



General Note: **BHARAT HEAVY ELECTRICALS LIMITED**

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(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

PHONE : 0431-2574111
GRAMS : BHARATELEC
FAX NO: 0431-2520719
E-mail :
Web :

429-002/A

OFFICE COPY	Collective No.	Enquiry Date	Due Date For Quotation
	1802200152	11.07.2022	21.07.2022
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	L81001SR18001002 WATER SPRAY NOZZLES FOR TANK COOLING SPRAY WATER NOZZLES FOR TANK COOLING AT AMMONIA FARM AREA IN SCR SYSTEM AS PER THE SPECIFICATION AND DATASHEET - TSR 015 AND ATTACHED SPECIFICATION. A SET CONSISTS OF ALL THE NOZZLES REQUIRED TO SPARAYING ENTIRE SYSTEM(S)SPECIFIED IN THE TECHNICAL SPECIFICATION. VENDOR SHALL FURNISH THE NUMBER OF SPRAY NOZZLES REQUIRED TO COOL THE TANK. EACH SPRAY NOZZLE SHALL BE SUPPLIED ALONG WITH SOCKET SUITABLE TO BE WELDED TO NB15 PIPE.	SET	1.000	1.00	15.11.22
20	L81001SR18002002 WATER FOGGING NOZZLES FOR LEAK SUPPRSN. FOGGING WATER NOZZLES FOR LEAK SUPPRESSION AT AMMONIA FARM AREA IN SCR SYSTEM AS PER THE SPECIFICATION AND DATASHEET - TSR : 017 AND SPECIFICATION AS ATTACHED. A SET CONSISTS OF ALL THE NOZZLES REQUIRED FOR FOGGING ENTIRE SYSTEM(S)SPECIFIED IN THE TECHNICAL SPECIFICATION. VENDOR SHALL INFORM THE NUMBER OF WATER FOGGING NOZZLES REQUIRED FOR LEAK SUPPRESSION AT AMMONIA TANK FARM AREA. EACH SPRAY NOZZLE SHALL BE SUPPLIED ALONG WITH SOCKET SUITABLE TO BE WELDED TO NB15 PIPE.	SET	1.000	1.00	15.11.22

General Note:

1. Tender is hosted in EPS portal & offer to be submitted through EPS portal only. You are requested to submit your 2 part offer before due date & time of the enquiry through NIC (<https://eprocurebhel.co.in>).
2. Offer submitted through any other mode will not be accepted.

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**
SRIJAMO Digitally signed by SRIJAMOLE R
LE R MANAGER / PURCHASE (FOSSIL BOILERS)
Date: 2022.07.11 10:03:05 +05'30'

BHARAT HEAVY ELECTRICALS LIMITED

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(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

429-002/A

1802200152 / 11.07.2022

23505

3. Commercial terms Annexure A enclosed shall be submitted along with the offer for evaluation.

4. Kindly provide point wise confirmation to our specification and as attached.

5 The tender will be operated on TWO PART BID basis and you are requested to submit your offer through e-procurement mode.

- Technical offer with commercial terms and unpriced bid and
- Price bid separately.

6 The evaluation will be done on Total package basis.

7 Vendor to submit clear technical offer indicating the scope of supply for each items with BHEL material code. Vendor shall submit all the credentials as per the PQR requirement.

Enclosures:

- 1) Specification TSR: 015 REV/ 00, TSR: 017 REV/00.
- 2) Annexure-A (Techno-Commercial Terms and Conditions)
- 3) PQR- Pre-Qualification requirement.
- 4) Make in India format. (Applicable for indigenous vendor)
- 5) NO Deviation Format.

"LD clause has to be confirmed without fail."

The 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.

PR Links

Material.	PR.No	PR.Item.	Quantity	Acc. Assign	Customer Number
L81001SR18001002	130474353	00010	1.000	CR/8100-LU-379-1-SR-180	CR/8100
L81001SR18002002	130474354	00010	1.000	CR/8100-LU-379-1-SR-180	CR/8100

list of suppliers

RFQ-5900000444

Open Tender Dummy Code

The offers should reach us 30 minutes before the time of opening of tenders. The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**

SRIJAM Digitally signed
by SRIJAMOLE R

MANAGER / PURCHASE
FOSSIL BOILERS
Date: 2022.07.11

OLE R
Yours faithfully
11:08:46 +05'30'



An ISO 9001
Company

Bharat Heavy Electricals Limited
(High Pressure Boiler Plant)
Tiruchirappalli-620 014, Tamil Nadu, India
Dept: MATERIALS MANAGEMENT/BOI

Annexure – A- Additional Terms and Conditions

The terms and condition mentioned in this document are applicable for this enquiry.
Bidders shall furnish pointwise confirmation/details.

Description of the Equipment:	SPRAY AND WATER FOGGING NOZZLES
Projects	NALCO DAMANJODI (CR-8100)
BHEL Tender No. & Date	
Name of the firm (Bidder)	:
Address	:
Contact details	<p><u>Contact person 1</u> Name: Designation: Office Phone: Mobile: e-mail:</p> <p><u>Contact person 2</u> Name: Designation: Office Phone: Mobile: e-mail:</p>

To be filled by bidder

Sl. No.	Terms and conditions	Vendor's confirmation
1 (a)	<p>Technical: Bidder shall comply the specification requirements and shall submit the duly filled in specifications along with supporting document as per BHEL Specification. Any clarifications/deviations to the specification requirements are to be clearly indicated. Hidden deviations indicated elsewhere in the offer will not be evaluated.</p> <p>Vendor Quality Plan shall be submitted in line with our Specification requirements.</p>	
1 (b)	<p>Pre-qualification requirement: Offer shall be considered only if bidder is meeting Tender Prequalification requirement. Vendor to comply with Pre-Qualification requirement of the tender and submit along with their technical bid - the credentials and other documents as indicated in the PQR in the format prescribed. Otherwise their offer will get rejected.</p>	
1 (C)	Inspection by BHEL/ BHEL approved TPIA/Customer.	
1 (D)	Vendor offers will considered for price bid opening subject to fulfilment of techno commercial suitability	
2	<p>Firm Price: The quoted / finalised rates shall be Firm till execution of the supplies. Offer with PVC clause will not be considered.</p>	

3	<p>Delivery term: The quote shall be on FOR / NALCO DAMANJODI SCR Project Site inclusive of Packing, forwarding, Freight also to yours account. Transit Insurance is under BHEL scope.</p>	
4	<p>TENDER FINALIZATION: Tender will be finalized on total package basis and on Two part bid basis. Evaluation shall be on total landed cost to BHEL on FOR destination basis.</p>	
5 (a)	<p>Guarantee / Warranty Period: 18 months from the date of supply or 12 months from date of commissioning, whichever is earlier.</p>	
5 (b)	<p>Repair & replacements: Within the guarantee period vendor has to replace / rectify the defective/ damaged items on free of cost within a reasonable time of reporting from our end.</p>	
5 (c)	<p>Loading Criteria: Guarantee / Warranty Period: No Deviation is permitted. If still vendor offered any deviation on the Guarantee / warranty period, it may lead to rejection of offer.</p>	
6	<p>Kindly Indicate the HSN Code for all items</p>	
7 (a)	<p>Delivery Period: Delivery schedule shall be as per this clause. Delivery shall be 120 days from the date of final document approval. Material shall be dispatched after obtaining dispatch clearance from BHEL. Delivery period mentioned anywhere else in the bid document is for indicative purpose.</p>	
7 (b)	<p>Document Submission: In case of PO placements, required documents have to be submitted for approval within 15 days from the date of PO & reply for any further clarification has to be within 4 days. Any delay beyond the above specified period will be considered during LD calculation.</p>	
8	<p>Liquidated damages:</p> <ol style="list-style-type: none"> Time is the essence of the contract. The ordered items shall be delivered as per the delivery period mentioned in the Purchase Order. In case the supplier supplies the ordered items beyond the delivery period specified, Liquidated Damages -LD - as detailed below will be levied from the supplier without prejudice to any other relief /compensation available to BHEL, Tiruchirappalli under any other condition of the contract/applicable legal provisions. Failure to dispatch the materials in the time as per the delivery quoted in our Purchase Order(PO) would make the supplier liable to an unconditional LD at the rate of 0.5% of the total purchase order value per week of the delay or part thereof subject to a maximum of 10% of Total purchase order value. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers. Hence applicable GST shall also be recoverable from suppliers on LD amount. Debit note will be issued by BHEL for this amount, indicating the respective supply invoice number. 	

9	<p>Risk purchase clause: In the event of any successful Tenderer's failure to fulfil any of the tender / Contract obligations including supply of whole or any part of the ordered items as per Contract / Agreement, BHEL has the right to terminate the contract and purchase from elsewhere, at the risk and cost of the defaulted supplier, either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated in the contract or if the same were not available, the best and nearest available substitute thereof. The supplier shall be liable for the additional expenditure/difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the Purchase order/contract.</p> <p>a) The decision of BHEL with regard to the additional expenditure / difference in cost and consequential losses incurred by BHEL shall be final and binding on the supplier.</p> <p>b) The amount recoverable under risk purchase shall be recovered from the defaulted supplier in all or any of the following manners:</p> <ul style="list-style-type: none"> • from dues available in the form of Bills payable to defaulted supplier, SD, BGs against the same contract. • from the dues payable to defaulted supplier against other contracts in the same Region/Unit /any other region/unit <p>c) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier.</p> <p>d) Withdrawal of offer after price bid opening or varying the same in any manner within the validity period, but before the placement of order will be liable for suitable action for suspension of further business with the vendor as per BHEL corporate procedures.</p> <p>e) Abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' has now been uploaded on www.bhel.com on "supplier registration page" at the following link: http://www.bhel.com/vender_registration/vender.php (Guidelines for suspension of business dealings with suppliers/ contractors).</p>	
10	Invoice date/Bill of Lading date/Airway Bill date/Lorry way bill date/Railway Receipt date/E way bill date, whichever is later will be considered for LD calculation.	
11	<p>Validity: 90 days minimum from techno commercial bid opening (Part-1). Any Deviation with respect to validity your offer will not be considered. Ensure your quoted rates will have 75 days' minimum validity from techno commercial bid opening. The delay in technical clarification beyond four days will be subsequently added to the validity period, Revised Price Bids will not be encouraged.</p>	
12	<p>Documents are to be submitted along with technical bid (Part-1)</p> <ol style="list-style-type: none"> 01. Covering letter 02. Unpriced offer. 03. Filled technical specification and BHEL datasheets. 04. Filled BHEL Terms and condition sheet (Annexure-A) 05. Filled in PQR along with supporting documents. 06. GA Drawing 07. Self-Certification as per Make In India clause 08. MSE Certificates (if applicable) <p>Note: All the pages of documents are to be signed and sealed by authorized signatory of the company. Any query during enquiry stage</p>	

	shall be replied within two days failing which offer may be rejected as non-responsive.	
13	Inspection and testing requirements: Inspection and testing requirements are to be carried out as per the specification and BHEL/Customer approved Drawing (All documents shall be submitted within 15 days from the date of PO for our approval), Technical spec & QP and all test certificates are to be submitted in complete set. Inspection notice period: For TPI inspector visit to vendor works, a minimum of 3 working days' notice period.	
14	Supplier shall mention their GSTN registration number in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.	
15	All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).	
16	Invoices will be processed only upon completion of statutory requirement and further subject to following: <ul style="list-style-type: none"> • Vendor declaring such invoice in Form GST ANX-1 • Receipt of Goods or Services and Tax invoice by BHEL 	
17	As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2).	
18	In case of discrepancy in the data uploaded by the 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 or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.	
19	In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor	
20	In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.	
21	Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by	

	BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.	
22	Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number.	
23	GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.	
24	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	
25	<p>MSE VENDOR:</p> <p><i>i. If L1 vendor is an MSE vendor entire project package will be ordered on L1 vendor.</i></p> <p><i>ii. If a Non MSE vendor is coming as L1, then L1 prices will be counteroffered on MSE vendor who is quoting price within the price band L1+15% and if they are agreeing, purchase order will be awarded for full/complete supply of total tendered value to MSE.</i></p> <p><i>iii. If more than one MSE vendors are available in the L1+15% price band then lowest of the MSE vendor will be selected for counteroffering. If lowest MSE vendor is not accepting it will be counteroffered to the next MSE vendor in the price band and so on.</i></p> <p><i>iv. Finally if none of the MSE vendor in the price band is not accepting it will be ordered on L1 non MSE vendor.</i></p> <p>Payment for MSE Indigenous vendors will be as per MSMED Act, 2006</p> <p>MSE suppliers can avail the intended benefits only if they submit Udyam Registration certificate.</p> <p>Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry, in case of any deficiency in the above required documents or in case the documents are not submitted before price bid opening.</p>	
26	<p>ARBITRATION & CONCILIATION:</p> <p>Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the Parties, 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, then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL Unit/Region/Division issuing the Contract. The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the Parties. Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or</p>	

	<p>statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be (the place from which the contract is issued). The cost of arbitration shall be borne as per the award of the Arbitrator.</p> <p>Subject to the arbitration in terms of Clause above, the Courts at TRICHY shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.</p> <p>Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the contractor shall proceed with and continue without hindrance the performance of its obligations under this contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.</p> <p>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 the Contract, such dispute or difference shall be referred by either Party for arbitration to the sole arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the arbitrator shall be binding upon the Parties to the dispute, provided, however, any Party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.</p>	
<p>27</p>	<p><u>SBD guidelines:</u></p> <p>In order to protect the commercial interests of BHEL, it becomes necessary to take action against suppliers / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, loss of business / money / reputation, indulged in malpractices, cheating, bribery, fraud or any other misconducts or formation of cartel so as to influence the bidding process or influence the price etc. Guide- lines for Suspension of Business Dealings with Suppliers / Contractors shall prevail over which is available at BHEL website http://www.bhel.com.</p> <p>The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.</p>	
<p>28</p>	<p><u>Fraud Prevention Policy</u></p> <p>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.</p>	

29	<p>PRICE IMPACT: All the technical / commercial details given in the enquiry shall be taken care and offer shall be quoted accordingly. No price impact / implication will be accepted within the validity period.</p>	
30	<p><u>BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection</u></p>	
31	<p>Payment Term: 100% direct EFT payment within 90 days from date of receipt of site acknowledgement.</p> <p>If still vendor offered any deviation on the Payment Terms, it may lead to rejection of the offer.</p> <p>For MSE Vendors, MSE payment term will be applicable as per MSE act. MSE payment preference shall be applicable only when Bidder have claimed the MSE category.</p> <p>Micro and Small Enterprises(MSEs): 45 Days Medium Enterprises:60 days NON MSME Vendor :90 Days</p>	
32	<p><u>OTHER TERMS AND CONDITIONS:</u></p> <p>No revision of prices will be entertained at any circumstances after tenders are opened.</p> <p>On the due date of tender opening, only the Techno-commercial bids will be opened. Techno-commercial bids will be evaluated by us and clarifications required, if any, will be called from the bidders on technical and commercial points.</p> <p>If any difference is found in the terms in the Techno-commercial bid and price bid, the terms mentioned in the Techno-Commercial Bid will be considered.</p> <p>BHEL reserves the right to negotiate or refloat the tender opened, if L1 price is not the lowest acceptable price to BHEL due to inter-alia other reasons.</p> <p>The correspondence between the bidder and BHEL through Email is considered as valid document Legally though not signed. It is treated as valid confirmations made on behalf of the respective company and comes under the legal ambit of the business transaction and hence binding on both the parties.</p> <p>If The Due Date Of Tender Opening Happens to be a Holiday, those tenders Will Be Opened On Next Working Day.</p> <p>The quality of the supplies should strictly conform to technical specifications applicable for the item. The offer should specifically confirm this.</p> <p>If any quality problem is pointed out by BHEL w.r.t. supplied material, the same shall be settled and corrected immediately by the supplier. If the material cannot be accepted by BHEL, supplier has to replace the material with no extra cost. Collection of rejected material will be sole responsibility of the supplier.</p> <p>BHEL reserves the right to cancel the tender at any stage without giving any reasons.</p>	

<p>33</p>	<p>Vendor to note the below points at the time of dispatch and shall adhere.</p> <p><i>a. After material readiness and inspection completion (by TPI/ BHEL/ End Customer), vendor shall seek dispatch clearance from BHEL.</i></p> <p><i>b. After obtaining dispatch clearance from BHEL, vendor shall proceed to generate dispatch documents. After generating dispatch documents (Invoice, LR, E-waybill etc.) vendor shall immediately share these documents to BHEL (scan copy over email) for accounting the materials and securing insurance coverage.</i></p> <p><i>c. After accounting, BHEL would be issuing movement clearance to vendor immediately. Only after movement clearance is received from BHEL, actual/physical movement of goods out of vendor’s premises shall commence.</i></p> <p><i>d. Non-adherence to the above may lead to GST authorities seizing the vehicle & goods and imposing penalty & interest. Any such implication would be to vendors account only.</i></p> <p><i>e. Provision of GST Act highlighted below in connection to this - Pursuant to Sec 31 of CGST Act 2017, a tax invoice has to be raised by the registered person supplying taxable goods before or at the time of removal of goods for supply to the recipient, where the supply involves movement of goods. Where a taxable person supplies any goods without issue of any invoice, the tax authorities has powers to detain the consignment and impose penalties equivalent to 200% of the tax payable as per Section 129 of CGST Act 2017.”</i></p>	
<p>34</p>	<p><u>Banned Suppliers Rejection</u></p> <p>“The offers of the bidders who are under suspension and 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.”</p>	
<p>Note</p>	<ol style="list-style-type: none"> 1. In the event of our customer order covering this tender being cancelled /placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender at any stage of execution. 2. BHEL may negotiate the L1 rate, if not meeting our budget / estimated cost. BHEL may re-float the tender opened, if L1 price is not acceptable to BHEL. 3. BHEL reserves its right to reject an offer due to unsatisfactory past performance by the respective Vendor in the execution of any contract to any BHEL project / Unit. 4. Any other Techno –Commercial Terms indicated by the vendor in their offer elsewhere will be ignored. BHEL will proceed with tender evaluation as per Annexure A only. 	

/ On Bidder's office letter pad /
Self-Declaration – ANNEXURE B

Enquiry No.	
Enquiry Date	

In line with Government public procurement order Number P-45021/2/2017-B.E-II dated 15.06.2017, and further modified order dt. 28.05.2018 & order 04.06.2020 issued by DPIIT

I / We hereby declare that I / We are a "Local Supplier" meeting the requirement of minimum local content (.....%) defined in the above government notification for the goods against above mentioned enquiry Number.

Details of location at which local value addition will be made is as follows:

Door No.	
Street / Address 1	
Street / Address 2	
District	
State	
Country	
PIN Code	

We also understand that the false declarations will be considered as breach of Integrity and liable for action.

For Company Name:
Seal:
Signature:

Date:
Place:

(Please fill all the yellow color field)

Annexure-D

SUB-DELIVERY ENQUIRY DEVIATION FORMAT

	MATERIALS MANAGEMENT / BOI SUB-DELIVERY ENQUIRY DEVIATION FORMAT	
Schedule of deviation to Sub-delivery Enquiry No. :		
Description :	SPRAY AND WATER FOGGING NOZZLES for NALCO DAMANJODI (CR-8100) SCR Projects.	
Technical Specifications Document :	TSR: 015 REV/ 00 TSR: 017 REV/ 00	
Drawing Nos. :		
Quality Plan :		
Packing Procedure :		
Document reference	BHEL called for	Firm's
	MATL CODE: L81001SR18002002- TSR: 017 REV/00, MATL CODE: L81001SR18001002- TSR: 015 REV/ 00.	
Certified that other than the above deviations, we are accepting all the other specifications and requirements in full to your Enquiry.		
Station :		
Date :	Signature of firm's representative	Firm seal
Note :	1. Deviations should be taken only in the extreme case 2. If necessary, use additional sheets with page control number	

BHARAT HEAVY ELECTRICALS LIMITED

TIRUCHIRAPPALLI-620 014

Fuel Systems/PE(FB)



Title Sheet

Technical Purchase Specification for

WATER SPRAY NOZZLES FOR TANK COOLING AT AMMONIA FARM AREA

Specification No.: **TSR: 015**

Revision No.: 00

<i>Rev. No.</i>	<i>Rev. Date</i>	<i>Clause</i>	<i>Description</i>	<i>Chd. & Appd.</i>

	<i>Name</i>	<i>Signature</i>	<i>Date</i>
<i>Prepared</i>	M Noorul Fazil	<i>Sd.,</i>	<i>30.04.2019</i>
<i>Checked</i>	M CH Gangadhar	<i>Sd.,</i>	<i>02.05.2019</i>
<i>Approved</i>	GSaravanakumar	<i>Sd.,</i>	<i>03.05.2019</i>



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

TSR: 015
Revision No.:00

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Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

TSR: 015
Revision No.:00

PART I - TECHNICAL SPECIFICATION

1.0 INTENT

The function of the spray nozzle for ammonia Spray system is to cool the **Ammonia storage tank** in the event that the pressure within the tank approaches the set pressure of the tank relief valve due to higher ambient storage temperature or overheating. The Water Spray Nozzle for tank cooling at Ammonia Area Spray system is connected to the fire protection water source with a pressure regulating valve set to 5 kg/cm² (71 PSIG) for optimum nozzle performance. Refer attached Foundation & TP details of Ammonia storage farm yard drawing.

2.0 SCOPE

This specification defines the minimum requirements for the design, manufacture, testing, preparation for shipment and delivery of materials, engineering documentation, technical direction for construction/ installation and start up service for this equipment. Equipment furnished shall be the Seller's standard design and proven.

3.1 EQUIPMENT, MATERIALS AND SERVICES BY SELLER

The Seller's scope of supply includes, but is not necessarily limited to:

- Spray nozzles to be located in ammonia tank area for cooling the ammonia tanks.
- Special tools if required.
- Manuals and instructions for storage, installation, commissioning, operating and maintenance.
- Freight from fabrication site(s) to the job site, including customs duties, if applicable.
- Installation and/or start-up service by a qualified engineer quoted on a per diem basis, with an estimate of required time.

4.1 EQUIPMENT, MATERIALS AND SERVICES BY OTHERS

The scope of supply by others shall be:

- Receiving, unloading and storage at the job site.
- Installation.
- Utility systems piping.
- Process piping external to the Seller's supplied equipment.
- Structural support steel.
- Electrical wiring, conduits, trays, push buttons and starters external to Seller supplied skid-mounted equipment.
- DCS interface and remote alarms.



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

TSR: 015
Revision No.:00

5.1 PERFORMANCE GUARANTEES

The equipment provided by the Seller shall operate in accordance with the performance data in the datasheet and noise requirements for a period as determined by the terms and conditions of purchase.

The equipment shall meet all applicable code requirements so that all required inspections are passed and permits obtained.

The Buyer and/or Owner may conduct Field tests during start up and after commercial operation of the installation for a period determined by the terms and conditions of purchase.

The Seller shall guarantee the following:

- Spray angle 90 degrees (maximum)
- Maximum droplet diameter **100-500 microns** for 100% of the volume of all drops

6.0 DETAILED REQUIREMENTS OF EQUIPMENT

6.1 General

- The Spray system is connected to the fire protection water source with a self-pressure regulating valve located at upstream and set to **5 kg/cm² (71 PSIG)** for optimum spray nozzle performance. The nozzles should be **solid cone, 90-degree spray angle, deflector type nozzles**.
- The nozzle manufacturer shall furnish all components required for installing the nozzle to mentioned spray water pipe.
- The fluid nozzles installed in site shall be fabricated from **stainless steel**.
- **The nozzle shall be with threaded connection so as to remove easily for maintenance, but shall be provided with matching socket using which the nozzle can be welded to NB 15 pipe at terminal point.**

6.2 Terminal Points

The Seller shall furnish all equipment and services necessary to connect the equipment to the Buyer's system. Connections will include, but are not limited to the following as required by this specification:

- Line size of the Fire Protection Water is NB 50 with **NB15 terminal point**.

6.3 Industry Reference Documents (Codes and Standards)

At a minimum, all work performed and materials provided by the Seller must be in accordance with all applicable Federal, State and local laws, ordinances, and regulations.

The equipment will comply with the applicable portions of the following Codes and Standards.

The applicable revision of each of these Codes and Standards will be the current edition with addenda or the edition adopted by the controlling jurisdiction at the time of the purchase order.

In the event of a conflict between these documents and the specification, the Seller shall submit a written request for an interpretation by Buyer. In general, the most stringent requirement shall govern.

- American National Standard Institute (ANSI)
- American Society of Testing and Materials (ASTM)
- American Society of Mechanical Engineers (ASME)
- American Society of Civil Engineers (ASCE)
- American Petroleum Institute (API)



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

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- Air Moving & Control Association (AMCA)
- American Gear Manufacturers Association (AGMA)
- Anti-Friction Bearing Manufacturers Association (AFBMA)
- Environmental Protection Agency (EPA)
- Institute of Electrical and Electronic Engineers (IEEE)
- Insulated Power Cable Engineers Association (IPCEA)
- International Organization for Standardization (ISO)
- Steel Structures Painting Council (SSPC)
- Standards of Hydraulics Institute (SHI)
- National Electrical Code (NEC)
- National Electrical Safety Codes (NESC)
- National Electrical Manufacturer's Association (NEMA)
- National Fire Protection Agency (NFPA)
- American Welding Society (AWS)
- American Institute of Steel Construction (AISC)
- Occupational Safety and Health Administration (OSHA)
- Joint Industrial Conference (JIC)
- Instrument Society of America (ISA)
- Underwriters' Laboratories (UL)
- International Building Codes (IBC)

6.4 Noise Requirements

The Seller shall provide silencers and/or acoustic insulation for equipment to operate with a maximum noise emission level of **85 dB at 1 (one) meter** from source.

6.5 Operating Sequences / Duration

Intermittent Operation at Outdoors

6.6 Instrumentation and Controls

N/A

6.7 Pipe, Valves, and Fittings

N/A

6.8 Surface Preparation and Painting

Note: Materials not subject to rusting shall be provided unpainted.

6.9 Spare Parts

Seller shall provide a list of recommended spare parts including start-up and commissioning spares and special tools, with separate pricing, and a schedule of part replacements based on the operation and service conditions specified.



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

TSR: 015
Revision No.:00

7.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA & QC)

7.1 Quality Control

The supplier must include in the supply a proven quality control and quality assurance system that will ensure the quality of the Spray Nozzle for Ammonia Area Spray system. The quality control system must follow ISO 9001 guidelines.

7.2 Quality assurance

The supplier shall be responsible for providing the necessary Quality Assurance and Quality Control procedures, maintaining continual surveillance and inspection activities during the entire periods of the Fabrication and Testing. Inspections report and tests to be provided to the BHEL during the fabrication period and before shipment of the Spray Nozzle for Ammonia Area Spray system.

8.1 TECHNICAL DOCUMENTATION

The following technical manuals shall be provided. Total of two (2) hard copies and one (1) copy on magnetic media (USB memory stick or CD-ROM) shall be provided sixty (60) days after issue of purchase order.

- (a) Operation manual.
- (b) Safety instruction.
- (c) Maintenance manual.
- (d) Repair and overhaul manual.
- (e) Complete and comprehensive Parts Catalogue (including pictures if applicable) manufacturer P/N and OEM P/N.

Note: The above listed documents can be combined & supplied as Operation & Maintenance (O&M) Manual.

- (f) Supplier shall submit a quoted (including prices) recommended spare parts list. The list should be cover all spare parts consumption for 3 years' operation.

9.0 DOCUMENTS TO BE FURNISHED WITH THE PROPOSAL

- 9.1 Product literature and drawings in support of the offer shall be submitted with the quotation to evaluate the offer.
- 9.2 The supplier shall return a copy of this specification and note at the end of each paragraph if the offered equipment complies or not with this specification with supplier sign and seal.
- 9.3 Operation manual.
- 9.4 Safety instruction.
- 9.5 Parts Catalogue with detailed Bill of material (BOM) and weight particulars.
- 9.6 Recommended spare parts list.
- 9.7 G.A drawing of spray nozzle with BOM

10.0 DOCUMENTS TO BE FURNISHED AFTER AWARD OF CONTRACT

- 10.1 Packaging procedure detailing the list of components shall be dispatched individually with identification and with details of preservation and storage.



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

TSR: 015
Revision No.:00

- 10.2 Water Spray Nozzle at Ammonia Area spray system – Filled in Data sheets including drawings and design information shall be submitted to get approval from End user/owner of the boiler.
- 10.3 **Warranty certificate shall be furnished by the vendor.**
- 10.4 **Operation & Maintenance (O & M) Manual**
- 10.4.1 O & M manuals should be submitted to BHEL/Tiruchirappalli prior to despatch of the equipment.

11.0 INSPECTION

- 11.1 All test certificates shall be furnished for buyer's reference and records.
- 11.2 Spray Nozzle for Ammonia Area Spray System Equipment shall be inspected and tested as per approved quality plan. The certificates and documents generated during inspection of above shall be furnished to BHEL.

12.0 FINAL TESTS AND ACCEPTANCE

The Spray Nozzle at Ammonia Area spray system shall be tested in the site together with BHEL's representative to demonstrate conformance to the specification and functioning.

The following tests shall be performed:

- 12.1 Checking and repairing of voyage damages.
- 12.2 Visual test and Complete equipment check-up.
- 12.3 Functional test.

Acceptance certificate will be issued after successful completion of the acceptance tests and submission of all relevant documentation.

13.0 WARRANTY

13.1 Warranty Period

The warranty period shall be twelve (12) months from the date of commissioning or eighteen (18) months from the date of supply whichever is earlier. This warranty includes structural electrical, hydraulic and mechanical defects, fatigue failure etc.

14.0 ATTACHMENTS AND REFERENCE DOCUMENTS

Drg. No.	Description	No. of Pages	Revision Number
--	Data Sheets – Water Spray Nozzle for tank cooling at Ammonia Area spray system	2	00
0-SR-056-00076	P & IDs of SCR system-Ammonia Area Water Spray System	1	00
0-SR-056-00084	Foundation & TP details of Ammonia storage farm yard	1	00
--	Annexure-S	1	00



Specification for
**Water Spray Nozzle for Tank Cooling
at Ammonia Area Spray System**

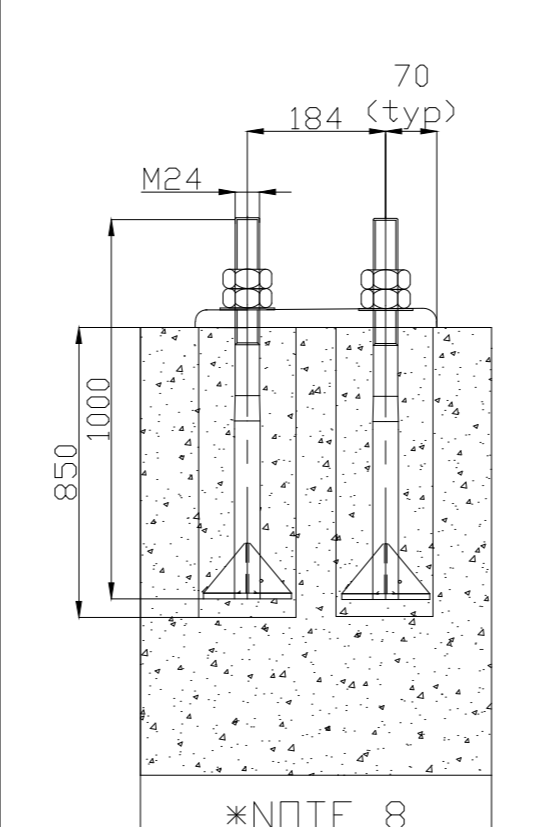
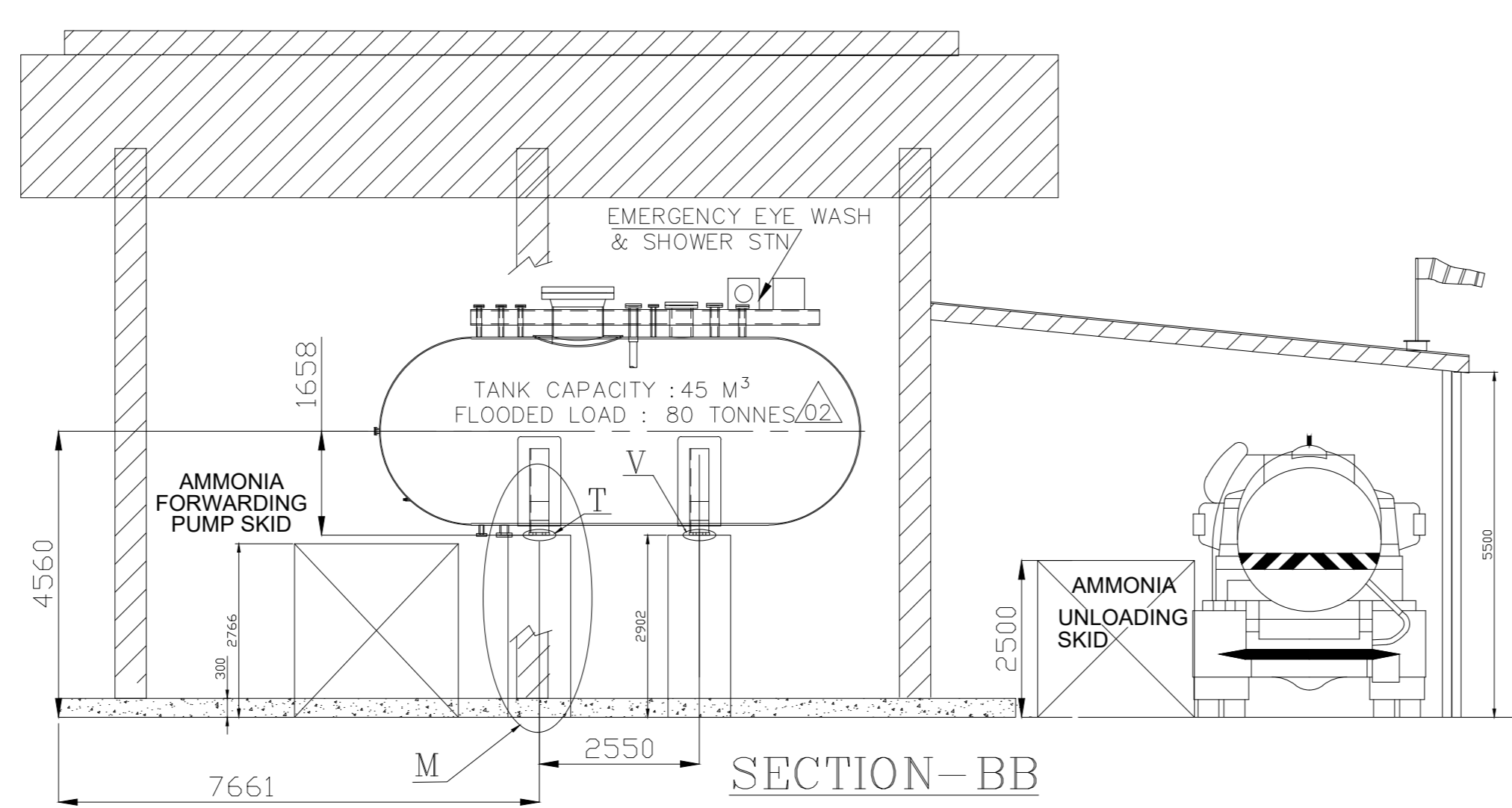
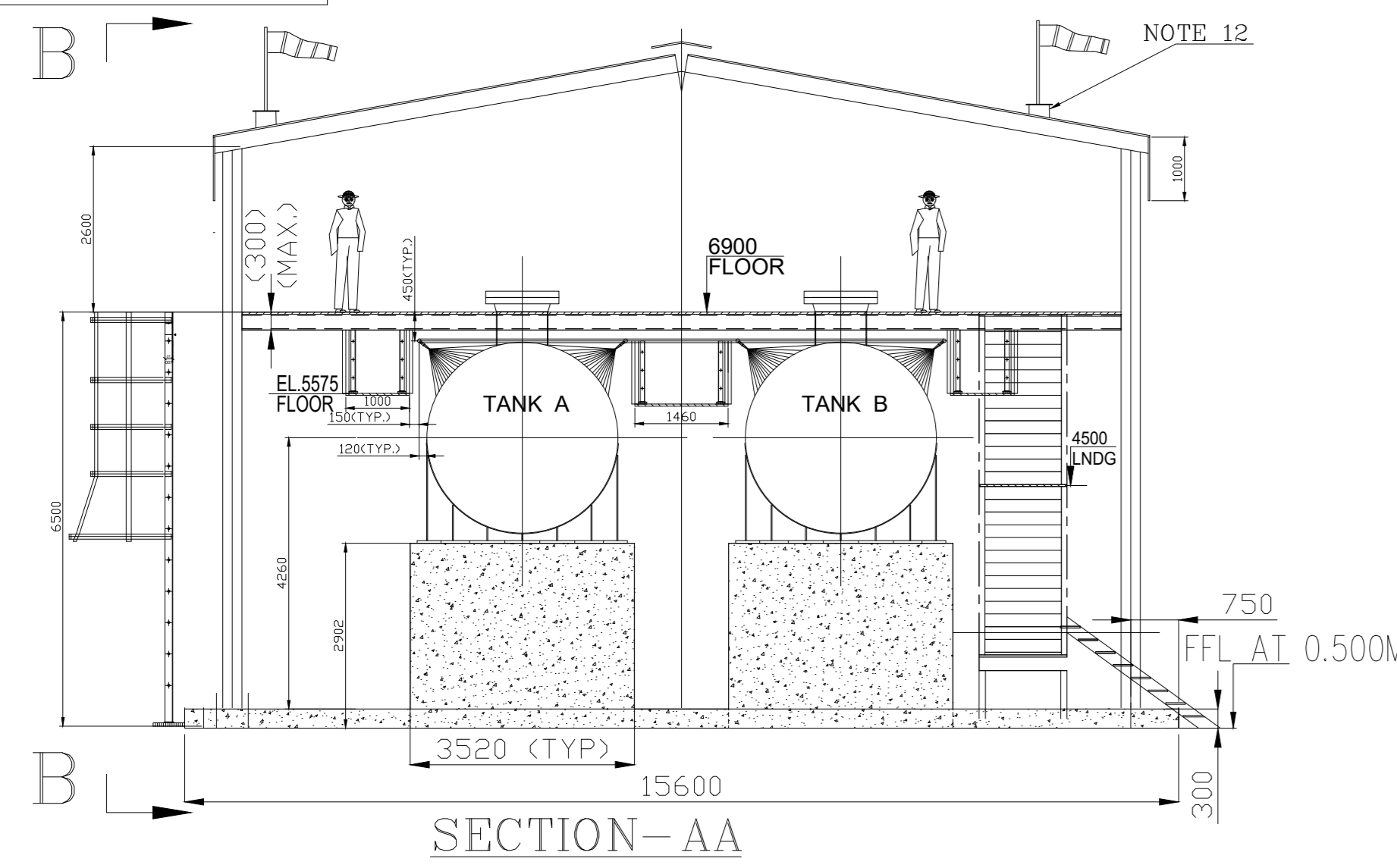
TSR: 015
Revision No.:00

PART-II

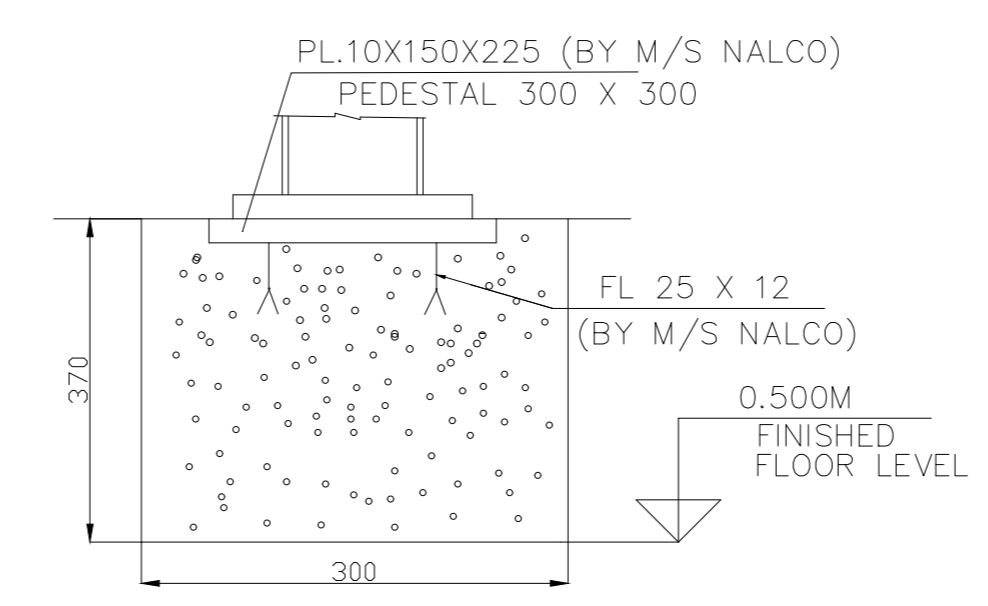
Data Sheets – Water Spray Nozzle for Tank Cooling at Ammonia Area Spray System

Qty : Vendor to calculate based on Nozzle covering area

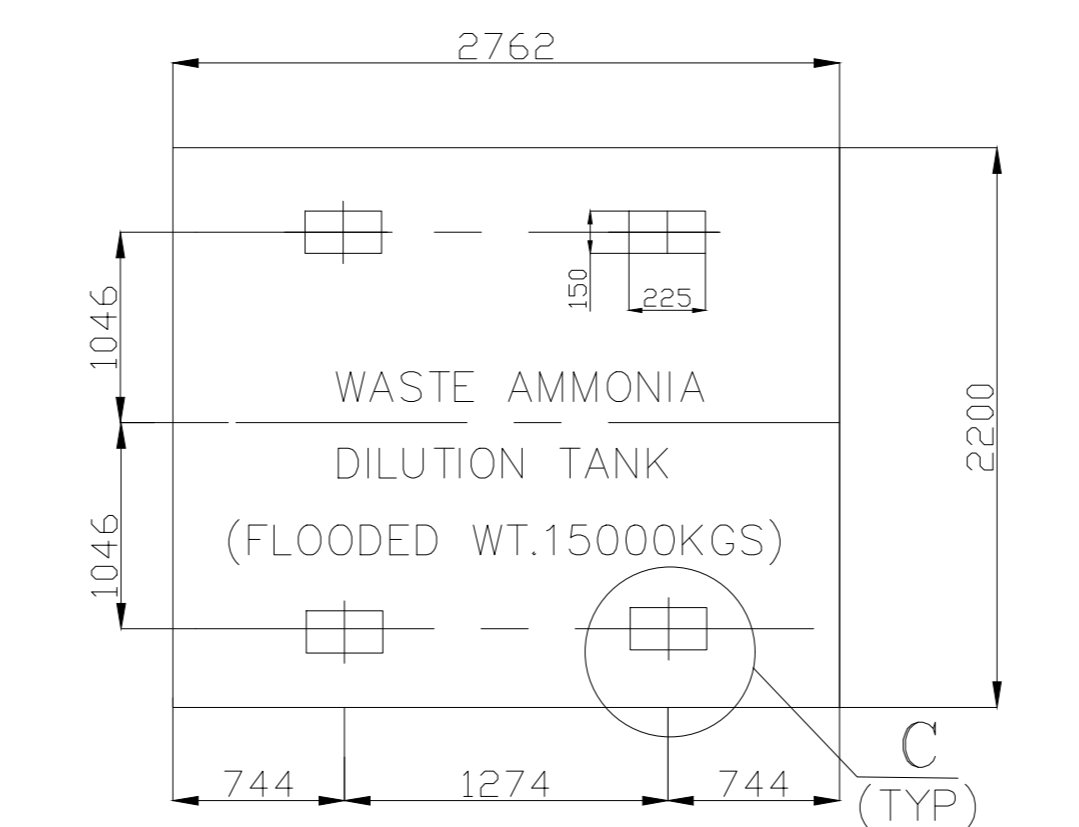
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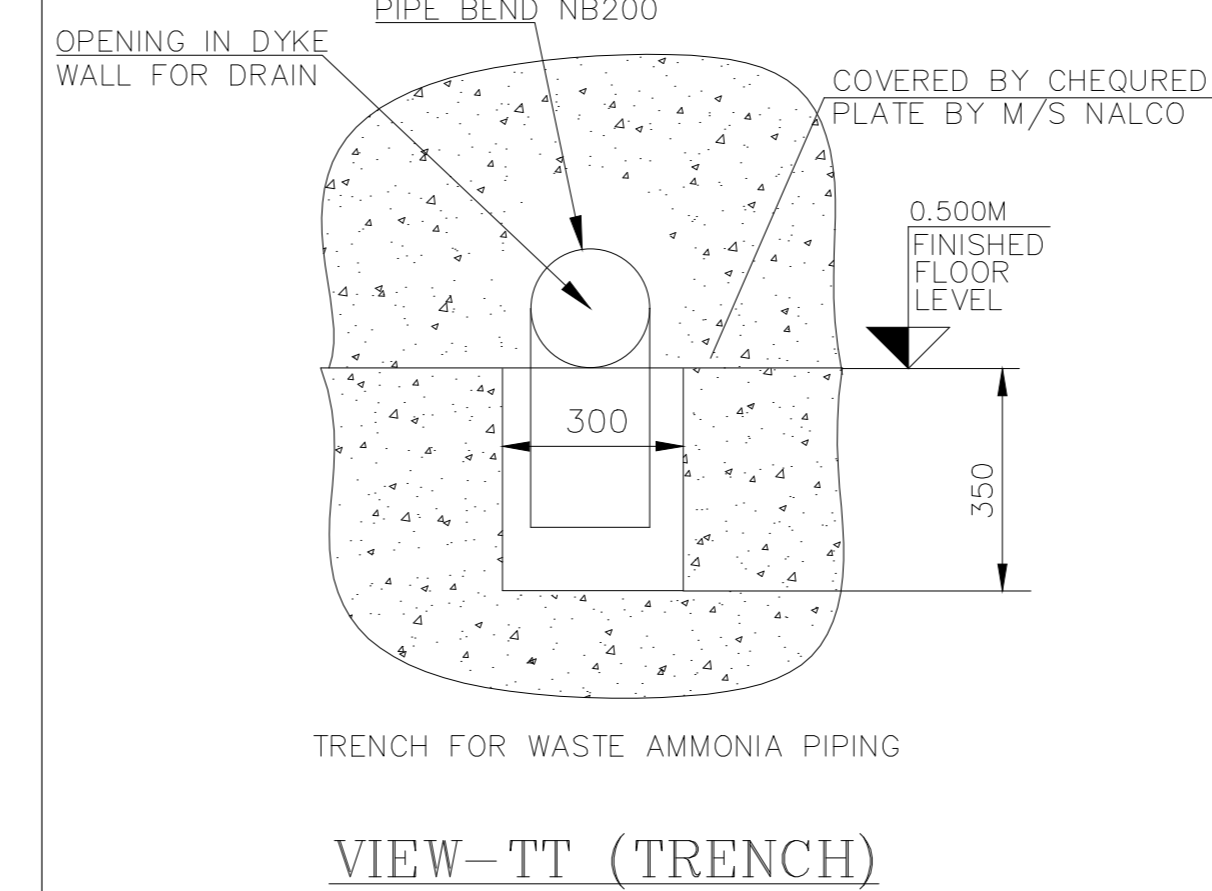
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DETAIL-C (TYPICAL)



DETAIL-B

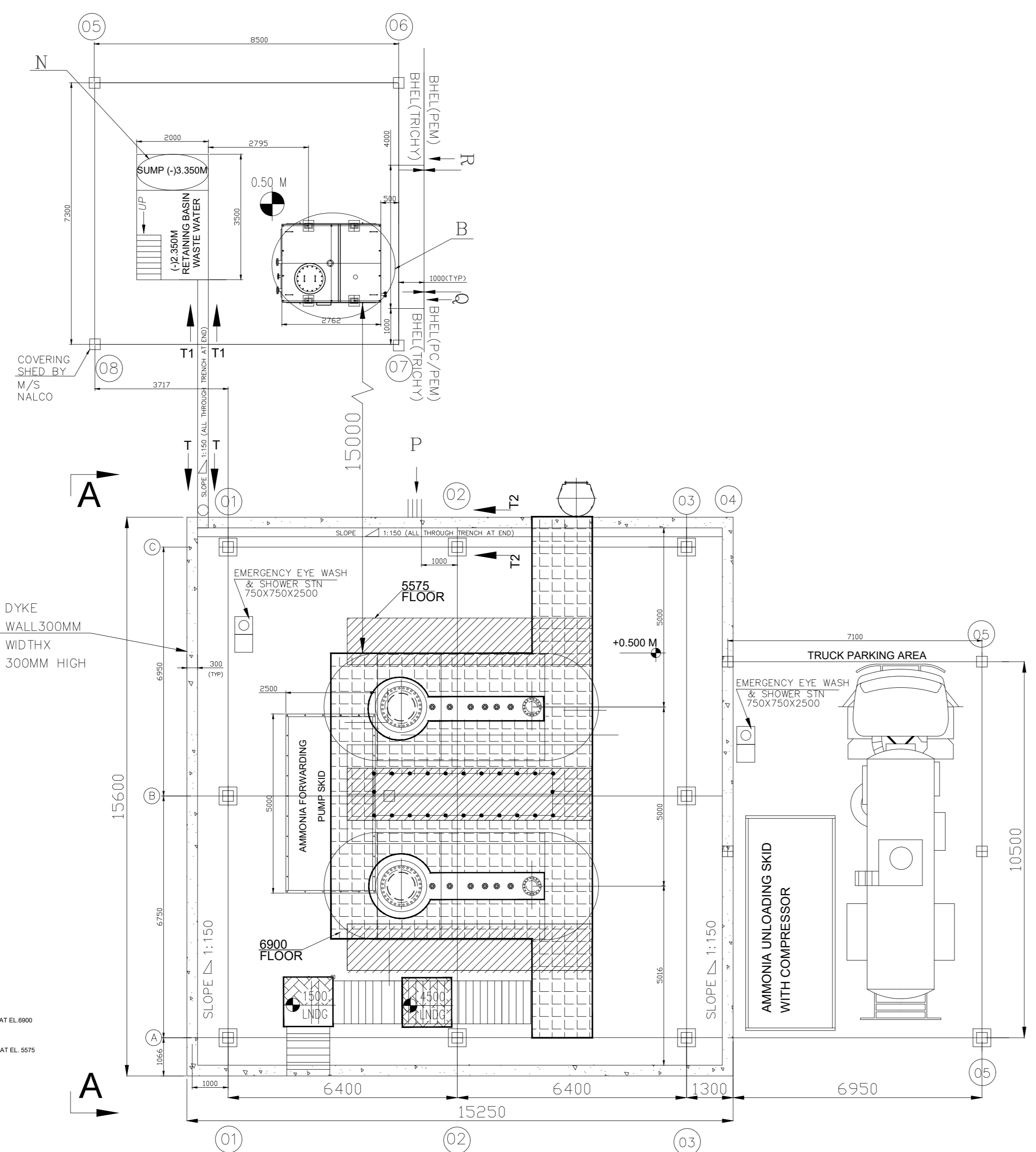


VIEW-TT (TRENCH)

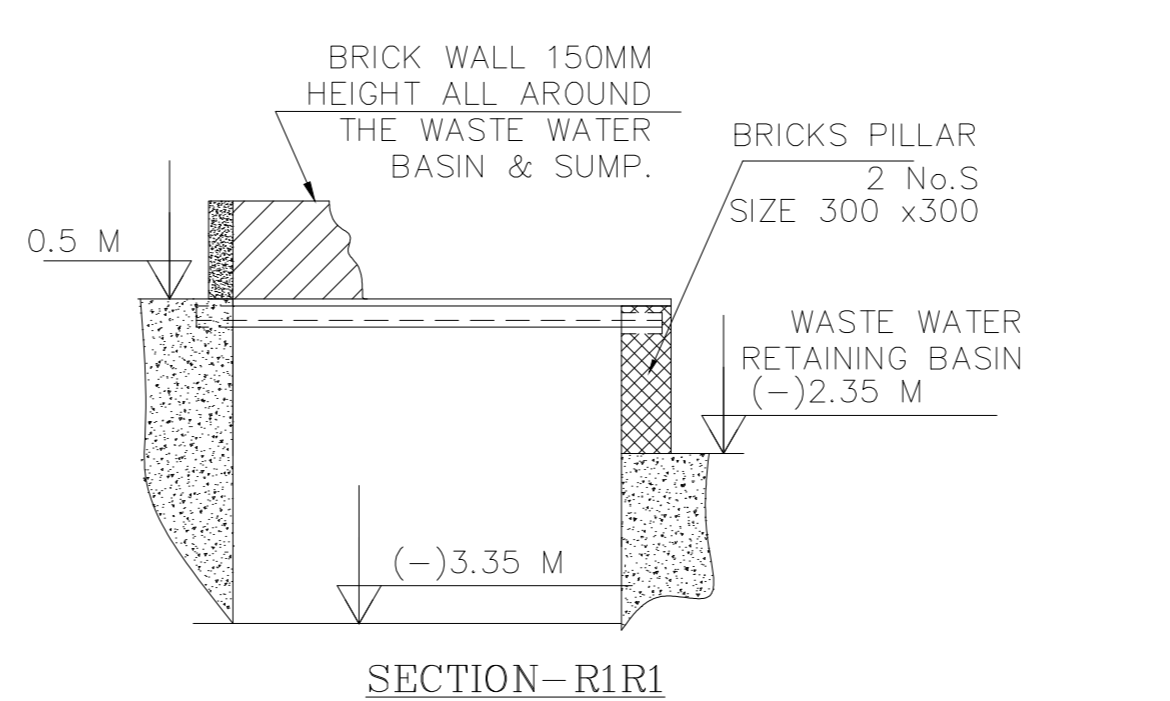
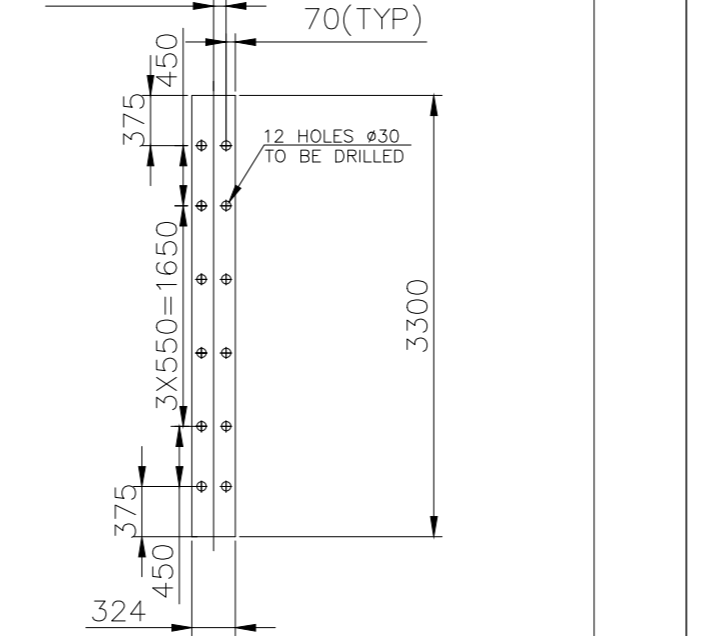
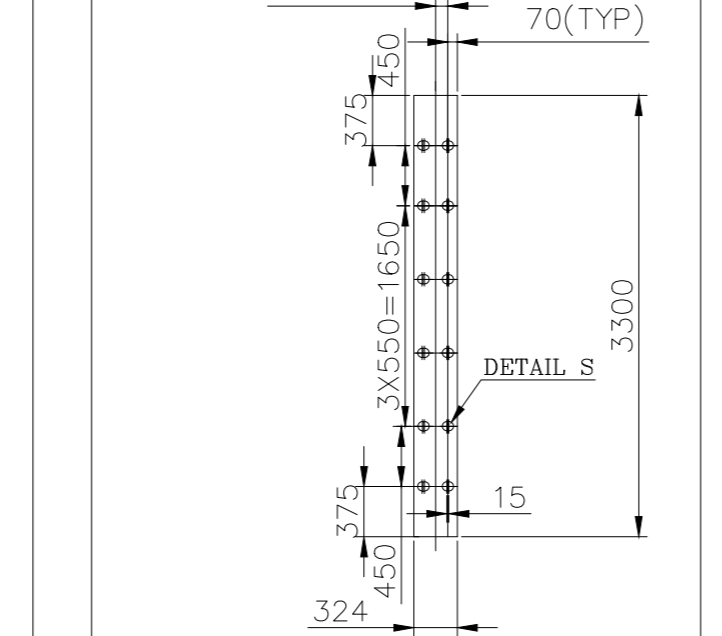
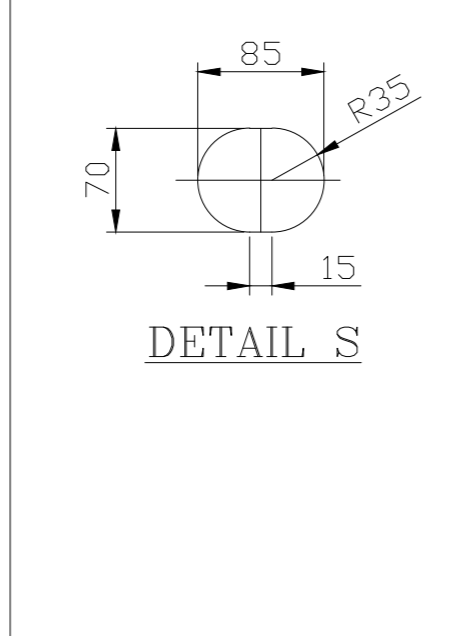
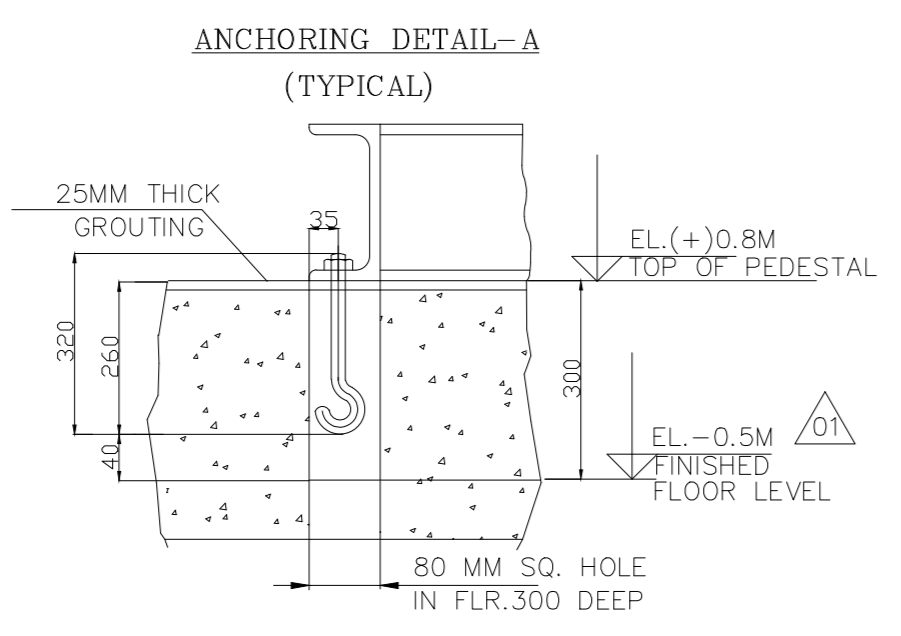
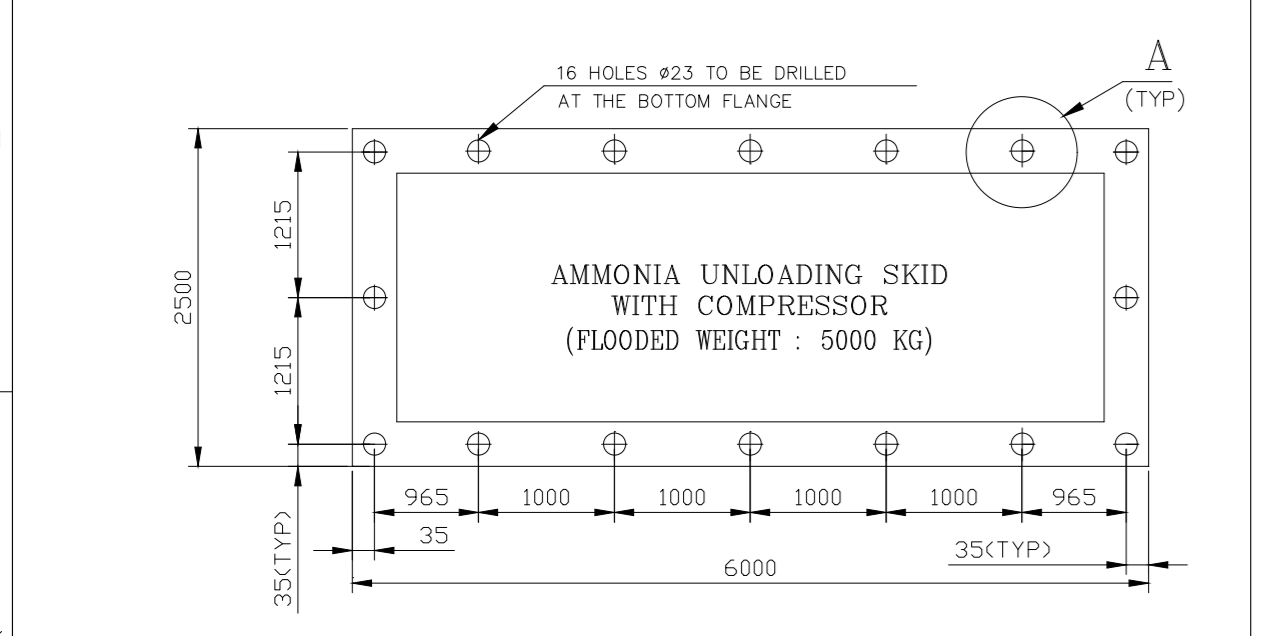
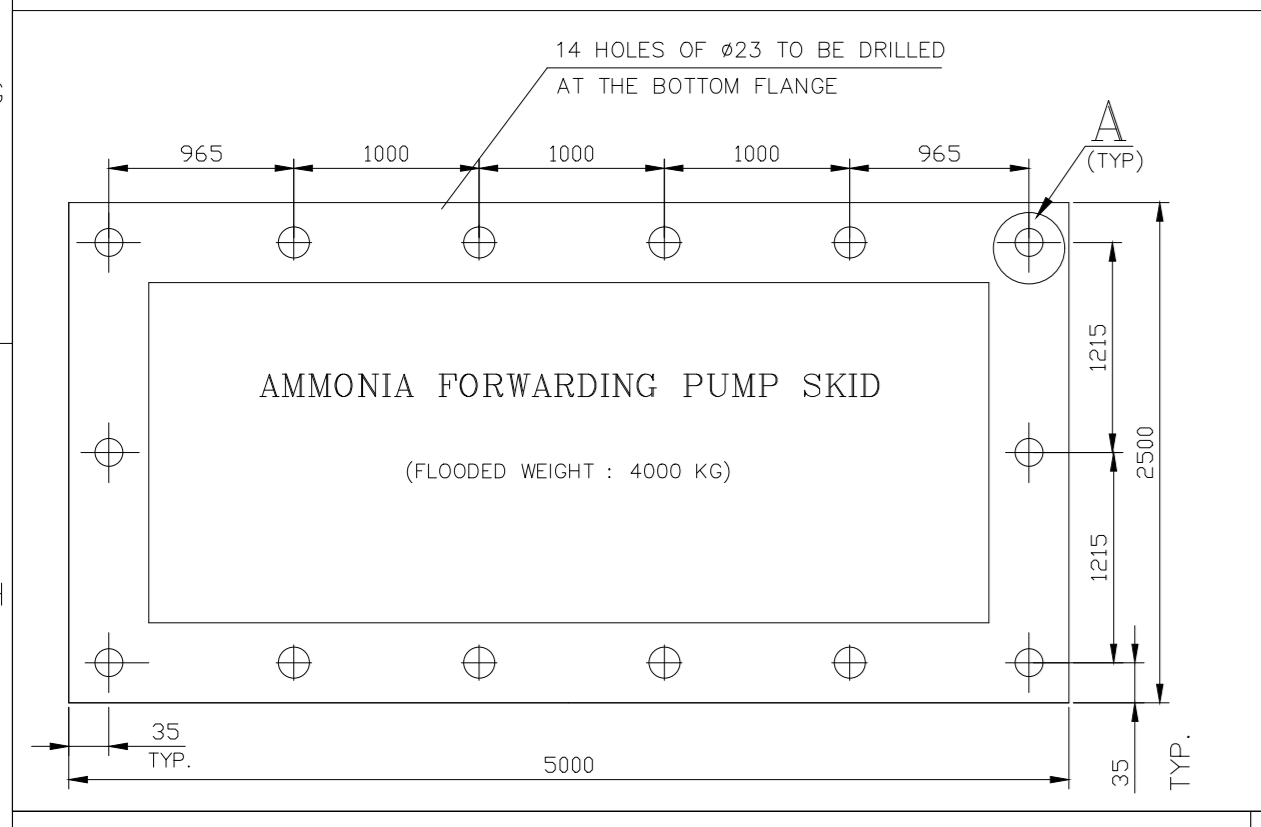
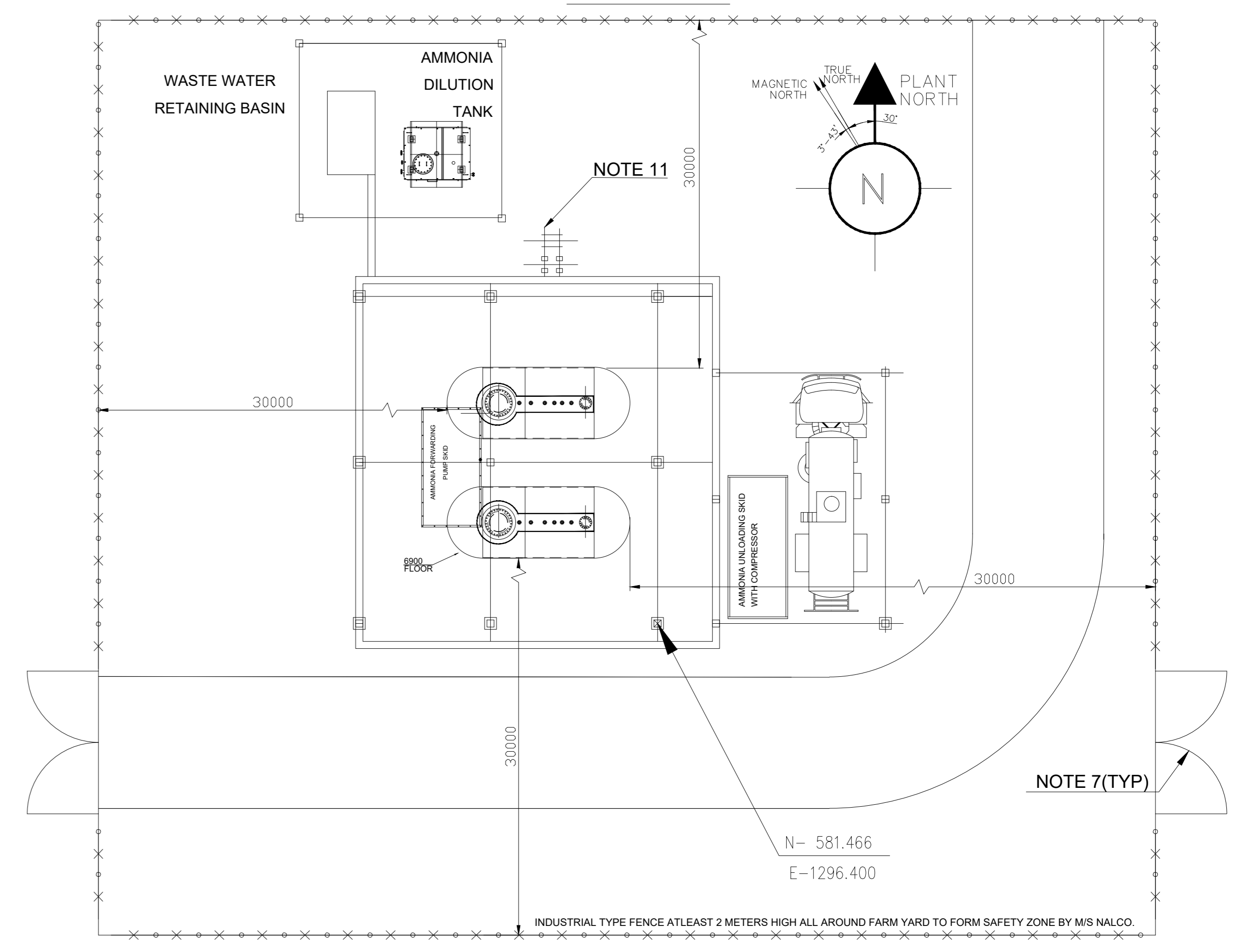
NOTE:-

1. ALL ELEVATIONS IN AMMONIA FARM YARD ARE WITH RESPECT TO FINISHED FLOOR LEVEL EL. (+)0.5M & FGL OF (+)894 M.
2. PLOT PLAN REF DRAWING PY-LQ-0-M166-2001-01
3. REFERENCE DRAWING:-0-SR-056-00073 :P&ID OF SCR SYSTEM-KEY DIAGRAM
4. COLUMNS FOUNDATION LOAD DETAILS ARE FURNISHED IN BHEL TRICHY DRAWING "AMMONIA STORAGE SHED STRUCTURE FOUNDATION PLAN".
5. M/S NALCO/CIVIL TO TAKE CARE THE CIVIL FOUNDATION DESIGN & EXECUTION.
6. NECESSARY APPROVAL OF AMMONIA TANK FARM SHALL BE ARRANGED BY RESPECTIVE BHEL POWER SECTOR REGIONS.
7. 6M WIDE GATE OPENING OUTWARD AND SHALL NOT BE SELF LOCKING.
8. * CUSTOMER M/S NALCO ENGINEERING TO FURNISH THE DIMENSIONS.
9. SLOPE OF 1:150 TO BE MAINTAINED IN FFL FROM PUMPING SKID TOWARDS WASTE WATER RETAINING BASIN.
10. EXACT LOCATION AND POSITION OF AMMONIA DETECTORS AND EMERGENCY EYE WASH STATION WILL SUITABLY DECIDED DURING ERECTION.
11. PIPE RACK ROUTING BETWEEN AMMONIA STORAGE TANK FARM YARD TO SCR BY BHEL/PC/CHENNAI.
12. FINAL LOCATION OF WIND INDICATOR TO BE DECIDED DURING ERECTION.

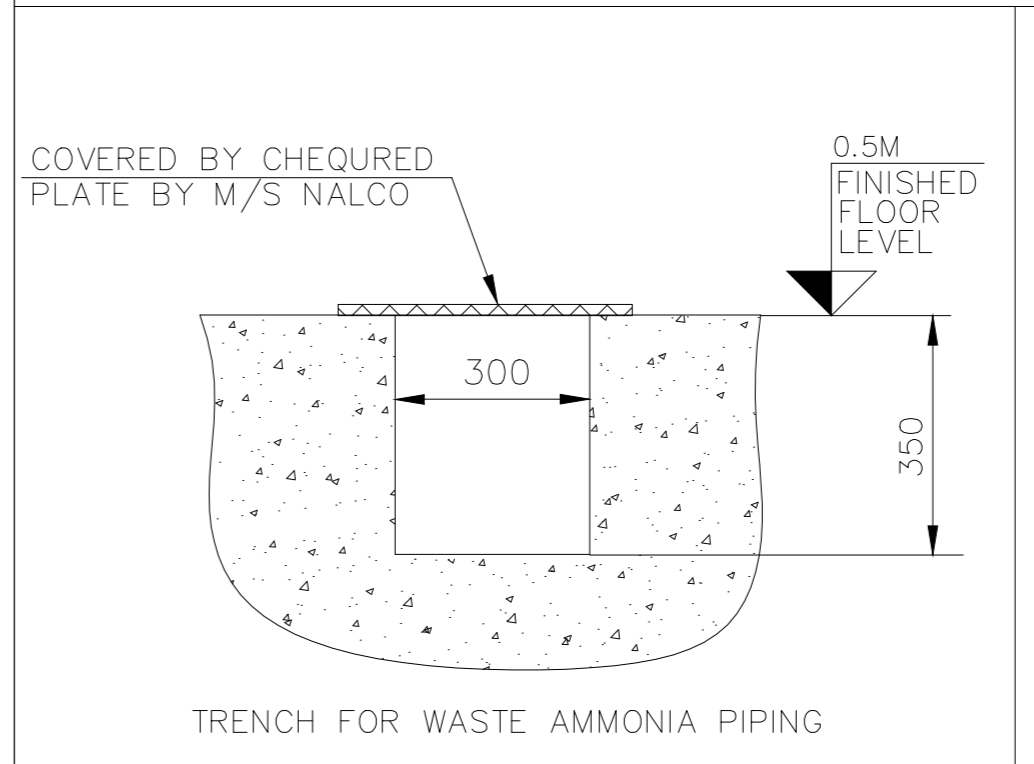
THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



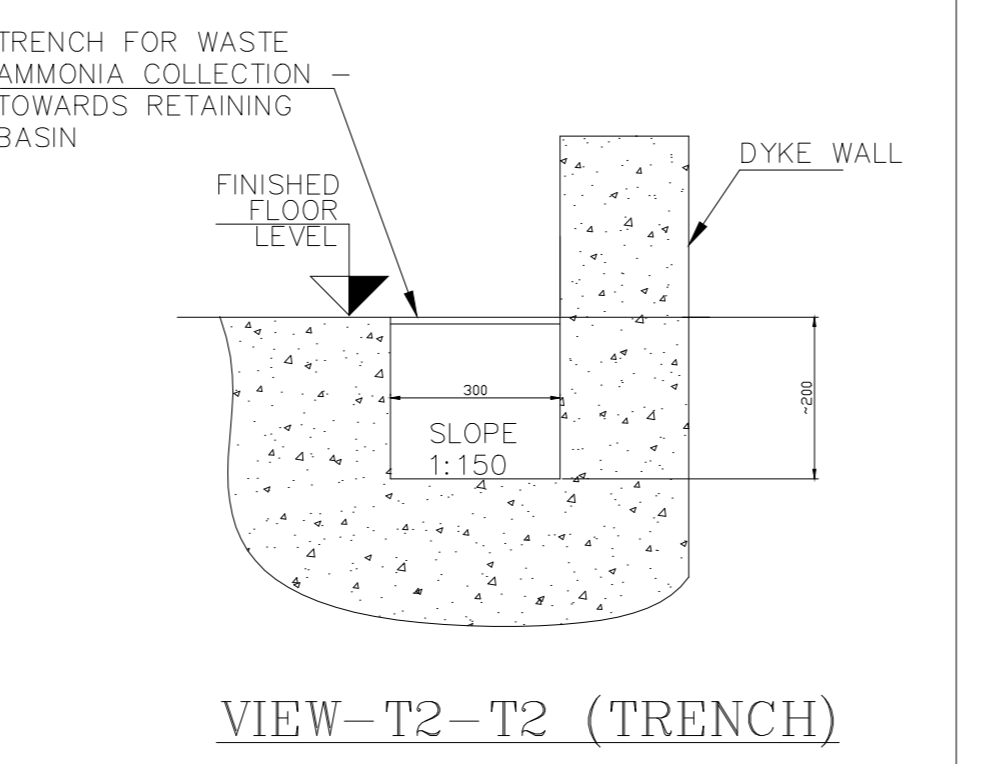
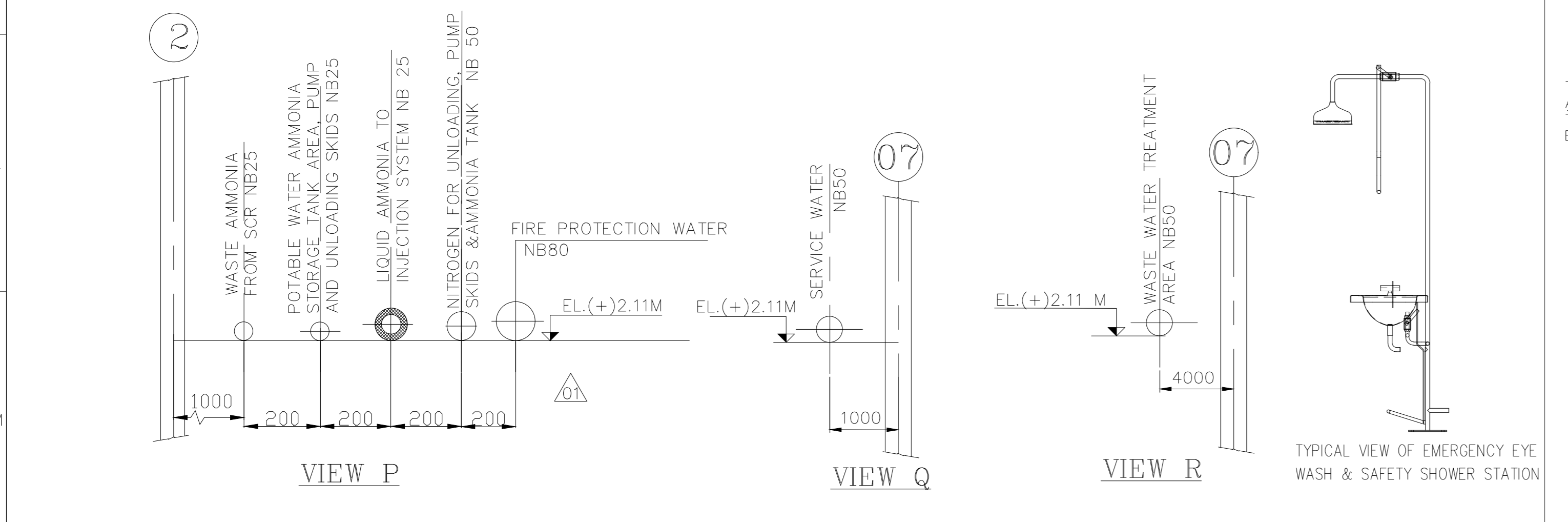
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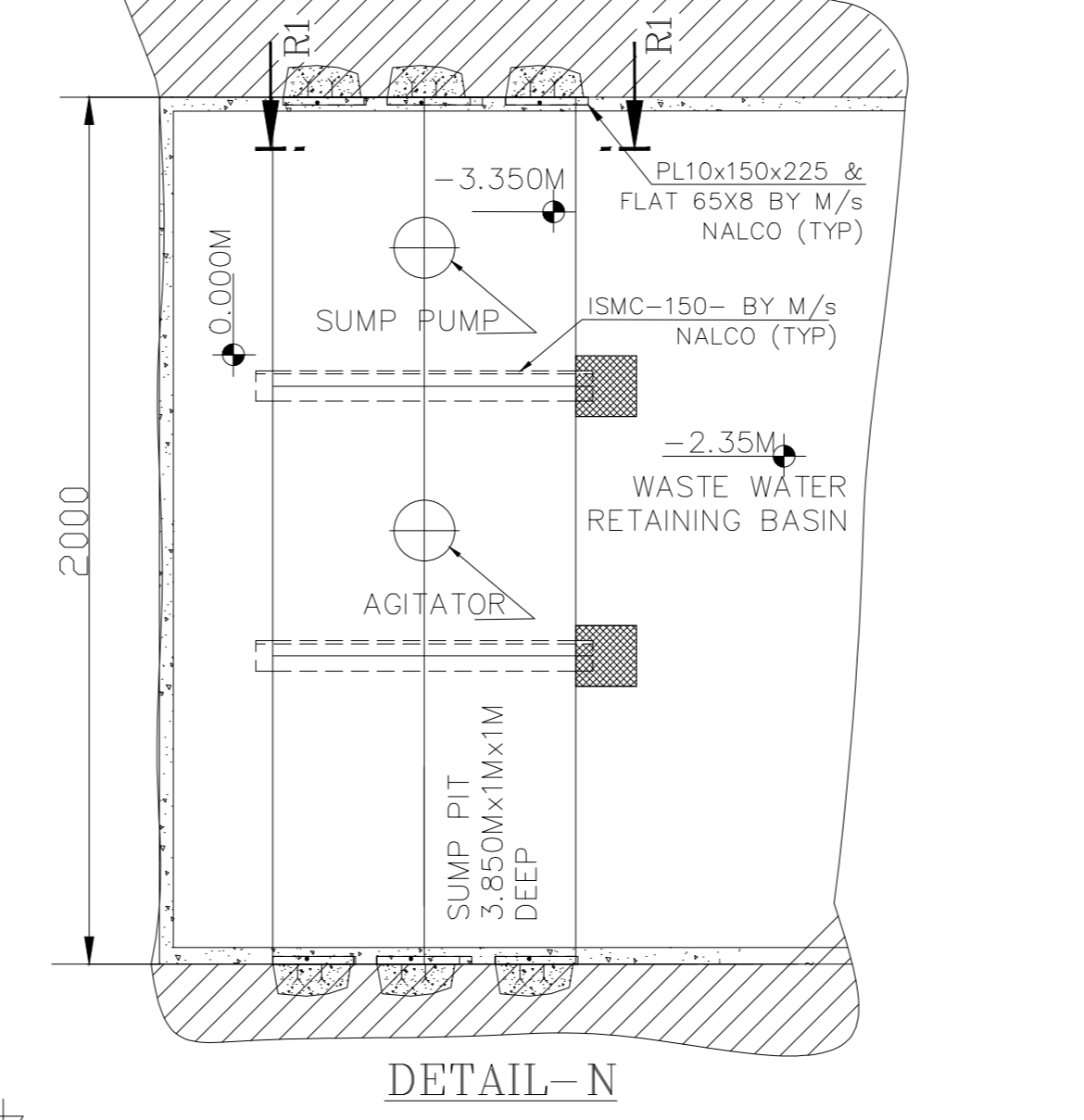
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VIEW-T2-T2 (TRENCH)



DETAIL-N

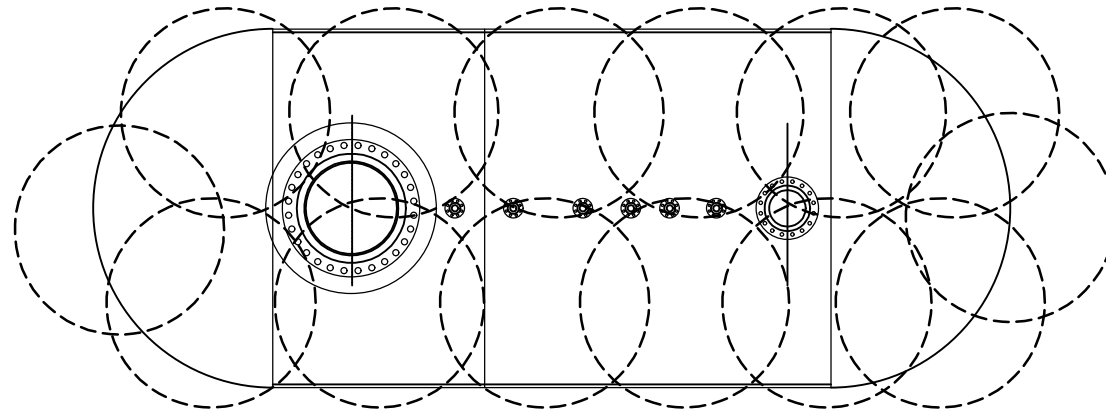
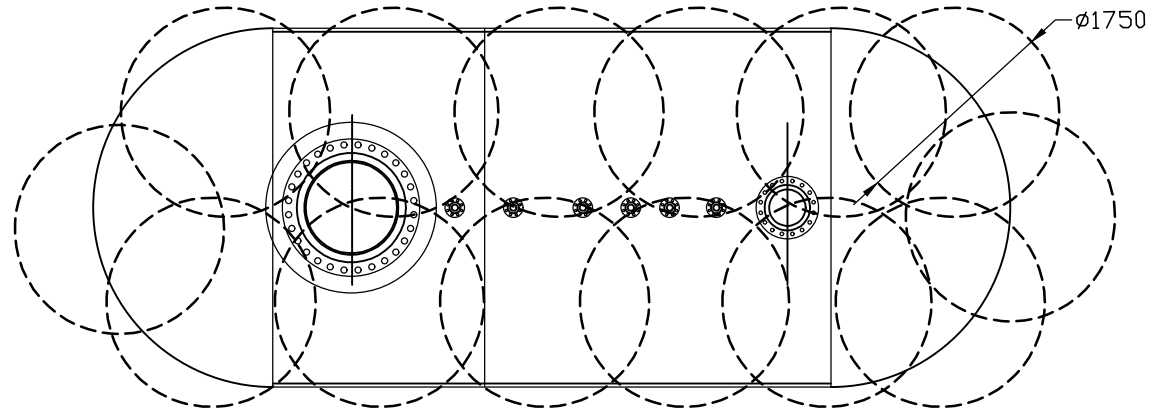
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01	22.07.21	CHD/APPD GANGADHAR	CHD/APPD GANGADHAR									

CLIENT	NATIONAL ALUMINIUM COMPANY LIMITED BHUBANESWAR, ODISHA		
CONSULTANT	DASTUR M. N. DASTUR & COMPANY (P) LTD CONSULTING ENGINEERS, KOLKATA		
PROJECT	INSTALLATION OF STEAM AND POWER PLANT FOR 5th STREAM ALUMINA REFINERY EXPANSION AT DAMANJODI, ODISHA UNDER PHASE-3 EXPANSION OF M&R COMPLEX		
	NAME	SIGN.	DATE
	PREETAM KUMAR	-SD-	9/24/21
	CHD. PREETAM KUMAR	-SD-	9/24/21
	APPD. MCHS GANGADHAR	-SD-	9/24/21
	NAME	SIGN.	DATE
	-N.A.-	-N.A.-	-N.A.-
	CUST. DRG. NO.	REV.	
	0-SR-056-00084	02	
	SHT. NO. X	NO. OF SHT. X	

TITLE: FOUNDATION AND TP DETAILS OF AMMONIA STORAGE FARM YARD

ANNEXURE-S - SPRAY NOZZLE ARRANGEMENT

TOTAL SPRAY NOZZLE QUANTITY ARRIVED TENTATIVELY AS 28 NOS FOR TWO TANKS
SPRAY NOZZLE COVERAGE DIAMETER ASSUMED AS 1750 mm.



NOTES:

1. This drawing is for vendor reference to arrive at spray nozzle quantity as per nozzle coverage to be selected by vendor. Final spray nozzle quantity for effective tank cooling to be arrived by vendor only.
2. Header location and nozzle orientation and cone angle selection are in vendor scope as per the limits furnished in specification.

BHARAT HEAVY ELECTRICALS LIMITED

TIRUCHIRAPPALLI-620 014

Fuel Systems/PE(FB)



Title Sheet

Technical Purchase Specification for

WATER FOGGING NOZZLE FOR LEAK SUPPRESSION AT AMMONIA TANK FARM AREA

Specification No.: **TSR: 017**

Revision No.: 00

<i>Rev. No.</i>	<i>Rev. Date</i>	<i>Clause</i>	<i>Description</i>	<i>Chd. & Appd.</i>

	<i>Name</i>	<i>Signature</i>	<i>Date</i>
<i>Prepared</i>	M Noorul Fazil	<i>Sd.,</i>	<i>30.04.2019</i>
<i>Checked</i>	M CH Gangadhar	<i>Sd.,</i>	<i>02.05.2019</i>
<i>Approved</i>	G Saravanakumar	<i>Sd.,</i>	<i>03.05.2019</i>



Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm Area**

TSR: 017
Revision No.:00

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Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm
Area**

TSR: 017
Revision No.:00

PART I - TECHNICAL SPECIFICATION

1.0 INTENT

The function of the Fogging nozzle for ammonia fogging system is to suppress the leakage in the event of a large vapour release by spraying the fire protection water as fine droplets. The Water Fogging Nozzle for leak suppression at Ammonia Tank, Unloading system and forwarding system is connected to the fire protection water source with a pressure regulating valve set to 5 kg/cm² for optimum nozzle performance. Upon activation, service water is sprayed through nozzles located around the Ammonia tank farm area to create a fog and suppress the anhydrous ammonia. Refer attached Foundation & TP details of Ammonia storage farm yard drawing.

2.0 SCOPE

This specification defines the minimum requirements for the design, manufacture, testing, preparation for shipment and delivery of materials, engineering documentation, technical direction for construction/ installation, and start up service for this Equipment-Fogging Nozzle for Fogging System in Ammonia Tank farm area. Equipment furnished shall be the Seller's standard design and proven.

3.1 EQUIPMENT, MATERIALS AND SERVICES BY SELLER

The Seller's scope of supply includes, but is not necessarily limited to:

- Fogging nozzles (refer data sheet for qty) to be located in ammonia tank area farm for leak mitigation.
- Special tools if required.
- Manuals and instructions for storage, installation, commissioning, operating and maintenance.
- Freight from fabrication site(s) to the job site, including customs duties, if applicable.
- Installation and/or start-up service by a qualified engineer quoted on a per diem basis, with an estimate of required time.

4.1 EQUIPMENT, MATERIALS AND SERVICES BY OTHERS

The scope of supply by others shall be:

- Receiving, unloading and storage at the job site.
- Installation.
- Utility systems piping.
- Process piping external to the Seller's supplied equipment.
- Structural support steel.
- Electrical wiring, conduits, trays, push buttons and starters external to Seller supplied skid-mounted equipment.
- DCS interface and remote alarms.



Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm
Area**

TSR: 017
Revision No.:00

5.1 PERFORMANCE GUARANTEES

The equipment provided by the Seller shall operate in accordance with the performance data in the Data sheet and Noise Requirements for a period as determined by the terms and conditions of purchase.

The equipment shall meet all applicable code requirements so that all required inspections are passed and permits obtained.

The Buyer and/or Owner may conduct Field tests during start up and after commercial operation of the installation for a period determined by the terms and conditions of purchase.

The Seller shall guarantee the following:

- Spray angle 90 degrees
- Maximum droplet diameter less than 50-300microns for 100% of the volume of all drops

6.0 DETAILED REQUIREMENTS OF EQUIPMENT

6.1 General

- The Fogging system is connected to the plant water source with a self-pressure regulating valve located at grade and set to **5 kg/cm² (71 PSIG)** for optimum fogging nozzle performance. The nozzles should be ***hollow cone, 90-degree spray angle, deflector type nozzles***. They should be spaced one meter apart along the piping.
- The nozzle manufacturer shall furnish all components required for installing the nozzle to mentioned water pipe.
- The fluid nozzles installed in site shall be fabricated from stainless steel.
- ***The nozzle shall be with threaded connection so as to remove easily for maintenance, but shall be provided with matching socket using which the nozzle can be welded to NB 15 pipe at terminal point.***

6.2 Terminal Points

The Seller shall furnish all equipment and services necessary to connect the equipment to the Buyer's system. Connections will include, but are not limited to the following as required by this specification:

- Fire Protection Water pipe is NB 25 with **NB15 terminal point**.

6.3 Industry Reference Documents (Codes and Standards)

At a minimum, all work performed and materials provided by the Seller must be in accordance with all applicable Federal, State and local laws, ordinances, and regulations.

The equipment will comply with the applicable portions of the following Codes and Standards. The applicable revision of each of these Codes and Standards will be the current edition with addenda or the edition adopted by the controlling jurisdiction at the time of the purchase order. In the event of a conflict between these documents and the specification, the Seller shall submit a written request for an interpretation by Buyer. In general, the most stringent requirement shall govern.

- American National Standard Institute (ANSI)
- American Society of Testing and Materials (ASTM)
- American Society of Mechanical Engineers (ASME)
- American Society of Civil Engineers (ASCE)



Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm
Area**

TSR: 017
Revision No.:00

- American Petroleum Institute (API)
- Air Moving & Control Association (AMCA)
- American Gear Manufacturers Association (AGMA)
- Anti-Friction Bearing Manufacturers Association (AFBMA)
- Environmental Protection Agency (EPA)
- Institute of Electrical and Electronic Engineers (IEEE)
- Insulated Power Cable Engineers Association (IPCEA)
- International Organization for Standardization (ISO)
- Steel Structures Painting Council (SSPC)
- Standards of Hydraulics Institute (SHI)
- National Electrical Code (NEC)
- National Electrical Safety Codes (NESC)
- National Electrical Manufacturer's Association (NEMA)
- National Fire Protection Agency (NFPA)
- American Welding Society (AWS)
- American Institute of Steel Construction (AISC)
- Occupational Safety and Health Administration (OSHA)
- Joint Industrial Conference (JIC)
- Instrument Society of America (ISA)
- Underwriters' Laboratories (UL)
- International Building Codes (IBC)

6.4 Noise Requirements

The Seller shall provide silencers and/or acoustic insulation for equipment to operate with a maximum noise emission level of 85 dB at 1 (one) meter from source.

6.5 Operating Sequences / Duration

Intermittent Operation Outdoors

6.6 Instrumentation and Controls

N/A

6.7 Pipe, Valves, and Fittings

N/A

6.8 Surface Preparation and Painting

Note: Materials not subject to rusting shall be provided unpainted.

6.9 Spare Parts

Seller shall provide a list of recommended spare parts including start-up and commissioning spares and special tools, with separate pricing, and a schedule of part replacements based on the operation and service conditions specified.



Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm
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7.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA & QC)

7.1 Quality Control

The supplier must include in the supply a proven quality control and quality assurance system that will ensure the quality of the Water Fogging Nozzle for leak suppression at Ammonia Tank. The quality control system must follow ISO 9001 guidelines.

7.2 Quality assurance

The supplier shall be responsible for providing the necessary Quality Assurance and Quality Control procedures, maintaining continual surveillance and inspection activities during the entire periods of the Fabrication and Testing. Inspections report and tests to be provided to the BHEL during the fabrication period and before shipment of the Water Fogging Nozzle for leak suppression at Ammonia Tank farm area.

8.1 TECHNICAL DOCUMENTATION

The following technical manuals shall be provided. Total of two (2) hard copies and one (1) copy on magnetic media (USB memory stick or CD-ROM) shall be provided sixty (60) days after issue of purchase order.

- (a) Operation manual.
- (b) Safety instruction.
- (c) Maintenance manual.
- (d) Repair and overhaul manual.
- (e) Complete and comprehensive Parts Catalogue (including pictures if applicable) manufacturer P/N and OEM P/N.

Note: The above listed documents can be combined & supplied as Operation & Maintenance (O&M) Manual.

- (f) Supplier shall submit a quoted (including prices) recommended spare parts list. The list should be cover all spare parts consumption for 3 years' operation.

9.0 DOCUMENTS TO BE FURNISHED WITH THE PROPOSAL

- 9.1 Product literature and drawings in support of the offer shall be submitted with the quotation to evaluate the offer.
- 9.2 The supplier shall return a copy of this specification and note at the end of each paragraph if the offered equipment complies or not with this specification with supplier sign and seal.
- 9.3 Operation manual.
- 9.4 Safety instruction.
- 9.5 Parts Catalogue with detailed Bill of material (BOM) and weight particulars.
- 9.6 Recommended spare parts list.
- 9.7 G.A drawing of fogging nozzle with BOM

10.0 DOCUMENTS TO BE FURNISHED AFTER AWARD OF CONTRACT

- 10.1 Packaging procedure detailing the list of components shall be despatched individually with identification and with details of preservation and storage.



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- 10.2 Water Fogging Nozzle at Fogging System in Ammonia Tank – Filled in Data sheets including drawings and design information shall be submitted to get approval from End user/owner of the boiler.
- 10.3 **Warranty certificate shall be furnished by the vendor.**
- 10.4 **Operation & Maintenance (O & M) Manual**
- 10.4.1 O & M manuals should be submitted to BHEL/Tiruchirappalli prior to despatch of the equipment.

11.0 INSPECTION

- 11.1 All test certificates shall be furnished for buyer's reference and records.
- 11.2 Water Fogging Nozzle at Fogging System in Ammonia Tank Equipment shall be inspected and tested as per approved quality plan. The certificates and documents generated during inspection of above shall be furnished to BHEL.

12.0 FINAL TESTS AND ACCEPTANCE

The Water Fogging Nozzle at Fogging System in Ammonia Tank shall be tested in the site together with BHEL's representative to demonstrate conformance to the specification and functioning. The following tests shall be performed:

- 12.1 Checking and repairing of voyage damages.
- 12.2 Visual test and Complete equipment check-up.
- 12.3 Functional test.

Acceptance certificate will be issued after successful completion of the acceptance tests and submission of all relevant documentation.

13.0 WARRANTY

13.1 Warranty Period

The warranty period shall be twelve (12) months from the date of commissioning or eighteen (18) months from the date of supply whichever is earlier. This warranty includes structural electrical, hydraulic and mechanical defects, fatigue failure etc.

14.0 ATTACHMENTS AND REFERENCE DOCUMENTS

Drg. No.	Description	No. of Pages	Revision Number
--	Data Sheets – Water Fogging Nozzle for leak suppression at Ammonia Tank	2	00
0-SR-056-00076	Reference P & IDs of SCR system-Ammonia Area Water Spray System	1	00
0-SR-059-00084	Foundation & TP details of Ammonia storage farm yard	1	00
--	Annexure-F	1	00



Specification for
**Water Fogging Nozzle for Leak
Suppression at Ammonia Tank Farm
Area**

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PART-II

**Data Sheets – Water Fogging Nozzle for leak suppression at Ammonia
Tank farm area**

Qty : Vendor to calculate based on Nozzle covering area

**DATA SHEET CUM VENDOR CHECKLIST FOR FOGGING NOZZLES AT AMMONIA
TANK FARM AREA**

BHEL Material Code: **L81001SR18002002**

TSR:017

Enquiry No.

	DESCRIPTION	BHEL REQUIREMENT	VENDOR CONFIRMATION
1.0	Nozzle Quantity (Qty. Installed / Qty. Spare):	87* + 4 Nos spare	
1.1	Sockets for welding nozzle to pipe as specified in 4.10	87* + 4 Nos spare	
1.2	Dimensions of ammonia tank farm area	Refer Annexure - F	
2.0	Flow Parameters		
2.1	Fluid Type	Fire Protection Water	
2.4	Total water Flow available	35000 kg/hr.	**
2.5	Temperature °C	35	
2.6	Pressure kg/cm2	Vendor to specify	
3.0	Fluid through the Fogging Nozzles	Fire protection Water	
3.1	Temperature (Operating / Max) °C	35/50	
3.2	Pressure at nozzle inlet (Operating / Max) kg/cm2	3 / 4	
3.3	Density @ Operating Temperature kg/m ³	995.7	
3.4	Viscosity @ Operating Temperature Ns/m2	-	
3.5	Chloride Concentration PPM	-	
3.6	pH -	-	
4.0	Fogging Nozzle Details		
4.1	Nozzle Service	Water fogging at NH3 tank/Unloading skid /Forwarding skid	
4.2	Total Nozzles Required (Refer Annexure- F)	Vendor to specify	
4.3	Nozzle Type (Unidirectional; Split Up & Down)	Deflector Spray	
4.4	Spray Pattern (Hollow Cone, Full Cone, Flat)	Hollow Cone	
4.5	Process Capacity at Pressure kg/cm2	Vendor to specify	
4.6	Spray Angle at Pressure Degrees @ °C	Vendor to specify	
4.7	Drop Size Range Microns	50-200	
4.8	Materials of Construction	303 SS	
4.9	Pipe Line size [ODxT (mmxmm) / NB]	NB 15	
4.10	Nozzle Connection to Socket (Flange, NPT, Victaulic, Other)	Male NPT(vendor to specify size)	
4.11	Socket connection to NB15 pipe	Weldable	
4.12	Fogging Nozzle Make and Model	Vendor to specify	
4.13	Body material	SS	
4.14	Nozzle Type & Model	Vendor to specify	
4.15	Nozzle inlet connection size (mm)	Vendor to specify	
4.16	Capacity at Pressure (Supplier Guarantee) - LPM @ kg/cm2	Vendor to specify	
4.17	Spray Angle at Pressure (Supplier Guarantee)- Degrees @ kg/cm2	Vendor to specify	
4.18	Nozzle Weight with Socket - grams	Vendor to specify	
5.0	Special Requirements		
	NA		
		BHEL	VENDOR
	Prepared	Preetam Kumar Singarapu	
	Checked & Approved	MCHS Gangadhar	

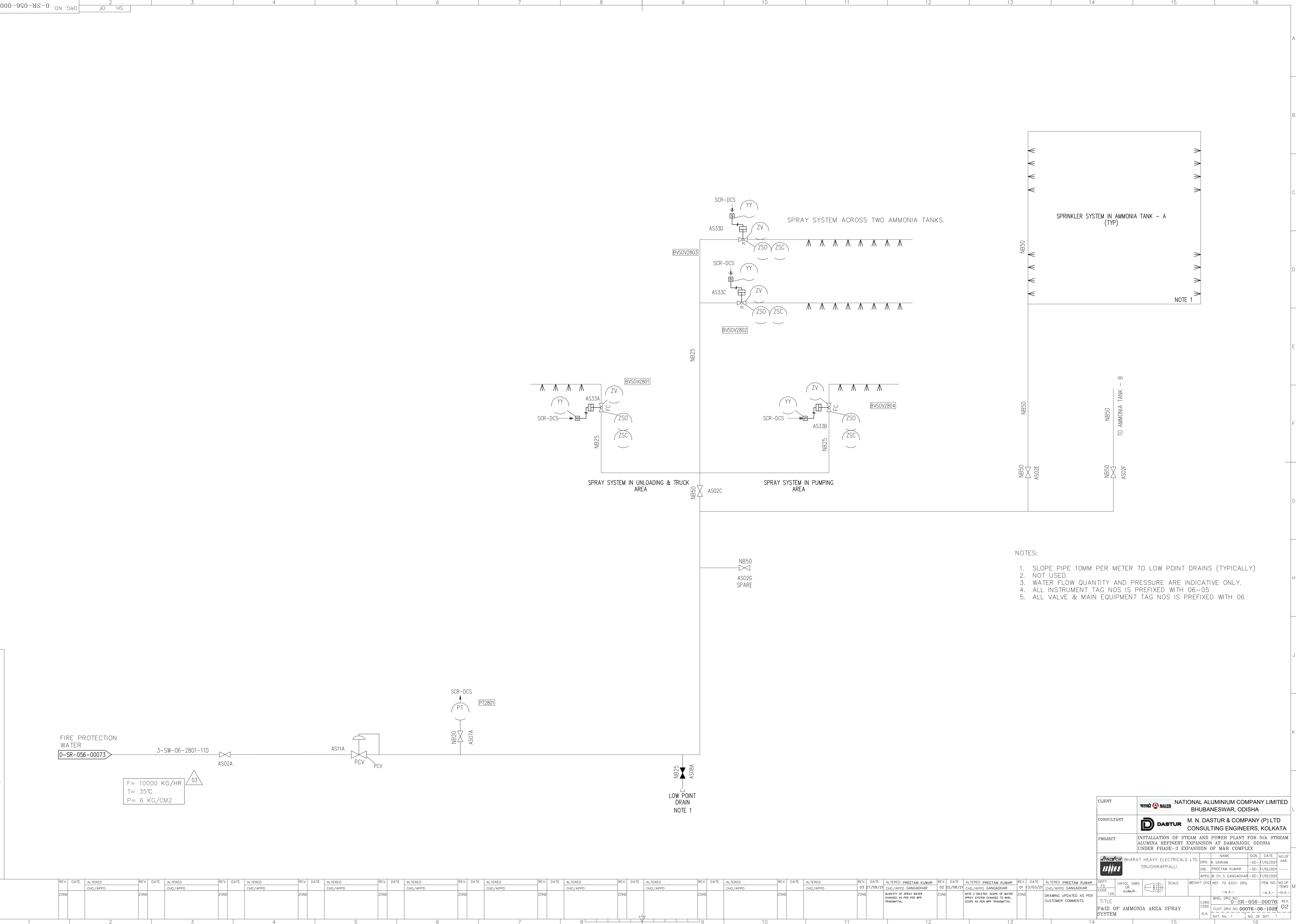
* Nozzle quantity estimated based on cone covering are of 1-meter diameter is indicative only. Vendor to arrive on the quantity of nozzles required based on the nozzle selection to cover tank farm area effectively as per annexure -F.

** Vendor to provide calculation and confirm.

DRG. NO. 0-SR-056-00073

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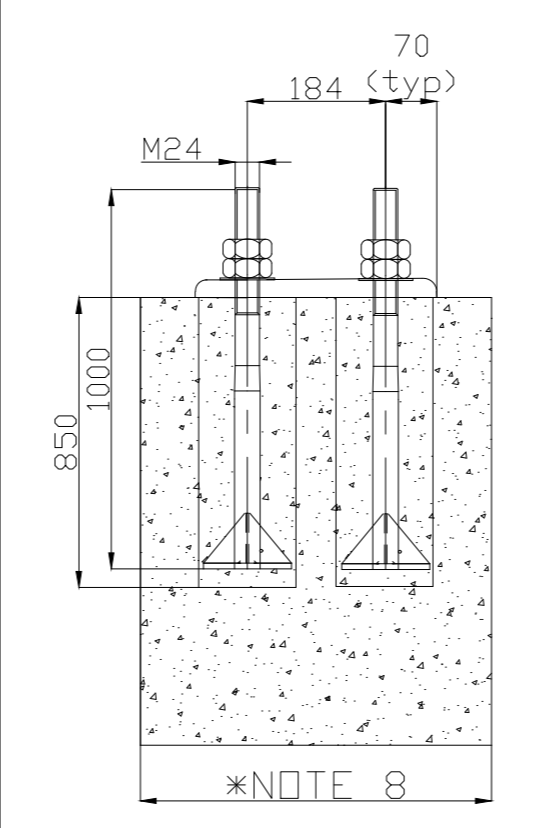
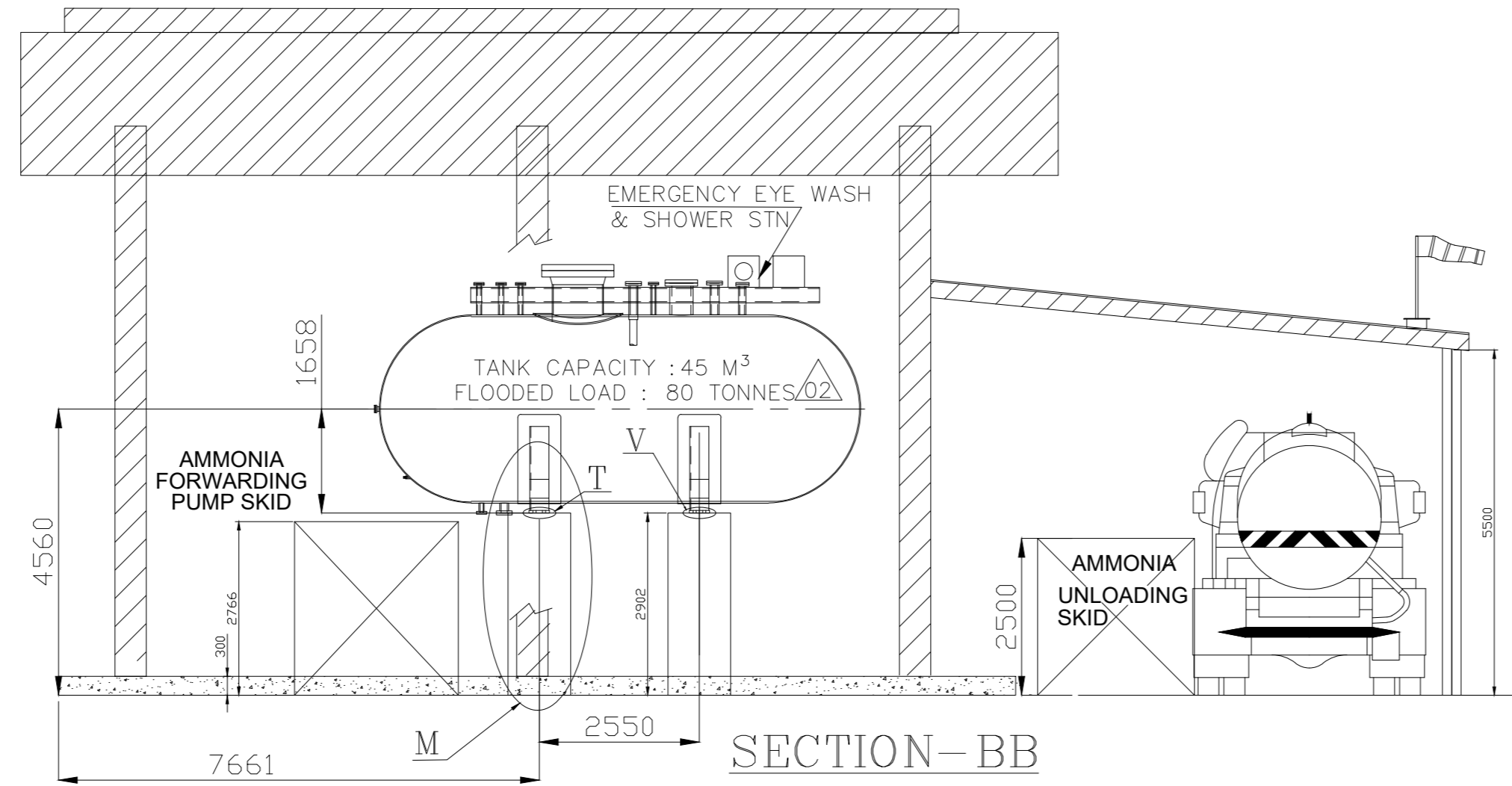
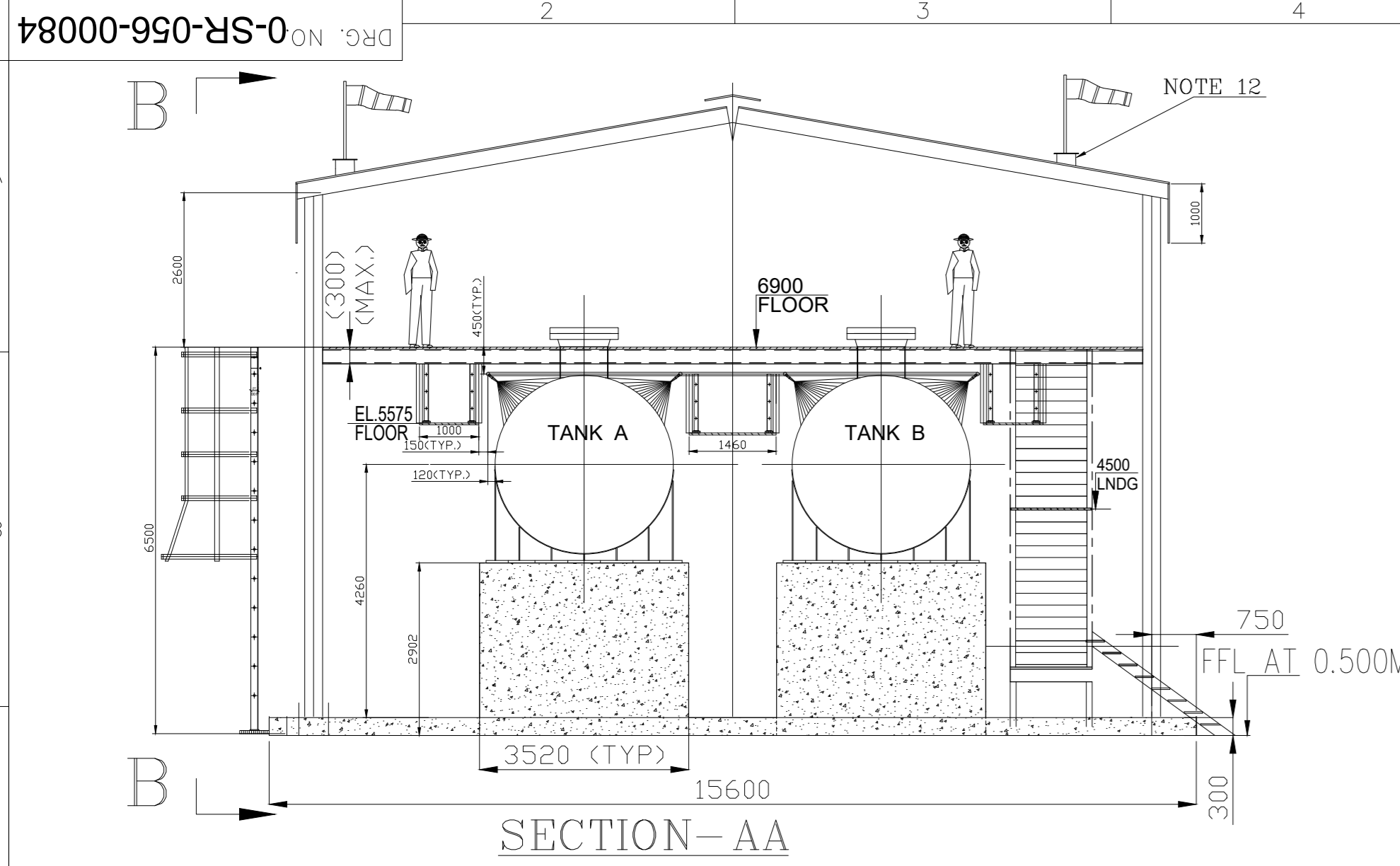
GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



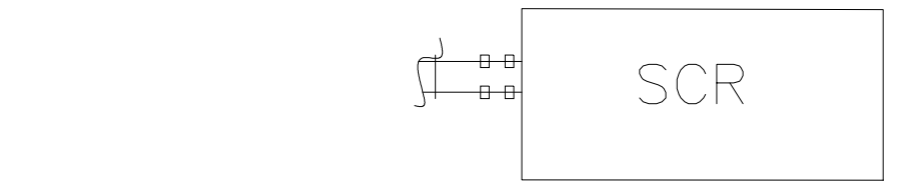
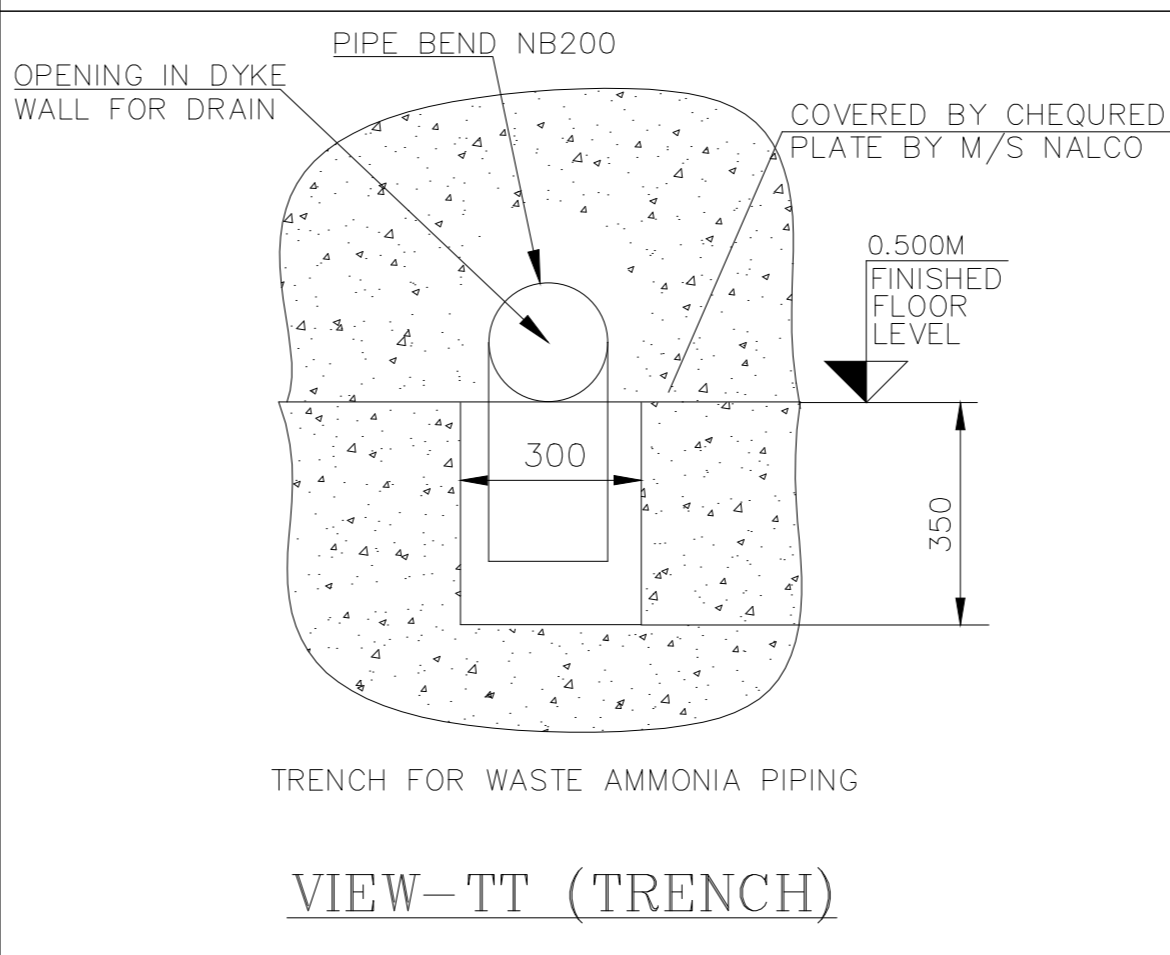
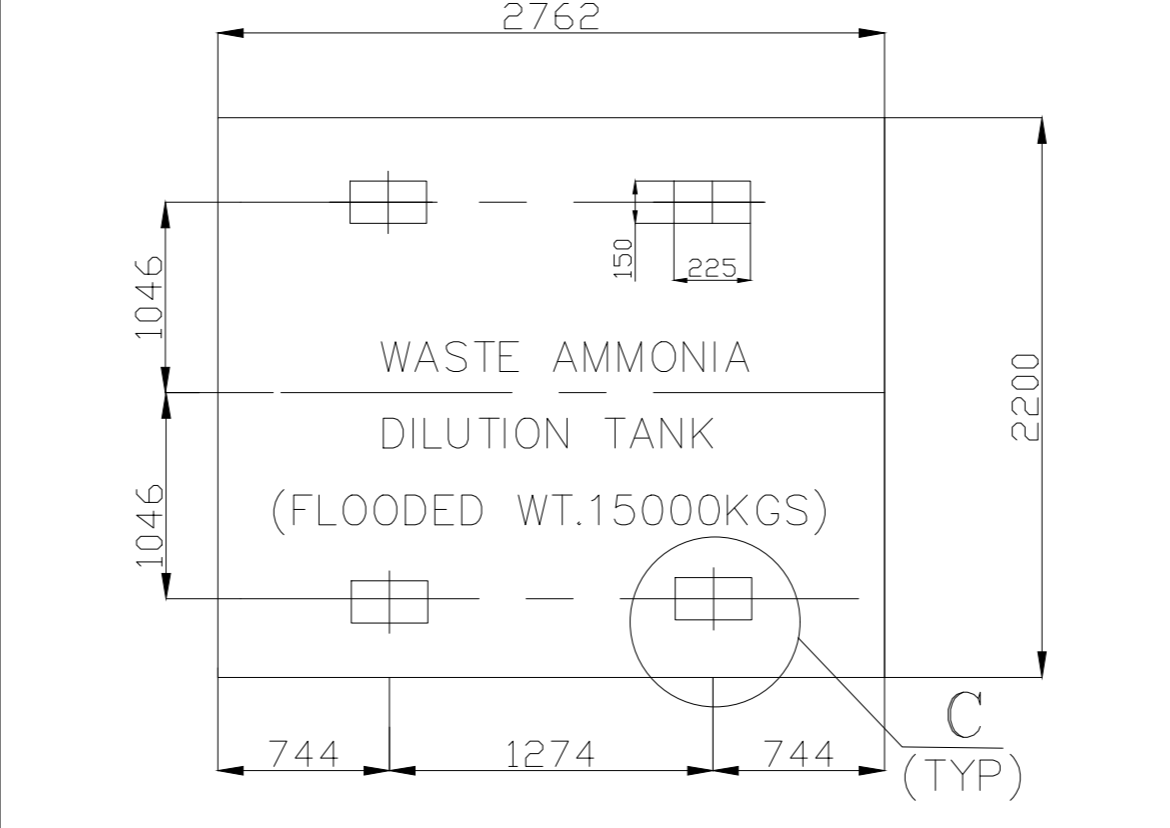
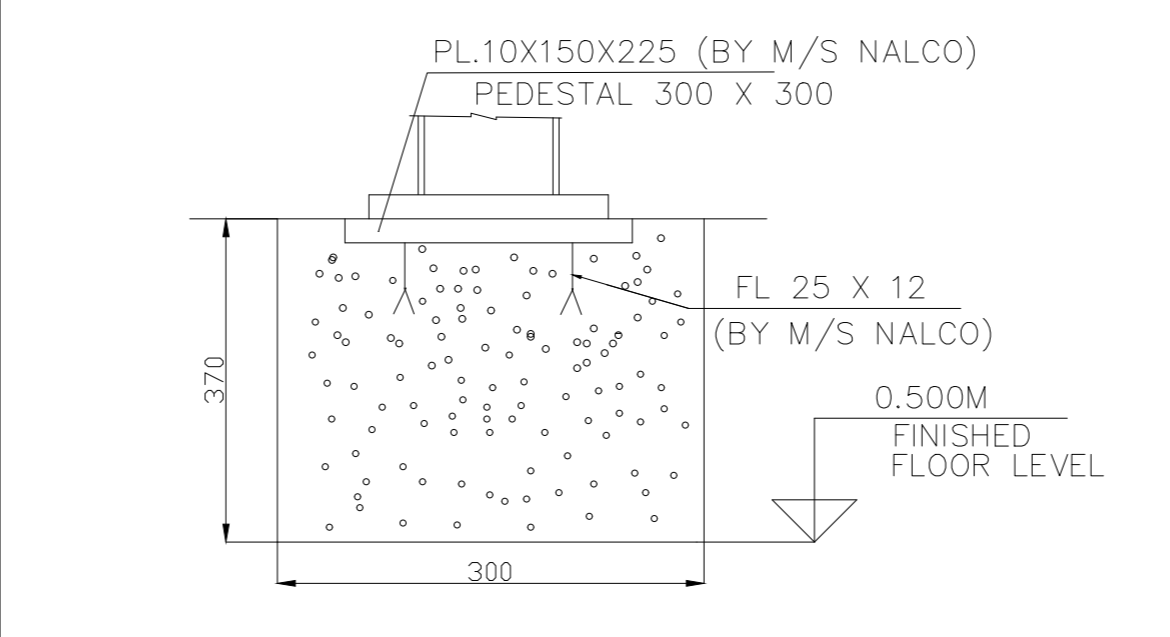
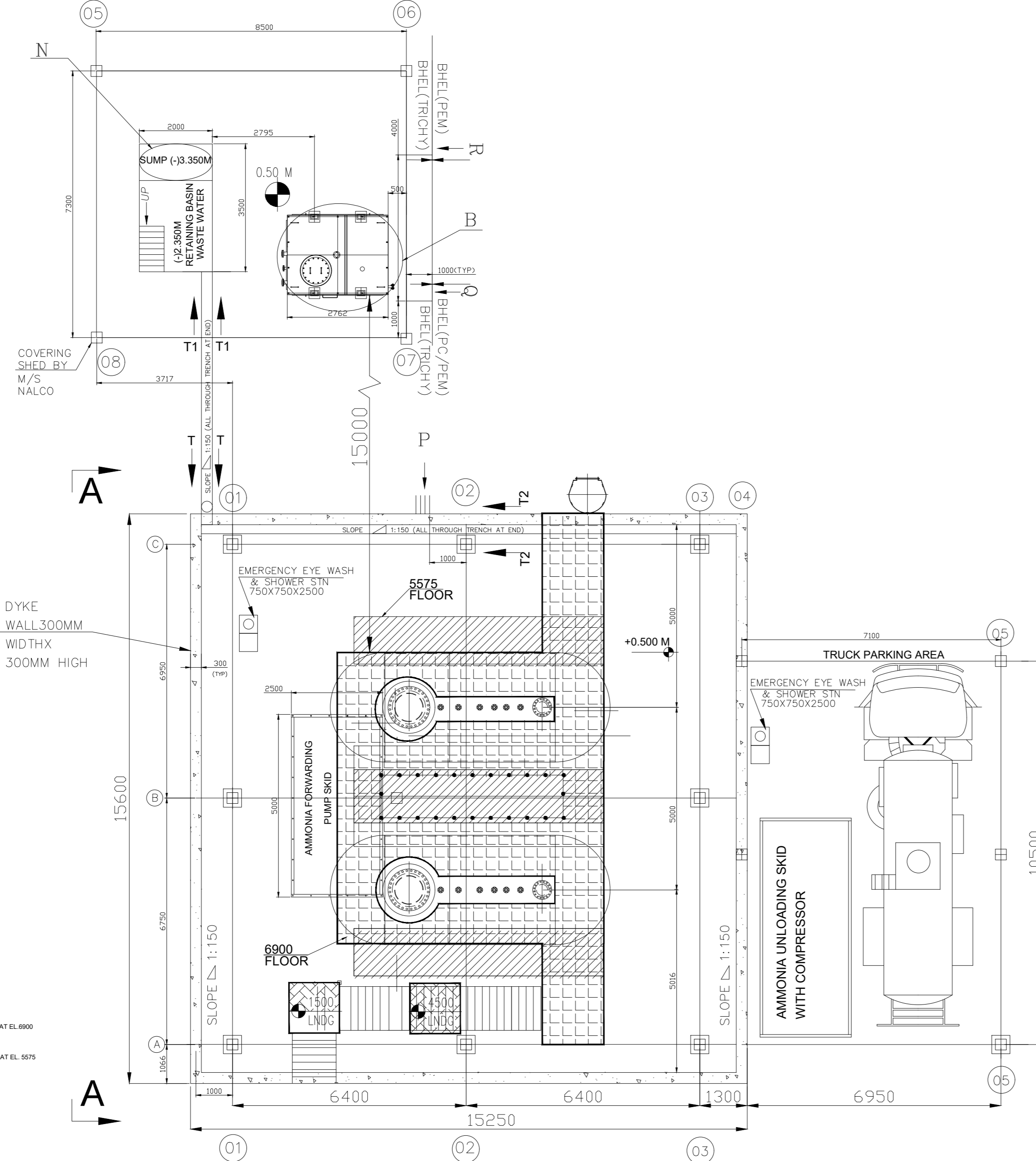
- NOTES:
1. SLOPE PIPE 10MM PER METER TO LOW POINT DRAINS (TYPICALLY)
 2. NOT USED.
 3. WATER FLOW QUANTITY AND PRESSURE ARE INDICATIVE ONLY.
 4. ALL INSTRUMENT TAG NOS IS PREFIXED WITH 06-05
 5. ALL VALVE & MAIN EQUIPMENT TAG NOS IS PREFIXED WITH 06

F = 10000 KG/HR
T = 35°C
P = 6 KG/CM2

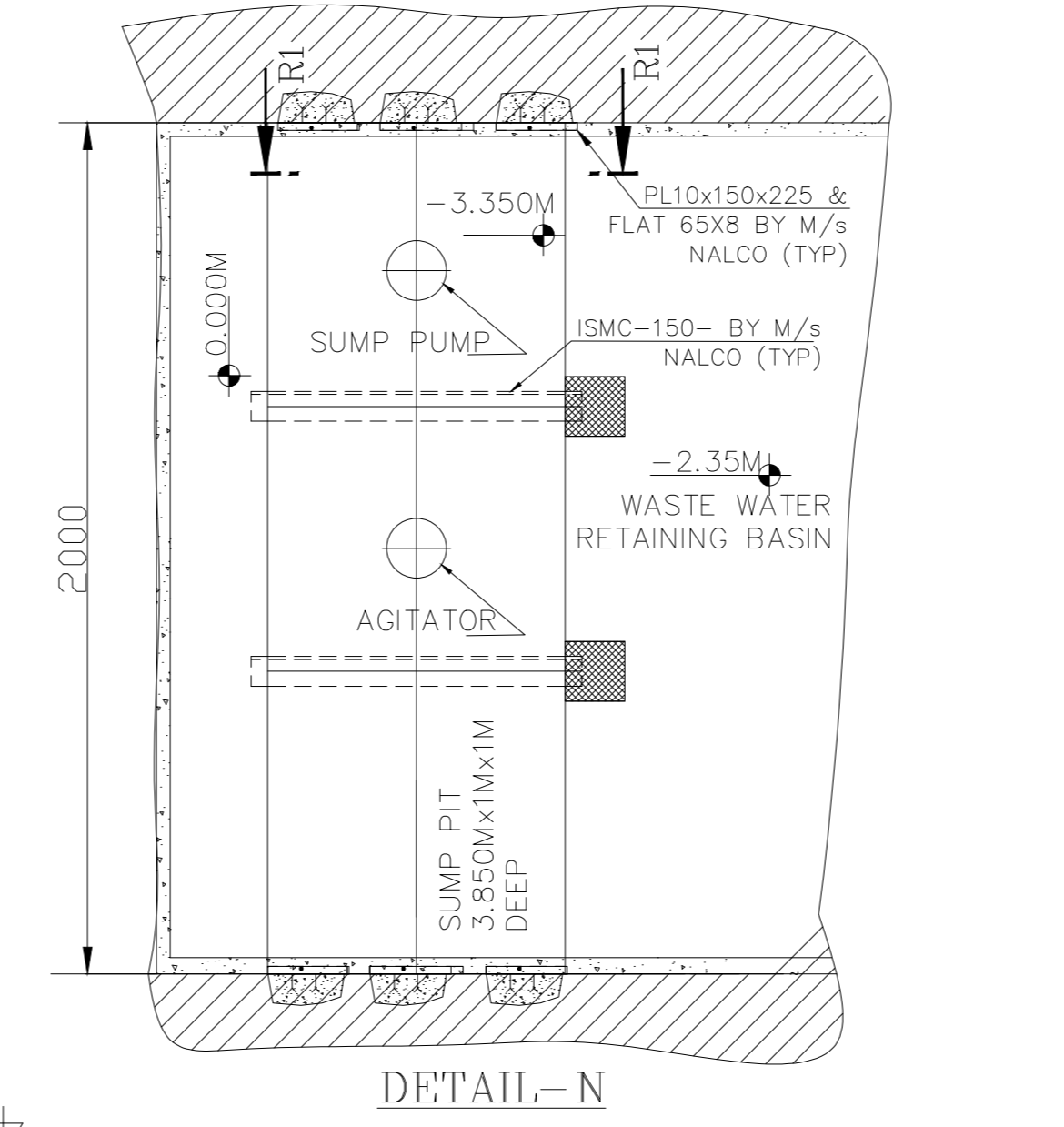
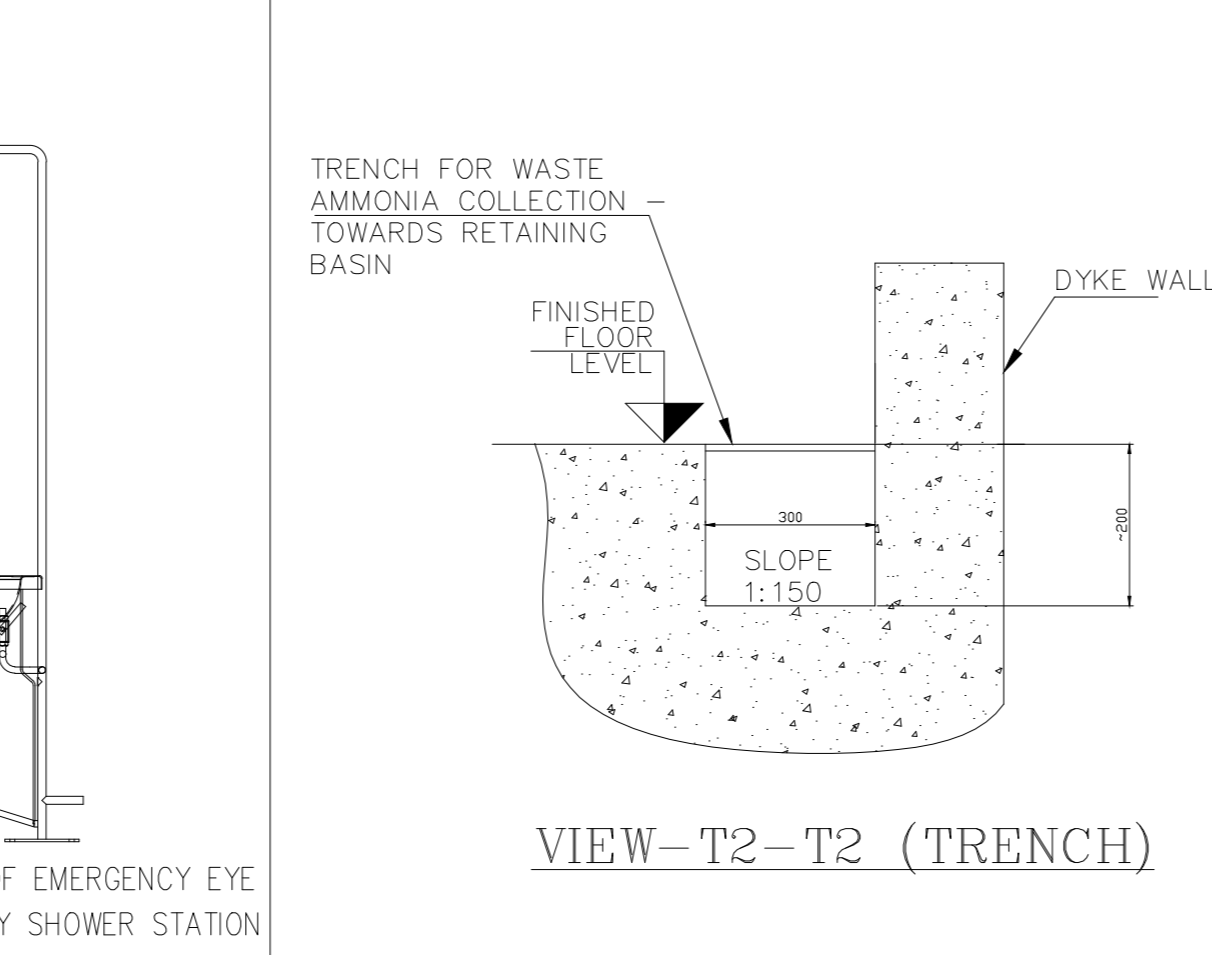
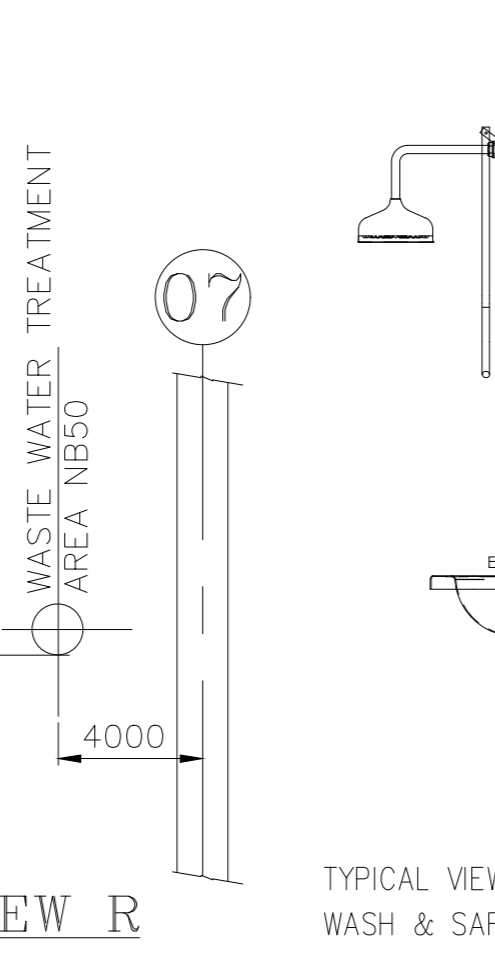
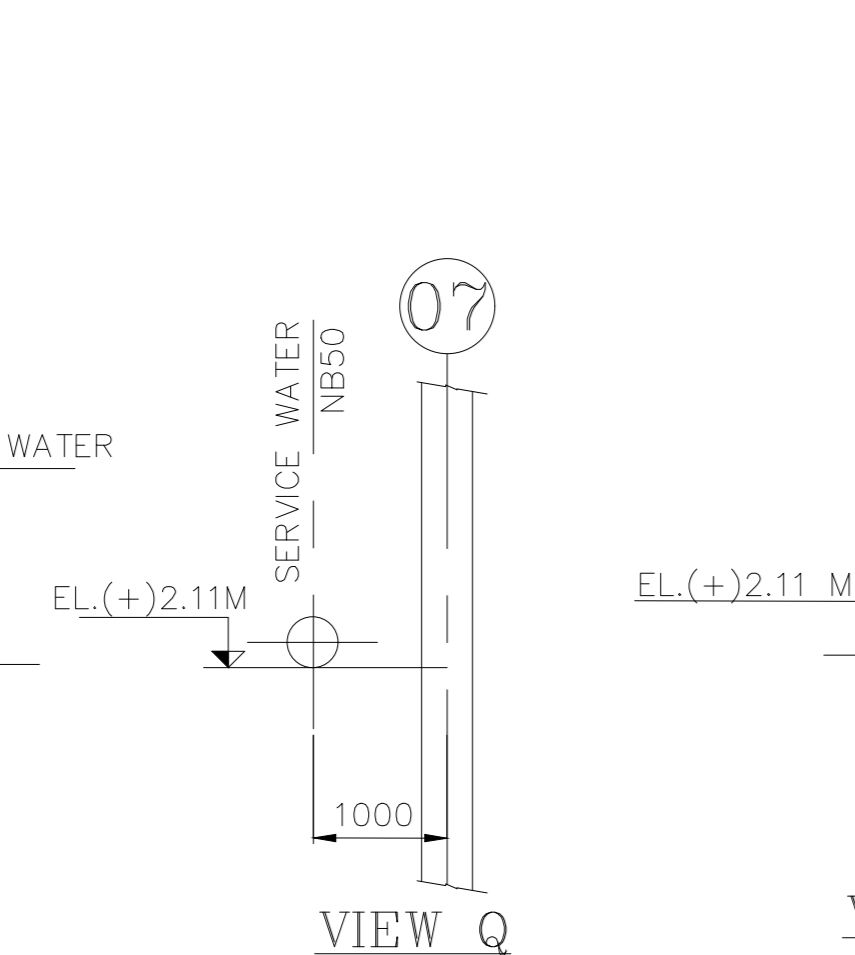
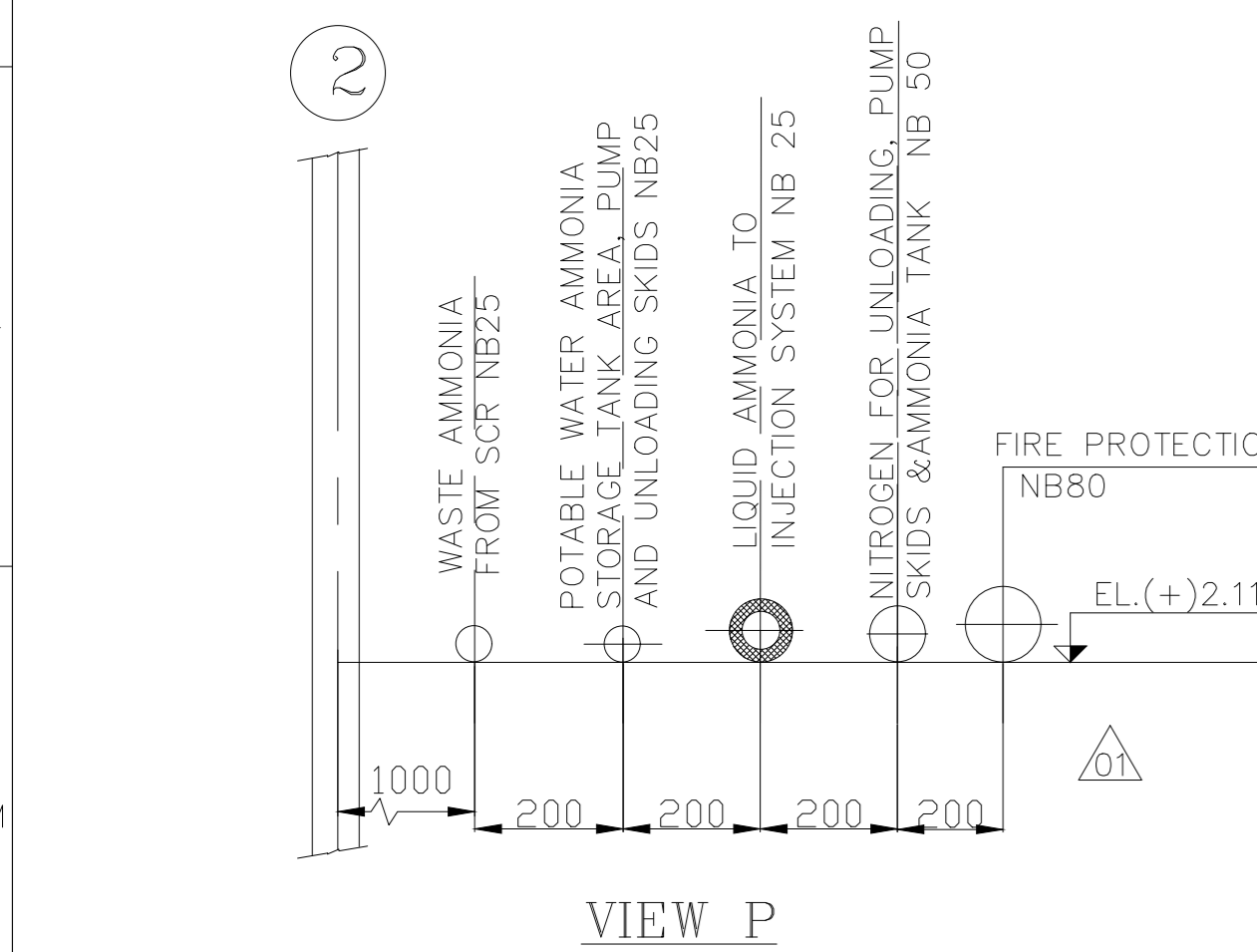
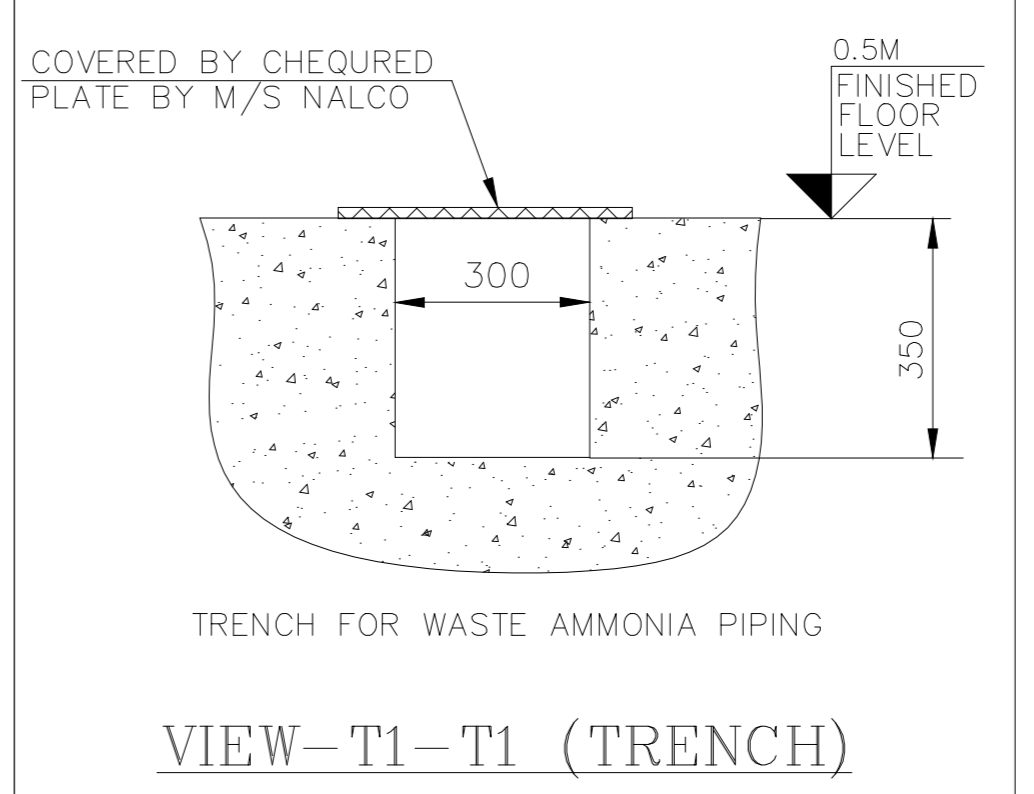
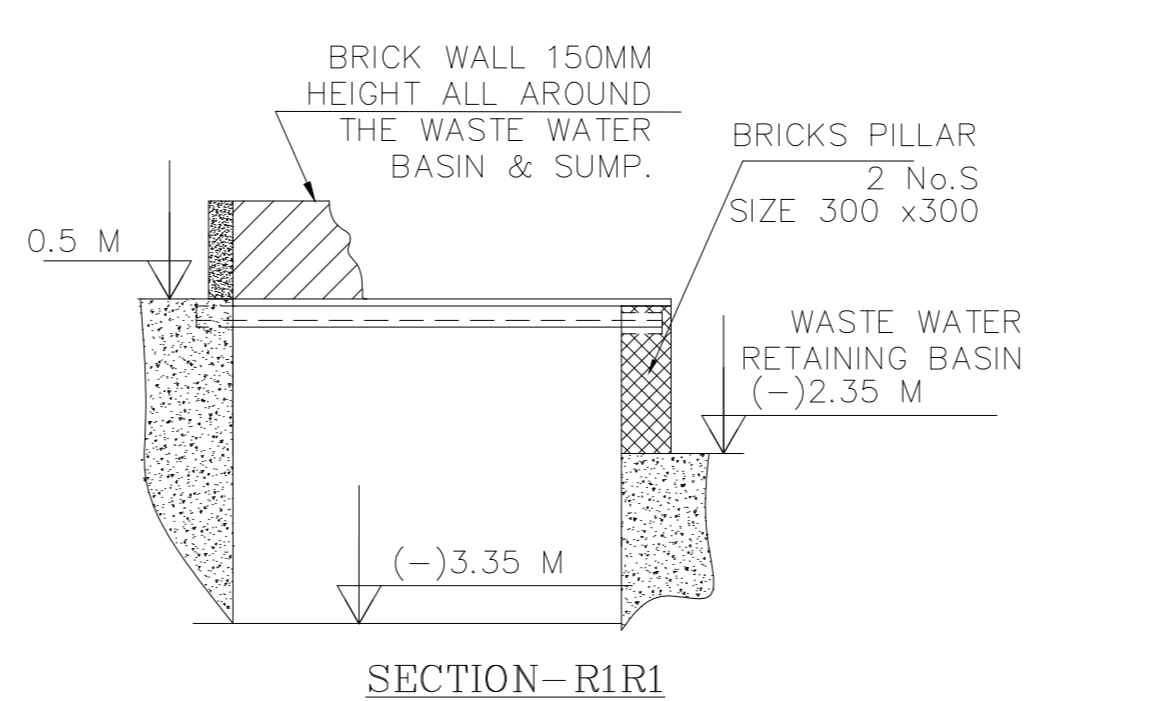
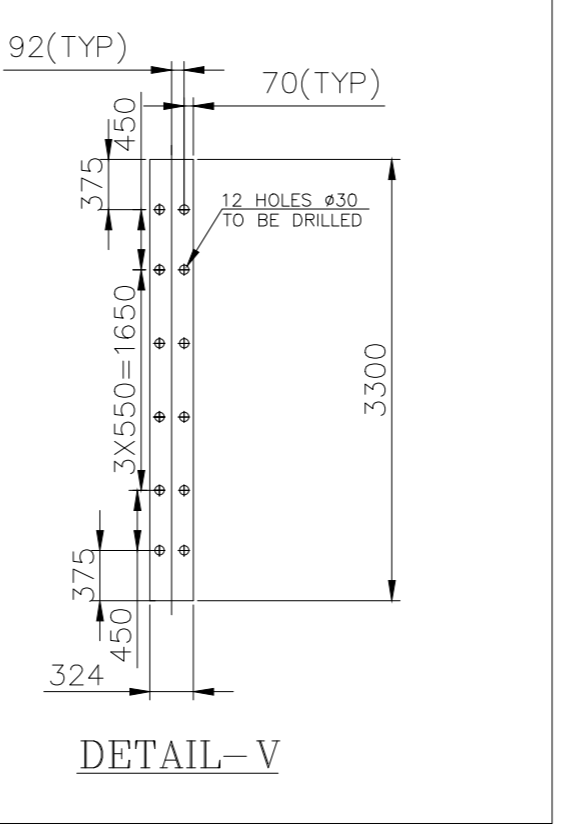
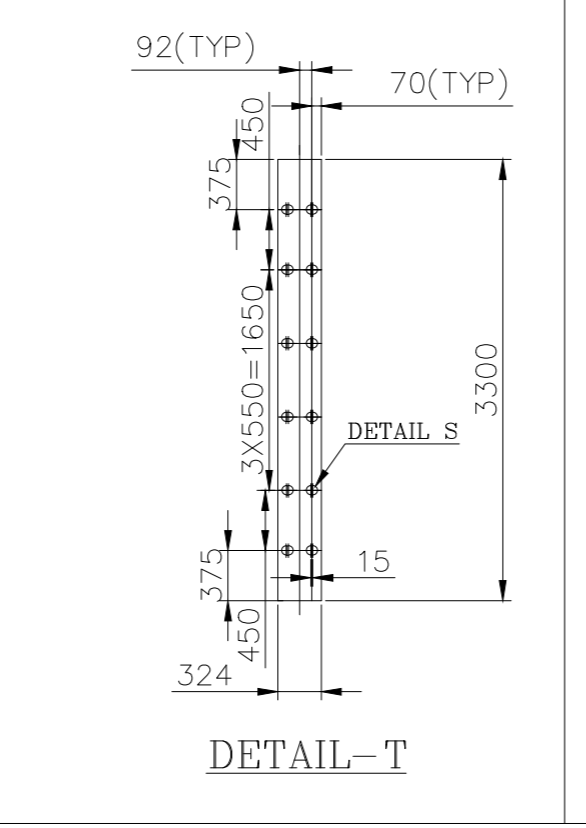
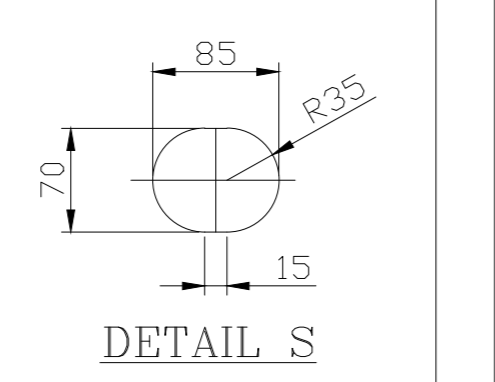
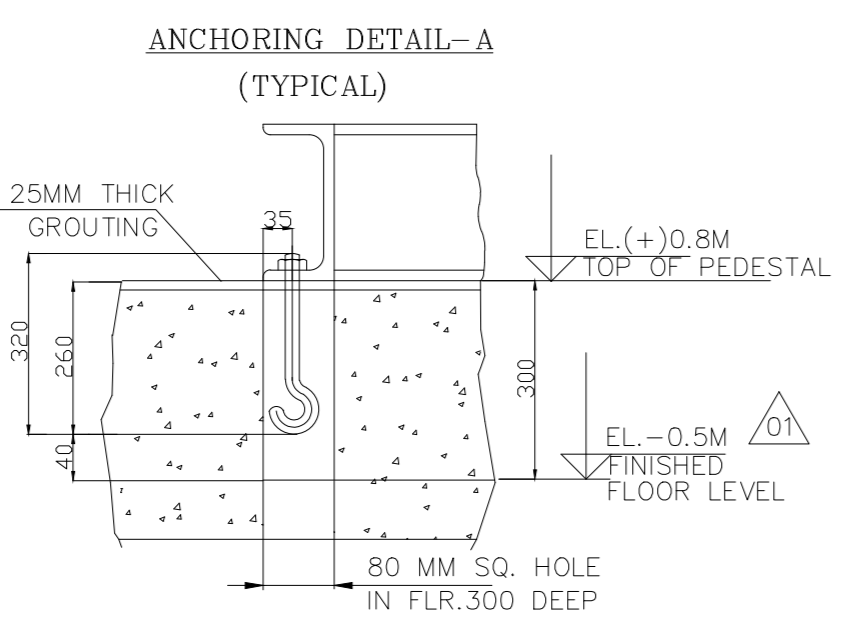
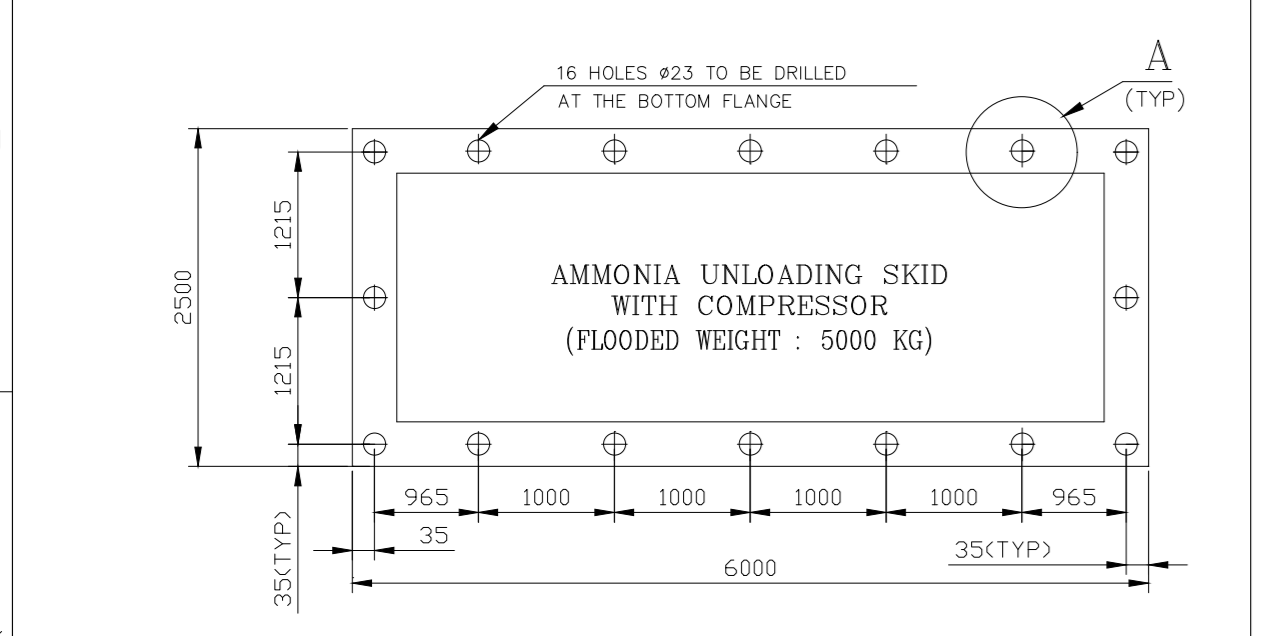
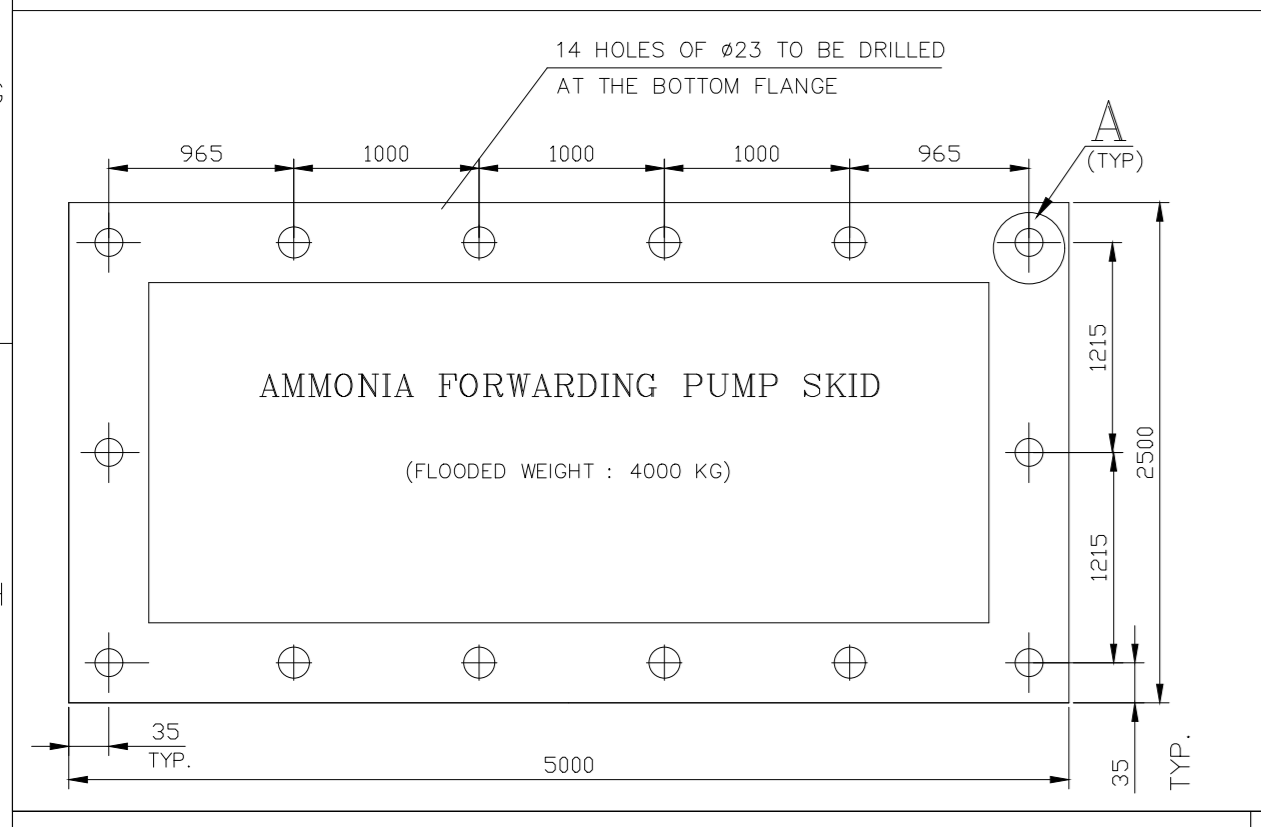
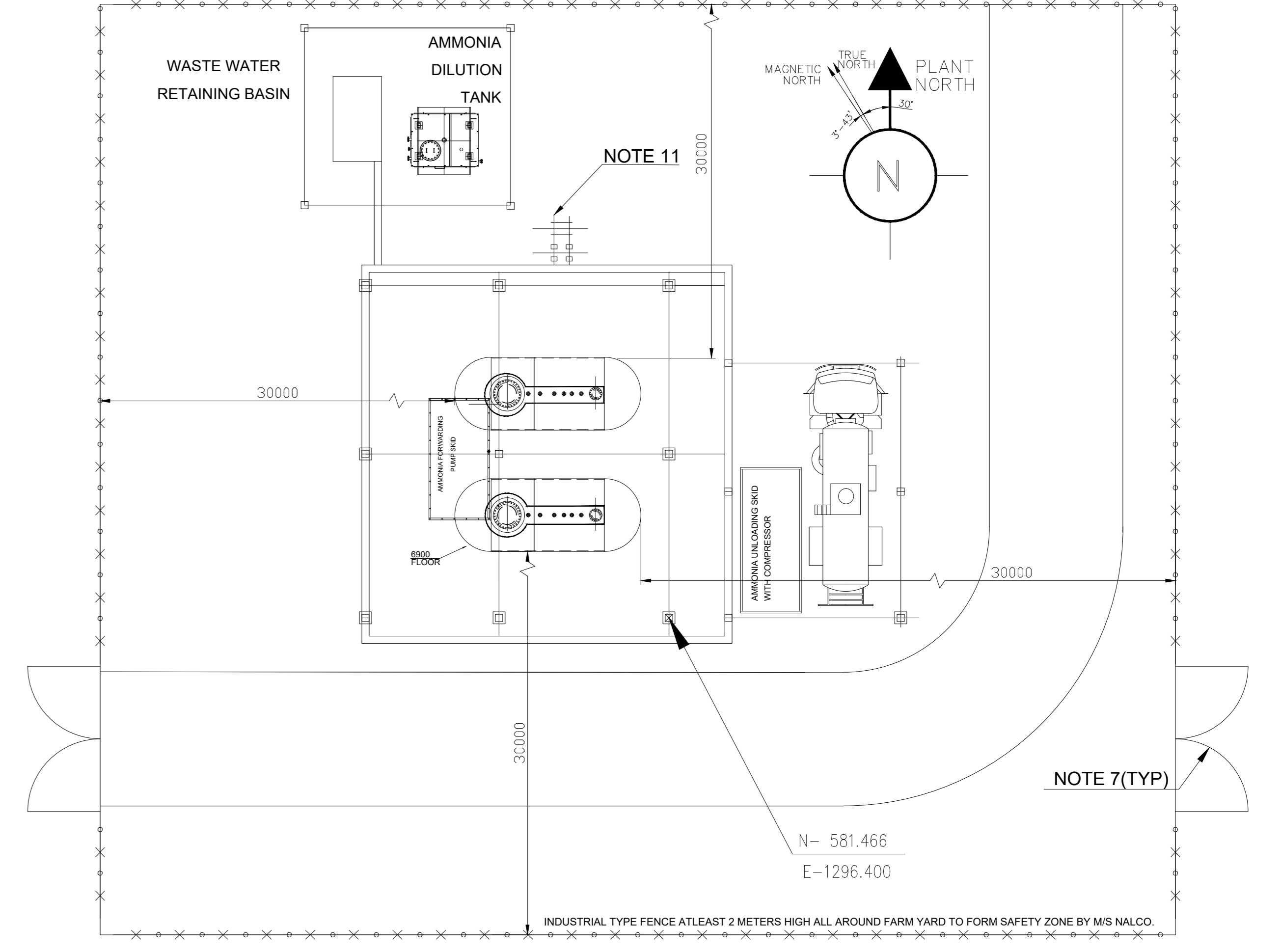
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CONSULTANT	DASTUR M. N. DASTUR & COMPANY (P) LTD CONSULTING ENGINEERS, KOLKATA		
PROJECT	INSTALLATION OF STEAM AND POWER PLANT FOR 5th STREAM ALUMINA REFINERY EXPANSION AT DAMANJODI, ODISHA UNDER PHASE-3 EXPANSION OF M&R COMPLEX		
DRAWN BY	NAME	SIGN	DATE
	CHD. PREETAM KUMAR	[Signature]	17/02/2021
APPROVED BY	NAME	SIGN	DATE
	M. CH. S. GANGADHAR	[Signature]	17/02/2021
DEPT. CODE	129	SCALE	1:1
TITLE	P&ID OF AMMONIA AREA SPRAY SYSTEM		
CARD CODE	N.A.	BHEL DRG NO.	0-SR-056-00073
SHT. No	1	REV. NO.	02



- NOTE:-
1. ALL ELEVATIONS IN AMMONIA FARM YARD ARE WITH RESPECT TO FINISHED FLOOR LEVEL EL. (+)0.5M & FGL OF (+)894 M.
 2. PLOT PLAN REF DRAWING PY-LQ-0-M166-2001-01
 3. REFERENCE DRAWING:-0-SR-056-00073 :P&ID OF SCR SYSTEM-KEY DIAGRAM
 4. COLUMNS FOUNDATION LOAD DETAILS ARE FURNISHED IN BHEL TRICHY DRAWING "AMMONIA STORAGE SHED STRUCTURE FOUNDATION PLAN".
 5. M/S NALCO/CIVIL TO TAKE CARE THE CIVIL FOUNDATION DESIGN & EXECUTION.
 6. NECESSARY APPROVAL OF AMMONIA TANK FARM SHALL BE ARRANGED BY RESPECTIVE BHEL POWER SECTOR REGIONS.
 7. 6M WIDE GATE OPENING OUTWARD AND SHALL NOT BE SELF LOCKING.
 8. * CUSTOMER M/S NALCO ENGINEERING TO FURNISH THE DIMENSIONS.
 9. SLOPE OF 1:150 TO BE MAINTAINED IN FFL FROM PUMPING SKID TOWARDS WASTE WATER RETAINING BASIN.
 10. EXACT LOCATION AND POSITION OF AMMONIA DETECTORS AND EMERGENCY EYE WASH STATION WILL SUITABLY DECIDED DURING ERECTION.
 11. PIPE RACK ROUTING BETWEEN AMMONIA STORAGE TANK FARM YARD TO SCR BY BHEL/PC/CHENNAI.
 12. FINAL LOCATION OF WIND INDICATOR TO BE DECIDED DURING ERECTION.



KEY PLAN

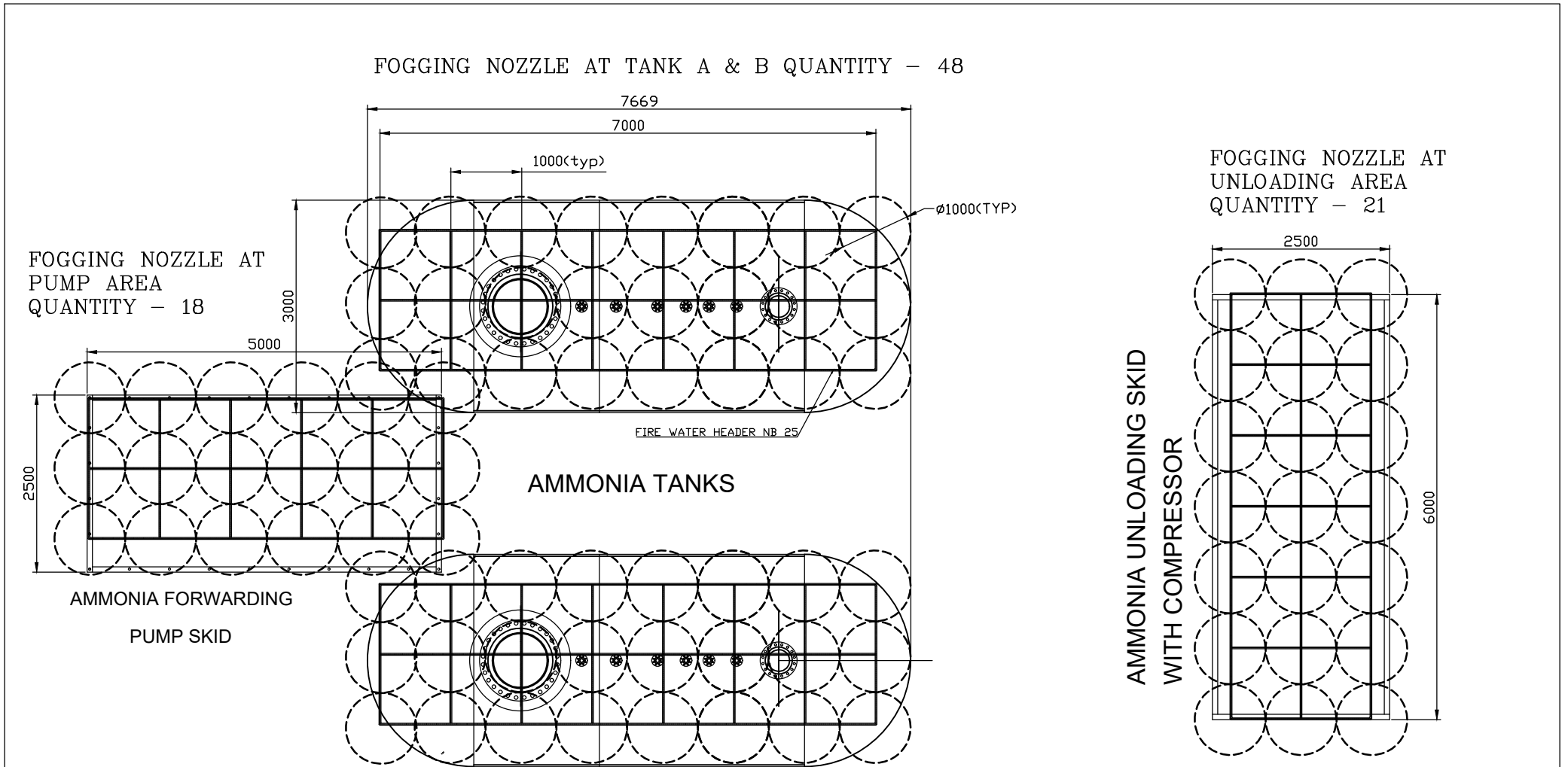


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REV. DATE	ALTERED PREETAM KUMAR S	DEPT. DES. OR. CODE	129
ZONE	CHD/APPD GANGADHAR	SCALE	1:100
REV. DATE	ALTERED PREETAM KUMAR S	SCALE	1:100
ZONE	CHD/APPD GANGADHAR	SCALE	1:100
TITLE	FOUNDATION AND TP DETAILS OF AMMONIA STORAGE FARM YARD		
CARD CODE	0-SR-056-00084	REV. NO.	02
SHT. NO. X		NO. OF SHT. X	

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ANNEXURE – F

NALCO SCR – TOTAL FOGGING NOZZLE QUANTITY – 87 NOS



NOTES:

1. This drawing is for vendor reference to arrive at fogging nozzle quantity as per nozzle coverage to be selected by vendor. Final fogging nozzle quantity for leak suppression at Ammonia Tank, Unloading system and forwarding system to be arrived by vendor only.
2. Header location and nozzle orientation and cone angle selection are in vendor scope as per the limits furnished in specification.

Technical Pre-Qualification Requirement (PQR) for

Spray Nozzle

1. The vendor shall be an established **spray nozzle** supplier and having adequate Engineering, Manufacturing, testing and servicing facilities and shall furnish technical backup documents in proof for above requirements.
2. The vendor shall have experience of having supplied **spray nozzle** as per the technical specification for SCR/Process plants or application of similar severity. Supply reference list with details of PO, PO date, customer name for Capacity.
3. The **spray nozzle** offered shall be from the existing regular supply range of the vendor. Vendor shall provide the product catalogue.
4. Proven track record is required. Minimum One end user certificate for the satisfactory operational performance of their product supplied.
(or)
Successfully executed two POs for same item, meeting the subject technical specification requirement mentioned in the enquiry.
5. In case of ordering, the Vendor shall have the responsibility for the following and same to be confirmed point wise.
 - i) Vendor should have the replacement responsibility in case of defect / failure.
 - ii) Experts from Vendor's side shall associate in commissioning activities at site, if required.
 - iii) Vendor should ensure the product performance during erection & commissioning and ensure performance guarantee.
6. Backup document checklist to meet PQR:

S. No	Document description	Check list
1	Documents to meet clause(1)	<input type="checkbox"/>
2	Supply reference document (General reference list) to meet clause (2)	<input type="checkbox"/>
3	Product Catalogues to meet clause (3)	<input type="checkbox"/>
4	Min. one end user certificate (or) Two POs to meet clause (4)	<input type="checkbox"/>
5	Confirmation to clause meet clause (5)	<input type="checkbox"/>

Technical Pre-Qualification Requirement (PQR) for

Fogging Nozzle

1. The vendor shall be an established **fogging nozzle** supplier and having adequate Engineering, Manufacturing, testing and servicing facilities and shall furnish technical backup documents in proof for above requirements.
2. The vendor shall have experience of having supplied **fogging nozzle** as per the technical specification for SCR/Process plants or application of similar severity. Supply reference list with details of PO, PO date, customer name for Capacity.
3. The **fogging nozzle** offered shall be from the existing regular supply range of the vendor. Vendor shall provide the product catalogue.
4. Proven track record is required. Minimum One end user certificate for the satisfactory operational performance of their product's supplied.
(or)
successfully executed two POs for same item, meeting the subject technical specification requirement mentioned in the enquiry.
5. In case of ordering, the Vendor shall have the responsibility for the following and same to be confirmed point wise.
 - i) Vendor should have the replacement responsibility in case of defect / failure.
 - ii) Experts from Vendor's side shall associate in commissioning activities at site, if required.
 - iii) Vendor should ensure the product performance during erection & commissioning and ensure performance guarantee.
6. Backup document checklist to meet PQR:

S. No	Document description	Check list
1	Documents to meet clause(1)	<input type="checkbox"/>
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5	Confirmation to clause meet clause (5)	<input type="checkbox"/>