered completed and closed upon completion of contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a performance/ experience certificate as per standard format, based on specific request of Contractor as per extant BHEL guidelines through the online portal available at <https://siddhi.bhel.in> only.

## 2.26 SUSPENSION OF BUSINESS DEALINGS

BHEL reserves the right to take action against Contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time.

The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms / principal / agents, shall be rejected. The list of banned firms is available on BHEL web site [www.bhel.com](http://www.bhel.com).

If any bidder / supplier / contractor during pre-tendering / tendering / post tendering / award / execution / post-execution stage indulges in any act, including but not limited to, mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or tampers the tendering process or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, or does anything which is actionable under the Guidelines for Suspension of Business dealings, action may be taken against such bidder / supplier / contractor as per extant guidelines of the company available on [www.bhel.com](http://www.bhel.com) and / or under applicable legal provisions.

Guidelines for suspension of business dealings is available in the webpage:

[http://www.bhel.com/vender\\_registration/vender.php](http://www.bhel.com/vender_registration/vender.php)

## 2.27 LIMITATION ON LIABILITY:

**BHARAT HEAVY ELECTRICALS LIMITED**  
Heavy Plates & Vessels Plant, Visakhapatnam

**GENERAL CONDITIONS OF CONTRACT – WORKS & SERVICES**

PAGE 39 OF 40

Notwithstanding anything to the contrary in this Contract or LOA or Work Order or any other mutually agreed document between the parties, the maximum liability, for damages, of the contractor, its servants or agents, shall under no circumstances exceed an amount equal to the Price of the Contract or the Work Order. The Contractor shall not in any case be liable for loss of profit or special, punitive, exemplary, indirect or consequential losses whatsoever. This shall not be applicable on the recoveries made by Customer from BHEL on account of Contractor, any other type of recoveries for workmanship, material, T&P etc. due from the contractor.

**2.28 NON-DISCLOSURE AGREEMENT (NDA):**

The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).

**2.29 CARTEL FORMATION**

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

**2.30 FRAUD PREVENTION POLICY**

Bidder along with its associate /collaborators /sub-contractors /sub-vendors / consultants / service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

**2.31 ORDER OF PRECEDENCE:**

In the event of any ambiguity or conflict between the contract Documents, the order of precedence shall be in the order below:

- a. Contract agreement with its Amendments/
- b. Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL
- c. Notice Inviting Tender (NIT)
- d. Price Bid
- e. Technical Conditions of Contract (TCC)—Volume-1A
- f. Special Conditions of Contract (SCC) —Volume-1B
- g. General Conditions of Contract (GCC) —Volume-1C
- h. Forms and Procedures —Volume-1D

**2.32 OTHER ISSUES**

- 2.32.1 Value of Non judicial Stamp Paper for Bank Guarantees and for Contract Agreement shall be not less than Rs 100/- unless otherwise required under relevant statutes.
- 2.32.2 In case of any conflict between the General Conditions of Contract and Special Conditions of Contract, provisions contained in the Special Conditions of Contract shall prevail.
- 2.32.3 Unless otherwise specified in NIT, offers from consortium/ JVs shall not be considered.

Ref: OS/SC/2025-26/77/51, Date: 11.09.2025		ANNEXURE – II
<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Heavy Plates & Vessels Plant, Visakhapatnam		
<b>GENERAL CONDITIONS OF CONTRACT – WORKS &amp; SERVICES</b>		PAGE 40 OF 40

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**SPECIAL CONDITIONS OF CONTRACT (SCC)****CONTENTS**

<b>Sl. No</b>	<b>DESCRIPTION</b>	<b>Chapter</b>	<b>PAGE No.</b>
1	General Intent of the Specifications	Chapter-I	2
2	General Services to be rendered by the Bidder	Chapter-II	3
3	General Technical Requirements (Codes and Standards)	Chapter-III	4
4	Obligations of Contractor (In respect of Tools, Tackles, Consumables, etc. employment of supervisory staff and workmen)	Chapter-IV	5-7
5	Responsibilities of Contractor (In respect of employment of Labour, Supervisory staff, etc.)	Chapter-V	8
6	Material Handling, Storage, Preservation, etc.	Chapter-VI	9-10
7	Drawings and Documents	Chapter-VII	11
8	Inspection and Quality	Chapter-VIII	12-14
9	HSE & OHSAS Obligations	Chapter-IX	15-23

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter - I: General Intent of Specifications**

<b>1.0</b>	<b>INTENT OF THE SPECIFICATION</b>
1.1	The intent of this erection specification is to provide services for execution of the project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / price shall deem to be inclusive of all such contingencies.
1.2	The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during erection. If any portion of works is found to be defective in workmanship and not conforming to drawings / documents or other stipulations, the contractor shall dismantle and re-do the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from contractor's bills.
1.3	It is not the intent of this specification to specify herein all the details of erection and commissioning. However, the system shall conform in all respects to high standards of quality and workmanship for performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgments is not in full accordance herewith.
1.4	The omission of specific reference to any fabrication / erection or other method, equipment or material necessary for proper and efficient working of the plant shall not relieve the tenderer of the responsibility of providing such facilities to complete the work at quoted rates. Any mismatch/ defect found due to mistake in fabrication / erection shall have to be rectified by the vendor free of cost. Inspection by BHEL/Customer does not relieve vendor of his responsibility of executing quality erection.
1.5	The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, supervision, engineering and construction management. The contractor should ensure proper planning and successful and timely completion of the work to meet the overall project schedule. The contractor must deploy adequate quantity of tools & plants, modern / latest construction aids etc. He must also deploy adequate trained, qualified and experienced supervisory staff and skilled personnel.
1.6	Contractor shall erect and commission all the equipments and auxiliaries as per the sequence & methodology prescribed by BHEL depending upon the technical requirements. Availability of materials and fronts will decide this. BHEL Engineer's decision regarding correctness of the work and method of working shall be final and binding on the contractor. No claims for extra payment from the contractor will be entertained on the ground of deviation from the methods / sequence adopted in erection of similar sets elsewhere.
1.7	Following shall be the minimum responsibility of contractor and have to be provided within finally accepted rates / prices:
1.7.1	Provision as required of all types of labour, supervisors, engineers, watch and ward, tools & tackles, calibrated MMEs (Monitoring and Measuring Equipment) as specified and otherwise required for the work, consumables for erection, testing and commissioning including material handling.
1.7.2	Achieving Proper out-turns / Turn-over as per BHEL plan and commitment.
1.7.3	Completion of work as per BHEL Schedule.
1.7.4	Good quality and accurate workmanship for proper performance of the equipment
1.7.5	Repair and rectification
1.7.6	Preservation / Re-conservation of all components during storage / erection / commissioning till handing over.

**SPECIAL CONDITIONS OF CONTRACT (SCC)**  
**Chapter - II: General Services to be rendered by the Bidder**

<b>2.0</b>	<b>GENERAL SERVICES TO BE RENDERED BY THE BIDDER</b>
2.1	Services for construction, fabrication, equipment erection, testing as well as trial run & commissioning of various equipment and accessories under the contract shall include but not be limited to the following:
2.2	Issuing materials from store/open yard from time to time for erection as per the construction programme. The Contractor shall be the custodian of all the materials issued till the plant/equipment is officially taken over by the owner / BHEL after complete erection and successful trial run & commissioning.
2.3	Transport of material to their respective places of erection and erection of the complete plant & equipment as supplied under this specification.
2.4	Trial run and commissioning of individual equipment / sub-systems to the satisfaction of Owner/BHEL.
2.5	Deployment of all skilled and unskilled manpower required for erection, supervision of erection, watch & ward, commissioning and other services to be rendered under this specification.
2.6	Deployment of all erection tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the erection work to be handled under scope of this specification except otherwise specified.
2.7	Supply of all consumables, e.g. welding electrodes, gases, grinding/cutting wheels, cleaning agents, diesel oil, lubricant etc. as well as materials required for temporary supports, scaffolding etc. as necessary for such erection work, unless specified otherwise.
2.8	Providing support services for the contractor's erection staff e.g. construction of site offices, temporary stores, residential accommodation and transport to work site for erection personnel, watch and ward for security and safety of the materials under the Contractor's custody etc. as required.
2.9	Maintaining proper documentation of all the site activities undertaken by the Contractor as per the proforma mutually agreed with BHEL, Submission of monthly progress reports and any such document as and when desired by BHEL/owner, taking approval of all statutory authorities i.e. Boiler Inspector, Factory Inspector, Inspector of Explosives etc., as applicable for respective portions of work fall under the jurisdiction of such statutes of laws.
2.10	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.

**SPECIAL CONDITIONS OF CONTRACT (SCC)**  
**Chapter - III: General Technical Requirements (Codes and Standards)**

<b>3.0</b>	<b>GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)</b>
3.1	Except where otherwise specified, the plant/equipment shall comply with the appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in contract specifications, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the Bidder shall give all particulars and details as necessary; to enable BHEL to identify all of the plant/equipment in the same detail as would be possible had there been a Standard Specification.
3.2	Where the Bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each Standard Specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
3.3	In the event of any conflict between the codes and standards referred above, and the requirements of this specification, the requirements which are more stringent shall govern.
3.4	Tools used during erection and commissioning shall not be accepted except with the specific approval of the Engineer.



**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter - IV: Obligations of Contractor**

<b>4.0</b>	<b>OBLIGATIONS OF CONTRACTOR</b>
<b>4.1</b>	<b>CONSUMABLES &amp; OTHER ITEMS</b>
4.1.1	The contractor shall provide within finally accepted price / rates, all consumables (except those indicated in BHEL scope) like welding electrodes (including alloy steel and stainless steel), filler wires, TIG filler wires, gases (inert, welding, cutting), soldering material, dye penetrants, radiography films, etc. Other erection consumables such as tapes, jointing compound, grease, mobile oil, M-seal, Araldite, petrol, CTC / other cleaning agents, grinding and cutting wheels are to be provided by the contractor. Steel, packers, shims, wooden planks, scaffolding materials hardware items etc. required for temporary works such as supports, scaffoldings are to be arranged by the contractor. Sealing compounds, gaskets, gland packing, wooden/concrete sleepers, for temporary work, required for completion of work except those which are specifically supplied by manufacturing unit are also to be arranged by the contractor.
4.1.2	All the shims, gaskets and packing, which are required for erection and alignment of equipments, shall be supplied by contractor free of cost.
4.1.3	It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of consumables. Non-availability of any consumable materials or equivalent suggested by BHEL cannot be considered as reason for not attaining the required progress or for additional claim.
4.1.4	<b>Void.</b>
4.1.5	It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of electrodes etc. before procurement of welding electrodes. On receipt of electrodes at site these shall be subjected to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number, date of expiry etc. and produce test certificate for each lot / batch with correlation of batch / lot number with respective test certificate. No electrode without a valid test certificate will be used.
4.1.6	BHEL reserves the right to reject the use of any consumable including electrodes, gases, lubricants / special consumables if it is not found to be of the required standard / make / purity or when shelf life has expired. Contractor shall ensure display of shelf life on consumable wherever required and records maintained.
4.1.7	Storage of all consumables including welding electrodes shall be done as per requirement / instruction of the Engineer by the contractor at his cost.
4.1.8	In case of improper arrangement for procurement of any consumable, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's first subsequent bill at market value plus the departmental charges of BHEL from time to time. Postponement of such recovery is normally not permitted. The decision of Engineer in this regard shall be final and binding on the Contractor.
4.1.9	All lubricants and chemicals required for pre-commissioning, commissioning, testing, preservation and lubricants for trial runs of the equipment shall be supplied by BHEL / BHEL's client. All services including labour and T&P will be provided by the contractor for handling, filling, emptying, refilling etc. The consumption of lubricants / chemicals shall be properly accounted for. Surplus material if any shall be properly stacked/ tagged and returned to BHEL/ CUSTOMER stores at no extra cost to BHEL. BHEL reserves the right to recover costs for wastage by the contractor.
4.1.10	Transportation of oil drums from stores, filling of oil for flushing, first filling, subsequent changeover if any; topping/making up till the unit is fully commissioned and handed over to customer is included in scope of this contract. The contractor shall have to return all the empty drums to BHEL / BHEL's client store at no extra cost. Any loss / damage to above drums shall be to contractor's account.
4.1.11	All charges on account of Octroi, terminal or sales tax and other duties on materials obtained from any source for carrying out the works in the scope of the contractor shall be borne by the contractor.
<b>4.2</b>	<b>TOOLS AND PLANTS / MONITORING AND MEASURING EQUIPMENT (MMEs)</b>
<b>4.2.1</b>	<b>T&amp;Ps and MMEs to be provided by Contractor</b>

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter - IV: Obligations of Contractor**

4.2.1.1	All T&Ps and MMEs excepting those specifically indicated in BHEL scope are to be provided by the Contractor. Contractor has to make his own arrangement at his cost for completing the formalities (including arrangement of Road permits, if any) if required with Sales Tax/VAT authorities, for bringing their materials, plants and equipments at site for the execution of work under this contract.
4.2.1.2	All suitable cranes for erection of equipments, pipe lines, structural, unloading & loading and material handling, lifting and transport equipments for material handling at stores/yard/siding of BHEL/Customer are included in contractor's scope. BHEL's cranes will not be available for this purpose unless otherwise specifically permitted as per contract conditions
4.2.1.3	All T&Ps to be deployed by the contractor shall have the approval of BHEL Engineer with regard to brand, quality and specification.
4.2.1.4	Indicative list of Major T&Ps in the scope of Contractor are given in the Technical Conditions of Contract. Bidders to note that these are only indicative and as such all other T&P necessary for timely and satisfactory completion of work in scope shall be mobilized by Contractor
4.2.1.5	Timely deployment of adequate T&Ps is the responsibility of the contractor. The contractor shall be prepared to augment the T&P at short notice to match the planned programme and to achieve the milestones.
4.2.1.6	Contractor shall maintain and operate his tools and plants in such a way that major breakdowns are avoided. In the event of major breakdown, contractor shall make alternative arrangements expeditiously so that the progress of work is not hampered.
4.2.1.7	In the event of contractor failing to arrange the required tools, plants, machinery, equipment, material or non-availability of the same owing to breakdown, BHEL will make alternative arrangement at the risk and cost of the contractor. Decision of BHEL shall be final and binding on the contractor
4.2.1.8	The T&P to be arranged by the contractor shall be in proper working condition and their operation shall not lead to unsafe condition. The movements of cranes and other equipment should be such that no damage / breakage occur to foundations, other equipments, material, property and men. All arrangements for the movement of the T&P etc. shall be the contractor's responsibility.
4.2.1.9	Use of welding generators / rectifiers only shall be permitted for welding. Use of welding transformers will be subject to specific approval of BHEL engineer.
4.2.1.10	The contractor at his cost shall carry out periodical testing of his construction equipments. Test certificates shall be furnished to BHEL.
4.2.1.11	Contractor shall ensure deployment of serviced and healthy T&Ps including cranes, lifting tackles, wire ropes, manila ropes, winches and slings etc. History card and maintenance records for major T&Ps will be maintained by the contractor and will be made available to BHEL Engineer for inspection as and when required. Fitness certificate / Test Certificates of T&P shall have to be submitted before it is put in use. Identification for such T&Ps will be done as per BHEL Engineer's advice. BHEL reserves the right to permit only new slings up to 20 mm and lifting tackles up to 3 MT capacities.
4.2.1.12	Contractor shall ensure deployment of reliable and calibrated MMEs (Inspection measuring and Monitoring equipment). The MMEs shall have test / calibration certificates from authorized / Government approved / accredited agencies traceable to National / International standards. Each MME shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL Engineer for control.
4.2.1.13	Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MME so that work does not suffer when the particular instrument is sent for calibration. If any MMEs not found fit for use, BHEL shall have the right to stop the use of such item. It will be necessary for the contractor to deploy proper item. Any readings taken by the defective instrument will be recalled and repeat the readings taken by that instrument with a proper one. In case he fails to do so, BHEL may deploy MMEs and retake the readings at contractor's cost.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter - IV: Obligations of Contractor**

4.2.1.14	BHEL shall have lien on all T&P, MMEs and other equipment of the contractor brought to the site for the purpose of erection, testing and commissioning. BHEL shall continue to hold the lien on all such items throughout the period of contract / extended period. The contractor and / or his sub-contractors, without the prior written approval of the Engineer, shall remove no material brought to the site.
4.2.1.15	The month wise T&P deployment plan to execute the work is to be submitted as per relevant format as per the instruction of BHEL. It shall be the contractor's responsibility to deploy the required T&P, for timely and successful completion of the job, to any extent.
4.2.2	<b>Obligations in respect of T&amp;Ps and MMEs if provided by BHEL</b>
4.2.2.1	T&P / MMEs being provided by BHEL to sub- contractor free of hire charges shall be shared by other subcontractors working for BHEL at site and the allotment done by BHEL Engineer shall be final and binding.
4.2.2.2	BHEL T&P will be issued in basic assembled condition. Additional loose components / sub-assemblies / attachments as and when necessary, will be issued by BHEL. Assembly of such additional loose components/sub-assemblies/ attachments is in contractor's scope.
4.2.2.3	In case of non-availability of the T&Ps to be provided by BHEL due to breakdown, major overhauls, distribution pattern or any other reason, the contractor shall plan / amend / alter his activities to meet erection / commissioning targets in consultation with BHEL.
4.2.2.4	<b>void</b>
4.2.2.5	The contractor shall engage trained and experienced operators for the operation of BHEL's T&Ps. Their skill / performance will be checked by BHEL Engineer before they are allowed to operate the same. However checking of skills by BHEL does not absolve the contractor of his responsibilities for proper and safe handling of equipment, consistent good performance of operators and regular performance evaluation of operators.
4.2.2.6	void
4.2.2.7	Void
4.2.2.8	Increasing / shortening of the crane boom to suit work requirements shall have to be arranged by the indenting contractor at his cost including restoration to a state as directed by BHEL. All necessary manpower tools, support, consumables, illumination etc. will have to be arranged by contractor at his cost. If required,
4.2.2.9	The area and infrastructure development of the area to be carried out by the customer. However, in construction projects of this magnitude it is possible that all the areas / approaches may not be ready. In such cases backfilling of approaches where ever necessary, consolidation of ground and arrangement of sleepers / sand bag filling etc., for safe operation / movement of equipment including cranes / trailers etc., shall be the responsibility of the contractor at his cost. No compensation on this account shall be payable.
4.2.2.10	Void
4.2.2.11	Void
4.2.2.12	Void
4.2.2.13	Void
4.2.2.14	Void
4.2.2.15	Void
4.2.2.17	Void.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – V: Responsibilities of Contractor in respect of Labour, Supervisory Staff, etc.**

<b>5.0</b>	<b>RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF LABOUR, SUPERVISORY STAFF, ETC.</b>
5.1	Refer relevant clauses of General Conditions of Contract (GCC) also in this regard
5.2	The contractor shall deploy all the necessary skilled, semiskilled, unskilled labour including highly skilled workmen etc. These workmen should have previous experience on similar job. They shall hold valid certificates wherever necessary. BHEL reserves the right to insist on removal of any employee of the contractor at any time if he is found to be unsuitable and the contractor shall forthwith remove him.
5.3	Contractor shall also comply with the requirements of local authorities/ project authorities calling for police verification of antecedents of the workmen, staff etc.
5.4	It is the responsibility of the contractor to engage his workmen in shifts and or on overtime basis for achieving the targets set by BHEL. This target may be set to suit BHEL's commitments to its customer or to advance date of completion of events or due to other reasons. The decision of BHEL in regard to setting the erection and commissioning targets will be final and binding on the contractor.
5.5	Contractor shall provide at different elevation suitable arrangement for urinal and drinking water facility with necessary plumbing & disposal arrangement including construction of septic tank. These installations shall be maintained in hygienic condition at all times.
5.6	The Contractor in the event of engaging 20 or more workmen, shall obtain Independent license under the Contract labour (Regulation and Abolition) Act 1970 from the concerned authorities based on Form-V issued by the Principal Employer/Customer. In order to issue Form-V by Customer, Contractor shall fulfill all Statutory requirements like Insurance Policy, PF Code/PF Account number etc. as per the requirement of BHEL/Customer.
5.7	Contractor shall deduct the necessary amount towards Provident Fund and contribute equal amount as per Government of India laws. This amount will be deposited regularly to the provident Fund Commissioner. BHEL/Customer may insist for submission of the account code duly certified by PF Commissioner.
5.8	Contractor may also be required to comply with provisions of ESI Act in vogue if applicable and submit evidence to BHEL.
5.9	BHEL / customer may insist for witnessing the regular payment to the labour. They may also like to verify the relevant records for compliance with statutory requirements. Contractor shall enable such facilities to BHEL / Customer.
5.10	Contractor shall deploy only qualified and experienced engineers/ supervisors. They shall have professional approach in executing the work.
5.11	The contractor's supervisory staff shall execute the work in the most professional manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. They shall be responsible to ensure that the assembly and workmanship conform to dimensions and tolerances given in the drawings / instructions given by BHEL engineer from time to time.
5.12	The supervisory staff employed by the contractor shall ensure proper outturn of work and discipline on the part of the labour put on the job by the contractor. Also in general they should see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL or BHEL's client.
5.13	It is the responsibility of the contractor to arrange gate pass for all his employees, T&P etc for entering the project premises. Necessary coordination with customer officials is the responsibility of the contractor. Contractor to follow all the procedures laid down by the customer for making gate passes. Where permitted, by customer / BHEL, to work beyond normal working hours, the contractor shall arrange necessary work permits for working beyond normal working hours.
5.14	The actual deployment of Labour and Engineer/supervision staff shall be so as to satisfy the erection and commissioning targets set by BHEL. If at any time, it is found that the contractor is not in a position to deploy the required engineers/supervisors/workmen due to any reason, BHEL shall have the option to make alternate arrangements at the contractor's risk and cost. The expenditure incurred along with BHEL overheads thereon shall be recovered from the contractor
5.15	Contractor shall not deploy women labour at night.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VI: Material Handling, Storage & preservation**

<b>6.0</b>	<b>MATERIAL HANDLING, STORAGE AND PRESERVATION ETC</b>
<b>6.1</b>	<b>MATERIAL HANDLING AND STORAGE</b>
6.1.1	All the equipments/materials furnished under this contract shall be received from the project stores, sheds / storage yards and transported to pre assembly area / erection site and stored in the storage spaces in a manner so that they are easily retrievable till the contractor erects them. <b>While drawing/lifting material from BHEL / customer stores, the contractor shall ensure that the balance / other materials are stacked back immediately. No claim is admissible on this account</b>
6.1.2	While BHEL will endeavor to store / stack / identify materials properly in their open / close / semi closed / tarpaulins covered storage yard / shed, it shall be contractor's responsibility to assist BHEL in identifying materials well in time for erection. They should take the delivery of the same, following the procedure indicated by BHEL, and transport the material safely to pre-assembly yard / erection site in time, according to program.
6.1.3	The contractor shall take delivery of components, equipment / consumables from storage area after getting the approval of BHEL Engineer on standard indent forms.
6.1.4	The contractor shall identify and deploy necessary Engineers / supervisors / workmen for the above work in sufficient number as may be needed by BHEL, for areas covering their scope.
6.1.5	All the equipment shall be handled very carefully to prevent any damage or loss. No untested wire ropes / slings etc. shall be used for unloading / handling. The equipment shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the stores shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.
6.1.6	Contractor shall ensure that while lifting slings shall be put over the points indicated on the equipment or as indicated in the manufacturer's drawings. Slings / shackles of proper size shall be used for all lifting and rigging purposes. All care shall be taken to safe guard the equipment against any damage. Dragging of piping / valves should be avoided. In case of any damage the cost shall be covered from the contractor.
6.1.7	Approach road conditions from the stores / yards to the erection site may not be equipped and ideal for smooth transportation of the equipment. Contractor may have to be adequately prepared to transport the materials under the above circumstances without any extra cost. . The contractor may familiar himself with soil conditions at site.
6.1.8	Contractor shall be responsible for examining all the plant and materials issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc., before they are moved out of the stores / storage area. The contractor shall be solely responsible for any shortages or damages in transit, handling, storage and erection of the equipment once received by him. As the erection work will be spread in different areas / locations of the project, contractor has to arrange sufficient number of watch / ward personal to avoid any pilferage of material.
6.1.9	The contractor shall maintain an accurate and exhaustive record-detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the engineer at any time.
6.1.10	All the material in the custody of contractor and stored in the open or dusty locations must be covered with suitable weather proof / fire retardant covering material wherever applicable and shall be blocked up on raised level above ground. All covering materials including blocks and sleeper shall be arranged by the contractor at his cost.
6.1.11	If the material belonging to the contractor are stored in area other than those earmarked for his operation the engineer will have the right to get it moved to the area earmarked for the contractor at the contractors risk and cost.
6.1.12	The contractor shall be responsible for making suitable indoor storage facilities to store all equipment (drawn by the contractor from BHEL / customer stores), which require indoor storage till the time of their installation. The Engineer will direct the contractor in this regard, which item in his opinion will require indoor storage, and the contractor shall comply with Engineer's decision.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VI: Material Handling, Storage & preservation**

6.1.13	The contractor shall ensure that all surplus / damaged / scrap / unused material, packing wood / containers/ special transporting frames etc. are returned to BHEL at a place in project area identified by the Engineer. The contractor will maintain an account for all items received and returned to BHEL. Any shortage in returning such items shall be chargeable to the contractor except allowable wastage for packing wood only.
6.1.14	The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the stores as directed by the concerned BHEL engineer.
6.1.15	The contractor shall ensure that all the packing materials and protective devices installed on equipment during transit and storage are removed before installation.
6.1.16	It shall be the responsibility of the contractor to keep the work / storage areas in neat, tidy and working conditions. All surplus/unusable packing and other materials shall be removed and deposited at location(s) specified by BHEL within the project premises. If required weighing of the same within the project premises will have to be carried out.
6.2	<b>PRESERVATION OF COMPONENTS</b>
6.2.1	After taking delivery from BHEL / customer's stores, plant materials storage shall be subjected to the following protection besides other provisions indicated in these specifications elsewhere.
6.2.1.1	Items stored outdoors shall be stacked up at least six inches (6") off the ground. Items should not be stored in a low lying area where water logging is a possibility. Contractor should have sufficient numbers of wooden / concrete / steel sleepers for the job.
6.2.1.2	Motors, valves, electrical equipment, control equipment and instruments, and special or precision items requiring special care, etc. shall be stored indoors. Motor windings shall be kept dry by use of external heat or space heaters.
6.2.1.3	Bearings and other wearing surfaces of plant materials shall be protected against corrosion and kept clean and should be regularly monitored.
6.2.1.4	Insulation materials shall be stored indoors or otherwise protected against getting wet/ damaged, using suitable measures and should be protected from direct rain.
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6.2.1.3	Bearings and other wearing surfaces of plant materials shall be protected against corrosion and kept clean and should be regularly monitored.
6.2.1.4	Insulation materials shall be stored indoors or otherwise protected against getting wet/ damaged, using suitable measures and should be protected from direct rain.
6.2.2	It shall be the responsibility of the contractor to apply preservatives / touch up paints (primer) on equipment handled and erected by him till such time of final painting. It shall be contractor's responsibility to arrange for required paints (primer), thinners, labour, scaffolding materials, cleaning materials like wire brush, emery sheets, etc., cleaning of surface and provide one coat of preservatives / paints (primer) from time to time as decided by BHEL engineer. The accepted rate shall include this work also. It is to be noted that such painting may have to be done as and when required till such time the final painting is carried out.
6.2.3	The contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts then and there for their protection.
6.2.4	Any failure on the part of contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VII: Drawings and documents**

<b>7.0</b>	<b>DRAWINGS AND DOCUMENTS</b>
7.1	The detailed drawings, specifications available with BHEL engineers will be made available to the contractor during execution of work at site. The contractor will also ensure availability of all drawings / documents at work place.
7.2	Necessary drawings to carry out the erection work will be furnished to the contractor by BHEL on loan, which shall be returned to BHEL Engineer at site after completion of work. Contractor shall ensure safe storage and quick retrieval of these documents.
7.3	The contractor shall maintain a record of all drawings and documents available with him in a register as per format given by BHEL Engineer. Contractor shall ensure use of pertinent drawings / data / documents and removal of obsolete ones from work place and returning to BHEL.
7.4	The data furnished in various annexure enclosed with this tender specification are only approximate and for guidance. However, the change in the design and in the quantity may occur as is usual in any such large scale of work. The contractors quoted rates shall be inclusive of the above factor
7.5	Should any error or ambiguity be discovered in the specification or information the contractor shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final and binding on the contractor.
7.6	Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimension / details, without specific approval of BHEL.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VIII: Inspection and Quality**

<b>8.0</b>	<b>INSPECTION AND QUALITY</b>
<b>8.1</b>	<b>Inspection, Quality Assurance, Quality Control</b>
8.1.1	Preparation of quality assurance log sheets and protocols with customer/ consultants/statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work/specification. These records shall be submitted to BHEL/customer for approval from time to time.
8.1.2	The protocols between contractor and customer/ BHEL shall be made prior to installation for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer/ BHEL. This is necessary to ensure elimination of errors or keeping them within tolerable limits and to avoid accumulation and multiplication of errors.
8.1.3	A daily log book should be maintained by every supervisor/engineer of contractor on the job in duplicate (one for BHEL and one for contractor) for detailing and incorporating alignment/clearance / centering / leveling readings and inspection details of various equipments etc. High pressure welding details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. will be documented in welding log as per BHEL Engineer's instructions. Record of radiography containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc. shall also be maintained as per BHEL Engineer's instructions. <b>Record of heat treatments performed shall be maintained as prescribed by BHEL</b>
8.1.4	The performance of welders will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be furnished periodically furnished for scrutiny of BHEL's Engineer. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately
8.1.5	All the welders shall carry identity cards as per the proforma prescribed by BHEL/ Customer/Consultant. Only welders duly authorized by BHEL/customer/consultant shall be engaged on the work.
8.1.6	Contractor shall provide all the Measuring Monitoring Equipments (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments/gauges/tools for the work under this specification, is final and binding on the contractor. BHEL may give an indicative list of MMEs required for this work and to be made available by the contractor. The list will be reviewed by BHEL and the contractor shall meet any augmentation needed wherever required.
8.1.7	It is the responsibility of the contractor to prove the accuracy of the testing/measuring/calibrating equipments brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.
8.1.8	Any re-laying or re-termination of cables/re-erection of instruments/ recalibration of instruments etc. required due to contractor's mistake or design requirement and found at any stage inspection, shall be carried out by the contractor at no extra cost.
8.1.9	BHEL have already been accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements. One particular aspect which needs special mention is about arrangement of calibration of instruments by the contractor. Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipments). The MMEs shall have test / calibration certificates from authorized / Government approved / Accredited agencies traceable to National / International Standards. Re-testing / re- calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall ie repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.



**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VIII: Inspection and Quality**

8.1.10	Re-work necessitated on account of use of invalid MMEs shall be entirely to the contractor's account. He shall be responsible to take all corrective actions, including resource augmentation if any, as specified by BHEL to make-up for the loss of time.
8.1.11	In the courses of erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter/ finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter/final measurements.
8.1.12	Total Quality is the watchword of the work and Contractor shall strive to achieve the Quality Standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and Quality Standards.
8.2	<b>Stage Inspection By FES/QA Engineers</b>
8.2.1	Apart from day-to-day inspection by BHEL Engineers stationed at Site and Customer's Engineers, stage inspection of equipments under erection and commissioning at various stages shall also be conducted by teams of Engineers from Field Engineering Services of BHEL's Manufacturing Units, Quality Assurance teams from Field Quality Assurance, Unit/Factory Quality Assurance and Commissioning Engineers from Technical Services etc. Contractor shall arrange all labour, tools and tackles etc. along with proper access for such stage inspections free of cost.
8.2.2	Any modifications suggested by BHEL FES and QA Engineers' team shall be carried out by contractor.
8.3	<b>Statutory Inspection of Work</b>
8.3.1	<p>The work to be executed under these specifications has to be offered for inspection, at appropriate stages of work completion, to various statutory authorities for compliance with applicable regulations. The work related statutory inspections, though not limited to, are as under:</p> <ol style="list-style-type: none"> <li>1) Inspectorate of Steam Boilers and Smoke Nuisance</li> <li>2) Electrical Inspector</li> <li>3) Factory Inspector, Labour Commissioner, PF Commissioner and other authority connected to this project work</li> </ol> <p>The scope includes getting the approvals from the statutory authorities, which includes arranging for inspection visits of statutory authority periodically as per BHEL Engineer's instructions, arranging materials for ground inspection, taking rub outs for the pressure parts to be offered for inspection, submitting co-related inspection reports, documents, radiographs etc. and following up the matter with them. Contractor shall also make all arrangements for offering the Products / Systems for inspection at location, as applicable, to the concerned authority.</p>
8.3.2	Contractor should be qualified to execute pressure parts & piping work coming under the purview of IBR, for which he should register himself with CIB of state concerned. Contractor also should be aware of the latest IBR regulations and Electricity Act, including the amendments thereof.
8.3.3	Contractor shall comply with 'Qualification Tests for welders engaged in welding of Boilers and Steam Pipes under Construction, Erection and Fabrication at Site in India and in repairing Boilers and steam pipes by welding' in line with Chapter XIII of Indian Boiler Regulations-1950, for testing his welders / men / workers, including all associated fees, procedures, required instruments and equipments and their calibration thereof, shall be contractor's responsibility to obtain approval of Statutory Authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities, at his cost.
8.3.4	<p>The following fees shall be excluded from scope of Contractor:</p> <ol style="list-style-type: none"> <li>1. Registration Fee as per Regulation 385 of Chapter IX of Indian Boiler Regulations-1950</li> <li>2. Fees for inspection of Boiler at the site of Construction as per Regulation 395 A, Sl. No. 4 of Chapter IX of Indian Boiler Regulations-1950</li> </ol> <p>However all other fees like visit fees charged by the Boiler Inspector and other arrangements for his visit or visits till satisfactory completion of work, shall be included in scope of Contractor</p>

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter – VIII: Inspection and Quality**

8.4	The Quality Management System of BHEL- HPVP have already been certified and accredited under ISO 9002 standards in this regard. The basic philosophy of the Quality Management System is to define the organizational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product/ procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, & maintain the relevant quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of quality systems at various locations/stages of work. Suppliers/vendors of various products/services contributing in the work are also considered as part of the quality management system. .as such the contractor is expected not only to conform to the quality management system of BHEL but also it is desirable that they themselves are accredited under any quality management system standard.
8.5	<b>Field Quality Assurance</b>
8.5.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) as revised from time to time. Total quality shall be the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide the services of quality assurance engineer as per the relevant clauses.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

<b>9.0</b>	<b>OCCUPATIONAL HEALTH, SAFETY &amp; ENVIRONMENT MANAGEMENT/ QUALITY ASSURANCE PROGRAMME:</b> BHEL, HPVP is certified for ISO 9001. Quality of work to customer's satisfaction and fulfilment of system requirements are the essence of ISO 9001 certification. BHEL, have HSE certification (ISO 14001 & OHSAS 18001) and therefore Contractor also shall organize/ plan/ perform all their activities to meet with the applicable requirements of these standards.
<b>9.1</b>	<b>HSE (Health, safety &amp; Environment):</b> Contractor will comply with HSE (Health, safety & Environment) requirements of BHEL. HSE requirements in brief, are given below :-
<b>9.1.1</b>	Contractor will nominate one of their qualified and experienced employees as Safety Officer, who will be responsible for all HSE related issues of contractor's work area. Safety Officer will have authority to stop any activity, in case he observes that the activity is not being carried out in safe manner. He will conduct surprise inspection as well as periodic inspection/drill (at least once in a month) and submit such reports to BHEL. He will conduct periodic meetings with supervisors of different working groups and explain HSE issues and use of PPEs to them. Reports of such meetings will be submitted to BHEL. Contractor will develop suitable work procedures based upon HSE guidelines and OCPs and implement it. Such work procedures will consist of Area of work, T&P Details, Work Procedure, and PPE requirements etc. Please refer Schedule VIII of BOCW Rules for number of safety officers, qualification, duties etc. Contractor should highlight the requirement of safety to staff and labour through daily tool box meeting before start of the day's job. Contractor to also submit monthly safety reports as per the format/procedure of BHEL.
<b>9.1.2</b>	The contractor shall arrange induction and regular health check of their employees as per schedule VII of BOCW rules by a registered medical practitioner. The contractor shall take special care of the employees affected with occupational diseases under rule 230 and schedule II of BOCW Rules. The employees not meeting the fitness requirement should not be engaged for such job
<b>9.1.3</b>	Following personnel protective equipments (PPEs), in adequate numbers, will be made available at site & their regular use by all concerned will be ensured: - - HELMET - SAFETY GOGGLES & WELDING FACE SHIELDS - SAFETY BELTS AND PROTECTIVE NET FOR WORKING AT HEIGHT - SAFETY SHOES - EAR PLUG - ANY OTHER SAFETY EQUIPMENT REQUIRED FOR SAFE COMPLETION OF THE WORK Contractor to also submit monthly reports on above as per the format/procedure of BHEL/ Consultant / customer.
<b>9.1.4</b>	Providing appropriate First Aid facilities for prompt treatment of injuries and illness at work place. Arranging training to contractor workmen/ employees for giving first aid.
<b>9.1.5</b>	Arranging ambulance in case of any emergency situation.
<b>9.1.6</b>	Identification of nearest hospital and health check-up of workmen/employees
<b>9.1.7</b>	Providing filtered drinking water at work place in cool container.
<b>9.1.8</b>	Providing Canteen, Rest Room, Washing facilities to the contracted employees as per provisions of Contract Labour Regulation Act 1970 (Chapter V).
<b>9.1.9</b>	Providing appropriate firefighting equipment at designated work place and nominate a fire officer/ warden adequately trained for his job.
<b>9.1.10</b>	Identification of nearest fire station and display contact telephone nos./ person's name around work places for cases of emergencies .
<b>9.1.11</b>	Providing adequate no. of 24 V sources and ensure that no hand lamps are operating at voltage level above 24 Volts.
<b>9.1.12</b>	Fulfilling safety requirements at all power tapping points.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.1.13	Red & White caution tape of proper width(1.5 to 2 inch) to be used for cordoning unsafe area such as open trench, excavation area etc.
9.1.14	Providing contractors company logo on cloths /uniform/ proper identity cards with photographs, for correct identification of people working at project site.
9.1.15	High/ Low pressure welders to be identified with separate colour clothings. No welders will be deployed without passing appropriate tests and holding valid welding certificates. Approved welding procedure should be displayed at work place.
9.1.16	Displaying safe handling procedures for all chemicals such as lube oil, acid, alkali, sealing compounds etc , at work place.
9.1.17	All scaffolding/ platforms should be made from materials of appropriate quality/grade so that these are safe for use. It should be certified/declared safe for use by an experienced contractor person, before any scaffolding/platform is used. Please refer IS:3696 part 1&2 and 4014 part 1 & 2
9.1.18	All T&Ps/ MMEs should be of reputed brand/appropriate quality & must have valid test/calibration certificates bearing endorsement from competent authority of BHEL. Contractor to also submit monthly reports of T&Ps deployed and validity test certificates to BHEL safety Officer as per the format/procedure of BHEL.
9.1.19	Ensure that the regulatory requirement of excessive weight limits (to carry/lift/ move weights beyond prescribed limits) for male and female workers are complied with.
9.1.20	Safety slogan, Safety/ Caution boards, wherever required to be displayed in consultation with BHEL.
9.1.21	Take suitable measures for waste management and environment related laws/legislation as a part of normal construction activities. Compliance with the legal requirements on storage/ disposal of paint drums (including the empty ones), Lubricant containers, Chemical Containers, and transportation and storage of hazardous chemicals will be strictly maintained. Ensure proper cleanliness of work place, housekeeping and waste management (including proper waste disposal ) on daily basis.
9.1.22	It is imperative on the part of the contractor to join and effectively contribute in joint measures such as tree plantation, environment protection, contributing towards social upliftment, conversion of packing woods to school furniture, keeping good relation with local populace etc.
9.1.23	The contractor shall carry out periodic air and water quality check and illumination level checking in his area of work place and take suitable control measure.
9.1.24	The Contractor is required to provide proper safety net systems (IS-11057) where ever the hazard of fall from height is present as per instruction of BHEL Engineer. The safety nets shall be fire resistant, duly tested and shall be of ISI Mark and the nets shall be located as per site requirements to arrest or to reduce the consequences of a possible fall of persons working at different heights.
9.1.25	Void..
9.2.	<b>SAFETY AND CLEANLINESS:</b> The contractor shall take all necessary safety precautions and arrange for appropriate appliances as per discretion of BHEL or its authorised officials (Site Construction Manager) to prevent loss of human lives, injuries, to personnel engaged and damage to property. Before commencing the work, the contractor shall submit a “Safety Plan” to the above authorised BHEL official and obtain approval on the same. The safety plan shall indicate in detail the measures that would be taken by the contractor to ensure safety of men, equipment, materials and environment during execution of the work. This will also include an organization structure, role and responsibilities of the concerned key personnel, the safety practices that will be followed, PPEs deployed, plan for handling critical activities and emergencies.
9.3	If the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions issued by the authorised BHEL official, BHEL shall have the right to take corrective steps at the risk and cost of the contractor.
9.4	During the course of construction, alternation or repairs, scrap with protruding nail, sharp edge etc. and all other debris shall be kept clean from working areas, passage, ways and stairs in and around site.
9.5	Combustible scrap and debris shall be removed at regular intervals during the course of execution. Safe means shall be provided to facilitate such removal. The combustible scrap should be stored in safe place away from the plant materials to avoid fire accidents. The area shall be chosen in consultation with the Engineer and to be cordoned off.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.6	Rigging equipment for materials handling shall be inspected prior to use in each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment will be removed from service.
9.7	Rigging equipment shall not be loaded in excess of its recommended safe working load. Rigging equipment, when not in use, shall be removed from the original work area so as not to present a hazard to employees.
9.8	Contractor shall notify the engineer, of his intention to bring on to site any equipment or any container, with liquid or gaseous fuel or other substance which may create a hazard. The Engineer shall have the right to prescribe the condition under which such equipment or container may be handled and used during the performance of the works and the contractor shall strictly adhere to such instructions. The Engineer shall have the right to inspect any construction tool and to forbid its use, if in his opinion it is unsafe. No claim due to such prohibition will be entertained.
9.9	Where it is necessary to provide and/or store petroleum products or petroleum mixture & explosives, the contractor shall be responsible for carrying out such provision / storage in accordance with the rules & regulations laid down in the relevant petroleum act, explosive act and petroleum and carbide of calcium manual, published by the chief inspector of explosives of India. All such storage shall have prior approval if necessary from the chief inspector of explosives or any other statutory authority. The contractor shall be responsible for obtaining the same.
9.10	Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dragged, struck or permitted to strike each other violently.
9.11	When cylinders are transported by powered vehicle they shall be secured in a vertical position.
9.12	All workmen of the contractor working on construction area shall wear safety shoes, hand gloves, safety helmets and safety belt as applicable. The contractor shall provide to its workforce and ensure the use of following personnel protective equipment as found necessary and as directed by BHEL.
9.12.1	Safety Helmets conforming to IS-2925 : 1984
9.12.2	Safety Belts conforming to IS-3521:1983
9.12.3	Safety Shoes conforming to IS-1989 : 1978
9.12.4	Eye and face protection devices conforming to IS – 1179:1967, IS 5983:1980, IS 8521 Part 1:1977, IS 8521 Part 2: 1994.
9.12.5	Hand and body protection devices conforming to IS 4770:1991 and IS- 6994: Part 1: 1973, IS – 8619 : 1977
9.12.6	Ear protection IS-9167:1979
9.12.7	Respiratory Protective Devices as per IS-9473:2002, i4746:1999 and 14166:1994
9.13	The contractor shall insure his workmen against all accidents and the policy shall be presented to BHEL Engineer on demand. Otherwise, BHEL will arrange the same and the expenditure towards this will be debited to the contractor. In case of a fatal or disabling injury accident to any person at construction site due to lapses by the contractor, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary BHEL shall have the right to impose appropriate financial penalty on contractor and recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependence before imposing any such penalty. Appropriate enquiry shall be held by BHEL giving opportunity to the contractor for presenting his case. Above safety conditions are not exhaustive but give an idea for the contractor and contractor shall adhere to all safety precaution given by the Engineer at site.
9.14	The contractor shall arrange at his cost adequate lighting facilities e.g. flood lighting, hand lamps, area lighting etc. at various levels for safe and proper working operations during night hours at the work spot as well as at the pre-assembly area.
9.15	The contractor shall be responsible for provision of all the safety notices and safety equipment as enjoined on him by the application of relevant statutory regulation / provisions and/or as called upon by BHEL from time to time. He shall be held responsible for any violation of statutory regulations (local, state or central) and BHEL instruction that may endanger safety of men, equipment and material.
9.16	The contractor shall provide temporary fencing wherever required as a safety measure against accident and damage to properties. Suitable caution notices shall be displayed where access to any part is found to be unsafe and hazardous.
9.17	Contractor shall ensure safety of all the workmen, material and equipment either belonging to him or to others working at site. He shall observe safety rules and codes applied by BHEL without exception.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.18	It will be the responsibility of the contractor to ensure safe lifting of the equipment, taking due precaution to avoid any accident and damage to other equipment and personnel. All requisite tests and inspection of handling equipment, tools & tackle shall be periodically done by the contractor by engaging only the COMPETENT PERSONS as per law. Defective equipment or uncertified shall be removed from service. Any equipment shall not be loaded in excess of its recommended safe working load.
9.19	The contractor shall provide necessary first aid facilities as per schedule III. In addition, ambulance facilities, OHC and CMO as per schedule IV, V, X and XI of BOCW Rules as applicable for all his employees, representatives and workmen at site and BHEL shall have no obligation in this regard. The first aid boxes should be placed at various elevations so as to make them available within the reach and at the quickest possible time. The contractor should conduct periodical first –aid classes to keep his supervisor and Engineers properly trained for attending to any emergency.
9.20	Training
9.20.1	The contractor shall arrange induction safety training for all employees before assigning work. In addition, awareness programme, mock drill at regular intervals and daily tool box meetings shall be arranged. Monthly report of the above to be given to BHEL safety Officer as per prescribed BHEL formats.
9.20.2	All the contractor's supervisory personnel and sufficient number of workers shall be trained for fire protection systems. Enough number of such trained personnel must be available during the tenure of contract. Contractor should nominate his supervisor to coordinate and implement the safety measures.
9.21	Contractor shall provide enough fire protecting equipment of the types and numbers at his office, stores, temporary structure in labour colony etc. Such fire protection equipment shall be easy and kept open at all times. The fire extinguishers shall be properly refilled and kept ready which should be certified at periodic intervals. The date of changing should be marked on the Cylinders. All other fire safety measures as laid down in the "codes for fire safety at construction site" issued by safety coordinator of BHEL shall be followed. Non-compliance of the above requirement under fire protection shall in no way relieve the contractor of any of his responsibility and liabilities to fire accident occurring either to his materials or equipment or those of others. Emergency contacts nos must be displayed at prominent locations.
9.22	The contractor shall at his cost, remove from vicinity of work at least once each day all combustible waste, scrap, panting materials, rubbish, unused or other materials and deposit them in places specified by BHEL to keep the work site clear and tidy. Use of undercoated canvas paper, corrugated paper, fabricated carton, plastic or other flammable materials shall be restricted to the minimum and promptly removed.
9.23	The contractor shall not use any hand lamp energized by Electric power with supply voltage of more than 24 volts in confined spaces like inside water boxes, turbine casings, condensers etc.
9.24	All portable electric tools used by the contractor shall have safe plugging system to source of power and be appropriately earthed. Only electricians licensed by appropriate statutory authority shall be employed by the contractor to carry out all types of electrical works. Details of earth resource and their test dates to be given to BHEL safety officer as per the prescribed formats of BHEL.
9.25	In case of any delay in completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay from the payments due to the contractor, after notifying the contractor suitably.
9.26	Valve protection caps shall be kept in place and secured.
9.27	The contractor shall be responsible for the safe storage and handling of his radio-active sources as per BARC rules and regulations.
9.28	Tarpaulin being inflammable should not be used (instead, only non-infusible covering materials shall be used) as protective cover while preheating, welding, stress relieving etc. at site.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.29	If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so and/or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instruction regarding safety issued by BHEL, BHEL shall have the right to take corrective steps at the risk and cost of the contractor after giving a notice of not less than 7 days indicating the steps that would be taken by BHEL.
9.30	If the contractor succeeds in carrying out its job in time without any fatal or disabling injury accident and without any damage to property BHEL may, at its sole discretion, favourably consider to reward the contractor suitably for the performance.
9.31	The contractor shall carefully follow the safety requirement of BHEL/ the purchaser with the regard to voltages used in critical areas.
9.32	The contractor shall use only properly insulated and armoured cables which conform to the requirement of Indian Electricity Act and Rules for all wiring, electrical applications at site. BHEL reserves the right to replace any unsafe electrical installations, wiring, cabling etc. at the cost of the contractor. All electrical appliances used in the work shall be in good working condition and shall be properly earthed. No maintenance work shall be carried out on live equipment. The contractor shall maintain adequate number of qualified electricians to maintain his temporary electrical installations. Area wise Electrical safety inspection is to be carried out on monthly basis as per “Electrical Safety Inspection checklist’ and the report is to be submitted to BHEL safety officer.
9.33	The contractor shall arrange adequate number of persons specifically for clearing any debris and for housekeeping of the erection area including restacking of components in the erection areas. Housekeeping to be carried out as per BHEL’s check list and report is to be submitted to BHEL safety officer.
9.34	In case of any damage to property due to lapses by the contractor, BHEL shall have the right to recover the cost of such damages from the contractor after holding an appropriate enquiry.
9.35	The contractor shall submit report of all accidents, fires and property damage etc. to the Engineer immediately after such occurrence, but in any case not later than 24 hours of the occurrence. Such reports shall be furnished in the manner prescribed by BHEL. In addition, periodic reports on safety shall also be submitted by the contractor to BHEL from time to time as prescribed by the Engineer. Compiled monthly reports of all kinds of accidents, fires and property damage to be submitted to BHEL safety officer as per prescribed formats
9.36	Before commencing the work, the contractor shall appoint / nominate a responsible person to supervise implementation of all safety measures and liaison with his counterpart of BHEL.
9.37	Suitable scaffolds shall be provided for workman for all works that cannot safely be done from the ground, or from solid construction except in the case of short duration of work which can be done safely from ladders. When a ladder is used, it shall be of rigid construction made of steel. The steps shall have a minimum width of 45 cm and a maximum rise of 30 cm. Suitable handholds of good quality wood or steel shall be provided and the ladder shall be given an inclination not steeper than ¼ horizontal and 1 vertical.
9.38	Scaffolding or staging more than 3.6 m above the ground floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly bolted, braced or otherwise secured, at least 90 cm above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from savor, from swaying, from the building or structure.
9.39	Working platforms, gangways and stairways shall be so constructed that they do not sag unduly or unequally and if the height of the platform gangways provided is more than 3.6 m above ground level or floor level, they shall be closely boarded and shall have adequate width which shall not be less than 750 mm and be suitably fenced as described above.
9.40	Every opening in the floor or a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.41	Wherever there is open excavation in ground, they shall be fenced off by suitable railing and danger signals installed at night so as to prevent persons slipping into the excavations.
9.42	Safe means of access shall be provided to all working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m in the length while the width between side rails in rung ladder shall in no case be less than app. 29.2 cm for ladder up to and including 3 m in length. For longer ladders this width shall be increased at least ¼” for each additional foot of length.
9.43	A sketch of the ladders and scaffolds proposed to be used shall be prepared and approval of the Engineer obtained prior to Construction.
9.44	All personnel of the Contactor working within the plant site shall be provided with safety helmets. All welders shall wear welding goggles while doing welding work and all metal worker shall be provided with safety gloves. Persons employed on metal cutting and grinding shall wear safety glasses.
9.45	Adequate precautions shall be taken to prevent danger for electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.
9.46	All trenches, four feet or more in depth, shall at all times be supplied with at least one ladder for each 30 m in length or fraction thereof. The ladder shall be extended from bottom of the trench to at least 90 cm above the surface of the ground. Sides of the trenches which are 1.50 m or more in depth shall be stepped back to give suitable slope or securely held by timer bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.
9.47.1	The contractor shall take permission of BHEL prior to risky jobs such as working at height, hot work, lifting activities, etc. through permits. No job should be started without permits.
9.47.2	The Contactor shall take all measures at the sites of the work to protect all persons from accidents and shall be bound to bear the expenses of defense of every suit, action or other proceeding at law that may be brought by any persons for injury sustained or death owing to neglect of the above precautions and to pay any such persons such compensation or which may with the consent of the Contractor be paid to compromise any claim by any such person should such claim proceeding be filed against BHEL, the Contractor hereby agrees to indemnify BHEL against the same.
9.48	Before any demolition work is commenced and also during the process of the work the following shall be ensured:
9.48.1	All roads and open areas adjacent to the work site shall either be closed or suitably protected.
9.48.2	No electric cable or apparatus which is liable to be a source of danger nor a cable or an apparatus used by the operator shall remain electrically charged.
9.48.3	All practical steps shall be taken to prevent danger to persons employed from the risks of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render them unsafe.
9.49	All necessary personnel safety equipment as considered adequate by the Engineer should be kept available for the use of the persons employed in the Site and maintained in a condition suitable for immediate use and the Contactor should take adequate steps to ensure proper use of equipment by those concerned.
9.49.1	Workers employed on mixing asphalted materials, cement and lime mortars shall be provided with protective foot wear and protective goggles.
9.49.2	Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
9.49.3	Those engaged in welding works shall be provided with welder’s protective eyesight lids
9.49.4	Stone breakers shall be provided with protective goggles and protective clothing and seated sufficient to safe intervals.



**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.49.5	Where workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into manhole, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public.
9.49.6	The Contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following precautions should be taken.
9.49.6.1	No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
9.49.6.2	Suitably face masks should be supplied for use by the workers where paints are applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
9.49.6.3	Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.
9.50	When the work is being done near any place where there is risk of drowning all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
9.51	Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safe guards. Hoisting appliance should be provided with such means as will reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers employed on electrical installations which are already energized, insulting mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings, watches and carry keys or other materials which are good conductor of electricity.
9.52	All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near the places of work.
9.53	The contractor shall maintain and ensure necessary safety measures as required for inspection and tests HV test, Pneumatic test, Hydraulic test, Spring test, Bend test etc as applicable, to enable Inspection Agency for performing Inspection. If any test equipment is found not complying with proper safety requirements then the Inspection Agency may withhold inspection, till such time the desired safety requirements are met.
9.54	The Contractor shall notify BHEL of his intention to bring to site any equipment or material which may create hazard. BHEL shall have the right to prescribe the conditions under which such equipment or materials may be handled and the contractor shall adhere to such instructions. BHEL may prohibit the use of any construction machinery, which according to him is unsafe. No claim for compensation due to such prohibition will be entertained by BHEL.
9.55	All safety precautions shall be taken for welding and cutting operations as per IS-818. All safety precautions shall be taken for foundation and other excavation marks as per IS-3764.
9.56	All gas cylinders shall be stored in upright position. Suitable trolley shall be used. There shall be flash-back arrestors conforming to IS-11006 at both cylinder and burner ends. Damaged tube and regulators must be immediately replaced. No of cylinders shall not exceed the specified quantity as per OCP
9.57	These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent, place at work spot. The persons responsible for compliance of the safety code shall be named therein by the Contractor
9.58	To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangement made by the contract shall be open to inspection by the Engineer of the Engineer's Representative.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.59	Keeping the work area clean/ free from debris, removed scaffoldings, scraps, insulation/sheeting wastage /cut pieces, temporary structures, packing woods etc. will be in the scope of the contractor. Such cleanings have to be done by contractor within quoted rate, on daily basis by an identified group. If such activity is not carried out by contractor / BHEL is not satisfied, then BHEL may get it done by other agency and actual cost along with BHEL overheads will be deducted from contractor's bill. Such decisions of BHEL shall be binding on the contractor.	
9.60	Notwithstanding the above clauses there is nothing to exit the Contractor from the operations of any other Act or Rule in force in area of work in this respect. Provided always that all safety measures apart from those specifically provided in this agreement which are brought to the notice of the Contractor from time to time by the Engineer shall be complied by the Contractor. Provided further that all consequences, damages, or losses arising by reason of any safety code shall be met with by the Contractor.	
9.61	<b><u>NON COMPLIANCE: -</u></b>	
	<b>NONCONFORMITY OF SAFETY RULES AND SAFETY APPLIANCES WILL BE VIEWED SERIOUSLY AND BHEL HAS RIGHT TO IMPOSE FINES ON THE CONTRACTOR AS UNDER <u>for every instance of violation noticed:</u></b>	
	<b>SN</b>	<b>Fine (in Rs)</b>
	<b>1</b>	<b>Not Wearing Safety Helmet</b>
	<b>2</b>	<b>Not wearing Safety Belt or not anchoring life line</b>
	<b>3</b>	<b>Not wearing safety shoe</b>
	<b>4</b>	<b>Not keeping gas cylinders vertically</b>
	<b>5</b>	<b>Not using flash back arrestors</b>
	<b>6</b>	<b>Not wearing gloves</b>
	<b>7</b>	<b>Grinding Without Goggles</b>
	<b>8</b>	<b>Not using 24 V Supply For Internal Work</b>
	<b>9</b>	<b>Electrical Plugs Not used for hand Machine</b>
	<b>10</b>	<b>Not Slings property</b>
	<b>11</b>	<b>Using Damaged Sling</b>
	<b>12</b>	<b>Lifting Cylinders Without Cage</b>
	<b>13</b>	<b>Not Using Proper Welding Cable With Lot of Joints And Not Insulated Property.</b>
	<b>14</b>	<b>Not Removing Small Scrap From Platforms</b>
	<b>15</b>	<b>Gas Cutting Without Taking Not Using Sheet Below Gas Cutting</b>
	<b>16</b>	<b>Not Maintaining Electric Operated Dangerously</b>
	<b>17</b>	<b>Improper Earthing Of Electrical T&amp;P</b>
	<b>18</b>	<b>No or improper barricading</b>
	<b>19</b>	<b>Activity carried out without Safety work permit (Height work, Lifting activity, Hot work-each person/case)</b>
	<b>20</b>	<b>Accident Resulting in Partial Loss in Earning Capacity</b>
	<b>21</b>	<b>Fatal Accident/Accidents Resulting in total loss in Earning Capacity</b>

Legend: -\*: per head, #: or as deducted by Customer whichever is higher.

Any other non-conformity noticed not listed above will also be fined as deemed fit by BHEL. The decision of BHEL engineer is final on the above. The amount will be deducted from running bills of the contractor. The amount collected above will be utilized for giving award to the employees who could avoid accident by following safety rules. Also the amount will be spent for purchasing the safety appliances and supporting the safety activity at site.

**SPECIAL CONDITIONS OF CONTRACT (SCC)****Chapter-IX: HSE & OHSAS**

9.61	<b><u>CITATION:</u></b> -If safety record of the contractor in execution of the awarded job is to the satisfaction of safety department of BHEL, issue of an appropriate certificate to recognize the safety performance of the contractor may be considered by BHEL after completion of the job.
9.62	<b><u>MEMORANDUM OF UNDERSTANDING</u></b> After Award Of Work, Contractors Are Required To Enter Into A Memorandum Of Understanding As Given Below:  <div style="text-align: center;"><b><u>Memorandum of Understanding</u></b></div> <p>☐ BHEL, HPVP is committed to Health, Safety and Environment Policy (EHS Policy).</p> <p>☐ M/s _____ do hereby also commit to the same EHS Policy while executing the Contract Number _____</p> <p>☐ M/s _____ shall ensure that safe work practices not limited to the above are followed by all construction workers and supervisors. Spirit and content therein shall be reached to all workers and supervisors for compliance.</p> <p>☐ BHEL will be carrying out EHS audits twice a year and M/s _____ shall ensure to close any non-conformity observed / reported within fifteen days.</p> Signed by authorized representative of M/s -----  Name  Place & Date

**Ref: OS/WC/2025-26/77/51**

**Date: 11.09.2025**

**Sub:** Works Contract for Mechanical works of Erection and Commissioning of 65 TPH Utility Boiler-II Revamp Project for TATA STEEL-NEELACHAL ISPAT NIGAM LIMITED (TS -NINL), DUBURI, JAJPUR (DIST), Odisha – Reg.

**ACCEPTANCE TO TENDER TERMS & CONDITIONS**

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

I / We accept all the **Terms and Conditions** of the Tender Enquiry and the prices quoted are in accordance with the same.

I / We accept to offer validity for a period of **3 months** from the last date for tender submission.

I / We give our acceptance to participate in **Reverse Auction** in case BHEL decides to go for 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 TENDERER WITH SEAL**

**CONTRACTOR INFORMATION**

<b>Sl. No.</b>	<b>Particulars</b>	<b>To be Filled by Bidder</b>														
01.	Name of the Contractor															
02.	Nature of Firm / Concern (Proprietor/ Partnership/ Pvt. Limited/ Public Ltd.) Note: In case of partnership concern, please enclose photo copies of the partnership deed															
03.	Full address															
04.	Name of the Proprietor/Partner															
05.	Name of the Person(s) and designation authorized for signing the contract/dealing with BHEL															
06.	Telephone No. of the firm															
07.	Mobile No.															
08.	E-mail ID															
09.	PAN Number															
10.	GSTIN Registration No.															
11.	Udyam Reg No.															
12.	MSE Status – Please put tick ( ✓ ) mark in the box whichever is applicable	<table border="1"> <tr> <td>Micro</td><td>Small</td><td>General</td><td>OBC</td><td>SC</td><td>ST</td><td>Woman</td></tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Micro	Small	General	OBC	SC	ST	Woman							
Micro	Small	General	OBC	SC	ST	Woman										

**SIGNATURE OF THE TENDERER WITH SEAL**

**Ref: OS/WC/2025-26/77/51****Date: 11.09.2025****CHECK LIST**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Document Enclosed (Yes / No)</b>	<b>Document No</b>
01.	Name of the Contractor		
02.	Tender Document Signed & Stamped		
03.	Certificate of Incorporation/Firm registration		
04.	PF Registration Certificate		
05.	ESI Registration Certificate		
06.	PAN Number		
07.	GSTIN Registration Certificate		
08.	UDYAM Registration Copy		
09.	Income Tax Returns for last 3 years		
10.	P & L account and Balance Sheet certified by the Practicing Chartered Accountant for the last 3 years		
11.	Work orders & Job Completion Certificates of similar works in line with eligibility criteria.		

**SIGNATURE OF THE TENDERER WITH SEAL**

**ACCEPTANCE FOR ELECTRONIC FUND TRANSFER / RTGS / NEFT TRANSFER**

01	NAME & ADDRESS OF THE SUPPLIER / SUBCONTRACTOR	
02	VENDOR CODE ASSIGNED BY BHEL, HPVP LTD	

**DETAILS OF BANK ACCOUNT**

03	NAME & ADDRESS OF THE BANK	
04	NAME OF THE BRANCH	
05	BRANCH CODE	
06	MICR CODE	
07	ACCOUNT NUMBER	
08	TYPE OF ACCOUNT	
09	BENEFICIARY'S NAME	
10	IFSC CODE OF THE BRANCH	
11	EMAIL ID	
12	TELEPHONE / MOBILE NUMBER	

**CERTIFICATE**

I / We here by agree to receive the payments due from M/s Bharat Heavy Electricals Ltd., by the National Electronic Fund Transfer / or RTGS Transfer mode by credit to my / our above-mentioned Bank account. I / We also agree that payments made to the above-mentioned account are a valid discharge of the liability of M/s Bharat Heavy Electricals Ltd. I / We also agree to bear the applicable Bank charges for the above mode of transfer. A copy of the cheque leaf/ cancelled cheque leaf of the above account is sent herewith.

(Authorized Signatories with Name & Seal)

**BANKER'S CERTIFICATION**

We confirm that we are enabled for receiving RTGS and NEFT credits and we further confirm that the account number of \_\_\_\_\_ (name of account holder), the signature of authorized signatory and the MICR and IFSC codes of our branch mentioned above are correct.

Place:

Bank Manager / Officer

Date:

Signature with Bank stamp and Name seal

**FORWARDED TO ACCOUNTS DEPARTMENT / CASH SECTION**

We confirm the above details are verified with the records available with us

Signature of BHEL Official with name & seal  
Operating the contract / Services

**GST COMPLIANCE FOR INDIGENOUS SUPPLIERS / CONTRACTORS**

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 P0, 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/Warrantee 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. 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.
9. 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.***



**BHARAT HEAVY ELECTRICALS LIMITED****HEAVY PLATES & VESSELS PLANT****VISAKHAPATNAM – 530 012**

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**PART – II**  
**(PRICE BID)**

**NAME OF WORK :** Works Contract for Mechanical works of Erection and Commissioning of 65 TPH Utility Boiler-II Revamp Project for TATA STEEL-NEELACHAL ISPAT NIGAM LIMITED (TS -NINL), DUBURI, JAJPUR (DIST), Odisha – Reg.

**Tender Enquiry No :** OS/WC/2025-26/77/51 Date : 11.09.2025

**SCHEDULE OF QUANTITIES AND RATES -R01**

Sl. No.	Description	Material Specification	Unit	Quantity	Unit Rate (Rs)	Amount (Rs)	Remarks
A	DISMANTLING						
	Dismantling, & shifting of equipment, structures, piping, insulation, handing over of BOC components to customer, etc.,	NA	MT	300	28870.39	8661117.00	
B	ERECTION OF PRESSURE PARTS:						
	SuperHeater						
1	Super Heater - I Coil Assemblies along with Steam cooled spacer	SA213T22	Kgs	9278.8	70.04	649887.15	IBR - Erection, Alignment
1.a	No. of joints with size	SA213T22	Nos	100 (44.5x7.1)	2671.84	267184.00	IBR - Welding
2	Super Heater - II Coil Assemblies along with steam cooled spacer	SA213T22	Kgs	8807.18	70.04	616854.89	IBR - Erection, Alignment
2.a	No. of joints with size	SA213T22	Nos	90 (51x5.6)	2659.62	239365.80	IBR - Welding
3	Super Heater - I Inlet Header	SA335P22 (219.1x23.01)	Kgs	1001.37	76.95	77055.42	IBR - Erection, Alignment
4	Super Heater - I Outlet Header	SA335P22 (273x25.4)	Kgs	1269.97	76.95	97724.19	IBR - Erection, Alignment
5	Super Heater - II Inlet Header	SA335P22 (273x25.4)	Kgs	1467.032	76.95	112888.11	IBR - Erection, Alignment
6	Super Heater - II Outlet Header	SA335P22 (273x25.4)	Kgs	1465.91	76.95	112801.77	IBR - Erection, Alignment
7	De-Superheater Assembly	SA335P22 (219.1x25.4)	Kgs	482.67	76.95	37141.46	IBR - Erection, Alignment
7.a	No. of joints with size	SA335P22 (219.1x25.4)	Nos	2 nos. - 219.1x25.4 1 no. - 48.3x4.15	24151.69	72455.07	IBR - Welding

Contd 2..

## **ANNEXURE- VII**

8	De-Superheater inlet & outlet links	SA335P22 (219.1x25.4)	Kgs	843.51	76.96	64916.53	IBR - Erection, Alignment
8.a	No. of joints with size	SA335P22 (219.1x25.4)	Nos	2 nos. - 219.1x25.4 2 nos. - 273x25.4	42632.82	170531.28	IBR - Welding
C	Economizer						
1	Economizer Inlet Header	SA106GR.C (168.3x21.95)	Kgs	278.19	76.95	21406.72	IBR - Erection, Alignment
2	Economizer Outlet Header	SA106GR.C (168.3x21.95)	Kgs	294.69	76.95	22676.40	IBR - Erection, Alignment
3	Economizer - I & II Coil Assemblies	SA210GR.A1	Kgs	27019.8	67.73	1830051.05	IBR - Erection, Alignment
(1-3).a	No. of joints with size	SA210GR.A1	Nos	125 nos. - 38.1x3.25	2244.71	280588.75	IBR - Welding
D	Water Wall Panels						
1	Lower Front Wall inlet Header Assy	SA106GR.C (219.1x22.23)	Kgs	637.13	76.94	49020.78	IBR - Erection, Alignment
1.a	No. of joints with size	SA192, SA192, SA106GR.B	Nos	(63.5x4.5)-26 nos. (SA192) (76.1x4.5)-8 nos. (SA192) (33.4x4.55)-1 no. (SA106GR.B)	4158.73	145555.55	IBR - Welding
2	Lower Rear Wall inlet Header Assy	SA106GR.C (219.1x22.23)	Kgs	643.77	76.96	49544.54	IBR - Erection, Alignment
2.a	No. of joints with size	SA192, SA192, SA106GR.B	Nos	63.5x4.5-44 nos. (SA192) 76.1x4.5-8 nos. (SA192) 33.4x4.55-1 no. (SA106GR.B)	4019.79	213048.87	IBR - Welding
3	Upper Front Wall inlet Header Assy	SA106GR.C (219.1x22.23)	Kgs	680.3	76.93	52335.48	IBR - Erection, Alignment
3.a	No. of joints with size	SA192	Nos	63.5x4.5-26 nos. (SA192) 76.1x4.5-13 nos. (SA192)	3982.43	155314.77	IBR - Welding
4	Upper Rear Wall inlet Header Assy	SA106GR.C (219.1x22.23)	Kgs	682.4	76.92	52490.21	IBR - Erection, Alignment
4.a	No. of joints with size	SA192	Nos	63.5x4.5-43 nos. (SA192) 76.1x4.5-13 nos. (SA192)	3901.12	218462.72	IBR - Welding
5	Boiler Side Wall Tubes & Furnace Side Wall Tubes	SA192	Kgs	20453.608	76.95	1573905.14	IBR - Erection, Alignment
5.a	No. of joints with size	SA192	Nos	76.1x4.5-554 nos. (SA192) Flaring	2637.33	1461080.82	Flare Joints

Contd 3..

**ANNEXURE- VII**

6	Boiler Baffle Wall Tubes	SA192	Kgs	4910.868	73.50	360948.80	IBR - Erection, Alignment
6.a	No. of joints with size	SA192	Nos	76.1x4.5- 146 nos. (SA192) Flaring	2633.14	384438.44	Flare Joints
7	Furnace Front Panel	SA192	Kgs	1682.76	73.50	123682.86	IBR - Erection, Alignment
7.a	No. of joints with size	SA192	Nos	76.1x4.5-52 nos. (SA192)	3890.96	202329.92	IBR - Welding
8	Rear Furnace Water Wall Tubes	SA192	Kgs	3131.022	73.50	230130.12	IBR - Erection, Alignment
8.a	No. of joints with size	SA192	Nos	76.1x4.5-86 nos. (SA192)	3893.54	334844.44	IBR - Welding
9	Boiler Rear Wall Tubes & Spacer Tubes	SA192	Kgs	1082.977	73.50	79598.81	IBR - Erection, Alignment
9.a	No. of joints with size	SA192	Nos	76.1x4.5-32 nos. (SA192) Flaring 51x4-8 nos. (SA192) Flaring	2649.71	105988.40	IBR- Flaring
10	Riser Tubes	SA192	Kgs	944.348	76.93	72648.69	IBR - Erection, Alignment
10.a	No. of joints with size	SA192	Nos	76.1x4.5-52 nos. (SA192)	3890.96	202329.92	IBR - Welding
11	Supply Tubes	SA192	Kgs	550.016	76.95	42323.73	IBR - Erection, Alignment
11.a	No. of joints with size	SA192	Nos	76.1x4.5-32 nos. (SA192)	4019.52	128624.64	IBR - Welding
E	Bank Tubes and associated parts						
1	Complete set of Boiler Bank tubes	SA192	Kgs	49637.043	65.43	3247751.72	IBR - Erection, Alignment
1.a	No. of joints with size	SA192	Nos	76.1x4.5-1616 nos. (SA192) Flaring 51x4-288 nos. (SA192) Flaring	2760.12	5255268.48	IBR- Flaring
2	Boiler Shielded wall tubes	SA192	Kgs	2242.634	73.50	164833.60	IBR - Erection, Alignment
2.a	No. of joints with size	SA192	Nos	76.1x4.5-68 nos. (SA192) Flaring 51x4-8 nos. (SA192) Flaring	2723.51	206986.76	IBR- Flaring
3	Pressure Parts Sealing Arrangement +Buck Stay supports & structures	9624 Kgs	Kgs	9624	64.74	623057.76	Non-IBR

Contd 4..

# ANNEXURE- VII

F	ASSEMBLING OF DRUM INTERNALS						
1	Drum Internals	Carbon Steel	Kgs	2100.92	72.81	152967.99	Non-IBR Erection, Alignment & Welding
2	Drum Temporary Support	Carbon Steel	Kgs	712.1	72.80	51840.88	Non-IBR Temporary erection and removal after erection of boiler tubes
G	ERECTION OF PIPING: SH- Saturated Links & MS Piping, Economizer feed pipe and Eco links to Drum,						
	External Piping(IBR)						
1	Economiser Feed Pipe	SA106GRB (127x12.5)	Kgs	117.94	85.97	10139.30	IBR - Erection, Alignment
1.a	No. of joints with size	SA106GRB (127x12.5)	Nos	3 nos. - 127x12.5 1 no. - 168.3x21.95	18008.59	72034.36	IBR - Welding
2	Economiser Link to Drum	SA106GRB (127x12.5)	Kgs	480.87	85.96	41335.59	IBR - Erection, Alignment
2.a	No. of joints with size	SA106GRB (127x12.5)	Nos	3 nos. - 127x12.5 1 no. - 168.3x21.95	18008.59	72034.36	IBR - Welding
3	Boiler Trim Piping	CS,AS,SS	Kgs	1599.337	333.49	533362.90	IBR - Erection, Alignment, Welding
4	Conventional Valves, Safety Valves & Silencers	CS,AS,SS	Kgs	4616.3	333.50	1539536.05	IBR - Erection, Alignment, Welding
5	Piping & Valves for Alkali boilout & steam blowing	AS,CS	Kgs	1200	333.51	400212.00	Non-IBR - Erection, Alignment, Welding, Removal and Disposal
6	SH. Saturated Links	SA106GRB (219.1x14.2)	Kgs	1195.02	85.94	102700.02	IBR - Erection, Alignment
6.a	No. of joints with size	SA106GRB (219.1x14.2)	Nos	5 nos. - 219.1x14.2	21448.96	107244.80	IBR - Welding
7	Main Steam Line	SA335P22 (219.1x25.4)	Kgs	1006.82	85.95	86536.18	IBR - Erection, Alignment
7.a	No. of joints with size	SA335P22 (219.1x25.4)	Nos	4 nos. - 219.1x25.4 1 no. 273x22	39216.67	196083.35	IBR - Welding
8	Boiler Drain Header	SA106GRB	Kgs	586.478	87.51	51322.69	IBR - Welding

Contd 5..

**ANNEXURE- VII**

H	PRESSURE PARTS SEALING ARRANGEMENTS						
1	Seal Boxes for Furnace openings	CS,AS	Kgs	1269	107.38	136265.22	Erection, Alignment and Welding
I	DUCTING: FD Fan suction ducting, Hot Air Duct to Boiler, Flue Gas Ducting from Boiler Outlet to Economizer, Economizer Ducting to APH, Ducting from APH Outlet to ID Fan Inlet, Ducting from ID Fan Outlet to Chimney Inlet						
1	Ducting without refractory lining	CS	MT	37	50214.94	1857952.78	Erection, Alignment and Welding/ Bolting
2	Expansion Bellows	Curtain Steel	MT	2.5	50214.94	125537.35	Erection, Alignment and Welding/ Bolting
J	Structural Steel (Piping Supports, Duct Supports, Access Doors & Observation Doors)	CS, AS and SS	Kgs	20871.669	57.13	1192398.45	
K	FUEL SYSTEMS :						
1	SV Burner	Bought-Out Components	MT	7.5	44452.19	333391.43	Erection, Alignment and Welding/ Bolting
2	Ignitor Assembly	Bought-Out Components	MT	0.1	44452.19	4445.22	Erection, Alignment and Welding/ Bolting
3	Damper Drive	Bought-Out Components	MT	0.1	44452.19	4445.22	Erection, Alignment and Welding/ Bolting
4	Venturi COG, BFG	Bought-Out Components	MT	3.1	44452.19	137801.79	Erection, Alignment and Welding/ Bolting
L	BOUGHT OUT COMPONENTS						
1	Soot Blowers		Nos	2	148678.95	297357.90	Erection, Alignment and Welding/ Bolting

Contd 6..

**ANNEXURE- VII**

M	Commissioning						
1	Any Extra Works during erection, Pre-Commissioning & Commissioning	NA	Man days	1000	2333.91	2333910.00	Based on BHEL Certification
N	Providing Air-conditioned Office Space (Container) suitably furnished with 6 Sets of Table & Chairs, 3 Set of Personal Computers with internet facility along with 1 Printer Cum Scanner Cum Xerox M/c. etc.		Lumps um			764140.65	Based on BHEL Certification
O	Office Assistance: Deploying an office boy exclusively for BHEL office during the entire contract period or will completion of the project, whichever is later		Man days	240	1348.48	323635.20	Based on BHEL Certification
P	<b>Total Amount in ₹</b>					<b>3,99,99,823.24</b>	
Q	<b>Discount / Increase offered on Total Amount at Sl. No: P in ₹</b>						
R	<b>Total Value in ₹ (Sl. No. P + Sl. No. Q)</b> <b>(Please enter this value in Price bid format (BOQ) of eprocurebhel.co.in portal)</b>						
S	<b>GST</b>						
T	<b>Total Value Including GST</b>						

**Notes:**

- 1) Tenderers are requested to visit the site before submitting their tenders and go through the site conditions, nature and quantum of the job to be done and in general shall themselves obtain all necessary information as to risks, safety precautions, contingencies and other circumstances. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not, no claim shall be allowed.
- 2) Contractor shall quote their prices as per Schedule of Quantities & Rates attached with the tender. Success full L1 bidder in RA shall submit price confirmation along with price -break up in the above SOQR format.
- 3) Quoted rates shall be exclusive of GST. However, GST as applicable shall be paid by the contractor and same shall be reimbursed on submission of proof of payment along with the bill as per Annexure - GST.

- 4) The quoted prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work irrespective of the final / actual quantities executed.
- 5) L1 shall be evaluated based on quoted total price. Lowest offer need not be the rate acceptable to BHEL-HPVP and BHEL-HPVP reserves the right to go for negotiation with the L1 bidder.
- 6) The various activities/ items mentioned in the SOQR are not exhaustive. Any other activities which may be required to complete the job in all respects even if not mentioned in SOQR description but mentioned elsewhere in tender enquiry shall be deemed to have been included in the total quoted prices & no extra payment for these items shall be made under any circumstances.
- 7) The quantities indicated in SOQR are tentative only and may vary +/- 25%. However, the rates quoted by the contractor shall be firm & fixed & valid till completion of all works covered under this contract. No cost escalation will be paid on any account throughout the contract period for any item. The payment will be made based on the actual quantities executed at site.
- 8) BOCW CESS applicable at 1% of work order value for this contract and same shall be deducted from RA bills & Final Bill.
- 9) Contractor to deploy all staff, manpower, construction equipment, tools, Hydra, cranes etc. and consumables as required for completion of all work are to be included in their quoted price

**SIGNATURE OF TENDERER WITH SEAL**

\*\*\*

**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)

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

Place-----

Place-----

Date-----

Date-----

Witness:.....

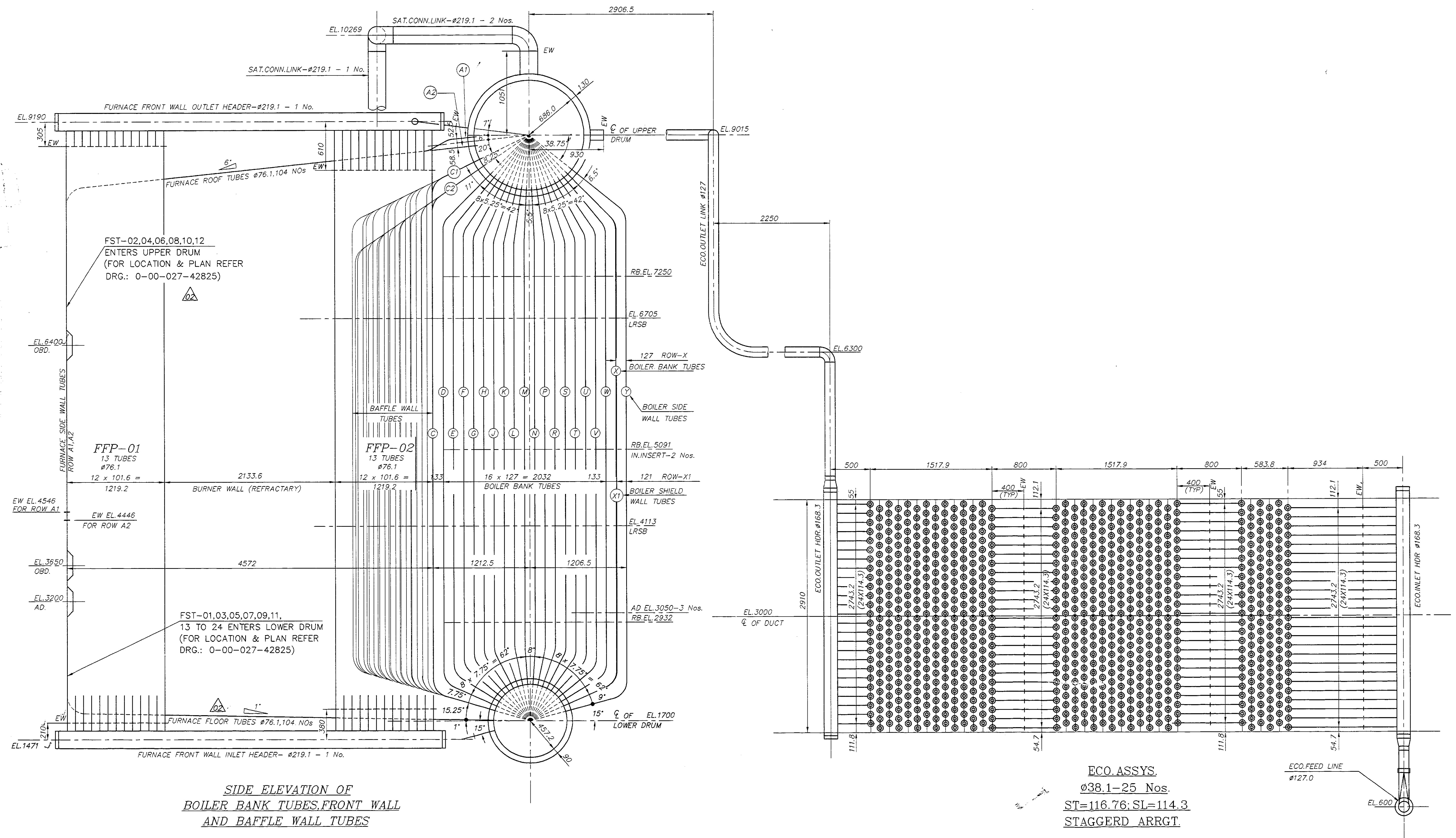
Witness:.....

(Name & Address).....

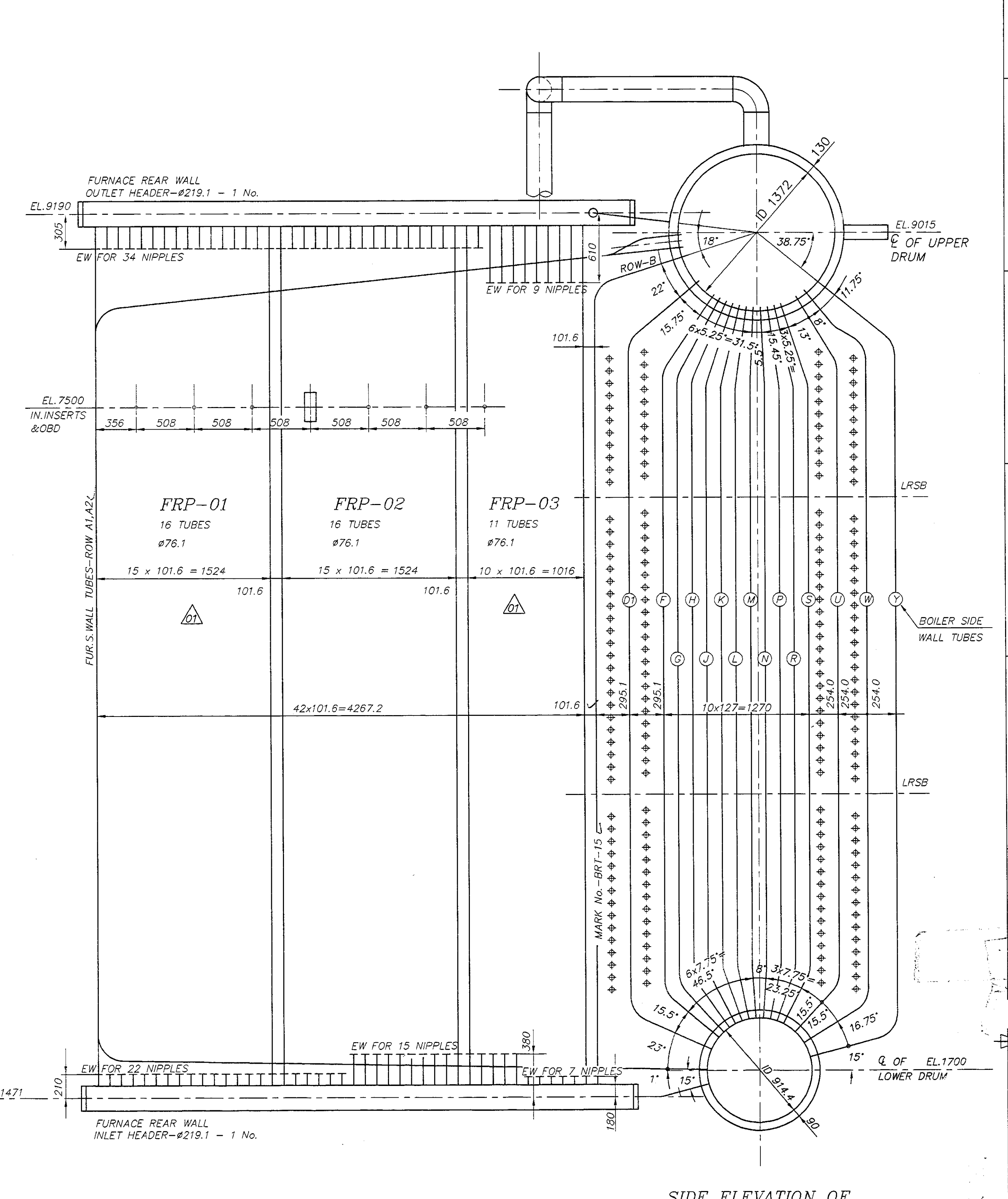
(Name & Address).....

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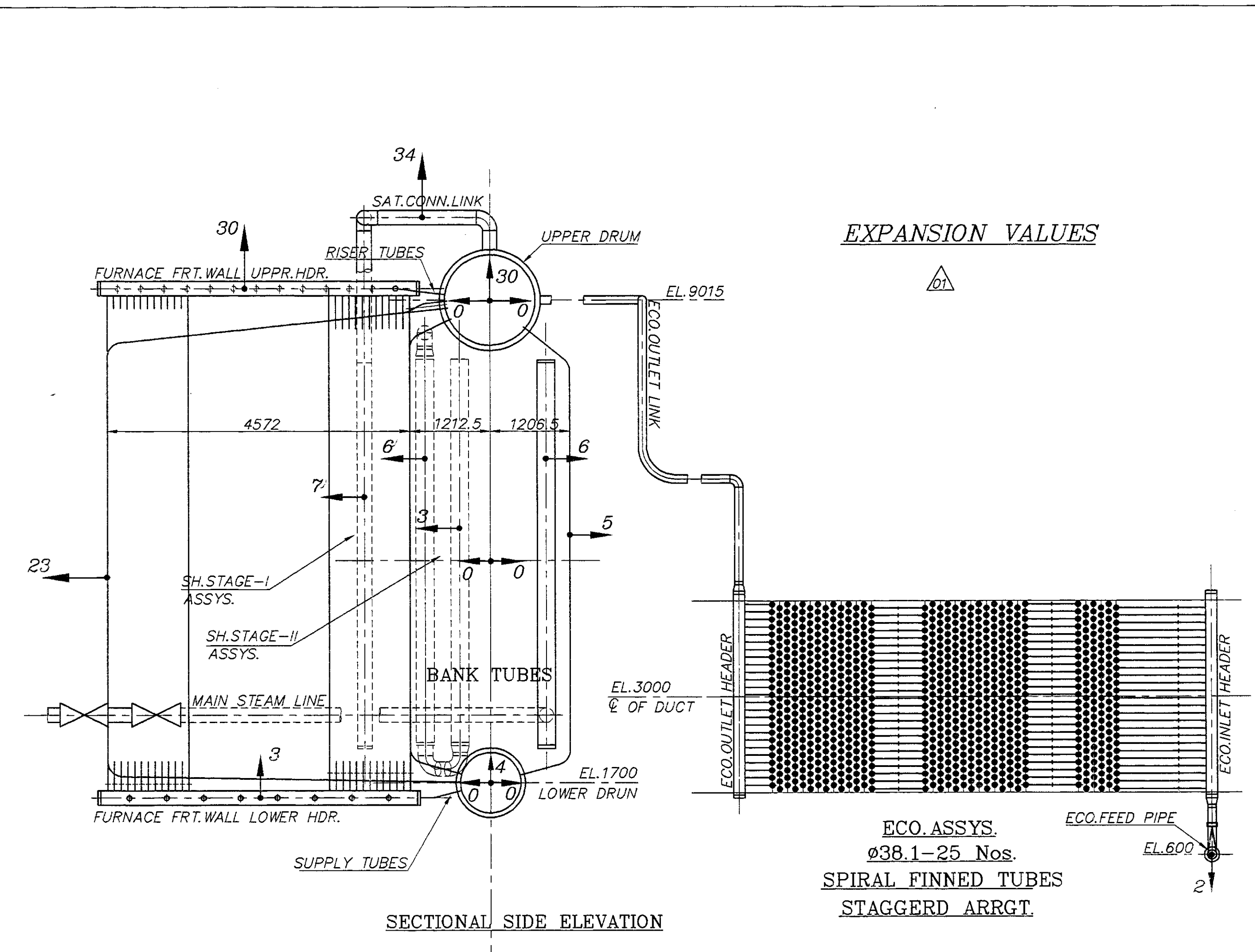


SIDE ELEVATION OF  
BOILER BANK TUBES, FRONT WALL  
AND BAFFLE WALL TUBES

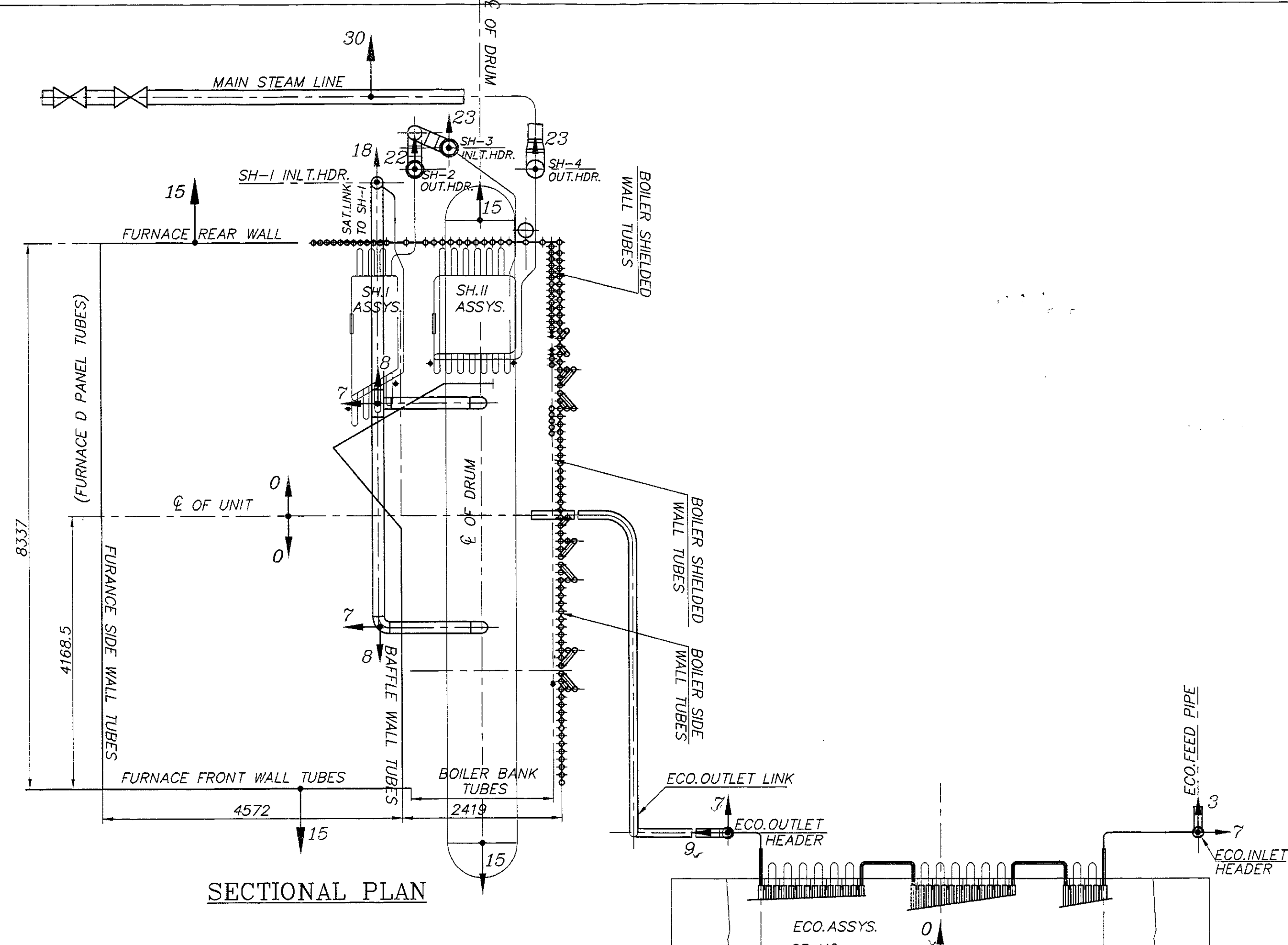


SIDE ELEVATION OF  
BOILER BANK TUBES AND  
BOILER REAR WALL

ECO ASSYS.  
Ø38.1-25 Nos.  
ST=116.76; SL=114.3  
STAGGERD ARRGT



SECTIONAL SIDE ELEVATION



SECTIONAL PLAN

EXPANSION VALUES

ECO ASSYS.  
Ø38.1-25 Nos.  
SPIRAL FINNED TUBES  
STAGGERD ARRGT

- REF.DRG.:-
- 1.PPA-PLAN OVER FURNACE & BANK TUBES. 0-00-027-42825
  - 2.PPA-SH-STAGE-I VIEW & DETAILS. 0-00-027-42826
  - 3.PPA-SH-STAGE-II VIEW & DETAILS. 0-00-027-42827
  - 4.PPA-PLAN OVER LINKS & DETAILS. 0-00-027-42828
  - 5.GENERAL ARRANGEMENT OF BOILER. 0.00.022.72122
- ELEVATION & PLAN
- \* BOM OF PRESSURE PARTS INDICATED IN THE DRAWING:  
0.00.023.42823 (INCLUDED IN THE INSPECTION DATA BOOK)
- LEGEND:-
- ØSD - OBSERVATION DOOR - 100x250 MM APPROX.
  - AD - ACCESS DOOR - 400x450 MM APPROX.
  - LR5B - LONG RETRACTABLE? Ø 120 MM. APPROX.
  - SOOT BLOWER

REV	DATE	ALTERED	BY	DATE	ALTERED	BY
01	19-12-99	CHD & APPD	C. PALANI	20-10-99	CHD & APPD	A. UTHAYAN
02	19-12-99	CHD & APPD	G.M.S	20-10-99	CHD & APPD	G.M.S
03	19-12-99	CHD & APPD	G.M.S	20-10-99	CHD & APPD	G.M.S

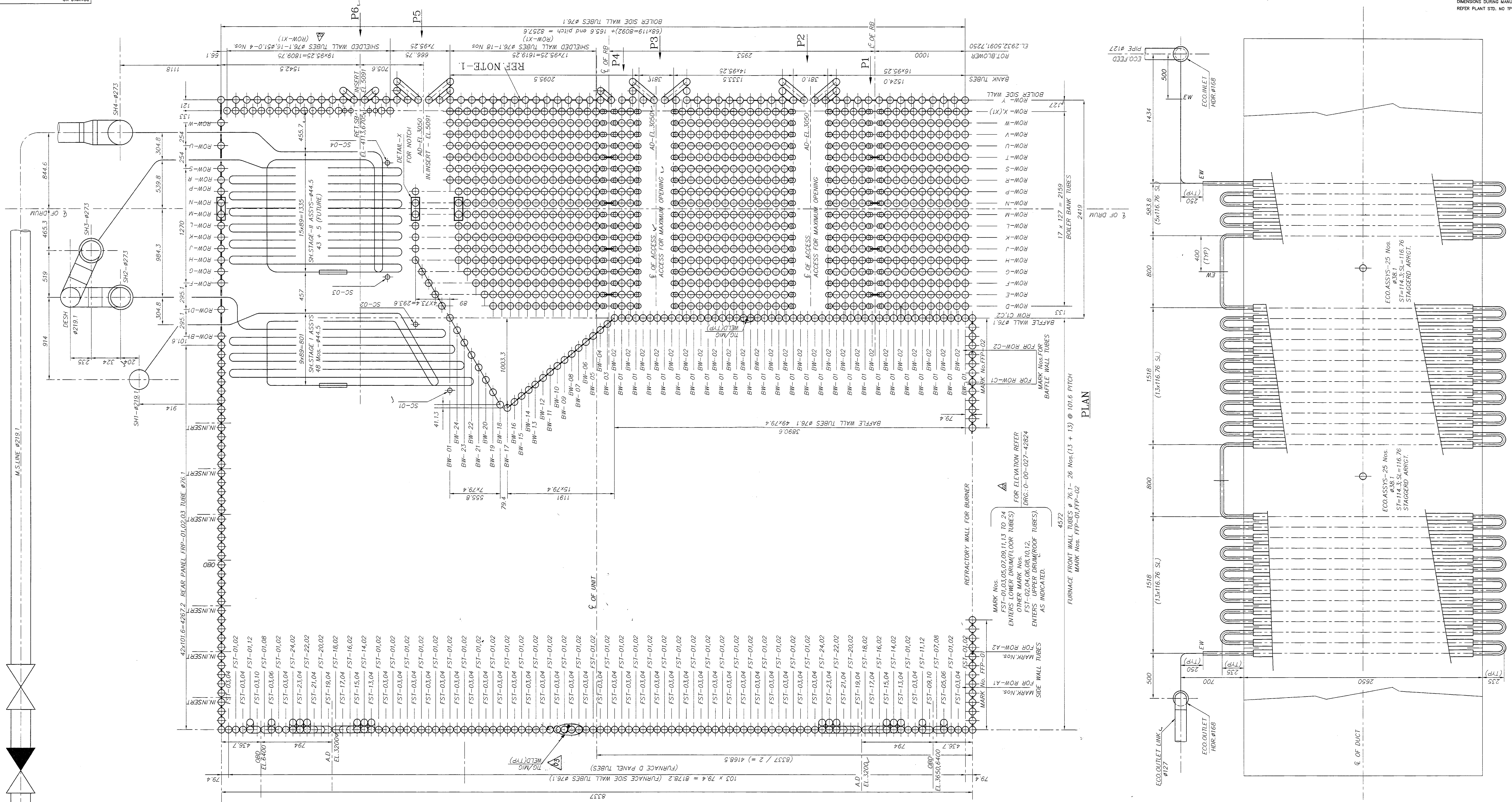
DRG. TITLE BLOCK ALTERED  
DRG. REVISION AND  
REPLOTTED

EXPANSION VALUES ADDED  
PANEL WIDTH CHANGED  
IN REAR WALL  
DRAWING REPLOTTED

CAUTION: Information on this drawing is the property of Bharat Heavy Electricals Limited and is not to be used for any other purpose without the written consent of the company.

PKG. NO.	1	9	3	PROJ. DRG. NO.	1	9	3	0	7	1	3	0	1	6	0	2	1
<b>KONARK MET COKE LIMITED</b> COKE OVEN & POWER PLANT KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA 2 X 65 T/Hr; 61 Kg/Cm <sup>2</sup> (G) 482 °C CUST No: 0475 & 0476																	
CONSULTANT <b>METALLURGICAL &amp; ENGINEERING CONSULTANTS (INDIA) LIMITED.</b>																	
<b>55 MW COMBINED CYCLE COGENERATION POWER PLANT</b> UNIT: HIGH PRESSURE BOILER PLANT THIRUCHIRAPPALLI - 620014																	
<b>PPA-SECTIONAL FRONT ELEVATION</b>																	
DRAWING NO: <b>0-00-027-42824</b>																	





MARK No. FOR BOILER BANKTUBES ROW-D TO ROW-X

SL.No. FROM FURNACE FRONT WALL	DIA	QTY.	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X
01 TO 10	76.1	10	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-09	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
11 (RBF)	51	01	BB-10	BB-11	BB-12	BB-13	BB-14	BB-15	BB-16	BB-17	BB-18	BB-18	BB-17	BB-16	BB-15	BB-14	BB-13	BB-12	BB-11	BB-10
12 (RBF)	51	01	BB-19	BB-20	BB-21	BB-22	BB-23	BB-24	BB-25	BB-26	BB-27	BB-27	BB-26	BB-25	BB-24	BB-23	BB-22	BB-21	BB-20	BB-19
13 TO 16	76.1	04	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
17 (ADF)	51	01	BB-28	BB-29	BB-30	BB-31	BB-32	BB-33	BB-34	BB-35	BB-36	BB-36	BB-35	BB-34	BB-33	BB-32	BB-31	BB-30	BB-29	BB-28
18 (ADR)	51	01	BB-37	BB-38	BB-39	BB-40	BB-41	BB-42	BB-43	BB-44	BB-45	BB-45	BB-44	BB-43	BB-42	BB-41	BB-40	BB-39	BB-38	BB-37
19 TO 31	76.1	13	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
32 (ADF)	51	01	BB-28	BB-29	BB-30	BB-31	BB-32	BB-33	BB-34	BB-35	BB-36	BB-36	BB-35	BB-34	BB-33	BB-32	BB-31	BB-30	BB-29	BB-28
33 (ADR)	51	01	BB-37	BB-38	BB-39	BB-40	BB-41	BB-42	BB-43	BB-44	BB-45	BB-45	BB-44	BB-43	BB-42	BB-41	BB-40	BB-39	BB-38	BB-37
34, 35	76.1	02	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
36 (RBF)	51	01	BB-10	BB-11	BB-12	BB-13	BB-14	BB-15	BB-16	BB-17	BB-18	BB-18	BB-17	BB-16	BB-15	BB-14	BB-13	BB-12	BB-11	BB-10
37 (RBF)	51	01	BB-19	BB-20	BB-21	BB-22	BB-23	BB-24	BB-25	BB-26	BB-27	BB-27	BB-26	BB-25	BB-24	BB-23	BB-22	BB-21	BB-20	BB-19
38 TO 50	76.1	13	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
51	76.1	1	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01	
52	76.1	1	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01		
53	76.1	1	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01			
54	76.1	1	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01				
55	76.1	1	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01					
Baffle Wall	76.1	1	BB-01	BB-02	BB-03	BB-04	BB-05	BB-06	BB-07	BB-08	BB-09	BB-09	BB-08	BB-07	BB-06	BB-05	BB-04	BB-03	BB-02	BB-01
Boiler Rear Wall	76.1	1	BRT-02	BRT-03	BRT-04	BRT-05	BRT-06	BRT-07	BRT-08	BRT-09	BRT-09	BRT-08	BRT-07	BRT-06	BRT-05	BRT-04	BRT-03	BRT-02		

RBF = ROTARY BLOWER FRONT; RBR = ROTARY BLOWER REAR; ADF = ACCESS FRONT; ADR = ACCESS REAR.

BOILER SHIELDED WALL TUBES  
MARK Nos. BSH-01 to BSH-05 FOR ROW -X1

SL.No. FROM FRONT WALL	DIA	QTY.	X1
38 TO 57	76.1	10	BSH-01
58	51	1	BSH-03
59	51	1	BSH-02
60	51	1	BSH-04
61	51	1	BSH-05
FOR SB			
62 TO 75	76.1	24	BSH-01

MARK No. BRT-15 FOR ROW B (REAR WALL)

SL.No. FROM FRONT WALL	DIA	QTY.	B	D1
BOILER REAR WALL	76.1	1	BRT-15	BRT-01

## NOTES:-

- Mk.No. BRT-15 ONE END ENTERS IN UPPER DRUM & OTHER END MATCHES WITH THE FUR.FRONT WALL INLET HDR.
- Mk.No. SC-01, SC-02, SC-03, SC-04, EACH 1 No. FOR SPACING OF SUPERHEATERS ARE PART OF BANK TUBES.

BOILER SIDEWALL TUBE (ROW-Y)  
MARK Nos. BST-01 TO BST-13 & BRT-16

SL.No. FROM FRONT WALL	DIA	QTY.	Y
1	76.1	1	BST-01
2 TO 8,11,12,13			
9 (RBF)	76.1	1	BST-04
14,28,50 (ACC)	76.1	3	BST-05
15,29 (ACC)	76.1	2	BST-06
16,30 (ACC)	76.1	2	BST-07
17,31,53 (ACC)	76.1	3	BST-08
34 (ACC)	76.1	1	BST-09
57 (ACC)	76.1	1	BST-10
58(RBF)	76.1	1	BST-11
70	76.1	1	BRT-16
51	76.1	1	BST-12
52	76.1	1	BST-13

## REF.DRG:-

- 1.PPA-SECTIONAL FRONT ELEVATION:-
- 2.PPA SH.STAGE-I VIEW & DETAILS.
- 3.PPA SH.STAGE-II VIEW & DETAILS.
- 4.PPA-PLAN OVER LINKS & DETAILS.

0-00-027-42824  
0-00-027-42825  
0-00-027-42827  
0-00-027-42828

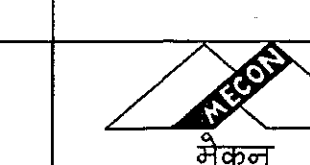
## NOTES:-

- EXCEPT FURNACE FRONT/REAR WALL TUBES ALL OTHER TUBES ARE SUPPLIED AS LOOSE TUBES. CARBON STEEL FLATS OF 6mm THICK ARE TO BE PLACED IN BETWEEN TUBES AND WELDED BY MIG/ARC WELDING TO MAINTAIN GAS TIGHTNESS. FIN TO FIN WELDING TO BE DONE AT SITE WHEREVER NECESSARY TO MAINTAIN GAS TIGHTNESS
- MARK Nos. FOR ROWS D TO X, Y - REFER TABLE

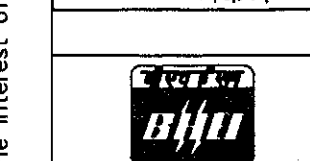
PKG.NO 1 9 3 PROJ. DRG. NO. 1 9 3 0 7 1 3 0 1 6 0 8 0



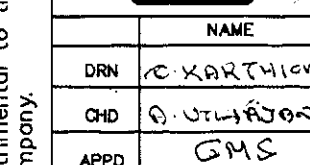
**KONARK MET COKE LIMITED**  
COKE OVEN & POWER PLANT  
KALINGA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA  
2 X 65 T/Hr ; 61 Kg/cm<sup>2</sup> (G) 482 ° C CUST No : 0475 & 0476



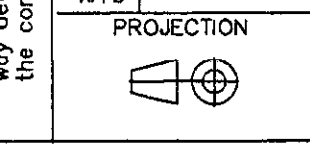
**METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.**



**55 MW COMBINED CYCLE COGENERATION POWER PLANT**  
**Bharat Heavy Electricals Limited**  
UNIT: HIGH PRESSURE BOILER PLANT  
TRICHURAPALLI - 620014

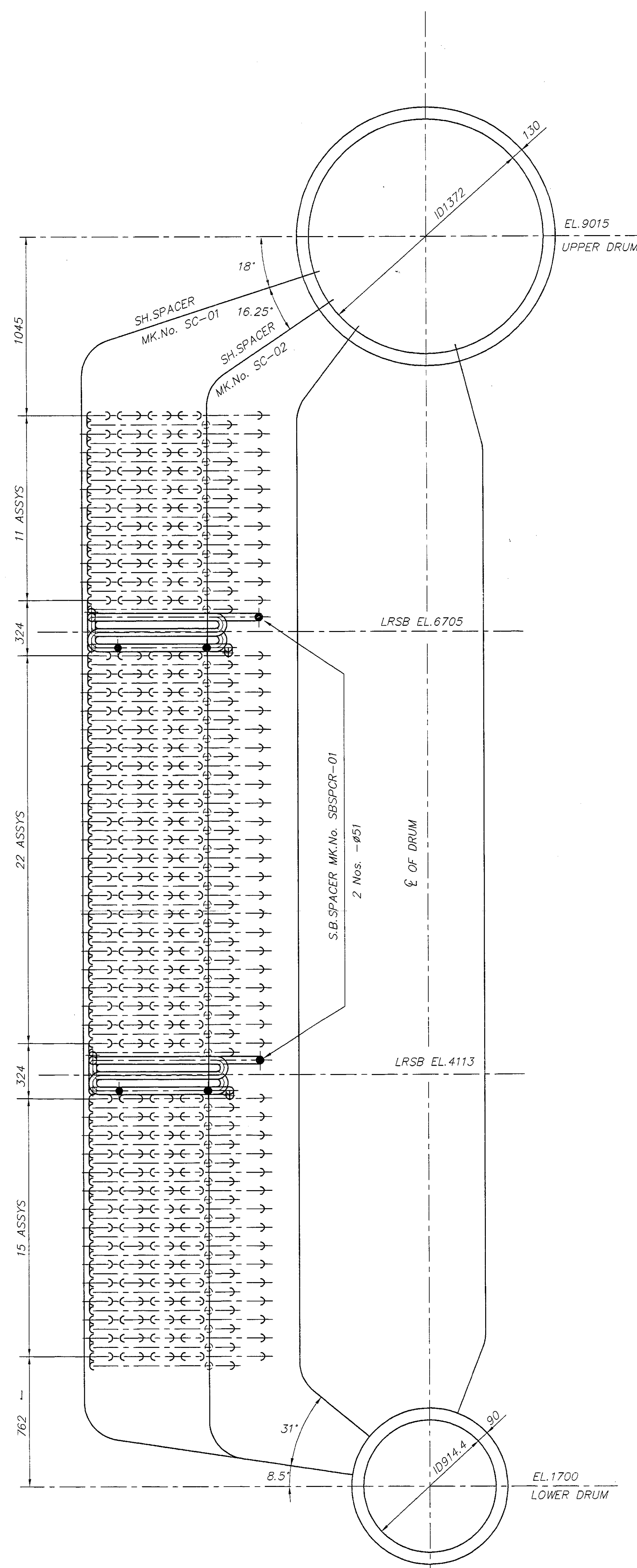


**PPA-PLAN OVER**  
**FURNACE & BANK TUBES**

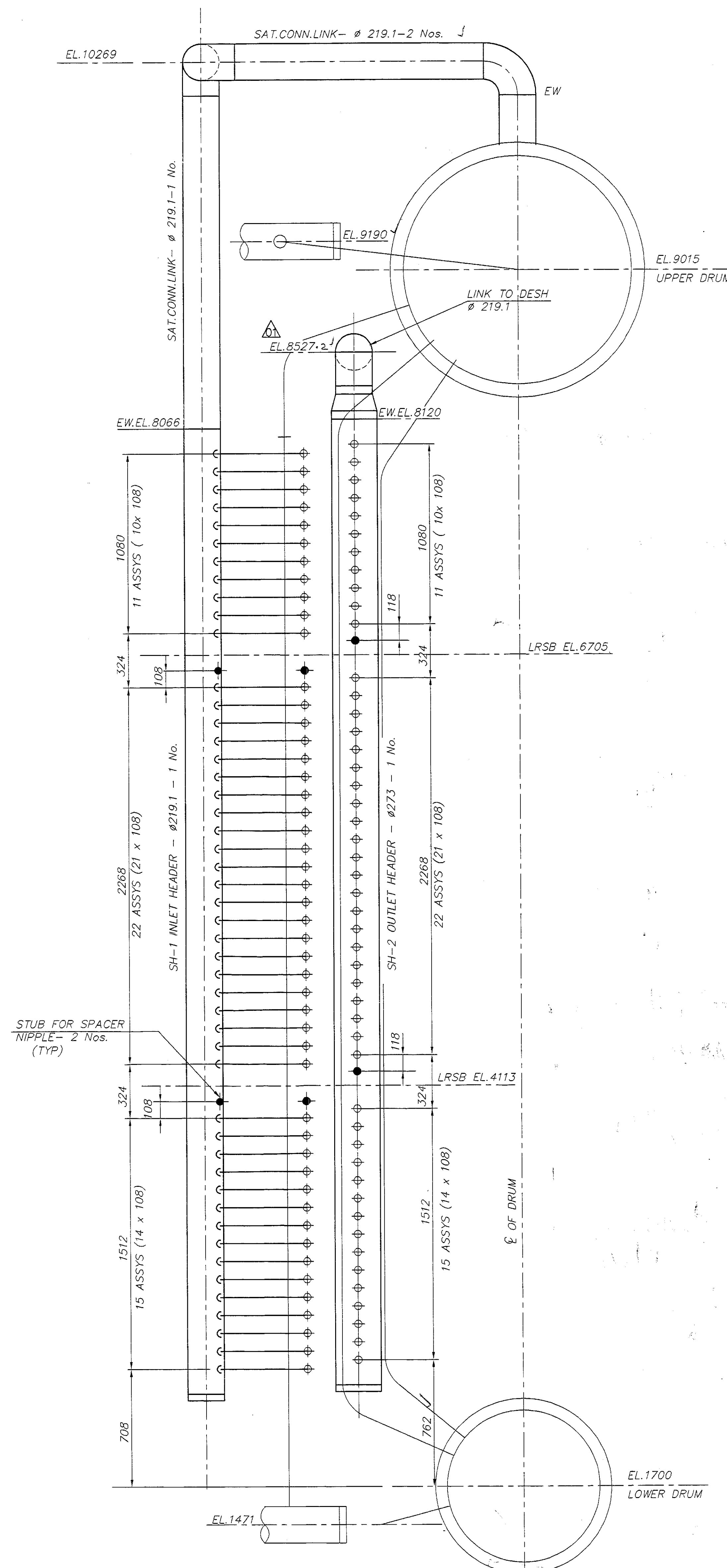


DRAWING NO: 0-00-027-42825  
DIMENSIONS ARE IN MM

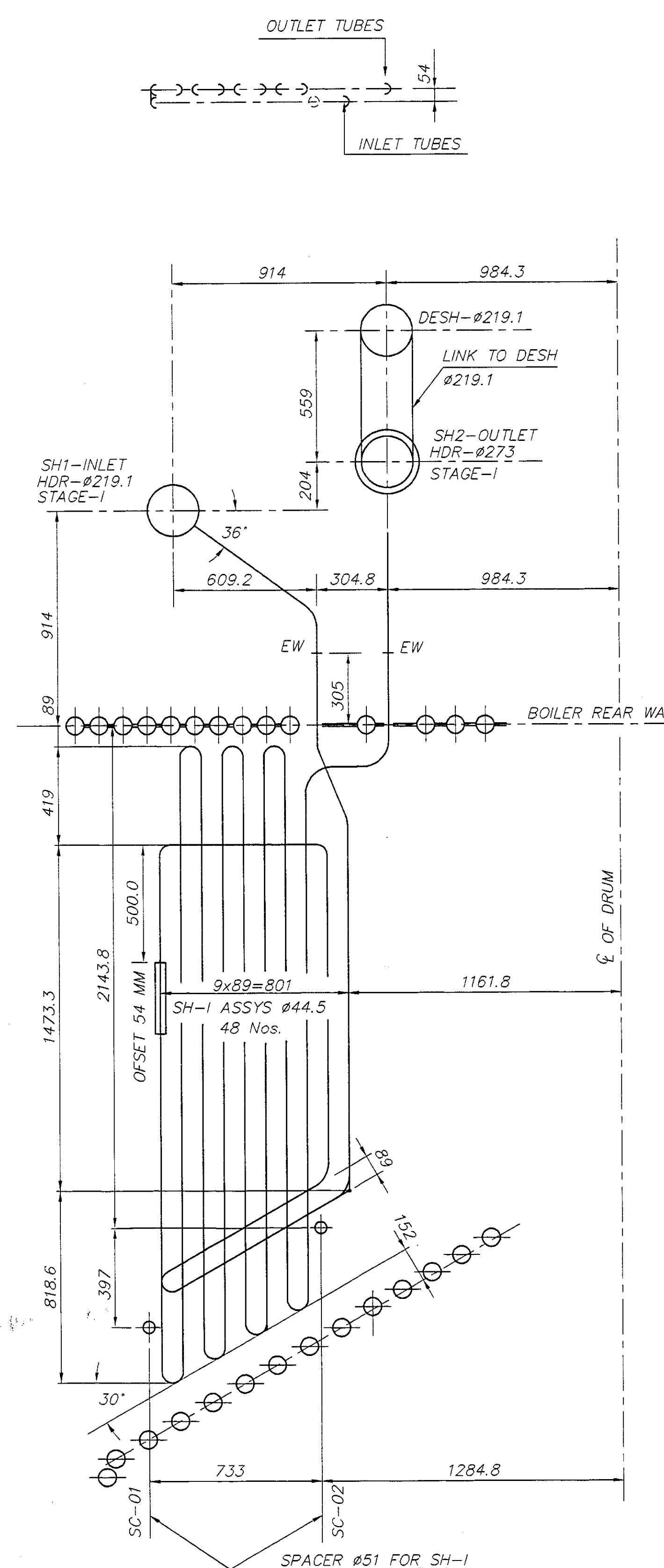




ELEVATION OF SH-I ASSYS.



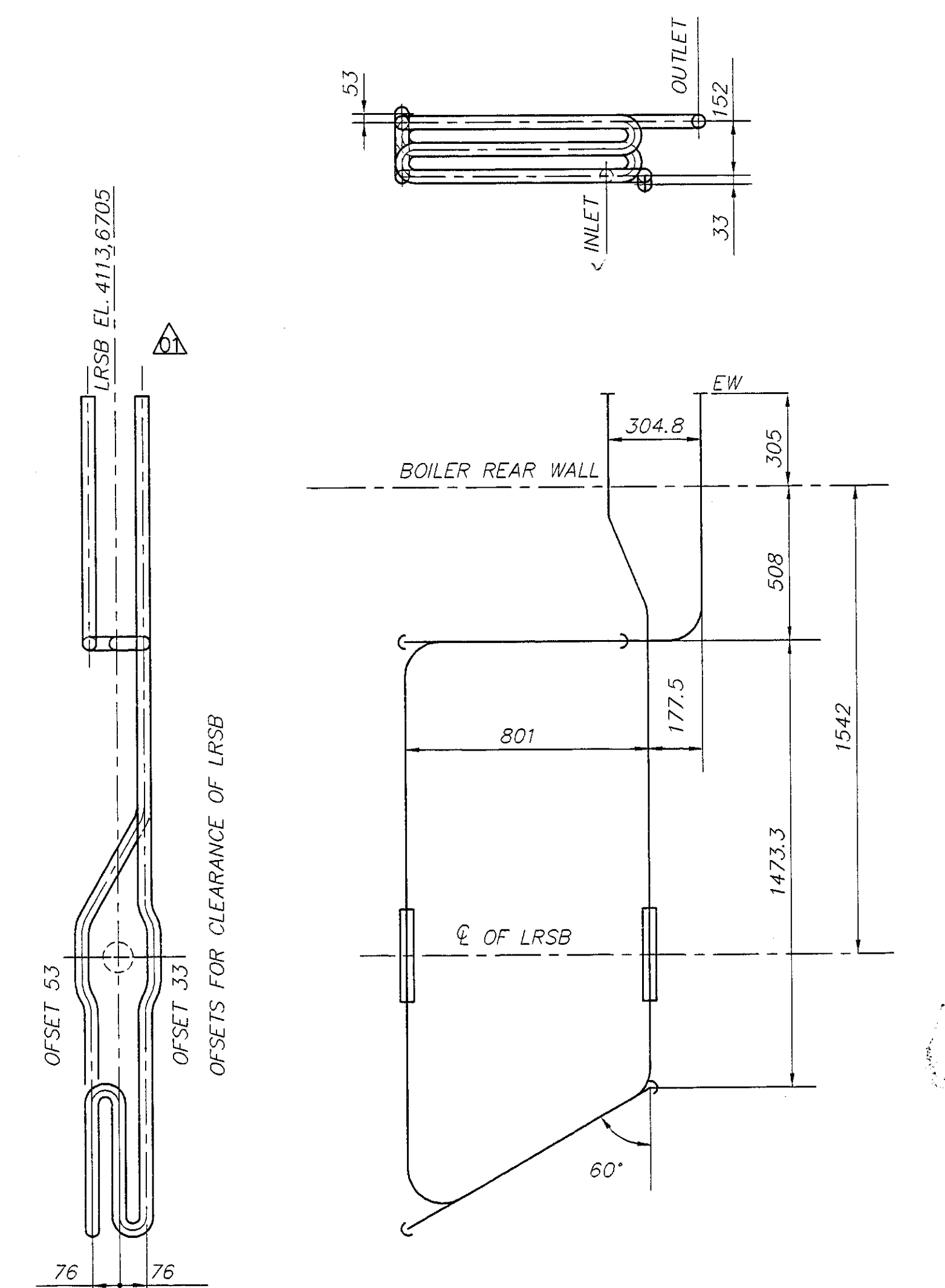
ELEVATION OF INLET/OUTLET  
HEADERS - SH-I



SH-I ASSYS  
PLAN VIEW

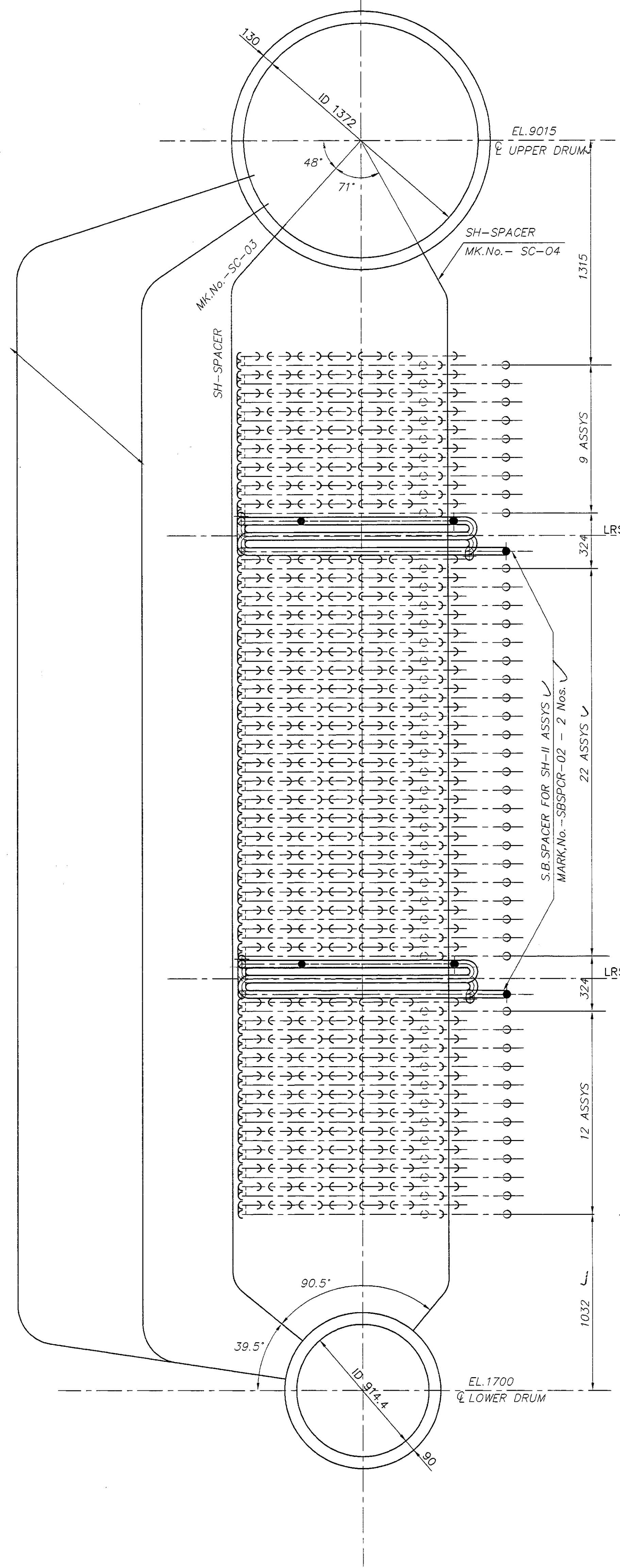
REF.DRG: -

- 1.PPA-SECTIONAL FRONT ELEVATION. 0-00-027-42824
  - 2.PPA-PLAN OVER FURNACE & BANK TUBES. 0-00-027-42825
  - 3.PPA SH.STAGE-I VIEW & DETAILS. 0-00-027-42826
  - 4.PPA SH.STAGE-II VIEW & DETAILS. 0-00-027-42827
  - 5.PPA-PLAN OVER LINKS & DETAILS. 0-00-027-42828
- LRSB...LONG RECTRATABLE SOOT BLOWER

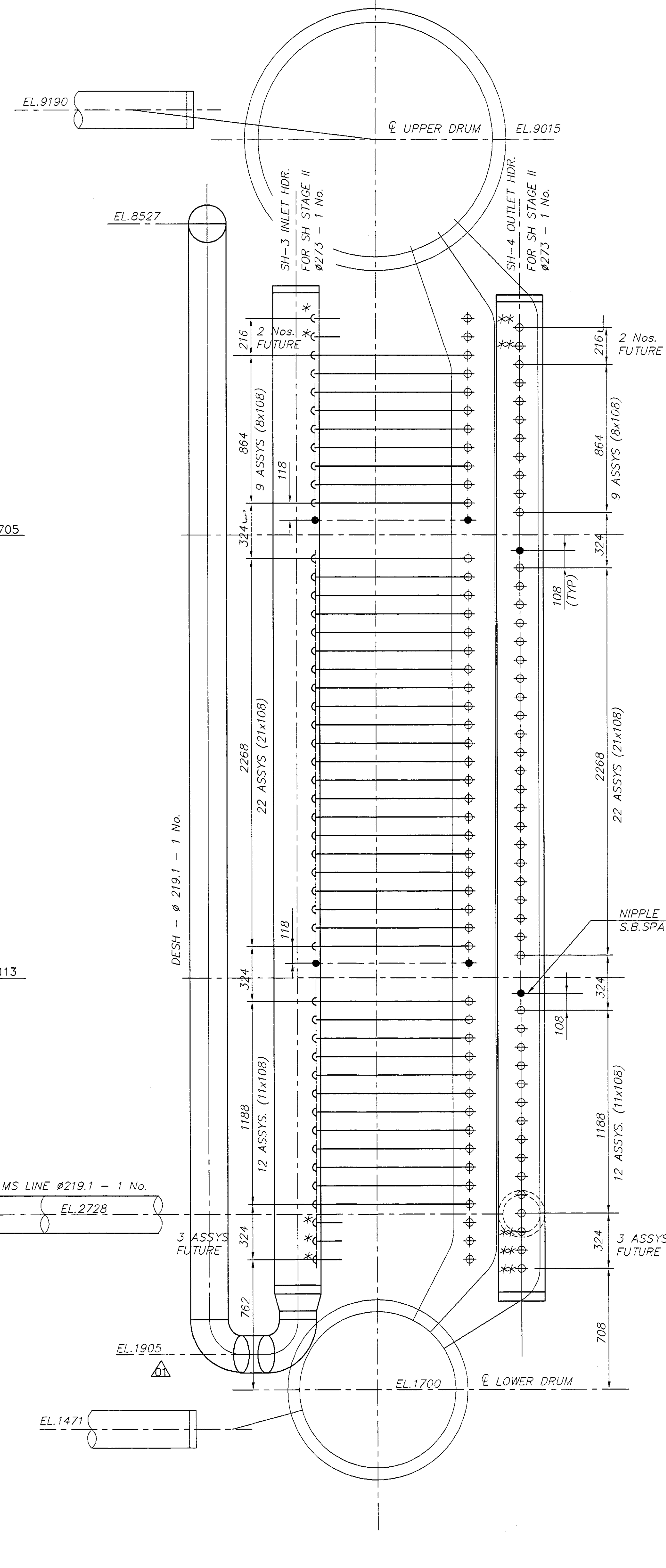


S.B.SPACER FOR SH-I ASSYS  
MARK - No. SBSPCR-01 - 2 Nos. 051  
PLAN VIEW

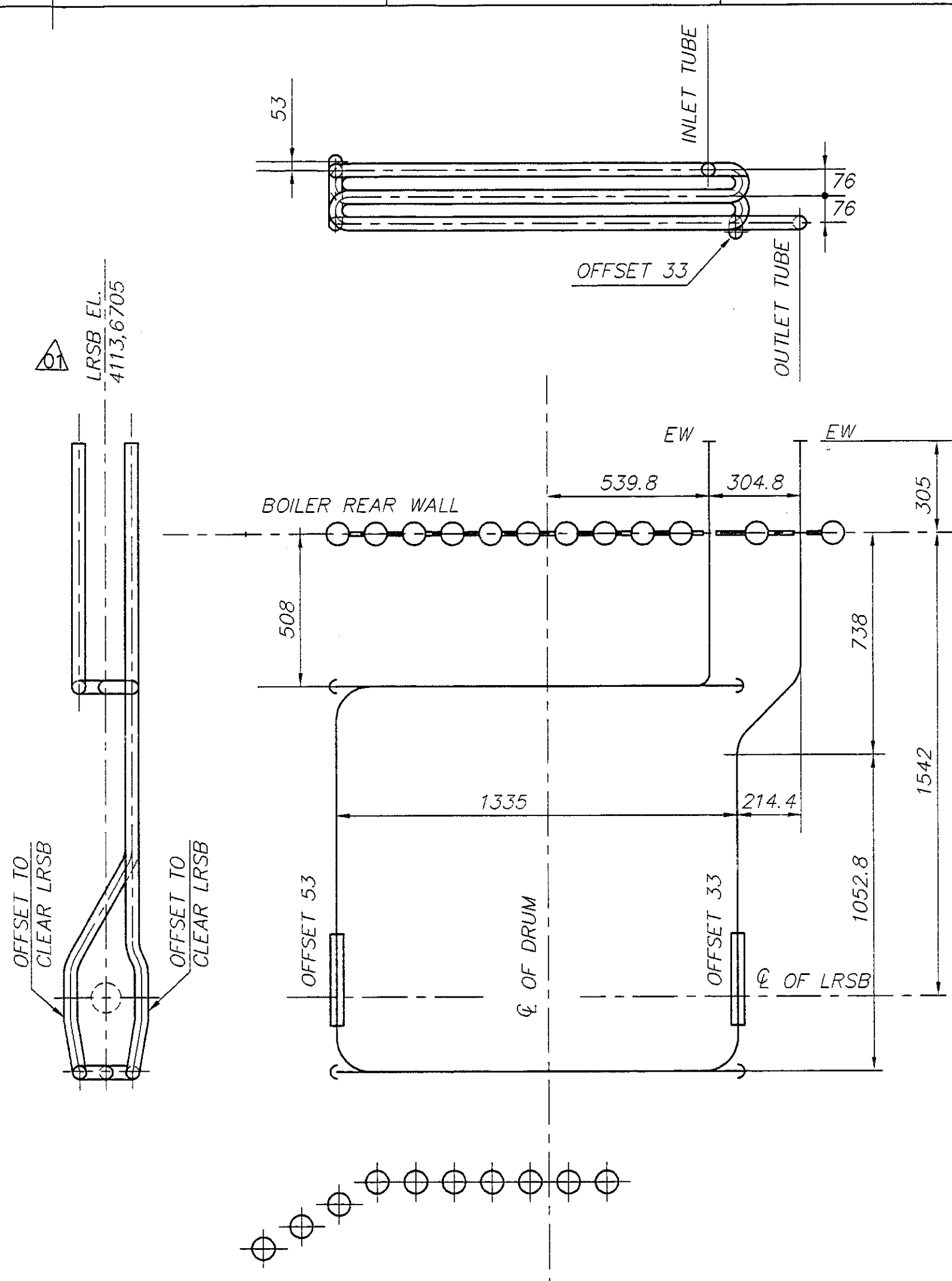
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<b>KONARK MET COKE LIMITED</b> COKE OVEN & POWER PLANT KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA 2 X 65 T/Hr ; 61 Kg/Cm <sup>2</sup> (G) 482 °C CUST No : 0475 & 0476																	
<b>CONSULTANT</b> METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.																	
<b>55 MW COMBINED CYCLE COGENERATION POWER PLANT</b> Bharat Heavy Electricals Limited UNIT: HIGH PRESSURE BOILER PLANT TRUGHIRAPALLI - 620014																	
<b>PPA-SH.STAGE-I</b> <b>-VIEW &amp; DETAILS</b>																	
DRAWING NO : 0-00-027-42826																	
REV 15																	



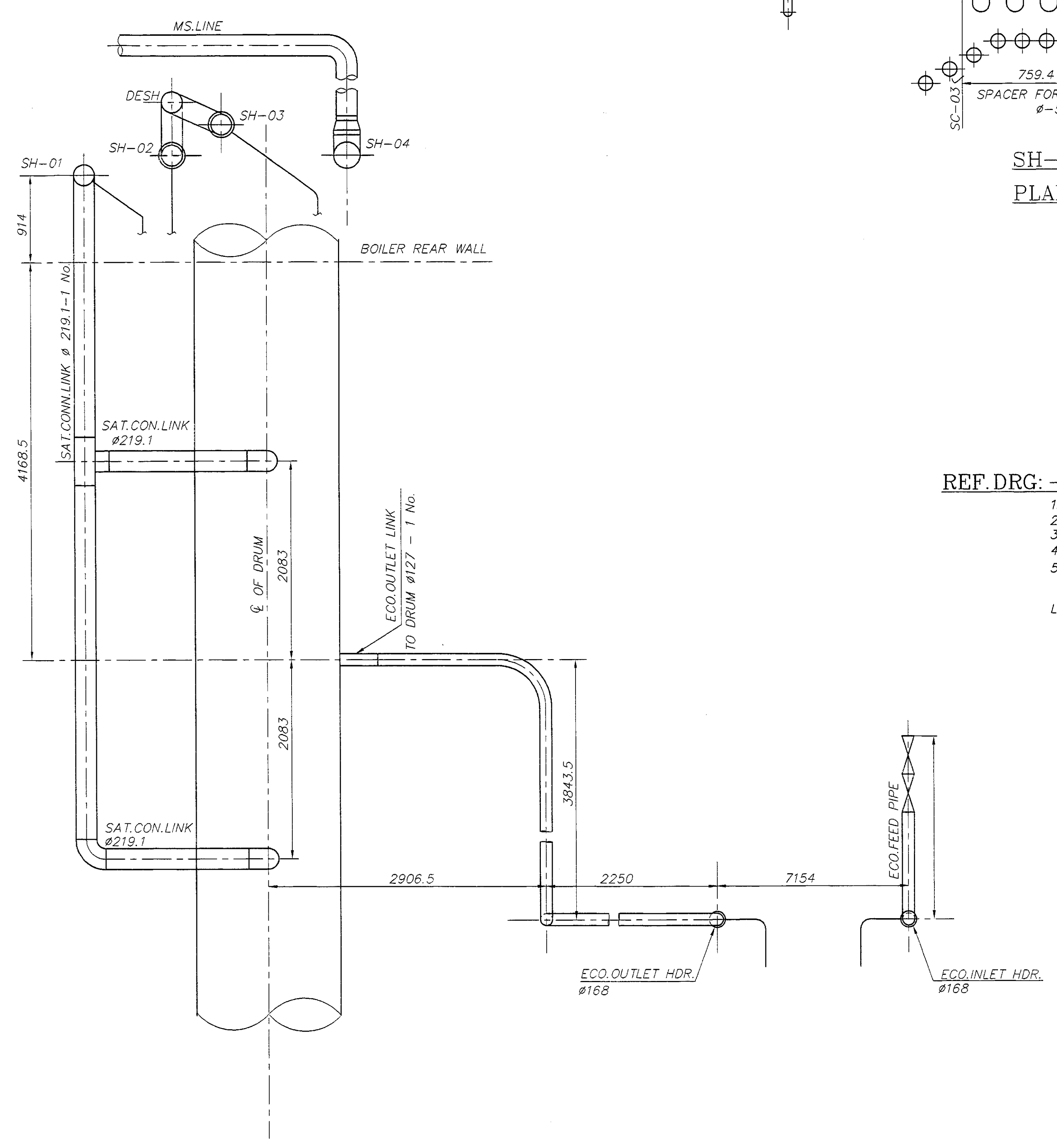
ELEVATION OF SH-II ASSYS.



\* FUTURE ASSYS.  
\*\* NIPPLES TO BE BLANKED.  
ELEVATION OF INLET/OUTLET HEADERS FOR SH-STAGE II



S.B.SPACER FOR SH-II ASSYS  
MARK No. SBSPCR-2 - 2 Nos.-Ø51  
PLAN VIEW



SH-II ASSYS  
PLAN VIEW

REF.DRG:-  
1.PPA-SECTIONAL SIDE ELEVATION. 0-00-027-42824  
2.PPA-PLAN OVER FURNACE & BANK TUBES. 0-00-027-42825  
3.PPA SH-STAGE-I VIEWS & DETAILS. 0-00-027-42826  
4.PPA SH-STAGE-II VIEWS & DETAILS. 0-00-027-42827  
5.PPA-PLAN OVER LINKS & DETAILS. 0-00-027-42828

LRSB...LONG RETRACTABLE SOOTBLOWER

PKG.NO	1	9	3	PROJ. DRG. NO.	1	9	3	0	7	1	3	0	1	6	0	8	2
<b>KONARK MET COKE LIMITED</b> COKE OVEN & POWER PLANT KALINGA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA 2 X 65 T/Hr : 61 Kg/CN <sup>2</sup> (G) 482 °C CUST No : 0475 & 0476																	
<b>METALLURGICAL &amp; ENGINEERING CONSULTANTS (INDIA) LIMITED.</b>																	
<b>55 MW COMBINED CYCLE COGENERATION POWER PLANT</b> UNIT: HIGH PRESSURE BOILER PLANT TRUCHIRAPALLI - 820014																	
<b>Bharat Heavy Electricals Limited</b> UNIT: HIGH PRESSURE BOILER PLANT TRUCHIRAPALLI - 820014																	
REV	DATE	ALTERED	BY	DATE	REV	DATE	ALTERED	BY	DATE	REV	DATE	ALTERED	BY	DATE	REV	DATE	ALTERED
01	15.3.99	APPROVED	C. K. SINGH	15.3.99	02	15.3.99	APPROVED	C. K. SINGH	15.3.99	03	15.3.99	APPROVED	C. K. SINGH	15.3.99	04	15.3.99	APPROVED
Dwg. Title Block Altered Dwg. Revised and Replotted Scale: N.T.S. All dimensions are in mm Drawing No: 0-00-027-42827 Rev: 01																	



0-00-027-42828

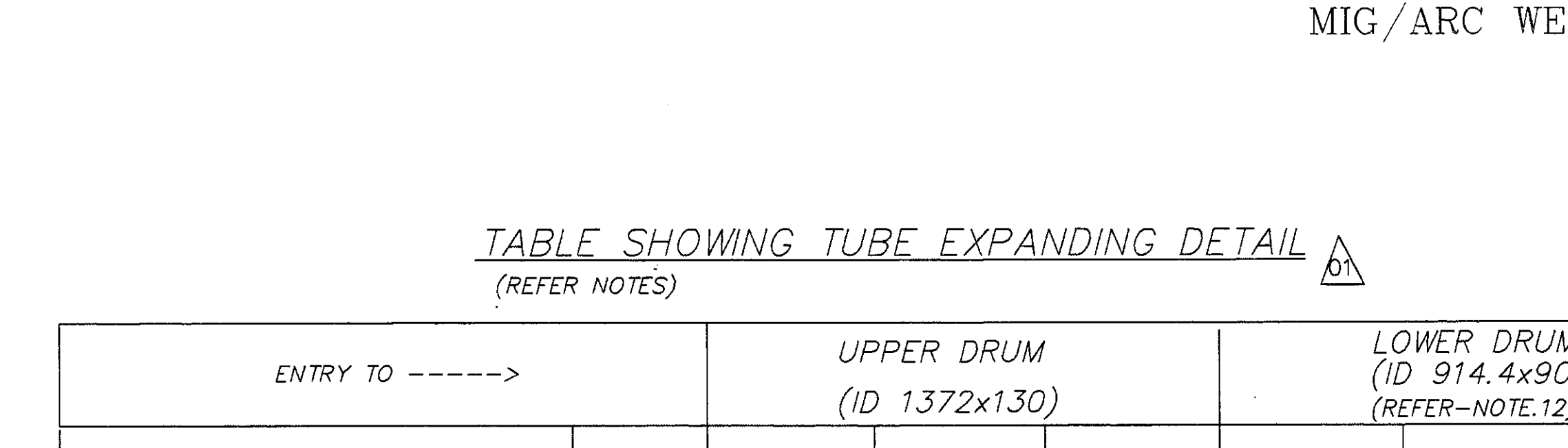
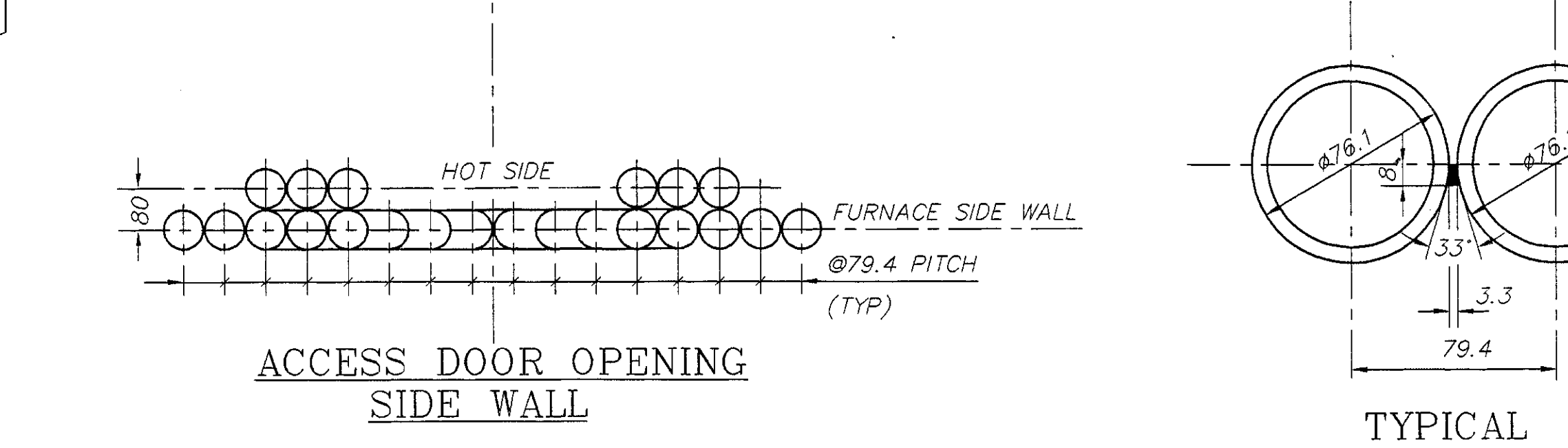
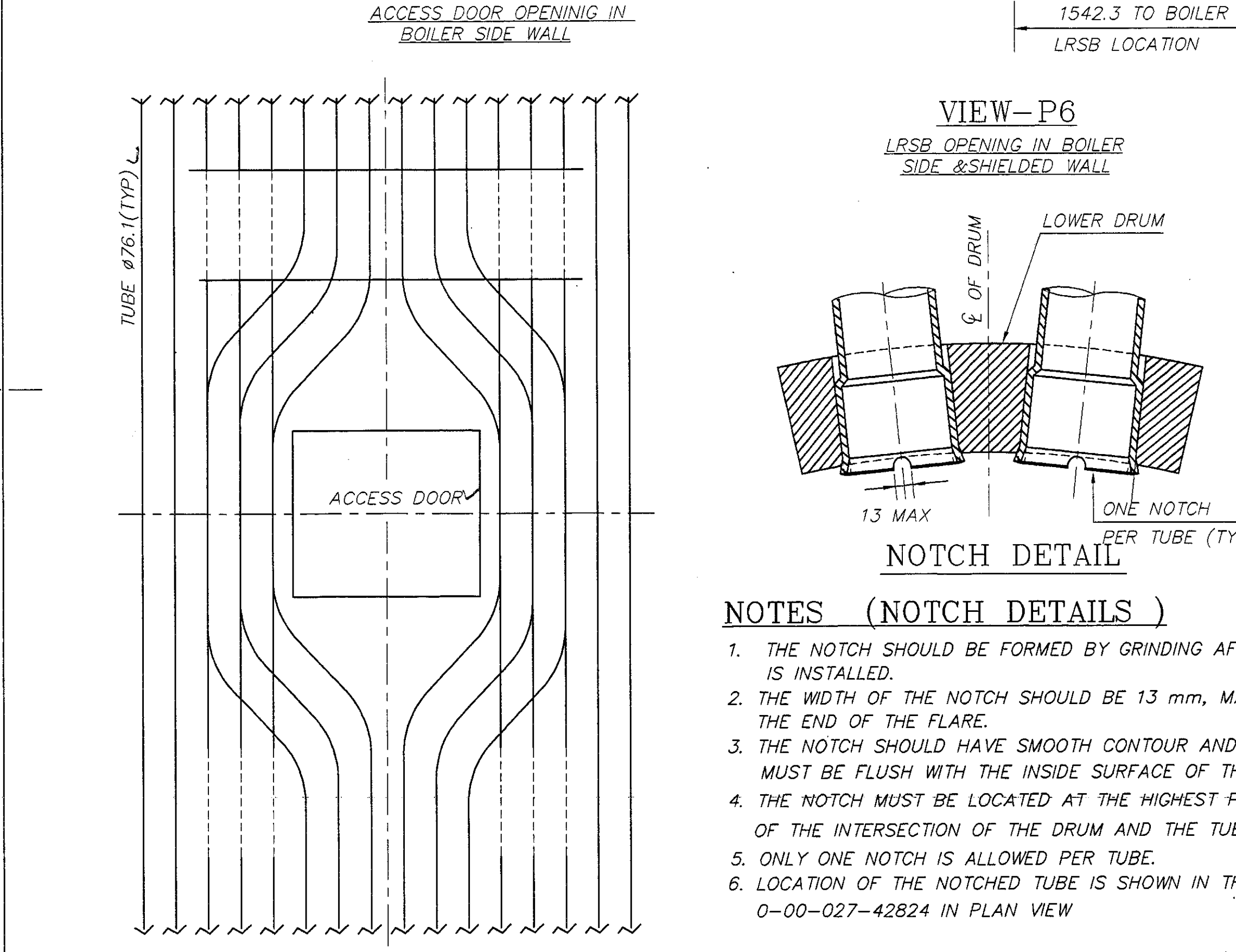
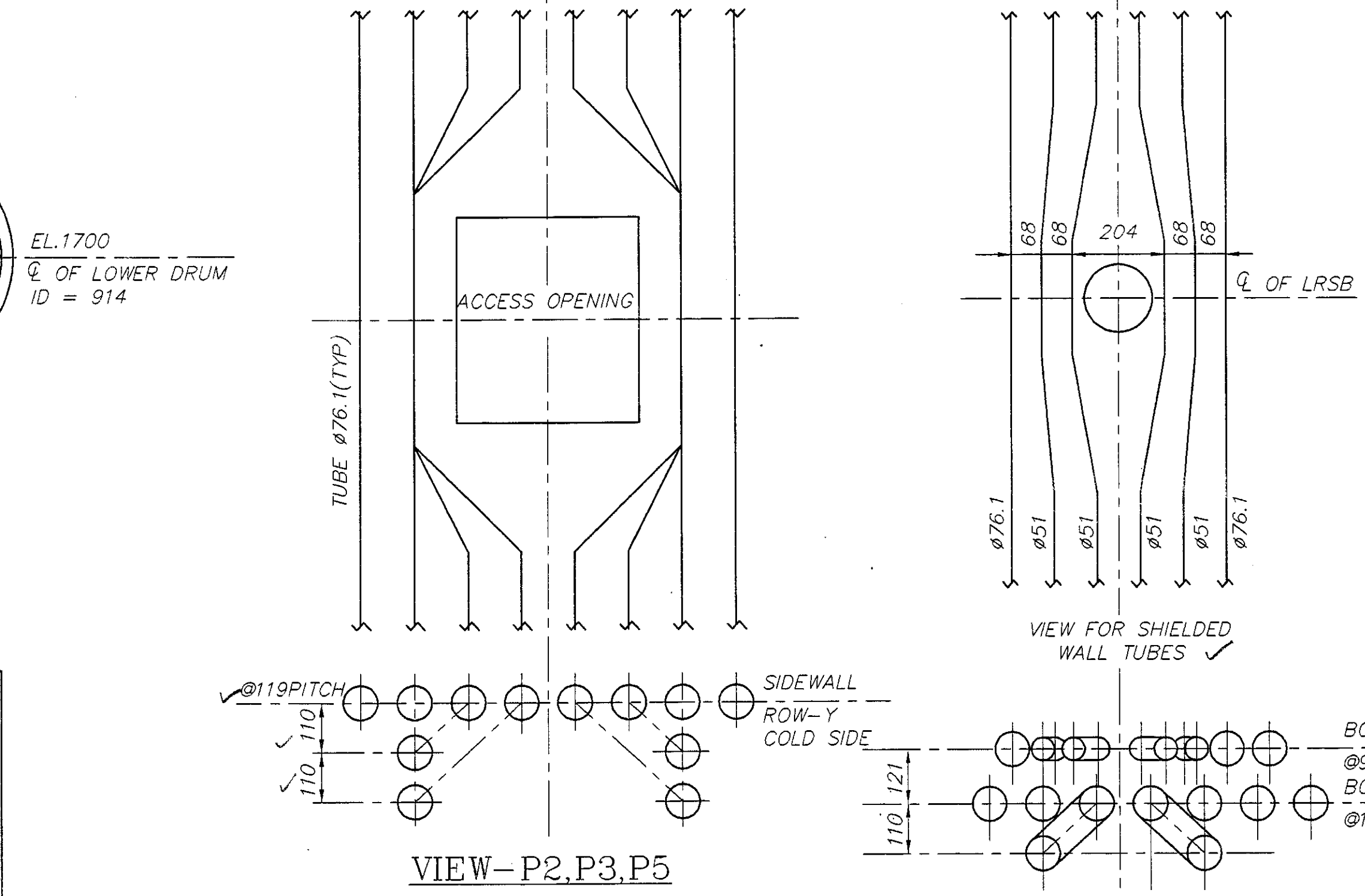
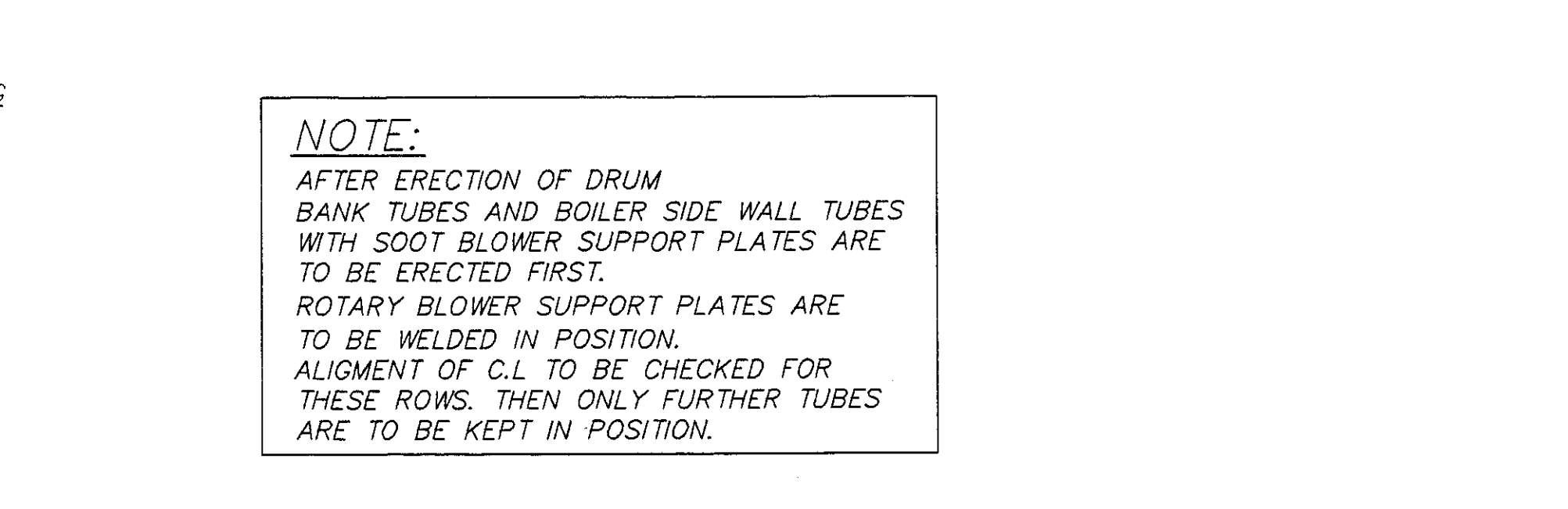
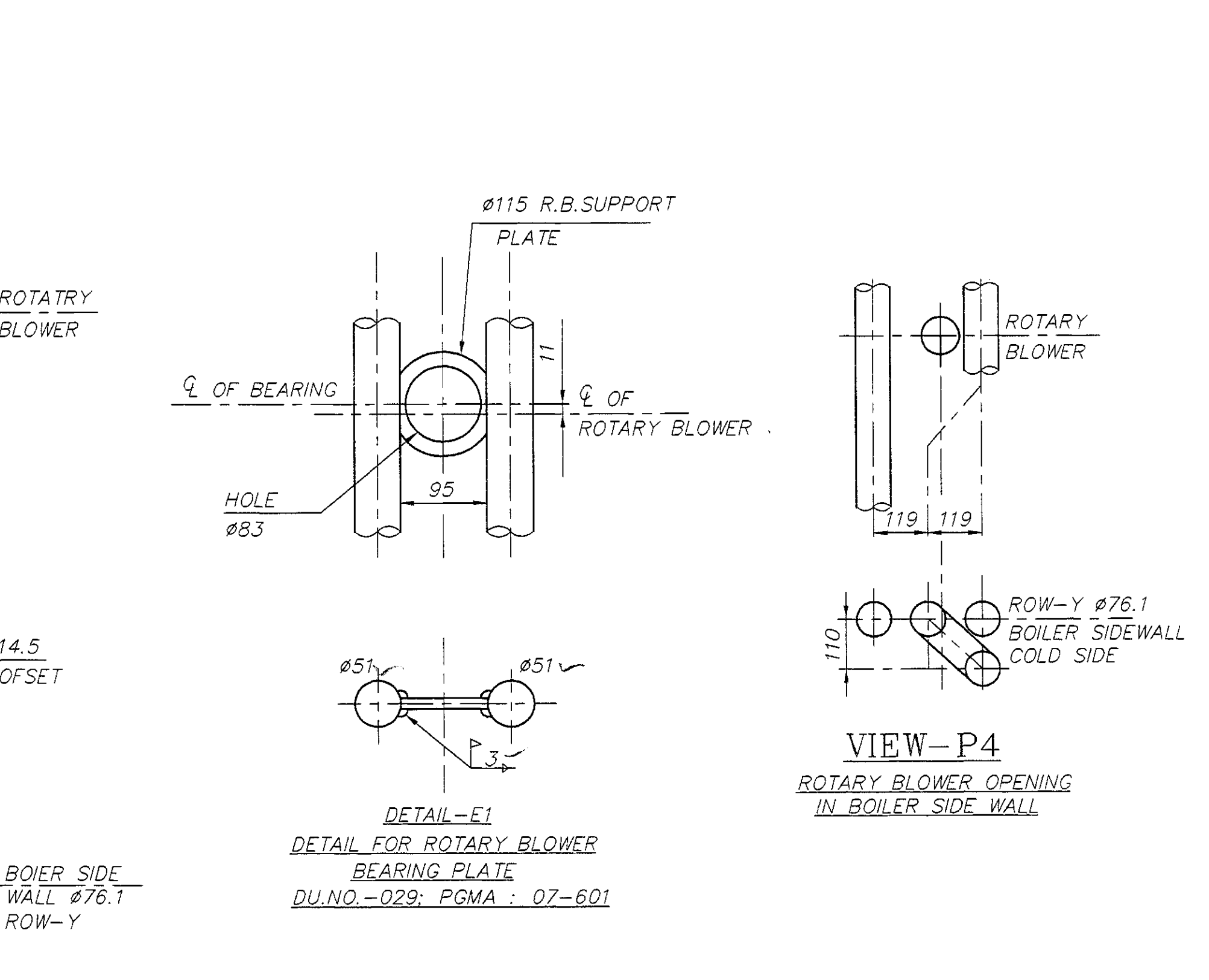
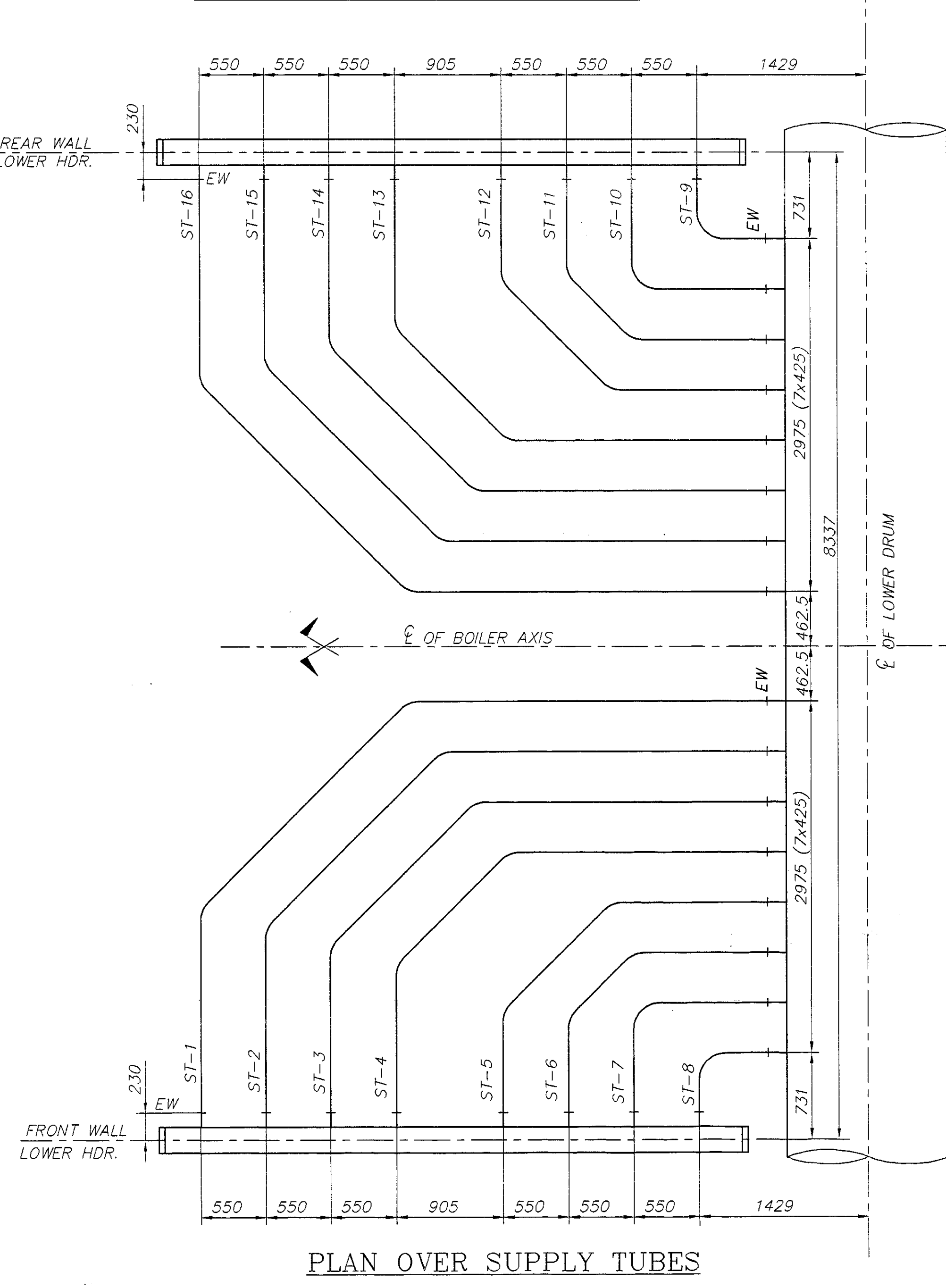
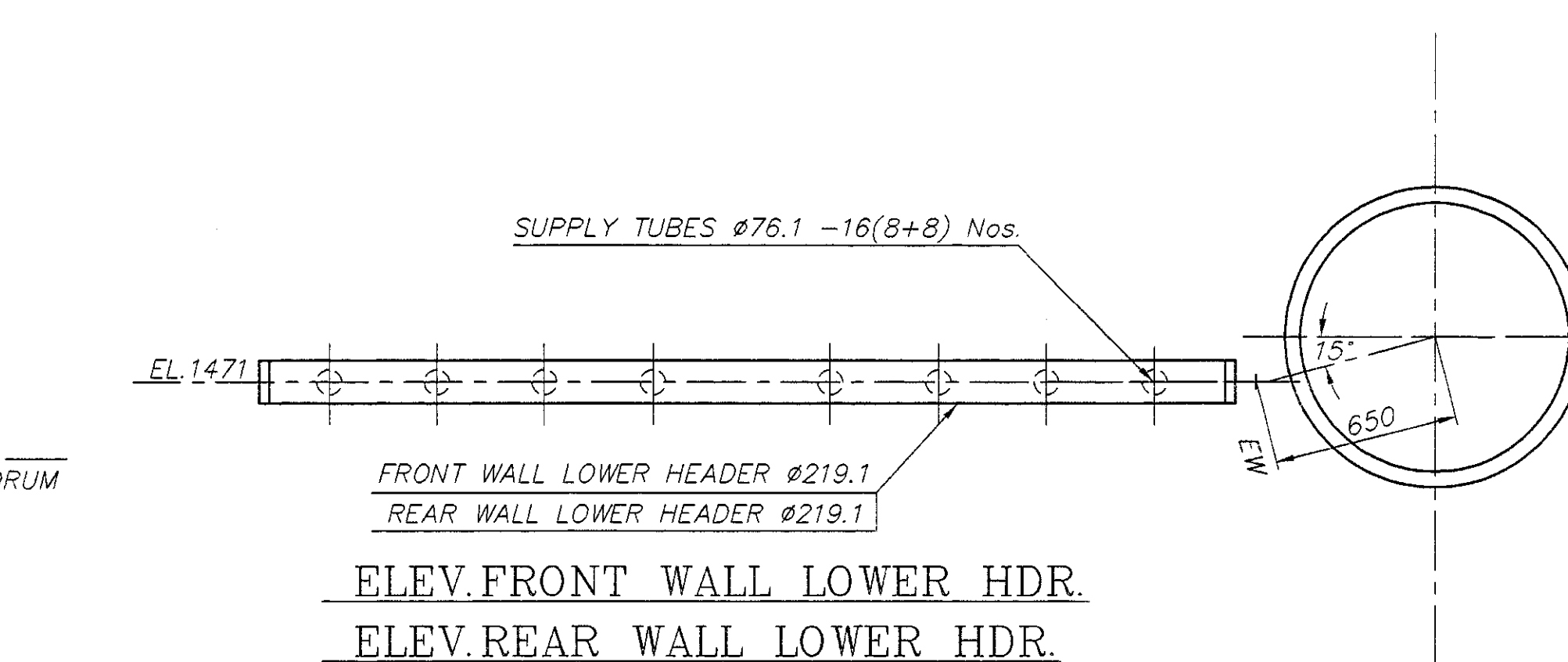
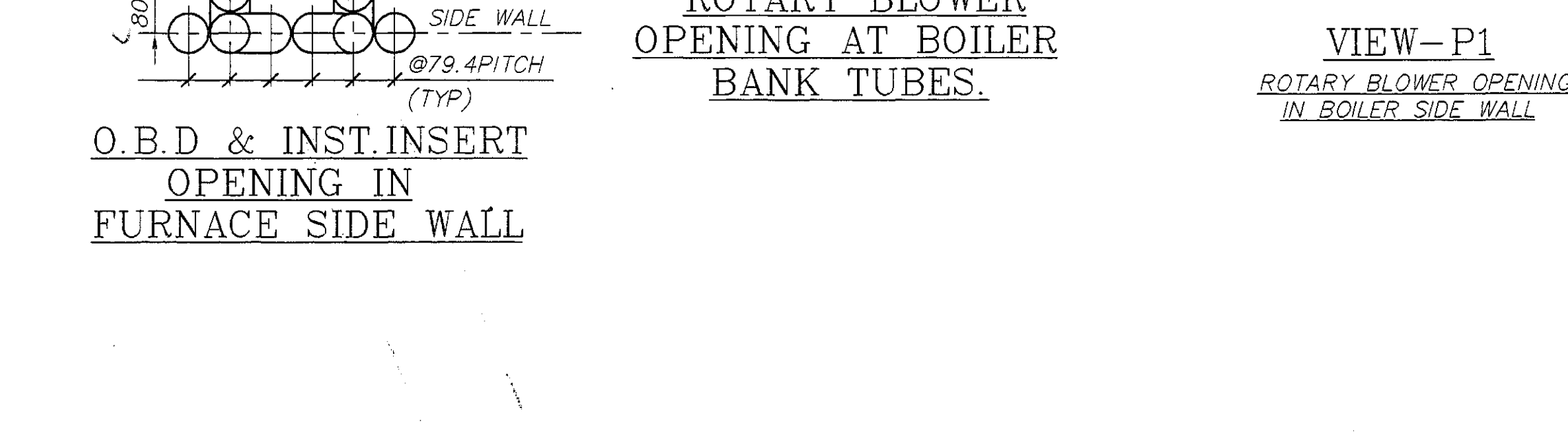
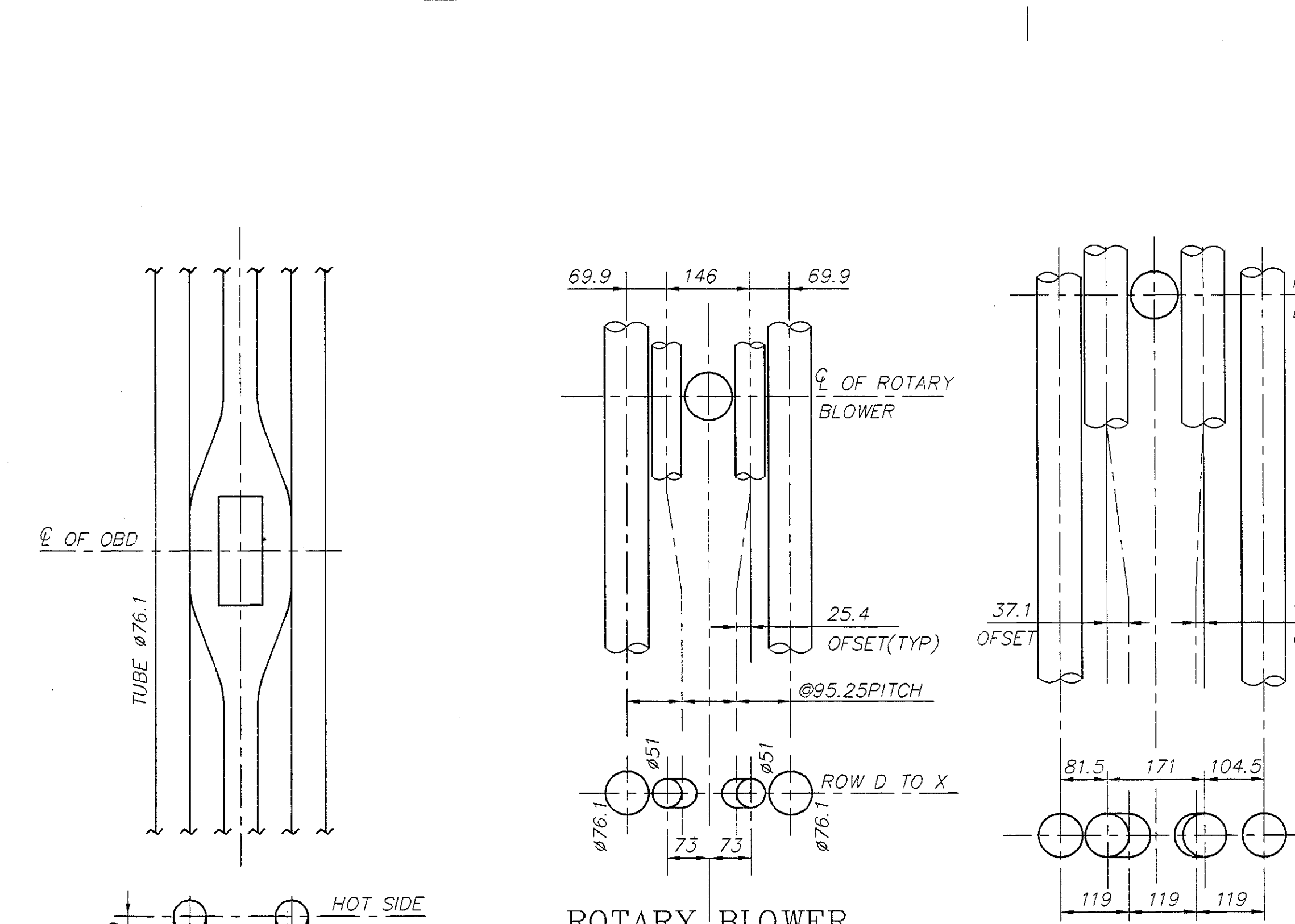
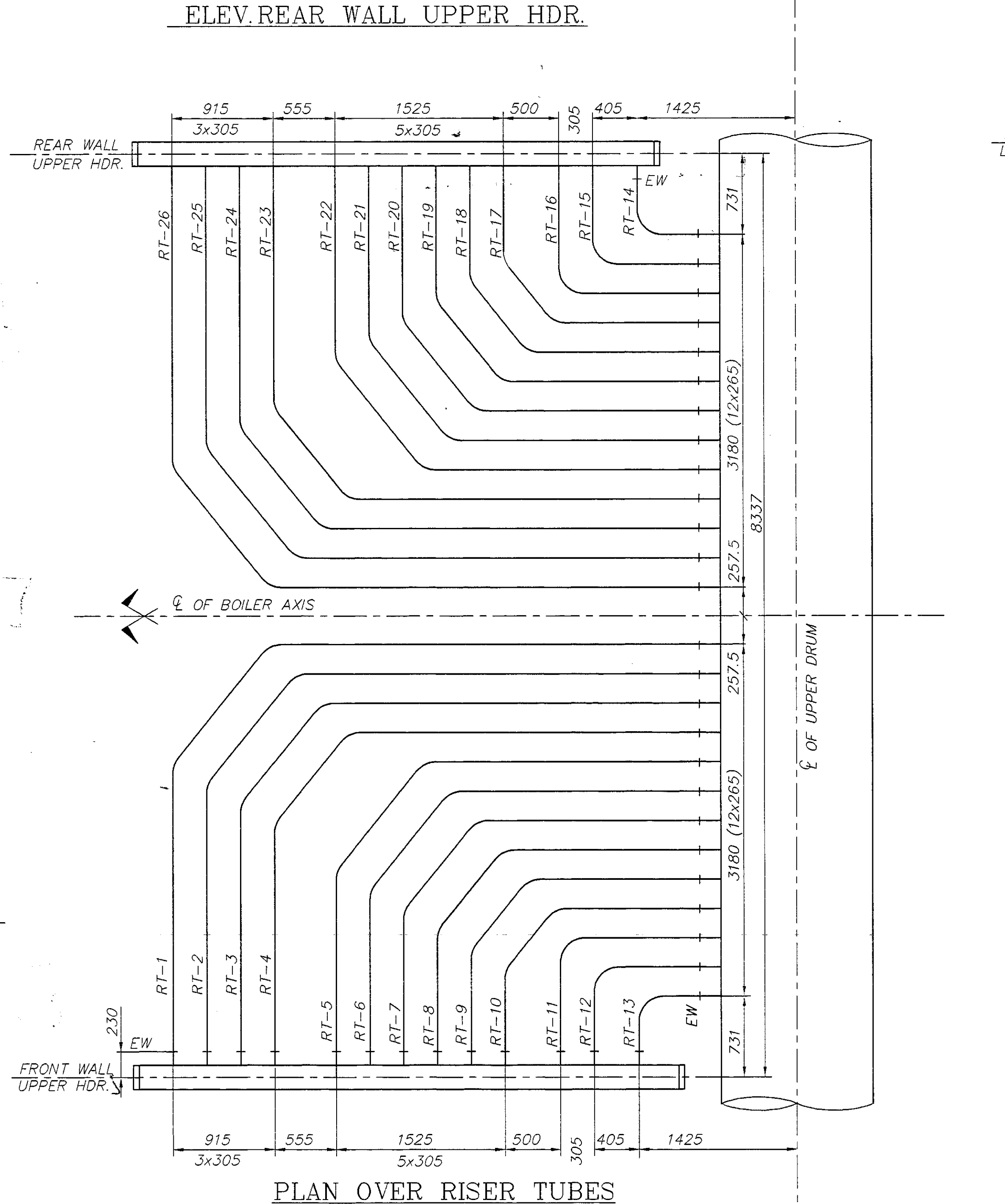
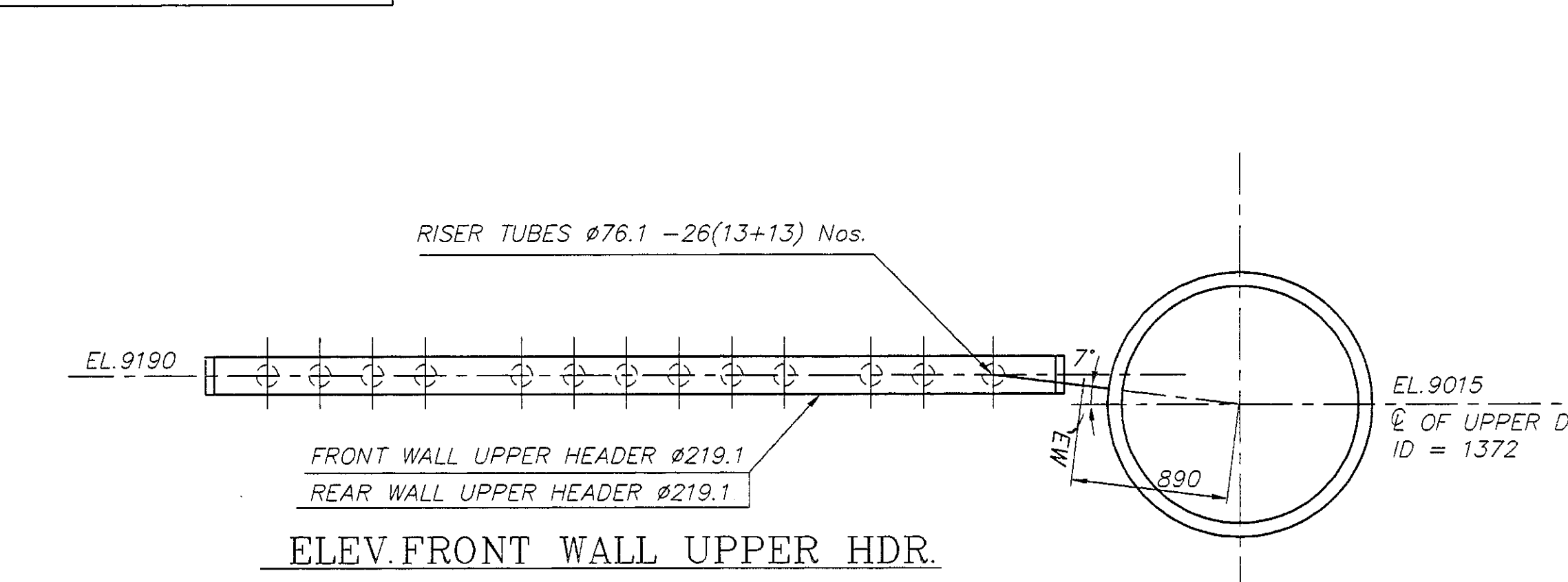
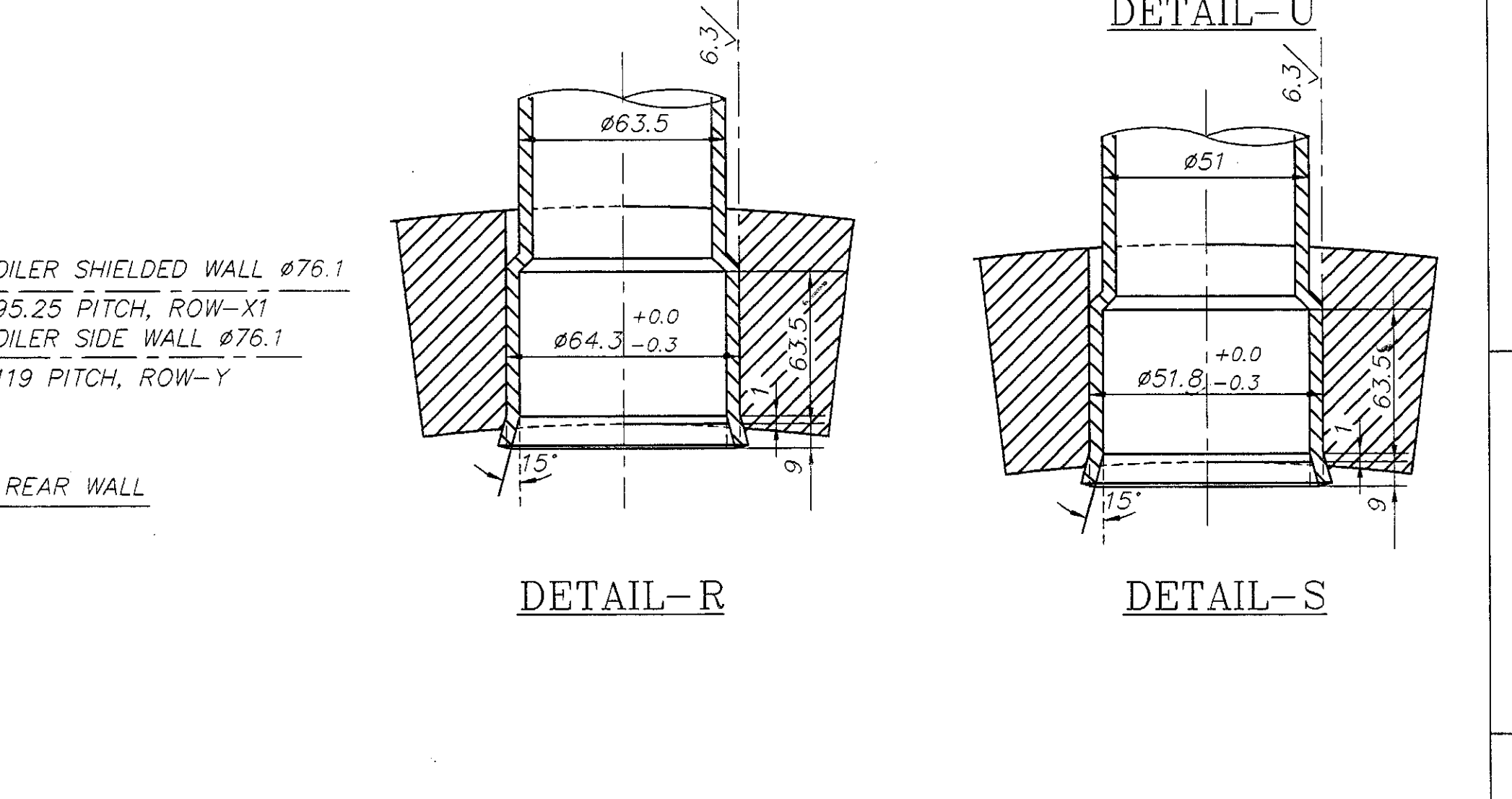
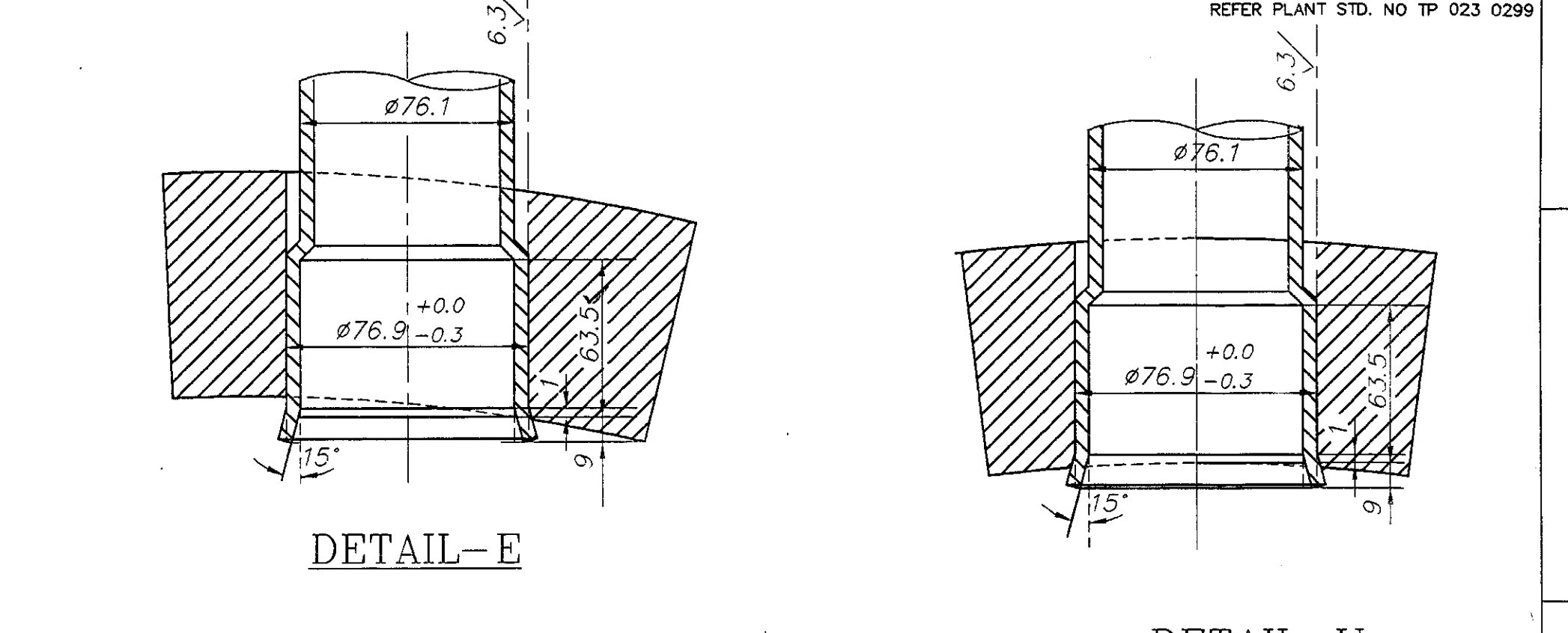
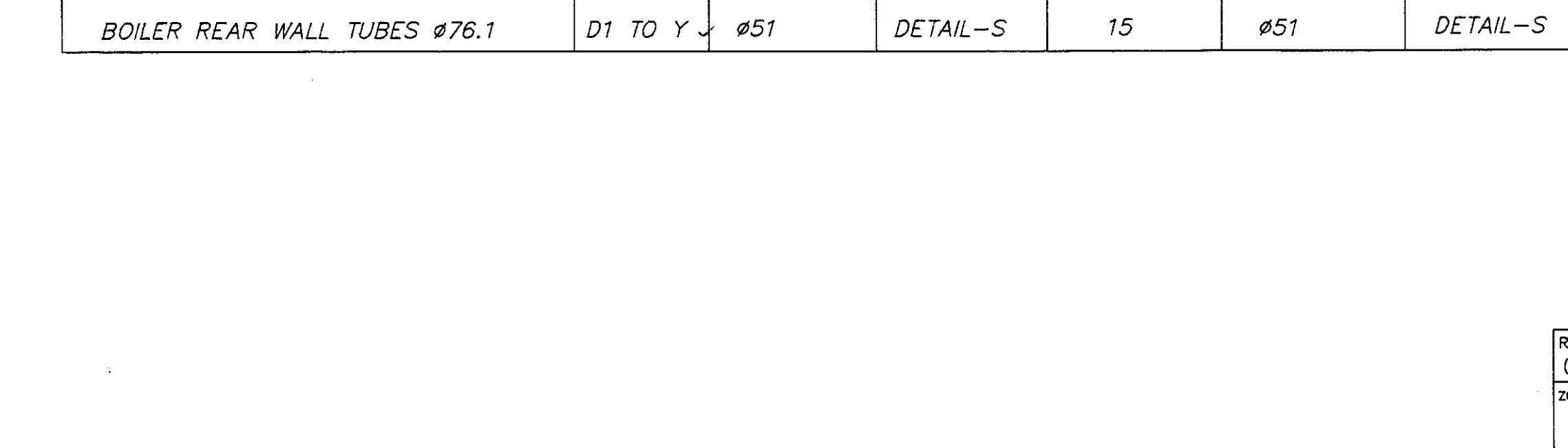


TABLE SHOWING TUBE EXPANDING DETAIL (REFER NOTES)

ENTRY TO	UPPER DRUM (ID 1372x130)				LOWER DRUM (ID 914.4x90) (REFER-NOTE.12)			
	DESCRIPTION	ROW NAME	SWAGED TO	TYPE OF JOINT	NO. OF JOINTS	SWAGED TO	TYPE OF JOINT	NO. OF JOINTS
FURNACE ROOF/FLOOR TUBES #76.1	A1, A2	NO SWAGE	DETAIL-E	104	#51	DETAIL-S	104	
	C1, C2	NO SWAGE	DETAIL-U	73	#51	DETAIL-S	73	
	BOILER BANK TUBES #76.1	D TO X	#51	DETAIL-S	818	#51	DETAIL-S	818
	BOILER BANK TUBES #51	D TO X	NO SWAGE	DETAIL-S	144	NO SWAGE	DETAIL-S	144
	SHIELDED WALL TUBES #76.1	X1	#51	DETAIL-S	34	#51	DETAIL-S	34
	SHIELDED WALL TUBES #51	X1	NO SWAGE	DETAIL-S	4	NO SWAGE	DETAIL-S	4
	SPACER TUBES #51		NO SWAGE	DETAIL-S	4	NO SWAGE	DETAIL-S	4
	BOILER SIDE WALL TUBES #76.1	Y	#63.5	DETAIL-R	69	#63.5	DETAIL-R	69
	BOILER REAR WALL TUBES #76.1	B	#51	DETAIL-S	1			
	BOILER REAR WALL TUBES #76.1	D1 TO Y	#51	DETAIL-S	15	#51	DETAIL-S	15



- NOTES (NOTCH DETAILS)
- THE NOTCH SHOULD BE FORMED BY GRINDING AFTER THE TUBE IS INSTALLED.
  - THE WIDTH OF THE NOTCH SHOULD BE 13 mm, MAXIMUM AT THE END OF THE FLARE.
  - THE NOTCH SHOULD HAVE SMOOTH CONTOUR AND ITS ROOT MUST BE FLUSH WITH THE INSIDE SURFACE OF THE DRUM.
  - THE NOTCH MUST BE LOCATED AT THE HIGHEST POSSIBLE POINT OF THE INTERSECTION OF THE DRUM AND THE TUBE.
  - ONLY ONE NOTCH IS ALLOWED PER TUBE.
  - LOCATION OF THE NOTCHED TUBE IS SHOWN IN THE DRAWING 0-00-027-42824 IN PLAN VIEW
- NOTCH DETAIL
- DESIGN PRESSURE..... 76 Kg/cm<sup>2</sup> (g)  
HYDRAULIC TEST PRESSURE AT SITE ..... 114 Kg/cm<sup>2</sup> (g)  
WHEREVER REQUIRED TUBES SHOULD BE GIVEN AN OUTSIDE SURFACE FINISH OF 3.2 MICRONS FOR ABOUT 100 mm FOR THE PURPOSE OF EXPANSION.  
TUBES OTHER THAN FURNACE SIDE WALL TUBES ARE TO BE PROVIDED WITH 5mm ERECTION ALLOWANCE ON LOWER END ONLY (LOWER DRUM). FURNACE SIDE WALL TUBES ARE PROVIDED WITH 5mm ALLOWANCE ON EITHER END ENTERING UPPER DRUM AND LOWER DRUM. THEY SHOULD BE CUT OFF SUITABLY DURING ASSEMBLY.  
BEFORE FINAL EXPANSION / ROLLING OF TUBES, MIG/ARC WELDING, FIN PLATE, PRESSURE SEAL WELDING etc., SHOULD BE DONE.  
AFTER COMPLETION OF INNER CASING AIR LEAKAGE TEST SHOULD BE CONDUCTED AT A PRESSURE OF 150mm (+25, -0) OF WATER COLUMN. TO CHECK FOR GAS TIGHTNESS, SOAP BUBBLES SHOULD BE USED TO CHECK THE LEAKAGE AREAS WHICH SHOULD BE REPAIRED.  
AFTER AIR LEAKAGE TEST AND SUBSEQUENT REPAIRS, PRESSURE DECAY TEST SHOULD BE CONDUCTED AT A PRESSURE 250 mm (+25, -0) OF WATER COLUMN. THE PRESSURE DROP WHEN FAN IS SHUT OFF, SHOULD NOT BE MORE THAN 25 mm OF WATER COLUMN OVER A PERIOD OF 10 MINUTES.  
BANK TUBES WITH SOOT BLOWER BEARING PLATES SHOULD BE ERECTED FIRST, BEFORE ANY OTHER TUBES. BEARING PLATES SHOULD BE ALIGNED AND WELDED TO BANK TUBES AS SHOWN IN DETAIL-E1.  
ELEVATION OF EW. FOR TUBES ENTERING IN ROW-A1 IN UPPER DRUM IS 4546.0. AND FOR TUBES ENTERING IN ROW-A2 IN UPPER DRUM, THE ELEVATION OF EW. IS EL.4446 THIS IS TO FACILITATE ERECTOR.  
HYDRAULIC TEST IS TO BE CONDUCTED AFTER ALL WELDING OF PRESSURE PARTS AND NON PRESSURE PARTS ATTACHMENTS ON TO PRESSURE PARTS ARE COMPLETED.  
AFTER SITE HYDRAULIC TEST OF BOILER, NO WELDING SHALL BE PERFORMED IN PRESSURE PARTS (i.e., NEITHER BETWEEN PRESSURE PARTS NOR ANY ATTACHMENTS (NON PRESSURE PARTS) ON TO PRESSURE PARTS).  
FOR LOWER DRUM TOUCH EXPANSION IS TO BE DONE FOR FULL DRUM THICKNESS AND THEN FINAL EXPANSION IS TO BE DONE FOR A LENGTH OF 63mm FROM INSIDE SURFACE OF THE DRUM.

REF. DRG. :-

- PPA-SECTIONAL FRONT ELEVATION. 0-00-027-42824
- PPA-PLAN OVER FURNACE & BANK TUBES. 0-00-027-42825
- PPA SH.STAGE-I VIEW & DETAILS. 0-00-027-42826
- PPA SH.STAGE-II VIEW & DETAILS. 0-00-027-42827

PKG. NO. 1 9 3 PROJ. DRG. NO. 1 9 3 0 7 1 3 0 1 6 0 8 3

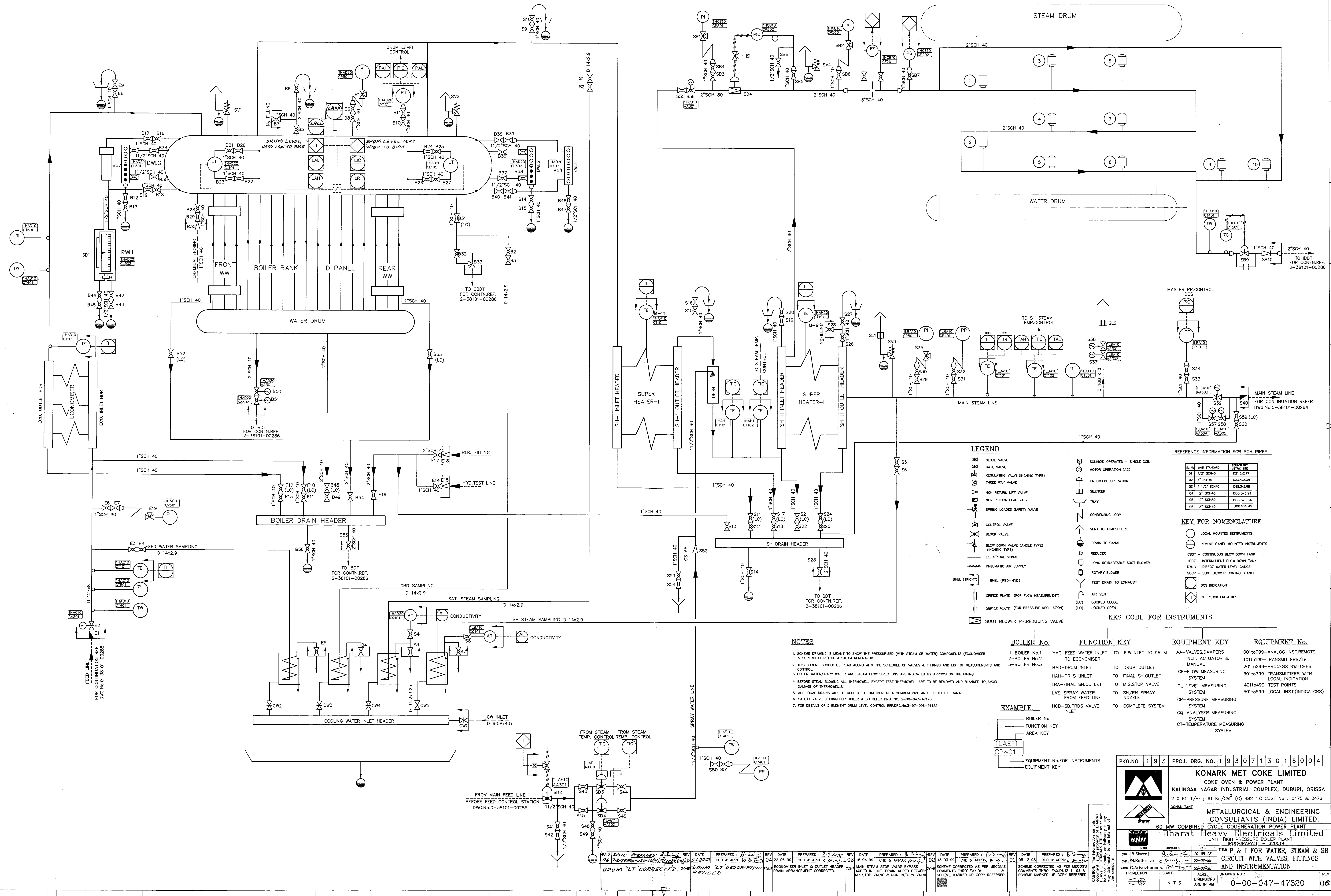
KONARK MET COKE LIMITED  
COKE OVEN & POWER PLANT  
KALINGA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA  
2 X 65 T/Hr : 61 Kg/cm<sup>2</sup> (g) 482 °C CUST No : 0475 & 0476

CONSULTANT  
METALLURGICAL & ENGINEERING CONSULTANTS (INDIA) LIMITED.

55 MW COMBINED CYCLE COGENERATION POWER PLANT  
Bharat Heavy Electricals Limited  
UNIT: HIGH PRESSURE BOILER PLANT  
TIRUCHIRAPPALLI - 620014

PPA-PLAN OVER LINKS & DETAILS  
DRAWING NO : 0-00-027-42828 01





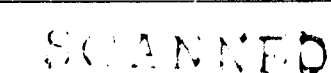






Diagram illustrating the 4-wire connection for the 1 HNC20 CQ 103 device:









- BOILER No
- FUNCTIONAL KEY
- AREA KEY
- EQUIPMENT No. FOR INSTRUMENTS
- EQUIPMENT KEY



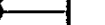
K K S CODE FOR INSTRUMENTS:—

<u>BOILER No</u>	<u>FUNCTION KEY</u>	<u>EQUIPMENT KEY</u>	<u>EQUIPMENT NOs FOR INSTs.</u>
1 -- BOILER No: 1	HLB -- FD FAN INLET	AN --- FANS	001 TO 099 -- ANALOG INST.REMOTE
2 -- BOILER No: 2	HILA -- FD FAN OUTLET	AA -- DAMPERS,ACTUATORS	101 TO 199 -- TRANSMITTERS,TE'S
3 -- BOILER No: 3	HHL -- COMBUSTION AIR SUPPLY	AE -- MOTORS	201 TO 299 -- PROCESS SWITCHES
	HBK -- FURNACE	CF -- FLOW MEASURING SYSTEM	301 TO 399 -- TRANSMITTERS WITH LOCAL INDICATORS
	HNA -- ECONOMISER OUTLET	CP -- PR. MEASURING SYSTEM	
	HNC -- INDUCED DRAUGHT FAN SYSTEM	CQ -- ANALYSER MEAS. SYSTEM	401 TO 499 -- TEST POINTS
		CT -- TEMP. MEASURING SYSTEM	501 TO 599 -- LOCAL INST.(INDICATORS)
		CY -- VIB. MEASURING SYSTEM	

LEGEND :-

PP -- PRESSURE TEST POCKET  
PT -- PRESSURE TRANSMITTER  
PI -- PRESSURE INDICATOR  
TP -- TEMP. TEST POCKET  
TE -- TEMP. ELEMENT  
TI -- TEMP. INDICATOR  
AT -- ANALYSER TRANSMITTER  
AP -- ANALYSER TEST POCKET  
O-C -- OPEN-CLOSE DAMPER  
% -- REGULATING DAMPER

	FLUE GAS LINE
	HOT SEC. AIR LINE
	COLD SEC. AIR LINE
	PNEUMATIC SIGNAL
	PNEUMATIC OPERATED DAMPER
	SCANNER AIR
	LOCAL MOUNTED INSTRUMENT
	INTER LOCK


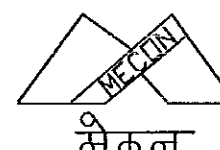

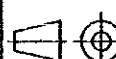
 ELECTRIC MOTOR OPERATED DAMPER  
 HAND OPERATED DAMPER  
 REMOTE CRT BASED INSTRUMENTS  
 BMS - BURNER MANAGEMENT SYSTEM  
 DCS - DISTRIBUTED CONTROL SYSTEM  
 VMS - VIBRATION MONITORING SYSTEM

NOTES :-

1. ID FAN MOTOR WINDING IS PROVIDED WITH 6 NoS, PT-100, SIMPLEX, PLATINUM, 3 WIRE RTD ELEMENTS.
2. BEARING OF FD FAN & ID FAN & HT MOTORS ARE PROVIDED WITH ONE No. DIAL TYPE THERMOMETER FOR LOCAL INDICATION & ONE No. DUPLEX RTD FOR REMOTE INDICATION AT UCB.
3. ID FAN MOTOR IS A TWO SPEED MOTOR.
4. ALL REMOTE INSTRUMENTS ARE IN PED/HYD SCOPE.  
( FIELD TRANSMITTERS & TEMP. ELEMENTS ARE IN BHEL-T SCOPE.)
5. SCHEME SHOWN IS FOR BOILER : 1 ONLY, HOWEVER THE SCHEME IS IDENTICAL FOR OTHER BOILERS.

REV 04	DATE	PREPARED: CHD/APPD:	REV 03	DATE 30-04-99	PREPARED: CHD/APPD:
					ANALYSER TAPPING DETAILS REVISED AS PER MOM Dtl7-04-99 & EMERGENCY AIR DAMPER ADDED.
REV 02	DATE 02-03-99	PREPARED: -sd- CHD/APPD: -sd-	REV 01	DATE 04-12-98	PREPARED: -sd- CHD/APPD: -sd-
		SCANNER AIR FANS & ITS INSTRUMENTS ADDED.			DRG. REVISED AS PER M/S. MECON'S Lr. Dtl 24-11-98, TITLE BLOCK CHANGED & BOILER No. IDENTIFICATION ADDED IN KKS CODE.

**CAUTION:** The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of

PKG.NO		1	9	3	PROJ. DRC. NO.										1	9	3	0	7	1	0	1	0	0	0	1
					<b>KONARK MET COKE LIMITED</b> COKE OVEN & POWER PLANT KALINGAA NAGAR INDUSTRIAL COMPLEX, DUBURI, ORISSA 3x65 T/Hr ; 62 kg /sq.cm (a) 482 deg.C; CUST.NO:0475&0476																					
					<b>CONSULTANT: METALLURGICAL &amp; ENGINEERING CONSULTANTS (INDIA) LIMITED.</b> <b>60 MW COMBINED CYCLE COGENERATION PLANT</b>																					
					<b>BBHART HEAVY ELECTRICALS LTD.,</b> UNIT. HIGH PRESSURE BOILER PLANT. TRICHURIPALLI-820014.										<b>DRN</b> NAME SKIRUBALANI		<b>SIGN</b> -sd-		<b>DATE</b> 19-08-98		<b>NO. OF</b> <b>VAR.</b>					
<b>DRPPT C &amp; I</b> <b>CODE 016</b>		<b>GRADE OF UNTOLIMB</b> <b>C / M / F</b>		 <b>SCALE</b> N.T.S		<b>WEIGHT (KG).</b> NIL		<b>DRN</b> <b>CHD</b> R.VAJARAGHAVAN <b>APPD</b> R.SUNDARARAJ		<b>REF. TO ASSY/OLD DRG.</b> 20-BPE-1266		<b>REV</b> 01		<b>NO. OF</b> <b>TITLES</b>												
<b>TITLE</b> GAS FIRED BOILER – P & I DIAGRAM FOR AIR AND FLUE GAS SYSTEM.								<b>CARD CODE</b> D U 01		<b>DRAWING NO.</b> 1-97-288-90036						<b>REV</b> 03										



ERECTION WELDING SCHEDULE.  
HEAT TRANSFER ENGG/HPVP. (PRESSURE PARTS)

PROJECT NINL – DUBURI  
Sale Order No. 8103  
PRODUCT GROUP 06 & 07

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs. /Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
01	0-00-027-42824	FRONT WALL TUBE+TUBE	SA 192 + SA 192	D76.1	4.5	4.8 ∇		TIG + ARC		52 Nos.		AS PER WPS		
02	0-00-027-42824	SIDE WALL TUBE+TUBE	SA 192 + SA 192	D76.1	4.5	4.8 ∇		TIG + ARC		104 Nos.				
03	0-00-027-42824	REAR WALL TUBE+TUBE	SA 192 + SA 192	D76.1	4.5	4.8 ∇		TIG + ARC		87 Nos.				
04	0-00-027-42828	RISER/SUPPLY TUBE+TUBE	SA 192 + SA 192	D76.1	4.5	4.8 ∇		TIG + ARC		84 Nos.				
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC	APPROVED			DATE	DRG NO.				REV	
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh	Tarakesh Kanakala			01.05.2025	4-12-992-U8390				00	



# ERECTION WELDING SCHEDULE.

HEAT TRANSFER ENGG/HPVP. (PRESSURE PARTS)

PROJECT	NINL – DUBURI
Sale Order No.	8103
PRODUCT GROUP	10 & 11

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE	
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS	
01	0-00-274-42826	SH1 COILS I/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D44.5	7.1	7.3 ∇		TIG + ARC		48 Nos.		AS PER WPS			
02	0-00-274-42826	SH1 COILS I/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D51	5.6	5.8 ∇		TIG + ARC		2 Nos.					
03	0-00-274-42826	SH1 COILS O/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D44.5	7.1	7.3 ∇		TIG + ARC		48 Nos.					
04	0-00-274-42826	SH1 COILS O/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D51	5.6	5.8 ∇		TIG + ARC		2 Nos.					
05	0-00-274-42827	SH2 COILS I/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D44.5	5.6	5.8 ∇		TIG + ARC		43 Nos.					
06	0-00-274-42827	SH2 COILS I/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D51	5.6	5.2 ∇		TIG + ARC		2 Nos.					
07	0-00-274-42827	SH2 COILS O/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D44.5	5.6	5.8 ∇		TIG + ARC		43 Nos.					
08	0-00-274-42827	SH2 COILS O/L TUBE+TUBE	SA 213 T22 + SA 213 T22	D51	5.6	5.2 ∇		TIG + ARC		2 Nos.					
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC		APPROVED			DATE	DRG NO.				REV	
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh		Tarakesh Kanakala			03.05.2025	4-12-992-U8391				00	



ERECTION WELDING SCHEDULE.  
HEAT TRANSFER ENGG/HPVP. (PRESSURE PARTS)

PROJECT	NINL – DUBURI
Sale Order No.	8103
PRODUCT GROUP	12

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
01	1-12-850-U8061	DRUM STUBS PIPE+PIPE	SA 106 GR.B + SA 106 GR.B	D219.1	14.2	12.6 ∇		TIG + ARC		2 Nos.		↑ AS PER WPS ↓		
02	1-12-850-U8061	PIPE+ELBOW	SA 106 GR.B + SA 234 WPB	D219.1	14.2	12.6 ∇		TIG + ARC		2 Nos.				
03	1-12-850-U8061	PIPE+TEE	SA 106 GR.B + SA 234 WPC	D219.1	14.2	12.6 ∇		TIG + ARC		1 No.				
04	1-12-850-U8061	SAT. LINK PIPE + SH1 I/L HEADER	SA 106 GR.B + SA 335 P22	D219.1	14.2	12.6 ∇		TIG + ARC		1 No.				
05	1-12-851-U8064	SH2 O/L ELBOW + REDUCER	SA 234 WP22 + SA 234 WP22	D273	25.4	20 ∇		TIG + ARC		1 No.				
06	1-12-851-U8064	PIPE+ELBOW	SA 335 P22 + SA 234 WP22	D219.1	22.85	20 ∇		TIG + ARC		1 No.				
07	1-12-851-U8064	PIPE+VALVE	SA 335 P22 + SA 217 WC9	D219.1	25.4	22.05 ∇		TIG + ARC		3 Nos.				
08	1-12-852-U8062	PIPE+REDUCER	SA 335 P22 + SA 234 WP22	D273	22	20 ∇		TIG + ARC		2 Nos.				
09	1-12-852-U8062	DESH PIPE+PIPE	SA 335 P22 + SA 335 P22	D219.1	25.4	20 ∇		TIG + ARC		2 Nos.				
10	1-12-852-U8062	PIPE+ELBOW	SA 335 P22 + SA 234 WP22	D219.1	22	20 ∇		TIG + ARC		2 Nos.				
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC	APPROVED		DATE	DRG NO.				REV		
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh	Tarakesh Kanakala		03.05.2025	4-12-992-U8392				00		



ERECTION WELDING SCHEDULE.

HEAT TRANSFER ENGG/HPVP. (PRESSURE PARTS)

PROJECT

NINL – DUBURI

Sale Order No.	
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8103

PRODUCT GROUP

12

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs. /Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
01	0-00-274-42826 & 42827	FLANGE+ STUB	SS 316 + SA 182 F22	D51	5	4 ▽		ARC		6 M		AS PER WPS		
02	0-00-274-42826 & 42827	FLANGE+ FLANGE	SS 316 + SS 316	D51	5	4 ▽		ARC		6 M		AS PER WPS		



# ERECTION WELDING SCHEDULE.

HEAT TRANSFER ENGG/HPVP. (PRESSURE PARTS)

PROJECT	NINL – DUBURI
Sale Order No.	8103
PRODUCT GROUP	19

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
01	0-00-027-42824	ECO. COIL ALL CIRCUTS TUBE + TUBE	SA 210 GR.A1 + SA 210 GR.A1	D38.1	3.2	3.5 ∇		TIG + ARC		125 Nos.		↑ AS PER WPS ↓		
02	1-19-850-U8218	REDUCER+VALVE	SA 234 WPB + SA 217 WCC	D127	12.5	13.5 ∇		TIG + ARC		1 No.				
03	1-19-850-U8218	PIPE+VALVE	SA 106 GR.B + SA 217 WCC	D127	12.5	11.5 ∇		TIG + ARC		2 Nos.				
04	1-19-850-U8218	PIPE+REDUCER	SA 106 GR.B + SA 234 WPB	D168.3	21.95	15 ∇		TIG + ARC		1 No.				
05	1-19-851-U8219	PIPE+PIPE	SA 106 GR.B + SA 106 GR.B	D127	12.5	8 ∇		TIG + ARC		1 No.				
06	1-19-851-U8219	PIPE+ELBOW	SA 106 GR.B + SA 234 WPB	D127	12.5	11.5 ∇		TIG + ARC		2 Nos.				
07	1-19-851-U8219	PIPE+REDUCER	SA 106 GR.B + SA 234 WPB	D168.3	21.95	15 ∇		TIG + ARC		1 No.				
08	0-00-027-42824	TUBE+FLANGE	SA 105 + SS 316	D55	5.0	4 ∇		ARC		6 M				
09	0-00-027-42824	FLANGE+FLANGE	SS 316 + SS 316	D55	5.0	4 ∇		ARC		6 M				
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC	APPROVED		DATE	DRG NO.					REV	
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh	Tarakesh Kanakala		03.05.2025	4-12-992-U8394					00	





05-290

## SUMMARY LIST OF SITE ELECTRODES

From

Sr.Manager  
Engineering  
DT: 03-06-2025

To

The Construction Manager  
Project: NINL – Duburi  
Unit-2 Revamp

Project: NINL-Duburi Unit-2 Revamp

Customer No:8103

P.G. No: 24

P.G. Name: BOILER TRIM PIPING

SL.NO.	TYPE OF ELECTRODE/WIRE	SIZE & QTY IN NOS.					TIG WIRE WT IN KG.	REMARKS.
		D 1.6	D 3.15	D 3.20	D 4.00	D 5.00		
01	ER 70S-A1	✓					7.8	
02	ER 90S B3	✓					4.5	
03	ER 80S B2	✓					0.5	

NOTES

1. RESERVE 25% ADDED.
  2. QUANTITY GIVEN IS PER BOILER.
  3. THIS ERECTION WELDING SCHEDULE IS FOR REFERENCE PURPOSE ONLY.
- ENCL: ERECTION WELDING SCHEDULE SHEET : 4-24-992-U0534 To 4-24-992-U0539

C.C 1. PROJECT COORDINATOR : Shri. Rakesh Richard, Commercial-Project Management group  
2. W.T.CENTRE. Shri. PVD Ramesh , Welding Technology

DRG NO.

4-24-992-U0533

REV  
00

Revision	Prepared	Checked	Checked/WTC	Approved/WTC	Date	SHEET No.
00	MUNAYYA K	ANVK KISHORE	D L KRISHNA/ PVD RAMESH	Tarakesh Kanakala	03-06-2025	01 / 01



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
01	0-00-047-U0137	STUB + SOCKET	SA105 + SA182F316	D14	2.9	3Δ	E309L	ARC	ø2.5	2 Nos.	1 No.	↑ AS PER WPS ↓	-	10% LPI
													-	M.1.8.52.R01
02	0-00-047-U0137	TUBE + SOCKET	SA213TP347H + SA182F316	D14	2.9	3Δ	E347	ARC	ø2.5	8 Nos.	3 Nos.		-	10% LPI
													-	M.8.8.50.R00
03	0-00-047-U0137	TUBE + CONNECTOR	SA213TP347H + SA182F12CL2	D14	2.9	3Δ	E309LMo	ARC	ø2.5	1 No.	1 No.		-	10% LPI
													-	M.4.8.15.R0
04	0-00-047-U0137	STUB + TUBE	SA182F22CL3 + SA213TP347H	D14	2.9	3Δ	E309L	ARC	ø2.5	1 No.	1 No.		-	10% LPI
													-	M.5A.8.22.R0
05	0-00-047-U0137	PIPE + PIPE	SA106GRB + SA106GRB	D21.3	2.77	2.77 ∇	ER 70S A1	TIG	ø1.6	6 Nos.	110 grams		-	10% RT MIN. 1WELD/WELDER
													-	T.1.1.29.R01
06	0-00-047-U0137	PIPE + PIPE	SA106GRB + SA106GRB	D33.4	3.38	3.38 ∇	ER 70S A1	TIG	ø1.6	40 Nos.	1.2 Kg.	-	10% RT MIN. 1WELD/WELDER	
												-	T.1.1.29.R01	
07	0-00-047-U0137	PIPE + PIPE	SA106GRB + SA106GRB	D60.3	3.91	3.91 ∇	ER 70S A1	TIG	ø1.6	13 Nos.	1 Kg.	-	10% RT MIN. 1WELD/WELDER	
												-	T.1.1.29.R01	
08	0-00-047-U0137	PIPE + PIPE	SA106GRB + SA106GRB	D60.3	5.54	5.54 ∇	ER 70S A1 + E7018	TIG + ARC	ø1.6 + ø3.15	7 Nos.	300 grams + 30 Nos.	-	10% RT MIN. 1WELD/WELDER	
												-	T.M.1.1.50.R02	
09	0-00-047-U0137	PIPE + PIPE	SA335P22 + SA335P22	D21.3	4.78	4.78 ∇	ER 70S A1 + E7018	TIG + ARC	ø1.6 + ø3.15	4 Nos.	60 grams + 6 Nos.	-	10% RT MIN. 1WELD/WELDER	
												-	T.M.1.1.50.R02	
10	0-00-047-U0137	PIPE + PIPE	SA335P22 + SA335P22	D33.4	3.38	3.38 ∇	ER 70S A1	TIG	ø1.6	15 Nos.	450 grams	-	10% RT MIN. 1WELD/WELDER	
												-	T.1.1.29.R01	
REV. 00	PREPARED SMG NAIDU	CHECKED DESIGN ANVK KISHORE	CHECKED WTC LOVA KRISHNA	APPROVED WTC PVD Ramesh		APPROVED Tarakesh Kanakala		DATE 03.06.2025		DRG NO. 4-24-992-U0534				REV 00



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
11	0-00-047-U0137	PIPE + PIPE	SA335P22 + SA335P22	D48.3	3.68	3.68 ∇	ER 90S B3	TIG	ø1.6	4 Nos.	190 grams	↑ AS PER WPS ↓	-	10% RT MIN. 1WELD/WELDER T.5A.5A.18.R0
12	0-00-047-U0137	PIPE + PIPE	SA335P22 + SA335P22	D114.3	11.13	11.13 ∇	ER 90S B3 + E 9018 B3	TIG + ARC	ø1.6 + ø3.15	8 Nos.	1 Kg. + 160 Nos.		690±10°C	10% RT MIN. 1WELD/WELDER T.M.5A.5A.03.R01
13	0-00-047-U0137	PIPE + TEE	SA106GRB + SA105	D33.4	3.38	4Δ	E 7018	ARC	ø3.15	15 Nos.	12 Nos.		-	10% LPI M.1.1.01.R01
14	0-00-047-U0137	PIPE + TEE	SA106GRB + SA105	D60.3	3.91	5Δ	E 7018	ARC	ø3.15	12 Nos.	25 Nos.		-	10% LPI M.1.1.01.R01
15	0-00-047-U0137	PIPE + TEE	SA335P22 + SA182F22	D33.4	3.38	4Δ	E 9018 B3	ARC	ø3.15	6 Nos.	5 Nos.		690±10°C	10% LPI M.5A.5A.05.R02
16	0-00-047-U0137	PIPE + REDUCER	SA106GRB + SA234WPB	D33.4	3.38	3.38 ∇	ER 70S A1	TIG	ø1.6	10 Nos.	300 grams		-	10% RT MIN. 1WELD/WELDER T.1.1.29.R01
17	0-00-047-U0137	PIPE + REDUCER	SA106GRB + SA234WPB	D21.3	2.77	2.77 ∇	ER 70S A1	TIG	ø1.6	3 Nos.	55 grams		-	10% RT MIN. 1WELD/WELDER T.1.1.29.R01
18	0-00-047-U0137	PIPE + REDUCER	SA106GRB + SA234WPB	D60.3	3.91	3.91 ∇	ER 70S A1	TIG	ø1.6	7 Nos.	520 grams		-	10% RT MIN. 1WELD/WELDER T.1.1.29.R01
19	0-00-047-U0137	PIPE + REDUCER	SA335P22 + SA234WP22	D33.4	3.38	3.38 ∇	ER 90S B3	TIG	ø1.6	3 Nos.	120 grams		690±10°C	10% RT MIN. 1WELD/WELDER T.5A.5A.18.R0
20	0-00-047-U0137	PIPE + REDUCER	SA335P22 + SA234WP22	D21.3	4.78	4.78 ∇	ER 90S B3 + E 9018 B3	TIG + ARC	ø1.6 + ø3.15	3 Nos.	45 grams + 5 Nos.			10% RT MIN. 1WELD/WELDER T.M.5A.5A.03.R1
REV. 00	PREPARED SMG NAIDU	CHECKED DESIGN ANVK KISHORE	CHECKED WTC LOVA KRISHNA	APPROVED WTC PVD Ramesh		APPROVED Tarakesh Kanakala		DATE 03.06.2025		DRG NO. 4-24-992-U0535				REV 00



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE	
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS	
21	0-00-047-U0137	PIPE + ELBOW	SA106GRB + SA105	D33.4	3.38	4Δ	E 7018	ARC	ø3.15	16 Nos.	12 Nos.	AS PER WPS	-	10% LPI	
															M.1.1.01.R01
22	0-00-047-U0137	PIPE + ELBOW	SA106GRB + SA105	D60.3	3.91	5Δ	E 7018	ARC	ø3.15	12 Nos.	25 Nos.		-	10% LPI	
															M.1.1.01.R01
23	0-00-047-U0137	PIPE + ELBOW	SA335P22 + SA234WP22	D33.4	3.38	4Δ	E 9018 B3	ARC	ø3.15	20 Nos.	15 Nos.		690±10°C	10% LPI	
															M.5A.5A.05.R02
24	0-00-047-U0137	PIPE + CONN. PIECE	SA335P22 + SA182F12CL2	D33.4	3.38	3.38 ∇	ER 90S B3	TIG	ø1.6	10 Nos.	300 grams				10% RT MIN. 1WELD/WELDER
														T.5A.4.22.R00	
25	0-00-047-U0137	PIPE + CONN. PIECE	SA106GRB + SA182F12CL2	D33.4	3.38	3.38 ∇	ER 80S B2 + E 8018 B2	TIG + ARC	ø1.6 + ø3.15	10 Nos.	300 grams + 10 Nos.		-	10% RT MIN. 1WELD/WELDER	
															T.M.1.4.40.00
26	0-00-047-U0137	STUB + CONN. PIECE	SA182F22 + SA182F12CL2	D60.3	5.54	6Δ	E 9018 B3	ARC	ø3.15	1 No.	3 Nos.		690±10°C	10% LPI	
														M.4.5A.14.R00	
27	0-00-047-U0137	PIPE + CONN. PIECE	SA106GRB + SA182F12CL2	D60.3	5.54	5.54 ∇	ER 80S B2 + E 8018 B2	TIG + ARC	ø1.6 + ø3.15	1 No.	45 grams + 5 Nos.	655±10°C	10% RT MIN. 1WELD/WELDER		
														T.M.1.4.06.R01	
28	0-00-047-U0137	PIPE + REDUCER	SA106GRB + SA234WPB	D33.4	3.38	3.38 ∇	ER 70S A1	TIG	ø1.6	5 Nos.	150 grams	-	10% RT MIN. 1WELD/WELDER		
														T.1.1.29.R01	
29	0-00-047-U0137	PIPE + REDUCER	SA106GRB + SA234WPB	D21.3	2.77	2.77 ∇	ER 70S A1	TIG	ø1.6	5 Nos.	90 grams	-	10% RT MIN. 1WELD/WELDER		
														T.1.1.29.R01	
30	0-00-047-U0137	PIPE + TEE	SA106GRB + SA105	D21.3	2.77	3Δ	E 7018	ARC	ø3.15	3 Nos.	1 No.	-	10% LPI		
														M.1.1.01.R01	
REV. 00	PREPARED SMG NAIDU	CHECKED DESIGN ANVK KISHORE	CHECKED WTC LOVA KRISHNA	APPROVED WTC PVD Ramesh		APPROVED Tarakesh Kanakala		DATE 03.06.2025		DRG NO. 4-24-992-U0536				REV 00	



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE	
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS	
31	0-00-047-U0137	PIPE + TEE	SA106GRB + SA105	D60.3	3.91	5Δ	E 7018	ARC	ø3.15	8 Nos.	16 Nos.	↑ AS PER WPS ↓	-	10% LPI	
															M.1.1.01.R01
32	0-00-047-U0137	PIPE + TEE	SA106GRB + SA105	D33.4	3.38	4Δ	E 7018	ARC	ø3.15	4 Nos.	3 Nos.		-	10% LPI	
															M.1.1.01.R01
33	0-00-047-U0137	PIPE + PIPE	SA106GRB + SA106GRB	D114.3	13.49	13.49 ∇	ER 70S A1 + E 7018	TIG + ARC	ø1.6 ø3.15 4.0	4 Nos.	650 grams + 105 Nos.		-	10% RT MIN. 1WELD/WELDER	
															T.M.1.1.50.R02
34	0-00-047-U0137	PIPE + FLANGE	SA106GRB + SA105	D114.3	13.49	13.49 ∇	ER 70S A1 + E 7018	TIG + ARC	ø1.6 ø3.15 4.0	2 Nos.	320 grams + 53 Nos.		-	10% RT MIN. 1WELD/WELDER	
															T.M.1.1.50.R02
35	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA216WCB	D114.3	13.49	13.49 ∇	ER 70S A1 + E 7018	TIG + ARC	ø1.6 ø3.15 4.0	2 Nos.	320 grams + 53 Nos.		-	10% RT MIN. 1WELD/WELDER	
															T.M.1.1.50.R02
36	0-00-047-U0137	PIPE + PIPE/FLOW NOZ.	SA335P22 + SA335P22	D219.1	25.4	25.4 ∇	ER 90S B3 + E 9018 B3	TIG + ARC	ø1.6 ø3.15 4.0	2 Nos.	1.8 Kg. + 150 Nos. 100 Nos.		690±10°C	10% RT MIN. 2 WELDS/WELDER	
															T.M.5A.5A.03.R01
37	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA105	D21.3	4.78	6Δ	E 7018	ARC	ø3.15	8 Nos.	9 Nos.	-	10% LPI		
														M.1.1.01.R01	
38	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA105	D60.3	5.54	6Δ	E 7018	ARC	ø3.15	8 Nos.	24 Nos.	-	10% LPI		
														M.1.1.01.R01	
39	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA105	D33.4	3.38	4Δ	E 7018	ARC	ø3.15	64 Nos.	46 Nos.	-	10% LPI		
														M.1.1.01.R01	
40	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA105	D21.3	2.77	3Δ	E 7018	ARC	ø3.15	10 Nos.	3 Nos.	-	10% LPI		
														M.1.1.01.R01	
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC		APPROVED			DATE		DRG NO.			REV	
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh		Tarakesh Kanakala			03.06.2025		4-24-992-U0537			00	



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
41	0-00-047-U0137	PIPE + VALVE	SA335GRP22 + SA182F22	D21.3	4.78	6Δ	E 9018 B3	ARC	ø3.15	8 Nos.	9 Nos.	AS PER WPS	690±10°C	10% LPI
														M.5A.5A.05.R02
42	0-00-047-U0137	PIPE + VALVE	SA335GRP22 + SA182F22	D33.4	3.38	4Δ	E 9018 B3	ARC	ø3.15	32 Nos.	23 Nos.		690±10°C	10% LPI
														M.5A.5A.05.R02
43	0-00-047-U0137	PIPE + VALVE	SA106GRB + SA105	D60.3	3.91	5Δ	E 7018	ARC	ø3.15	24 Nos.	50 Nos.		—	10% LPI
														M.1.1.01.R01
44	0-00-047-U0137	PIPE + ELBOW	SA106GRB + SA234WPB	D73	7.01	7.01 ∇	ER 70S A1 + E 7018	TIG + ARC	ø1.6 + ø3.15	2 Nos.	80 grams + 15 Nos.		—	10% RT MIN. 1WELD/WELDER
														T.M.1.1.50.R02
45	0-00-047-U0137	SB SV EXH. PIPE + GUIDE PLATE/ LUG PLATE	IS 1239 + IS2062Fe410A	—	—	3.0 Ⓚ	E 7018	ARC	ø3.15	2 M	18 Nos.		—	—
														M.1.1.01.R01
46	1-24-400-U0093	PIPE + PIPE	SA106GRB + SA106GRB	D21.3	2.77	2.77 ∇	ER 70S A1	TIG	ø1.6	10 Nos.	180 grams		—	10% RT MIN. 1WELD/WELDER
														T.1.1.29.R01
47	1-24-400-U0093	PIPE + PIPE	SA106GRB + SA106GRB	D33.4	3.38	3.38 ∇	ER 70S A1	TIG	ø1.6	5 Nos.	150 grams	—	10% RT MIN. 1WELD/WELDER	
													T.1.1.29.R01	
48	1-24-400-U0093	PIPE + PIPE	SA106GRB + SA106GRB	D48.3	3.68	3.68 ∇	ER 70S A1	TIG	ø1.6	4 Nos.	190 grams	—	10% RT MIN. 1WELD/WELDER	
													T.1.1.29.R01	
49	1-24-400-U0093	PIPE + VALVE	SA106GRB + SA105	D33.4	3.38	4Δ	E 7018	ARC	ø3.15	24 Nos.	18 Nos.	—	10% LPI	
													M.1.1.01.R01	
50	1-24-400-U0093	PIPE + VALVE	SA106GRB + SA105	D48.3	3.68	4Δ	E 7018	ARC	ø3.15	24 Nos.	25 Nos.	—	10% LPI	
													M.1.1.01.R01	
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC		APPROVED			DATE	DRG NO.				REV
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh		Tarakesh Kanakala			03.06.2025	4-24-992-U0538				00



# ERECTION WELDING SCHEDULE.

## BOILER TRIM PIPING & SUPPORTS

PROJECT	TS-NINL, DUBURI UNIT-2 Revamp
Sale Order No.	8103
PRODUCT GROUP	24

SL NO	DRAWING No.	DESCRIPTION OF PARTS	MATERIAL	SIZE OF THE ITEM	THICKNESS	WELD SPECN.	RECOMMENDED ELECTRODE / WIRE			TOTAL LENGTH/ NO OF WELD	ACTUAL QTY. (Kgs./Nos.)	PREHEAT °C	PWHT °C	MIN. RECOMMENDED NDE
							SPECN.	PROCESS ARC/TIG	SIZE (mm)					WPS
51	1-24-400-U0093	PIPE + VALVE	SA106GRB + SA105	D21.3	2.77	3Δ	E 7018	ARC	ø3.15	7 Nos.	2 Nos.	↑ AS PER WPS ↓	—	10% LPI
														M.1.1.01.R01
52	1-00-047-U0074	SV EXH. PIPE + GUIDE PLATE/ SUPPORT PLATE	SA106GR.B + IS2062Fe410A	—	—	3.0 Ⓚ	E 7018	ARC	ø3.15	6.5 M	55 Nos.		—	—
														M.1.1.01.R01
53	1-00-047-U0074	PIPE + ELBOW	SA106GRB + SA234WPB	D88.9	5.49	5.49 ∇	ER 70S A1 + E 7018	TIG + ARC	ø1.6 + ø3.15	2 Nos.	100 grams + 14 Nos.		—	10% RT MIN. 1WELD/WELDER
														T.M.1.1.50.R02
54	1-00-047-U0074	PIPE + ELBOW	SA335GRP22 + SA234WP22	D88.9	5.49	5.49 ∇	ER 90S B3 + E 9018 B3	TIG + ARC	ø1.6 + ø3.15	2 Nos.	100 grams + 14 Nos.		690±10°C	10% RT MIN. 1WELD/WELDER
														T.M.50.5A.03.R01
55	1-00-047-U0074	SLIP-ON FLANGE + PIPE	SA105 + SA106GRB	D88.9	5.49	6Δ	E 7018	ARC	ø3.15	2 Nos.	9 Nos.	—	10% LPI	
													M.1.1.01.R01	
56	1-00-047-U0074	SLIP-ON FLANGE + PIPE	SA182F22CL.3 + SA335GRP22	D88.9	5.49	6Δ	E 9018 B3	ARC	ø3.15	2 Nos.	9 Nos.	690±10°C	10% LPI	
													M.5A.5A.05.R02	
REV.	PREPARED	CHECKED DESIGN	CHECKED WTC	APPROVED WTC	APPROVED			DATE	DRG NO.				REV	
00	SMG NAIDU	ANVK KISHORE	LOVA KRISHNA	PVD Ramesh	Tarakesh Kanakala			03.06.2025	4-24-992-U0539				00	

**BHARAT HEAVY ELECTRICALS LIMITED**  
**HPVP UNIT - VISAKHAPATNAM - 530012**



**M/S. NALCO DAMANJODI (Unit-6) 18.5 MW CGPP-1x300 TPH COAL FIRED BOILER**  
**HPVP S.O. No. 7906**  
**PAINTING SCHEDULE**

<b>Prepared by</b>	Y.PRASANNA KUMAR Sr MANAGER/Engg.		
<b>Reviewed by</b>	L RAJASEKHAR DGM /HT-Engg.		
<b>Approved by</b>	S.K BISWAS AGM /HOD/Engg.		

**REVIEWED FOR  
REFERENCE**

SIGNATURE:

*K. Ramani*

LETTER REF.: 28812-MD-PWR03-129A

DATE: 24.05.2021

**M. N. DASTUR & COMPANY (P) LTD**  
**KOLKATA**



**RECORD OF REVISIONS**

Rev. No	Date	Details of revision	Remarks
00		New	
01	29.02.2020	Painting specification shall be read in conjunction with Annexure-III of Standard painting scheme document no: SIP: H: PP :22, dated:04.08.2018. Note no:19 added.	

## Nalco - Damanjodi – Painting schemes

Sl.No.	PGMA / Description	Surface Prepa- ration & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT μm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
<b>1</b> <b>1a</b>	<b>Drum (Except Internals), Drum suspension 04-116,04-210 ,04-146</b>	<b>SSPC – SP3 Power tool cleaning</b>	<b>Red oxide Zinc Phosphate Primer to IS 12744 DFT=30μm per coat</b>	<b>2</b>	--	--	--	--	--	<b>60</b>
<b>2</b> <b>5</b>	<b>Drum internals 04- xxx</b>	<b>SSPC-SP1/ or SSPC – SP3 Solvent / Power Tool Cleaning</b>	<b>Rust Preventive Fluid to PR: CHEM: 09 – 04 DFT=25μm per coat</b>	<b>1</b>	--	--	--	--	--	<b>25</b>

Sl.No.	PGMA / Description	Surface Prepn &- Surface Profile		Primer coat		Intermediate coat		Finish coat			Total DFT µm (min)
				Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
3 1a	Buck stays, Boiler structures Galleries Stair-ways Walkways ID system structures 08-101,08-107,08-400,08-900,19-901,21- 600,21-601,21-700,24-346, 35-410,35-420,35-430,35-510, 35-520,35- 610,35-611,35-612,35-700,35-810,35- 820,35-991,36-210, 36-220,36-230,36- 240,36-250,36-260,,36-390, 36-820,37- 010,37-810, 37-510,38-010,38-110,38- 210,38-310,38-410,38-510,38-610, 38- 611, 38-993,39-010,39-110, 39-111,39- 112,39-210,39-301,39-302,39-303, 39- 700,41-500,41-988,42-010,42-020,42-988, 43-004,43-005,43-104, 43-105,43-200,47- 141,47-143,47-149,48-012, 48-482,48- 484,48-485,48-492,48-494,48-495, 48- 535,48-532,48-700,48-993,48-392,48-997, 65-200,65-710,65-736,65-997,67-200,67- 204,67-272,67-276, 67-283,67-710,67- 801,67-802,67-803,67-997	SSPC-SP3/ Power Tool Cleaning		PVC copolymer based (or) synthetic enameling alkyd resin based paint with 30 DFT(At Shop)	2			PVC copolymer based (or) synthetic enameling alkyd resin based paint with 30 DFT(At Site)	2**		120

Sl.No.	PGMA / Description	Surface Prepn &- Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT µm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
4 30	Structures 34-010,34-110,34-120,34-210,34-310,34-410,34-420,34-430,34-510,35-110,35-120,35-130,35-140,35-150 ,35-160,35-210,35-220,35-230 35-310,35-320,35-330,35-340,35-530 & 35-540 SEE NOTES BELOW	SSPC – SP3 Power tool cleaning	Red oxide Zinc Phosphate Primer to IS 12744 DFT=30µm per coat	2	High build epoxy polyamide anamel paint to a DFT of 40µm / coat	1	High build epoxy polyamide anamel paint to a DFT of 40µm / coat(At Site)	1 **	Smoke grey shade no. 692 of IS 5	100
5 2	Loose tubes, SH & Eco.coils, 11-xxx 19-xxx	SSPC – SP3 Power tool cleaning	Red oxide Zinc Phosphate Primer to IS 12744 DFT=30µm per coat	2	--	--	--	--	--	60
6 3	WW, SH ,Eco Headers, SH & Eco lines & links Hot air ducts/dampers 05-137,05-147,05-155,05-175,06-400, 06-611,06-631,06-637,06-647,06-651, 06-655,06-997,07-101,07-200,07-201,07-211, 07-212,07-222,07-226,07-420, 07-401,07-601,07-993,07-997,10-174,10-178, 10-274,10-278, 12-803,12-850, 12-852,12-900,12-901, 12-993,12-997,18-001, 19-701,19-702,19-850,19-851,19-901,19-903,19-906,19-997,19-993,24-100,24-101,24-120,24-125,24-135,24-140,24-145,24-150,24-155,24-175,24-180,24-185,24-350,24-351,24-993,30-103,30-105,30-211,3-215,30-218,30-228,31-010,31-104,31-108,43-004,43-005,43-104,43-	SSPC-SP3/ Power Tool Cleaning	Alkyd Base Red Oxide or Zinc phosphate pigments as Primer to IS 12744 DFT= 40 µm per coat	2	--	--	--	--	--	80

	105,43-200,43-710									
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**\*\* : To be applied at site**

**NOTE: ONLY SOME DUS OF THESE COMPONENTS UPTO 1 ST MBL SHALL BE APPLIED WITH THIS SPECIAL PAINT SYSTEM . FOR THE REST OF THE DUS, PAINT SYSTEM SPECIFIED IN SI.No. 3 SHALL BE APPLIED.**

Sl.No.	PGMA / Description	Surface Prepn &- Surface Profile	Primer coat		Intermediat e coat		Finish coat			Total DFT µm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
6 3	32-010,32-110,32-120,32-310, 32-410,32-510,32-520,32-530,33- 975,35-993, 36-993,39-993,42-001,42-002,42- 005,42-010, 42-020,42-030,42-046,42-065,42- 070,42-120,42-128,42-150,42-152,42- 154,42-157,42-158,42-200,42-300,42- 358,42-700,42-710,42-858,42-988,42- 997,45-200,45-802, 45-805,45-858,45- 997,47-200,47-141,47-143,47-149,47- 710,47-858, 48-012,48-014,48-015,48-019,48- 112,48-114,48-115,48-141,48-142,48- 144,48-145,48-200,48-202,48-204,48- 205, 48-207,48-212,48-214, 48- 222,48-224,48-232,48-234,48-382,48- 384,48-385,48-432,48-434,48-435,48- 462,48-464,48-465, 48-662,48-664, 48-667,48-862,48-864,48-867,48-993, 95-088, 97-084,97-088,97-282,97- 298,97-283,97-590,97-090,97-100,97- 591,97-577,97-592 04-988,20-988,21-987,21-988, 24-987,24-988,24-989,41-988,42-988, 95-988	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 µm per coat	2	--	--	Red Oxide Zinc phosphate Primer (Alkyd Base) to IS 12744 DFT= 30 µm per coat	2	--	105
7. 9	09-001,09-002,09-003,20-511,21-800, 21-825,21-850,24-420,24-425,24-435, 24-460,24-465,24-480,24-485,42-300, 42-358,97-195	SSPC-SP3/ Power Tool Cleaning	Heat resistant Aluminium paint to IS 13183 Gr. II	2	--	--	--	--	--	40

8 1a	Floor Grills, Hand Rails etc 34-810,34-850,35-811,35-820,35-850,36-810, 36-850,38-810,38-850,39-810,39-850, 39-850	SSPC-SP3/ Power Tool Cleaning	Red Oxide Zn PO4 Primer to IS 12744 DFT= 30 µm per coat	1	--	--	Synthetic Enamel to IS 2932	2	Black	70
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#### PAINTING SCHEME FOR VALVES

Sl.No.	PGMA / Description	Surface Prepa- ration & Surface Profile	Primer coat		Intermediate coat		Finish coat			Total DFT µm (min)
			Paint	No. of coats	Paint	No. of coats	Paint	No. of coats	Shade	
9	Cast carbon steel valves Cast alloy steel valves All API valves, QCNRV, SV & SRV Silencers	SSPC-SP3/ Power Tool Cleaning	Heat resistant Alumimum paint to IS 13183 Gr. I	2	--	--	Heat resistant Alumimum paint to IS 13183 Gr. I	2	Aluminum	80
	Forged valves	Phosphating	Coating weight 1500 mg per sq.ft.	--	--	--	--	--	--	--
	Soot Blower components 20-001,20-004,20-201,20-204,20-998	SSPC-SP6/ Comml. Blast Cleaning 35-50µm	Red oxide ZnPO4 Primer paint to IS 12744 DFT = 30 µm/coat	1	--	--	Syn. Enamel paint to IS 2932 DFT= 20µm per coat	2	Verdigris Green Shade No. 280 of IS5	70
	HP / LP system	SSPC-SP6/ Comml. Blast Cleaning 35-50µm	Heat Resistant Aluminium Paint to IS 13183 Gr.I	2	--	--	--	--	--	40

10	For CLH & VLH PGs 07,12,19,21,24,47,48 &80	Abrasive blast cleaning to Sa 2 ½ 35 50 microns	Alkyd Base Red Oxide or Zinc phosphate pigments as Primer to IS 12744 DFT= 40 µm per coat	2	--	--	-	-	Phirozi Blue Shade No. 176 of IS5	80
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***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 (min) per coat	Shade	Shade No. to IS5	Mode of appln.	Over coating interval, Hrs.
1	Inorganic zinc silicate coating (F9)	8	2	57	65	Phiroji Blue/ Required shade	176	Spray	12
2	Heat resistant Silicone Aluminium paint (F12)	15	1	-	18	--	--	Brush / Spray	24
3	Red oxide zinc phosphate primer paint as per IS 12744	10	1	As per IS 12744	30	Red Oxide	--	Brush / Spray	12
5	Epoxy zinc phosphate primer (P6)	8	1	49	15-20	Reqd. shade	Corrpd g. Shade no.	Brush / Spray	12
6	Temporary Rust preventive fluid to PR: CHE: 09 – 04	10	1	--	--	Amber	--	--	12
7	Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B	10	2	57	30	Phiroji Blue	176	Spray	24



9	Acrylic Polyurethane finish paint (F2)	8	1	40	30	Phiroji Blue	176	Brush / Spray	12
10	Epoxy high build coating (Polyamide cured epoxy resin medium suitably pigmented) F6B	10	2	57		Light Orange	557	Spray/ Brush	12
11	Acrylic Polyurethane finish paint (F2)					Light Orange	557	Spray	24

**## Brush painting is accepted, if recommended by the Paint suppliers. The covering capacity of paints specified is only approximate. The paints and Rust Preventive fluid shall be procured from Customer's specific approved suppliers. \*\* Values are indicative.**

**NOTES:**

1. Rust Preventive Coating should be given on HSFG Bolt threads.
2. Machined surfaces 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. All shade numbers are as per IS 5. Unless otherwise specified Colour / Shade of the finish coat shall be Smoke gray Shade No. 692 of IS 5.
5. PGMA's under Sub-Vendor items are not indicated. Please refer respective Engg. Document.
6. These Painting Schemes are valid for only Sale order No: 7906
07. No painting is required for Stainless Steel components.
08. Wherever inside surfaces of components under PGMA 48 – XXX, need protection till erection, two coats of Red-oxide zinc chrome primer paint to IS 12744 to a DFT of 60 microns shall be applied.
09. In components, wherever plates / sheets of thickness less than or equal to 5 mm and rods are used, power tool / hand tool cleaning to SSPC - SP3 / SP2 shall be followed and the painting shall be done as described in Scheme No: 05.
10. All PGMA's are deemed to have been included in relevant schemes. Any missing PGMA will be added to the relevant scheme, as and when required.

**Enclosures:**

**1)Annexure -1 for Details of PG-MA**