



**HOOGHLY COCHIN SHIPYARD
LIMITED**



(A WHOLLY-OWNED SUBSIDIARY OF COCHIN SHIPYARD LTD)

**FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK
AT PANDU, GUWAHATI**

PACKAGE II: TENDER FOR FIRE FIGHTING SYSTEM WORKS

FOR

FIRE FIGHTING SYSTEM WORKS

**TENDER NO: HCSL/PANDU/TEN/2026/009
Dt. 09.01.2026**

Hooghly Cochin
Shipyard Ltd
(HCSL), Satyen
Bose Road P.O-
Danesh Shaikh
Lane, Nazirgunge,
Howrah, West
Bengal-711109,
India

Due Date of Submission: 15.30 Hrs. on 29.01.2026

Date & Time of Opening: 16.00 Hrs. on 29.01.2026





I N D E X

Notice Inviting Tender				
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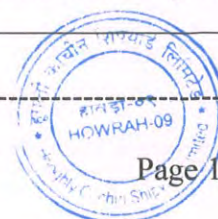
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NOTICE INVITING TENDER

TENDER NOTICE NO: HCSL/PANDU/TEN/2026/009 dated 09.01.2026		
Sealed competitive tenders are invited from resourceful, experienced and bonafide contractors with sound technical and financial capabilities for the scope of work given below. Tenders are to reach the undersigned on or before the date and time mentioned below. Please refer scope of supply/Technical specification, General Terms and conditions and special terms attached.		
Tender Document no:		HCSL/PANDU/TEN/2026/009 dated 09.01.2026
Sealed tenders in the prescribed form are invited for the following work:		
1	Name of the work:	FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI
2	Employer:	HOOGHLY COCHIN SHIPYARD LTD
3	Design Consultants:	National Technology Centre for Ports, Waterways and Coasts, IIT Madras (NTCPWC - IITM).
4	Completion time:	3 Months from the Start Date specified in the Letter of Acceptance.
5	Tender Security (Earnest money deposit):	Rs 1,00,000 (Rupees One lakh only)
6	Cost of Tender Document:	NIL
7	Tender Documents will be available from:	09.01.2026
	Last date for written queries	19.01.2026, upto 3.00 PM
9	Pre-bid meeting	On 19.01.2026
10	Last date and time for submission of Tender Document	29.01.2026 up to 3:30PM
11	Time and venue for opening of tenders:	29.01.2026 at 4.00PM, Hooghly Cochin Shipyard Ltd, Nazirgunge, Satyen Bose Road, PO: Danesh Seikh Lane, Howrah, West Bengal-711109.
12	Delays in submission of tenders:	The Employer will not be responsible for any delay, loss or non-receipt of Tender Documents or tenders during transit by courier or mail.



13	Employers' rights:	The Employer reserve the right to issue / refuse Tender Documents and to accept / reject any or all tenders either in part or full or to split and award the work to more than one agency without assigning any reasons thereof and without any liability to the Employer / Design Consultants.
	Address for requisition and submission of tender document	Hooghly Cochin Shipyard Ltd, Nazirgunge, Satyen Bose Road, PO: Danesh Seikh Lane, Howrah, West Bengal-711109

Tender reference should be clearly indicated on top of the respective envelopes.

Sealed tenders addressed to the Chief Executive Officer, Hooghly Cochin Shipyard Ltd, shall be dropped in the "Hooghly CSL Tender box" located at Hooghly CSL-Nazirgunge Unit at Danesh Sk. Lane, Nazirgunge, Howrah -711109 or courier to Hooghly CSL, Nazirgunge at Danesh Sk. Lane, Nazirgunge, Howrah -711109, West Bengal by the due date and time and the bids should be submitted in **hardcopy**.

Tenders should be submitted in a two separate sealed covers/files as PART – I "TECHNO-COMMERCIAL" & PART – II "PRICE" BID indicating the tender number, due date of the tender and subject as in-line with the scope of work.

Tender documents received after the due date & time will not be considered.

Signature and Seal of the Contractor(s)

Chief Executive Officer
For Hooghly Cochin Shipyard Ltd

श्रीजित के नारायणन
SREEJITH K. NARAYANAN
मुख्य कार्यकारी अधिकारी
Chief Executive Officer
होगली कोचीन शिपयार्ड लिमिटेड
Hooghly Cochin Shipyard Limited
हावड़ा/Howrah-711 109



INVITATION TO TENDER

The present tender is for Fire Fighting System works for Ship Repair Facility at Guwahati. The components of work are listed in the Preamble to Bill of Quantities.

The attached Tender Notice gives details of certain salient points in regard to this tender. Additional details in the form of Instructions to Tenderers are given below.

1. General

1.1 One Tender per Tenderer

Each tenderer shall submit only one tender for one package. A tenderer who submits or participates in more than one Tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Tenderer's participation to be disqualified.

1.2 Cost of Tendering

The tenderer shall bear all costs associated with the preparation and submission of his Tender, and the Employer will in no case be responsible and liable for those costs.

1.3 Site Visit

The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expense.

2. Tendering Documents

2.1 Content of Tender Document:

The set of tender documents comprises the documents listed in the table below and addenda issued in accordance with Clause-2.4:

- Tender Notice
- Invitation to Tender, including Instructions to Tenderers
- Forms of Tender and Qualification Information
- Forms of Securities
- General Conditions of Contract
- Special Conditions of Contract
- Contract Data
- Technical Specifications
- Preamble to Bill of Quantities
- Bill of Quantities
- Drawings, termed as Tender Drawings, where enclosed to the Tender Document, or otherwise available with the Employer for perusal by the tenderers.

2.2 The tender document shall be filled in and returned with the Tender (Clause-3.2).

2.3 Clarification of Tender Documents

a) A prospective tenderer requiring any clarification of the tender documents may notify the employer in writing at the Employer's address indicated in the Invitation to Tender.



- b) The Employer will respond to any request for clarification that he receives earlier than five days prior to the deadline for submission of tenders.
- c) Copies of the employer's response will be forwarded to all purchasers of the tender documents, including a description of the enquiry but without identifying its source.

2.4 Amendment of Tender Documents

- a) Before the deadline for submission of tenders, the Employer may modify the tender documents by issuing addenda.
- b) Any addendum thus issued shall be part of the tender document and shall be communicated in writing to all the purchasers of the tender documents. Prospective tenderers shall acknowledge, in writing, the receipt of each addendum.
- c) To give prospective tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend as necessary the deadline for submission of tenders.

3. Preparation of Tenders

3.1 Language of the Tender:

All documents relating to the tender shall be in the English language.

3.2 Documents comprising the Tender: The tender submitted by the tenderer shall comprise the following:

- a) The Tender Document (as described in Clause-2.1), along with the covering letter of the tenderer, as per Format for Tender, on tenderer's letterhead.
- b) Tender Security
- c) Priced Bill of Quantities
- d) Qualification Information Forms and Documents;
- e) And any other material required be completing and submitting by tenderers in accordance with these instructions.

The documents listed under Forms of Tender and Qualification Information, Forms of Securities and the Bill of Quantities shall be filled in without exception.

4. Tender Prices

- 4.1 The contract shall be for the whole works, based on the priced Bill of Quantities submitted by the Tenderer.
- 4.2 The tenderer shall fill in rates and prices and line-item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total tender price (both in figures and words).
- 4.3 Items for which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. Corrections, if any shall be made by crossing out, initialing, dating and rewriting.
- 4.4 All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer.
- 4.5 The rates and prices quoted by the tenderer shall be fixed for the duration of Contract and shall not be subject to adjustment on any account.





5. Currencies of Tender and Payment

- 5.1 The unit rates and the prices shall be quoted by the tenderer entirely in Indian Rupees.

6. Tender Validity

- 6.1 Tenders shall remain valid for a period not less than ninety days after the deadline date for tender submission specified in Clause-11. A tender valid for a shorter period may be rejected by the Employer as non-responsive.
- 6.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the tenderers may extend the period of validity for a specified additional period. The request and the tenderers' responses shall be made in writing. A tenderer may refuse the request without forfeiting his tender security.
- 6.3 A tenderer agreeing to the request will not be required or permitted to modify his tender except that he will be required to extend the validity of his tender security for the period of the extension, and in compliance with Clause-7 in all respects.

7. Tender Security

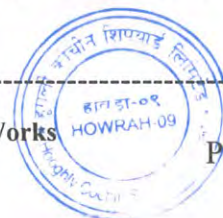
- 7.1 The Tenderer shall furnish, as part of his Tender, a Tender security, termed as Earnest Money Deposit (EMD), in favour of Hooghly Cochin Shipyard Ltd, in the amount as indicated in the Tender Notice. This tender security shall be in the form of RTGS or Bank Guarantee from any Nationalized Bank in India
- 7.2 Bank guarantees (and other instruments having fixed validity) issued as surety for the tender shall be valid for 45 days beyond the validity of the tender.
- 7.3 Any tender not accompanied by an acceptable Tender Security and not secured as indicated at Clause-7.1 and 7.2 above shall be rejected by the Employer as non-responsive.
- 7.4 The Tender Security of unsuccessful tenderers will be returned within 28 days of the end of tender validity period specified at Clause-6.1.
- 7.5 The Tender Security of the successful tenderer will be discharged when the tenderer has signed the agreement and furnished the required Performance Security.
- 7.6 The Tender Security may be forfeited.
- a) If the Tenderer withdraws the Tender after Tender opening during the period of Tender validity;
- b) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to sign the Agreement or furnish the required Performance Security.

8. Alternative Proposals by Tenderers

- 8.1 Tenderers shall submit offers that comply with the requirements of the tender documents, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered.

9. Format and Signing of Tender

- 9.1 The Tenderer shall prepare the set of documents comprising the tender as described in Clause-3 of these Instructions to Tenderers, bound with the volume containing the Form of Tender.



- 9.2 The Tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer.
- 9.3 All pages of the tender where entries or amendments have been made shall be initialed by the person or persons signing the tender.
- 9.4 The Tender shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

10. **Submission of Tenders**

10.1 **Sealing and Marking of Tenders**

- a) The Tenderer shall seal the Tender (Clause-3.2) in an envelope, which shall:

• be addressed to the Employer at the following address:	Hooghly Cochin Shipyard Ltd, Nazirgunge, Satyen Bose Road, PO: Danesh Seikh Lane, Howrah, West Bengal-711109.
• bear the following identification:	Tender No/ /2026
• bear the identity of the tenderer:	Full name and mailing address of the tenderer.

- b) Where the tender is declared late, pursuant to Clause-11.4, it may be returned unopened to the tenderer, using the identity cited above.
- c) If the envelope is not sealed and marked as above, the employer will assume no responsibility for the misplacement or premature opening of the tender.

11. **Deadline for Submission of the Tenders**

- 11.1 Tenders must be received by the Employer at the address specified above not later than the date and time indicated in the Tender Notice.
- 11.2 In the event of the specified date for the submission of tenders being declared a holiday for the Employer, the Tenders will be received upto the appointed time on the next working day.
- 11.3 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Clause-2.4, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will then be subject to the new deadline.

11.4 **Late Tenders**

- a) Any Tender received by the Employer after the deadline prescribed in Clause-11 will be returned unopened to the tenderer.

12. **Modification and withdrawal of Tenders**

- 12.1 Tenderers may modify or withdraw their tenders by giving notice in writing before the deadline prescribed in Clause-11.
- 12.2 Each Tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause-9 and 10, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.

- 12.3 No tender may be modified after the deadline for submission of Tenders.
- 12.4 Withdrawal or modification of a Tender between the deadline for submission of tenders and the expiration of the original period of tender validity specified in Clause-6.1 above or as extended pursuant to Clause-6.2 may result in the forfeiture of the Tender security pursuant to Clause-7.
- 12.5 Tenderers may only offer discounts to, or otherwise modify the prices of their Tenders, by submitting Tender modifications in accordance with this Clause, or included in the original Tender submission.

13. Tender Opening and Evaluation

13.1 Tender Opening

- a) The Employer may or may not opt to open all the Tenders received (except those received late), including modifications made pursuant to Clause-12, in the presence of the Tenderers or their representatives who choose to attend at the time and on the date and at the place specified in Clause-10. In the event of the specified date of Tender opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day.
- b) Envelopes marked "WITHDRAWAL" shall be opened and read out first. Tenders for which an acceptable notice of withdrawal has been submitted pursuant to Clause-12 shall not be opened.
- c) The Tenderers' names, the total amount of each Tender and of any alternative Tender (if alternatives have been requested or permitted), any discounts, Tender modifications and withdrawals, the presence or absence of Tender security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. Any Tender price, discount, or alternative Tender price which is not read out and recorded at Tender opening will not be taken into account in Tender evaluation.
- d) The Employer may prepare minutes of the Tender opening, including the information disclosed to those present in accordance with Clause-13.1.

13.2 Process to be Confidential:

Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

14. Clarification of Tenders

- 14.1 To assist in the examination, evaluation, and comparison of Tenders, the employer may, at his discretion, ask any Tenderer for clarification of his Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing.
- 14.2 Subject to Clause-14.1, no Tenderer shall contact the Employer on any matter relating to his tender from the time of the tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, he should do so in writing.



14.3 Any effort by the Tenderer to influence the Employer in the Employer's tender evaluation, tender comparison or contract award decisions may result in the rejection of the Tenderers' tender.

15. Employer's Right to Accept any Tender and to reject any or all Tenders

15.1 Notwithstanding anything else stated in these documents, the Employer reserves the right to accept or reject any Tender, and to cancel the Tendering process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected tenderer or Tenderers of the grounds for the employer's action.

15.2 Notification of Award and Signing of Agreement

- a) The Tenderer whose Tender has been accepted, in whole or part, will be notified of the award by the Employer prior to expiration of the Tender validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract called the "Contract Price".
- b) The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause-16.
- c) The Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will signed by the Employer and sent to the successful Tenderer, within 28 days following the notification of award along with the Letter of Acceptance. Within 21 days of receipt, the successful Tenderer will sign the Agreement and deliver it to the Employer.
- d) Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful.

16. Performance Security

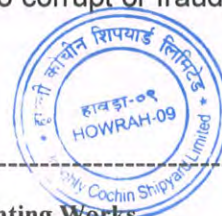
16.1 Within seven days of receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to 3% (Three percent) of the Contract price:

- a) A bank guarantee in the form given in this Tender Document.

16.2 If the performance security is provided by the successful Tenderer in the form of a Bank Guarantee, it shall be issued either (a) at the Tenderer's option, by a Nationalized / Scheduled Indian Bank Failure of the successful Tenderer to comply with the requirements of Clause-16.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security.

17. Corrupt or Fraudulent Practices

17.1 The Employer, without assigning any reason thereof, reject the tender of a tenderer, who, in the opinion of the Employer has resorted to corrupt or fraudulent practices in presenting his tender.





18. Forms of tender, qualification information and letter of acceptance

18.1 Formats for the following are provided

- a) Contractor's tender
- b) Qualification information
- c) Letter of acceptance
- d) Notice to proceed with the work
- e) Agreement form
- f) Form of Tender Security (Bank Guarantee)
- g) Performance Bank Guarantee*
- h) Bank Guarantee for Release of Mobilization Advance*
- i) Bank Guarantee for Release of Secured Advance against Materials brought to Site*
- j) Performance Bank Guarantee for Release of Retention Money

18.2 * Tenderers should not complete the Performance, Mobilization and Secured Advance forms at the time of submitting the tender.

18.3 Only the successful Tenderer will be required to provide Performance, Mobilization and Secured Advance Securities in accordance with the respective forms, or in a similar form acceptable to the Employer. Pre-Qualification of bidder:

18.4.1 The contractor should have completed during last five years, similar nature of work related to Fire Fighting work in any organizations of Govt of India/State Govt/PSU or reputed private organizations, at least one work of not to be less than Rs.176 lakhs, or two works of value 112 lakhs each or three works of value 83 lakhs each. Satisfactory completion certificate from the Client for work done should be submitted along with bid. For ongoing work; relevant certification from client shall be submitted along with copy of Purchase Order.

18.4.2 The Average Annual Turnover of the contractor should be more than Rs.90 Lakhs for the last three preceding years. (Audited Balance sheets showing turnover, Profit & Loss account of the firm for the preceding 03 years (2022-23, 2023-24 and 2024-25) should be submitted along with the application for prequalification).

18.4.3 Offers from joint ventures/ consortium will not be accepted.

18.4.4 Bidder shall not be under a declaration of ineligibility issued by Govt. of India/ State govt./ Public Sector Undertakings etc. The bidder shall not have been debarred / black listed / under Termination list by UCSL or by any of the Public Sector Undertaking or Government department etc.

19. The bidder must visit the HCSL Pandu SRF project site before submission of the bid. The site visit slip must be submitted along with the tender document containing HCSL Officer signature is mandatory else offer will be rejected.

SRF project location:

Opposite Assam Railway Police Station,
Pandu Port Road,
Maligaon, Guwahati 781 012,
Assam, India





Development of Fire Fighting Works for SRF,
Guwahati, Assam



Any request for clarification in writing must be addressed to,

Name : Sreejith K Narayanan
Designation : Chief Executive Officer
Email : sreejith.k.narayanan@hooghlycsl.com

Name: Sajal Sengupta
Designation: Chief Project Engineer
Email: sajal.sengupta@hooghlycsl.com
Phone No: +91 9007696751



Form-B

Qualification Information

The information to be filled in by the Tenderer in the following pages and their annexures will be used for purposes of post qualification. This information will **not** be incorporated in the Contract.

Sl.no	Parameter	Details	Mark of format / encl.	Instructions
1	This Form-B, duly filled up		A	
2	Constitution or legal status of Tenderer		B	(Attach copy)
3	Place of registration			
4	Principal place of business			
5	Power of attorney of signatory of Tender		C	(Attach copy)
6	Works, similar in nature to that under this Tender, executed in the last five years, in Rs. Lakhs.	2019-20: _____ 2020-21: _____ 2021-22: _____ 2022-23: _____ 2023-24: _____	D E	1. Attach details in format below. 2. Attach certificates from employer's engineer.
7	Payments received in the last five years	2019-20: _____ 2020-21: _____ 2021-22: _____ 2022-23: _____ 2023-24: _____	F	Attach certificates from Chartered Accountant.
8	Existing commitments and on-going works		G H	1. Attach details in format below. 2. Attach certificates from employer's engineer.
9	Works for which tenders already submitted			
10	Proposed subcontracts and firms involved.	Number: _____	J	Attach list
11	Financial reports, balance sheets, profit & loss statements, auditors' reports, etc. for the last five years	---	K	List them and attach copies.
12	Evidence of access to financial resources to meet the qualification requirement (cash in hand, lines of credit, etc.)	1. . 2. .	L	1. List them below and attach copies of support documents. 2. Letter from bankers.
13	Persons having business	List (names,	M	Attach list.





	relationship with Tenderer, who may provide reference to the Employer.	addresses, Tel & fax numbers)		
14	Information on litigation history in which the Tenderer is involved.	List:	N	Attach details.
15	List of key manpower		P	Attach details in format below.
16	List of plant & equipment		Q	Attach details in format below.

Format-D Similar works during the last five years: Attach certificates from the employer / his engineer.

Descript ion of work	Price & State	Contra ct no. & Date	Name and Address of Employe r	Value of Contract (Rs. Lakhs)	Stipulate d period of completi on	Value of works* remaining to be completed (Rs. Lakhs)	Anticipated date of completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Format-G Ongoing works:
his engineer.

Attach certificates from the employer /

Descript ion of work	Price & State	Contra ct no. & Date	Name and Address of Employe r	Value of Contract (Rs. Lakhs)	Stipulate d period of completi on	Value of works* remaining to be completed (Rs. Lakhs)	Anticipated date of completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Format-J Proposed subcontracts:

Sections of the works	Value of Subcontract	Subcontractor (name and address)	Experience in similar works

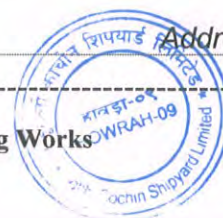
Format-L Bank certificate:

This is to certify that M/s. _____ is a reputed company with a good financial standing. If the contract for the work, namely _____ is awarded to the above firm, we shall be able to provide overdraft / credit facilities to the extent of Rs. _____ to meet their working capital requirements for executing the above contract.

Sd. _____ Senior Bank Manager

Name of Bank

Address of the



Bank

Format-N **Litigation history, involving the Tenderer:**

Other party(ies)	Employee	Cause of dispute	Amount involved	Remarks showing present status

Format-P Key personnel: Qualifications and experience of key personnel proposed for administration and execution of the Contract.

Attach biographical data.

Position	Name	Qualifications	Years of experience (general)	Years of experience in the proposed position
Project Manager				
*				
etc.				

Format-Q Equipment & plant:

[illegible]



Format for Tender

(on tenderer's letterhead)

Dated:

To:

Chief Executive Officer,
Hooghly Cochin Shipyard Ltd,
Satyen Bose Road, P.O. Danesh Seikh Lane,
Howrah, West Bengal-711109

Dear Sir,

Subject: Fire Fighting System Works for Ship Repair Facility at Guwahati, vide Tender Notice
no. HCSL/ / 2026 Dt. -----.

1. We offer to execute the Works described above in accordance with the Conditions of Contract accompanying the Tender for the Contract Price of -----[in figures]-----[in letters], as arrived at based on the Bill of Quantities.
2. We understand that the Contract Price stated above is subject to revision in terms of variations in the actual quantities to be executed in respect of the various items in the Bill of Quantities.
3. This Tender and your written acceptance of it shall constitute a binding contract between us, until the signing of the Contract Agreement.
4. We understand that you are not bound to accept the lowest of any Tender you receive.
5. We have examined, understood and hereby undertake to comply with all the requirements of the Contract, as detailed in your Tender Document, including, but not limited to, General Conditions of Contract, Special Conditions of Contract, Specifications, Bill of Quantities and it's Preamble, tender drawings, Tender Notice and Invitation to Tender, as well as all clarifications received by us.
6. We have visited the site and satisfied ourselves of all the present and expected situations.
7. We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will abide by the laws of the Republic of India, in so far as they relate to our actions and activities in connection with this tender.
8. We hereby confirm that this Tender complies with the Tender Validity and Tender Security required by the Tendering documents.
9. We attach herewith our current income-tax clearance certificate.
10. The Tender Document, duly filled up and signed by us, is enclosed herewith in a sealed envelope.

Authorized Signature, with date: -----

Name & Title of Signatory : -----

Name of Tenderer : -----

Address : -----

Format for Letter of Acceptance
(on Employer / Engineer's letterhead)

Ref. no.:

Dated:

To:

----- [Name and Address of the Contractor]

Dear Sirs,

1. This is to notify you that your Tender dated ----- for execution of the -----
-----[name of the contract and
identification number, as given in the Instructions to Tenderers] for the Contract Price of
Rupees-----
[amount in words and in figures], as corrected and modified in accordance with the
Instructions to Tenderers is hereby accepted by us.
2. You are hereby requested to furnish Performance Security, in the form detailed at para-16 of
Invitation to Tender, for an amount of Rs.-----, within seven days of the receipt
of this letter of acceptance, valid upto 28 days from the date of expiry of Defects Liability
Period i.e., upto----- and sign the Contract, failing which action as stated at
para-16 of Invitation to Tender will be taken.

Yours sincerely,

Authorized Signature
Name and Title of Signatory



Form of Articles of Agreement
(on non-judicial Stamp Paper)

This Agreement, made the ----- day of ----- 20---,

Between ----- [name and address of Employer] (hereinafter called "the Employer")
and ----- [name and address of contractor] (hereinafter called "the
contractor") of the other part,

Whereas the Employer is desirous that the Contractor execute-----
-----[name and identification number of Contract] (hereinafter called "the
Works") and the Employer has accepted the Tender by the contractor for the execution and completion of
such Works and the remedying of any defects therein at a contract price of Rupees-----.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.
 - a) Letter of Acceptance
 - b) Notice to proceed with the works
 - c) Contractor's Tender
 - d) Contract Data
 - e) Conditions of contract (including Special Conditions of Contract)
 - f) Specifications
 - g) Drawings
 - h) Bill of Quantities and
 - i) Any other document listed in the Contract Data as forming part of the contract.
5. No amendment to this Agreement shall be valid or be of any affect unless the same is agreed to in writing by both the parties hereto and specifically stated to be an amendment to this Agreement.

In witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written :

The Common Seal of ----- was hereunto affixed

in the presence of : -----Signed, Sealed and Delivered by the
said ----- in the presence of : -----

-----Binding signature of Employer: -----
----- Binding Signature of Contractor : -----



Format for Notice to proceed with the work
(on Employer's / Engineer's letterhead)

Ref. no.:

Dated:

To:

----- [Name and Address of the Contractor]

Dear Sirs,

Pursuant to your furnishing the requisite security as stipulated at para-16 of Invitation to Tender and signing of the Contract for ----- at a Contract Price of Rs. -----, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents. The Contract Price stated above is subject to revision in terms of variations in the actual quantities to be executed in respect of the various items in the Bill of Quantities.

Yours sincerely,

Authorized Signature
Name and Title of Signatory



Format for Bank Guarantee for Release of Mobilisation Advance

To : _____ [name of Employer]
_____ [address of Employer]

WHEREAS _____ [name and address of Contractor] (hereinafter called "the Contractor" has undertaken, in pursuance of Contract no. _____ dated _____ to execute _____ [name of Contractor and brief description of works] (hereinafter called "the Contractor").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor may opt to furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for his being eligible for receiving mobilization advance, in accordance with the Contract.

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, upto a total of _____ [amount of guarantee]* _____ [in words], such sum being arrived at as the maximum amount of unadjusted advance that may remain with the Contractor at any time during the pendency of the Contract, payable in the types and proportions of currencies in which the Contract Price as per terms of the Contract is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

This guarantee shall not be vitiated by any change in the constitution of the Bank or the Tenderer or the Employer.

Signature and seal of the guarantor _____

Name of Bank _____

Address _____

Date _____

* An amount shall be inserted by the Guarantor, representing the amount of mobilization advance that can be made against this Guarantee and denominated in Indian Rupees.



**Format for Bank Guarantee for
Release of Secured Advance against Materials brought to Site**

To : _____ [name of Employer]
_____ [address of Employer]

WHEREAS _____ [name and address of Contractor] (hereinafter called "the Contractor" has undertaken, in pursuance of Contract no. _____ dated _____ to execute _____ [name of Contractor and brief description of works] (hereinafter called "the Contractor").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor may opt to furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for his being eligible for receiving advance against materials brought by him to Site, in accordance with the Contract.

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, upto a total of _____ [amount of guarantee]* _____ [in words], such sum being arrived at as the maximum amount of unadjusted advance that may remain with the Contractor at any time during the pendency of the Contract, payable in the types and proportions of currencies in which the Contract Price as per terms of the Contract is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

This guarantee shall not be vitiated by any change in the constitution of the Bank or the Tenderer or the Employer.

Signature and seal of the guarantor _____

Name of Bank _____

Address _____

Date _____

* An amount shall be inserted by the Guarantor, representing the amount of unadjusted / unrecovered advance that can be maintained against this Guarantee and denominated in Indian Rupees.

Format for Release of Retention Money

To : _____ [name of Employer]
_____ [address of Employer]

WHEREAS _____ [name and address of Contractor] (hereinafter called "the Contractor" has undertaken, in pursuance of Contract no. _____ dated _____ to execute _____ [name of Contractor and brief description of works] (hereinafter called "the Contractor").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor may opt to furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations during the Defect Liability Period, in accordance with the Contract.

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, upto a total of _____ [amount of guarantee]* _____ [in words], such sum being payable in the types and proportions of currencies in which the Retention Money as per terms of the Contract is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

This guarantee shall not be vitiated by any change in the constitution of the Bank or the Tenderer or the Employer.

Signature and seal of the guarantor _____

Name of Bank _____

Address _____

Date _____

* An amount shall be inserted by the Guarantor, representing the amount of Retention Money sought to be released against this Guarantee and denominated in Indian Rupees.



Development of Fire Fighting system for SRF
Guwahati, Assam



FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI

**TENDER NO: HCSSL/PANDU/TEN/2026/009
Dt. 09.01.2026**

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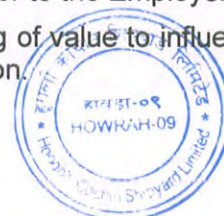




GENERAL CONDITIONS OF CONTRACT

1.0 Definition, interpretations, etc.

- 1.1 Terms, which are defined in the Conditions of Contract, are not also defined in the Contract Data and vice versa but keep their defined meanings. Capital initials are used to identify defined terms. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined.
- 1.2 Where the context so requires, words importing the singular only also include the plural and vice versa, word importing persons include firms and corporates and vice versa and words importing masculine gender include the feminine gender and neuter and vice versa.
- 1.3 **Definitions:** In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires. The terms Employer and Engineer are interchangeable in their meaning as the context requires and are purported to mean the same to the extent that such meaning is not at conflict with the rights, duties, responsibilities and functions attributable to the Employer or the Engineer.
 - Approved means approved in writing including the subsequent written confirmation of previous verbal approval and Approval means approval in writing including as aforesaid.
 - Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.
 - Compensation Events are those defined in Clause-20.17 hereunder.
 - Completion Date is the date of completion of the Works as certified by the Engineer.
 - Constructional Plant means all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.
 - Consultant means National Technology Center for Ports Waterways and Coasts, and their persons, representatives or successors or assignees.
 - Contract Data defines the documents and other information that comprise the Contract and may be forming part of either the General Conditions of Contract or the Special Conditions of Contract, irrespective of which it is applicable to the whole of the Contract.
 - Contract is the contract between the Employer and the Contractor, whereby the Contractor agrees to execute, complete and maintain the works and comprises invitation to tender, instructions to tenderers, tender with all the enclosures thereto, articles of agreement, general conditions of contract, special conditions of contract, technical specifications, preamble to bill of quantities, bill of quantities, schedule of rates and prices (if any), tender drawings together with the letter of intent or letter of acceptance, notice to proceed with the works, and other documents that may be specified in any of the above.
 - Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.
 - Contractor is a person or partnership or body corporate whose tender to carry out the works has been accepted by the Employer and includes the Contractor's heirs, executors, administrators, legal representatives, persons, representatives, successors and permitted assignees, where the context requires.
 - Contractor's Account means any moneys in the Employer's hands due or which may become due to the Contractor under this Contract. As the context and circumstances require, this also means any moneys in the Employer's hands due or which may become due to the Contractor under any other contract or business between the Contractor and the Employer or Employer's subsidiary unit / companies / associates. Further, any moneys of the Employer lying with the Contractor, for whatever reason or cause, are directly relatable to the Contractor's Account.
 - Contractor's Bid is the completed tender document submitted by the Contractor to the Employer.
 - Corrupt practice means the offering, giving, receiving or soliciting of any thing of value to influence the action of an official or individual or body in the tendering process or in contract execution.

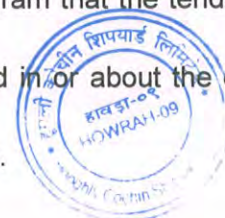




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- Fraudulent practice means a misrepresentation of facts in order to influence a tendering process or the execution or the execution to the detriment of the Employer, and includes collusive practice among tenderers prior to or after bid submission, designed to establish tender prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.
- Days are calendar days; months are calendar months.
- Defect is any part of the works not completed in accordance with the Contract.
- Defects Liability Period is the period named in the Contract Data and calculated from the Completion Date.
- Drawings means the drawings and tracings or prints there-of, annexed to the Contract or referred to in the specification and any modification of such drawings approved in writing by the Engineer and such other drawings as may from time to time be furnished or approved in writing by the Engineer.
- Employer is the party who will employ the Contractor to carry out the Works.
- Engineer is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the Contractor administering the Contract, certifying payments due to the Contractor, issuing and valuing variations to the Contract, awarding extensions of time, and valuing Compensation Events.
- Engineers Representative means any assistant of the Engineer or any clerk of works / employee or agent appointed from time to time by the Employer / Consultant or the Engineer.
- Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.
- Initial Contract Price is the Contract price listed in the Employer's Letter of Acceptance.
- Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.
- Letter of Intent / Letter of Acceptance mean an intimation, by a letter, to a tenderer that his tender has been accepted in accordance with the provisions contained in that letter.
- Materials are all supplies, including consumables, used by the contractor for incorporation in the works.
- Notice in Writing or Written Notice means a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
- Employer / Employer means and includes Employer's / Employer's personal representatives or successors permitted assignees, heirs, executors, administrators, legal representatives, personal representatives, where the context requires.
- Site is the area meant for executing the Works.
- Site means the lands and other places envisaged by the employer on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the employer for the purpose of the contract.
- Specification means the Technical specification of the works included in the Contract and any modification or addition thereof made or approved by the Engineer.
- Start Date is the date when the Contractor shall commence execution of the works and does not necessarily coincide with any of the Site Possession Dates.
- Subcontractor is a person or partnership or body corporate who has a contract or understanding with the Contractor to carry out a part of the work in the Contract which includes work on the Site or outside the Site.
- Telegraphic Acceptance means an intimation by a telegram / cablegram that the tender has been accepted in accordance with the provisions contained in the telegram / cable.
- Temporary Works means all temporary works of every kind required in or about the execution, completion or maintenance of the works.
- Variation is an instruction given by the Engineer that varies the Works.





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- Virtual completion means that the work is, in the opinion of the Engineer, substantially completed and has satisfactorily passed any final test that may be prescribed in the Contract.
- Works shall mean and include all works specified or set forth and required in and by the specifications, drawing and other documents hereto annexed or to be implied therefrom or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings and also such additional instructions and drawings as shall from time to time be supplied by the Engineer during the progress of the work hereby contracted for.

1.4 Communications

- 1.4.1 Communications between parties, which are referred to in the Contract, are effective only when in writing. Notice shall be effective only when delivered (in terms of Indian Contract Act).

1.5 Queries about the Contract Data

- 1.5.1 The Engineer will clarify queries on the Contract Data.

1.6 Notices

- 1.6.1 Service of Notices on Contractor: Any notice to be given to the Contractor under the terms of the Contract shall be considered duly served if the same shall have been delivered to, left for or posted by registered post to the Contractor's principal place of business (or in the event of the Contractor being a company to or at its Registered Office) or at the site.
- 1.6.2 Service of Notices on Employer: Any notice to be given to the Employer under the terms of the Contract shall be considered as duly served, if the same shall have been delivered to, left for, or posted by registered post to the Employer's last known address.

2.0 Extent and scope of Contract

- 2.1 The Contract comprises the electrification and maintenance of the Works by the Contractor, in accordance with the various provisions in the Contract, complete in all respects as per drawings, specifications and instructions of the Engineer and any other details to be furnished from time to time and as broadly indicated in the bill of quantities, in consideration of which the Employer pays the Contractor for the aforesaid.

2.2 Contractor's obligations

- 2.2.1 The Contractor's obligations and responsibilities include providing everything whether of a temporary or permanent nature required for due carrying out of the Contract, including but not limited to arranging for water, power, consumables, materials, transport and facilities for storage, shifting, handling and installation, tools and tackles, testing, documentation, labour, supervision and Temporary Works, insurance coverages, taxes, duties, royalties and overheads in that connection, save anything of the aforesaid that the Employer may provide at the terms and conditions as specified in the Contract.

2.3 Coverage of costs

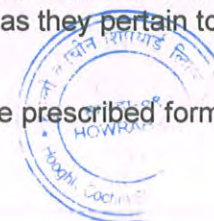
- 2.3.1 Except where it is expressly provided that the cost will be borne by the Employer, the various obligations of the Contractor under the Contract shall be at the cost of the Contractor and are deemed to be fully covered under the Contracted rates or amounts.
- 2.3.2 All costs in respect of approvals / inspection of electrical inspectorate and approvals / inspection of a Temporary Works shall also be borne by the Contractor.

2.4 Employer's obligations

- 2.4.1 The Employer's obligations and responsibilities are making available the Site and necessary instructions and drawings as required and to make payments to the Contractor in time and at times as specified in the Contract.
- 2.4.2 The Employer shall bear the cost in respect of approvals required for the drawings supplied by him and in obtaining clearances from aviation, firefighting, explosives & boilers and environmental departments and building inspectors of the local / state/ central government, only so far as they pertain to the permanent Works.

2.5 Contract Agreement

The Contractor shall enter into and execute a Contract agreement in the prescribed form within the time specified in the Contract Data and / or the Letter of Acceptance of the Employer.





2.5.1 **POWER OF ATTORNEY:**

The tenderers shall have to sign in each page of the tender documents with official stamp as a token of his acceptance of the conditions stated therein. Person or persons signing the tender shall state in what capacity he/she or they is/are signing the tender, eg., as Sole Proprietor of the Firm concerned or as Managing Director or Director or Secretary or Manager of a Limited Company. In the case of partnership firm, the names of all the partners should be recorded and the tender shall be signed by all the partners or their duly constituted attorney, having authority to bind all the partners in all matters pertaining to the contract as accorded in the deed of Power of Attorney or in the partnership deed. In such a case, a registered copy of the "Partnership Deed" should be furnished along with the tender. It shall be obligatory on the part of every partner of the firm, which enters into agreement, to fulfil the conditions of agreement during the currency thereof, notwithstanding the dissolution of the partnership in the meantime. In the case of a Limited Company, the tender shall be signed by a person mentioned supra empowered to do so by the company. A copy of the Memorandum of Association and Articles of Association of the Company and the letter empowering the person mentioned supra shall be attached to the tender.

The person signing the tender form on behalf of another or on behalf of a firm, shall enclose to the tender, a Power of Attorney or the said deed duly executed in his favour or the partnership deed giving him such power showing that, he has the authority to bind such other persons or the firm, as the case may be, in all matters pertaining to the contracts. If the Person so signing the tender, fails to enclose the said Power of Attorney, his tender shall be liable for being summarily rejected. The Power of Attorney shall be signed by all partners in the case of partnership concern, by the Proprietor in the case of a proprietary concern, and by the person who by his signature can bind the company in the case of a Limited Company.

Format in accordance with Annexure 8.

2.6 **Language of the Contract and applicable law**

2.6.1 The language of the Contract shall be English and the Contract shall be governed by the Law for the time being in force in the Republic of India.

2.7 **Documents forming part of the Contract**

2.7.1 The documents forming part of the Contract are listed under the format for Articles of Agreement.

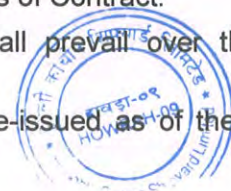
2.8 **Documents mutually explanatory**

2.8.1 The several documents forming the Contract are to be considered as mutually explanatory of one another and in case of ambiguities or discrepancies, the same shall be explained and adjusted by the Engineer who shall thereupon issue to the Contractor instructions directing as to in what manner the work is to be carried out and in what manner the Contract is to be operated.

2.9 **Interpretation of Contract documents**

2.9.1 In case any portion of the Contract documents is repugnant to or at variance with provisions of any other portion of the documents that shall prevail over the other shall be as detailed hereunder, unless the Engineer, taking into account the peculiarities of the context, directs to a different interpretation:

- Special Conditions of Contract prevail over provisions of General Conditions of Contract.
- Provisions in the Bill of Materials including the preamble thereof shall prevail over the provisions of specifications, drawings and Special Conditions of Contract.
- Between two issues of the same document, the document revised or re-issued as of the later date shall prevail.





- 2.9.2 All specifications, drawings and other documents shall be interpreted in conformity with the General Condition of Contract as supplemented and / or modified by the Special Conditions of Contract.
- 2.9.3 In case of any conflict of meaning either in the same document or between other documents (other than the above stipulations), the Engineer's decision will be final, binding and conclusive.
- 2.9.4 Notwithstanding the aforesaid, the documents forming the Contract shall be interpreted in the following order of priority:
- Contract Agreement
 - Letter of acceptance, notice to proceed with the works
 - Contractor's Bid
 - Contract Data
 - Conditions of Contract including Special Conditions of Contract
 - Specifications
 - Drawings
 - Bill of Quantities
 - Any other document listed in the Contract Data as forming part of the Contract.

2.10 Sufficiency of Tender

- 2.10.1 The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the Works and of the rates and prices he has stated in the Bill of Quantities and that the same cover all his obligations under the Contract and all matters and things necessary for the proper construction, completion and maintenance of the Works and compliance to all his obligations under the Contract.

2.11 Sufficiency of Contract

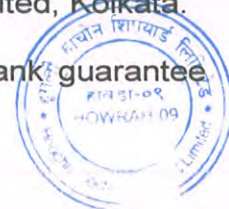
- 2.11.1 The Contract is deemed to have been entered into after both parties to it have mutually agreed as to its sufficiency in enabling both parties to fully and adequately perform their respective duties and meet the obligations under the Contract.

2.12 Securities

- 2.12.1 The securities and /or deposits, in terms of money and / or guarantees from banks, that are required to be maintained by the Contractor for his due fulfillment of his various responsibilities and obligations, both at the time of tendering and during the period of Contract, including during Electrification works and maintenance period, are specified elsewhere in this document under the respective heads and chapters.

2.12.2 SECURITY DEPOSIT/WARRANTY BANK GUARANTEE:

- The successful bidder shall remit a security deposit of 3% of the total order value (excluding taxes, duties) in the form of demand draft drawn in favour of Hooghly Cochin Shipyard Ltd towards the satisfactory performance of the contract, if an order is placed on them. Alternatively, a Bank Guarantee equivalent to above % of the total order value (excluding taxes, duties) as per HCSL format from a Scheduled Indian bank for Indian supplier is to be submitted, if an order is placed towards satisfactory performance of the contract.
- The supplier shall also agree for 3% of total order value (excluding taxes and duties) as Bank guarantee towards the Guarantee clause.
- The Bank Guarantee/DD as above should be initially valid till 90 days after completion of entire work in terms of SD and later revalidated (within the validity of initial BG) to cover the guarantee period plus 90 days. Fixed Deposit Receipt (for equivalent amount of Security Deposit/WBG required as per tender) in lieu of bank guarantee is also acceptable. Fixed Deposit Receipt shall be in the name of supplier with lien marked in favour of Hooghly Cochin Shipyard Limited, Kolkata.
- SD to be submitted within 1 weeks of receipt of order from HCSL.
- If the bidder is not agreeable to submission of SD/ warranty/ bank guarantee as per HCSL general terms and conditions of enquiry,





HCSL reserves the right to reject the offer at our discretion.

2.13 Change in Employer / Engineer

2.13.1 INTEGRITY PACT:

As per Government of India (Central Vigilance Department), HCSL and the contractor have to sign an Integrity Pact for the high value contracts, for ensuring transparency, equity and competitiveness in public procurement. The Tenderer has to sign Pre-Contract Integrity Pact as per format enclosed at Annexure 19 and to submit along with your offer.

The above is applicable when the total basic price is above Rs. 100.0 lakhs

2.13.1 If for any reason the Contract is transferred or the Work is transferred from the jurisdiction of the Employer to another Company or a project Authority or vice versa while the Contract is in subsistence, the Contract shall continue to be binding on the Contractor and the successor company / project authority in the same manner and take effect in all respects as if the Contractor and the successor company / project authority were parties thereto from the inception and the corresponding office or the competent authority in the successor company / project authority will exercise the same powers and enjoy the same authority as conferred to the predecessor company / project authority under the original Contract Agreement entered into.

2.14 Subcontracting

2.14.1 The Contractor may subcontract or sublet parts of the Work only with the approval of the Engineer.

2.14.2 The execution of the details of Works by petty contracts under the direct and personal supervision of the Contractor or his agent shall not be deemed to be subcontracting under this clause.

2.14.3 Subcontracting does not alter the Contractor's obligations.

2.14.4 Subcontracting or sub-letting shall not establish any contractual relationship between the Subcontractor and the Employer and shall not relieve the Contractor of any of his responsibilities, liabilities or obligations under the Contract, and the Contractor is deemed responsible for the acts and deeds of the Subcontractors or the agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor or his agents, servants or workmen.

2.15 Assignment and transfer of Contract

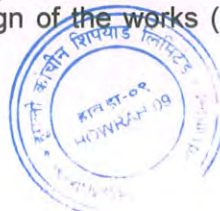
2.15.1 The Contractor shall not assign or transfer the Contract or any part thereof or any benefit or interest herein contained hereunder without the written consent of the Employer. In the event of the Contractor contravening this condition, the Employer shall be entitled to place the Contract elsewhere on the Contractor's account and at his risk and the Contractor shall be liable for any loss or damage which the Employer may sustain in consequence of or arising out of such replacing of Contract.

2.16 Employer's and Contractor's Risks

2.16.1 The Employer carries the risks which this Contract states are Employer's risks and the Contractor carries the risks which this Contract states are Contractor's risks.

2.16.2 Employer's Risks

- a) The Employer is responsible for the Excepted Risks which in so far as they directly affect the execution of the works are riot, war, invasion, act of foreign enemies, hostilities (whether war be declared or not), civil war, rebellion, revolution, insurrection or military or usurped power (in so far as these are un-insurable) or disorder (unless restricted to the Contractor's employees or work force or Subcontractor's work force) or a cause solely due to use or occupation by the employer of any portion of the Works in respect of which a Certificate of Completion has been issued or contamination from any nuclear fuel or nuclear waste or radioactive / toxic explosive material, or a cause solely due to the design of the works (all of which are herein collectively referred to as 'Excepted Risks').





2.16.3 Contractor's Risks

- a) All risks of loss of or damage to physical property and of personal injury and death, which arise during and in consequence of the performance of the Contract, other than the Excepted Risks, are the responsibility of the Contractor.

3.0 Engineer

3.1 Identity

- 3.1.1 In so far as this Contract is concerned, Engineer shall denote any nominee or employee or any organisation or firm or body or team appointed by the Employer to operate this Contract.
- 3.1.2 All the rights and privileges held by the Employer under this Contract are deemed to be vested with the Engineer.
- 3.1.3 The Engineer shall act as he deems fit in safeguarding and furthering the interests of the Employer. In this Contract, the terms Employer and Engineer are used to denote either of them as the context requires and are interchangeable as to the meaning implied.

3.2 Delegation

- 3.2.1 The Engineer may delegate any of his duties and responsibilities to others, except to the Adjudicator, after notifying the Contractor and may cancel any delegation after notifying the Contractor.

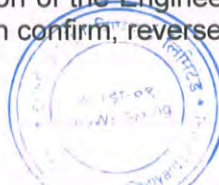
3.3 Works to the satisfaction of Engineer

- 3.3.1 The Contractor shall fulfill his obligations and duties under this Contract and execute, complete and maintain the Works in strict accordance with the Contract to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instructions and directions on any matter, whether mentioned in the Contract or not. The Contractor shall take instructions and directions only from the Engineer.

3.4 Duties and powers of Engineer

- 3.4.1 The Engineer shall have the right of general supervision and direction of the Work, including authority to stop the Work or parts of it whenever such stoppage may be necessary, to ensure the proper execution of the Contract, to reject all work and materials which do not conform to the Contract, to direct the application of Contractor's labour and machinery forces to any portion of the work as in his judgment is required, to order the labour and machinery forces increased or diminished, to take actions consequent to the Contractor's failure to comply with statutory requirements and to decide on questions which arise in the execution of the work and operation of the Contract, unless otherwise provided for in this Contract.
- 3.4.2 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.
- 3.4.3 The duties of Engineer or his representative are to watch and supervise the Works and to call for or carry out tests and examine any materials to be used or workmanship employed in connection with the Works.
- 3.4.4 Any instruction or approval given by the Engineer's Representative to the Contractor in connection with the Works shall bind the Contractor as though it had been given by the Engineer provided always as follows:
 - a) The Engineer's representative shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract not except as expressly provided hereunder, or elsewhere in the Contract, to order any work involving delay or any extra payment by the Employer or to make any variation in the works except with concurrence by the Engineer.
 - b) Failure of the Engineer's Representative to disapprove any work or materials shall not prejudice the Engineer to disapprove such work or materials and to order the pulling down, removal or breaking up thereof at the cost of the Contractor.
 - c) The decision, opinion, certificates or valuation of the Engineer in respect of any matter under this Contract shall be final, binding and conclusive.
 - d) If the Contractor shall be dissatisfied by reason of any decision of the Engineer's Representative, he shall be entitled to refer the matter to the Engineer who shall thereupon confirm, reverse or vary such decision.

3.5 Instructions





- 3.5.1 The Engineer may, in his absolute discretion from time to time, issue further drawings and / or written instructions, details, directions and explanations which are hereafter collectively referred to as the Employer's instructions in regard to:
- a) Variation or modification of the design, quality or quantity of Works or the addition or omission or substitution of any works.
 - b) Any discrepancy in the drawings or between the Bill of Materials and / or Drawings and / or specifications.
 - c) Removal from the site of any materials brought thereon by the Contractor and the substitution of any other materials thereof.
 - d) Removal and / or re-execution of any work executed by the Contractor.
 - e) Dismissal from the Works of any person employed thereupon.
 - f) Opening up for inspection any work covered up.
 - g) Amending and making good of any defects.
 - h) Inspection and carrying out of tests of materials and finished work on site.
 - i) Deducting / recovering any amounts in respect of defective plant, materials, labour and finished work for which advance payments had been made, from any amounts due to the Contractor.

3.6 Form of instructions

- 3.6.1 Instructions from the Engineer or his Representative shall be in the form of orders / letters, as he deems fit.
- 3.6.2 Further, where convenient, such orders shall be in the form of entries made by them in the Site Order Book.

3.7 Site Order Book

- 3.7.1 The Contractor shall maintain a site order book, with numbered pages, at the Site. This book shall always be accessible to the Engineer and his Representative and shall never be taken out of the Site. The Contractor shall sign all orders and instructions written down in this book in token of his having seen and noted the same. The site order book, comprising all its volumes, will be the property of the Employer and shall be handed over to him at the end of the Work.

3.8 Compliance by Contractor

- 3.8.1 The Contractor shall forthwith comply with and duly execute any work comprised in the Engineer's orders and instructions, provided always that verbal directions and explanations given to the Contractor or his representative upon the work by the Engineer shall if, involving a variation, be confirmed in writing by the Contractor within seven days and if not dissented by the Engineer in writing within a period of seven days from the date of receipt of such confirmation in writing, such instructions shall be deemed to be the Engineer's instructions within the scope of the Contract.
- 3.8.2 If compliance with the Engineer's instructions as aforesaid involves work and / or loss beyond that contemplated by the Contract then, unless the same were issued owing to some breach of this Contract by the Contractor, the Employer shall pay to the Contractor the price of the said work as an extra to be valued by the Engineer and as provided in this Contract.

4.0 Drawings

4.1 Supply of Drawings

- 4.1.1 Drawings for the Works shall be provided by the Employer / Engineer to the Contractor, free of cost, in the number of copies stated in the Contract Data, from time to time during the progress of the Works as shall be necessary for the purpose of execution and maintenance of the Works and the Contractor shall carry out the Works accordingly and be bound by the same. Extra copies, if available, shall be supplied by the Employer, at rates to be fixed by him.
- 4.1.2 The Contractor shall provide, at his cost, drawings for Temporary Works, vendor drawings for manufactured and fabricated items and support them with design calculations as directed by the Engineer. All these shall be in four copies. These are to be revised and re-submitted by the Contractor, at his cost, where found necessary by the Engineer. The Contractor is deemed to be responsible for all matters pertaining to patents or copyrights in respect of the contents of his submissions and the actual materials, components and items represented therein and the Engineer / Employer shall stand indemnified from all claims in this regard.



- 4.1.3 The Engineer shall have the right and authority to supply to the Contractor from time to time during the progress of the Works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the Works and the Contractor shall carry out the Works accordingly and be bound by the same.
- 4.1.4 The Engineer reserves the right to alter or modify the drawings at any time. No claim will be entertained on account of such modifications or alterations made in the drawings. However, all elements of Works as actually executed will be measured and paid for. The opinion / decision of the Engineer in all such matters shall be final, binding and conclusive.

4.2 Return of Drawings

- 4.2.1 The drawings and specifications and copies thereof furnished by the Employer to the Contractor, with the exception of the signed Contract set, shall be returned by the Contractor to the Employer on completion of the Works or termination of the Contract.
- 4.2.2 In case the Contractor does not return the drawings in full, the Engineer shall withhold the amounts stated in the Contract Data from payments due to the Contractor.

4.3 As-built drawings

- 4.3.1 As-built drawings, in three sets, incorporating (in red ink) all the changes, etc. along with approval references are to be prepared by the Contractor, free of cost and furnished to the Engineer, on completion of the Works or termination of the Contract. The Engineer may instruct for submission of these pertaining to parts of the Works at any earlier times. The Engineer shall provide to the Contractor, at appropriate times, free of cost, three sets of base drawings, to enable the Contractor to prepare the As-built drawings.
- 4.3.2 In case the Contractor does not supply the As-built drawings, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

4.4 Drawings to be available at Site

- 4.4.1 One copy of all the drawings shall be kept by the Contractor at the site and the same shall at all reasonable times be available for perusal and use by the Engineer or his representative.

4.5 Employer ship of drawings and documents

- 4.5.1 All the drawings and the documents and copies thereof provided by the Employer to the Contractor, or those supplied by the Contractor, including the informations therein, are deemed to be the property of the Employer.

4.6 Confidentiality of drawings and documents

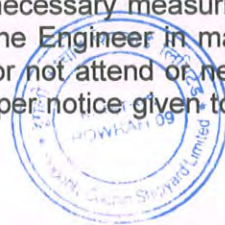
- 4.6.1 The Contractor is under obligation to ensure that he, his representatives, his Subcontractors and supplier maintain strict confidentiality of the drawings and their contents and are prohibited from copying them in any manner or from passing them or their contents to any other individual or party or to use them for any purpose other than for the Works of the Employer under this Contract.

4.7 Tender drawings

- 4.7.1 The Special Conditions of Contract specify whether any drawings are enclosed to the Tender Document and whether any drawing is being made available for the perusal of the tenderer at the Employer's / Engineer's premises.

5.0 Measurements

- 5.1 Except where any general or detailed description of the work in the Bill of Quantities expressly shows to the contrary, Bill of Quantities shall be deemed to have been prepared and measurements shall be made according to the procedure set forth in Indian Standard Method of Measurement for Building Work IS1200, wherever applicable, and any subsequent amendment or modification thereof, notwithstanding any general or local custom.
- 5.2 The Engineer shall, except as otherwise stated, ascertain and determine by measurement the quantities and value of work done in accordance with the Contract.
- 5.3 The Engineer shall when he requires that any part or parts of the Works be measured give notice to the Contractor who shall forthwith attend or send a qualified agent, with necessary measuring tools and instrument and adequate assistance in the form of necessary labour, to assist the Engineer in making such measurements and shall furnish all particulars required by him. Should the Contractor not attend or neglect or fail to comply with the above on the dates fixed by the Engineer for taking measurement as per notice given to the Contractor, then the





measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work.

6.0 Alterations, additions and omissions

6.1 Variations

6.1.1 The Engineer shall have the right to make any variation of the form, quality or quantity of the Works or any part thereof that may in his opinion be necessary and for that purpose, or if for any other reason, it shall in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:

- a) Increase or decrease the quantity of any work included in the Contract;
- b) Omit any such work;
- c) Change the character or quality or kind of any such work;
- d) Change the levels, lines, position and dimensions of any part of the works;
- e) Execute additional work of any kind necessary for the completion of the Works.

6.1.2 No such variation as aforesaid shall in any way vitiate or invalidate the Contract but the value, if any, of all such variations shall be taken into account in ascertaining the account of the Contract Price.

6.2 Orders for variations to be in writing

6.2.1 No such variation shall be made by the Contractor without an order in writing of the Engineer, provided that an order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of any order given under this clause, but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.

6.2.2 If for any reason the Engineer shall consider it desirable or adequate to give any such order verbally, the Contractor shall comply with such order and confirmation by the Contractor in writing of such verbal order given by the Engineer shall be deemed to be an order in writing.

6.3 Valuation of variations and Power of the Engineer to fix rates

6.3.1 The Engineer shall determine the amount, if any, to be added to or deducted from the sum named in the tender in respect of any extra or additional work done or work omitted by his order.

6.3.2 All such work shall be valued at the rates set out in the Contract, if in the opinion of the Engineer the same shall be applicable.

6.3.3 If in the opinion of the Engineer the Contract does not contain any rates applicable to the additional, altered, omitted or substituted items, then the rates shall be fixed by the Engineer for such items by deriving the rate from the analogous items, if any, in the Contract.

6.3.4 In the absence of analogous items, the rates shall be fixed by the Engineer taking due consideration of the analysis of rates to be drawn up and furnished by the Contractor, on the basis of basic rates and norms available in the schedules / Analysis of Rates of Central Public Works Department, adopting approved rates for materials and wages, all supported by vouchers and other relevant documents.

6.3.5 The cost element on account of provisions of profit including overheads shall not exceed 12.50% of the direct cost.

6.3.6 Further, no increase of the Contract price shall be made unless the Contractor notifies the Engineer his intention to claim extra payment within one month from the date of his receipt of the contract variation intimation from the Engineer.

6.4 Day work

6.4.1 Where a particular item of work has not been included in the Bill of Quantities and where an analogous rate cannot be computed or a reasonable rate cannot be determined or agreed with the Engineer, then if such item of work shall not be measurable, the Engineer may, if in his opinion it is necessary or desirable, order in writing that any additional or substituted work shall be executed on a day work basis.

6.4.2 In such cases, the Contractor shall be paid for such work under the conditions set out in the day work items in the Bill of Quantities and at the rates and prices affixed thereto by him in his tender. In the absence of day work



items in the Bill of Quantities, the day work rates shall be arrived at by the Contractor, based on basic input costs acceptable to the Engineer.

6.4.3 In respect of all work executed on a day work basis, the Contractor shall, during the continuance of such work furnish the following to the Engineer, everyday, so that one copy each of the same, if correct or when agreed, be signed by the Engineer and returned to the Contractor, based on which, at the end of each week the Contractor shall deliver to the Engineer a priced statement of the labour, material and plant used:

- a) Exact list in duplicate of the names, occupation and time of all workmen employed on such work and a statement also in duplicate showing the description and quantity of all materials used thereon or therefore.
- b) Quotations for material etc., before ordering the same.
- c) Receipts or other vouchers as may be necessary to prove the amounts paid.

7.0 Site

7.1 Possession of the Site

7.1.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data, the Employer is deemed to have delayed the start of the relevant activities and this will be a Compensation Event as described elsewhere in this document.

7.2 Awareness of Site

7.2.1 The Contractor shall visit, inspect and examine the site and its surroundings and shall satisfy himself before submitting his tender as to the form and nature of the site conditions, facilities necessary for the completion of Electrification works and maintenance of the Works and the means of access to the site, the accommodation and other facilities that may be required, statutory requirements and in general shall himself obtain all necessary informations as to working conditions, risks and contingencies.

7.2.2 The tender is deemed to have taken all these aspects into account and all rates quoted shall be deemed to be inclusive of all costs thereof.

7.3 Access to Site and Works

7.3.1 The Contractor shall allow at all times the Engineer and any person authorised by the Engineer access to the Site and do the Works, to any place where work or any activity in connection with the Contract is being carried out or is intended to be carried out and to any place where materials are being sourced / assembled for the Works.

7.3.2 The Contractor is obliged to ensure adequate technical manpower to answer queries of the Engineer or his representative at all such venues and at all such times as the Engineer desires.

7.4 Land for Contractor

7.4.1 The Employer will, at his discretion and for the duration of the Electrification / maintenance period, make available land and / or structures, free of charge, within and / or near the site of Work, for the Contractor to establish his site office, stores, site storage yard and the like, as required for the execution of the Contract.

7.4.2 The costs incurred by the Contractor in setting up of temporary utilities, fencing, accesses, etc., shall be full borne by him and no payment is due from the Employer in this regard.

7.4.3 It is obligatory on part of the Contractor to ensure hygienic conditions in regard to the Temporary Facilities set up by him. Good sanitation and cleanliness shall be ensured.

7.4.4 Land or any other facilities for lodging the supervisory staff of the Contractor and the labour shall not be made available by the Employer and the Contractor has to make his own arrangements, including conveyance. Where, in the opinion of the Engineer, such land needs to be provided in the interests of the Work and is also available, it shall be provided to the Contractor free of charge to the extent and for periods as decided by the Engineer.

7.5 Clearing the Site

7.5.1 On completion of Works and / or termination of Contract, utilities, fencing, accesses, etc., set up by the Contractor and all Temporary Works shall be dismantled and removed from the site by the Contractor, leaving the site and Works clear and cleaned of all obstructions, at his cost. In the event of Contractor's failure to do so



the Employer reserves the right to clear the site in the manner as he may deem necessary and the costs and expenses thereof as incurred by the Employer shall be debited to the Contractor's Account, without prejudice to any other measures the Employer is empowered to take under the Contract

7.6 Discoveries

- 7.6.1 All discoveries, including fossils, coins, articles of value or antiquity and structures and other remains or items of geological or archaeological and other interest encountered within the site shall be deemed to be the absolute property of the Employer and the Contractor shall take all precautions to prevent his workmen or any other persons from removing or damaging any such article or item and shall immediately upon discovery thereof before any action or removal by him or his personnel and labour, except for ensuring proper security for the same, acquaint the Engineer of such discovery and carry out at the expense of the Employer, the Engineer's order as to the dealing with or disposal of the same.

7.7 Unauthorized use

- 7.7.1 The Contractor and his employees / workmen and the Contractor's Subcontractors and their employees / workmen are forbidden to unauthorisedly use or misuse the Employer's / Public property or utility and if any such misuse / unauthorised use occurs, the Employer may take severe actions against the Contractor including setting the direct and indirect damages / losses, etc., onto the payments due to the Contractor, removal of the workmen concerned and forfeiture of their entry passes, in addition to statutory and legal actions on the Contractor. Such recurrent action by the Contractor will also be considered as persistent negligence on the part of the Contractor to carry out his obligations under the Contract.

8.0 Temporary Works and utilities

- 8.1 The Contractor shall arrange for and provide, at his own cost, all necessary temporary facilities and utilities and Temporary Works in manner and quality as approved by the Engineer.
- 8.2 Any facilities created by the Contractor to this end are deemed to be enabling works and are covered in the Contract Price, no extra being paid by the Employer.
- 8.3 On completion of the work, or at earlier times as directed by the Engineer, the Contractor at his own cost shall remove all the temporary facilities and temporary utilities set up by him, including items such as bore wells, pipelines, storage facilities, enclosures and sheds, unless their retention is permitted by the Employer.
- 8.4 The Employer reserves the right to takeover any part or all of the above, at prices to be mutually agreed upon which in any case will not be more than the actual cost incurred by the Contractor less depreciation at standard rates and also considering the condition and level of wear and tear thereof.

8.5 Approval by the Engineer

- 8.5.1 The Contractor shall, at his cost, be responsible for the design of Temporary Works and shall submit specifications, design back up and drawings showing the proposed Temporary Works to the Engineer for his approval. The methodology and conditions specified under the clauses in this GCC in respect of Drawings shall apply.
- 8.5.2 The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works, the durability and stability and serviceability during erection and usage.
- 8.5.3 The Contractor shall, at his cost, obtain approval of third parties to the design of the Temporary Works where so directed by the Engineer.

8.6 Water

- 8.6.1 The Contractor, at his own cost, shall make arrangements for sourcing, storage, handling and conveyance of water for Electrification and maintenance works, as well as for the consumption of his men and plant, from the existing wells, if any, or public utilities where available and permitted, or by setting up, with the approval of the Engineer.
- 8.6.2 The Employer reserves the right to draw water from the storage setup or installation / distribution lines laid by the Contractor, if he requires the same for any of his other works executed directly or through other contractors in which case the Contractor's Account would be credited, at mutually agreed rates.

- 8.6.3 If water is made available by the Employer, which in any case is purely at the discretion of the Engineer, the same shall be at charges fixed by the Engineer and on conditions stipulated by him and on other conditions for the installations and the supply organisation. In such case, the Employer does not guarantee to maintain uninterrupted supply of water and it will be incumbent on the Contractor to make alternative arrangements for water at his own cost to take care of any breakdown in the supply as aforesaid. No claim of damage or refund of the charges against water shall be entertained on account of such breakdown.

8.7 Electricity

- 8.7.1 No electrical power supply will be provided by the Employer and the Contractor shall make his own arrangements for the power required for the Works and Temporary Works.
- 8.7.2 If electrical power is made available by the Employer, which in any case is purely at the discretion of the Engineer, the same shall be at charges fixed by the Engineer and on conditions stipulated by him and on other conditions for the installations and the power supply organisation.
- 8.7.3 In such cases, the Contractor shall, at his cost, tap the power at one or more points as decided by the Engineer and set up and operate his own electrical system downstream, including metering, control gear, safety gadgets, cabling and wiring and end points. All electrical work thus carried out or installed by the Contractor shall be set up and maintained by qualified personnel holding appropriate license for the voltage class involved and shall be in conformity with statutory regulations, rules and recommended practices thereof.
- 8.7.4 The Contractor shall ensure that the electrical equipments employed by him are such that the aggregate power factor does not fall below 0.85 and to this end shall install, at his own cost, power-factor improving equipment.
- 8.7.5 Notwithstanding anything hereinabove, the Employer does not guarantee to maintain uninterrupted supply of power and it will be incumbent on the Contractor to make alternative arrangements for power at his own cost to take care of any breakdown in the supply as aforesaid. No claim of damage or refund of the charges against power shall be entertained on account of such breakdown.

8.8 Lighting

- 8.8.1 The Contractor shall, at his own cost, make his own arrangement for the required lighting in and around the work spots, for the purpose of Electrification works, including movement of persons and inspection by the Engineer and other authorities and general safety and security.
- 8.8.2 The presence of any lighting arrangements made by the other contractors or by the Engineer or public utilities shall not in any way relieve the Contractor of his responsibility to provide his own lighting arrangements.

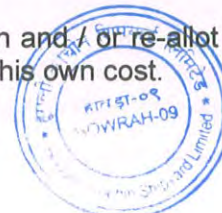
8.9 Rectification of utilities

- 8.9.1 The Contractor shall ensure that utilities, including those for water, electricity and barriers of the Employer or public concerns or utility companies or other contractors shall be used to the extent permitted, with utmost care. All damages occurring to these due to the use or misuse by the Contractor, his Subcontractors or his men or machinery or vehicles shall be rectified by the Contractor, where he is not barred from doing so, at his own cost. This shall not relieve or indemnify the Contractor from any claims for his payment of damages or penalties or charges that the Employer or utility company or others concerned may call for.

8.10 Construction yards and premises

- 8.10.1 Where the Contractor is permitted by the Engineer to set up a yard or enclosure for the purposes of the former activities in respect of this Contract, it shall be limited to demarcating appropriate extent of land or the space within an existing enclosure or building, for a specified period.
- 8.10.2 The Contractor shall provide at his own cost necessary utilities and other facilities, including barriers for safety and security, where he is not barred to do so, and watch and ward and lighting. The level of security provided by the Contractor, in terms of keeping the above premises under lock & key, etc., shall be to the extent approved by the Engineer. Where directed by the Engineer, the Contractor shall keep the accesses to and into these premises open, continuously or from time to time, to facilitate the Engineer's activities outside the Contract or for any other reason.
- 8.10.3 With progress of time, the Engineer may de-allot a particular location and / or re-allot at another location as he deems fit and the Contractor shall forthwith shift his establishment at his own cost.

8.11 Site Office, stores and work places





- 8.11.1 The Contractor shall organise his activities at Site from within the Site, by operating a Site Office therein, unless otherwise stated in the Contract Data or Special Conditions of Contract.
- 8.11.2 The Site Office, store and work place premises shall be at locations as approved by the Engineer and shall be allotted by the Engineer. The Engineer shall demarcate either land or spaces within an existing enclosure, all the conditions relevant to yard as herein above being applied.
- 8.11.3 Where called for by the Engineer, the Contractor shall, at his own cost, provide space for the Engineer's activities, within the Site Office herein above described. The Contractor shall furnish this space, provide light ventilation and toilet facilities, as directed by the Engineer.

9.0 Cooperation and coordination

- 9.1 The Contractor shall plan and execute his work in a phased manner as approved / directed by the Engineer from time to time and shall fully cooperate with and share the Site with other agencies working simultaneously thereon as well as with the Employer's operations so as not to obstruct or retard the work being executed by other agencies and the Employer's operations in any way.

9.2 Interference

- 9.2.1 All operations necessary for the execution of the Works and any Temporary Works shall, so far as compliance with the requirements of Contract permits, be carried on so as not to interfere unnecessarily or improperly with public convenience and the access to use and occupation of public or private roads and footpaths or other properties whether in possession of the Employer or of any other person and the Contractor shall save harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters.
- 9.2.2 The Contractor shall use every reasonable means to prevent any of the public roads, highways, culverts or bridges communicating with or on the routes to the Site from being subjected to extraordinary traffic, within the meaning of the Road Traffic Act, by any traffic of the Contractor or any of his Subcontractors and in particular shall select routes and use vehicles and restrict and distribute loads so that any such extra-ordinary traffic as will inevitably arise from the moving of the plant and materials to and from the Site shall be limited as far as reasonably possible and so that no unnecessary damages or injury may be occasioned to such roads, highways, culverts and bridges. Where instructed by any local authority or the police in regard to traffic, the Contractor shall abide by such instructions at his own cost and risk in terms of time and any extra mobilisation thereof.

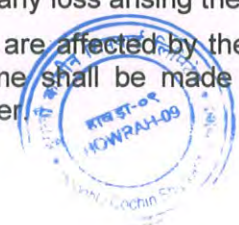
9.3 Facilities for others

- 9.3.1 The Contractor shall in accordance with the requirement of the Engineer afford all reasonable facilities for any other contractors or parties employed by the Employer and their workmen and for workmen of the Employer and of any other properly authorised authorities or statutory bodies who may be employed or deployed in execution or inspection on, within or near the Site of any work included or not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the Works.

9.4 Coordinating work

- 9.4.1 The Contractor shall carry out at his own cost final finishing to the portions of his Works, where such portion such as surfaces and / or sections have experienced in, on or about, the work of other contractors. He shall ascertain all particulars relating to the other works with regard to the order of their execution and the position in which chases, holes, etc., will be required before any particular portion of his Work is taken in hand. He shall be particularly careful about the position of concealed work. Until and unless he is satisfied with the position and placing of all the concealed work of the Contractor or other contractors or parties, the Contractor may not be allowed by the Engineer to take up certain parts of the Works or other associated works. The Contractor's rate shall include for any losses due to any likely delay or shortfall in coordinating with the other contractors or parties. No claim will be admissible on account of lack of co-ordination and / or any loss arising thereof.
- 9.4.2 Where the work of other contractors and parties or the Employer's operations are affected by the Work of the Contractor, to the extent of creating undue obstruction or damage, the same shall be made good by the Contractor at his own cost and within reasonable time as decided by the Engineer.

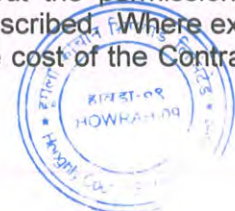
9.5 Engineer's decision



- 9.5.1 The decision of the Engineer on any point of dispute between the various contractors, or parties deployed or an authorities shall be final and binding on all the parties to the dispute.

10.0 Safety and Security

- 10.1 The Contractor shall be responsible for the safety of all his activities on the Site and those relating to his Work on the Site and shall abide by all the safety and security regulations of the Employer in force and brought into force from time to time and other statutory requirements as per law or local Government promulgation and recommendations thereof. This applies to the safety of all labour and supervisory staff, work under progress enabling works, Temporary Works, plant, equipment, tools, tackles, vehicles, etc. and speed restrictions for vehicles, traffic restrictions, etc.
- 10.2 The Contractor shall at all times ensure adherence to stipulations and recommendations laid down by the Bureau of Indian Standards in regard to safety, guarding of works, sequence of works, etc.
- 10.3 The Contractor shall further ensure that his workmen observe the safety rules, regulations and precautions and ensure observance of all necessary measures to prevent accidents.
- 10.4 The Contractor shall, in connection with the Work, provide, maintain and use at his own cost first-aid kits, safetyware, lights, guards, cautionary boards, fencing, watch & ward when and where necessary or required for the safety and convenience of the public, safety of his or Employer's personnel engaged on the Electrification maintenance and protection and safety of Works against damage on account of fire and other occurrences and acts.
- 10.5 In case of failure on the part of the Contractor to implement the above measures to the satisfaction of the Engineer, the Employer is at liberty to get them done by others at the Contractor's cost.
- 10.6 The Contractor shall keep the Employer indemnified in all respects, including legal and financial, in regard to matters pertaining to safety, loss, pilferage and accidents. This shall apply to such of those cases involving the material, plant, vehicles, equipment, labour, workmen, tradesmen or any individual either directly or indirectly deployed by the Contractor or the Engineer.
- 10.7 All costs towards complying with the safety and security requirements set forth herein shall be borne by the Contractor and no payment from the Employer is admissible under any circumstances.
- 10.8 The Contractor shall, as promptly as reasonably possible and in writing, bring to the notice of the local legal authority and the Engineer, the occurrence of accidents, thefts, sabotage or acts of vandalism and forthwith take all steps and measures required in such an exigency and implement the directions of the Engineer.
- 10.9 Only bonafide individuals shall be allowed access into or around the site. The Engineer may issue non-transferable admit / gate passes, with or without photograph, in favour of bonafide individuals, including the labour force, supervisory staff, etc. Nominal charges towards issue of admit / gate passes, their re-issue in case of damage, etc., shall be borne by the Contractor. The Contractor shall return such passes to the Employer from time to time when an individual's deployment has ceased and at the end of the Work.
- 10.10 The Employer / his security force reserve the right to prohibit entry of any individual into or near the site, at their sole discretion and without assigning any reasons, any individual being bound to forthwith leave the Site where so demanded by them, without assigning any reasons.
- 10.11 The Engineer shall permit visitors into the Site only after necessary approval.
- 10.12 All materials, plant, tools, tackles, etc., brought into or near the site by the Contractor or his representative are liable for check by the Engineer and / or his security force. These shall be got registered with them at the time of their entry into the Site. The withdrawals from Site shall be based on permit to be issued by the Engineer. This shall also apply to any other items to be taken out of the site by the Contractor. Any material, plant etc., or individual not related to the due execution of the Contract shall not be allowed into the site.
- 10.13 Explosives**
- 10.13.1 Explosives shall not be used on the work by the Contractor without the permission in writing of the Engineer and then only in the manner and to the extent to which he has prescribed. Where explosives are used the same shall be stored in special magazine to be provided by and at the cost of the Contractor who shall be





liable for all damages, loss or injury to any person or property and shall be responsible for complying with a statutory requirements / obligations in these respects.

11.0 Protection of Environment

- 11.1 The Contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his activities and methods of operation.
- 11.2 During continuance of the Contract, the Contractor and his Subcontractors shall abide at all times by all existing enactments on environmental protection and rules made thereunder, regulations, notifications and bye-laws of the State or Central Government or local authorities, and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.
- 11.3 The Contractor shall bear all costs pertaining to the protection of environment, in so far as they concern or relate to his activities and shall indemnify the Employer against all actions, penalties or such other actions that are attracted by his activities.

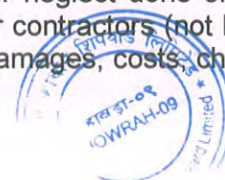
12.0 Care of Works

- 12.1 From the commencement to the completion of the works, and maintenance thereof, the Contractor shall take full responsibility of the care of the Works and of all Temporary Works.
- 12.2 In case any damage, loss or injury shall happen to them from any cause whatsoever, save and except the Expected Risks as defined elsewhere herein, the Contractor shall at his own cost repair and make good the same so that at completion the Works, or any other earlier instant of time as required by the Engineer, they shall be in good order and condition and in conformity in every respect with the requirements of the Contract and the Engineer's instructions.
- 12.3 The Contractor shall also be liable for any damage to the Works or any other works of the other contractors or the Employer or public bodies or utility companies occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under this Contract.
- 12.4 Notwithstanding the aforesaid, in the event of any such damage, loss or injury happening from any of the Expected Risks, the Contractor shall if and to the extent required by the Engineer, repair and make good at the cost of the Employer.

12.5 Damages to persons and property

- 12.5.1 The safety and security aspects to be taken care of by the Contractor are elaborated elsewhere in this document.
- 12.5.2 The Contractor shall, except in so far as the Contract otherwise provides, indemnify and keep indemnified the Employer and Engineer against all losses and claims for injuries or damages to any person or property whatsoever, including surface or other damage to land or trees or crops being on the site, suffered in consequence of the Electrification and maintenance of the works, and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or to indemnify the Employer against any compensation of damages for or with respect to:
- a) The permanent use or occupation of land by the Works or any part thereof, save in respect of damages to crops as aforesaid.
 - b) The right of the Employer to construct the Works or any part thereof on over, under, in or through any land.
 - c) Interference, whether temporary or permanent, resulting in the dilution or hindrance to or negation of any right or light, airway, way or other easement or quasi-easement which is the unavoidable result of the construction of the Works in accordance with the Contract.
 - d) Injuries or damages to persons or property resulting from any act or neglect done or committed during the currency of the Contract by the Employer, his agents, servants, other contractors (not being employed by the Contractor) or for or in respect of any claim demands, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto.

12.6 Insurance





- 12.6.1 Before commencing the execution of the works the Contractor, without limiting his obligations and responsibilities under this Contract, shall insure, in terms of third party insurance coverage, against any damage loss or injury which may occur to any property (including that of the Employer) or to any Person (including an employee of the Employer) by or arising out of the execution of the Works or Temporary Works or in the carrying out of the Contract other than due to the matters referred to in the provisions under the clause herein above titled Damages to persons and property.
- 12.6.2 Minimum amount of third-party insurance is stated in the Contract Data and the Contractor shall whenever required produce to the Engineer the valid policy or policies of insurance and the receipts for payment of the current premium.
- 12.6.3 The Contractor shall maintain and shall require his Subcontractors to maintain in full force and effect, from insurance companies in India acceptable to the Engineer, from the time of execution of his Agreement:
- a) All such insurances as are required by law for the purpose of the Contract at the cost of Contractor.
 - b) All such insurances required in respect of equipment purchased out of advance received from Employer at the cost of Contractor.
 - c) Any additional insurance required specifically by the Employer / Engineer at the cost of Employer.
- 12.6.4 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:
- a) Loss of or damage to the Works, Plant and Materials.
 - b) Loss of or damage to equipment.
 - c) Loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract.
 - d) Personal injury or death.
- 12.6.5 Contractor shall ensure that the insurer shall furnish to the Engineer and Employer as evidence of such insurance a copy of the issued policy and any amendments thereto and prompt notification of any cancellation or termination thereof.
- 12.6.6 Alterations to the terms of an insurance coverage shall not be made without the approval of the Engineer.
- 12.6.7 Both parties shall comply with any conditions of the insurance policies.
- 12.6.8 Should Contractor default in paying any premium when due, Engineer or Employer, without prejudice to other remedies set forth in this Contract shall be at liberty to pay such premium and recover the same from Contractor.
- 12.6.9 Any such insurance requirements are hereby established as the minimum policies and coverages, which Contractor must secure and keep in force. Contractor shall at all times be free to obtain additional or increase coverage at Contractor's sole expense.
- 12.6.10 The provisions contained within this Article are not intended and do not impair or in any manner limit the liabilities or obligation assumed by Contractor as may be set forth more fully elsewhere in this Agreement.
- 12.6.11 Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.0 Plant, Materials & Labour

- 13.1 Except where otherwise specified, the Contractor shall at his own expense, supply and provide all the Electrification materials, both for Temporary and permanent Works and maintenance work, necessary manpower and labour, including the supervision thereof, transport to or from site and in and about the Works and other things of every kind required for the Electrification and maintenance of the Works. The Contractor shall promptly arrange spare parts, consumables, fuel, lubricants, etc. for the equipment, etc., as and when necessary, at his own cost.





13.2 A non-exclusive list of plant, equipments, machinery, gadgets, tools and tackles is specified in the Special Conditions of Contract.

13.3 Adequacy

13.3.1 If, in the opinion of the Engineer, the tools, tackles, plant and equipment, instruments, gadgets, materials, etc brought to site or arranged by the Contractor, are not sufficient or are inadequate, the Engineer shall have the right to direct the Contractor and the Contractor shall comply with the directions and arrange to bring such additional tools, tackles, plant and equipment, instruments, gadgets, materials, etc., to the site and employ them the same for the work at his own cost.

13.4 Liability against loss or injury to plant

13.4.1 The Employer shall not at any time be liable for the loss or of injury to any of the Plant, Temporary Works or materials, irrespective of them being deemed to have been vested with him.

13.5 Irremovability

13.5.1 All materials, equipments and Temporary Works, or any part thereof, shall not be removed from the Site without the written consent of the Engineer.

13.5.2 Such consent shall not be unreasonably withheld where the aforesaid items are no longer immediately required for the purposes of completion of the Work, but the Employer will permit the Contractor the exclusive use of such Temporary Works and materials in and for the completion of the Works until the occurrence of any event which gives the Employer the right to exclude the Contractor from the Site and proceed with the completion of the Works.

13.5.3 Similarly, all enabling or Temporary Works built or setup by the Contractor are not to be dismantled without the written approval of the Engineer.

13.6 Plant, Equipment, Tools and Tackles

13.6.1 The Contractor shall mobilise and maintain in working condition adequate numbers of plant, equipments, machinery, gadgets, tools and tackles during the period of Electrification work, some of these being required during the period of maintenance also.

13.6.2 The cost of mobilizing, maintaining, manning, operating, using and withdrawing them after completion of the work is deemed to be fully covered under the Contract amount and separate payment or reimbursement is not to be made by the Employer.

13.7 Plant and Machinery by employer

13.7.1 Where, in the opinion of the Engineer, requirement exists for deployment of certain plant or machinery or gadgets and the Contractor is unable to mobilise the same, and the Engineer has at his disposal such items either directly or as part of the mobilisation of other contractors, the Engineer may, at his discretion, offer them same on hire and / or sharing basis to the Contractor.

13.8 Engineers' discretion

13.8.1 The Engineer reserves the right to give on hire or arrange on hire or share basis particular Electrification equipment to a particular contractor without assigning any reason whatsoever.

13.9 Obligations of the Contractor

13.9.1 The Employer's inability to provide requisite Electrification equipments on hire or share to the Contractor shall not be taken as an excuse for slow progress and non-performance of the work or for bad workmanship or for non-fulfilment of contractual obligations of the Contractor.

13.9.2 Further, this does not absolve the Contractor of his obligation to mobilise his own plant or machinery or gadget and he shall have no right in this regard or have a claim against any decision of the Engineer to offer or not to offer the same.

13.10 Charges

13.10.1 The hire or share charges for such equipments, if made available to the Contractor, the arranging for an cost of operating manpower and consumables, upkeep and maintenance and related aspects and the debit in of account shall be as approved by the Engineer from time to time.





13.10.2 Where such hire or share is directly from or with another contractor, the Engineer shall decide on the methodology for debiting and crediting the accounts of the contractors.

13.11 Materials

13.11.1 The quality aspects of the materials to be used by the Contractor are elaborated elsewhere in this General Conditions of Contract.

13.11.2 The Contractor shall furnish the Employer with vouchers for any material on demand within seven days to prove that the materials are as specified.

13.12 Substitution

13.12.1 Should the Contractor desire to substitute any materials of work, he must secure the approval of the Engineer in writing for any such substitution well in advance.

13.12.2 Materials described in the specification or in the bill of quantities indefinitely, by such terms as 'equivalent' or 'other approved', etc. shall be considered as coming under the provision of this clause as substitution and no such materials shall be used until specific approval of Engineer has been received in writing.

13.12.3 Where the name / names of manufactures are specified in the Bill of Quantities, the tendered rates shall cover supply of materials of such manufacturers only. In the case, where the Engineer accepts or directs use of substitute manufacture of those materials, the tender rates shall be suitably adjusted by the amount equivalent to the difference of the cost of materials of the specified manufacture and of substitute manufacture. For deciding the amount of such adjustment in rate, the manufacturers' latest price lists shall be taken as the basis for such calculation and the Engineer's decision in interpreting the price lists and / or the calculations thereon shall be final and binding.

13.13 Materials obtained from dismantling, excavation, etc.

13.13.1 All materials, including stone, rubble and other materials, obtained in the work of dismantling, excavation etc., will be considered as Employer's property.

13.13.2 The Engineer may, as deemed fit by him, issue the same to the Contractor for use in the Works, at rate approved by the Engineer, or call for their disposal by the Contractor to the best advantage of the Employer.

13.13.3 Costs against disposal, handling and related activities, if covered in a separate and specific item in the Bill of Quantities, are deemed to be covered in the corresponding item rate in the Bill of Quantities, whereas in all other cases they shall be borne by the Contractor, no payment from the Employer being admissible.

13.14 Patent Rights & Royalties

13.14.1 The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design, trademark or name or other protected rights in respect of any machine, work or material used for or in connection with the Electrification works and / or Temporary Works and from and against all demands, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

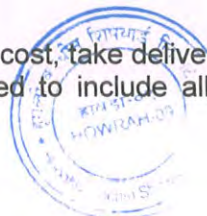
13.14.2 Except where otherwise specified, the Contractor shall pay all tollages and other royalties, rent and other payments, if any, for getting materials to the site required for the Electrification works and / or Temporary Works.

13.15 Materials by Employer

13.15.1 The Employer may arrange to issue materials to be incorporated in the permanent Works, as may be stipulated in the Preamble to Bill of Quantities, wherein the aspect as to their issue by the Employer either as on free-issue basis or as on recovery basis is also stated. The Contractor at his own cost shall arrange for all other materials required for the Works.

13.15.2 In cases where, in the opinion of the Engineer, the Employer can issue materials for Temporary Works and / or maintenance works, the terms, conditions, and methodology for such issue shall be as in the case of such material for permanent Works.

13.15.3 Where issued by the Employer, the Contractor shall at his own cost, take delivery of the materials from the places of issue and the Contractor's quoted rates shall be deemed to include all costs for taking delivery





loading, transporting, unloading, handling, stacking and storage including rehandling as required, insurance watch & ward and security.

- 13.15.4 All the materials issued by the Employer shall remain the absolute property of the Employer and at a times shall be open for inspection by the Engineer, who shall be free to make any surprise check of the Contractor's stores to verify the stock and condition of the materials. The responsibility in case of any loss damage or theft of these materials after they have been issued to the Contractor shall rest entirely with the Contractor.

13.16 Requisition

- 13.16.1 The Contractor shall keep the Engineer informed regarding his requirement of materials to be supplied by the Employer. He shall also submit every month to the Engineer in writing, in the prescribed proforma, three months requirement of materials, indicating quantities and the backup details / calculations thereof. In case of Contracts with a work-duration of less than three months, this periodicity shall be one week.
- 13.16.2 The Contractor shall keep himself in touch with the day-to-day position regarding the supply of material from the Employer and to so adjust the progress of the work such that his labour and plant may not remain idle nor there be any other claim due to or arising from delay in obtaining the materials. No claim whatsoever shall be admitted by the Employer on account of delay in supplying materials.

13.17 Emergency procurement

- 13.17.1 Notwithstanding the above, where materials to be issued by the Employer are delayed for whatever reason, the Contractor may, as the situation requires and with specific permission of the Engineer, procure on his own such of those materials in such of those quantities as mutually agreed, at prices approved by the Engineer, in which case necessary adjustment shall be made in the account of the Contractor.
- 13.17.2 The Engineer's decisions in all aspects of this matter shall be final and binding.

13.18 Intertransfer

- 13.18.1 The Engineer reserves the right to inter transfer materials issued by the Employer from one contractor to another if it becomes necessary during the course of execution of Works and the Contractor shall abide by such decisions and extends all necessary assistance in this regard.
- 13.18.2 Such transfer of materials shall be regularised by issue of suitable material return notes and stores issue notes and recorded in the registers pertaining to the materials.

13.19 Bonafide use

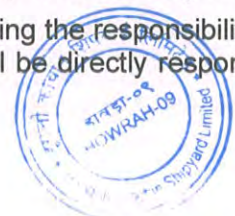
- 13.19.1 The Contractor shall not divert or convert any materials issued by the Employer for his own use or for any other use not connected with the Works entrusted.
- 13.19.2 These materials shall not be removed from the site by the Contractor for any reason whatsoever without the written permission of the Employer.

13.1 Accounting

- 13.1.1 The system and methodology of accounting the materials issued by the Employer to the Contractor and related aspects are laid down in the Special Conditions of Contract.

14.0 Manpower

- 14.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or otherwise and for their payment, housing, feeding, welfare and transport.
- 14.2 The Contractor shall be deemed the principal Employer for the purpose of determining the responsibility under the statute and he shall get registered with the concerned statutory authority and shall be directly responsible to the authorities thereunder for compliance with the provisions thereof.



14.3 The employees of the Contractor and the Subcontractor in no case shall be treated as the employees of the Employer at any point of time.

14.4 Compliance with Labour Regulations

14.4.1 During continuance of the Contract, the Contractor and his Subcontractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notifications that may be issued under any labour law in future either by the State or the Central Government or the local authority.

14.4.2 Salient features of some major labour laws applicable to establishments engaged in Electrification works are listed elsewhere in this document. These include but are not limited to stipulations on the protection of health, sanitary arrangements, wages, fair wages, provident fund, welfare, amenities, safety measures, maintenance of registers, etc.

14.4.3 The Contractor shall also be fully responsible for the observance of the above provisions by his Subcontractors.

14.5 Indemnity

14.5.1 The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments thereof.

14.5.2 If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications / bye laws / acts / regulations including amendments, if any, on the part of the Contractor, the Engineer / Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer / Engineer shall also have the right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

14.6 Returns of Labour

14.6.1 The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the several classes of labour from time to time employed by the Contractor and his Subcontractors on the Site, and / or off the Site in connection with this Work, and such other informations as the Engineer calls for.

14.6.2 Where directed by the Engineer or any statutory authority, the Contractor shall submit in the prescribed proforma periodical statements of labour and workmen employed by him, either directly or indirectly, indicating the details of persons categorised as per locally applicable statute, displaced persons, persons belonging to scheduled castes / tribes, etc. Local statute in regard to employment of persons shall be adhered to.

14.7 Authorised Agent

14.7.1 The Contractor shall have a duly authorised agent at site, to be constantly on the Works giving his whole time to the same, from the commencement to the completion of the work and as long thereafter as the Engineer may consider necessary.

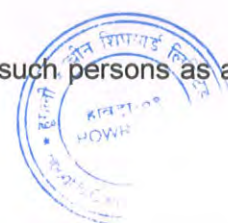
14.7.2 The agent shall not be changed (unless required by the Engineer) and shall be continued till completion of the Contract unless the consent of the Engineer has been previously obtained for the change of the Agent.

14.7.3 Such agent shall be of an acceptable designation and authorised to act on behalf of the Contractor, to accept notices under the Contract and to agree to extra and varied items of works and rates for the same and to receive on behalf of the Contractor, directions and instructions from the Engineer or his representative. Such agent shall be in charge of the coordination with the Engineer and other contractors and parties at site and superintendence of the Work and shall maintain in his staff qualified Engineers and such other personnel as may be required for efficient execution of the Works and compliance with the Contract.

14.7.4 Any notice under the Contract shall be deemed to have been served on the Contractor if served upon such agent at site or sent by registered letter to the agent's address.

14.8 Competent personnel

14.8.1 The Contractor shall employ in and about the execution of the Works only such persons as are careful, skilled and experienced in their respective trades.



- 14.8.2 The Contractor shall deploy competent and qualified Engineers constantly on the work who will be responsible for carrying out the work to the satisfaction of the Engineer. Any directions or instructions given to them shall be deemed to have been given to the Contractor.
- 14.8.3 The Contractor shall send at his own cost a duly authorised competent representative to meet the Employer at his office or at any other place within the country in connection with his Works whenever called upon to do so by the Employer or Engineer and any instructions, directions or explanations given by the Employer or by the Engineer to such representatives shall be deemed to have been given to the Contractor for compliance.
- 14.8.4 The Electrification works or Temporary Works or their parts pertaining to certain specialised trades shall be carried out only by qualified and certified personnel. In all Electrical contractor, holding valid license issued by the local Government for carrying out installation work of the voltage class involved, under the direct supervision of a person holding a certificate of competency for the same voltage class, issued or recognised by the State Government, is mandatory.

14.9 Removal of Workmen

- 14.9.1 The Engineer shall be at liberty to object to and require the Contractor to remove from the Works and ensure no further connection with the Work in the Contract, any person either directly or indirectly employed by the Contractor in or about the execution of the Works who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties and such persons shall not be again employed upon the Works in any capacity without the prior written permission of the Engineer.

14.10 Accident or injury to Workmen

- 14.10.1 The Employer shall not be liable for in respect of any damages or compensation payable at Law in respect of or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or any Subcontractor save and except an accident or injury resulting from any act or default of the Employer, his agents or servants and the Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation (save and except as aforesaid) and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect or in relation thereto.
- 14.10.2 In cases where, due to the exigency of the situation, the Employer has borne any costs, expenses or compensation or paid any amounts against penalties in connection with any accident or injury, against which the Employer / Engineer stand indemnified, the Employer shall (without prejudice to any other means of recovery) be entitled to debit the same to the Contractor's Account.

14.11 Salient features of some major labour laws applicable to establishments engaged in building and other construction work

- a) Workmen Compensation Act 1923: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed five years service or more or on death the rate of 1 (fifteen) days wages for every completed year of service. The Act is applicable to all establishment employing 10 (ten) or more employees.
- c) Employees PF and Miscellaneous Provisions Act 1952: The Act Provides for monthly contributions by the Employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:
 - i) Pension or family pension on retirement or death, as the case may be.
 - ii) Deposit linked insurance on the death in harness of the worker
 - iii) Payment of PF accumulation on retirement / death, etc.
- d) Maternity Benefit Act 1951: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage, etc.
- e) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 (twenty) or more contract labour.

- f) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, and Runways are scheduled employments.
- g) Payment of Wages Act 1936: This Act lays down as to be what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- h) Equal Remuneration Act 1979: The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions, etc.
- i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 (twenty) or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and a maximum of 20% of wages to employees drawing Rs.3,500/- per month or less. The bonus to be paid to employees getting Rs.2,500/- per month or above upto Rs.3,500/- per month shall be worked out by taking wages as Rs.2,500/- per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.
- j) Industrial Disputes Act 1947: The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the State and Central government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.
- l) Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in Building and Construction Industry.
- n) Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Services) Act 1979: The Act is applicable to an establishment which employs 5 (five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, travelling expenses from home upto the establishment and back, etc.
- o) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other construction work and employ 10 (ten) or more workers are covered under this Act. All such establishments are required to pay a cess at the rate not exceeding 2% (two percent) of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, First-aid facilities, Ambulance, Housing accommodations for workers near the work place, etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- p) Factories Act 1948: The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to a premise employing 10 (ten) persons or more with aid of power or 20 or more persons without aid of power engaged in manufacturing process.



- 15.1.1 Time is the essence of this Contract, even if this Contract empowers the Employer to grant extension of time in certain circumstances, in which case the existing terms and conditions of this Contract shall apply, without an additional financial liability to the Employer.
- 15.1.2 The work covered under this Contract is to be executed in a sequential and well-coordinated manner so as to give priority to work for other Contractors or Employer's activities. With this objective, the Contractor has to execute the work as per the Programme, as herein below defined, making all necessary arrangements including planning for executing the work in as many shifts as necessary and also on Sundays and holidays as per the requirement as well as carrying out the Works intermittently wherever called for or found necessary.
- 15.1.3 The Contractor is in no way entitled to any extra payment on account of implementing the Programme and following any particular sequence of work, intervals in work, work on holidays or Sundays, overtime payment and idling charges for men and machinery, establishment, overheads or any aspect thereof.

15.2 Dates

- 15.2.1 The Contract Data specifies the Start Date and the Intended Completion Date.
- 15.2.2 The Contractor shall commence execution of the Works on the Start Date and complete them by the Intended Completion Date, as specified by the Employer and / or in accordance with the Programme, as valid and in force at any particular instant of time,
- 15.2.3 The Start Date may be revised before acceptance of the Tender, at the sole discretion of the Employer, in which case revision of the Intended Completion Date is also at the sole discretion of the Employer. The Contractor is bound to adhere to such revised dates.

15.3 Programme

- 15.3.1 Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order and timing for all the activities in the Work along with monthly / weekly cash flow forecast.
- 15.3.2 All time-based data and informations in the Programme shall be depicted with a week as the unit of time.
- 15.3.3 An update of the Programme shall be a Programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities, invariably showing the effect of Variations and Compensation Events, if any.
- 15.3.4 The Contractor shall submit to the Engineer, for approval, updated Programmes at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme in time, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.
- 15.3.5 In this Contract, at any instant of time, an updated Programme is the Programme, in so far as interpretation of any time-related matters is concerned.
- 15.3.6 The Engineer's approval of the Programme shall not alter any of the Contractor's obligations under this Contract.

15.4 Extension of the Intended Completion Date

- 15.4.1 The Engineer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, such acceleration causing the Contractor to incur additional cost.
- 15.4.2 The Engineer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation along with detailed supporting information.
- 15.4.3 If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.
- 15.4.4 Without prejudice as to the meaning and contractual implications of the Intended Completion Date, the Contract Data may specify or the Engineer may, at any time before or after the Start Date, specify or approve, completion

dates for individual parts of the Work, these being termed as In-part Completion Dates and always being earlier to or co-terminus with the Intended Completion Date.

15.5 Early Warning

15.5.1 The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of works.

15.5.2 The Engineer may require the Contractor to provide, as soon as reasonably possible, an analysis and estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date.

15.5.3 The Contractor shall cooperate with the Engineer in making and considering proposals as to how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instructions of the Engineer.

15.6 Delays and suspensions ordered by the Engineer

15.6.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

15.6.2 The Contractor shall on the written order of the Engineer suspend the progress of the Works or any part thereof for such time or times and such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer.

15.6.3 Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to the Engineer within 21 days of the Engineer's order, the extra cost, if any, incurred by the Contractor in giving effect to the Engineer's instructions under this clause shall be borne and be paid by the Employer, as decided by the Engineer, unless such suspension is:

- a) otherwise provided for in the Contract, or
- b) necessary for the proper execution of the work or by reason of weather or other conditions or by some Default on the part of the Contractor, or
- c) Necessary for safety of Works or any part thereof.

15.7 Suspension lasting more than three months

15.7.1 If the progress of the Works or any part thereof is suspended on the written order of the Engineer for more than three months, the Contractor may serve a written notice on the Engineer requiring permission within 30 days from the receipt thereof to proceed with the Works or that part thereof in regard to which the progress is suspended.

15.7.2 If permission as aforesaid is not granted within that time as aforesaid, the Contractor by a further written notice so served may, but is not bound to, elect to treat the suspension, where it affects part only of the Works as an omission of such part under the clause pertaining to Alterations, additions and omissions, or where it affects the whole Works as an abandonment of the Contract by the Employer, without attaching any liability thereof on the Employer.

15.7.3 If at any time the Employer finds that any particular work is not progressing properly according to the Programme, the Employer will have the right, without prejudice to applying any other of his rights or invoking any other provisions of this Contract, to take over the particular work for execution by himself or through any other contractor or agency at the risk and cost of the Contractor.

15.8 Possession of site and instructions for work

15.8.1 Save in so far as the Contract may prescribe the extent of portions of the Site of which the Contractor is to be given possession from time to time and the order and sequence in which such portions shall be made available to him and subject to any requirement in the Contract as to the order and sequence in which the work shall be executed, the Employer will, with the Engineer's written order to commence the works, give to the Contractor possession of so much of the site and drawings and instructions as may be required to enable the Contractor to commence and / or proceed with the Works in accordance with the Programme. If there is delay in handing over the possession of the site to the Contractor, in accordance with the terms of this clause, the Engineer shall grant suitable extension of time for the completion of the works.

15.9 Management Meetings





- 15.9.1 Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the planning for remaining work and to deal with matters raised in accordance with the early warning procedure.
- 15.9.2 The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer.
- 15.9.3 The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

15.10 Liquidated damages for delay

- 15.10.1 Liquidated Damages shall constitute a genuine pre-estimate of damages duly agreed to by the parties to this Contract.
- 15.10.2 If the Contractor fails to complete the Works within the Intended Completion Date or the In-part Intended Completion Dates, then the Contractor shall pay to the Employer the sum stated as Liquidated Damages in the Contract Data for such default, and not as a penalty, for every week or part of a week which shall elapse between the time prescribed herein above.
- 15.10.3 Liquidated damages pertain to a situation where completion of the Works has been delayed and in no way substitute or get substituted by any other penalties, such as for not achieving milestones, which might have been levied on the Contractor. The milestones, as described elsewhere in these documents, are therefore linked to intermediate stages of Electrification works only and not to the completion of Works.
- 15.10.4 The Employer may, without prejudice to any other method of recovery, debit the Contractor's Account to the extent of the Liquidated Damages.
- 15.10.5 The payment or deduction or debiting of Liquidated Damages shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.
- 15.10.6 The total amount of Liquidated Damages shall not exceed the amount defined in the Contract Data.

15.11 Reduction and adjustment of Liquidated Damages

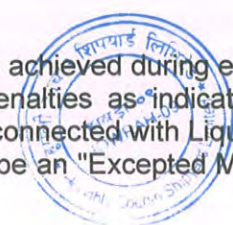
- 15.11.1 If before the completion of the whole of the Works, any part of the Works has been certified by the Engineer as completed pursuant to this Contract and occupied or used by the Employer, the liquidated damage for delay shall for any period of delay after such certification be reduced in the proportion which the value of the part so certified bears to the value of the whole of the works.
- 15.11.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.
- 15.11.3 The Contractor shall be paid interest on such over payment calculated from the date of payment to the date of repayment at the rates specified under the clause titled Interest on Late Payment.

15.12 Certificate of completion of works

- 15.12.1 As soon as in the opinion of the Engineer the Works shall have been virtually completed the Engineer shall on receiving a written undertaking by the Contractor to finish any outstanding work during the period of maintenance, issue a certificate of virtual completion in respect of the Works and the period of maintenance of the Works shall commence from the date of such certificate provided that the Engineer may give such a certificate with respect to any substantial part of the Works which has been both completed to the satisfaction of the Engineer and occupied or used by the Employer and when any such certificate is given in respect of a part of the Works such part shall be considered completed and the period of maintenance of such part shall commence from the date of such certificate. Provided always that a certificate of virtual completion given in accordance with the foregoing provisions of any part of the Works occupied and used aforesaid shall not be deemed to certify completion of any ground or surface requiring reinstatement unless such certificate shall expressly so state.

15.13 Milestones

- 15.13.1 Various Milestones as indicated in the Contract Data are required to be achieved during execution of work. Non-achievement of a Milestone within the specified time shall attract penalties as indicated against each activity of works. The penalties shall be non-refundable and not in any way connected with Liquidated Damages that shall be imposed as per terms of Contract. These penalties shall also be an "Excepted Matter" as defined under General Conditions of Contract.





- 15.13.2 In the event of non-fulfillment of Milestones during the specified period, the penalty as indicated against each shall be levied / recovered from the next Bill which shall not be refunded to the Contractor irrespective of completion of the overall work.
- 15.13.3 However, due to any reason attributable to the Employer, if it is not possible to achieve a particular Milestone / Milestones within the specified period, a suitable amendment in the period of affected / related Milestones shall be made as deemed fit by the Engineer whose decision shall be final, binding and conclusive and shall be an Excepted Matter as defined in General Conditions of Contract. In such cases, the Levy of penalty shall be linked with the fulfillment of the amended Milestones(s). The Contractor shall not have any claim on account of such changes / postponement of Milestones.
- 15.13.4 Three successive failures of fulfilling Milestones by the Contractor may entail cancellation of Contract and getting the work done at his Risk and Cost. This is also an Excepted Matter as per General Conditions of Contract.

16.0 Quality

16.1 Responsibility

The Contractor is fully and solely responsible for the quality of the Works and their components and no particular action or absence of action by the Engineer shall absolve him of this responsibility. To this end, the Contractor shall implement quality assurance and quality control measures which shall encompass the following:

- 16.1.1 Material, whether of manufactured, fabricated.
- 16.1.2 Workmanship, in incorporating the material in the Works, in ensuring intended dimensions, line and level and in ensuring that the Works or parts thereof do not get affected by subsequent or allied or other activities.
- 16.1.3 Achieving intended levels of operation and serviceability.
- 16.1.4 Systems and practices to be adhered to by the Contractor and the mechanism to implement the same as specified in the various parts of this Contract documents, including, but not necessarily limited to the following aspects:
- a) Skilled and competent labour and supervisory manpower.
 - b) Careful selection of materials.
 - c) Good practices in putting together the Works and their components.
 - d) Good practices in maintaining the Works and their components, during the Electrification work as well as during the Period of Maintenance.
 - e) Testing of materials and components of work, including inspection of all items comprising moving / mechanical / electrical items, including testing for their performance in their unconstructed or unassembled state as well as in finished state in the Works.
 - f) Ensuring and enforcing guarantees and warranties against manufactured items.
 - g) Documentation.

16.2 Quality Assurance Plan

- 16.2.1 The Contractor shall, within two weeks of the receipt of the Letter of Acceptance from the Employer, submit to the Engineer, a detailed quality assurance plan (QAP) envisaged by him for ensuring due and proper adherence to quality as required by the Contract.
- 16.2.2 The QAP shall describe in detail the organisation and methodology, checks and controls, as well as the correction mechanisms built into the QAP system to be implemented at the Site and elsewhere, for ensuring quality inputs into the work and quality outputs and results.
- 16.2.3 The Engineer shall be entitled, from time to time and at any time, to make or cause to be made such additions, modifications or alterations in the QAP as he considers necessary to improve the QAP, the decision of the Engineer in this regard being final and binding on the Contractor, and the Contractor shall thereafter follow the QAP as added, modified or altered by the Engineer.

16.3 Defects





Development of Fire Fighting system for SRF
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- 16.3.1 In so far as quality is concerned, any deviation of the Works, or any component and part thereof, from the intended in the Contract is termed as a Defect.
- 16.3.2 A Defect, when noticed or notified by the Engineer, shall be rectified by the Contractor without demur notwithstanding any certification or measurement made or certified by the Engineer prior to such instance.
- 16.3.3 All materials and workmanship shall conform to the specifications and drawings issued from time to time and be free of all Defects. In case any aspect of quality is not covered by the specifications and drawings issued, shall conform to the relevant codes of the Bureau of Indian Standards and / or as directed by the Engineer.
- 16.3.4 The Engineer may at any time check the Contractor's work and notify the Contractor of any Defects that are found. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.
- 16.3.5 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the short length of time specified by the Engineer's notice.
- 16.3.6 The Defect Liability Period shall be extended for as long as Defects remain to be corrected.
- 16.3.7 If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor's account debited, without prejudice to any other action the Engineer may enforce.
- 16.3.8 The Engineer shall, during the progress of the Works have the right to order in writing from time to time the removal from the site, within such time or times as may be specified in the order, of any materials or items which, in the opinion of the Engineer, are not in accordance with the Contract.

16.4 Covered-up works

- 16.4.1 No work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up or put out of view and to examine items before their concealment.
- 16.4.2 The Contractor shall give due notice to the Engineer whenever any such work is ready or about to be ready for examination and the Engineer shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or for examining such items.
- 16.4.3 The Contractor shall uncover any part or parts of the Works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer.
- 16.4.4 If any such part or parts have been covered up or put out of view after compliance with the requirements of the preceding clause and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Employer, but in any other case all such expenses shall be borne by the Contractor and shall be recoverable from him by the Employer or may be debited by the Engineer to the Contractor's Account.

16.5 Tests

- 16.5.1 The specifications prescribe various tests at specified intervals for ascertaining the quality of the Work done. Mandatory tests, if indicated in the Specifications, shall be conducted, without fail.
- 16.5.2 If the Work is found unsatisfactory or if the tests prove unsatisfactory, the Engineer shall have the authority to order the Contractor to re-do the work done in that period and / or to order such alternations that may be necessary at the cost of the Contractor, and the Contractor shall be bound to carry out such orders, failing which the Engineer shall be at liberty to get the rectification / re-doing done through other agencies and debit the cost thereof to the Contractor's Account.
- 16.5.3 If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
- 16.5.4 Notwithstanding anything indicated in this Contract, all materials shall be subject to inspection and approval by the Employer from time to time and the Contractor shall provide all facilities for inspection free of cost.



16.5.5 The Engineer will reject such materials which do not conform to the specifications and no claims for compensation on this account, including any plea that order for the material has already been placed by the Contractor on the manufacturer / supplier, will be entertained. Notwithstanding the above, the Contractor is under obligation to submit samples for approval, well ahead of his actual procurement.

16.5.6 The Contractor shall, at his own cost, provide and use and make available for the use of the Engineer, all necessary instruments, appliances and labour in connection with quality control / assurance or testing therewith.

16.5.7 The Contractor is under obligation to afford the Engineer all opportunities to be physically present and certify all sampling, testing and reporting of results or the workmanship in execution.

16.6 Laboratory

16.6.1 The Contractor shall set up, at his cost, a laboratory at Site, or elsewhere if permitted by the Engineer, complete with all necessary gadgets, instruments and qualified manpower, for the purpose of testing materials, components and systems. The requirement of such site laboratory and the minimum requirement of facilities thereof are indicated in the Contract Data.

16.6.2 Notwithstanding the site laboratory, the Engineer may call for testing at any third-party laboratory or institution at the cost of the Contractor.

16.6.3 Cost of all samples, sampling, all testing and all costs incidental thereto are to be borne by the Contractor, no other payment being admissible and the Contract Price being deemed to cover all of them.

16.7 Samples

16.7.1 Samples of all bought-out items and such other items as may be indicated by the Engineer, shall be furnished by the Contractor, at his own cost, for approval of the Engineer, accompanied by complete details as to the source / mark / intended position in the Works, etc.

16.8 Guarantees and warranties

16.8.1 All guarantees / warranties such as those for manufactured items, water proofing etc., for the entire Works are obtained from the manufacturers or specialist agencies shall be transferred to the Employer by the Contractor prior to acceptance of such works, and the Contractor shall be responsible for such works during the guarantee period also.

16.8.2 The Contractor shall ensure that the terms and conditions and effective commencement and closing dates for the guarantees / warranties are to the best advantage of the Employer and he shall be bound by the Engineer's directions in this regard.

16.9 Documents

16.9.1 The following documents shall be furnished by the Contractor to the Engineer, from time to time and not later than the time limits that may be indicated by the Engineer, failure to do so attracting penal action and / or debiting of the Contractor's account, to the extent indicated in the Contract Data and / or omitting the relevant parts of the Works from the measurements thereof. These shall be furnished notwithstanding any copies or partial copies that may be already available with the Engineer:

- a) Manufacturer's certificates and test certificates for materials and items.
- b) Guarantees and warranties for both electrical and mechanical items, etc. and procedure-intensive works including waterproofing, cable-jointing etc., a list and formats of these being furnished by the Contractor not later than two weeks from such an item or work being identified as being part of the Work.
- c) Certificates on control, checking and test of materials.
- d) Test reports.
- e) Quality assurance records.

16.9.2 In case of systems involving mechanical or other devices or processes, and where the Contract specifies that performance testing and / or commissioning is under the scope of the Contract, performance and acceptance tests shall be carried out by the Contractor at his own cost, subject to any stipulation as to the contrary in the Bill of Materials, as detailed elsewhere in this Contract, more specifically in the Special Conditions of Contract.

16.10 Preliminary and final acceptance tests





- 16.10.1 Where preliminary and final acceptance tests are required for the Works, these have been described in the Special Conditions of Contract.

17.0 Defect Liability Period

- 17.1 This Contract is for Fire Fighting Works as intended and spelt out in the Contract, fulfilling all the requirements including and not limited to quality and workmanship.
- 17.2 The Contractor is required to maintain the Works for a specified period, herein referred to as Defect Liability Period or Period of Maintenance, during which he shall rectify, free of cost to the Employer, all defects that may come to notice.

17.3 Commencement

- 17.3.1 On completion, the Works will be taken over by the Employer as per the handing over / commissioning sequence by listing out any defects to be attended / rectified within a time limit as brought out by the inspection committee or by the Engineer.
- 17.3.2 The taking over will be certified by the Engineer. The maintenance period will be counted from the date of such taking over and as elaborated below.

17.4 Duration

- 17.4.1 The duration of the Defect Liability Period is specified in the Contract Data, calculated from the date of completion of the Works as per Completion Certificate or in the event of more than one certificate having been issued by the Engineer, from the respective dates of the Completion Certificates for parts of the Work.

17.5 Execution of Work or repair, etc

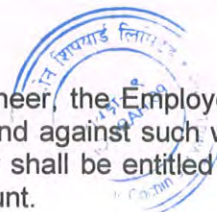
- 17.5.1 The Contractor shall deploy, to the extent required and desired by the Engineer, his organisation and manpower throughout the Defect Liability Period, ensuring adequate superintendence and tradesmen with necessary tools, tackles, plant and material.
- 17.5.2 Where the Engineer has noticed an apparent defect, he shall direct the Contractor to attend to the same and rectify the same within a stipulated time.
- 17.5.3 The Engineer's action in this regard shall not absolve the Contractor's obligation to continuously and systematically search for defects and attend to the same.
- 17.5.4 The Contractor shall ensure that his activities during this period do not hinder, impinge upon, adversely effect or damage any of the activities of the Employer or other Contractors or agencies or parts of the structure and Works.
- 17.5.5 To the extent that the Works shall, at or as soon as practicable after the expiration of the Period of Maintenance be not delivered to the Employer in as good and as perfect a condition (fair wear and tear expected) to the satisfaction of the Engineer as that in which they were at the commencement of the Period of Maintenance, the Contractor shall forthwith execute all such work of repair, amendment, rectification and making good of defect or other faults as may be required of the Contractor in writing by the Engineer during the period of maintenance or within fourteen days after its expiration.

17.6 Cost of execution of repair, etc.

- 17.6.1 All repair and rectification work pertaining to the Defect Liability Period, inclusive of any consumables thereof shall be carried out by the Contractor at his own expense if the necessity thereof is in the opinion of the Engineer due to the use of materials or workmanship not in accordance with the Contract or to the neglect or failure on the part of the Contractor to comply with any obligation expressed or implied on the Contractor's part under the Contract.

17.7 Remedy on Contractor's failure to carry out repair

- 17.7.1 If the Contractor shall fail to do any such work as aforesaid required by the Engineer, the Employer shall be entitled to carry out such work by his own workmen or through other contractors and against such work which the Contractor should have carried out at the Contractor's own cost, the Employer shall be entitled to recover from the Contractor the cost thereof or may debit the same to the Contractor's Account.





- 17.7.2 The Contractor shall indemnify the Employer against any loss or liability that may be incurred by him on account of any failure on the part of the Contractor for timely rectification of the defects pointed out within the Defect Liability Period.
- 17.7.3 The release of retention money / security deposit against each unit / Work shall be after completion of the Defect Liability Period of such unit / parts of the Work as per discretion of the Engineer.

18.0 Cost and payment

18.1 Contract Price

- 18.1.1 The Bill of Quantities is used to calculate the Contract Price.
- 18.1.2 The initial Contract Price is the aggregate of the amounts against the individual items in the Bill of Quantities as referred to up to the stage of Letter of Acceptance and formalizing the Contract agreement.
- 18.1.3 The Contract Price is in no way a fixed figure, being subject to revisions from time to time in respect of the actual quantities executed and / or any other changes as may be incorporated in the Contract, in the manner and to the extent provided for in the Contract, subsequent to the Letter of Acceptance issued by the Engineer.

18.2 Bill of Quantities

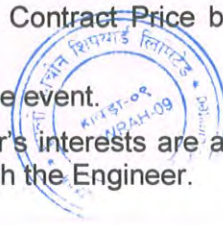
- 18.2.1 The Bill of Quantities contains the items, along with rates thereof, which the Contractor has to install, test, commission and hand over.
- 18.2.2 The Contractor is to be paid for the actual item-wise quantities of the work done at the item-wise rates in the Bill of Quantities.
- 18.2.3 Items of work for which no rate or price has been entered in the Contract will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.
- 18.2.4 Bill of Quantities Account denotes the account of the Contractor comprising the item-wise amounts and the aggregate, including the valuation of Variations and Compensation Events, only, but not applying the amount pertaining to securities, retentions, advances, recoveries, deductions, penalties and adjustments.
- 18.2.5 The Bill of Quantities Account shall be the basis for computing the retention as hereinafter defined and the amounts of securities that the Contractor is required to provide and maintain.

18.3 Changes in the Quantities

- 18.3.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for a particular item by more than 50 percent, provided the change exceeds 3% of initial Contract Price, the Engineer shall adjust the rate for the particular item only to allow for the change.
- 18.3.2 In case the final quantities of any items stand nil at completion of Work, adjustment of any kind in the rates for other items is not permitted.
- 18.3.3 The Engineer shall not adjust rates for changes in quantities, if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.
- 18.3.4 If requested by the Engineer, the Contractor shall provide the Engineer with a detailed cost breakdown of an item rate in the Bill of Quantities.

18.4 Variations in cost

- 18.4.1 All Variations shall be included in updated Programs and cash flow projections produced by the Contractor showing inter alia changes in the Cost and time.
- 18.4.2 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Engineer and the Contract Price shall be adjusted accordingly.
- 18.4.3 If the Contractor's forecast is deemed unreasonable, the Engineer shall adjust the Contract Price based on the Engineer's own forecast.
- 18.4.4 The Engineer will assume that the Contractor will react competently and promptly to the event.
- 18.4.5 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer.





18.5 Payments for Variations

- 18.5.1 The Contractor shall provide the Engineer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Engineer. The Engineer shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Engineer and before the work pertaining to the Variation is done.
- 18.5.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Engineer, the quantity of work above the limit stated in Clause hereinabove titled Variation in Quantities, or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in form of new rates for the relevant items of work.
- 18.5.3 If the Contractor's quotation is unreasonable, the Engineer may order the Variation and make a change to the Contract Price, which shall be based on Engineer's own forecast of the effects of the Variation on the Contractor's costs.
- 18.5.4 If the Engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
- 18.5.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

18.6 Retention

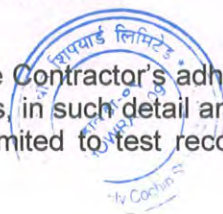
- 18.6.1 The Employer shall retain from each payment due to the Contractor, the proportion stated in the Contract Data until Completion of the whole of the Works.
- 18.6.2 The methodology for release of retention money and the conditions thereof are described elsewhere in this document under the clauses pertaining to closure of contract.

18.7 Bills

- 18.7.1 The Contractor shall submit to the Engineer periodical statements of the value of the work completed less the cumulative amount certified previously.
- 18.7.2 In this Contract, these statements, when appended with and comprising detailed measurements and calculations for the quantities thereof and corresponding amounts as per rates in the Contract, including the valuation of Variations and Compensation Events, together with statements of account for all financial transactions in respect of securities, indemnity bonds, retentions, advances, recoveries, deductions, penalties and adjustments, are termed as Bills.
- 18.7.3 The measurements of all the items of work shall be taken regularly and submitted every running by the Contractor for checking and certification by the Engineer; which the Engineer will normally check and return with corrections, if any, within a period of seven days, subject to the measurements being submitted in proper order and in approved format. All the bills prepared by the Contractor shall be based on these measurements certified by the Engineer. If the Contractor fails to submit proper measurement sheets in time, the Engineer has the option of not certifying the bills.
- 18.7.4 Payments against Bills, except in the case of Final Bill, shall be considered as progress payments and shall be regarded as payment by way of advance against final payments only and not as payment for the work completed till the date of progress payment.
- 18.7.5 The progress payments made shall not preclude the liability of the Contractor to finally complete the work strictly in accordance with the specifications and drawings, if required, by reconstructing or re-erecting and ensuring that all Defects, even where discovered subsequent to the payment, are eliminated.

18.8 Documents along with Bills

- 18.8.1 All Bills shall be accompanied by statements and records to establish the Contractor's adherence to all aspects pertaining to quality of Work and all applicable laws, rules and regulations, in such detail and in such formats as may be insisted upon by the Engineer and shall include but not be limited to test records and certificates





remittances in respect of all taxes, duties, cess, royalties and seignorages, proof of payments made to subcontractors, labour and workmen and insurance coverages.

- 18.8.2 Bills are liable to be treated as incomplete and not fit for certification in the event of any shortfall in respect of the above statements and records.

18.9 Periodicity of Bills

- 18.9.1 The Contractor shall submit his Bills at intervals not less than the period specified in the Contract Data.

- 18.9.2 The Engineer may require of the Contractor to submit Bills on specified dates, in the interests of discipline in checking and reconciling measurements and ease of coordination between the Contractor and the Engineer in sorting out points that may need clarifications from either side.

18.10 Minimum amount for certification

- 18.10.1 Bills, except Final Bills, which, before or after checking by the Engineer, fall short of the amount specified in the Contract Data may not be certified for payment by the Engineer and will have to be treated as cancelled and their contents incorporated into subsequent Bills.

18.11 Period of certification

- 18.11.1 The Engineer shall check the Contractor's Bills and within 14 days of the Contractor's submission of the Bills complete with all corrections called for and clarification of all their contents, certify the amount to be paid to the Contractor.

- 18.11.2 The final measurements, valuations and certification thereof in respect of the Contract are described in the clause hereof titled Final Bill.

18.12 Amending previous certifications

- 18.12.1 The Engineer may, in any of the Bills, make necessary entries to exclude any item certified in a previous Bill or reduce the proportion of any item previously certified in any Bill or carry out amendments and corrections in the light of later information.

18.13 Payments

- 18.13.1 Payments shall be adjusted for deductions pertaining to advance payments, retention, other recoveries in terms of the Contract and taxes, at source, as applicable under the law. In case of any ambiguity in the rates at which such deductions at source are to be made, the benefit of doubt shall be exercised to deduct at the highest of such rates.

- 18.13.2 The Employer shall pay the Contractor the amounts certified by the Engineer within the number of days from the date of each certificate, as indicated in the Contract Data.

- 18.13.3 Notwithstanding the above, where specified in the Contract Data, the Employer shall pay to the Contractor a fixed percentage of the amount billed by the Contractor, within the time also specified in the Contract Data reckoned from the date of submission of the Bill, subject to the Engineer not having notified the Employer to desist from the same for any reason whatsoever. In such cases, the payment subsequent to the Engineer's certification of the Bill shall be adjusted for the amount already paid as above.

18.14 Mode of payment

- 18.14.1 All payments by the Employer to the Contractor shall, unless otherwise specified in the Contract Data, be in Indian Rupees, in the form of account payee cheques or demand drafts or bank pay orders, as the Employer opts from time to time, all bank charges thereof being to the Contractor's Account.

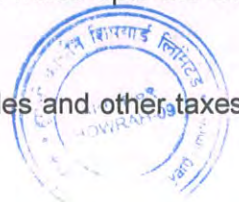
18.15 Interest on late payment

- 18.15.1 If the payments by the Employer are delayed by more than one month from the due date, the Employer may consider payment of interest to the Contractor on the late payment and release it along with the next payment.

- 18.15.2 Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made, at normal bank rates.

18.16 Tax

- 18.16.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes, duties and seignorages that the Contractor will have to pay for the performance of this Contract.





- 18.16.2 The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

19.0 Closing the Contract

- 19.1.1 The Contract shall, except where otherwise provided for under the other clauses in this Contract, be deemed to be completed and fit for closure when the Engineer has satisfied himself as to the due completion by the Contractor of all the requirements of the Contract, including the due maintenance of the Works and all other activities as provided for in the Contract.
- 19.1.2 The actions to be taken by the Contractor and the Engineer as a pre-requisite for closure of the Contract are specified in the other clauses of this document.

19.2 Completion Certificate

- 19.2.1 Save for the requirements as to the Defect Liability Period, the Contractor shall fulfill all other requirements of the Contract, whereupon the Engineer shall issue a Completion Certificate.
- 19.2.2 The Engineer shall decide whether any uncorrected Defect can reasonably be classified as one that can be expected to be taken care of during the Defect Liability Period or to the contrary whether its correction shall be a prerequisite for issue of Completion Certificate.
- 19.2.3 Issue of Completion Certificate shall denote the readiness of the Works for their taking over by the Employer, the commencement of the Defect Liability Period and shall be deemed as authorising the Contractor to raise his Final Bill, while in no way absolving the Contractor of obligations and duties in respect of Defect Liability.

19.3 Multiple Completion Certificates

- 19.3.1 Where completion of Works in parts is specified in the Contract Data or specifically provided for in the Contract, the Engineer shall issue completion certificates for each of such parts.
- 19.3.2 In such cases, the Defect Liability Period for each of the parts shall commence at the issue of each such completion certificate.
- 19.3.3 The last completion certificate shall be deemed as authorisation to the Contractor to raise his Final Bill.
- 19.3.4 Notwithstanding the aforesaid, the Programme for the work may indicate further multiple completion dates consistent with the order and sequence and efficiency of Electrification work or specific requirement of the Employer during the course of Electrification works.
- 19.3.5 The matter of further multiple completions calling for corresponding further multiple Completion Certificates shall be mutually agreed, well ahead of such dates.
- 19.3.6 In such cases, all other conditions as to a single completion certificate as specified hereinabove shall apply.

19.4 Taking over ahead of issue of Completion Certificate

- 19.4.1 Any part of the work may be put to his own use by the Employer, even in the absence of the corresponding completion certificate, based on his urgency and requirement, in which case the Contractor is bound to fulfill his obligations as if this does not in any way denote Completion or taking over.

19.5 Period of maintenance

- 19.5.1 The period of maintenance, also termed as Defect Liability Period, for this Contract is specified in the Contract Data. The obligations, duties and responsibilities of the Contractor in this regard and other details are specified elsewhere in this document.

19.6 Maintenance Certificate

- 19.6.1 The Contract shall not be considered as completed until a maintenance certificate shall have been signed by the Engineer and delivered to the Employer stating that the Works have been completed and maintained to his satisfaction.
- 19.6.2 The maintenance certificate shall be issued by the Engineer fourteen days after the expiration of the Defect Liability Period, which is the period of maintenance, or as soon thereafter as any works ordered during the Defect Liability Period shall have been completed to the satisfaction of the Engineer and full effects shall be given to this clause notwithstanding any previous entry on the Works or the taking possession, working or using thereof of any part by the Employer.



19.7 Approval only by maintenance certificate

19.7.1 No certificate other than the maintenance certificate defined hereinabove shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the Contract or any part thereof or of the accuracy of any claim or demand made by the Contractor or of additional or varied work having been ordered by the Engineer nor shall any other certificate abridge or prejudice any of the powers of the Engineer.

19.8 Cessation of Employer's Liability

19.8.1 The Employer shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract or the execution of the Works unless the Contractor shall have made a claim in writing in respect thereof before requesting for issue of the Maintenance Certificate under the above clauses.

19.9 Multiple maintenance certificates

19.9.1 Where applicable due to existence of multiple completion certificates as specified hereinabove, multiple completion certificates shall be issued.

19.9.2 The last maintenance certificate shall be deemed to be the last certification by the Engineer for closing a financial matters pertaining to this Contract and closure of the Contract.

19.10 Retention Money

19.10.1 The Employer shall retain from each payment due to the Contractor, the proportion stated in the Contract Data until Completion of the whole of the Works, as a surety and guarantee of proper performance by the Contractor.

19.11 Release of Retention

19.11.1 The parts and proportions of the Retention Money, for the purposes of its release, are specified in the Contract Data.

19.11.2 The first part of the retention money shall become due to the Contractor when the Engineer issues the Completion Certificate and the second, being the last, part thirty days after the issue of the Maintenance Certificate.

19.11.3 The Employer shall be entitled to withhold, and the Contractor is bound to forfeit, so much of the first or second parts of the retention money as shall in the opinion of the Engineer represent the cost of the works not executed to the Engineer's satisfaction.

19.11.4 Where multiple completion certificates or multiple maintenance certificates exist, the amounts due to the Contractor shall be in multiple fractions of the above parts, each fraction valued based on the value of Electrification works as done and / or as per the discretion of the Engineer as to the relative values of the repair and risks thereof.

19.11.5 The Contractor may substitute the second part of the retention money, in a form and style specified in the Contract or as may be approved by the Engineer.

19.12 Completion

19.12.1 The Contractor shall request the Engineer to issue a Certificate of completion of the Works and the Engineer will do so upon deciding that the Work is completed.

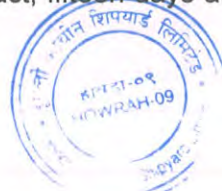
19.13 Taking Over

19.13.1 The Employer shall take over the Site and the Works within seven days of the Engineer issuing the certificate of Completion.

19.14 Final Account

19.14.1 The Contractor shall supply to the Engineer, in the form and style of the Final Bill, a detailed account of the total amount that the Contractor considers payable under the Contract, fifteen days after the end of the Defect Liability Period.

19.15 Components of Final Bill



19.15.1 The Final Bill shall be complete in all respects, showing all details as to the following accounts:

- a) The Bill of Quantities Account.
- b) Advances that may have been made by the Employer to the Contractor.
- c) Materials, if any, provided by the Employer, including reconciliation details.
- d) Account of all penalties and / or damages payable to the Employer by the Contractor.
- e) Payments by the Contractor to the Employer in respect of any plant, machinery, etc., water, electrical power and the like.
- f) Payments or costs incurred by the Employer in respect of any payments or dues to third parties or bodies or statutory bodies, where such costs were to be borne by the Contractor.

19.16 Documents to accompany Final Bill

19.16.1 The Final Bill shall be accompanied by the following, which may have been elaborated upon elsewhere in this document, in formats approved by the Engineer, failing which the Engineer may decide not to accept the Final Bill and treat it as due from the Contractor:

- a) Completion certificates and maintenance certificates.
- b) Records of Quality Assurance, including test certificates and all records thereof.
- c) Original Guarantees and Warranties obtained from others.
- d) As-built drawings.
- e) List and copies of all change / variation orders issued by the Engineer, to the extent as may be specified by the Engineer at that time.
- f) Clearance certificate from Labour Department.
- g) Clearance certificate from PF authorities.
- h) Clearance certificate from insurance authorities.
- i) Certificates of payment in respect of sales tax or other applicable taxes.
- j) No-claim undertaking by the Contractor.

19.17 Action on Final Bill

19.17.1 The Engineer shall certify Final Bill and any final payment that is due to the Contractor within 56 days of receiving the Contractor's Final Bill, if it is correct and complete. If it is not, the Engineer shall issue within 5 days a schedule that states the scope of the corrections or additions that are necessary.

19.17.2 If the Final Bill remains unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's corrected Final Bill.

19.17.3 In case the Contractor fails to submit a corrected Final Bill within 28 days of being called for, the Engineer at his discretion may close the Contractor's Account, debiting and /or crediting it with the sums he deems fit, in which case the Employer may, notwithstanding the Engineer's certification, opt not to make any payments to the Contractor for as long as he deems fit. Such withheld payments shall not attract any interest whatsoever.

19.17.4 If the Engineer's certification as aforesaid indicates that money is due from the Contractor to the Employer, it shall be treated as a debt and shall be recoverable, with interest and / or damages, as per law, not in any way comforted by any provisions in this Contract, which anyway in such an event, shall be deemed as closed.

20.0 Termination of Contract

20.1.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

20.2 Fundamental breach of Contract

20.2.1 Fundamental breaches of Contract include, but shall not be limited to the following:

- a) The Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorised by the Engineer.





- b) The Engineer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 28 days.
- c) The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
- d) A payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate.
- e) The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer.
- f) The Contractor does not maintain a security that is required.
- g) The Contractor has delayed the completion of Works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract Data; and
- h) The Contractor, in the judgment of the Employer, has engaged in Corrupt or Fraudulent practices in competition for or in the executing the Contract.

20.2.2 When either party to the Contract gives notice of a breach of Contract for a cause other than those stated herein above as fundamental breach of contract, the Engineer shall decide whether the breach is fundamental or not.

20.2.3 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

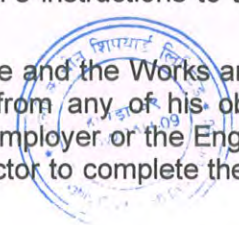
20.3 Termination of Contract by the Employer

20.3.1 Notwithstanding the above, the Employer may terminate the Contract for convenience.

20.3.2 The Employer may terminate the Contract after giving seven days notice in writing to the Contractor, such action caused due to, but not limited to:

- a) Contractor shall become bankrupt or have a receiver's order made against him or shall present his petition in bankruptcy or shall make an arrangement with or assignment in favour of his creditors or shall agree to carry out the Contract under a committee of inspection of his creditors or (being a corporation) shall go into liquidation (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) or if the Contractor shall assign the Contract without the consent in writing of the Employer first obtained or shall have an execution levied on his goods.
- b) The Engineer certifies in writing to the Employer that in his opinion the Contractor has not fulfilled his obligations to the following extent, some of these hereinabove being defined as fundamental breach of Contract:
 - i) Has abandoned the Contract, or
 - ii) Without reasonable excuse has failed to commence the Works or has suspended the progress of the Works for 28 days in a month at a stretch or intermittently after receiving from the Engineer written notice to proceed, or
 - iii) Has failed to execute the work according to the Programme agreed upon or,
 - iv) Has failed to proceed with the Works with due diligence, or
 - v) Has failed to remove materials from the site or to pull down and replace work for 14 days after receiving from the Engineer written notice that the said materials or work have been condemned and rejected by the Engineer, or
 - vi) Is not executing the Works in accordance with the Contract, or is persistently or flagrantly neglecting to carry out his obligations under the Contract, or
 - vii) Has, to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary, sub-let any part of the Contract,

20.3.3 In the event of termination of the Contract, the Employer may enter upon the site and the Works and expel the Contractor therefrom without avoiding the Contract releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the right and powers conferred on the Employer or the Engineer by the Contract and may himself complete the Works or may employ any other Contractor to complete the Works and





the Employer or such other Contractor may use for such completion so much of the Electrification work Temporary Works and materials which, anyway, have been deemed to become the property of the Employer under the provisions of clause titled Vesting of Plant, etc., all as deemed fit by the Engineer and the Employer may at any time sell any of the said constructional plant, Temporary Works and unused materials and apply the proceeds of sale in or towards the satisfaction of any sum due or which may become due to him from the Contractor under the Contract, without prejudicing any other means available to the Employer to preserve his rights under the Contract.

20.4 Valuation at date of termination of Contract

- 20.4.1 The Engineer shall as soon as may be practicable after any such entry and expulsion by the Employer fix and determine exparte or by or after reference to the parties or after such investigation or enquiries as he may think fit to make or institute and shall certify what amount (if any), had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract and what was the value of any unused or partially used materials, any Electrification work and Temporary Works upon the site which, anyway, have been deemed to become the property of the Employer as per the relevant clauses in this Contract.
- 20.4.2 In arriving at the amount of such payment or value, the net rates contained in the Contract shall be followed except where the same may not apply valuation shall be made in accordance with the provisions in this Contract for valuation of variations.
- 20.4.3 Provided always that the Employer shall not be liable for payment of any claims or losses arising on account of suspension or stoppage of work under force majeure circumstances beyond the sum payable for the work already executed.

20.5 Termination of Contract by Contractor:

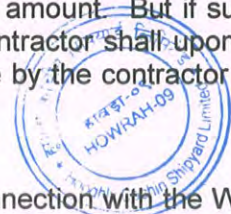
- 20.5.1 If the Employer commits any act of insolvency or if the Employer shall be adjudged an insolvent or shall make an assignment or composition for the benefit of the greater part in number or amount of his creditors or shall have an order made against him or pass an effective resolution for winding up either compulsory or subject to the supervision of the court or voluntarily or if the official assignee of the Employer shall repudiate the Contractor, if the official assignee or the liquidator in any such winding up shall be unable within 14 days after notice to him requiring him so to do to show to the reasonable satisfaction of the Contractor that he is able to carry out and fulfill the Contract and to make all payments due and to become due thereunder and if the work be stopped for three months or more at a stretch under the order of the Engineer or by an injunction or other order of any court of law for reasons not attributable to the Contractor then and in any of the said cases the Contractor, subject to provision contained in the clause hereof titled Suspension Lasting more than Three Months, shall be at liberty to determine the Contract by notice in writing to the Employer through the Engineer and he shall be entitled to recover from the Employer payment for all Works executed and for any loss he may sustain upon any plant or materials supplied or purchased or prepared for the purpose of the Contract.

20.1 Payment after termination of Contract

- 20.1.1 If the Employer shall enter and expel the Contractor under this clause, he shall not be liable to pay to the Contractor any money on account of the Contract until the expiration of the period of maintenance and thereafter until the costs of completion and maintenance, damages for delays in completion (if any) and all other expenses incurred by the Employer have been ascertained and the amount thereof certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum, which would have been payable to the Contractor, the Contractor shall upon demand pay to the Employer the amount of such excess and it shall be deemed a debt due by the contractor to the Employer and shall be recoverable accordingly.

20.2 Urgent Repairs

- 20.2.1 If by reason of any accident or failure or other event occurring to in or in connection with the Works or any part thereof, either during the execution of the Works or during the period of maintenance, any remedial or other work or repair shall in the opinion of the Engineer, be urgently necessary for security and the Contractor is



unable, unwilling at once to do such work or repair; the Employer may by own or other workmen do such work or repair as the Engineer may consider necessary. If the work or repair so done by the Employer is work which in the opinion of the Engineer the Contractor was liable to do at his own expense under the Contract, all costs and charges properly incurred by the Employer in so doing shall on demand be paid by the Contractor to the Employer or may be debited to the Contractor's Account, provided always that the Engineer shall, as soon after the occurrence of any such emergency as may be reasonably practicable, notify the Contractor thereof in writing.

20.3 Frustration of Contract

20.3.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for a work carried out before receiving it and for any work carried out afterwards to which commitment was made.

20.4 Works to be continued for 28 days on outbreak of war

20.4.1 If during the currency of the Contract there shall be an outbreak of war, whether war is declared or not, in which India shall be engaged on a scale involving general mobilisation of the armed forces of the Republic, the Contractor shall for a period of 28 days reckoned from midnight of the date on which the order for general mobilisation is given continue so far as is physically possible to execute the Works in accordance with the Contract.

20.5 Effect of completion within 28 days

20.5.1 If at any time before the expiration of the said period of 28 days, the Works shall have been completed or completed so far as to be usable, all the provisions of the Contract shall continue to have full force and effect save that.

20.5.2 The Contractor shall in lieu of fulfilling his obligations under the period of maintenance, i.e., Defects Liability Period, be entitled at his option to allow against the same, to the extent of allowing the Engineer to debit the Contractor's Account the sum due to him under the provisions hereof, the cost, calculated at the prices ruling at the beginning of the said period of 28 days, as certified by the Engineer at the expiration of the period of maintenance of repair, rectification and making good any work for the repair, rectification or making good of which the Contractor would have been liable under the said clauses had they continued to be applicable.

20.5.3 The Employer shall not be entitled at the expiration of the period of maintenance to withhold the payment of the second half of the retention money or any part thereof except such sum as may be allowable by the Contractor under the provisions of the last preceding paragraphs, which sum may, without prejudice to any other mode of recovery thereof, be deducted by the Employer from such second half.

20.6 Right of Employer to determine

a) If the Works shall not have been complete as aforesaid, the Employer shall be entitled to determine the Contract by giving notice in writing to the Contractor at any time after the aforesaid period of 28 days has expired and upon such notice being given the Contractor shall forthwith determine, but without prejudice to the claims of either party in respect of any antecedent breach thereof.

20.7 Removal of plant on determination

a) If the Contract shall be determined under the provision of the last preceding clause, the Contractor shall, with all reasonableness and despatch, remove from the site all his constructional plant and shall give facilities to his Subcontractors to remove similarly all constructional plant belonging to them and in the event of any failure to do so the Employer shall have the power to sell any such constructional plant and after deducting from the proceeds of sale the costs, charges and expenses of and in connection with such sale shall pay the balance, if any, to the Contractor but to the extent that the proceeds of any sale being insufficient to meet all such costs, charges and expenses, the excess shall be a debt due from the Contractor to the Employer and shall be debited to the Contractor's Account.

20.8 Payment on determination:

a) If the Contract shall be determined as aforesaid, the Contractor shall be paid by the Employer, in so far as such amounts of items shall not have been already covered by payments on account made to the Contractor





for all work executed prior to the date of determination at the rates and prices provided in the Contract and in attention.

- b) The amounts payable in respect of any preliminary items so far as the work or service comprised therein has been carried out or performed and a proper portion of any such items as certified by the Engineer the work or service comprised therein has been partially carried out or performed.
- c) The cost of materials or goods reasonably ordered for the Works or temporary Works which shall have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery (such materials or goods becoming the property of the Employer upon such payment being made by him).
- d) A sum to be certified by the Engineer being the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the Works in so far as such expenditure shall not have been covered by the payments on account made to the Contractor, for all work executed prior to the date of determination at the rates and prices provided in the Contract and in attention.
- e) Any additional sum payable under the clauses herein below pertaining to provisions to apply as from outbreak of war.
- f) The reasonable cost of removal under the preceding clause.

20.9 Provisions to apply as from outbreak of war

- a) Whether the Contract shall be determined under the provisions of the right of Employer to determine, or not, the following provisions shall apply or be deemed to have applied as from the date of the said outbreak of war notwithstanding anything expressed in or implied by the other terms of the Contract, viz.
 - i) The Contractor shall be under no liability whether by way of indemnity or otherwise for or in respect of damage to the Works or to the property, other than property of the Contractor or property hired by him for the purpose of executing the works, whether of the Employer or of third parties or for or in respect of injury or loss of life to persons, which is the consequence whether direct or indirect of war, hostilities, whether war has been declared or not, invasion, act of India's enemies civil war, rebellion, revolution, insurrection or military or usurped power.
 - ii) If the Works or Temporary Works or any materials on the site, whether for the former or the latter, shall sustain destruction or any damage by reason of any of the causes mentioned in the last preceding paragraph, the Contractor shall nevertheless be entitled to payment for any permanent work, executed by the Contractor, so destroyed or damaged and the Contractor shall be entitled to be paid by the Employer the cost of making good any such destruction or damage whether to permanent work or to the temporary Works so far as may be required by the Engineer or as may be necessary for the completion of the work on a prime cost basis plus such profit as the Engineer may certify to be reasonable.

20.10 Payment upon Termination

- 20.10.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received upto the date of the issue of the certificate, less other recoveries due in terms of the Contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as may be indicated in the Contract Data. Additional Liquidated Damages shall not apply.
- 20.10.2 If the total amount due as above to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

20.11 Property, upon termination

- 20.11.1 All materials on the Site, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.
- 20.11.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received upto the date of the certificate, less other recoveries due in terms of the Contract, less any monies due to be paid by the

Contractor to public utilities and statutory bodies and less taxes due to be deducted at source as per applicable law.

20.12 Compensation Events

20.12.1 The following are Compensation Events unless they are caused by the Contractor:

- a) The Employer does not give access to a part of the Site as per the Site Possession Date stated in the Contract Data.
- b) The Employer modifies the schedule of other contractors in a way that affects the work of the Contractor under the Contract.
- c) The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of Works on time.
- d) The Engineer instructs the Contractor to uncover or to carry out additional test upon work that is then found to have no Defects.
- e) The Engineer unreasonably does not approve for a subcontract to be let.
- f) The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
- g) Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- h) The advance payment is delayed.
- i) The effect on the Contractor of any of the Employer's Risks.
- j) The Engineer unreasonably delays issuing a Certificate of Completion.
- k) Other compensation Events listed in the Contract Data or mentioned in the Contract.

20.12.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, either the Contract Price shall be increased or the Intended Completion Date extended, at the Engineer's discretion.

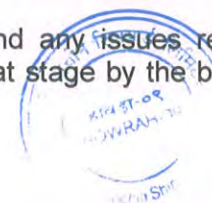
20.12.3 The Engineer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

11.1 GRIEVANCE REDRESSAL:

It is clarified that the contractor cannot go for arbitration for any disputes arising out of the agreement related to this contract work. Hooghly Cochin Shipyard Ltd. has a grievance redressal cell and all questions, disputes, differences or differences arising under, out of, or in connection with the contract after hearing by Hooghly Cochin Shipyard Ltd. Grievance Redressal committee shall be subject to Indian Laws in force and at the exclusive jurisdiction of the courts at Kolkata.

12. PRE-BID MEETING:

- 22.1 Any essential requirement not included in the Price Schedules but required for successful operation as per Scope of Work shall be indicated by the bidders and submitted before the pre-bid meeting by the date specified in the schedule.
- 22.2 Only the queries, raised on or before the specified time frame, will be eligible for discussion during the course of the Pre bid discussion.
- 22.3 The bidder or its authorized representative is invited to attend pre-bid meeting to be held on the date, time and location specified in the schedule. *or through VC.*
- 22.4 Non-attendance at the pre-bid meeting will not be a cause for disqualification of bidders but at the same time shall not entitle them to raise any query at a later date.
- 22.5 The purpose of the meeting will be to clarify the exact scope of work and any issues regarding the bidding documents and the technical specifications for its clarification, if raised at that stage by the bidders. Hooghly C





Development of Fire Fighting system for SRF
Guwahati, Assam



shall not be under any obligation to entertain/respond to suggestions made or to incorporate modifications suggested for by the prospective bidders.

- 22.6 Bidders shall not be permitted to indicate any additional requirements in the bid for any reason whatsoever after the Client has considered such amendments.
- 22.7 Hooghly CSL shall make related modifications/ amendments in the bidding documents as may be considered necessary exclusively through issue of an amendment.

23. FORCE MAJEURE CONDITION:

Should failure in performance of the contract or part thereof arise from war, insurrection, restraint imposed by Government, Act of Legislature of other statutory Authority or illegal strike (event like local strike/ hartal etc. in the yard, state or national), riot, legal lock out, flood, bad weather, fire, explosion, pandemic, epidemic, Act of God or any inevitable or unforeseen beyond human capacity which may be construed as reasonable ground for extension of time. HCSL may allow such additional time as is mutually agreed, to be justified by the circumstances of the case. The occurrence/ cessation of force majeure situation is to be informed with documentary evidence within 15 days from the date of occurrence or cessation.

24. RISK PURCHASE: - If the contractor fails to complete the work, in time as per the terms in work order, HCSL shall have the following rights.

- To terminate the contract within 15 days of notice.
- To initiate alternative arrangements at the risk and cost of the contractor.
- HCSL reserves the right to terminate the work order at short notice in case the firm's performance is found unsatisfactory with regard to the progress of work, quality, time factor, labour dispute with their workers, poor safety record and other violation of any contract conditions. No claim whatsoever will be entertained in this regard from the firm.



श्रीजित के नारायणन
SREEJITH K. NARAYANAN
मुख्य कार्यकारी अधिकारी
Chief Executive Officer
होगली कोचीन शिपयार्ड लिमिटेड
Hooghly Cochin Shipyard Limited
हावड़ा/Howrah-71



Annexure I

BANK GUARANTEE TOWARDS EMD

To

Hooghly Cochin Shipyard Limited,
Administrative Building, HCSL Premises,
Satyen Bose Road, PO - Danesh Shaikh
Lane, Nazirgunge, Howrah, West Bengal -
711109.

This deed of Guarantee made on Day of Two Thousandbetween HCSL on one part and(Name and address of the bank) of the other part is as follows:

In consideration of HCSL having allowed M/s. (Herein after referred to as 'the Contractor') to submit Tender No.... without Earnest Money according to the conditions of such Tender Notification, we... (Name of the Bank) (hereinafter referred to as 'the bank') undertake to pay to HCSL on demand the sum of money payable as Earnest Money in respect of the

Tender Number....made by the contractor in case the contractor withdraws from the tender before the Number.....made by the contractor in case the contractor withdraws from the tender before the Notification, we... (Name of the Bank) (hereinafter referred to as 'the bank') undertake to pay to HCSL on demand the sum of money payable as Earnest Money in respect of the Tender Number....made by the contractor in case the contractor withdraws from the tender before the

date of firmness stipulated or when the tender is accepted by HCSL, the contractor makes default in furnishing the Security Deposit or in entering into an agreement as required by HCSL or otherwise commits any breach of the terms and conditions of the tender.

We, the bank, hereby irrevocably undertake to pay you any amount not exceeding in total the Guarantee Amount upon receipt by us of your demand in writing accompanied by the following documents:

Your signed statement certifying that the Contractor is in breach of his obligation(s) under the Contract and the respect in which the Contractor is in breach.

Any demand for payment should contain your authorized signatures which must be authorized by your bankers or by a notary public.

The guarantee shall remain in full force and effect during the period that would be taken for the finalization of the tender and till HCSL certifies that the terms and conditions of the said tender have been fully and properly carried out by the said contractor and accordingly discharges this guarantee or for 6 months from the date of issue of this guarantee whichever is earlier. A notice of the claim under this guarantee may be served on the bank within 3 months after the said period in which case the same shall be enforceable.

We, the Bank, further agree that any change in the constitution of the said contractor or the said bank shall not discharge our liability hereunder. This guarantee shall not be avoided, released or affected by any variation in the terms of the tender, acceptance of the contract between the contractor and HCSL or any neglect, indulgence or forbearance by HCSL.

Notwithstanding anything contained herein:

1. Our liability under this Bank Guarantee shall not exceed only).
2. This Bank Guarantee shall be valid up to (date) (9 months from the date of issuing the BG) and



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3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if you serve upon us a written claim or demand on or before (validity date).

Any demand for payment under this Guarantee must be received by us at this office during working hours on or before the validity Date. Should we receive no claim from you by the validity Date, our liability to you will cease and the guarantee will definitely become null and void whether returned to us or not.

Yours truly,

Signature and seal of the guarantor:

.....

Name of

Bank:

Address:

Date:.....



PRE-CONTRACT INTEGRITY PACT
HOOGHLY COCHIN SHIPYARD LIMITED

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on day of the month of....., between, on one hand, the President of India acting through Deputy

General Manager, Hooghly Cochin Shipyard Ltd (HCSL) having its registered office at Kolkata, West Bengal India (hereinafter called the "PRINCIPAL", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First part and M/s..... represented by Shri... , Chief Executive Officer

(Hereinafter called the "BIDDER/Seller" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the second part.

WHEREAS the PRINCIPAL proposes to procure..... and the BIDDER/Seller is willing to offer/has offered the stores and

WHEREAS the BIDDER is a private company / public company / Government undertaking / partnership/registered export agency, constituted in accordance with the relevant law in the matter and the PRINCIPAL is a Government of India PSU performing its functions on behalf of The President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to: -

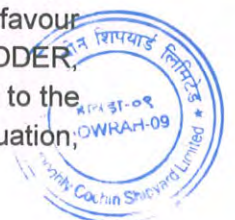
Enabling the PRINCIPAL to obtain the desired said stores/equipment/item at a competition price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the PRINCIPAL will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows: -

Commitments of the PRINCIPAL

- 1.1 The PRINCIPAL undertakes that no official of the PRINCIPAL, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting on implementation process related to the contract.



- 1.2 The PRINCIPAL will, during the pre-contract stage, treat all BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3 The officials of the PRINCIPAL will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the PRINCIPAL with full and verifiable facts and the same is prima facie found to be correct by the PRINCIPAL, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the PRINCIPAL and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the PRINCIPAL the proceedings under the contract would not be stalled.
3. **Commitments of BIDDERS**

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract

or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following: -

- 3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract of any other contract with the government for showing or forbearing to show favour or disfavor to any person in relation to the contract of any other contract with the Government.
- 3.3 BIDDERS of foreign origin shall disclose the name and address of their Indian agents and representatives, if any and Indian BIDDERS shall disclose their foreign principals or associates, if any.
- 3.4 BIDDERS shall disclose the payments to be made by them to their Indian agents/brokers or any other intermediary, in connection with this bid/contract and the payments have to be in Indian Rupees only.



- 3.5 The BIDDER further confirms and declares to the PRINCIPAL that the BIDDER is the original manufacturer/ integrator/authorized agent of the stores/equipment/items and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the PRINCIPAL or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the PRINCIPAL or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, pass on to others, any information provided by the PRINCIPAL as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the PRINCIPAL, or alternatively, if any relative of an officer of the PRINCIPAL has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose would be as defined in section 6 of the Companies Act 1956.

- 3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee or the PRINCIPAL.



4. Previous Transgression

- 4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify; BIDDER's exclusion from the tender process.
- 4.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money (Security Deposit)

- 5.1 While submitting commercial bid, the BIDDER shall deposit an amount of **Rs. 4,65,000/-** (Rupees Four Lakh Sixty Five Thousand only) as Earnest Money as applicable/Security Deposit, with the PRINCIPAL through any of the following instruments:

- (i) R.T.G.S in favour of Hooghly Cochin Shipyard Ltd.
- (ii) A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the PRINCIPAL on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the PRINCIPAL shall be treated as conclusive proof of payment.

- 5.2 The Earnest Money if applicable/Security Deposit shall be valid up to the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the PRINCIPAL, including warranty period.

- 5.3 In case of the successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the PRINCIPAL to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

- 5.4 No interest shall be payable by the PRINCIPAL to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

- 5.5 EMD of bidders (unsuccessful during first stage i.e. technical evaluation etc.) shall be returned after declaration of result of first stage i.e. technical evaluation.



5.6 EMD of bidders (unsuccessful after price bid opening) will be released after issuance of work order and its acceptance by the contractor to whom the work is awarded.

5.7 EMD of the successful bidder will be refunded after remittance of the security deposit.

5.8 EMD deposited with the Client will be forfeited,

(i) if a bidder withdraws or modifies his bid during the period of validity specified or

(ii) if the successful bidder fails within the time limit to sign the agreement document or fails to furnish the required security deposit.

(iii) Request for enhancement in the quoted rates or bringing in new conditions after tender opening or unnecessary delayed acceptance of the order / commencement of work / submission of Security Deposit.

5.9 The relevant documents pertaining to the EMD should be enclosed with Techno-commercial Bid. Tenders Received Without EMD Will Not Be Considered For Further Evaluation.

6 Sanctions for Violations

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the PRINCIPAL to take all or any one of the following actions, wherever required: -

(i) To immediately call off the pre contract negotiations without assigning any reason or giving any; compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/ Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the PRINCIPAL and the PRINCIPAL shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the PRINCIPAL, and in the case of an Indian BIDDER with interest thereon at 2% above the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2%



above the LIBOR (London Inter-Bank Offer Rate). If any outstanding payment is due to the BIDDER from the PRINCIPAL in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

- (v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the PRINCIPAL, along with interest.
- (vi) To cancel all or any other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the PRINCIPAL resulting from such cancellation/recession and the PRINCIPAL shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.
- (vii) To debar the BIDDER from participating in the future bidding processes of HCSL for a minimum period as deemed appropriate, which may be further extended at the discretion of the PRINCIPAL.
- (viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.
- (ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the PRINCIPAL with the BIDDER, the same shall not be opened.
- (x) Forfeiture of Performance Bond in case of a decision by the PRINCIPAL to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

6.2 The PRINCIPAL will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in chapter IX of the Indian Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the PRINCIPAL to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be binding on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes this Pact.



- 7.1 The BIDDER undertakes that it has not supplied/is not supplying similar product/systems/items or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/systems or sub systems/items was supplied by the BIDDER to any other Ministry/Department of the Government of India or PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the PRINCIPAL, if the contract has already been concluded.

8 Independent Monitor

- 8.1 The PRINCIPAL has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission.

(i) Dr. Vinod Bihari Mathur, IFoS (Retd.)
D302, Arborea Luxury Homes,
Tarla Nagal, Near Doon
Helidrome, Dehradun,
Uttarakhand - 248001
Mobile: 9412054648
Email: vbm.ddn@gmail.com

- 8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 8.3 The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 8.5 As soon as the Monitors notices, or has reason to believe, a violation of this pact, he will so inform the Authority designated by the PRINCIPAL.
- 8.6 The PRINCIPAL accepts that the Monitors have the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitors, upon his request and demonstration of a valid interest, unlimited access to his project documentation. The same is applicable to Subcontractors. The Monitors shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.



- ## 9 Facilitation of Investigation

10 Law and Place of Jurisdiction

- ## 11 Other Legal Actions

12 Validity

-

श्रीजित कं नारायणन
SRIJITH K. NARAYANAN
न्यायिक अधिकारी
न्यायिक अधिकारी



to come to an agreement to their original intentions.

13 The parties hereby sign this Integrity Pact at..... on.....

PRINCIPAL

BIDDER

Name of the Officer: SREEJITH K NARAYANAN

Designation: Chief Executive Officer

HOOGHLY COCHIN SHIPYARD LTD

Witness

Witness

1.....

1.....

2.....

2.....

BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT/WARRANTY GUARANTEE

To

Hooghly Cochin Shipyard Limited,
Administrative Building, HCSL premises,
Satyen Bose Road, PO – Danesh Shaikh
Lane, Nazirgunge, Howrah, West Bengal –
711109.

BANK GUARANTEE FORMAT FOR SECURITY DEPOSIT

WHEREAS (Name & Address of BIDDER) (hereinafter called "the BIDDER") has undertaken, in pursuance of contract..... No.....
Date: To execute(Name of Contract and brief description of works) (hereinafter called "the contract").

AND WHEREAS it has been stipulated by HOOGHLY COCHIN SHIPYARD LTD (The Buyer – hereinafter called "HCSL") in the said contract that (Name of the Bidder) shall furnish HCSL with a Bank Guarantee for the sum specified therein as security for compliance with the contractor's obligations in accordance with the Contract

AND WHEREAS we have agreed to give (Name of Bidder) such a Bank Guarantee.

NOW THEREFORE we (Name of the Bank) having its Head Office at (Address of Head Office) and acting through its branch office at (Address of the executing branch) (hereinafter called " the Bank") hereby affirm that we are the Guarantee and responsible to HCSL, on behalf of the Supplier up to a total of(amount of Guarantee) In words).

We, the bank, hereby irrevocably undertake to pay you any amount not exceeding in total the Guarantee Amount upon receipt by us of your demand in writing accompanied by the following documents:

1. Your signed statement certifying that the Supplier is in breach of his obligation(s) under the Contract and the respect in which the Supplier is in breach.
2. Your signed statement certifying that the supplier has been given a prior written notice given by email to the Supplier shall be attached to the demand for Payment.

Any demand for the payment should contain your authorized signature which must be authorised by your bankers or by a notary public.

We, the Bank, further agree that no change or additional to or other modification of the terms of the Contractor or of the Works to be performed there under or of any of the Contract documents which may be made between HCSL and the Supplier shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification. We, the Bank, further agree that any change in the constitution of the said contractor or the said bank shall not discharge our liability hereunder.



Development of Fire Fighting system for SRF
Guwahati, Assam



Notwithstanding anything contained herein:

1. Our liability under this Bank Guarantee shall not exceed

.....

(.....only).

2. This Bank Guarantee Shall be valid up to (date) and
3. We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if HCSL serve upon us a written claim or demand on or before

.....(validity date).

Any demand for payment under this guarantee must be received by us at this office during working hours on or before the validity date. Should we receive no claim from you by the validity date, our liability to you will cease and the guarantee will definitely become null and void whether returned to us or not.

Yours truly,

Signature and seal of the

Guarantor

.....
....

Name of

Bank

.....
.....

Address:

.....
..... Date:



**FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU,
GUWAHATI**

**TENDER NO: HCSL/PANDU/TEN/2026/009
Dt. 09.01.2026**

SPECIAL CONDITIONS OF CONTRACT

INDEX for Special Conditions of Contract

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24.0	Training of Employer's personnel
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26.0	Taking over / use of system
27.0	Other terms & conditions
28.0	Uniformity of rates
29.0	Contract Data



1.0 Context

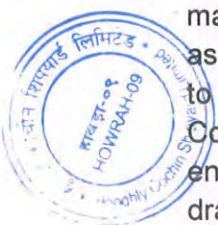
- 1.1 These Special Conditions of Contract are complementary to the other parts of the tender document and the Contract and shall be read in conjunction with them.
- 1.2 All the conditions herein below refer to related clauses and conditions and stipulations in the Invitation to Tender, General Conditions of Contract, Specifications, Preamble to Bill of Quantities, Bill of Quantities, Schedule of Key Material Inputs, drawings and / or other supplementary documents detailing the work and the Contract.

2.0 Design

- 2.1 The design for the system, items, equipments, materials and accessories covered in this Contract are the responsibility of the Contractor, at his cost.
- 2.2 The design parameters specified in this tender document shall form the basis for such design and details, in so far as they are relevant and shall be treated as a guide and a means for the Employer to obtain bids of fairly equitable and technically comparable nature.
- 2.3 Anything in the design parameters stipulated in this tender document that requires review by the Engineer, to facilitate proper manufacture / installation / functioning of the work under this Contract shall forthwith be brought to the Engineer's notice, by the Contractor, in writing.

3.0 Drawings

- 3.1 Before submission of tender, the tenderer may see the relevant drawings and site plan in the Office of the National Technology Center for Ports Waterways and Coasts.
- 3.2 Where tender drawings are enclosed with the tender documents issued by the Employer, these shall be taken to indicate broadly the type of work to be carried out, the exact scope, location and nature being determined by the construction/working drawings which shall be issued during work execution period only.
- 3.3 Anything in the drawings that requires review by the Engineer, to facilitate proper functioning / installation / drawing details pertaining to the work under this Contract, shall forthwith be brought to the Engineer's notice, by the Contractor, in writing.
- 3.4 The Contractor shall examine all architectural, structural, plumbing and electrical and other services drawings, pertaining to works by other Contractors and as available for perusal with the Engineer, before starting his work under this Contract and report to the Engineer anything that does not correlate with the work under this Contract or any rules / regulations / norms.
- 3.5 All Work shall correlate well with the dimensions and conditions actually available at site, irrespective of anything in the drawings enclosed to this tender document or any drawings made available by the Engineer. To this end, the Contractor is required to physically ascertain the dimensions and site conditions, at his own responsibility and cost and bring to the Engineers' notice anything that does not correlate well with the drawings. Communication of such instances shall be in writing and with sufficient detail that would enable the Engineer or consultant to clarify the issue or issue amendments to the work or drawings, as to be decided by them.



- 3.6 Within one week after the award of the contract, the Contractor shall furnish, for the approval of the purchaser, samples of the various items required to complete the project as per specification and as required by this Contract.
- 3.7 The samples shall be properly indexed and the accompanying documentation shall contain name plate particulars of the individual items and the details of construction, size, arrangement, operating clearances, performance characteristics and also the details of all related items of work by other contractors, if any.
- 3.8 In addition to the above stipulations, all other stipulations in the General Conditions of Contract in respect of drawings, including as-built / completion drawings, shall be applicable.

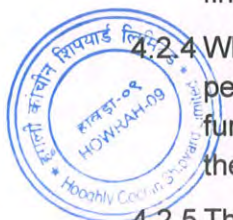
4.0 Advances

4.1 Mobilisation advance

- 4.1.1 The Contractor is eligible for receiving mobilization advance from the Employer at the commencement of Work, subject to the conditions specified hereinafter.
- 4.1.2 Mobilisation advance shall be a one-time advance, its value being at the rate specified in the Contract Data.
- 4.1.3 The Contractor desiring the mobilization advance shall furnish the Employer with a Bank Guarantee issued by a bank acceptable to the Employer and in the format provided in this Tender Document, for a value equal to the advance amount and valid for a period co-terminus with the Defect Liability Period.
- 4.1.4 The mobilization advance shall be recovered by the Employer by debiting the Bills of the Contractor, on pro rata basis applied to the Bill of Quantities account, the rate of recovery being equal to the percentage applied to the Contract Price to arrive at the advance amount figure.

4.2 Secured advance on materials.

- 4.2.1 The Employer shall pay the Secured Advance to the Contractor, based on the recommendations of the Engineer.
- 4.2.2 The amounts of Secured Advances shall be to the extent of 75% (seventy five percent) of the assessed value of materials brought to site from time to time, provided the Contractor insures the materials and signs Indenture Bonds in the form prescribed by the Employer and remains responsible for proper upkeep of the materials and also provided that the materials are not of perishable nature.
- 4.2.3 The assessed value of the materials will be decided by the Engineer, such decision being final, binding and conclusive.
- 4.2.4 Where the aggregate value of Secured Advances at any point of time exceeds ten percent of the Contract Value, the Contractor shall, in addition to the Indenture Bonds, furnish bank guarantees, in the form provided in these documents, for the value beyond the above ten percent.
- 4.2.5 The assessed value of the materials will be decided by the Engineer, such decision being final, binding and conclusive.



4.2.6 As and when the materials are utilized and payment is claimed for the work against the Bill of Quantities, proportionate recovery will be made for the materials so utilized on the items of works billed for. The decision of the Engineer in this regard shall be final.

4.2.7 No claim for non-payment, delayed payment or short payment shall be entertained.

5.0 Selection of items and installation practices

5.1 Items for this Work shall be carefully selected, to conform to the requirements of this tender document and shall be standard catalog products of established manufacturers, unless specifically mentioned to the contrary in the specifications and price schedules of this tender document.

5.2 Preferred makes, wherever specified in this tender document, shall only be selected.

5.3 Where the Work involves a composite system formed by installing together various items, the system as a whole shall be well balanced, each item affording good compatibility under various working conditions.

5.4 Safety, energy efficiency and ease of operation, inspection and maintenance shall be ensured in respect of individual equipment / items as well as the overall system and its installation.

6.0 Bye Laws, Regulations and Statutory Clearances

6.1 The Work shall be in conformity with the Bye Laws, Regulations and Standards of the local or other authorities concerned in so far as these become applicable to the Work.

6.2 If the drawings, Specifications, or design require something which violates the Bye Laws and Regulations, then the Bye Laws and Regulations shall govern the requirement of this Work.

6.3 All fees and payments in regard to inspections and / or clearances from statutory authorities shall be borne by the Contractor, at his cost. Proof of remittance in all such cases shall be furnished to the Engineer without any delay.

7.0 Patent Rights & Royalties

7.1 The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design, trademark or name or other protected rights in respect of any item, work or material used for or in connection with the Works and from and against all demands, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

8.0 Inspection

8.1 The Work is subject to independent and / or joint inspection by the Engineer / in team with the Contractor, as the case may be, to assess conformity with the specifications and drawings in respect of no. of items of particular types, their technical details, general arrangement, spacing, etc. at all stages of fabrication and / or installation, as the case may be.



- 8.2 Such inspections are apart from the various tests, including acceptance tests, and may or may not be in conjunction with the same and are in addition to inspections by any statutory or local authority.
- 8.3 In this regard, all stipulations in the General Conditions of Contract shall apply.
- 8.4 All testing and measuring instruments shall be arranged by the Contractor in good calibration as certified by third parties acceptable to the Engineer.
- 8.5 The Engineer's representative may opt to witness the tests on the system and associated items at the manufacturing points, towards which the contractor shall arrange for lodging, boarding and local conveyance for the required durations. The Engineer's representative, for this purpose, shall denote a team of two to four persons.

9.0 Inspection by Engineer:

- 9.1 The contractor has to offer the works in staged manner for inspection like conduiting, wiring, cabling, panel erection, DB erection and switch box erection.
- 9.2 General: Notwithstanding what is stated above or in the various tender documents.
- 9.3 All materials, workmanship, inspection, sampling and testing and interpretations of test results and their applications shall be in accordance with the latest editions of the Indian Standard specifications and / or codes or practice. In case where Indian Standard specifications are not available equivalent British Standard specifications and / or codes of practice shall be applicable.
- 9.4 No claim shall be entertained due to escalation on rates for labour and materials, statutory or otherwise, and the contractor's rates shall be held to cover any such price fluctuations.

10.0 Acceptance Tests

- 10.1 The Work under this Contract is subject to acceptance tests, termed as Preliminary Acceptance Tests (PAT) and Final Acceptance Tests (FAT).
- 10.2 The details and methodology for PAT and FAT shall be as described in the Specifications, or other parts of this tender document.
- 10.3 The timing of the PAT and FAT shall be decided by the Engineer, based on his own assessment of the feasibility on any particular dates and times and his own / Employers activities around / about or concerning his dependency on the system.

11.0 Testing and commissioning facilities

- 11.1 The Contractor has to make his own arrangements for testing and commissioning of the works at his own cost, to the satisfaction of the Engineer. The requirements of site laboratory are indicted in the Contract Data.

12.0 Electricity:

- 12.1 Normally no power supply will be given by the employer and the contractor shall make his own arrangements for the power required for progress of the work as per schedule. If power is made



available, which in any case is purely at the discretion of the Employer, the same shall be at charges fixed by the Engineer and on conditions stipulated by him and on other conditions for the installations.

- 12.2 Three phase power supply shall be made available to the contractor by the Employer at one point in the site.
- 12.3 The contractor shall bear the entire electricity charges as per the meter installed at this point during the period of the work execution of the project (including maintenance period).
- 12.4 The contractor shall ensure that the electrical equipments employed by him are such that the aggregate power factor does not fall below 0.9 at the employer's terminal points and to this end shall install power factor improving equipment wherever necessary to maintain the power factor not below 0.9, at his own cost.

13.0 Stores at the Site:

- 13.1 The contractor shall provide for all necessary storage at the site in specified areas for all materials such as panels, switchgears, switches, wires cables and such other materials, which are likely to deteriorate by the action of sun, winds, rain or other natural cause due to the exposure in the open, either in the compounds or in stores, in such manner that all such materials, tools etc., shall be duly protected from damage by weather or any other. All such stores shall be cleared away and the whole site left in good order on completion of the contract. All materials which are stored on the site such as switches or similar materials, wires etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials. The contractor will not be permitted to store any of his material in the building under execution or already executed by him without prior approval of the Engineer in writing. All materials issued by the Employer shall be stored properly and safely. A register showing daily stock and receipts and issued duly signed by the representative of the contractor shall be kept at the stores for these materials. These materials shall be subject to check / inspection by the Engineer or his representative or Employer's representative.

14.0 Material Substitution:

- 14.1 Should the contractor desire to substitute any materials of work, he must secure the approval of the Engineer in writing for any such substitution well before making such substitution.
- 14.2 Materials described in the specification or in the schedule / bill of quantities indefinitely, by such terms as 'equivalent' or 'other approved', etc. shall be considered as coming under the provision of this clause as substitution and no such materials shall be used until specific approval of Consultant / Engineer has been received in writing.

15.0 Maintenance Period:

- 15.1 The maintenance period for the work shall be 12 (Twelve) months which shall be counted from the date of completion work as mentioned in completion certificate by the Engineer.



16.0 Works not to be Misused:

- 16.1 All works under or in course of execution or executed shall not be used by the contractor for any of his purposed storing materials, using as residential or office accommodation etc. without the written approval of the Engineer.

17.0 Guarantees obtained from Manufacturers to be Transferred to the Employer:

- 17.1 All the test certificates and guarantees such as for wires, switches, switchgears, panels and cables etc., for the entire works as obtained from the manufacturer's shall be transferred to the Employer by the contractor after completion of the work.

18.0 Carriage of Materials:

- 18.1 All materials if transported by vehicles, other than vehicles belonging to the contractor for this work should be carried by public carrier vehicles. The carriage of such materials by a private carrier is illegal and the contractor and the contractor will accordingly be responsible for employing public vehicles instead of private carrier vehicles. The contractor shall have to comply with the provision of the Motor vehicles Act fully and any expense arising on this account shall be borne by the Contractor himself.

19.0 Taxes:

- 19.1 The rates quoted shall include all taxes, levies, duties as applicable from time to time. Deduction shall be made towards income tax as per the prevailing income tax rules from each payment released to the contractor.
- 19.2 Recovery at source towards Income Tax calculating at the rates prescribed from time to time under Section 1940 of the Income Tax Act 196 and other relevant provisions of Income Tax shall be made from the bills of the contractor and the amount so recovered shall be deposited with the Income Tax Department.

20.0 Time of completion:

- 20.1 Time is the essence of the contract. The contractor shall complete all works under this contract within specified time from the date of placement of order.
- 20.2 Even if the different periods of completion are stipulated for the various parts of the work, this will be treated as a single contract.

21.0 No claim for reduction of Work:

- 21.1 In case of reduction in the scope of the work, either in part or full at any stage of work due to unforeseen circumstances or any other reasons beyond the control of the employer, the contractor shall have no claim whatsoever against the employer.
- 21.2 While recruiting the labour and the supervisory staff for his works, the contractor has to notify the vacancies to the concerned employment exchange and recruit the staff in accordance with the rules and regulations in force. Preference shall be given to displaced persons.



21.3 The contractor shall comply with all rules, regulations and legislations covered under contract labour (regulations and abolition) Act 1979, notwithstanding anything contained to the contrary in the General Conditions of the contract or any other document forming part of the tender.

22.0 Bills :

22.1 The contractor shall prepare bills, on account as well as final based on agreed measurements and at contract rates in approved printed forms and shall submit to the Engineer in 3 (three) copies in individual folders along with original triplicate measurement sheets for payment. After the bills have been passed for payment. One copy of the bill shall be returned to the Contractor for his record.

22.2 The final bill shall be submitted by the contractor within 2 (two) months from the date of completion certificate to be issued by the Engineer. The final payment shall be made by the Employer with 3 (three) months from the date of contractor's submission of 'No demand certificate' and in the case of dispute if any, within 2 (two) months from the date of settlement of all disputes.

23.0 Performance Guarantee

23.1 In addition to the guarantees and warranties to be furnished to the Engineer, the Contractor shall expressly guarantee the performance of the system installed as a whole and the Work under this Contract.

23.2 All guarantees and warranties, as described herein and in the General Conditions of Contract and the Specifications, are to be considered as complementary to each other and none of them shall absolve the Contractor of his responsibilities in any way and more particularly in respect of the Defect Liability and maintenance.

23.3 Demonstration of satisfactory performance shall be witnessed during the PAT and FAT, under simulated and / or actual conditions of duty.

23.4 Any shortcoming in the performance shall be considered as a Defect in terms of this Contract and shall be rectified by the Contractor, at his cost and within reasonable time that may be allowed by the Engineer, irrespective of whether such making good involves redesign, new manufacture, supply for replacement / addition, fabrication, installation and testing and any or all other attendant activities and costs.

23.5 Instances where performance is not immediately affected, but the situation as existing may lead to a potential defect or under-performance or compromise on safety, if allowed to continue, shall also be considered as Defects.

24.0 Training of Employer's personnel

24.1 The Contractor shall, during execution of work and commissioning of the system, arrange to train, free of cost, personnel of the Employer in the following and relevant aspects:

24.2 Good operating practices, documentation and logging.

24.3 Safety related procedures and handling of emergencies.



- 24.4 Diagnosing and attending to minor faults and defects which may generally occur during operations.
- 24.5 The above shall in no way discharge the Contractor of his responsibilities during the Defect Liability Period and any subsequent period where further maintenance is assigned to him.

25.0 Maintenance during Defects Liability Period

- 25.1 The Contractor is under obligation to maintain the system in good condition during the Defects Liability Period, its duration being as specified in the Contract Data.
- 25.2 This maintenance includes preventive maintenance and setting the system to good operating conditions, trouble-shooting, repair, rectification, testing and re-commissioning as necessary.
- 25.3 Fair wear and tear during this period shall also be attended to by the Contractor, at his own cost.
- 25.4 Spares and substitutes, consumables, gadgets, tools, tackles, plant and equipment, supervision, documentation and labour shall be arranged by the Contractor, at his own cost. However, the Employer shall arrange for any electricity / water at his cost.
- 25.5 Where required, the Contractor shall carryout maintenance activities during holidays / off-peak hours / nights, to ensure least disturbance to the activities of the Employer.
- 25.6 Prompt attention shall be forthcoming from the Contractor and the system down-time shall not exceed eight hours or such other duration that may be indicated by the Employer from time to time.
- 25.7 The Contractor and his representative shall be accessible at all hours and on all days to receive any complaints from the Employer and initiate immediate action on the same.
- 25.8 Non-compliance of any of the above conditions shall attract penal action in terms of this Contract, as well as any other action as the Employer deems fit and at his sole discretion.

26.0 Taking over / use of system

- 26.1 Taking over of the Work shall be as described in the General Conditions of Contract.
- 26.2 The Engineer reserves the right to put to use the whole or parts of the system, ahead of its formal acceptance, to meet exigencies of the situation, in which case also the Defects Liability Period shall commence upon formal acceptance and taking-over only.

27.0 Other terms & conditions

- 27.1 Save for anything expressly stated to the contrary in these Special Conditions of Contract and / or Contract Data appended hereto, all the stipulations made in the General Conditions of Contract, Specifications, etc. as forming part of this tender document shall be applicable.
- 27.2 These include, inter alia, aspects pertaining to temporary works and utilities, cooperation & coordination, safety & security, protection of environment, care of works, plant, materials & labour, manpower, time, quality, defects liability period, cost & payment and closing the contract.

27.3 No plea of the Contractor, citing ignorance or misinterpretation or dilution of meaning, shall be entertained in this regard.

28.0 Uniformity of rates

28.1 Where more than one schedule of quantities form part of the same tender and where, in such cases, similar items appear, the tenderer shall quote same rate for the same item of work in all schedules of quantities.

28.2 In case of any extra work in respect of any schedule of quantities being executed, the rate for such extra work shall be the same in for such items of work if so included in the other schedule of quantities.

28.3 In case there is any conflict of meaning between the Special Conditions of Contract and the General Conditions of Contract the provisions of the Special Conditions shall override corresponding provisions of the General Conditions of the Contract. Similarly the specific stipulations in BOQ and Preamble shall override the stipulations in Specifications and Special Conditions of Contract. In case of any conflict of meaning either in the same documents or between the other documents (other than the above stipulations), the Engineers decision shall be final, binding and conclusive.



29.0 CONTRACT DATA

Sl. no.	Parameter	Detail / value specific to this Tender
1	Engineer	Chief Project Engineer(Civil), HCSL
2	Time allowed for executing Contract Agreement.	Seven days from the date of issue of Letter of Acceptance.
3	Date for Engineer giving possession of Site to Contractor.	Same as Start Date.
4	Start Date for the work. (SD)	Same as date of issue of Letter of Acceptance, or any other date specified in Letter of Acceptance.
5	Completion Date for the work.	3 months from the start date
6	In-part Completion Dates.	None.
7	Duration of Defect Liability Period.	Twelve months, reckoned from the corresponding Completion Certificate.
8	Time allowed for Contractor for submitting Programme.	Five working days from issue of Letter of Acceptance.
9	Intervals at which programme has to be updated by the Contractor.	Fortnight.
10	Amount to be withheld for non-submission of updated Programme.	Rs. 5,000/-(Rupees Five Thousand only)
11	Liquidated Damages against failure to complete work.	One percent of value of Work not completed, for delay of every week or part thereof.
12	Maximum amount of Liquidated Damages.	Five percent of the contract amount.
13	Minimum amount of third party insurance	Rs. 2,00,000/-(Rupees Twenty Thousand only)
14	Insurance coverage for Contractor's risks.	At least ten percent of Initial Contract Price.
15	Requirements of site laboratory.	Facilities to determine continuity, resistance, micrometers for determining conductor sizes.
16	Tender Drawings	Certain drawings are attached to the Tender Document. These are to be considered as only for the guidance of the tenderer.
17	Number of copies of drawings to be provided by Engineer to Contractor.	Three.



18	Amount to be withheld against Contractor not returning drawings.	Rs. 3,000/- (Rupees Three Thousand only)per drawing.
19	Amount to be withheld against Contractor not furnishing As-built drawings.	Rs. 3,000/- (Rupees Three Thousand only)per drawing.
20	Penalty for non-submission of documents by Contractor.	Twenty percent of value of work represented or covered by the respective document.
21	Interval between submissions of bills by contractor.	One month.
22	Minimum amount of bills for certification.	Fifteen percent of the figure arrived at as the overall average of Contract Price (as stated in the Letter of Acceptance)
23	Number of days from the date of certification of Bill by which Employer shall pay the Contractor the amounts certified by the Engineer.	Fifteen days.
24	Proportion of bill amount to be paid upon submission of bill, ahead of certification.	Sixty percent of Net, before TDS.
25	Time for payment of the above.	Thirty days from submission of bill by Contractor.
26	Mode of payments by Employer to Contractor.	By RTGS
27	Retention money against each payment to contractor.	Five percent of the aggregate of the Bill of Quantities Account.
28	Parts and proportions of the Retention Money, for the purposes of its release.	Two parts. Each part shall be 50% of the total retention money.
29	Amount of mobilization advance for which the Contractor is eligible.	Ten percent of the Contract Value.



श्रीजित के नारायणन
SREEJITH K. NARAYANAN
मुख्य कार्यकारी अधिकारी
Chief Executive Officer
होगली कोचिन शिपयार्ड लिमिटेड
Hooghly Cochin Shipyard Limited
हावड़ा/Howrah-711 109



FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI

**TENDER NO: HCSSL/PANDU/TEN/2026/009
Dt. 09.01.2026**

TECHNICAL SPECIFICATION

FIRE FIGHTING SYSTEM

INTRODUCTION

The ensuing Technical Specifications are for Fire Fighting System for the proposed ***“SHIP REPAIRING FACILITY WORK (SRF) AT PANDU, GUWAHATI.”***

Fire Fighting System:

The Fire Fighting System designed features a Pressurized Wet Riser completes with Landing Valves and Hose Reels at every floor level. The Hose Reels - accommodated in glass-fronted boxes - are located in the corridors various floors, so as to have easy approachability. The system design has been carried out in accordance with relevant IS Codes and NBC Regulations.

The 1,50,000 liters capacity fire sump and fire pump room provided near admin block. Wet riser and yard hydrant pipes will be tapped from the delivery head in the fire pump room.

General:

Upon Completion of installation the Contractor shall test the system and hand over the same in operating condition to the Owner or other agencies as assigned by the Owner. Necessary operating and maintenance manuals together with as-built drawings, all in quadruplicate shall be submitted. The system shall be deemed to be taken over only upon submission of these documents and against the issuance of Completion Certificate from the Consultants.

Approvals:

After completion of Installation, necessary submission drawings shall be prepared by the contractor and submitted to the relevant authorities. The scope of this tender includes the responsibility of obtaining the approval for the installation from the Fire Department and other relevant Departments and obtaining the required No Objection Certificate.



PIPING, VALVES & ACCESSORIES

SCOPE:

The scope of this section comprises the supply and laying of pipes, pipe fittings and valves and testing of all water piping required for the complete installation as shown on the drawings. All piping inclusive of fittings and valves shall follow the applicable Indian Standards.

1. Hydrant and Sprinkler Piping:

- 1.1 All Hydrant Pipes, Stand Pipes, Sprinkler Pipes, etc., shall be as per the Approved Make indicated elsewhere in this Specification conforming to relevant ISI Codes. Pipes upto 150 mm NB shall be as per IS 1239, Medium grade. Pipes of 200 mm NB and above shall be as per IS 3589, with 6.35 mm wall thickness.
 - a. Pipes upto and including 40 mm dia, shall have threaded joints using non - hardening lubricant as sealing material and / or by screwed flanges using 3 mm rubber gaskets, Pipe threads and flanges shall be as per BS 534 and BS 4504.
 - b. Pipes 50 mm and above in dia. shall have welded / flanged joints. All welding shall be done by qualified welders and shall strictly conform to Indian Standards code of procedure for manual metal arc welding of mild steel.
 - c. All fittings shall be of Mild Steel conforming to A 234 GR WPD Sch. 40. The Flanges shall be drilled as per relevant IS Standards. All Flanges, fittings and accessories shall be suitable for Grade 150 Pressure Rating unless otherwise specified.
- 1.2 All pipes and their steel supports shall be thoroughly cleaned and given one primary coat of red oxide paint before being installed.
- 1.3 Fittings shall be as per IS 1239 Part II of Pressure rating suitable for the piping system. Fittings used on welded piping shall be of weld able type.
- 1.4 Tee-off connections shall be through equal or reducing tees, otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

1.5 C.I. Sluice Valves:

Non rising spindle sluice valve conforming to IS 780 with a rating of PN 1.6 shall be used for the system. These valves are provided at suitable locations, considering the need of isolation in case of maintenance. And this shall be of TAC approved make.

1.6 G.M Sluice Valve:

This shall be as per IS 778 with female threaded ends used for instrumentation / draining arrangement and shall have ISI Mark.

1.7 C.I. Non Return Valve:

All C.I non return valve shall be "Dual Plate" Check Valves as per API 594. These check valves, without bypass shall be provided for the delivery lines of the pump sets and also for

the interconnection of the fire hydrant and the sprinkler system. The makes shall be as specified elsewhere in this tender.

1.8 **Butterfly Valve:**

All isolation / shut-off valve shall be of Butterfly type wherever indicated in the Drawings. The Valves shall have cast iron body conforming to IS 210 GR FG 200 and suitable for ANSI 150 Grade flanges. The Valve stem shall be of Stainless-Steel conforming to SS 410 / 316. The disk material shall be of Ductile Iron with Electroless Nickel Plating. The seat material shall be EPDM. All shut-off valves of 50 mm NB and above shall be Butterfly valves only.

1.9 **Ball Valve :**

All shut-off valves of size 40 mm NB and below shall be full bore type ball valves only conforming to BS 5351 and should be of 3-piece construction only. The body shall be of carbon steel as per ASIM A 216 - WCB. The end connectors shall also be of carbon steel as above. The ball and stem shall be stainless steel SS 304 / 316. The Valve seat, body gasket and stem packing shall be PTFE. The make shall be as indicated elsewhere in this tender.

1.10 **Valve Chamber:**

Brick masonry chamber of size 1200 mm x 1200 mm x 1500 mm depth with 600 mm x 600 mm Cast Iron manhole cover shall be provided for the sluice valve that are proposed for the underground fire hydrant line. Flanges shall be of approved make. The supply of flanges shall also include supply of bolts and nuts and suitable asbestos / fiber rubber insertion gaskets (minimum 3 mm thick).

1.11 Strainers shall be of approved make, equal "Y" type or pot strainers, with Cast / MS fabricated bodies. Strainers shall have bronze screen with 3 mm perforations. Screen shall be stainless steel, removable and replaceable without disconnection of the main pipes. All strainers shall be provided with equal size isolation valves, so that the strainer may be cleaned without draining the system. All "Y" type strainers wherever specified shall be MS fabricated type only.

1.12 All pipe supports shall be mild steel, thoroughly cleaned and given on primary coat of red oxide paint before being installed. All supports shall be painted with one coat of primer and two coats of black enamel paint.

2. **Internal Hydrant Assembly**

2.1 **Single Headed Hydrant Valve:**

Gun Metal oblique type hydrant valve of single outlet with necessary hose coupling adapter of 63 mm size, instantaneous spring lock arrangement and blank cap conforming to IS 5290.

2.2 **Hose with Coupling :**

Controlled percolation / RRL Hose conforming to IS 8423 of 63 mm dia x 15 RMT long shall be provided with suitable fire hose delivery coupling of instantaneous spring lock arrangement comprising of male and female half and rubber cup washer as per IS 903.

2.3 Gun Metal Branch Pipe with Nozzle:

Gun metal short branch pipe shall be of 63 mm dia. Female instantaneous inlet, male threaded outlet completes with hexagonal nozzle of 19 mm dia. heavy quality as per IS 903 shall be provided.

2.4 Hose Reel:

Hose Reel of swing type with 19 mm dia., 36 RMT long hose and hand-controlled nozzle of 6.35 mm dia. shall be provided on a drum with suitable bracket for fixing on the wall.

2.5 Hose Reel Cabinet:

MS Hose cabinet of size to suit the location shown in drawing for the fire escape hydrant and the hose reel assembly and shall be flush with the wall. These cabinets shall be of glass fronted with hinged door and lock. The cabinet is spray painted to scarlet red color.

2.6 Hose and Extinguisher Cabinet:

Where indicated on the plan install the auxiliary hose stations within a fire hose cabinet. Recessed Style - Box shall be 18-gauge steel with 20-gauge hollow metal door and 16-gauge steel trim - door shall be due-panel type with finish interior with factory prime exterior set for finished specified Croker-Standard 5000 Series.

3. Piping Installation:

Tender drawings indicate schematically the size and location of pipes. The Contractor, on the award of the work, shall prepare detailed working drawings, showing the cross-section, longitudinal sections, details of fittings, locations of isolating and control valves, drain and air valves, and all pipe supports. He must view the specific openings in buildings and other structures through which pipes are designed to pass.

3.1 Above Ground Piping:

All pipes inside and outside the building, laid above the ground shall be properly supported on or suspended from stands, clamps, hangers as specified and as required. The Contractor shall adequately design all the brackets, saddles, anchors, clamps and hangers, and be responsible for their selection and usage. Approved type of Anchor fasteners shall be used along with Standard pipe supports, like HITEC supports.

The pipes shall be duly painted with one coat of red oxide primer and two coats of synthetic enamel paint of fire red color as per Shade No. 536 per IS 5. The pipes shall be supported at a minimum interval of 3.5 Mts. between adjacent supports.

- 3.2 Vertical risers shall be parallel to walls and column lines and shall be straight and plumb. Risers passing from floor to floor shall be supported at each floor by clamps or collars

attached to pipe and with a 15 mm thick rubber pad or any resilient material. Where pipes pass through the terrace floor, suitable flashing shall be provided to prevent water leakage.

- 3.3 Pipe Sleeves, 50 mm larger diameter than pipes, shall be provided wherever pipes pass through walls and slabs, and annular space filled with fibre glass and finished with retainer rings.
- 3.4 All pipe work shall be carried out in workmen like manner, causing minimum disturbance to the existing services, buildings, roads and structure. The entire piping work shall be organized, in consultation with other agencies work, so that laying of pipe supports, pipe and pressure testing for each area shall be carried out in one stretch.
- 3.5 Cut-outs in the floor slab for installing the various pipes are indicated in the drawings. Modification of these cutouts / additional cutouts if required shall be included in the offer.
- 3.6 The Contractor shall make sure that the clamps, brackets, clamps saddles and hangers provided for pipe supports are adequate. Piping layout shall take due care for expansion and contraction in pipes, and include expansion joints where required.
- 3.7 All pipes shall be accurately cut to the required sizes in accordance with relevant ISI Codes and burrs removed before laying. Open ends of the piping shall be closed as the pipe is installed to avoid entrance of foreign matter. Where reducers are to be made in horizontal runs, eccentric reducers shall be used for the piping to drain freely. In other locations, concentric reducers may be used.
- 3.8 All welding of pipes shall be carried out by certified welders only. A welding procedure shall be prepared and qualified before any welding is done. The Welding Standard shall be as per AWS D 10.9, level AR - 3. All pipe works of 40 mm NB and below shall be of Screwed constructions.

3.9 **Under Ground Piping :**

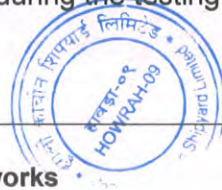
All buried piping's shall be duly painted with one coat of bituminous primer and above this one layer of Tar felt of 3 mm thickness shall be wrapped. Above this a finished wrapping with "Pipe Kote" shall be provided. The UG piping is to be laid in such a way that T.O. P level is minimum 1 Meter from ground level. PCC 1:4:8 anchor supports shall be provided for bends and tees wherever change in flow direction occurs.

3.10 **Excavation and Back filling :**

Excavation for UG Pipe line shall be done in all type of soil conditions to a minimum of 1 Mtr. below the ground level i.e., to the top of pipe elevation.

4. **Testing & Balancing:**

- 4.1 All piping shall be tested to hydrostatic test pressure of at least one and half times the maximum operating pressure, but not less than 10 kg per sq.cm. gage for a period of not less than 2 hours. All leaks and defects in joints revealed during the testing shall be rectified and got approved at site.



- 4.2 Piping repaired subsequent to the above pressure test shall be re-tested in the same manner, till no leaks and pressure drops are found.
- 4.3 System may be tested in sections and such sections shall be securely capped, then retested for entire system.
- 4.4 The Contractor shall give sufficient notice to all other agencies at Site, of his intention to test a section or sections of piping and all testing shall be witnessed and recorded by Owner's Site Representative.
- 4.5 The Contractor shall provide all materials, tools, equipment, instruments, services and labor required to perform the test and to remove water resulting from cleaning and after testing.

5. Measurements for Piping:

Unless otherwise specified measurements for piping for the project shall be on the basis of centre line measurements described herewith.

Piping:

Shall be measured in units of length along the centre line of installed pipes including all pipe fittings, flanges (with gaskets and nuts and bolts for jointing) unions, bends, elbows, tees, concentric and / or eccentric reducers, inspection pieces, expansion loops etc., The above accessories shall be measured as part of piping length along the centre line of installed pipes and no special rates for these accessories shall be permitted.

The quoted unit rates for centre line linear measurements of piping shall include all wastage allowance, pipe supports including hangers, MS Channel, wooden haunches, nuts and check nuts, vibration isolator suspension where specified or required, and any other item required to complete the piping installation as per the specification. None of these items will be separately measure NOR paid for.

However, all valves (gate / globe / check / balancing / butterfly / ball etc.,) strainers, orifice plates, thermometers, pressure gages shall be separately measured and paid as per their individual unit rates.

SPRINKLER SYSTEM

Sprinkler Heads:

Sprinkler heads shall be of quartzoid bulb type with bulb, valve assembly yoke and the deflector. The sprinklers shall be approved make and type.

Types:

Conventional Pattern:

The sprinklers shall be designed to produce a spherical type of discharge with a portion of water being thrown upwards to the ceiling side of wall extra. The sprinklers shall suitable for erection in upright position or pendant position.

Pendent Sprinklers:

These shall be designed for installation hangs from pipes above false ceiling. The discharge pattern shall be domed or conical using a convex deflector.

Construction:

- i) **Bulb:** Bulb shall be made of corrosion-free material strong enough to with stand any water pressure likely to occur in the system. The bulb shall shatter when the temperature of the surrounding air reaches a predetermined level.
- ii) **Valve assembly:** Water passage of the sprinkler shall be controlling assembly of flexible construction. The valve assembly shall be held in position by the quartzoid bulb. The assembly be stable and shall withstand pressure surges or external vibration without displacement.
- iii) **Yoke:** The yoke shall be made of high quality gunmetal. The arms of yoke shall be so designed as to avoid interference with discharge of water from the deflector. The sprinkler body shall be coated with an approved anti corrosive treatment if the same is to use in corrosive conditions.
- iv) **Deflector:** The deflector shall be suitable for either upright or pendent erection. The deflector shall be designed to give an even distribution of water over the area protected by each sprinkler.
- v) **Color Code:** Various color codes are available to adopt for classification of sprinkler according to nomination temperature ratings.
- vi) **Sprinkler Temperature Rating:** The temperature rating of the sprinkler selected needs to consider the maximum ambient ceiling temperature as well as the occupancy classification
- vii) **Size of Sprinklers Orifices:** The sprinklers shall be of 15mm nominal bore size.

Pipes and Fittings:

Pipes for sprinkler system shall be of black steel conforming to I.S. 1239 (Heavy class). Fittings for black steel pipes shall be malleable iron suitable for welding or approved type cast iron fittings with tapered screwed threads.

Jointing:

Joint for black steel pipes and fittings shall be metal to metal tapered thread or welded joints. A small amount of red lead may be used for lubrication and rust prevention in threaded joints. Joints between pipes, valves and other apparatus, pumps etc. shall be made with M.S. flanges with appropriate number of bolts. Flanged joint shall be made with 3mm thick insertion rubber gasket.

Pipes Protection:

All pipes above ground and in exposed locations shall be painted with one coat of red oxide primer and two or more coats of synthetic enamel paint of approved shade. Pipes in chase or buried underground shall be painted with two coats of hot bitumen.

Pipe Supports:

All pipes shall be adequately supported from ceiling or walls from structural clamps fabricated from M.S. structural e.g. rods, channels, angles and flats. All clamps shall be painted with one coat of primer and two coats of black enamel paint. The contractor shall provide inserts at the time of slab casting or anchor fastener later.



Valves:

- i. Sluice valves of sizes 80mm and above shall be double flanged cast iron conforming to I.S.780.
- ii. Check valve shall be of cast iron double flanged conforming to I.S.5312. Valves on pipes 65mm and below shall be heavy pattern gunmetal valves with cast iron wheel seat tested to 20 kg/sq.cm pressure. Valves shall conform to I.S. 778.
- iii. Air Valves 25mm dia screwed inlet cast iron single acting air valves on all high points in the system or as shown on drawings.
- iv. Drain Valves 50mm dia black steel pipe conforming to I.S.1239 medium class with 50mm gunmetal full way valve for draining and water in the system in low pockets.

Installation Control Valve:

Installation control valves shall comprise of the following:

- a) One-man stop valve of full way pattern with gunmetal pointer to indicate where open/shut.
- b) One automatic alarm valve fitted with handle & cover.
- c) One hydraulic alarm motor and going for sounding a continuous alarm upon out-break of fire. One combined waste and testing valve including 5 m of tubing and fittings.
- d) Alarm stops valve.
- e) Strainer
- f) Drain plug.
- g) Padlock and strap
- h) Wall box for installation of valve.

Pressure Gauges

Burden type pressure gauges conforming to IS/BS specifications shall be provided at the following locations.

- a) Just above alarm valve.
- b) Just below alarm valve, on the installation stop valve.
- c) One pressure gauge on delivery side of each pump.
- d) Required number of pressure gauges on pressure tank.

Piping shall be so installed that the system can be thoroughly drained. All the pipes shall be arranged to drain to the installation drain valve.

In case of basement and other areas where the pipe work is below the installation drain valve / auxiliary valves of the following sizes shall be provided.

- a) 20mm dia valve or large for pipes up to 50mm dia.
 - b) 32mm dia valves or large for 65mm dia pipe to 90mm dia pipe.
 - c) 50mm dia valves or large for pipes larger than 90mm dia.
- Piping shall be be screwed type upto 50mm diameter, welding of joints will be allowed for pipes of above 50mm dia.
 - The entire piping shall be pressure tested by hydrostatic method up to a pressure of 1.5 times the working pressure.
 - The piping shall be slowly charged with water so that all the air is expelled from the piping by providing a 25mm inlet with a stop cock.

- The piping shall be allowed to stand full of water for a period of 2 hours and then the piping shall be put under pressure by means of manually operated test pump or by a power driven test pump.
- The pressure gauges used for testing shall be accurate and shall preferably be calibrated before the testing shall be rectified to the entire satisfaction of the Engineer-in-charge.
- The system may be tested in sections/parts as the work of erection of piping proceeds. The piping shall stand 1.5 times the working pressure for at least 2 hours.

FIRE ALARM SYSTEM

1.0 GENERAL:

- 1.1 The following clauses specify in general the Fire Alarm System to be supplied and installed for the subject tender. The scope in general is for an Analog Addressable Microprocessor based Fire Alarm System with a centralized Fire Command Station, Peripheral devices etc., as detailed in the subsequent Clauses.

2.0 DESCRIPTION OF WORK:

- 2.1 Work includes a complete Fire Alarm System in the buildings and providing all materials, equipment, accessories, services and tests necessary to furnish and install a new Partly Addressable Fire Alarm Communication Life Safety System of the non-coded, closed circuit general alarm (speaker/strobes), electrically supervised type. Provide supervised wiring, all operations, and hardware, as described herein and shown on plans. The system to consist of but not be limited to the following:

- Fire Alarm Control Panel.
- System Printer at the FACP (Fire Alarm Control Panel).
- Port Only for Telephone line modem.
- Remote Annunciator Panel (s) in Engineer / Security Room.
- Power Supplies.
- Pre-Amplifiers and Line Amplifiers as required.
- Addressable type manual fire alarm stations.
- Addressable area photoelectric / ionization smoke detectors.
- Conventional type area photoelectric / ionization smoke detectors for rest of the areas.
- Conventional type area heat detectors.
- Electronic Hooters with CZAMS.
- Monitor Zone Addressable Modules (MZAMS) for Conventional Detectors.
- Central Station Operations.
- Visual Monitoring / status of items at the FACP.
- Conduit and wiring.
- Approved fused cut-out panels.
- Battery for back-up operation.

- 2.2 The Fire Alarm System is to be installed for addressable initiating and control circuits with hardwired signaling (speaker/strobes) circuits utilizing conduit, tubing and wire serving all

- 3.4 Wiring shall be run in approved race way or conduits throughout. Addressable initiating and control circuits to be twisted / shielded or twisted / non-shielded as per manufacturer's standard. Signaling (horn / strobe) circuits to be twisted / non-shielded.
- 3.5 All race ways are to be concealed in hung ceilings or run-in concealed areas to minimise exposure in public corridors and spaces. Where race ways are run in corridors, they must be installed in upper corners at ceiling secured to protect against tampering where possible.
- 3.6 **All components by the Fire Alarm Life Safety System to be U.L. listed by one manufacturer. The System shall be preferably UL 9th Edition compliant.**
- 3.7 After the completion of the installation of the Fire Alarm System, this Contractor shall perform a complete demonstration test of all systems and devices to the satisfaction of the Owner and their consulting engineer.
- 4.0 **QUALITY ASSURANCE:**
- 4.1 **Manufacturers:** They shall be the firms regularly engaged in manufacture of fire alarms, life safety equipment of types and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years. Provide fire alarm life safety system equipment produced by a manufacturer listed as an "Acceptable Manufacturer" in this section. Unless submitted components are U.L listed or Factory Mutual approved in the name of the Organization a "Manufacturer" will not be considered.
- 4.2 **Standards Compliance:** Comply with the requirements of all applicable local codes, NEC, U.L., NFPA, and NEMA Standards pertaining to Fire Alarm, Life Safety Systems.
- 5.0 **SUBMITTALS:**
- 5.1 List of types of equipment and components provided including model numbers, mounting accessories and quantities.
- 5.2 Description of operation of the system as described herein, to include all exceptions, variances or substitutions listed at the time of bid.
- 5.3 Calculations to support size of standby batteries, manufacturer's printed product data, catalog cuts and description of any special installation procedures.
- 5.4 Proposed zone list with description of zones (Alarm, Monitor) as they would appear on the FACP and Remote Annunciator (s).
- 5.5 Amplifier sizes and point capacity in the remote panel.
- 5.6 Provide shop drawing as follows:
- 1:25 Scale drawing of Fire Command Station.
 - 1:50 Scale floor plan showing equipment location, drawings and raceway runs.
 - 1:25 drawing of Remote Annunciator(s).
 - Complete riser diagram showing all equipment, modules and device wiring details.
- 5.7 Provide samples of various items when required.

- 5.8 Acceptance or substitutions, based on submittal documents furnished by the Contractor, shall only be construed as permission to proceed with the installation pending final test and approval of the systems. The Contractor shall continue to bear the liability for replacement of substituted equipment if, in the opinion of the Owner or Consultant, the substituted equipment fail to perform as specified or fails to meet the approval of all authorities having jurisdiction within three months after scheduled Project completion.
- 6.0 **OPERATION:**
- 6.1 Activation of any manual pull station, duct smoke detector, heat detector, area smoke detector, or sprinkler water flow or pressure switch, to provide the following automatic operations.
- 6.1.1 Sound a pulsating audible signal at the Fire Alarm Control Panel. Pressing the Alarm acknowledge key on the Fire Alarm Control Panel shall silence the audible signal during the alarm condition. Subsequent alarm conditions shall again sound the audible signal.
- 6.1.2 Flash the general alarm LED indicator on the Fire Alarm Control Panel. Pressing the Alarm acknowledge key on the Fire Alarm Control Panel shall continuously light the general alarm LED indicator during the alarm condition. Subsequent alarm conditions shall again flash the general alarm LED indicator.
- 6.1.3 Display a general alarm indication and system status summary (numbers of alarm, supervisory and / or trouble condition) on the Fire Alarm Control Panel Liquid Crystal Display (LCD). Pressing the alarm acknowledge key shall display, for 30 seconds, the individual addressable device reporting the "alarm" status and custom label (up to 40 characters describe the event without abbreviation). At the end of the 30 seconds period, the general indication and system status summary shall again be displayed. The individual device display may be recalled at any time by pressing the alarm acknowledge key (while the alarm is in existence) or until the alarm condition is reset to normal.
- 6.1.4 Enter the custom label for the addressable device reporting the alarm condition, with time and date of occurrence into the Fire Alarm Control Panel historical alarm log for future recall.
- 6.1.5 Sound the "Slow Whoop" alarm signal throughout the building. The alarm signals may be silenced during the alarm condition by operation of the Fire Alarm Control Panel alarm silence switch. Subsequent alarm conditions shall resound the alarm horns.
- 6.1.6 Recall fire elevators to the ground / entry level or to alternate level if designated by local authorities.
- 6.1.7 Sound an audible signal at the remote annunciator panel. This alarm may be silenced during alarm condition.
- 6.1.8 Visually annunciate the individual addressable device reporting the alarm or the software defined group of addressable devices, which includes the addressable device reporting the alarm, at the remote network annunciator panel, via an individual or "group" alarm LED indicator. The visual indication shall remain ON until the alarm condition is rest normal.
- 6.1.9 Activate the remote printer to printout a hard copy record of the alarm activation including the time and date and custom label for the device reporting the alarm condition.

6.2 **Hooter Control Circuits:**

- 6.2.1 Conventional Hooters are planned. Each hooter circuits or zones shall accompany a Control Zone Addressable Modules (CZAM) and thus be made addressable.
- 6.2.2 Each hooter zone or a group of zones shall be powered from a separate and adequately sized amplifier, if needed. Separate Signal and power wiring to the Control Zone Addressable Modules (CZAM) should be planned.

7.0 **SYSTEM SUPERVISION:**

- 7.1 Fire Alarm Life Safety System to be electrically supervised to automatically detect and report trouble conditions as follows:
 - 7.1.1 The Fire Alarm System Wiring (except control wiring between fans and dampers, etc., and their control zone addressable module) shall be electrically supervised to automatically detect and report trouble conditions to the Fire Alarm Control Panel.
 - 7.1.2 Any opens or grounds on Monitor Zone Addressable Module alarm initiating, supervisory or status monitoring circuit wiring and any opens, grounds or shorts across addressable data communications, alarm signal or alarm light wiring shall initiate a system trouble condition.
 - 7.1.3 System addressable devices shall be supervised for placement and normal operation. Removal of an addressable device or the failure of its internal electronic circuitry shall initiate a system trouble condition.
 - 7.1.4 Operation of the central station agency alarm disconnect switch or any manual control commands that alter the system from its normal programmed standby configuration shall initiate a trouble condition.
 - 7.1.5 Trouble conditions shall automatically:
 - a. Sound an audible signal at the Fire Alarm Control Panel. Pressing the trouble acknowledge key on the Fire Alarm Control Panel shall silence the audible signal during the trouble condition. Subsequent trouble conditions shall resound the audible signal. The audible trouble signal shall also resound at programmable time intervals to remind the system operator that the trouble condition(s) still exists.
 - b. Flash the general system trouble LED indicator on the Fire Alarm Control Panel. Pressing the trouble acknowledge key on the Fire alarm control panel shall continuously light the general trouble LED indicator during the trouble condition. The visual indication shall remain on until the trouble condition is restored to normal. Subsequent trouble conditions shall again flash the general trouble LED indicator.
 - c. Display a general alarm indication and system status summary (numbers of alarm, supervisory and / or trouble condition) on the Fire Alarm Control Panel Liquid Crystal Display (LCD). Pressing the alarm acknowledge key shall display, for 30 seconds, the individual device or circuit and display to include the trouble status and custom label (up to 40 characters and spaces) for the addressable device or circuit reporting the trouble condition. At the end of the 30 seconds period, the general trouble indication and system status summary shall again be displayed. The individual device circuit display may be recalled at any time by repressing the trouble

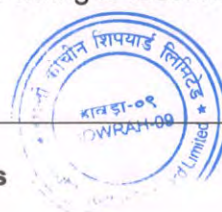
acknowledge key (while the trouble is in existence) or until the trouble alarm condition is restored to normal.

- d. Enter the custom label for the device or circuit reporting the trouble condition, with time and date of occurrence into the fire alarm control panel historical alarm log for future recall.
- e. Sound an audible signal at the remote annunciator panel. The audible signal may be silenced during the trouble condition.
- f. Visually indicate a general trouble condition at the remote annunciator panel via. One general trouble LED indicator. The visual indication shall remain ON until the trouble condition is restored to normal.
- g. Activate the remote printer to print out a hard copy record of trouble condition activation to include the time and date and custom label of the device or circuit reporting the trouble condition.

8.0 **SYSTEM WALK TEST:**

- 8.1 The FACP shall permit "One Person" system walk test. The walk test mode shall be password protected requiring the entry of minimum FIVE digit pass code, before walk test mode is enabled.
- 8.2 Fire Alarm System addressable devices may be divided into as many as eight groups for testing purposes. Putting one group into walk test mode shall not impair the normal operation of the remaining seven groups.
- 8.3 When a group of addressable devices are put into walk test mode the alarm verification function, if provided, shall be disabled in order to expedite testing.
- 8.4 The walk test mode be enabled for a programmable amount of time up to Eight hours. If no devices in the system / an enabled group have been activated during the programmed time, the FACP shall automatically revert to normal system operation.
- 8.5 When placed in the walk test mode by authorized personnel, activation of any alarm initiating device shall:
 - Sound a pulsing audible signal on an audible alarm signaling device.
 - Log the alarm condition in the FACP historical trouble log for future review / recall.
 - The FACP shall automatically reset itself after each alarm test.
- 8.6 When placed in walk test mode by authorized personnel, momentary disconnection of addressable data communication, alarm initiating, supervisory or alarm signaling circuit wiring shall:
 - Sound a continuous four second signal on all audible alarm signaling devices.
 - Log the trouble condition in the FACP historical trouble log for future review / recall.
 - The FACP shall automatically reset itself after each circuit's wiring is reconnected.

9.0 **QUALIFICATIONS OF MANUFACTURER/ SUPPLIER:**



- 9.1 Manufacturer and / or supplier of system specified shall have following qualifications and submit documentary evidence of same.
- 9.1.1 Existence at time of bidding of local authorized office near project site, with staff of factory trained engineers and technicians who are qualified to provide instructions, routing and emergency maintenance and repairs on portions of systems.
- 9.1.2 Provide written guarantee that local office will be maintained with qualified staff of engineers and technicians for an agreed upon period.

10.0 **TRAINING OF CONSOLE OPERATORS:**

- 10.1 Manufacturer to train not less than 5 operators of console, with personnel on job instruction provided by competent engineer representing manufacturer.
- 10.2 Manufacturer to provide two distinct training sessions, with minimum training time of one day each. Sessions scheduled to suit requirements, may be scheduled at any time from award of contract to end of guarantee period at owner's request.
- 10.3 Manufacturer to train operators in preventive maintenance of console printers and other equipment, inclusive of replacing paper, tapes and bulbs.

11.0 **CO-ORDINATION:**

- 11.1 Contractor to co-ordinate with mechanical contractor and for installation of duct mounted smoke detector and motor controls.
- 11.2 Contractor to co-ordinate with sprinkler contractor for interface with sprinkler device.
- 11.3 Contractor to co-ordinate with Elevator contractor for interface with terminal recall relay.
- 11.4 Contractor to co-ordinate with Architect / Consultants for final location of devices and appearances.

12.0 **LOOPING / ZONING OF DEVICES (FOR LED ANNUNCIATIONS AT FACP):**

- 12.1 Shall be finalized during preparation of shop floor drawings.

II **PRODUCTS:**

1.0 **ACCEPTABLE MANUFACTURERS / VENDORS:**

- a. Edwards
- b. Notifier
- c. Simplex



2.0 **MATERIAL:**

- 2.1 **Wire and Conduit:** Provide in accordance with system requirements as stated herein and by the manufacturer in accordance with all applicable codes and authorities having jurisdiction and installed in conduit throughout.

3.0 **EQUIPMENT:**

3.1 **Basic System Equipment, Addressing and Operating Capabilities:**

- 3.1.1 The Addressable Fire Alarm System shall provide an individual multiplex data address for each conventional manual fire alarm station zone (through MZAM), addressable room smoke detector, conventional smoke / heat detector zones (through MZAM), addressable duct smoke detector, monitor zone addressable module and control zone addressable module.
- 3.1.2 The Fire Alarm Control Panel shall provide Standard 72, addressable data communications circuits to provide connection of and communication with the addressable devices, as required by these specifications and / or as shown on the drawings. Each addressable communications circuit shall provide the capability of communicating with up to 159 Detectors and 159 Devices. Manufacturer shall clearly mention the loop capacity of the panel and higher capacity are preferred to accommodate future expansions. In order to permit future additions, no more than 80% of the addresses available on any single addressable data communications circuit shall be utilized.
- 3.1.3 Addressable data communication between the Fire Alarm Control Panel's Addressable Interface Circuit Modules and Addressable devices shall be digital transmissions which shall consist of multiple 11-bit messages with start, data, parity and stop bits. Address, parity over run, framing and check sum tests must be passed for any message to be considered valid. Addressable data communications circuits between the Fire Alarm Control Panel and addressable devices shall operate at 4800 baud.
- 3.1.4 Monitor Zone Addressable Modules shall be provided to connect to and provide individually addressed alarm initiating, supervisory or status monitoring circuits for non-addressable devices such as Conventional Smoke / Heat Detector Zones., Manual Call Point Zones. Each Monitor Zone Addressable Module shall provide one NFPA 72, style D (Class A, four wire) supervised circuit. Assignment of individual MZAM circuits for alarm, supervisory or status monitor operation shall be accomplished during the programming of the Master Controller Module Central Processing Unit (CPU) Software.
- 3.1.5 Control Zone Addressable Modules shall be provided to connect to Conventional Hooter zones. Each Control Zone Addressable Module shall provide one individually addressable control relay with Double-Pole, Double-Throw (DPDT) contacts fused. Assignment of individual CZAM relays for control operation shall be accomplished during the programming of the Master Central Processing Unit (CPU) software.

3.2 **Fire Alarm Control Panel(s):**

The Fire Alarm System Control Panel(s) shall incorporate all control, alarm, relay and necessary modules and components in surface mounted cabinets. The operating controls and zone / supervisory indicators shall be located behind locked, steel door / plexi glass window assemblies, with keys made available only to Fire Department and other authorized

operating personnel. All control modules shall be labeled, all zone locations shall be identified, and the panel shall be provided with a set of permanently mounted operating instructions. The panel, door and frame assembly shall be steel, with black finish. The panel shall contain system Addressable power supply unit, data bus connectors, battery charger and all necessary function modules and components, including but not necessarily limited to the following:

3.2.1 Master Controller Module: The Panel shall be provided to act as a central processing, indicating and control location for the Fire Alarm System and shall include:

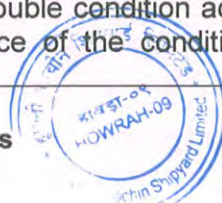
- a) Solid State, microprocessor based, Central Processing Unit (CPU) to process all system data and generate all system automatic alarm functions. Any addressable device or conventional hard-wired alarm initiating, supervisors or status monitoring circuit may be software programmed to activate any system control relay or signaling circuit. All control-by-event programming, custom LCD display labels and alarm codes shall be stored in non-volatile solid state memory, which shall be on-site programmable
- b) The Panel shall be capable of working in Degrade Mode incase of CPU failure. In this mode the Panel shall activate the general alarm hooter incase of any fire detection or manual pull station activation.
- c) The Panel shall be networkable with a minimum of 103 nodes per network. The networking shall be possible on both wire and fiber. Standalone panels shall **not** be accepted.
- d) Programming of the Fire Alarm Panel shall be done through the Keypad available at the Panel Display. No additional tool shall be required for programming of the Fire Alarm Panel. Any replacement of Detectors and Devices shall be done with minimal change of the programming from the panel end.
- e) All detectors and devices shall be hardware addressable type by means of rotary switches and no additional tool shall be required for addressing the new device.
- f) The Panel shall support Auto-program feature to facilitate quick programming of the panel.
- g) Four levels of access to system control and software functions. Level 1 shall be the lowest level of access and shall not require a pass code. Levels 2, 3 & 4 shall require a pass code of up to ten digits, with level 4 being the highest (most restricted) level of access.
- h) Solid state memory for alarm and trouble history logs. Each log, alarm or trouble, shall be capable of storing up to 4000 General Events and 1000 Fire Events with the time and date of occurrence.
- i) Capable of automatic day / night sensitivity for individual detectors or group of detectors.
- j) A module placement supervisory circuit through the module data conductors.

- k) 640 (16 x 40) character, Alphanumeric, Backlit, Liquid Crystal Display (LCD). The display shall have 40 Characters dedicated for event description without abbreviations.
- l) The Display shall have a fully functional QWERTY keypad.
- m) Following LED indications and Acknowledge buttons shall be available at the Panel Display:
 - System Alarm LED Indicator with alarm condition acknowledge button.
 - System Supervisory condition LED indicator with supervisory condition acknowledge button.
 - System trouble condition LED indicator with trouble condition acknowledge button.
 - Maintenance required for any detector indicator.
 - System Power on LED Indicator.
 - System Alarm Silence Button.
 - System reset button.
 - Central station alarm disconnect switch with "activated" LED indicator.
 - Four programmable control switches with "activated" LED indicator.
 - An alarm / trouble audible signal.
- n) Display action and data entry / control keypads.
- o) The panel shall have to capability of upgrading to remote monitoring and automated Fire/Fault messaging (SMS and email) through web server.
- p) The panel shall be capable of supporting Voice Evacuation System through Digital Amplifiers.
- q) The panel shall support a complete system response time of less than 3 seconds.
- r) Current status of Power Supply Battery & Charger (Low / No battery, Battery Voltages, Trickle Current, Boost Current, Battery Current etc.,) will be displayed when called for. The power supply shall be addressable type.
- s) Two alarm signaling circuits.
- t) Two alarm operated Single-Pole, Double-Throw (SPDT) relays.
- u) One trouble operated Single-Pole, Double Throw (SPDT) relay.
- v) A minimum of 32 Nos. LED indicators for Zone alarms. The LED corresponding to a zone shall be custom programmed and the zone names shall be custom labeled.

3.2.2 Addressable Interface Module: The addressable interface module(s) shall provide one addressable data communications circuit to enable the Fire Alarm Control Panel to communicate with the addressable devices. Each addressable data communications circuit shall provide NFPA Standard 72, Style D (Class A, four-wire) operation, a single open or ground fault shall not impair a circuit's operation. Addressable data communications circuit wiring shall be supervised for opens in the circuit, shorts across the pair and ground faults and should provide a trouble display and audible trouble signal at the Fire Alarm Control Panel. Faults on one addressable data communication circuit shall not impede operation of other circuits. The module shall be readily disconnected for ease of servicing and shall be

placement supervised by the Master Controller Module. Provide available spare space in the FACP for a minimum of two future addressable interface modules.

- 3.2.3 Indicating Appliance Signal Circuit Modules:** The indicating Appliance Signal Circuit module(s), shall provide two independently controllable alarm signal circuits. Each alarm signal / speaker circuit shall be configured for NFPA 72, Style Z (Class A, four-wire) supervised operation monitoring for opens, shorts or ground faults. When wired in the Class A, four-wire configuration, a single open or ground fault shall not prevent the activation of the alarm signal devices. When a circuit fault is detected, the module shall light the general trouble LED on the Master Controller Module and initiate a system general trouble condition. Each signal circuit shall be protected by an individual fuse on the module. The module shall be readily disconnected for ease of servicing and placement supervised by the Master Controller Module.
- 3.2.4 Auxiliary Control Relay Modules:** The auxiliary control relay module(s) shall provide relays and their bases, complete with terminals for Contractor wiring, for control of external equipment functions. Each relay shall also be provided with a supervised, status monitoring circuit to monitor the status of the controlled device (status contacts provided by others). The module shall be readily disconnected for ease of servicing and shall be placement supervised by the Master Controller Module.
- 3.2.5 Communication Module:** The module shall provide two communications ports with ASCII output (adjustable baud rate) for operation of system printers and / or cathode ray tubes (CRT's).
- 3.2.6 Remote Annunciator Interface Module:** The remote annunciator interface module shall provide one digital, serial communication circuit to enable the Fire Alarm Control Panel to communicate with remote serial annunciator's. The serial communication circuit wiring shall be supervised for opens in the circuit, shorts across the pair and ground faults. A serial communication circuit fault shall initiate a trouble display, audible trouble signal. The module shall be readily disconnected for ease of servicing and shall be placement supervised by the Master Controller Module.
- 3.2.7 Battery Pack:** The Fire Alarm System shall be provided with battery backup capability. The batteries shall provide 24 hours of normal standby operation and 5 minutes of normal alarm operation at the end of the 24 hour standby period. The batteries shall be placement and high/low voltage supervised by the Master Controller Module.
- 3.3.0 Peripheral Devices:** The following material to be supplied and installed as indicated on the drawings:
- 3.3.1 System Printer:** Desk-top type and shall provide the following operational capabilities:
- A permanent hard-copy record of all pertinent details of system activity. Included on this record shall be all unscheduled status change events, all operator acknowledgment of these events and all operator control commands into the system and the time and date of all occurrences.
 - The system printer shall record all alarm, supervisory and trouble conditions by address number and custom label. The custom label, of upto 40 characters and spaces, and time and date of alarm, supervisory or trouble condition activation shall be printed out in a language text so that the source of the condition is clearly



understood without referring to a code directory. Printout by address or code number only shall not be considered as functionally equivalent.

- c. The custom label (location message), of upto 40 characters and spaces, for a specific device or circuit shall correspond to that displayed on the Fire Alarm Control Panel Liquid Crystal Display.

Note:

The system printer shall be supplied by the Owners. Only the communication Port shall be provided in the panel as indicated already.

- 3.3.2 **Remote Annunciator:** The remote annunciator shall receive its data from the Fire Alarm Control panel via a supervised, serial communication circuit. There shall be 8 LED indications per component module. One LED shall be provided for each indication and each indication label. Custom labels of upto four lines of 20 characters and spaces shall be typed as required for each indication. The custom labels shall be protected by clear plastic windows. The LED indicators shall be located behind locked, door/window assembly, with keys made available only to Fire Department and other authorized operating personnel. The panel, door and frame assembly shall be steel, with medium beige finish. Annunciator shall include LED test capability, a system general trouble LED indicator, a system general off / normal LED indicator, an alarm / trouble buzzer and silence switch. Provide required number of alarm LED indications herein above described. The remote annunciator shall be provided for semi-flush mounting or surface mounting with matching back box, where shown on the drawings.

- 3.3.3 **Addressable Manual Call Point Stations:** Double Action (lift cover and pull alarm lever), non-coded type manual station, of cast metal construction, with normally open, single-pole, single-throw general alarm contacts. The manual station or a group of such stations (as per the configured zone), shall operate in tandem with a MZAM. When operated, the alarm lever shall remain in its "down" position to indicate its operation, with alarm contacts closed until the station is reset. The station shall be reset by opening the front, resetting the lever and closing the station front. The station shall be tested by opening the station front and then returning the same to normal. It shall be necessary to open the station to replace the break rod. A spare break rod shall be furnished with each station.

- 3.3.4 **Addressable Area Smoke Sensors:** Multicriteria Smoke Sensor of Photo and Thermal, two-wire, smoke sensor, and shall be calibrated and adjusted for sensitivity at the manufacturer's factory to U.L. Standards. Each sensor shall utilize solid state components and be equipped with a fully regulated LED light source for long life reliability, a 30 mesh insect screen, a power-on LED indicator and magnetic switch for local test.

The sensor shall have dual chamber suitable for operation in Temperature varying from 0 deg. C. to 38 deg. C, RH 10 to 90% and constant air velocities up to 70 ft/min and intermittent gust of wind upto 300 ft/ min for 1 hour.

1. The sensor shall have minimum four levels of sensitivity setting ranging between 1% to 4% per foot of smoke obscuration.
2. The Sensor shall use combination of Photo and Thermal sensing technologies to minimise false alarm.
3. The sensor shall have automatic environmental compensation.
4. The sensor shall have automatic variable sensitivity by day / night.

5. The addressing of sensors may be by hard address.
6. The sensor shall have pre stage / multistage alarm operation.
7. Constant sensitivity setting between alarm threshold and compensated base line sensitivity. This may be carried out at control panel or at the sensors using inbuilt microprocessor.
8. The sensors shall also work on group decision making mode or co-operative mode to reduce the false alarm rate and increase response time. The number of detector groups shall be programmable from the panel.
9. The sensors shall have LED indication to display communication / Alarm status.
10. The sensors shall be rated for ceiling installation at minimum 9.1 metres.
11. Sensor electronics shall be completely shielded to protect against false alarms from EMI and RFI. Sensors shall be listed for U.L Standard 268 and FM approved. Sensors shall be surface mount, addressable base assembly with an alarm LED indicator and screw terminals for all connections. The addressable base shall respond to polling signals from the Fire Alarm Control Panel and shall report alarm or trouble status changes. Base assemblies shall provide sensor twist / lock capability. A piezzo buzzer shall be supplied as an integral part of the sensor where specified.

4.0 **UNIT PRICES:**

- 4.1 Provide, as part of written bid proposal, a unit price for each of the peripheral devices as described above.
- 4.2 All unit prices are to reflect current prices of specified equipment and remain as the purchase price for a minimum of one year from the date of contract bid as assigned by the Engineer.
- 4.3 Bids for this contract will not be accepted without unit prices in written proposal form.

III **EXECUTION:**

1.0 **INSPECTION:**

- 1.1 Examine areas and conditions under which Fire Alarm Systems is to be installed. Notify Owner in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

2.0 **INSTALLATION:**

- 2.1 Install Fire Alarm devices, wiring and main equipment as indicated, in accordance with manufacturer's written instructions, requirements of applicable standards, and in accordance with recognized industry practices to ensure that installation complies with requirements and serves, intended, function.
- 2.2 Co-ordinate as necessary to interface installation of Fire Alarm System with other work.
- 2.3 Protect all equipment from dirt, moisture and construction debris, subsequent and during installation until the project is accepted by Owner.
- 2.4 Fire stop penetrations of floor slabs or fire walls in accordance with all local codes

- 2.5 Contractor to furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for a complete installation. All wiring types as recommended by the manufacturer installed in conduit throughout or as approved by the Local Fire Department. Junction boxes to be painted fire department RED for identification.
- 2.6 **End of line devices (Resistors / Diodes / Capacitors):** Shall be furnished as required for mounting as directed by the manufacturer.
- 2.7 All wiring shall be colour coded throughout, to local or National Electrical Code Standards. All wiring shall be of the type recommended by the manufacturer, type SIA or HO, and shall be installed in dedicated, rigid, threaded, steel, galvanized conduit throughout. Provide flex conduits at water flow, tamper and smoke vent connections.
- 2.8 All wires shall test free from earth (grounds) or crosses between conductors.
- 2.9 Circuit wiring from the Fire Alarm Control Panel to the system peripheral equipment shall be a minimum of as follows:
- a. **Each addressable data communications circuit:** 2 C x 1 sq.mm. armored Twisted and Shielded Copper Cables or 2 C x 1.5 sq.mm. PVC Insulated Copper Conductor Cable.
 - b. **Hooter Power Cables originating from the Fire Alarm Control Panel:** 2 C x 1.5 sq.mm Copper Cables
- 2.10 Fire Alarm System terminal and junction locations shall be identified in accordance with Terminal and junction boxes shall be painted Red and stenciled in White letters **"FIRE ALARM"** preventing unintentional interference with the Fire Alarm System wiring during testing, servicing and additional modifications to the system.
- 2.11 The system shall be arranged to receive power from three-wire, 240/415 volt, 50 Hertz alternating current supply through fused cut-out, as shown on drawings. All low voltage operation shall be provided from the Fire Alarm Control Panel(s).
- 2.12 All final connections between system equipment and the wiring shall be made under the supervision of a trained manufacturer's technical representative.
- 2.13 **Wiring within components enclosures and terminal cabinets:** All Wiring shall be installed in a neat and workman like manner and shall be trained parallel with or at right angles to the sides and back of any enclosure or cabinet. All circuit conductors broken, spliced, or connected in any enclosure, cabinet, mounting or junction box shall be connected to terminal blocks with terminal spade lugs or with approved pressure type terminal blocks. A terminal cabinet shall be installed where any circuit tap is made and must be painted fire department Red. All wiring within the enclosure shall be readily accessible without removing any component parts.
- 2.14 **System Field Wiring:** Field wiring shall be solid copper sized as required. Wiring connecting the power supply shall be minimum 1.5 sq.mm. Size conductors. All conductors shall be installed in rigid heavy metal conduit or electrical metallic tubing run surface or concealed and as required by applicable codes. Each conductor used for the same specific

function shall be distinctively colour coded. Wiring for the Fire Systems shall be installed as herein described and separate from any other wiring systems.

3.0 **CLEAN UP:**

- 3.1 Upon completion of the installation, all debris created by the installation shall be removed from the premises or disposed of as directed by the Owner.

3.2 **Field Quality Control:**

- 3.2.1 Upon completion of installation of Fire and Life Safety System and after system has been energized, test equipment to demonstrate compliance with requirements. Field correct or replace defective equipment and retest.
- 3.2.2 A factory trained technician to supervise the final connections tests and adjustments of all equipment upon completion. Each device be tested by the manufacturer's representative, in the presence of the Owner's representative a test report completed in triplicate, and signed by the Owner's representative to indicate that he witnessed the testing of the system. A copy of the test report shall be posted adjacent to the Fire Alarm Control Equipment and enclosed in a glass directory stainless steel frame.
- 3.2.3 Upon completion and prior to all acceptances, perform complete system tests as follows:
- Actuate all manual and automatic alarm and monitor initiating devices one at a time and verify proper operation.

Verify:

- Operation of all signaling and indication systems as specified including proper zone identification and labeling at the Fire Alarm Control Panel and Remote Annunciator.
- Transmission of Alarm to Security Office.
- Manual Control of items as specified.
- Class and type of wiring.
- Automatic operations of Specified items.

Power:

- Verify Operation of standby power sources as follows
- Remove primary power and check for battery operation as specified.
- Remove primary power and check for automatic switch over to secondary source.

- 3.2.4 Submit 5 copies of test data and results, signed by test personnel.
- 3.2.5 Correct or adjust items not found acceptable by authorized representative.
- 3.2.6 Repeat tests to indicate corrected items.

4.0 **GUARANTEE:**

- 4.1 All components, parts and assemblies supplied by the Manufacturer guaranteed against defects in materials and workmanship for a period of 24 months from Owner and Fire Department acceptance.



- 4.2 Equipment manufacturer to have a local branch Office staffed with full-time employees who are capable of performing testing, inspection and maintenance services for the life of the system.
- 4.3 Contractor to guarantee all wiring to be free from inherent mechanical and electrical defects for one year. The manufacturer to furnish a one year maintenance contract free of charge to the Owner, effective from the date of installation for maintenance and inspections of the manufacturer's equipment with a minimum of two inspections during the contract year. Maintenance is to be performed during working hours, at no cost to the Owner, for a period of twelve months from the completion date of the installation, unless damage is caused by misuse or accident.

FIRE EXTINGUISHERS

Fire extinguishers shall be worked out in such a way that the Occupants shall not travel more than 15m to reach a Fire extinguisher. Also there shall be a Fire extinguisher for every 300 sq.m of floor plate / rooms of suitable type / size. Extinguishers to be provided at Surface car parks, outdoor Transformers / electrical installations and on the landing of each Staircase of all floors.

All Fire extinguishers shall be portable and hand held, an operating instruction should be pasted on the extinguisher body.

Portable Fire extinguishers should be BIS approved and valid ISI certificates to be furnished at the time of delivery to site.

SIGNAGE

Required, as per Local fire force like exit signs & Floor indication (eg Ground floor, 1st floor.), size shall & action chart (size shall be 600mm x 1000mm) in case of fire / emergency, Staircase location indication etc. The location / quantity shall be on each landing of every staircase on each floor.

Signs shall be made out of 3mm thick PVC foam board with PVC non – reflective self-adhesive Vinyl foam board OR equivalent material with Mirror fasteners for fixing complete.



SECTION VI - APPROVED MAKE OF ITEMS

S.NO	EQUIPMENT/DESCRIPTION	APPROVED MAKES
1	Electric Pumps	Kirloskar / Crompton Greaves/ Grundfos / Lubi
2	Diesel Engine	Kirloskar Oil Engines / Grundfos / Lubi
3	Mechanical Seal	Eagle Poonawalla (Epil) / Burgmann
4	Batteries	Exide / Amar Raja
5	Starter, Switches & Tpn Switch	Schneider/ ABB /Siemens /
6	Control Panel / Auto Start Panel	Bright Engg. / Symtec / Ellins
7	Expansion Bellows	Cori / Kanwal / Resistoflex
8	Antivibration Mounting	Dunlop / Kanwal
9	Y-Strainer	LP / Emerald / Teleflo/ zoloto
10	Pressure Gauge	H.Guru / Fiebig
11	Pressure Switch	Switzer / Indfos
12	M.S Pipes	Tata / Jindal
13	Pipe Fittings - Butt Welded	As Per Is: 1239 Part 2 (Heavy Grade)
14	Pipe Fittings - Socket Welded	Venus / Bharat Forge
15	Supports	Hitech / universal
16	Primer, Coating & Wrapping	Iwl (Pypkote) / Rustech
17	Paint	Berger / Asian Paints
18	Sluice Valve	LP/Zoloto / Kriloskar / Leader
19	Non Return Valve (Swing Type)	LP/Zoloto / Kriloskar / Leader
20	Butterfly Valve	LP/Audco / Intervalave / Leader
21	Gate Valve / Ball Valve (Gm)	LP/Leader / Sant / Zoloto
22	Hydrant Valve, Branch Pipe & Nozzle will be of SS	Newage / Winco/ Safex
23	Fire Hose	Newage / Crc / Padmini
24	Hose Couplings	Newage / Winco / Safex
25	Hose Box	Newage / Safex / Winco
26	Hose Reel Assembly	Newage / Ever Safe / Safex
27	Air Release Valves	Leader / Newage
28	Fire Brigade Inlet	Newage / Winco / Safex
29	Sprinklers (UL Listed)	Tyco / Hd Fire
30	Sprinkler alarm valve	Tyco / Hd Fire
31	Flow Switch	Switzer / System Sensor / Potter
32	Addressable Fire Alarm Panel	Edwards/ Honeywell
33	Addressable Detectors	Edwards/ Honeywell
34	Addressable Manual Call Point (Pull Station Type)	Edwards/ Honeywell



35	Sounders / Strobe	Edwards/ Honeywell
36	Addressable Relay Control Modules/ Monitor Modules	Edwards/ Honeywell
37	Response Indicators	Edwards/ Ravel
38	Power Cable	Universal / Polycab / Finolex
39	Control Cable	Polycab/Delton / Teleflex / Varsha
40	PVC / M.S Conduit (Isi Marked)	Bec / Akg / Vimco / Bharat
41	Fire Extinguisher	Safex / Cease Fire / Kanex
42	Welding Electrodes	Esab/ Ador
43	Photoluminescent Safety Signages	Glo-Lite / Auto Glo
44	Fire Sealant Material	Fire Master (Mmtcl) / 3M / Promat
45	Speaker	Edwards/ Honeywell/ Bosch/Ahuja
46	Amplifier	Edwards/ Honeywell/ Bosch/Ahuja
47	Primary water tank	Sintex
48	Rack	Rittal or Equivalent





**FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU,
GUWAHATI**

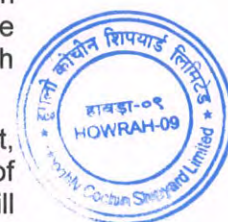
TENDER NO. HCSL/PANDU/TEN/2024/009
Dt. 09.01.2026

PREAMBLE TO BILL OF QUANTITIES

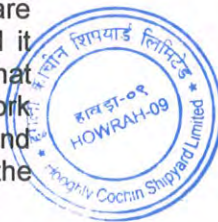
1. The scope of work covered in this Bill of Quantities (BOQ) pertains to the Fire Fighting System works for Ship Repair Facility at Guwahati, complete in all respects as shown in the working / construction drawings to be issued progressively during construction and vendor drawings to be prepared and furnished by the contractor and as indicated in the specifications and as directed by the Engineer.
2. The following materials will be issued by the Employer to the Contractor (successful Tenderer) on free-issue basis:
 - a) Tenderer to quote against all relevant Items in the Bill of Quantities accordingly.
 - b) No separate unloading, loading / re - loading, handling, conveyance, transport, storage charges are payable to the Contractor, the various Bill of Quantities Item-rates being deemed to cover all such costs.
 - c) Accounting, billing, reconciliation, etc. against these shall be as stipulated in the Special Conditions of Contract.

Sl. no.	Description of material	Remarks
1.	Nil.	-

- d) Where the Employer provides certain other materials, plant, tools, water, electricity, etc. and certain facilities such as accommodation at site, the cost of the same would be debited to the Contractor's account, at rates mutually agreed upon and spelt out in the Letter of Acceptance from the Employer.
3. All the stipulations and procedures in submitting the tender, as elaborated in the Invitation to Tender, shall be adhered to. Rates for all items of works are to be filled in by the tenderer in figures as well as in words, in ink, in English language and corrections, if any, must be initialled by the tenderer.
 4. The tenderer shall carefully go through all the parts of the Tender Document, more particularly the clauses in the Invitation to Tender, Articles of Agreement, General and Special Conditions of Contract, Specifications, Bill of Quantities and Drawings, and shall include in his rates any sum he may consider necessary to cover his fulfillment of the requirements, provisions, obligations and duties against various clauses contained therein, taking into account all aspects and factors incidental thereupon.



5. Where any provision of the specification is repugnant to or at variance unless a different intention appears, provision of the Bill of Quantities shall be deemed to override the provisions of the specification and shall to the extent of such repugnance or variation prevail.
6. The items of works and the unit prices stated in the Bill of Quantities shall be inclusive of everything necessary to complete the said items of work within the contemplation of the Contract and beyond the unit prices no extra payment will be allowed for any incidental or contingent work, labour, materials and plant, subsidiary and enabling operations required, whether or not enumerated in the items or in the Preamble or Specifications.
7. The rate indicated against each item shall be for the finished works in all floors and at all levels and will be deemed to include the cost of all materials, labour, tools and tackles, plant and equipment where needed, implied and allied items, etc. involved in the work as actually executed, except in cases where the item description indicates to the contrary.
8. It is to be clearly understood that the rates in the Bill of Quantities include all direct and indirect costs in connection with the works, including but not limited to the following:
 - a) Transport of Fire Fighting System materials, personnel etc., to the site at the start of the work and their withdrawal on completion of the work.
 - b) Preparation of vendor drawings/as-built drawings and obtaining approvals thereof.
 - c) Supplying, transporting to site, unloading, protecting and installation of materials in accordance with the Specification and storage of materials at site and hoisting and lowering to all levels.
 - d) Accommodation of the Contractors staff and labour and owner's site engineers' office.
 - e) Protection of all equipment falling within this section of the Specification.
 - f) Necessary care and precautions against damage to equipment, if any, supplied by the Owner and / or by other contractors.
 - g) Attending to the works during the maintenance period.
 - h) All expenses towards supervision, book-keeping, overheads, profit, taxes, duties, octroi, insurance, testing and any statutory payments/contributions in connection with labour and personnel deployed.
 - i) Testing, inspections, statutory inspections and cost of all modifications to comply with directions of the statutory authorities.
9. The quantities of the items of work indicated in the Bill of Quantities are probable quantities only, indicated for the guidance of the tenderer and it must be clearly understood that the Contract is not a lumpsum contract, that neither the probable quantities nor the value of the individual items of work nor the aggregate value of the entire tender will form part of the contract and the Employer does not in any way assure the tenderer or guarantee that the probable quantities are correct or that the work should correspond thereto.
10. No change in the unit rate will be admissible for any variation in quantities, save and except where provided for in the Contract.





Development of Fire Fighting system for SRF
Guwahati, Assam



11. Mode of measurement for all the items in Bill of Quantities shall be as per standard practice. Unless otherwise specified, all measurements will be in metric units.
12. In case of alternative specifications or alternative items, wherever indicated in the Bill of Quantities for certain items of work, the tenderer shall quote his rates for all the alternatives specified therein. Employer reserves the right to choose any of the alternatives for execution.
13. Items and materials of the specified brands / makes mentioned in the Specifications, Bill of Quantities and drawings are to be provided in the concerned works against the relevant BOQ items.
14. No variation shall vitiate this contract. All variations authorised by the employer shall be subsequently sanctioned by him in writing.
15. **Tenderers are advised to quote self-standing rates and avoid irrational rates, either on the higher side or on the lower side. The Employer may, during evaluation of the tender or anytime thereafter, call for detailed analysis of the Tenderer in respect of any rate against any particular item in the BOQ.**

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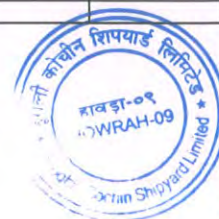


FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI			
SUMMARY - FPS & FAS SYSTEM WORKS			
Sl.No	DESCRIPTION	AMOUNT IN RS.	
		SUPPLY	ERECTION
1	FIRE PUMP ROOM		
2	YARD HYDRANT, INTERNAL HYDRANT AND SPRINKLER SYSTEM		
3	FIRE ALARM PUBLIC ADDRESSING SYSTEM		
	TOTAL		
	GST 18%		
	GRAND TOTAL		



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FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI							
BILL OF QUANTITIES FOR FIRE FIGHTING (HYDRANT SYSTEM)							
SL.NO	DESCRIPTION	UNIT	QTY	RATE IN RS.		AMOUNT IN RS.	
				SUPPLY	ERECTION	SUPPLY	ERECTION
	PUMP ROOM						
1	Supplying, Installation, Testing and Commissioning of 137 Cum/hr. TEFC type electrically driven horizontal centrifugal (End Suction type) Main pumpset with class F insulation & IP 55 protection for Fire Hydrant system at 110 Mtrs Head and 2970 rpm with all necessary accessories like providing and fixing bronze impeller, stainless steel shaft coupling, coupling guard, mechanical seal, Cast Iron pump casing & baseplate for pump, fabricated mild steel channel with foundation bolts, etc., Pump shall have electrical motor of 75KW. suitable for electric Supplying of 415V, 50 Hz, 3Ph Star / Delta Starter connection.	Sets	2.0				
2	Supplying, Installation, Testing and Commissioning of 137Cum/hr. diesel engine driven horizontal centrifugal pumpset (End Suction type) Standby pumpset for Fire Hydrant system at 110 Mtrs. Head & 2300 rpm with all necessary accessories like providing & fixing bronze impeller, stainless steel shaft, Direct coupling, Mechanical seal, Cast Iron pump casing, base plate for pump, fabricated mild steel channel with foundation bolts etc., It includes providing & fixing fuel 500 litres elevated tank with Supplying and return piping, steel supports for diesel tank, valves, fill and vent lines, flexible connections, battery with charging arrangement, alternator & instrument panel suitable for 24 volt DC including starting switches to be connected to control panel of diesel engine and exhaust silencer including necessary pipework and lagging, etc., Batteries, cooling water line for engine with required pipes, valves, fittings, exhaust fittings, etc., pump working pressure should be 11.36 bar.g	Set	1.0				
3	Supplying, Installation, Testing and Commissioning of 10.8 Cum/hr. TEFC type Vertical In line pump Jockey pumpset with class F insulation & IP55 protection for Fire Hydrant system at 110 Mtrs. Head and 2900 rpm with all necessary accessories like providing and fixing SS304 impeller & stage casing, stainless steel shaft, Mechanical seal, coupling guard & CI base for pump, fabricated mild steel channel with foundation bolts, etc., Pump shall have electrical motor of 7.5 KW. suitable for electric Supplying of 415V, 50Hz, 3Ph for DOL Starter connection.	Set	2.0				
4	200 Ltrs Single Wall Fuel Tank	Set	1.0				
5	150AH 12V Battery with leads	Set	1.0				
6	Diesel Engine control panel made out of 16 SWG CRCA sheet steel construction of wall mounting type finished with PO Red, Textured powder coating	Nos	1.0				
7	Supply, Installation, Testing and Commissioning of Sluice Valves as per BS 5155 (PN 16)						
a	250 NB Dia pipe	Nos.	2.0				
8	Supplying, Installation, Testing and Commissioning of C.I. body, EPDM seat, SGI disc, Butterfly valve PN 16, SGI Hand lever operated, wafer ends conforming to BS:5155.						
a	200 NB Dia pipe	Nos.	2.0				
b	150 NB Dia pipe	Nos.	5.0				
c	100 NB Dia pipe	Nos.	2.0				
d	65 NB Dia pipe	Nos.	12.0				
9	Supply, erection, testing and commissioning of slim seal flap type Non-return valves with CI body & cast steel disc and tested to 10 kg/sq.cm including a set of suitable GI flanges as per BS10 Table-1, bolts, nuts GI washers, neoprene rubber gaskets etc., complete.						
a	200 NB Dia pipe	Nos.	1.0				
b	150 NB Dia pipe	Nos.	3.0				
c	100 NB Dia pipe	Nos.	1.0				
d	65 NB Dia pipe	Nos.	5.0				
a	Supply, erection, testing and commissioning of non raising spindle sluice valve 250mm NB Dia	Nos	2.0				
10	Supply, Installation, Testing & Commissioning of 25mm Ball valve with necessary nipple & other fittings	Nos.	5.0				
11	Supply, erection testing & commissioning of pot strainer / Y Strainer. Rate shall include for rubber insertion, bolts, nuts GI flanges.						
a	250 NB Dia pipe	Nos.	2.0				



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SL.NO	DESCRIPTION	UNIT	QTY	RATE IN RS.		AMOUNT IN RS.	
12	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589 / IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc., and fixing the pipe on the wall / ceiling with suitable clamp / support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required:						
a	250 NB Dia pipe	RMT	10.0				
b	200 NB Dia pipe	RMT	18.0				
c	150 NB Dia pipe	RMT	24.0				
d	100 NB Dia pipe	RMT	18.0				
e	65 NB Dia pipe	RMT	6.0				
f	25 NB Dia pipe	RMT	12.0				
13	Supply, installation, Testing & Commissioning of Dial type pressure guage for (0-16 Kg/cm2) with necessary nipple & other fittings, mounting arrangements and with a 15mm ball valve	Nos.	7.0				
14	Supplying, Installation, Testing and Commissioning of pressure switches together with accessories.	Nos.	5.0				
15	Supply, erection, testing and commissioning of Air cushion tank in fire hydrant system, including a set of pressure gauge, ball valve, air release valve, suitable GI flanges, bolts, nuts GI washers, etc., complete.	Set.	1.0				
16	Supply, installation, testing and commissioning of 415V cubical type, fully compartmentalised, floor mounted type main switch board fabricated with 14G CRCA sheet, powder coated with Siemens grey (RAL 7032) after seven tank process and complete with welded & bolted design and all incoming & outgoing switch gears as per the following.						
	Suitable aluminium busbars, bus couplers, control wiring, control fuses, separate metering compartment with multi function meter and phase indications.						
	Safety features and items including necessary earthing throughout the bottom length, 6 sq.mm FRLS copper wire interconnections for compartment earthing, complete copper control wiring with crimping type ferrules, copper lugs, proper engraving on each compartment etc.						
	The switch boards shall be CPRI approved of factory assembled and tested.						
	All the ACB's with over load, S-C, earth fault relay, under voltage, over voltage and single phase preventor protections etc.						
	All the MCCB's with micro processor/thermal magnetic releases and have rotary handle mechanism & spreader						
	Current density not more than 0.7A/sq.mm for Aluminium bus bar.						
	All busbars shall be fixed with standard space clearance and with colour coated heat shrinkable PVC sleeves with DMC/SMC bus bar supports and suitable earth bus (25 x 6mm Cu).						
	The cable entry shall be from the bottom/top as per site requirement.						
	The item including cost of MS base frame of 75mm height, 3.15mm sheet steel or 40x40x6mm MS angle for load bearing members, lifting hooks, steel support structure required for erection and its painting, minor civil works, vendor drawings, necessary safety clearance from statutory authorities, panel approval from APDCL till obtaining final power supply, all complete as per specifications, drawings and / or as directed by the Engineer.						
	The contractor shall submit general arrangement & control wiring drawings and get approval from site Engineer/Consultant before commence the fabrication works.						
	FIRE HYDRANT PANEL						
	INCOMER						
	1 No. - 400A, 4P, 36KA, MCCB with Adjustable Thermal magnetic						
	Metering Compartment:						
	Multifunction meter of class 1.0 accuracy (V+I+F+PF+KW) - 1 Set						
	1 Set - 400/5A CT CL 1 15VA for Metering						
	1 Set - Indication lamps for R,Y,B, Breaker ON(Red), Breaker OFF (Green), Breaker Trip (Amber) with control MCBs.						



SL.NO	DESCRIPTION	UNIT	QTY	RATE IN RS.		AMOUNT IN RS.	
	1 Set- Mode selector & Breaker ON/OFF Push Button Station						
	1 Set - Mechanical interlock						
	BUSBAR RATING :-						
	400A, TPN, 36KA, for 1 sec Aluminium bus bar						
	Phase: current density not more than 0.7A/sq.mm						
	Neutral: half of the phase current (0.5 x phase)						
	Earth: 25 x 6mm copper flat						
	OUTGOINGS:						
	2 set of 160A, TPN, 36KA, MCCB with thermal magnetic releases with earth fault protection and rotary handle mechanism & spreader - 1 No.with 75KW Star delta starter, over current release, ON-OFF, TRIP indicating lamp, reset push button complete with terminal point etc						
	2 set of 63A TPN 36KA MCCB with thermal magnetic releases with earth fault protection and rotary handle mechanism & spreader - 1 No.with 10KW delta starter, over current release, ON-OFF, TRIP indicating lamp, reset push button complete with terminal point etc						
	2 Nos 63A TPN 36KA MCCB thermal magnetic release	Nos	1.0				
17	Supplying, laying, testing & commissioning of FRLS XLPE insulated, PVC outer sheath, steel armoured aluminium / copper conductor 1100V grade power cables with glands etc.,						
a	2R x 3C x 50Sq.mm Copper Armoured Cable for Main Pump	Mtr.	100.0				
b	3C x 16Sq.mm Copper Armoured Cable for Jockey Pump	Mtr.	50.0				
c	12C x 1.5Sq.mm Copper Armoured Cable for Diesel Engine Pump	Mtr.	40.0				
d	2C x 1.5Sq.mm Armoured cable or Pressure Switches	Mtr.	110.0				
e	2R3.5C x 185Sq.mm Alu. Armoured Cable from Main Feeder to Panel	Mtr.	120.0				
18	Supply and Providing end termination with gland earthing of following size UG Cables and gland earth clamps						
a	2R x 3C x 50 sqmm Copper Armoured Cable for Main Pump	Set	4.0				
b	3C x 16Sq.mm Copper Armoured Cable for Jockey Pump	Set	2.0				
c	12C x 1.5Sq.mm Copper Armoured Cable for Diesel Engine Pump	Set	2.0				
d	2C x 1.5Sq.mm Armoured cable or Pressure Switches	Set	12.0				
e	2R 3.5C x 185Sq.mm Alu. Armoured Cable from Main Feeder to fire Panel	Set	4.0				
	Providing earthing arrangement with use of following GI flats and earth pit station						
19	a. 40 x 6mm GI flat	Mtr.	100.0				
	b. 25 x 6mm GI flat	Mtr.	75.0				
	c. No.8 SWG copper bare wire	Mtr.	100.0				
	d. Earth pit with size of 50mm dia copper coated chemical earthing with 3000mm long complete with 450 sqmm construction chamber including cover withstand of 80 kg / sqft.	Nos	2.0				
20	Supplying, Installation, Testing and Commissioning of perforated G.I. 1.6mm thick and 50mm hight C type cable tray with necessary angle iron suspension supports, anchor fasteners etc., complete. Maximum height of suspension shall not exceed 500 mm. Size of the tray shall be as mentioned below for laying the above mentioned cables.						
a	300mm	Mtr.	50.0				
b	100mm	Mtr.	80.0				
21	Supplying, Installation, Testing and Commissioning of diesel pump exhaust, 100mm Dia MS pipe with residential type silencer, mineral wool thermal insulation and 24G aluminium cladding, with necessary supports, clamps, bolts, nuts, etc.,	Mtr.	20.0				
22	Supplying and Erection Structural Supports like MS Angle / Channel / 'U' clamps, etc.,	MT	1.0				
	TOTAL - PUMP HOUSE						
	YARD HYDRANT, INTERNAL HYDRANT AND SPRINKLER SYSTEM						
23	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc., in below ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar / asphalt tape as per IS 10221, refilling the trench etc., of following sizes complete as required.						
a	200 NB	RMT	60.0				



SL.NO	DESCRIPTION	UNIT	QTY	RATE IN RS.		AMOUNT IN RS.	
24	Work will include painting for the above ground piping with one coat of primer and two coat of enamel paint of approved colour. Work will include cleaning of pipe, degreasing, necessary supports, clamps, bolts, nuts, etc. Headers shall be worded indicating the direction of the pipe and its purpose. (from 80mm and above pipes are welding joint and 65mm and below pipes should be grooved)						
a	150 NB Dia pipe	RMT	1200.0				
b	100 NB Dia pipe	RMT	120.0				
c	80 NB Dia pipe	RMT	60.0				
	65 NB Dia pipe						
25	Supplying, Installation, Testing and Commissioning of C.I. body, EPDM seat, SGI disc, Butterfly valve PN 16, SGI Hand lever operated, wafer ends conforming to BS:5155. and ball valve						
a	150mm butterfly valve	Nos	9.0				
d	50mm ball valve for drain pipe	Nos	4.0				
26	Supplying and installation of RCC Hume pipes of 300 mm dia with collars for road / below floor crossing of Fire water pipes as per IS 458. The rate shall includes excavation, soil levelling for bed and ends shall be closed with Brick masonry work as directed by site engineer.	RMT	40.0				
27	Supplying, Installation, Testing and Commissioning of External & Internal hydrants comprising of the following.						
a	63mm dia Single hydrant valve as per IS : 5290 together with cap and chain.	Nos.	32.0				
b	63mm dia R.R.L Hose of 15 Mtrs. Length, together with SS couplings	Nos.	64.0				
c	63mm dia SS Short Branch Pipe	Nos.	32.0				
28	Supplying, Installation, Testing and Commissioning of MS hose cabinet stand mounted type, fabricated out of M.S sheet of 16 swg, with glass fronted (4mm thick glass with rubber beeding) door and size of the cabinet shall be 600mm x 750mm x 250mm, Quoted rate shall be includes suitable stand for mounting as fastners etc., and cabinet shall be powder coated of approved colour both inside and outside.	Nos.	32.0				
29	Supplying, Installation, Testing and Commissioning of Fire brigade inlet siamese connection (4way) manifold in including valves and check valve of size 150mm size along with 4 nos. 63mm dia instantaneous inlet arrangements to the main header with cap and chain etc., for external hydrants.	No.	1.0				
30	Supply, Installation, Testing & Commissioning of 25mm Ball valve with necessary nipple & other fittings	Nos.	6.0				
31	Supplying and Erection Structural Supports like MS Angle / Channels, etc.,	Kgs.	1500.0				
32	Hose reel drum assembly with swinging and rolling arrangement together with 19mm dia x 30.0 mtrs. long hose, cnc machined Single rod IS standard Bright Material with Special "O" rings & Grooved Nozzle. and 6.25mm nozzle durable Nylon material, Jet spray & shut by hand revolving., 19mm NB ball valve at tap-off etc., as per IS : 884.	Nos.	10.0				
33	Supplying and Erection Structural Supports like MS Angle / Channels, etc.,	Ton	1.5				
34	Electric Motor Driven Monobloc Pump (For terrace) set 900 LPM at not less than 110 Mtr head with motor of minimum 10 HP with suitable 3 phase motor, 415V AC, 50HZ required power rating. The pump shall have cast iron casing, bronze impeller, steel shaft with common base frame. The quoted rate shall includes providing & fixing of inter connecting cable, coupling, coupling guard, foundation bolt nuts transportation charges etc., all complete as per standard specification and as directed by the departmental officer.	Nos.	1.0				
35	Providing weather-proof (IP-55) Delta Starter in a Box Enclosure with marking on Door Starter for Fire Pump with a suitable Isolator for the above pump the inclusive of over current relay, single phase, dry run protection etc., as instructed by engineer incharge.	Nos.	1.0				
36	Providing civil work like core cutting where ever required and refilling with fire rated form chemical solution with cement mortar	Job	1.0				
37	Providing pipe support in external area with use of brick colour/ plain PCC block size of 300 x 300 mm height of 750mm 300mm above ground and 450 mm below ground including excavation, refilling etc after making the pedestal.	Nos	20.0				



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SL.NO	DESCRIPTION	UNIT	QTY	RATE IN RS.		AMOUNT IN RS.	
SPRINKLER SYSTEM							
38	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc., in below ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar / asphalt tape as per IS 10221, refilling the trench etc., of following sizes complete as required.						
	Work will include painting for the above ground piping with one coat of primer and two coat of enamel paint of approved colour. Work will include cleaning of pipe, degreasing, necessary supports, clamps, bolts, nuts,etc. Headers shall be worded indicating the direction of the pipe and its purpose. (from 80mm and above pipes are welding joint and 65mm and below pipes should be grooved						
a	150 NB Dia pipe	RMT	850.0				
b	100 NB Dia pipe	RMT	120.0				
c	80 NB Dia pipe	RMT	60.0				
e	50 NB Dia pipe	RMT	1200.0				
39	Grooved Fittings						
a	50x50x25mm Reducing Tee	Nos	350.0				
b	50x25mm Reducing Elbow	Nos	60.0				
	Grooved Couplings						
	50mm Dia pipe	Nos	250.0				
25	Supplying, Installation, Testing and Commissioning of C.I. body, EPDM seat, SGI disc, Butterfly valve PN 16, SGI Hand lever operated, wafer ends conforming to BS:5155. and ball valve						
a	150mm butterfly valve	Nos	4.0				
b	100 mm butterfly valve	Nos	1.0				
c	80mm butterfly valve	Nos	1.0				
d	50mm ball valve for drain pipe	Nos	4.0				
34	Supplying, Installation, Testing and Commissioning of Air Release Valve with Ball Valve - 25 mm dia to all wet risers all complete.	Nos.	4.0				
35	Supply, Installation, Testing & Commissioning of Alarm valve fixed on 150mm M.S pipe with necessary nipple & other fittings	Nos.	1.0				
36	Supply, installation, Testing and commissioning of SS flexible braided 25mm dia hose for mounting the sprinkler system in false ceiling are for the following size with necessary support clamps bolt and nuts, screws etc.						
b	1500 mm long 25mm dia hose	Nos	280.0				
37	Supply and fixing of M.S Powder coated Rosette plate 20mm for covering the endtry point of sprinkler system complete with nipple hard ware etc with required colour matched with false ceiling.	Nos	280.0				
	Supply, Erection, Testing and Commissioning of UL / FM approved Upright type Sprinkler head with the following temperature rating & quick respond, universal deflector, chromium finish as required. Rate shall be temperature rating:68°C, standard response pendent type (K=5.6), size 15mm dia	Nos	120.0				
38	Supply, Erection, Testing and Commissioning of UL / FM approved Pendant type Sprinkler head with the following temperature rating & quick respond, universal deflector, chromium finish as required. Rate shall be temperature rating:68°C, standard response pendent type (K=5.6), size 15mm dia	Nos	280.0				
43	Liasoning work for Obtaining Local Fire Authority NOC / Approvals for complete systyem & miscellaneous work etc.,	Lot	1.0				
	TOTAL - YARD HYDRANT, INTERNAL HYDRANT AND SPRINKLER SYSTEM						



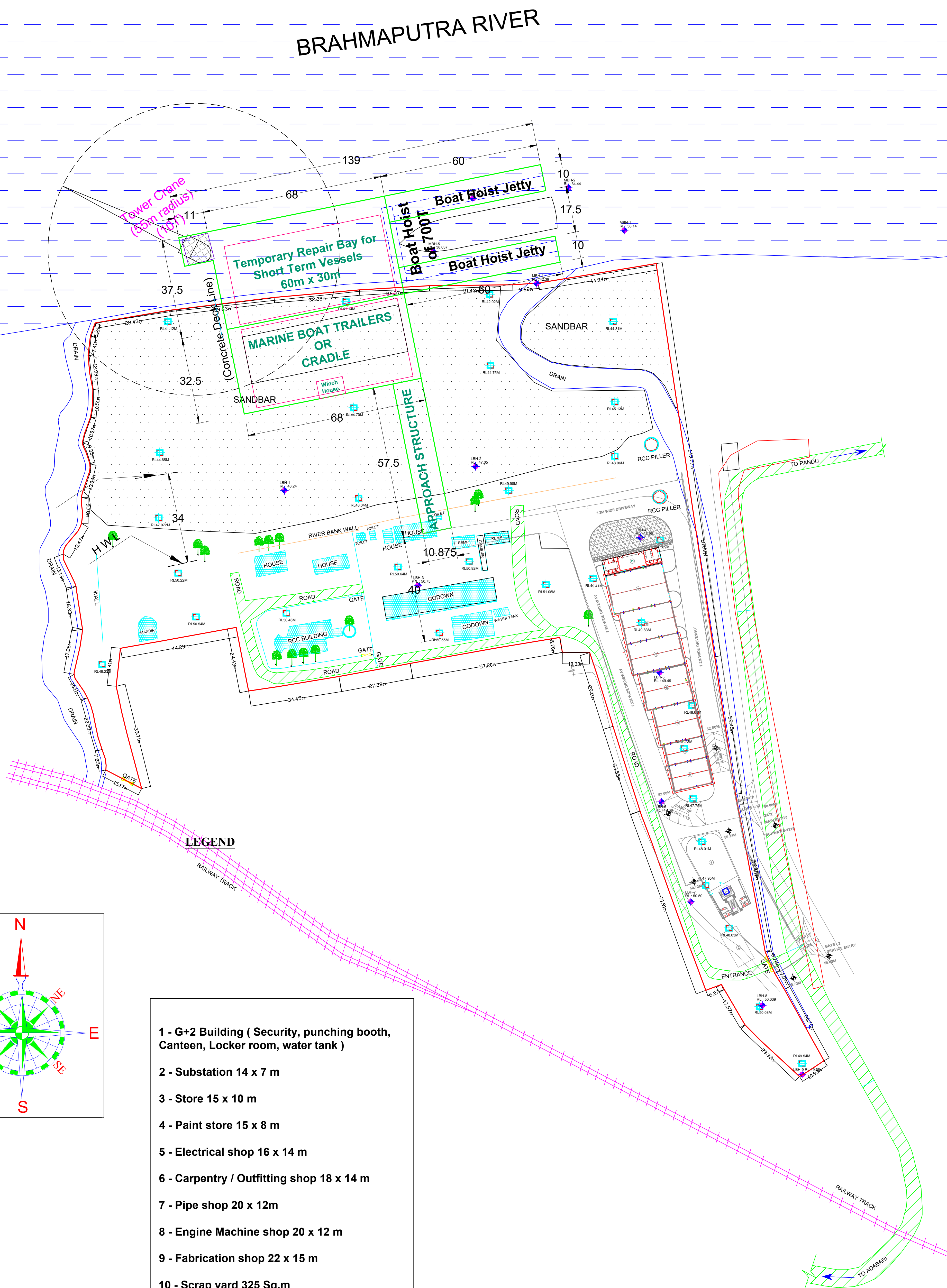
FIRE FIGHTING SYSTEM WORKS FOR SHIP REPAIR FACILITY WORK AT PANDU, GUWAHATI							
BILL OF QUANTITIES FOR FIRE ALARM SYSTEM (ADDRESSABLE)							
SL.NO	DISCRIPTION	QTY	UNIT	RATE IN RS.		AMOUNT IN RS.	
				SUPPLY	ERECTION	SUPPLY	ERECTION
1	Supply, installation, testing and commissioning Photo-electric (Optical) type Addressable Multi Detectors with matching base as per specifications attached having UL / EN Approval. (Above False Ceiling)	60	NOS				
2	Supply, installation, testing and commissioning Photo-electric (Optical) type Addressable smoke Detectors with matching base as per specifications attached having UL / EN Approval. (Below False Ceiling and True Ceiling)	135	NOS				
3	Supply , installation , testing and commissioning addressable sounder cums strobe as per specifications and approved make	10	NOS				
4	Supply , installation and commissioning Addressable Manual Call Points as per specifications and approved make .	8	NOS				
5	Supply and Laying ISI marked Armoured cable copper conductors of follwing sizes , fixing with suitable galvanised clamps on wall/ceiling / concealed where required. The cabling shall include necessary single compression glands, ferrules and termination as per standard practice. cable shall be approved make only						
5.1	2 x 1.5 Sq.mm size	2200	Rmt				
5.2	7 x 1.5 Sq.mm size	65	Rmt				
6	Supply , installation , testing and commissioning Addressable Micro-processor based fire alarm Panels, wall mounted . The panel shall be only from the approved manufacturers list enclosed.The panel shall be supplied with Lan Networking facility. The work shall include integration of all panels with the Plant addressable system- including integration of new fire alarm circuit drawings etc as required.						
6.1	a) 4Loop Model with 12AH Batteries-with loop cards	1	NOS				
7	Supply and fixing Perforated cable Tray of following sizes for supporting cables. The tray shall be suitably supported with Angle / channel brackets where required.						
7.1	a) 50 mm wide	115	Rmt				
7.2	b) 100 mm wide	135	Rmt				
7.3	c) M.S Support	500	Kg				
8	Control Module FM/UL/LPC approved make to suit alarm devices described above.	6	NOS				
9	Fault Isolator Module FM/UL/LPC approved make to suit alarm devices described above.	5	NOS				
10	Power supply unit 24Volts output , Minimum 3Amps capacity for connecting various alarm devices. Suitable relay in a dust proof enclosure to be provided for connectivity to Control Module.	10	NOS				
12	Display of scheme near fire alarm panel, numbering of Detectors, Call Point, Sounder/strobe etc as required.	8	JOB				
13	Response Indicators	120	Nos				
14	Fire extinguisher - CO2 - 4.5 Kgs	12	NOS				
14.1	Pressurised Water type Extinguisher 9 Ltrs capacity	6	NOS				
15	Fire Exit Door Alarm devices-ADMIN/CANTEEN & UTILITY =2 EACH	6	NOS				
16	Cabling from nearest 230V AC OUTLET (230VAC SUPPLY provided by Cleints).	60	Rmt				



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SL.NO	DISCRIPTION	QTY	UNIT	RATE IN RS.		AMOUNT IN RS.	
				SUPPLY	ERECTION	SUPPLY	ERECTION
17	Supply and installation fire signage, fire exit red colour reflected LED bulb, evacuation plan, assembly point sign boaretc as follows						
	a. Fire exit board with LED bulb	10	Nos				
	b. fire signage board red colour(near all call point, extinguisher, fire escape etc	1	Job				
	c. do's and do not near lift	5	Nos				
	d. evacuation plan with colour drawing A2 size in each floor.	1	JOB				
	e. Assembly point with 600 x 450 mm encased Acrylic board with M.S. Support at out side the building	1	Nos				
	FIRE ALARM SYSTEM TOTAL						
	PUBLIC ADDRESS SYSTEM FOR FIRE ALARM						
18	Supply, Installation, testing and commissioning of PA Amplifier 480 watts with power output 300 W max, 450 W RMS at 10% THD, 450W RMS at 5% THD, 200W RMS at 2%THD, The Power consumption shall be 460 VA AC Current and 6A DC Current. The Amplifier shall be provided with resettable circuit breaker for protection against overload and short circuit etc. all complete all circuit as per standard specification. The brand should be approved by consultant incharge/ Engineer incharge.	1	NOS				
19	Supply, Installation, testing and commissioning of PA Amplifier 240 watts with power output 300 W max, 250 W RMS at 10% THD, 220W RMS at 5% THD, 200W RMS at 2%THD, The Power consumption shall be 460 VA AC Current and 6A DC Current. The Amplifier shall be provided with resettable circuit breaker for protection against overload and short circuit etc. all complete all circuit as per standard specification. The brand should be approved by consultant incharge/ Engineer incharge.	2	NOS				
20	SITC of 12W RMS Wall Mount Speakers with inbuilt 100V Line Matching Transformer, wide opening angle, optimized for music & speech applications with powder coated back box, supports as per specifications - Max Power: 15W, Rated Power: 12 Watts, Power Tapping: 12/6/3 W - Effective frequency range(-10 dB) : 80 Hz to 20KHz - SPL at rated power (1Khz at 1 m) 96 dB - Opening Angle 1 KHz / 4 KHz (-6 dB): 180/45	10	NOS				
21	Supply, erection, testing and commissioning of 78 db Ceiling mounted speakers with back box shall be 6 Watt with multi taps of 1.5.3 and 6 Watt output.	20	NOS				
22	Supply and installation of Goose neck Microphone with complete accessories. Brand shall be approved/selected by engineer incharge	1	NOS				
23	Preparation of as built drawing with submission of soft copy and 3 set of colour drawing A2 size and complete data sheet which is used at site complete with spiral book binding	1	Job				
	PUBLIC ADDRESS SYSTEM TOTAL						





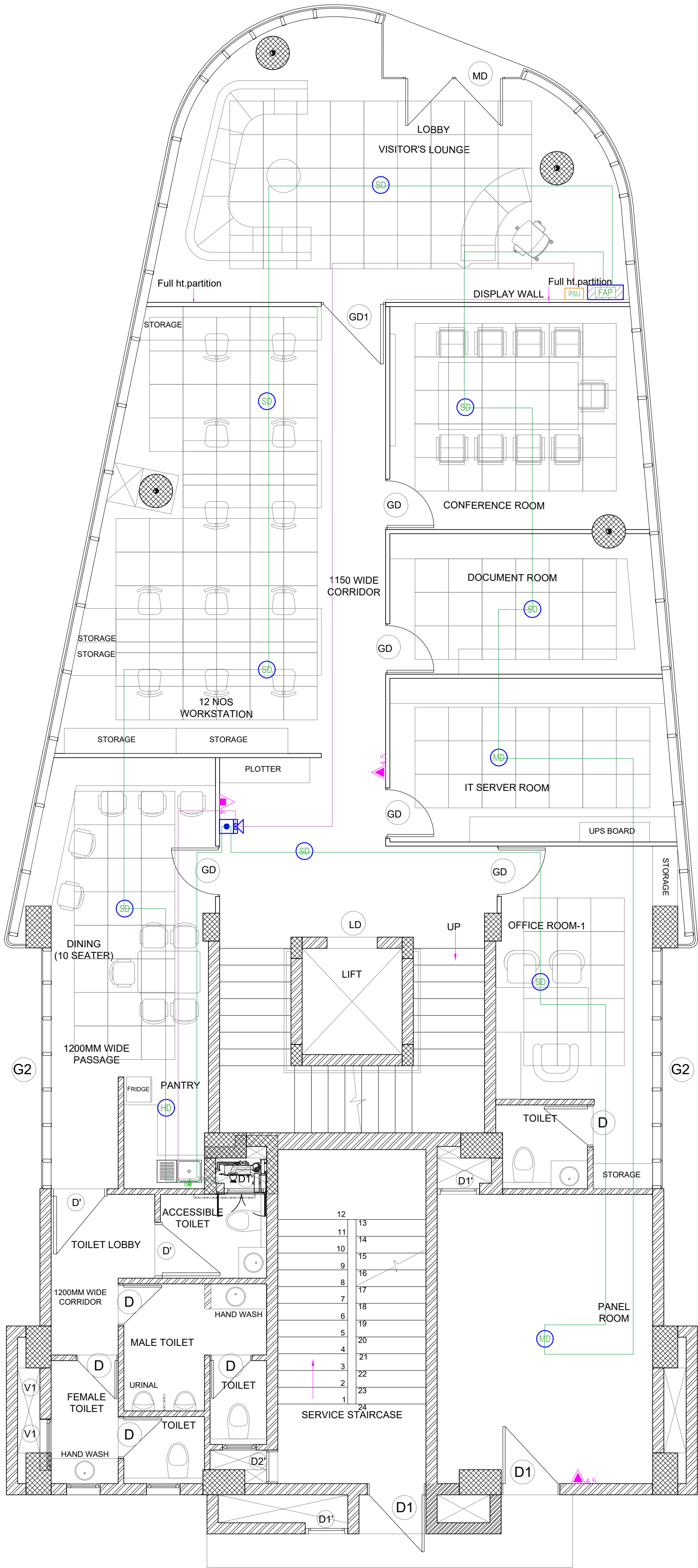
LAYOUT OF SHIP REPAIR FACILITY PHASE I

NOTES :-

1. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS INDICATED ARE IN METERS WITH RESPECT TO MEAN SEA LEVEL.

[illegible]

CLIENT:	HOOGLY COCHIN SHIPYARD LIMITED		DATE: 11.04.2022
PROJECT:	DESIGN PROJECT FOR SHIP REPAIR FACILITY TO HANDLE INLAND WATERWAYS VESSELS AT PANDU, GUWAHATI		
DRAWING TITLE:	LAYOUT OF SHIP REPAIR FACILITY (SHEET 1 OF 2)		
DRAWING NO:	IITM-DOE-HCSL-SRF-100-01		REV 0
ENGINEERING FIRM:	 Prof.S.A.SANNASIRAJ Prof.K. MURALI DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36		



NORTH:

FIRE FIGHTING LEGENDS:-

SYMBOL	DESCRIPTION
	FIRE WET RISER PIPES
	FIRST AID HOSE REEL
	RRL HOSE BOX
	BALL VALVE
	SINGLE HEADED HYDRANT VALVE
	4.5KG CO2 FIRE EXTINGUISHER
	4KG ABC FIRE EXTINGUISHER
	FIRE ALARM CONTROL PANEL
	MANUAL CALL POINT
	HOOTER
	BELOW FALSE CEILING SMOKE DETECTOR
	HEAT DETECTOR
	MULTI SENSOR DETECTOR
	POWER SUPPLY UNIT
	FIRE ALARM CABLE
	HOOTER POWER CABLE

R0	02.08.24	WORKING	P.K	R.N.S
NO.	DATE	REMARKS	BY	APPD.

PROJECT:-
SHIP REPAIRING FACILITY @ PANDU , GUWAHATI (ASSAM)

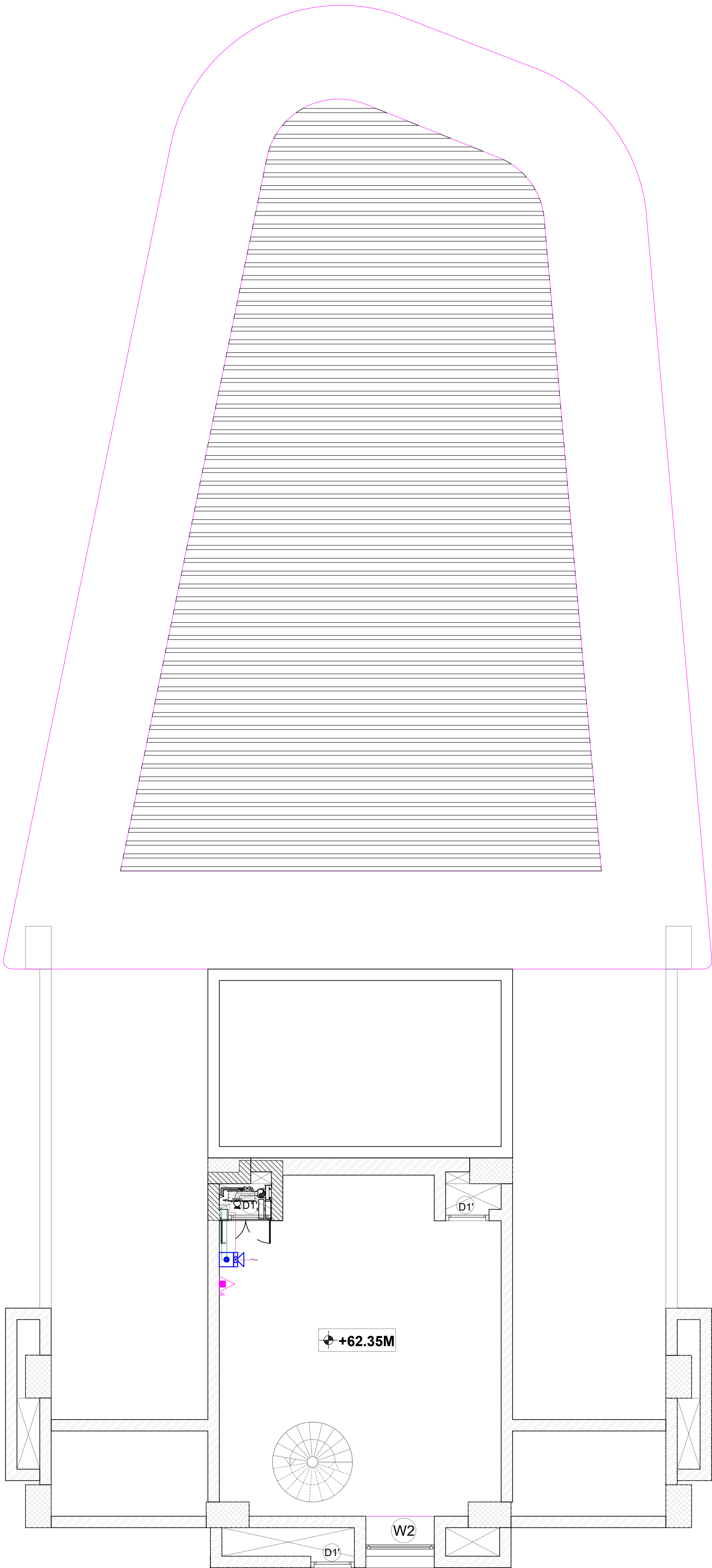
ARCHITECT:-
JEGANATH JB ARCHITECTS
Tel(m): 91 - 9840570026
Email : jeganathjb@gmail.com
Web : www.jeganathjbarchitects.carbonmade.com
Address: No.6, 6th floor, Ram Swathi Towers, Durghabai Deshmukh Road, R.A.Puram, Chennai - 28.

MEP CONSULTANT:-
AURO ASSOCIATE CONSULTANTS Pvt. Ltd.
No: 111, First Floor Montorsier Street, Puducherry - 605 001. Tele: 0413-4500279 Email: auroassociate2@gmail.com

TITLE:	FIRE FIGHTING LAYOUT FOR GROUND FLOOR		
DWG. NO.	AA / SRF / FIRE / GF / 001 - R0		
DRAWN: P.K	DEALT: P.S	CHECKED: K.B	
DATE: 06.11.2024	SCALE: 1:75	SHEET SIZE : A3	



PROJECT:- SHIP REPAIRING FACILITY @ PANDU , GUWAHATI (ASSAM)		
ARCHITECT:- JEGANATH JB ARCHITECTS Tel(m): 91 - 9840570026 Email : jeganathjb@gmail.com Web : www.jeganathjbarchitects.carbonmade.com Address: No.6, 6th floor, Ram Swathi Towers, Durghabai Deshmukh Road, R.A.Puram, Chennai - 28.		
MEP CONSULTANT:-  AURO ASSOCIATE CONSULTANTS Pvt. Ltd. No: 111, First Floor Montorsier Street, Puducherry - 605 001. Tele: 0413-4500279 Email: auroassociate2@gmail.com		
TITLE:	FIRE FIGHTING LAYOUT FOR OHT ROOF PLAN @+71.35M LVL	
DWG. NO.	AA / SRF / FIRE / OHT.RF / 005 - R0	
DRAWN: P.K	DEALT: P.S	CHECKED: K.B
DATE: 06.11.2024	SCALE: 1:75	SHEET SIZE : A3



NORTH:

FIRE FIGHTING LEGENDS:-

SYMBOL	DESCRIPTION
	FIRE WET RISER PIPES
	FIRST AID HOSE REEL
	RRL HOSE BOX
	BALL VALVE
	SINGLE HEADED HYDRANT VALVE
	4KG ABC FIRE EXTINGUISHER
	MANUAL CALL POINT
	HOOTER
	FIRE ALARM CABLE
	HOOTER POWER CABLE
	END OF LINE RESISTANCE

R0	02.08.24	WORKING	P.K	R.N.S
NO.	DATE	REMARKS	BY	APPD.
REVISIONS				

PROJECT:-

SHIP REPAIRING FACILITY
@ PANDU , GUWAHATI (ASSAM)

ARCHITECT:-

JEGANATH JB ARCHITECTS

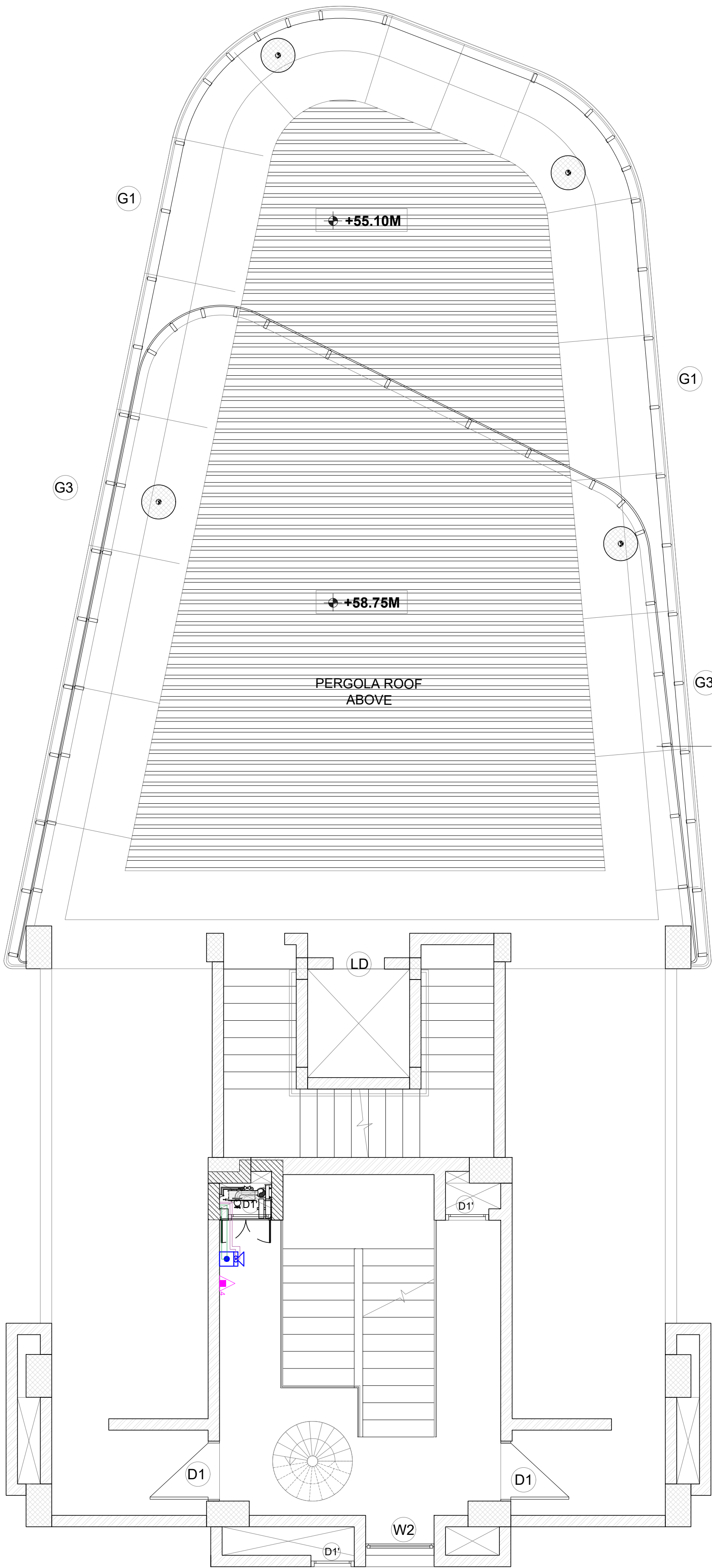
Tel(m): 91 - 9840570026
Email : jeganathjb@gmail.com
Web : www.jeganathjbarchitects.carbonmade.com
Address: No.6, 6th floor, Ram Swathi Towers,
Durghabai Deshmukh Road,
R.A.Puram, Chennai - 28.

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AURO ASSOCIATE
CONSULTANTS Pvt. Ltd.

No: 111, First Floor Montorsier Street,
Puducherry - 605 001.
Tele: 0413-4500279
Email: auroassociate2@gmail.com

TITLE:	FIRE FIGHTING LAYOUT FOR PERGOLA ROOF PLAN @+62.35M LVL				
DWG. NO.	AA / SRF / FIRE / P.RF / 004 - R0				
DRAWN:	P.K	DEALT:	P.S	CHECKED:	K.B
DATE:	06.11.2024	SCALE:	1:75	SHEET SIZE :	A3



NORTH:

FIRE FIGHTING LEGENDS:-

SYMBOL	DESCRIPTION
	FIRE WET RISER PIPES
	FIRST AID HOSE REEL
	RRL HOSE BOX
	BALL VALVE
	SINGLE HEADED HYDRANT VALVE
	4KG ABC FIRE EXTINGUISHER
	MANUAL CALL POINT
	HOOTER
	FIRE ALARM CABLE
	HOOTER POWER CABLE

R0	02.08.24	WORKING	P.K	R.N.S	
NO.	DATE	REMARKS	BY	APPD.	
REVISIONS					

PROJECT:-

SHIP REPAIRING FACILITY
@ PANDU , GUWAHATI (ASSAM)

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TITLE:	FIRE FIGHTING LAYOUT FOR TERRACE FLOOR PLAN @+58.75M LVL				
DWG. NO.	AA / SRF / FIRE / TF / 003 - R0				
DRAWN: P.K	DEALT: P.S	CHECKED: K.B			
DATE: 06.11.2024	SCALE: 1:75	SHEET SIZE : A3			