

TENDER DOCUMENT

FOR

**CONSTRUCTION AND SUPPLY OF TWO
HIGH POWERED TUGS FOR NW-1 &NW-2**

OCTOBER, 2011



Inland Waterways Authority of India

(Ministry of Shipping, Govt. of India)

A-13, Sector-1, Noida – 201 301 (UP)

Tel (0120) 2543931, Fax (0120) 2544041

Web site: www.iwai.nic.in, E-mail: iwainoi@hub.nic.in/
suvadandapat@gmail.com



INLAND WATERWAYS AUTHORITY OF INDIA

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File No. IWAI/MD/117/2011-12

_____, 2011

To

Sir,

Sub: Tender document for Construction and Supply of two High Powered tugs for NW -1 & NW-2.

Ref: Your letter No. _____, dt. _____.

The Inland Waterways Authority of India, Noida, invites sealed tenders from experienced shipbuilders for the above mentioned works, which will be received in the office of "Director (Marine), Inland Waterways Authority of India, A-13, Sector-1, Noida 201301 U.P., India", not later than 15:30 hrs IST on 14.11.2011.. Tender document for above work is enclosed herewith.

Yours faithfully,

(S Dandapat)
Director (Marine)

Encl: As above

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(SECTION-I)
NOTICE INVITING TENDER



INLAND WATERWAYS AUTHORITY OF INDIA

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NOTICE INVITING TENDER

The Inland Waterways Authority of India (IWAI) hereby invites sealed tenders in two cover system (Cover-I - Technical Bid and Cover-II - Financial Bid) from experienced Shipbuilders for construction and supply of **two High Powered Tugs** to be delivered at Kolkata, as per details given below:-

Sl. No.	Description of work	Estimated cost (Rs.)	Bid Security (EMD) (Rs.)	Time of completion
1.	Construction & supply of two High Powered Tugs with following Principal dimension: Tug: LOA – 26.00 m - 28.00 m, Breadth – 7.00m – 8.00 m, Depth 2.80 m, Draft – 1.70 m, Main engine – 2x530 hp and crane capacity – 3 T & max. out reach 6.00 m.	2300 lakhs	46 lakhs	i) 1 st in 17 months ii) 2 nd in 18 months

TERMS & CONDITIONS

1. The complete Bid Document may be obtained from the address for communication given below from 10.10.2011 to 11.11.2011 on any working day between **1000 hours and 1700 hours**, on payment of non-refundable document fee of Rs. 5000/- in the form of Demand Draft in favour of "IWAI FUND" payable at Noida/ New Delhi. The document can also be downloaded from IWAI's website <http://www.iwai.nic.in>. Applicant submitting the downloaded version would need to pay the cost of document along with application in the above manner. A signed declaration stating that no alteration has been made in any form in the downloaded tender document is

to be enclosed with the tender by the bidder for downloaded tenders. The amendments / clarifications, if any, to the document will be available on the above website.

2. The bids must be submitted preferably in hard bound form with page numbering and proper indexing.
3. The firm should have a minimum annual turn over of Rs.690 lakhs (30% of the estimated cost) in 3 years during last 5 years.
4. The firm should have done work of similar nature during last 5 years as follows:
 - a. Single work of Rs. 690 lakhs (30% of estimated cost)
Or
 - b. Two works of Rs. 460 lakhs each (20% of estimated cost)
Or
 - c. Three works of Rs.345 lakhs each (15% of estimated cost)
5. The last date for submission of the Bid Document is **14.11.2011** upto 15.30 hrs (IST). The technical bids would be opened on the same day at 1600 hours in the presence of the representatives of the bidders, if any.

The pre bid meeting will be held on 31.10.2011 at 1500 hrs.

The proposal, or any query or clarification on the bid document shall be submitted to the following address:

Director (Marine),
Inland Waterways Authority of India,
A-13, Sector-I,
Noida – 201 301

Tel (0120) 2543931, Fax (0120) 2544041/ 2522969
Website : www.iwai.nic.in

Director (Marine)
IWAI

(SECTION-II)
INSTRUCTION TO BIDDERS & APPENDIX TO BID

Section II: Instructions to Bidders

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Instructions to Bidders (ITB)

A. General

1. Scope of Bid

- 1.1 The Owner (as defined in the Appendix to ITB) invites bids for **“Construction and Supply of two High Powered Tugs for NW -1 & NW -2”** to be delivered at Kolkata as described in these documents and referred to as “the works”. The name of the work is provided in the Appendix to ITB.
- 1.2 The successful bidder will be expected to complete the works by the delivery schedule as follows:

Delivery of 1 st tug	Within 17(Seventeen) months
Delivery of 2 nd tug	Within 18 (Eighteen) months

from the date of issuance of work order/letter of acceptance.

- 1.3 Throughout these bidding documents, the terms “bid” and “tender” and their derivatives (bidder/tenderer, bid/tender, bidding/tendering, etc.) are synonymous.

2. Source of Funds

- 2.1 The expenditure on this project will be met by Inland Waterways Authority of India (IWAI).

3. Eligible Bidders

- 3.1 This Invitation for Bids is open to all bidders engaged in Shipbuilding and has constructed vessels of similar type or vessels with similar or higher size/capacity.
- 3.2 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices by the Central Government, the State Government or any public undertaking, autonomous body, authority by whatever name called under the Central or the State Government.

4. Qualification of the Bidder

- 4.1 This invitation for bids is open to all manufacturers and their dealers registered with the applicable authorities under the appropriate laws for the time being in force in India.

4.2 All bidders shall include the following information and documents with their bids.

- (a) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder.
- (b) Total monetary value of similar works performed for each of the last five years.
- (c) Experience certificate in works of a similar nature and size for each of the last five years with satisfactory performance certificates from clients.
- (d) Evidence of availability (either owned or leased or rented) of shipyard where the vessels are proposed to be built.
- (e) Qualification and experience of key site management and technical personnel proposed for the contract.
- (f) Reports on the financial standing of the Bidder, and a certificate from Chartered Accountant as a proof of turnover for the past five years.
- (g) Evidence of adequacy of working capital for this contract [access to line(s) of credit and availability of other financial resources].
- (h) Proposals for subcontracting components of the works amounting to more than 10% of the contract price.
- (i) Information regarding any litigation or arbitration during the last five years in which the Bidder is involved, the parties concerned, the disputed amount, and the matter;

4.3 Bids from firms/company jointly or consortium are allowed. Memorandum of Understanding between the firms for joint bids to be submitted.

4.4 A To qualify for award of the Contract, each bidder should have in three years during last 5 years for (a) and five years for (b):

- a) Achieved minimum annual financial turnover (in all cases of ship building works only) volume of ship construction work of at least the amount prescribed in NIT for which bid has been invited.
- b) Satisfactorily completed (not less than 90% of contract value), as a prime contractor of similar works during last five years ending last day of month previous to the one in which bids are invited should be either of the following:
 - i) one similar completed work costing not less than the amount equal to Rs. 690.00 lakhs.
 - ii) two similar completed works costing not less than the amount equal to Rs.460.00 lakhs for each work.
 - iii) three similar completed works costing not less than the amount equal to Rs.345.00 lakhs for each work.

The similar work constitutes construction of vessels

(Escalation factor as specified in the appendix shall be used to bring the value of the completed works at the level of current financial year i.e.2011-12)

4.4 B (a) Each bidder must produce:

(i) An affidavit on a Stamp Paper, duly attested from the Notary, that the information furnished with the bid documents is correct in all respects; and failure to submit the document as specified shall make the bid non-responsive.

(b) Each bidder must demonstrate:

(i) evidence of availability (either owned or leased or rented) of shipyard where the **High powered Tugs** are proposed to be built.

(ii) availability of technical, managerial and skilled personnel for this work.

4.5 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

(i) made misleading or false representations in the forms, statements, affidavits and attachments submitted in proof of the qualification requirements; and/or

(ii) record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc. or debarring.

(iii) tampered the bid document in any manner.

5. One Bid per Bidder

5.1 Each Bidder shall submit only one Bid for the work. A Bidder who submits more than one Bid will cause the proposals with the Bidder's participation to be disqualified.

5.2 Tender documents are not transferable.

6. Cost of Bidding

6.1 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Owner will, in no case, be responsible or liable for those costs regardless of the conduct or out come of the bidding process.

B. Bidding Documents

7. Content of Bidding Documents

7.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 9:

1. Notice Inviting Tender
2. Instructions to Bidders
3. Forms of bid and Bank Guarantee

4. Conditions of Contract
(Part I General Conditions of Contract, and Contract Data; Part II Special Conditions of Contract)
5. Technical Specifications
6. General Arrangement Drawing

7.2 One set of the bidding document will be issued to the bidder against the payment.

7.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, specifications, forms and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 25 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

8. Clarification of Bidding Documents

8.1 A prospective Bidder requiring any clarification of the bidding documents may notify the owner in writing or by cable ("cable" includes facsimile) at the owner's address indicated in the Notice Inviting Tenders. The Owner will respond to any request for clarification received earlier than 10 days prior to the deadline for submission of bids. Copies of the Owner's response will be forwarded to all purchasers of the bidding documents, including a description of the inquiry, but without identifying its source.

8.2.1 If a pre-bid meeting is to be held, the bidder or his official representative is invited to attend it. Its date, time and address are given in the Appendix to ITB.

8.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.2.3 The bidder is requested to submit any questions in writing or by cable so as to reach the Owner not later than one week before the meeting.

8.2.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of the enquiry) and the responses given will be transmitted without delay to all purchasers of the bidding documents. Any modifications of the bidding documents listed in Clause 7.1, which may become necessary as a result of the pre-bid meeting shall be made by the Owner exclusively through the issue of an Addendum pursuant to Clause 9 and not through the minutes of the pre-bid meeting.

8.2.5 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

9. Amendment of Bidding Documents

- 9.1 Before the deadline for submission of bids, the Owner may modify/amend/make addition in the bidding documents for any reason, whether at its own initiative or in response to clarification requested by a prospective bidder by issuing addenda.
- 9.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing by registered post or by cable to all purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by cable to the Owner. The Owner will assume no responsibility for postal delays. Addendum will be available on website. The modification /amendment/additions in the bidding document shall be binding on the prospective bidders.
- 9.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Owner shall extend, as necessary, the deadline for submission of bids, in accordance with Clause 19.2.

C. Preparation of Bids

10. Language of Bid

- 10.1 All documents relating to the Bid shall be in the language specified in the Appendix to ITB.

11. Documents Comprising the Bid

- 11.1 The Bid submitted by the Bidder shall be in two separate parts:
- Part I** This shall be named Technical Bid and shall comprise of:
- I. For bidding documents downloaded from the website, the demand draft for the cost of the bidding documents must be placed in a separate cover, marked "cost of bidding document downloaded from the website."
 - II. Earnest Money in a separate cover marked 'Earnest Money'.
 - III. Qualification information, supporting documents, affidavit and undertaking as specified in Clause 4.
 - IV. Undertaking that the bid shall remain valid for the period specified in clause 14.1;
 - V. Any other information/documents required to be completed and submitted by bidders, as specified in the Appendix to ITB, and
 - VI. An affidavit affirming that information he has furnished in the bidding document is correct to the best of his knowledge and belief.
 - VII. The complete tender document in original duly filled except cost schedule, signed and sealed on every page. This part should not contain the reference to price in any manner. Any reference to price in this part may cause rejection of the bid.
 - VIII. Form of bid.

Part II. It shall be named Financial Bid and shall comprise of:

(i) Cost schedule.

11.2 Each part shall be separately sealed and marked in accordance with Sealing and Marking instructions in clause 18.

12. Bid Prices

12.1 The Contract shall be for the whole Works, as described in Clause 1.1, based on the cost schedule submitted by the Bidder.

12.2 The bidder shall quote rates and prices (both in figures and words) for all items of the Works described in the cost schedule.

12.3 All duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the rates, prices, and total Bid price submitted by the Bidder.

12.4 The rates and prices quoted by the Bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment.

13. Currencies of Bid and Payment

13.1 The prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupees.

14. Bid Validity

14.1 Bids shall remain valid for a period of 120 days after the deadline date for bid submission specified in Clause 19. The Owner as non-responsive shall reject a bid valid for a shorter period.

14.2.1 In exceptional circumstances, prior to expiry of the original time limit, the Owner may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security for a period of the extension, and in compliance with Clause 15 in all respects.

15. Earnest Money / Bid Security

15.1 The Bidder shall furnish, as part of the Bid, Earnest Money/Bid security, for the amount as specified in the Appendix to ITB.

- 15.2 The Earnest Money shall, at the Bidder's option, be in the form of Bank Guarantee/ Demand Draft as specified in the Appendix to ITB. It shall be valid for 90 days beyond the validity of the bid.
- 15.3 Any bid not accompanied by an acceptable Earnest Money, unless exempted in terms given in the Appendix to ITB, shall be rejected by the Owner as non-responsive.
- 15.4 The Earnest Money of unsuccessful bidders will be returned within 28 days of the end of the Bid validity period specified in Sub-Clause 14.1.
- 15.5 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security.
- 15.6 The Bid Security / Earnest Money will be forfeited:
- a) if the Bidder withdraws the Bid after its submission during the period of Bid validity;
 - b) if the Bidder does not accept the correction of the bid price, pursuant to Clause 26; or
 - c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - i. sign the Agreement; and/or
 - ii. furnish the required Performance Security.

16. Alternative Proposals by Bidders

- 16.1 Bidder shall submit offers that fully comply with the requirement of the bidding document including conditions of contract; conditional offer or alternate offer will not be considered further in the process of tender evaluation.

17. Format and Signing of Bid

- 17.1 The Bidder shall submit one set of the bid comprising of the documents as described in Clause 11.
- 17.2 The Bid shall be typed or written in ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. All pages of the Bid shall be signed by the person or persons signing the Bid. The scanned signatures are not acceptable. It will make the bid non-responsive.
- 17.3 The Bid shall contain no overwriting, alterations or additions, except those to comply with instructions issued by the Owner, or as necessary to correct errors made by the Bidder, in which case such corrections shall be made by scoring out the cancelled portion, writing the correction and signing and dating it along with the stamp by the person or persons signing the Bid.

D. Submission of Bids

18. Sealing and Marking of Bids

18.1 The Bidder shall place the two separate envelopes (called inner envelopes) marked "Technical Bid" and "Financial Bid" in one outer envelope. The inner envelopes will have markings as follows:

Technical Bid: To be opened on 14.11.2011 (date and time of Technical Bid opening as per clause 22.1.)

Financial Bid: Not to be opened except with the approval of the Owner.

The contents of the Technical and Financial Bids shall be as specified in clause 11.1.

18.2 The inner and outer envelopes containing the Technical and Financial Bids shall

- a) be addressed to the Owner at the address provided in the Appendix to ITB;
- b) bear the name and identification number of the Contract as defined in clause 1.1; and
- c) provide a warning not to open before the specified time and date for Bid opening as defined in clause 22.1.

18.3 In addition to the identification required in Sub-Clause 18.2, each of the envelopes shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared late, pursuant to Clause 20, or is declared non-responsive pursuant to Clause 22.

18.4 If the outer envelope is not sealed and marked as above, the Owner will assume no responsibility for the misplacement or pre-mature opening of the bid.

19. Deadline for Submission of Bids

19.1 Complete Bids (including Technical and Financial) must be received by the Owner at the address specified in the Appendix to ITB not later than the date and time indicated in the Appendix to ITB. In the event of the specified date for the submission of bids being declared a holiday for the Owner, the Bids will be received up to the specified time on the next working day.

19.2 The Owner may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 9, in which case all rights and obligations of the Owner and the bidders previously subject to the original deadline will then be subject to the new deadline.

20. Late Bids

20.1 Any Bid received by the Owner after the deadline prescribed in Clause 19 will be returned unopened to the Bidder.

21. Modification and Withdrawal of Bids

- 21.1 Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause 19.
- 21.2 Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 17 & 18, with the outer and inner envelopes additionally marked "**MODIFICATION**" or "**WITHDRAWAL**", as appropriate.
- The envelopes for modifications on 'Technical Bid' and 'Financial Bid' shall be submitted in separate sealed envelopes and marked as 'Modifications of Technical Bid' or 'Modifications of Financial Bid', as the case may be.
- 21.3 No bid may be modified after the deadline for submission of Bids.
- 21.4 Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 14.1 above or as extended pursuant to Clause 14.2 shall result in the forfeiture of the Bid security pursuant to Clause 15.
- 21.5 Bidders may only offer discounts to, or otherwise modify the prices of their Bids by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

E. Bid Opening and Evaluation

22. Bid Opening

Bid opening shall be carried out in two stages. Firstly, 'Technical Bid' of all the bids received (except those received late) shall be opened on the date and time mentioned in the Appendix to ITB. 'Financial Bid' of those bidders whose technical bid has been determined to be responsive and on evaluation fulfils the criteria laid down in Clause 27.2 shall be opened on a subsequent date, which will be notified to such bidders.

- 22.1 The Owner will open the envelope marked the "Technical Bid" of all the bids received (except those received late), including modifications of Technical Bid made pursuant to Clause 21 in the presence of the bidders/bidders' representatives who choose to attend at the time, date and place specified in the Appendix to ITB. In the event of the specified date for the submission of bids being declared a holiday for the Owner, the Bids will be opened at the appointed time and location on the next working day.
- 22.1.1 Envelopes marked 'withdrawal' shall be opened and read. Bids for which acceptable notice of withdrawal has been submitted pursuant to Clause 21 shall not be opened.

- 22.1.2 Bidder's names, withdrawals, 'modification of technical bid', the presence of bid security and such other details, as the Owner may consider appropriate will be announced by the Owner after the opening.
- 22.2 In all other cases, the amount of Earnest Money, forms and validity shall be announced. Thereafter, the Owner at the opening as the Owner may consider appropriate, will announce the bidders' names and such other details.
- 22.3 The Owner will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 22.1.
- 22.4 After the opening of the technical bids their evaluation will be taken up with respect to bid security, qualification information and other information furnished in Part I of the bid in pursuant to clause 11.1, thereafter on fulfilling the criteria laid down in Clause 27.2, a list will be drawn up of the responsive bids whose financial bids are eligible for consideration.
- 22.5** The Owner shall inform the bidders, whose technical bids are found responsive, of the date, time and place of opening of the financial bids. The bidders so informed, or their representative, may attend the meeting of opening of financial bids.
- 22.6 At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 22.5 will be announced. The financial bids of only these bidders will be opened. The remaining bids will be returned unopened to the bidders. The responsive bidders' names, the Bid prices, the total amount of each bid, any discount/rebate, modification of financial bids pursuant to clause 21 and such other details as the Owner may consider appropriate will be announced by the Owner at the time of bid opening. Any Bid price, which is not read out and recorded, will not be taken into account in Bid Evaluation.
- 22.7 The Owner shall prepare the minutes of the opening of the Financial Bids.

23. Process to be Confidential

- 23.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Owner's processing of bids or award decisions may result in the rejection of his Bid

24. Clarification of Bids and Contacting the Owner

- 24.1 During the evaluation of the bids, the owner may, at its discretion, ask the bidder to provide any additional information/clarification in relation to its bids as may be

deemed fit by the owner. The bidder shall in all cases where such request has been made by the owner, submit within such period and in such manner as may be specified by the owner in the request so made. Failure of the bidder to furnish such additional information as may be requested by the owner, the owner may in its sole discretion deem such bid as non-responsive. The bidder shall not have any right to challenge the same or any claims arising from such bid being deemed non-responsive by the owner.

- 24.2 No bidder shall contact the owner on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. Any attempt by the bidder to influence the Owner's bid evaluation, bid comparison or contract award decision may result in the rejection of his bid.

25. Examination of Bids and Determination of Responsiveness

- 25.1 During the detailed evaluation of "Technical Bids", the Owner will first determine whether each Bid (a) meets the eligibility criteria defined in Clauses 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is responsive to the requirements of the bidding documents.

After the above process is completed the technical specification/offer of the responsive bidders will be examined with respect to technical specifications provided in the tender document, clarifications, if any, at this stage in respect of the technical parameters offered by the bidder will be sought from the bidders. Thereafter, the bids, which conform, to the terms, conditions, and specifications of the bidding documents, without material deviation or reservation will be considered as responsive for evaluation.

26. Correction of Errors

- 26.1 The Owner for any arithmetic errors will check the financial Bids. Errors will be corrected by the Owner as follows:
- a) where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
 - b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.
- 26.2 The amount stated in the Financial Bid will be corrected by the Owner in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Bid Security shall be forfeited in accordance with Sub-Clause 15.6(b).

27. Evaluation of Bids

- 27.1 Selection of the bidder for construction and supply of vessels will be based on technical and financial evaluation.
- 27.2 Technical evaluation shall be based on the offer satisfying the 4 criteria.
- (i) Availability of vessel building facility along with infrastructure/machineries to justify the capability of the yard to construct and deliver the vessel to be furnished in the format given at Appendix-1.
 - (ii) Out put of the shipyard in terms of number and cost of vessels during the preceding five years from the date of receipt of the bid as specified in NIT - to be furnished in format given at Appendix – 2.
 - iii) (Contract non-performance (during preceding 5 years)- to be furnished in format given at Appendix-3
 - (iv) Financial details
 - (a) Financial performance during preceding 5 years - to be furnished in format given at Appendix –4
 - (b) Annual construction turn over during preceding 5 years as specified in NIT - to be furnished in format given at Appendix – 5
- 27.3 Verification of the facts furnished by the bidders may be made by the owner by visiting the establishment/yard of the bidders prior to finalizing the technical evaluation.
- 27.4 If the bidder does not fulfill the above criteria his bid shall be technically disqualified and his financial bid shall not be opened.
- 27.5 The evaluation of the financial bid will be based on the lowest financial offer received for the work.

F. Award of Contract

28. Award Criteria

- 28.1 Subject to Clause-30, the Owner will award the Contract to the Bidder after evaluation as per Clause 27.

29. Owner's Right to Accept any Bid and to Reject any or all Bids and Split the work or Increase and Decrease work.

- 29.1 Notwithstanding Clause-28, the Owner reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Owner's action. Owner also the reserve the right to split the work to one or

more parties depending on capability of the yard and increase/decrease the work requirement.

30. Notification of Award and Signing of Agreement.

- 30.1 The bidder whose Bid has been accepted will be notified of the award by the Owner prior to expiration of the Bid validity period by confirmed by registered letter. This letter (hereinafter and in the Part I *General Conditions of Contract* called the “Letter of Acceptance”) will state the sum that the Owner will pay to the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the “Contract Price”).
- 30.2. 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 32.
- 30.3. The Agreement will incorporate all agreements between the Owner and the successful Bidder. It will be signed by the Owner and the successful Bidder after the performance security is furnished and within 15 days of issuance of Letter of Acceptance.
- 30.4 Upon the furnishing by the successful Bidder of the Performance Security, the other Bidders will be informed that their Bids have been unsuccessful.

31. Factors Affecting the Award of the contract.

- 31.1 The bidder should have its own contract support facilities. The support facilities should be fully owned and managed by the bidder.
- 31.2 Conformity with the request for bid/tender required and conditions.
- 31.3 The assessment of the capability of the bidder to meet the terms and conditions.
- 31.4 The bidder must have executed similar orders, for which the bidder is quoting as indicated in clause 1 of ITB for Government/ semi Government/Autonomous Organisations/reputed Private organisations.

32. Performance Security

- 32.1 Within 10 (ten) days after receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Owner a Performance Security of Ten percent of the Contract Price, for the period of 28 days after the expiry of defect liability period of 12 months.
- 32.2 The performance security shall be either in the form of a Bank Guarantee or fixed deposit Receipts, in the name of the Owner, from a Bank as applicable in case of earnest money / bid security defined in Appendix to ITB.

32.3 Failure of the successful bidder to comply with the requirement of sub-clause 33.1 shall constitute sufficient ground for cancellation of the award and forfeiture of the bid security.

33. Advances

On award of work and execution of agreement a mobilisation advance of 15% of contract price will be given on the request of the Contractor at the simple rate of interest as specified in Appendix to ITB against furnishing of non-revocable bank guarantee. The mobilisation advance will be recovered in four equal installments from the first running bill i.e. when the keel is laid.

34. Corrupt or Fraudulent Practices

The Owner will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with Inland Waterways Authority of India and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contractor, or in execution.

The Owner requires the bidders/Contractors to strictly observe the laws against fraud and corruption enforced in India, namely, Prevention of Corruption Act, 1988.

Appendix to ITB

The Owner should fill out this Appendix to ITB before issuing the bidding documents. The insertions should correspond to the information provided in the Invitation for Bids.

Instructions to
Bidders
Clause Reference

- (1.1) The Owner is Chairperson, Inland Waterways Authority of India
- (1.1) The Works is "Construction and Supply of two High Powered Tugs".
- (4.4 A) (b) The value shall be as mentioned in Bid Notice.
Escalation factor (for the cost of works completed during the last 5 years) may be taken as follows:
[Cl. 4.4A(b)]

Year Before	Multiplying Factor
One	1.1
Two	1.21
Three	1.33
Four	1.46
Five	1.61
- (8. 2.1) Place, Time and Date for pre-bid meeting are:

Place: NOIDA
(will be intimated later, in case of change, if any)

Time

Date
- (10.1) Language of the bid is : English
- (11.1.v) Nil
- (15.1) The amount of Earnest Money shall be as mentioned in NIT.

- (15.2) A. The EMD/bid security which shall either be in the form of a Bank Guarantee, in the name of the Owner, from following banks would be accepted:-
- i. State Bank of India or its subsidiaries,
 - ii. Any Indian Nationalised Bank
 - iii. IDBI or ICICI / HDFC Bank
 - iv. A Foreign Bank (issued by a branch outside India) with a counter guarantee from SBI or its subsidiaries or any Indian Nationalised Bank.
 - v. Any Scheduled Commercial Bank approved by RBI having a net worth of not less than Rs. 500 crores as per the latest Annual Report of the Bank. In the case of a Foreign Bank (issued by a branch in India), the net worth in respect of the Indian operations shall only be taken into account.

Or

Demand Draft in favour of 'IWAI Fund'
Payable at Noida/New Delhi.

- (19.1) The Owner's address for the purpose of Bid submission is Inland Waterways Authority of India, A-13, Sector-I, Noida – 201 301.

- (19.1) The deadline for submission of bids shall be:
Time

As prescribed in Bid Notice

Date

- (22.1) The date, time and place for opening of the Bids are:

(A) Technical Bid

Date

Time

As prescribed in Bid Notice

Place

(B) Financial Bid (For qualified bidder)

Date

Time

(Will be intimated later)

Place

- (32.1) The amount and validity period of the performance guarantee is:

Amount: 10 % of the contract price.

Validity Period: (i) Performance security shall be valid until a date 28 days after the expiry of Defect Liability Period.

33. Rate of simple interest for mobilisation advance will be 12%.

Availability of vessel building facility including infrastructural facilities, machineries, etc. which will be utilised for the work under tender

Name & Address of the Ship Builder	Detailed Particulars	
(i) Slipway including fabrication/ construction bays (details including number, dimension, location and layout of shipyard to be given). Whether covered or open.		
(ii) Skids/Mould loft for modular construction (details including number, dimension and location to be given). Whether covered or open.		
(iii) Design and drawing office		
(iv) List of workshop machinery, equipment. (i) Welding Sets (ii) Gas Cutting Sets (iii) Grinding Machine (iv) Shot Blasting equipment (v) Material handling equipment (vi) Machine Shop Machineries (vii) Paint Shop	Description Quantity	Make
(v) Source of electric power, whether captive power unit available, if so, the details thereof.		
(vi) Facilities for doing outfitting job in afloat condition indicating location and area.		

OUTPUT OF THE SHIPYARD DURING PRECEDING 5 YEARS

Sl. No.	Name of the contract	Name and Address of employer	Cost of Work	Date of Award	Date of completion		Vessel specification
					Schedule	Actual	

APPENDIX – 4

FINANCIAL PERFORMANCE (DURING PRECEDING 5 YEARS)

Sl. No.	Name of Contract	Name and Address of employer	Date of award	Cost of contract	Date of completion as per contract	Actual date of completion	Any cost overrun allowed indicating reasons	Revised cost if any

ANNUAL CONSTRUCTION TURNOVER (DURING PRECEDING 5 YEARS)

Year	Annual Turnover

(SECTION-III)
FORMS OF BID & BANK GUARANTEE
AND COST SCHEDULE

(Form of bid to be submitted along with Technical bid)

To

Director (Marine)

Inland Waterways Authority of India,
A-13, Sector-I,
NOIDA – 201 301.

DESCRIPTION OF WORKS: BID FOR CONSTRUCTION, SUPPLY & COMMISSIONING OF TWO HIGH POWERED TUGS FOR NW-1 & NW-2.

REFERENCE LETTER NO.

Dear Sir,

1. Having examined the Bid Documents, Instructions to Bidders, General Conditions of Contract, Special Conditions of Contract, Technical Specifications, Cost schedule for the execution of the above named works, we, the undersigned offer to execute and complete such works and remedy defects therein in conformity with the said bid documents.

2. We undertake, if our Bid is accepted, to commence the work within fifteen (15) days of receipt of the order to commence, and to complete and deliver the two High powered tugs comprised in the Contract within the period stated in the bid hereto.

3. Bid Security of Rs. ----- in the form ofis enclosed herewith.

4. If after the tender is accepted, we fail to execute the contract deed within 15 days of the receipt of the order to do so, I / We agree that IWAI shall without prejudice to any terms and conditions of the tender, forfeit the Bid Security absolutely.

5. If our Bid is accepted, we will furnish Performance Security (ies) in the form of a Bank Guarantee/FDR to be jointly and severally bound on us, in accordance with the Conditions of Contract.

6. We agree to abide by this Bid for the period of One Hundred and Twenty (120) days from the date of Bid opening and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

We confirm our agreement to treat the Bid documents and other records connected with the works as secret and confidential documents and shall not communicate information contained therein to any other person other than the person authorised by the Owner or use such information in any manner prejudicial to the safety and integrity of the works.

Unless and until an agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us, but without prejudice to your right to withdraw such acceptance without assigning any reasons thereof.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____ 2011

Signature _____ in the capacity of _____ duly authorised
**

To sign Bid for and on behalf of

(In block capital letters)

Address : _____

Signature of Witness _____

Name of witness _____

Address of witness _____

** Certified copy of Power of Attorney/authorisation for signature shall be furnished by the bidder.

FORM OF BANK GUARANTEE FOR BID SECURITY

The Chairperson,
Inland waterways Authority of India,
A-13, Sector 1,
Noida – 201 301.

WHEREAS _____

(Name of Tenderer) (hereinafter called the Tenderers) wishes to submit his tender for work of _____ in the state/s of _____ herein called “the Tender” KNOW ALL PEOPLE by these present that we _____ (Name of Bank) of _____ (Name of country) having our registered office at _____ (_____) (hereinafter called the ‘Bank’) are bound unto the Inland Waterways Authority of India (hereinafter called “the Owner”) in the sum of the Rs. _____ (Rupees _____) *for which payment can truly be made to the said Owner. The Bank bind themselves, their successors and assigns by these presents with the common seal of the Bank this day _____ of 2011 and undertake to pay the amount of _____ Rs. _____ to the employer upon receipt of this written demand without the employer having no substantiate his demand.

The conditions of this obligation are:

If the tenderer withdraws his tender during the period of Tender validity specified in the Form of Tender.

Or

If the Tenderer having been notified of the acceptance of his Tender by the Employer during the period of tender validity fails or refuses to execute the Form of Agreement in accordance with the instructions to bidders, if required; or

fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders.

We undertake to pay Owner upto the above amount upon receipt of his classification societyt written demand, without the Owner having to substantiate his demand, provided that in his demand the Owner will note that the amount claimed by his is due to his owing to the occurrence of any one of the above conditions, specifying the occurred condition or conditions.

This guarantee will remain in force upto and including the date 45 days beyond the validity of the bid as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, at any time prior to the closing date for submission of the Tenders Notice of which extension to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date of expiry of this guarantee.

SIGNATURE OF AUTHORISED REPRESENTATIVE OF THE BANK

NAME AND DESIGNATION

SEAL OF THE BANK

SIGNATURE OF THE WITNESS

NAME OF THE WITNESS

ADDRESS OF THE WITNESS

FORM OF BANK GUARANTEE FOR PERFORMANCE SECURITY

To

The Chairperson,
Inland Waterways Authority of India,
A-13, Sector-I,
NOIDA – 201 301.

WHEREAS..... (name and address of contractor) thereafter called “the contractor” has undertaken, in pursuance of Contract No. Dated to execute..... (name of Contract and brief description of Works) (hereinafter called “the contract”).

AND WHEREAS it has been stipulated by you in the said contract that the Contractor shall furnish you with a Bank Guarantee by a Nationalised/Scheduled bank of India for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREOF we hereby affirm that we are the guarantor and responsible to you on behalf of the Contractor, up to a total of Rs..... (amount of guarantee) (Rupees..... (in words), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your classification societyt 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 there under 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 issue of the Defects Liability Certificate.

Signature _____ and _____ seal _____ of _____ the Guarantor.....

Name of the Bank

.....

Address.....

Date.....

In the presence of

1.....
(Name of Occupation)

2.....
(Name of Occupation)

An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in Indian Rupees.

Form of Bank Guarantee – Secure a Lump-Sum Advance

To

The Chairperson,
Inland Waterways Authority of India,
A –13, Sector-1,
NOIDA-201301 (UP).

In consideration of the Chairperson, Inland Waterways Authority of India Hereinafter called “the Authority” which expression shall unless repugnant to the subject or context include his successor an assigns) having agreed under the terms and conditions of Contract No. dated..... Made between..... and the authority in connection with(Hereinafter called “the said Contract”) to make at the request of the Contractor a lump-sum advance of Rs. For utilising it for it for the purpose of the contract on his furnishing a guarantee acceptable to the Authority, we the Bank Ltd. (hereinafter referred to as the “the said Bank”) a company under the Companies Act. 1956 and having our registered office at Do hereby guarantee the due recovery by the Authority of the said advance with interest thereon as provided according to the terms and conditions of the contract. We do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from the Authority stating that the amount claimed is due to the Authority under the said Agreement. Any such demand made on the Shall be conclusive as regards the amount due and payable by the under this guarantee and the amount so demanded shall be absolute and unconditional notwithstanding any dispute or disputes raised by the contractor and notwithstanding any legal proceeding pending in any court or tribunal relating thereto. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs.

2. We, Bank Ltd., further agree that the Authority shall be the sole judge of and as to whether the said contractor has not utilised the said advance or any part therefore for the purpose of the contract and the extent of loss or damage caused to or suffered by the Authority on account of the said advance together suffered by the Authority on account of the said advance together with interest now being recovered in full and the decision of the Authority that the said contractor has not utilised the said advance or any part thereof for the purpose of the contract and as to the amount or amounts of loss or damages caused to or suffered by the Authority shall be final and binding on us.

3. We, the said Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said contract and that would be taken for the performance of the said contract and till the said advance with interest has been fully recovered and its claim satisfied or discharged and till..... Certify that the said advance with interest has been fully recovered from the

said contractor, and accordingly discharges this Guarantee subject, however, that the owner shall have no claims under this Guarantee after Years from the date of completion of the said contract, as the case may be, unless a notice of there claim under this guarantee has been served on the Bank but expiry of the said period of Years in which cash the shall be enforceable against the bank notwithstanding the fact that the same is enforced after the expiry of the said period of years.

4. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity, from time to time to vary any of the terms and conditions of the said contract or the advance or to the extend time of performance by said contractor or to postpone for any time and from time to time any of the powers exercisable by it against the said contractor and either to enforce or forbear from enforcing any of terms and conditions governing the said contract or the advance of securities available to the Authority and the said Bank shall not be released from its liability under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reasons of time being given to the said contractor or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said contractor or of any other matter or thing whatsoever which under the laws relating to sureties would but for this provision have the effect of so releasing the bank from its such liability.

5. It shall not be necessary for the Authority to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which the Authority may have obtained or obtain from the contractor shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealised.

6. We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Authority in writing and agree that any change in the constitution of the said contractor or the said bank shall not discharge our liability hereunder.

7. The executor to this bank guarantee has resolved that it will not have recourse to any civil court for enforcement / cancellation of this bank guarantee to which, we also agree.

Dated this day of 20

For and on behalf of the Bank

(Name and Designation)

The above guarantee is accepted by the Chairperson, Inland Waterways Authority of India.

For and on behalf of the Chairperson,

Dated.....

Note:

For proprietary concerns:

Shri Son of Resident of Carrying on business under the name and style of at(Hereinafter called the said contractor, which on possession shall unless the context requires or otherwise include his heclassification society, executors, administrators and legal representatives).

For partnership concerns:

(1) Shri Son of Resident of

(2) Shri Son of Resident of

And carrying on business in co-partnership under the name and style of At (Here in after collectively called “the said contractor” which expression shall unless the context requires otherwise includes each on them and their respective heirs, executors, administrators, and legal representatives.

For Companies:

Shri A company under the companies Act, 1956 and having its registered office at In the State of (Hereinafter called “the said Contractor” which expression shall unless the context requires otherwise include its successors and assigns).

Form of Bank Guarantee (for payment of 1st installment)

(Two High Powered Tug)

In consideration of Inland Waterways Authority of India, under Ministry of Shipping, Government of India (hereinafter called the owner) having made advance payment to (Hereinafter called the contractor) under the terms and conditions of the contract dated made between the contractor and the owner for the design, construction supply and delivery of TWO HIGH POWERED TUGS (hereinafter called the contract) on production of a bank guarantee for Rs. (Rupees only). We further agree that if demand is made to the owner for honouring the bank guarantee, we have no right to decline to cash the same for any reason whatsoever and shall cash the same within a maximum period of 2 days from the date of serving notice to the bank from the date of such demand. The fact that there is dispute of any matter whatsoever between the contractor and the owner is no ground for us to decline to honour the bank guarantee in the manner aforesaid is a sufficient reason for the owner to enforce the bank guarantee unconditionally without any reference to the contractor. We further agree that a mere demand by the owner is sufficient for us to pay the amount covered by the bank guarantee in the manner and within the time aforesaid without reference to the contractor and any protest by the contractor shall not be valid ground for us, to decline or fail or neglect the payment to the buyer in the manner and within the time aforesaid. Any such demand on the Bank shall be conclusive as regards the amount due and payable to the owner by the Bank under this guarantee.

We, Further agree that the bank guarantee herein contained shall remain in full force and effect, till the delivery and acceptance of the vessel to the complete satisfaction of the owner in terms of clause 12 of special condition of the contract dated and that it shall continue to be enforceable till all the dues of the owner under or by virtue of the said contract have been fully paid and its claims satisfied or discharged in full or till the owner certifies that the terms and conditions of the contract have been fully and properly carried out by the contractor and accordingly discharge the guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the, we shall be discharged from all liability under this guarantee thereafter.

We, further agree that the owner shall have the fullest liberty, without our consent and without effecting in any manner our obligations hereunder, to vary any of the terms and conditions of the contract or to extend the time during which the contract is to remain valid and or the time for performance by the contractor of its / their obligations under the contract from time to time or to postpone for any time or from time to time any of the powers exercise by the owner against the contractor and to forbear or enforce any of the terms and conditions relating to the contract and we shall

not be relieved from our liability by reason of any such variation, or extension being granted to the contractor or any indulgence by the owner to the contractor or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us,
.....

The executor to this bank guarantee has resolved that it will not have recourse to any civil court for enforcement / cancellation of this bank guarantee to which, we also agree.

This Guarantee shall be valid upto Including from the date of issue.

We lastly undertake not to revoke this guarantee during its currency except with previous consent of the owner in writing.

Dated day of Two thousand
.....

Signature

SEAL

AGREEMENT FORM

THIS AGREEMENT made this... .. day of 2011 BETWEEN Inland Waterways Authority of India, hereinafter called the Owner of the ONE PART AND M/s. an existing Company within the meaning of companies Act, 1956 having its registered office at..... as CONTRACTOR, which expression shall unless excluded by or repugnant to the context be deemed to include its successor in interest of the OTHER PART.

WHEREAS THE OWNER proposes to purchase of **TWO HIGH POWERED TUGS** for its own purpose and the CONTRACTOR has agreed to supply the same on the terms and conditions mentioned below: -

1. The Contractor will design, construct and deliver at Kolkata to the order of the IWAI, **TWO HIGH POWERED TUGS** in accordance with the subject to the conditions of contract, hereto annexed and marked and the specifications and schedule attached hereto all of which form part of this agreement.
2. The consideration payable therefore shall be the sum of Rs..... Payable as stated and on the condition expressed in Clause 14 of conditions of contract.
3. The following documents shall be deemed to form and be read and construed as part of the agreement viz:
 - a. Agreement
 - b. Bid Notice
 - c. Instructions to bidders
 - d. General conditions of the contract
 - e. Special conditions of the contract
 - f. Technical specifications and drawings
 - g. Form of bid
 - h. Cost schedule
 - i. Letter of acceptance

IN WITNESS whereof the IWAI has causedon their behalf to hereunto set his hand and the contractor has hereunto set his hand/the Company has caused its common seal to be affixed hereunto the day and year classification society above written.

(a) Signed by the contractor above named in the presence of;

1.

2.

(b) * The common seal of was hereunto affixed pursuant to a resolution of the Board of Directorate passed at a meeting of the Board used on the Day of In the presence of

Witness

Signed by
(Director of the Company)

Witness

Signed by
For and on behalf of Inland
Waterways Authority of India
A-13, Sector-1, NOIDA (U.P) 201301

(*To be used in the case of a Company)

Cost Schedule

(Two High Powered Tugs for NW-1 & NW-2)

Note : The tenderer shall enter a firm price against each item and fill up the blanks.

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Price (in Rs.)</u>
A	Two	a) Basic cost of two High Powered Tugs complete in every respect in accordance with the attached specification (including Hull inventory and tools). b) Taxes and duties etc. Total c) Any transportation cost for delivery at Kolkata.	

Total: Rs.....

(Rupees.....)

Cost Schedule for Manning

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Remuneration and other statutory charges including contractor's profit, overhead & service tax.</u> (In Rs. per month)
B	One One One One One One One	Guarantee Engineer Master 1 st Class Licensed Driver Seacunny Greaser Laskar Cook	

(Signature of Contractor)

Dated.....

Address.....

Witness Signature.....

Name in Block letters.....

Address & Occupation.....

Note: Evaluation of the tender shall be made by taking into consideration both the cost of the tugs and the expenditure on manning.

**(SECTION-IV)
CONDITIONS OF CONTRACT**

**(PART-I GENERAL CONDITIONS OF CONTRACT AND CONTRACT DATA
PART-II SPECIAL CONDITIONS OF CONTRACT)**

PART – I

General conditions of contract

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General Conditions of Contract

A. General

I. (i) Definitions

Terms which are defined in the Contract Data are also defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

The Contract is the Contract between the Owner and the Contractor to execute and complete the Works. It consists of the documents listed in Clause 1 (iii) (b).

The Contract Data defines the documents and other information, which comprise the Contract.

Chairperson is the Chairperson of Inland Waterways Authority of India.

Authority is Inland Waterways Authority of India, a statutory body set up under Inland Waterways Authority of India Act 1985 in the Ministry of Shipping, Government of India, represented by Chairperson.

Government is the Government of India.

The Owner / Purchaser means "Inland Waterways Authority of India represented by Chairperson and includes his/her successor, assignees.

The Engineer-in-charge is the person named in the Contract Data (or any other competent person appointed by the Owner and notified to the Contractor, to act in replacement of the Engineer-in-charge) who is responsible for supervising the execution of the Works and administering the Contract.

The Contractor means the company, firm, person or persons or corporate body whose Bid to carry out the Works has been accepted by the Owner and includes Contractor's successors, representatives, heirs, executors and administrators unless excluded by contract.

The Contractor's Bid is the completed bidding document submitted by the Contractor to the Owner and includes technical and financial bids.

The Contract Price is the price stated in the Letter of Acceptance.

Inspection Authority or Inspector is the Officer of the Owner or any other person from time to time appointed by the Owner to act as an inspecting authority or inspector for the purpose of the contract.

Vessel are the *two High Powered Tugs* to be designed, constructed, equipped and delivered afloat in accordance with the contract and with modification, if any, as mutually agreed upon.

Representative is the Officer appointed by the owner on behalf of the owner to receive the vessel along with spares and equipment etc. on their behalf upon delivery at the specified destination.

Test is the test or tests as are prescribed by the specification to be made by the contractor/owner or their nominee, before the vessels are taken over by the owner.

Specification means the Specification of the Works included in the Contract.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the Works.

A **Variation** includes alterations, amendments, omissions, additions or suspensions of the works.

The **Works** are what the Contract requires the Contractor to construct and hand over to the Owner, as defined in the Contract Data.

Days are calendar days; months are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The Defects Liability Certificate is the certificate issued by Owner, after the Defect Liability Period has ended and upon correction of Defects by the Contractor.

The Defects Liability Period is 12 months calculated from the Date of delivery of the *two High powered Tugs*.

Drawings means the drawings and plans specified in the specifications: The expression "Work" means all the works specified or set forth and required in an by the said specifications, are drawing and schedule or to be implied there from or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings (being in conformity with the said original specifications, drawing and schedule) and also in such additional instructions and

drawings not being in conformity as aforesaid as shall from time to time, during the progress of the work hereby contracted for, be supplied by the owner.

(ii) MARGINAL HEADINGS:

The marginal headings or notes of each of the Clauses in these conditions shall not be deemed as a part thereof or to be taken into consideration in the interpretation or construction thereof or of the contract.

(iii) INTERPRETATION

(a) In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined.

(b) The documents forming the Contract shall be interpreted in the following order of priority:

- (1) Agreement,
- (2) Letter of Acceptance, Notice to Proceed with the Work,
- (3) Contractor's Bid,
- (4) Contract Data,
- (5) Conditions of Contract including Special Conditions of Contract
- (6) Specifications,
- (7) Drawings
- (8) Activity Schedule; and
- (9) Any other document listed in the Contract Data as forming part of the contract.

(c) These regulations for tenders and contracts shall be read in conjunction with the general conditions of the contract which are referred to herein and shall be subject to modifications, additions, suppression by special conditions of the contract and/or special specifications if any annexed to the tender form.

2. (a) PARTIES

The parties to the contract are the contractor and the owner.

(b) AUTHORITY OF PERSONS SIGNING THE CONTRACT ON BEHALF OF THE CONTRACTOR:

A person signing the tender or any other document in respect of the contract on behalf of the contractor without disclosing his authority to do so shall be deemed to warrant that he has authority to bind the contractor. If it is discovered at any time that the person so signing had no authority to do so, the Chairperson on behalf of Authority may, without prejudice to any other right or remedy of the owner, cancel the contract and make or authorize the making of a purchase of the vessels

at the risk and cost of such person and hold such person liable to the owner for all costs and damages arising from the cancellation of the contract including any loss which the owner may sustain on account of such purchase. The provisions of clause 11 apply to every such purchase as far as applicable.

(c) ADDRESS OF THE CONTRACTOR AND NOTICES AND COMMUNICATIONS ON BEHALF OF THE OWNER

(i) For all purposes of the contract including arbitration there under, the address of the contractor mentioned in tender shall be the address to which all communication addressed to the contractor shall be sent, unless the contractor has notified a change by a separate letter containing no other communication and sent by registered post due to Chairperson, Inland Waterways Authority of India, A-13, Sector-1, NOIDA, Gautam Buddha Nagar Disstt (U.P.) 201301. The Contractor shall be solely responsible for the consequence of an omission to notify a change of address in the matter aforesaid.

(ii) Any communication or notice on behalf of the owner, in relation to the contract may be issued to the contractor by the owner, and such communications and notices may be served on the contractor either by fax or courier or registered post or under certificate of posting or by ordinary post or by hand delivery at the option of the owner.

3. AUTHORITY OF THE CHAIRPERSON:

For all purposes of the contract including arbitration proceeding there under the Chairperson on behalf Authority shall be entitled to exercise all the rights and powers of the owner.

4. DELEGATION OF POWERS:

The Chairperson on behalf of Authority may from time to time delegate to any person operations to be named by him/her such of the powers, authorities and discretion's vested in him/her by the contract as he/she may think fit and the contractor shall recognize such person or persons on written notice from the Chairperson of his or their appointment and of the powers, authorities and discretion's respectively delegated to him or them as lawfully exercising for the purpose of this contract the powers, authorities and discretion's so delegated provided that the Chairperson on behalf of Authority shall not delegate the powers, authorities and discretion's conferred on him/her by the Clause 21 hereof.

5. RESPONSIBILITY OF THE CONTRACTOR FOR EXECUTION OF THE CONTRACT:

I) RISK IN THE CONSTRUCTIONS:

The contractor shall perform the contract in all respects in accordance with the terms and conditions thereof. The vessels and every constituent part thereof, whether in the possession or control of the contractor, his agents or employees or in the joint possession of the contractor, his agents or employees or purchaser, his agents or

employees shall remain in every respect at the risk of the contractor until their actual delivery to the representatives at the stipulated place or destination or, where so provided in the acceptance of tender, until their delivery to a person specified in the schedule as interim consignee for the purpose of dispatch to the consignee. The contractor shall be responsible for all loss, destruction, damage or deterioration of or to the vessels from any cause whatever while the Vessels after approval by the inspector are awaiting delivery or are in the course of transit from the contractor to the consignee or, interim consignee as the case may be.

(ii) RESPONSIBILITY FOR COMPLETENESS:

In respect of any inspection and tests made by the inspector, the contractor shall be entirely responsible for the proper execution of the contract notwithstanding any approval, which may have been given by the inspector or the contractor.

Any fittings accessories which may not be specially mentioned in the specification but which are usual or necessary are to be provided by the contractor without extra charge.

(iii) SUBLETTING THE CONTRACT:

The contractor shall not assign, lease or sublet or cede this contract or the benefit hereof or any part thereof or any money payable hereunder or sublet the services to be rendered as aforesaid or any part thereof to any other person or company without the previous permission of the Owner certified in writing under the hands of the Owner and no assignment, lease, cession or subletting although so permitted shall exonerate the contractor from his liability under this contract and the Owner shall not be bound or required to take notice or give effect to any such assignment, lease, cession or subletting unless the same shall have been made with such permission as aforesaid PROVIDED ALWAYS the contractor may procure any necessary materials to be manufactured for the purposes of, this contract by any person, firm or company whose names shall have been submitted to and approved by Chairperson on behalf of the Authority before the said materials are ordered but no such approval shall relieve the Contractor from any responsibility or obligations with reference to any such materials.

(IV) (a) CHANGES IN A FIRM

(i) Where the contractor is a partnership firm, a new partner shall not be introduced in the firm except with the previous consent in writing of the Chairperson on behalf of Authority which may be granted only upon acceptance of a written undertaking by the new partner to perform the contract of accept all liabilities incurred by the Firm under the contract prior to the date of such undertaking.

(ii) On the death or retirement of any partner of the contractor firm before complete performance of the contract the Chairperson on behalf of Authority may, at his opinion cancel the contract and in such case

the contractor shall have no claim whatsoever to compensation against the owner.

(iii) If the contract is not determined as provided in sub-clause (ii) above notwithstanding the retirement of a partner from the firm he shall continue to be liable under the contract for acts of the firm until a copy of the public notice given by him under section 32 of the partnership Act has been sent by him to the owner by registered post acknowledgement due.

(b) CONSEQUENCE OF BREACH:

Should the contractor or a partner in the contractor firm commit breach of either of the conditions (iii) or (ii) (a) (I) of this sub clause it shall be lawful for the owner to cancel the contract and purchase or authorize the purchase of the vessels at the risk and cost of the contractor and in that event the provisions of clause 27 of **GENERAL CONDITIONS AND CLAUSE 14 OF SPECIAL CONDITIONS** shall as for as applicable apply. The decision of the Chairperson on behalf of Authority as to any matter or thing concerning or arising out of this sub-clause or any question whether the contractor or any partner of the contract firm has committed a breach of any of the conditions in this sub-clause contained shall be final and binding on the contract.

(V) ASSISTANCE TO THE CONTRACTOR:

a) The contractor shall be solely responsible to procure any material or obtain any import or other license or permit required for fulfillment of the contract and the grant by "the owner or any other authority of a quota certificate or permit required under any law for distribution or acquisition of iron and steel or any other commodity or any other form of iron and steel, or any other commodity or any other form of assistance in the procurement of the material aforesaid, shall not be construed as a representation in the part of the purchase that the material covered by such license or permit quota certificate is available or constitute any promise, undertaking or assurance on the part of the owner regarding the procurement of the same or effect any variation in the rights and liabilities of the parties under the contract. But, if by reason of any such assistance as aforesaid, the contractor obtains any materials at less than their market price or the cost of production of the vessel is lowered, the price of the vessels payable under the contract shall be reduced proportionately and the extent of such reduction shall be determined by the owner whose decision shall be final and binding on the contractor.

(b) Every agreement made by Chairperson on behalf of the Authority to supply or give assistance in the procurement of materials, whether from the Govt. Stock or by purchase under permit or release order issued by or by any officer empowered in that behalf of Govt. shall be deemed to be subject to the condition that it will be performed with due regard to other demands and only if it is found practicable to do so within the stipulated time and the decision of the Chairperson on behalf of Authority whether it was practicable to supply or give assistance as aforesaid or not shall be final and binding on the contractor.

6. INABILITY TO PERFORM CONTRACT:

Should the Contractor's preparation for the commencement of the work, or any portion of it or his subsequent rate of progress may be, from any cause whatever, so slow that in the opinion of the inspector, which shall be conclusive, the contractor will be unable to complete the work or any portion thereof as agreed upon, or should he not have the work ready for delivery in conformity with the contract should he neglect to comply with any directions given to him by the inspector or in any respect fail to perform the contract, the owner shall have power to declare the contract at an end, in which case the contractor shall be liable for any expense, loss or damage which the owner may incur or sustain by reason, of or in connection with contractor's default.

7. QUOTATION OF RATES BY CONTRACTOR

(i) The price quoted by contractor shall be firm with no provision for any deviation as per in the cost schedule. The price shall include the cost of the material, equipment, machineries (including import and custom duty if any), dry docking test, trial and delivery at Kolkata.

Dry docking is not necessary, if the vessels are delivered as dry cargo. In case the same is delivered after sailing in the river/sea, dry docking shall be done at the sole cost of the builder. Accordingly, provision is to be made and rate to be included.

8. SECURITY DEPOSIT / RETENTION MONEY

(1) The Performance Security equal to Ten percent of the contract price shall be provided to the owner no later than the date specified in the Letter of Acceptance and shall be issued in the form given in the Contract Data and by a scheduled commercial bank. The Performance Security shall be valid until a date 28 days from the date of expiry of Defect Liability Period.

(2) The owner shall retain security deposit of five percent of the amount from each payment due to the contractor until completion of the whole of the work.

(3) The security deposit /retention money and the performance security aggregating to 15 percent of the contract price will be released to the contractor when the defect liability period is over, and the Engineer-in-charge has certified that the defects, if any, notified by the Engineer-in-charge to the contractor before the end of this period have been corrected.

(4) No claim shall lie against the owner either in respect of interest or any depreciation in value of any security.

(5) If the contractor fails or neglects to observe or perform any of his obligations under the contract, it shall be lawful for the Chairperson or his/her duly authorised representative to forfeit either in whole or in

part, the security deposit and performance security furnished by the contractor. Save as aforesaid, if the contractor duly performs and completes the contract in all respects and presents in absolute "NO DEMAND CERTIFICATE" in the prescribed form, the Chairperson on behalf of the Authority shall refund the security deposit and performance security to the contractor after deducting all costs and other expenses that the owner may have incurred and all dues and other money including all losses and damages which the owner is entitled to recover from the contractor.

9. RISK OF LOSS OR DAMAGE TO AUTHORITY OR OWNER'S PROPERTY

(1) All the property of the Authority or Owner loaned whether with or without deposit to the contractor in connection with the contract shall remain the property of the authority or the Owner as the case may be. The contractor shall use such property for the purpose of the execution of the contract and for no other purpose whatsoever.

(2) All such property shall be deemed to be in good condition when received by the contractor unless he shall have within seven days of the receipt thereof notified the Chairperson to the contrary. If the contractor fails to notify any defect in the condition or equality of such properties he shall be deemed to have lost the right to do so at any subsequent stage.

(3) The contractor shall return all such property in good condition. The contractor shall be able for loss or damage to such property in the possession of or under the control of the contractor, his employees or agents and responsible for the full value thereof to be assessed by the Chairperson on behalf of authority whose decision shall be final and binding on the contractor.

(4) Where such property is insured by the contractor against loss or fire at the request of the authority or the Owner such insurance shall be deemed to be affected by way of additional precaution and shall not prejudice the liability of the contractor as aforesaid.

10. CHARGES FOR WORK NECESSARY FOR COMPLETION OF THE CONTRACT:

The contractor shall pay all charges for handling, stamping, printing, painting, marking and for protecting and preserving patent rights and for all such measures which the inspector may require the contractor to take for the proper completion of the contract though no special provision in respect thereof may have been made in particular.

11. TIME AND DATE OF COMPLETION OF WORK

The time and the date stipulated in the tender for the completion of the work shall be deemed to be the essence of the contract. In case of delay the contractor shall in addition to other liabilities mentioned in to

special conditions of contract be liable for all cost of inspection, which may be incurred after the date on which the work ought to have been completed. But if the delay shall have arisen from any cause such as strikes, lockouts, fire, accident, riot, etc. which the owner may admit as reasonable ground for further time, the owner will allow such additional time as he may consider to have been required by the circumstances of the case.

12. PROGRESS REPORT

(1) The contractor shall from time to time tender reports concerning the progress of the contract in such form as may be required by the Chairperson on behalf of Authority.

(2) The submission, receipt and acceptance of such reports shall not prejudice the rights of the owner under the contract, nor shall operate as a stoppage against the owner merely by the reason of the fact that he has not taken notice of or objected to any information contained in such report.

13. CERTIFICATE AND FEES:

All test certificates and other certificates are to be handed over to the owner or his representative on completion of the vessels by the contractor with the report that the vessels are ready for delivery. The contractor shall pay all the fees in connection with the certificates and all royalties or incur other fees during the construction of the vessels.

14. (a) CONTRACT PRICE:

Subject to any deduction and addition authorized by and to the other provisions of this contract, Owner shall pay to the contractor for the building, equipment, testing and delivery at specified destinations, for the vessels including Dry Docking (import and customs Duty) and for all other works, matters, things and obligations to be executed, done, supplied and performed by the contractor under this contract including the provision of the hull inventory as specified (which said amount is herein called the contract price) by the time and in the manner following viz.:

- i) 15% when keel is laid against irrevocable Bank Guarantee. The Bank Guarantee will be returned after delivery of the **two High Powered Tugs** (Vessels).
- ii) 15% when 50% Hull Fabrication and erection is completed.
- iii) 20% when 100% Hull fabrication and erection is completed.
- iv) 20% on arrival of major machineries i.e. main engines, steerable nozzle propellers, auxiliary engines and crane of the tugs.
- v) 15% on launching of the tugs.
- vi) 15% on successful tests and trials and delivery of the tugs.

(b) MOBILISATION ADVANCE

On award of work and execution of agreement a mobilisation advance of 10% of contract price will be given at a simple rate of interest of 15% per annum or the rate as prevailing against furnishing of Non-revocable Bank Guarantee. The mobilisation advance will be recovered in four equal installments from the first running bill i.e. when the keel is laid.

For the mobilisation advance the firm shall have to furnish non-revocable Bank Guarantee and for the first installment of 15% when the keel is laid the firm shall have to furnish Bank Guarantee for the sums being claimed in the forms enclosed, from a nationalised bank or a scheduled bank located in India.

These documents shall be kept valid till full recovery of mobilization advance. There shall not be any additional payment to the contractor for obtaining bank guarantee.

c) SYSTEM OF PAYMENT:

Unless otherwise agreed in writing between Chairperson on behalf of Authority and the Contractor payment for the works shall be made by Chairperson on behalf of Authority, by crossed cheque in installments as in clause 14 (a) upon production of the certificate of the inspector and the Director / Dy. Director appointed by owner for the inspection of the construction of the vessel(s) against the installment due. The contractor must submit the bills and necessary documents allowing 30 days from the date of submission for the payment of installment subject to the condition that the amount of an installment payment shall in no case exceed the value of the work done.

15. OWNERSHIP OF MATERIALS ON PAYMENT OF FIRST INSTALMENT:

Upon payment of the first instalment of the contract price the vessels so far as then constructed and all machinery and materials either wholly / partially constructed or in preparation and set apart from time to time for the purpose of the contract shall become and shall, with all additions thereto, respectively continue to be the property of the owner subject to the purposes of the contract but the owner shall not be liable for any loss or damage by theft, fire, stress of weather or otherwise, however. Upon the due completion of contract all such materials which have not been actually used for purpose of contract shall become the property of and be relinquished to the contractor.

16. DOCK AND HARBOUR DUES, ROYALTIES AND PATENTS:

The contractor shall pay dock and harbour dues, all royalties and other sums of money which shall be or become due or payable in respect of any patented, registered or protected articles or design which shall be used by him in or about the construction of the vessels and shall at all times indemnify the owner and their officers and agents therefrom and from all actions, suits, demands and claims in respect of the said royalties and other sums of money or any of them and from all costs,

charges, damages and expenses in any way arising there out or incidental thereto.

17. WITHHOLDING AND LIEN IN RESPECT OF SUM CLAIMED:

Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the owner shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, deposited by the contractor and for the purpose aforesaid the owner shall be entitled to withhold the said security deposit furnished and also have a lien over the same pending finalisation or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the owner shall be entitled of the such claimed amount or amounts referred to supra, from any sum or sums found payable or which at any time thereafter may become payable to the contractor under the same contract or any other contract with the owner or the government or any person contracting through the owner pending finalisation or adjudication of any such money so withheld or retained under the lien referred to above, by the owner will claim arising out of or under the contract is determined by the arbitrator.

18. INDEMNITY:

(1) The contractor shall at all time indemnify the owner against all claims which may be made in respect of the vessels for infringement of any right protected by patent, registration of designs or trade mark. Provided always that in the event of any claim in respect of alleged breach of patent, registered designs or trade mark being made against the owner, the owner shall notify the contractor of the same and the contractor shall at his own expense either settle any such dispute or conduct and litigation's that may arise there from.

(2) The contractor shall not be liable for payment of any royalty, license fee or other expenses in respect of for making use of patents or designs with respect to which he is according to the terms of the contract, to be treated as an agent of the Government for the purpose of making use of the patent of trade mark for fulfillment of the contract.

19. CORRUPT PRACTICE

(1) The contractor shall not offer or to give to any person in the employment of the Owner or working under the orders of the Chairperson any gift of consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or favour or disfavor to any person in relation to the contract or any other contract with the purchaser.

Any breach of the aforesaid condition by the contract, or any one employed, by him or acting on his behalf (whether with or without the knowledge of the contractor) or the commission of any offence by the

contractor or by any one employed by him or acting on his behalf under chapter IX of the Indian Penal Code, 1860 or the preservation of Corporation Act, 1947 or any other Act enacted for the prevention of corruption by public servants shall entitle the Chairperson on behalf of authority to cancel the contract and all or any other contracts with the contractor and to recover from the contractor the amount of any loss arising from such cancellation in accordance with the provisions of special condition and general condition.

(2) Any dispute or difference in respect of either the interpretation effect or application of the above conditions or of the amount recoverable there under by the purchaser from the contractor, shall be decided by the Chairperson on behalf of authority.

20. INSOLVENCY AND BREACH OF CONTRACT:

The Chairperson on behalf of Authority may at any time, by notice in writing, summarily determine the contract without compensation to the contractor in any of the following events, that is to say:

(i) If the contractor being an individual or if a firm, any partner thereof, shall at any time, be adjudged insolvent or shall have a receiving order or other for administration of his estate made against him or shall take any proceeding for composition under any insolvency act for the time being in force or make any conveyance or assignment of his effects or enter into any arrangement or composition with his creditors or suspend payment or if the firm be dissolved under the partnership act, or

(ii) If the contractor being a company is wound up voluntarily or by the order of a court or a Receiver, Liquidator or Manager on behalf of the debenture holders is appointed or circumstances shall have arisen which entitle the court or debenture- holders to appoint a Receiver, Liquidator or Manager, or

(iii) If the contractor commits any breach of the contract not herein specifically provided for: provided always that such determination shall not prejudice any right of action or remedy which shall have accrued or shall accrue thereafter to the owner and provided also the contractor shall be liable to pay to the owner for any extra expenditure is thereby put to and the contractor shall under no circumstances be entitled to any gain on re-purchase.

21. ARBITRATION

21.1 Except as otherwise provided herein before, all questions, disputes or difference in respect of which the decision has not been final and conclusive arising between the contractor and the authority in relating to or in connection with contract shall be referred for arbitration in the manner provided as under and to the sole arbitrator appointed as follows:

(i) Either of the parties may give to the other notice in writing of the existence of such question dispute or difference.

(ii) Within thirty (30) days of receipt of such notice from either party the Engineer-in-charge of work at the time of such dispute shall send to the contractor a panel of three persons and three after the contractor within fifteen (15) days of receipt of such panel communicate to the Engineer-in-charge the name of one of the person from such panel and such a person shall then be appointed a sole arbitrator by the Chairperson IWAI. However, the arbitrator so appointed shall not be an officer or the employee of the inland waterways authority of India.

(iii) Provided that if the contractor fails to communicate the selection of a name out of the panel so forwarded to him the Engineer-in-charge than after the expiry at the aforesaid stipulated period the Chairperson IWAI shall without delay select one person from the aforesaid panel and appoint him as the sole arbitrator.

21.2 The arbitrator to whom the mater is originally referred being transferred or vacating his office or being unable to act for any reason, then the Chairperson shall appoint another person to act as sole arbitrator, such person shall be entitled to proceed with the reference from the stage at which the predecessor left it.

21.3 The award of the arbitrator shall be final and binding the arbitrator shall decide in what proportion the arbitrator's fees, as well as the cost of Arbitration proceeding shall be borne by either party.

21.4 The arbitrator with the consent of the parties can enlarge the time, from time to time to make and publish his award.

21.5 Where the amount of claim is Rs. 1,00,000 (Rs. ONE LAKH ONLY) and above the arbitrator shall give reasons for the award for each item of Rs 75000 & more.

21.6 The work under this contract shall continue during arbitration proceedings and no valid payments due from or payment by the authority shall be withheld on account of such proceedings except to the extent, which may be in dispute.

21.7 The Arbitration and Conciliation Act 1996 together with any statutory modifications or re-enactment thereof and the rules made there under for being in force shall apply to the arbitration proceeding under this clause.

NOTE: In case of contract with another public sector undertaking the clause 21.1 to 21.7 shall stand deleted and the following arbitration clause shall apply:

“Except as otherwise provided in case of a contract with a Public Sector Undertaking if at any time any question dispute or difference whatsoever arises between the parties upon or in relation to, or in connection with this agreement, the same shall be settled by arbitration in term of the Ministry of Industry, department of Public/enterprises O.M. No. 3/5/93-PMA dt. 30.06.93 or any modification/amendments thereof.”

The Arbitrator shall have the power to enlarge the term to rate the award with the consent of the parties provided always that the commencement or continuation of the arbitration proceeding shall not

result in cessation or suspension of any of other rights and obligations of the parties of any payments due to them hereunder.

The venue of the arbitration proceedings shall be at Noida. It is further clarified that both the parties to this agreement hereby undertake not to have recourse to civil court to solve any of their dispute whatsoever, arising out of this agreement except through arbitration.

22. LAWS GOVERNING THE CONTRACT

i) The laws of India shall govern this contract for the time being in force.

ii) Irrespective of the place of delivery the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender has been issued.

iii) Jurisdiction of Courts-The courts of the place from where the acceptance of tender has been issued shall have jurisdiction to decide any dispute arising out of or in respect of contract.

23. POWERS OF THE OWNER TO TAKE POSSESSION OF VESSELS AND MATERIALS IN CERTAIN CASES AND COMPLETE WORKS:

Subject to the terms of the contract, in the event of the contractor making default in the prosecution of construction of the vessel(s) and machineries or in the event of contractor becoming insolvent or from any cause going or taking steps to go into liquidation (except a voluntary liquidation undertaken with the object of amalgamation or reorganization by separation of departments of the contract into separate companies or taking any steps for compounding with his creditors it shall be component for (but not incumbent upon) the Owner after due notice to the contractor in writing, to take possession of the vessel(s) in her then state and all other materials and machineries and all intended for here, as before mentioned and to complete the vessel(s) and machineries and for this purpose with power to enter into any contract with other contractors or manufacturers, and to use the yard or yards, workshops, machineries and tools of the Contractor or such other contractors or manufacturers with whom the contractor may have entered into sub-contracts and the reasonable cost incurred by the exercise of any of the power of this clause shall be deducted from the purchase money then unpaid, if sufficient, and if not sufficient, shall be made good by the Contractor.

24. APPEAL

If the contractor desires to appeal against the decision of the Inspector against the rejection of any work as not being in accordance with the contract, he shall appeal to the Chairperson within fourteen days after the Inspector's decision and if an appeal is so preferred, the decision of the Chairperson on behalf of Authority shall be final and conclusive.

25. CHAIRPERSON'S CERTIFICATE TO BE FINAL:

Wherever in this contract provision is made for any question, arrangement, amount matter or things being settled, decided, certified or determined by the Chairperson or by the Inspecting authority or officer or by the representative or resting upon or being governed or controlled by or submitted to the judgment or opinion of them/him or any or them/their/his assessment, decision, certificate, determination judgment or opinion shall unless otherwise stated therein be final and conclusive for all purposes and shall be binding on the Authority and the contractor notwithstanding anything contained in this contract.

26. AUTHORITY AND THEIR STAFF NOT TO BE PERSONALLY LIABLE

Nothing in these presents shall be deemed to or shall impose any personal liability of the Authority or their staff.

27. STANDARD BREAK CLAUSE

The owner shall in addition to his power under other clauses to determine this contract have power to terminate his liability there under at any time by giving three months (or such shorter period as may be mutually agreed) notice in writing to the contractor of the owner's desire to do so and upon the expiration of the notice the contract shall be determined without prejudice to the rights of the parties accrued to the date of determination but subject to the operation of the following provisions of this clause.

2. In the event of this, notice being given the Owner shall be entitled to exercise as soon as may be reasonably practicable within that period the following powers or any of them: -

a) To direct the Contractor to complete in accordance with the contract all or any articles, parts of such articles or components in course of manufacture at the expiration of the notice and to deliver the same at such rate of delivery which may be mutually agreed or in detail of agreement at the contract rate. All articles delivered by the contractor in accordance with such directions and accepted shall be paid at a fair and reasonable price assessed on the basis of the contract price when it exists.

b) To require the contractor on receipt of the notice of termination.

i) immediately to take such steps as will ensure that the production rate of the articles specified in the schedule and parts thereof is reduced as rapidly as possible.

ii) as far as possible consistent with (i) above to concentrate work on the completion of parts already in partly manufactured state; and

iii) to terminate on the best possible terms such orders for materials and parts bought out in a partly manufactured or wholly manufactured state as have not been completed, observing in this connection any directions given under this paragraphs (a) and (b) (i) and (ii) above as far as this may be possible.

3. In the event on such notice being given provided the contractor has reasonably performed all the provisions of the contract binding upon him down to the date of this notice.

a) The Owner shall take over from the contractor at a fair and reasonable price (assessed on the basis of the contract price of the completed articles), all unused, undamaged and acceptable materials, bought out components and articles in the course of manufacture in possession of the Contractor at the expiration of the notice and properly provided by or supplied to the contractor for the performance of this contract except such materials, bought out components are supplied to the contractor through the intervention of the owner or on his behalf:-

(i) the said fair and reasonable price shall be assessed on the basis of the cost price of such materials and/or components, and

(ii) If the contractor elects to retain any materials, bought-out components and articles as in this clause provided, he shall settle all claims of supplier in respect of the materials and/or components supplied to him as aforesaid including any claims to any extra charge (if the original stipulated terms and been concessional) and shall keep the owner indemnified against the same:

(b) The Contractor shall deliver in accordance with the direction of the Owner all such unused, undamaged and acceptable materials, bought out components and articles in course of the manufacture (except as aforesaid) taken over by or previously belonging to the Owner and the Owner shall pay to the Contractor fair and reasonable handling and delivery charges therefore,

(c) The Owner shall indemnify the contractor against the commitments, liabilities or expenditure which in the opinion of the Owner are reasonable and properly chargeable by the contractor in connection with the contract to the extent to which the Owner is satisfied that such commitments, liabilities or expenditure would otherwise represent and unavoidable loss by the contractor by reason of the termination of the contract. Provided that in the event of the contractor not having observed any direction given to him under the sub clause (2) hereof the Owner shall not be liable under the sub clause to pay any sums in excess of those for which the Owner would have been able had the contractor observed that direction.

4. If in any particular case exceptional hardship to the contractor should arise from the operation of this clause it shall be open to the Contractor to refer the circumstances to the Chairperson who on being satisfied that such hardship exists shall make such allowance if any as in his opinion is reasonable.

5. The Owner shall not in any case be liable to pay under the provisions of this clause any such sum which when taken together with any sums paid or due to becoming due to the contractor under this contract shall exceed the total price of the article specified in the schedule payable under this Contract.

6. The Contractor shall in any substantial order or sub-contract planned or made by him in connection with or for the purpose of this contract take power wherever possible by securing the acceptance of the sub-contractor to terminate such order or sub-contract in the event of the termination of this contract by the Owner of this clause and save only that: -

(a) The name of the contractor shall be substituted for the owner throughout except in sub-clause 3 (c) where it occurs for the second and third times;

(b) The period of the notice of termination shall be two months or such shorter period as may be mutually agreed upon). Substantial order or sublet contracts of or over Rs. 1,00,000 (Rupees One lakh) in value.

B. Time Control

28. Programme

28.1 The Contractor shall submit to the Owner for approval a programme showing the general methods, arrangements, order, and timing for all the activities in the Works, along with cash flow forecasts.

28.2 An update of the Programme shall be a programmed showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities. This update is to be sent at monthly intervals.

28.3 The Owner's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Owner again at any time. A revised Programme shall show the effect of Variations.

29. MANAGEMENT MEETINGS

29.1 The Owner may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the plans for the Works.

29.2 The Owner shall record the business of management meetings and provide copies of the record to those attending the meeting. The responsibility of the parties for actions to be taken shall be decided by the Owner either at the management meeting or after the management meeting and stated in writing to all those who attended the meeting.

C. QUALITY CONTROL

30. IDENTIFYING DEFECTS

The Owner or the inspector shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Owner or the inspector may instruct the Contractor to search for a Defect and to uncover and test any work that the Owner considers may have a Defect.

31. TESTS

31.1 The contractor shall be solely responsible for :

1. Carrying out the mandatory tests prescribed as per ship building practice and
2. For the correctness of the test results, whether preformed in his laboratory or elsewhere.

31.2 If the Owner instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples.

32. CORRECTION OF DEFECTS NOTICED DURING THE DEFECT LIABILITY PERIOD.

32.1 If any defects including workmanship of hull, structure, performance of engines, machineries, stern gear or any other part appear within twelve months of "Taking over" certificate, the Owner shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion, and is for twelve months thereafter. The Defects Liability shall be extended for as long as defects remain to be corrected.

32.2 Every time notice of a defect is given, the Contractor shall correct the notified defect at his own cost within the length of time specified by the Owner's notice. If the contractor is in default the Owner shall cause the same to be made good by other workmen and deduct the expense from any sums that may be due to the contractor.

33. UNCORRECTED DEFECTS

If the Contractor has not corrected a Defect, to the satisfaction of the Owner, within the time specified in the Owner's notice, the Owner will assess the cost of having the Defect corrected, and the Contractor will pay this amount, on correction of the Defect.

D. COST CONTROL

34. ACTIVITY SCHEDULE

The Activity Schedule shall contain items for the construction, installation, testing, and commissioning works to be done by the Contractor. All variations shall be included in updated programmes and

Activity Schedules produced by the contractor. When the Programme or Activity Schedule is updated, the Contractor shall provide the Owner with an updated cash flow forecast.

35. PAYMENTS

Payments shall be adjusted for deductions for advance payments, security deposit, other recoveries in terms of the Contract and taxes at source, as applicable under the law.

36. TAX

The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other levies, duties, royalties, cess, toll, taxes of Central and State Governments, local bodies and authorities that the Contractor will have to pay for the performance of this Contract. The Owner will perform such duties in regard to the deduction of such taxes at source as per applicable law.

37. CURRENCIES

All payments will be made in Indian Rupees.

38. TERMINATION

38.1 The Owner may terminate the Contract if the Contractor causes a fundamental breach of the Contract.

38.2 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 authorized by the Engineer-in-Charge;
- b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;
- c) the Engineer-in-Charge/Owner 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-in-Charge;
- d) the Contractor does not maintain a Security, which is required;
- e) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in clause 14 of the special conditions of contract.
- f) the Contractor fails to provide insurance cover as required under clause 17 of the special conditions of contract.

g) if the Contractor, in the judgment of the Owner, has engaged in the corrupt or fraudulent practice in competing for or in executing the Contract. For the purpose of this clause, "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in Contract execution. "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Owner and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid process at artificial non-competitive levels and to deprive the Owner of the benefits of free and open competition.

h) if the Contractor has not completed at least thirty percent of the value of Work required to be completed after half of the completion period has elapsed;

i) any other fundamental breaches as specified in the contract data.

38.3 If the Contract is terminated, the owner may complete the balance works at the risk and cost of the contractor.

39. COMPLIANCE WITH LABOUR REGULATIONS

During continuance of the Contract, the Contractor and his sub Contractors 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 owner and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local owner. Salient features of some of the major labour laws that are applicable to construction industry are given in Appendix to Part I General Condition of Contract. The Contractor shall keep the Owner indemnified in case any action is taken against the Owner by the competent owner on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Owner 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/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer-in-Charge/Owner shall have the right to deduct any money due to the Contractor including his amount of performance security. The Owner/Engineer-in-Charge shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Owner.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Owner at any point of time.

Contract Data to General Conditions of Contract

Clause Reference

1. The Owner is IWAI represented by [Cl.1(i)]
Chairperson, IWAI
Address: A-13, Sector-1, Noida.
2. The Engineer-in-charge is: (Will be intimated later)
Designation: Director (Marine)
Address: A, 13, Sector – 1, Noida [Cl.1(i)]
3. The place of delivery is Kolkata.
4. The Start Date shall be within 15 days after the date of issue of the
Notice to [Cl.1(i)] Proceed with the work.
5. (a) The name and identification number of the Contract is :
“Construction and supply of two High Powered Tugs for NW-1 & NW-2”.
6. The standard form of Performance Security acceptable to the Owner
Shall be an unconditional Bank Guarantee of the type as presented in
the Bidding Documents.
[Cl. 38]

PART - II

SPECIAL CONDITIONS OF CONTRACT

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PART - II

SPECIAL CONDITIONS OF CONTRACT

(Two High Powered Tugs for NW-1 & NW-2)

1. PERFORMANCE OF THE WORK:

The work shall be performed at the place or places named in the tender or at such other place or places as may be approved by the Owner.

2. SPECIFICATION:

In particular and without prejudice to the foregoing condition, when tenders are called for in accordance with the particulars, the contractor's tender to supply the vessel in accordance with such particulars shall be deemed to be an admission on his part that he has acquainted himself with the details thereof and no claim shall lie against the owner on the ground that the contractor did not examine or acquaint himself with such particulars.

3. GUARANTEE FOR THE MAIN ENGINES AND EQUIPMENTS SUPPLIED

The contractor will be required to obtain and furnish a guarantee for the main engines and auxiliaries, machineries fitted on the vessel to the effect that General spares suppliers will be in a position to supply the spare parts of the engines and other machineries and the spares will continue to be available from the stock for a period of at least seven years from the date of the receipt of the machineries and equipments.

4. MISTAKE IN DRAWINGS:

The contractor will be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the drawings or other particulars supplied by him whether such drawings or particulars have been approved by the Owner or not, provided that such discrepancies, error or omission be not due to inaccurate information or particulars furnished to the Contractor on behalf of the Owner. If any dimensions figured upon a drawing or plan differ from those obtained by scaling the drawing or plan, the dimensions as figured upon the drawing or plan shall be taken as correct.

5. VARIATIONS (i.e. MODIFICATIONS) IN DESIGN AND DIMENSION:

Should any alterations in or additions to the works as specified in the said specifications not involving extra cost to the Contractor be considered necessary or expedient by the Contract or by the owner or the Inspecting Owner or Officer and be mutually agreed on in the writing the Contractor shall execute the same without any charge beyond the Contract Price. But if the owner shall desire any alteration or additions involving extra cost to the contractor before executing the same shall tender to the owner a written offer

stating the nature and cost of such alterations or additions and the extension of time if any required for making them and if the owner shall accept the said offer and allow such extension of time in writing the Contractor shall be bound to execute the work. No extra work shall be executed by the Contractor or if executed shall be paid for to the Contractor except such as may be embraced in such offer and acceptance. The Contractor shall allow the owner the value as shall be mutually agreed in writing or any materials and value as shall be mutually agreed in writing or any material and workmanship dispensed with by any such alterations or additions.

Provided that no such variations shall except with the instructions from the Inspector as to carry out the work which either then or later will in the opinion of the contractor, involve a claim for additional payment, the Contractor shall, as soon as reasonably possible after receipt of instructions aforesaid advice the Inspector to that effect.

6. APPROVAL OF DRAWINGS WITH CONSENT OF OWNER

The detailed drawings so prepared from the general arrangements drawing should be got approved from owner or his authorised officer/agency. Approved statutory body/Classification Society will give approval of all construction drawings. However, other drawings such as General Arrangement, Machinery layout, system control drawings and particular of all equipments to be installed shall be forwarded to owner or his authorized Officer for his approval. Copies of all drawings to be sent to the owner, IWA will be the Owner of such design and drawings of the vessel.

7. CONTRACTOR TO CONSTRUCT, EQUIP, TEST AND DELIVER THE VESSEL.

Subject to and in accordance with the provisions of the Contract, the Contractor shall in the best and most workman like manner and with material, thing and workmanship respectively of the best kinds build, equip and test to the satisfaction of the Owner and deliver to the representative in the condition provided by this Contract, the vessel of the description dimensions containing the accommodation and supplied with all apparatus, permanent and temporary fittings, outfit and gear and the spare gear mentioned and described in or to be informed from the modifications hereto attached and from the specifications furnished by the Contractor and accepted by him (Owner) for the purposes of this Contract, both of which hereinafter called the said specifications hereto attached and from the plan or plans which have for purposes of identification been signed on behalf of the Owner and by the Contractor and shall supply and deliver as hereinafter mentioned the spare parts as specified in all respects with this contract, the said specifications and the said plans, supplementary drawing, instructions and explanations as shall from time to time hereinafter be furnished and given by the contractor to and be approved by the Owner the contractor shall also in manner aforesaid when requested by the Owner supply further drawings and execute supply and complete to the satisfaction of the Owner all other works, materials and thing mentioned and described in or to be inferred from the said specifications and the said drawings furnished and given to and approved by the Owner shall provide to the satisfaction of the Owner, labour, superintendence, power,

materials and things which shall be requisite for the due performance, execution and completion of all and every work, matters and thing hereby contracted to be executed and done.

8. Contractor to include execution and supply of all work matters and things required by Owner for due performance of Contract:

This contract shall be deemed to comprise the design of **High Powered Tugs**, construction, testing, installation of the equipment/machineries and delivery complete in working order in all respects of the vessels together with the equipment and all other things to be supplied in connection therewith and the due performance, execution and completion of all works, matters and thing necessary or proper for such construction, installation of equipment/machineries and delivery at the price hereinafter mentioned and accordingly the Contractor shall execute all works and find and supply all things which the Owner or the inspecting Owner or officer shall consider necessary proper according to the direction of the Owner or inspecting authority or officer and to their satisfaction according to the true intent and meaning of this Contract and notwithstanding that any such work or things respectively may not be expressly mentioned for referred to in the said specification and the said plans and the Contractor shall not be entitled to any payment or allowance whatsoever in respect thereof unless such payment or allowance is, in the opinion of the Owner, occasioned on account of such modifications of the said Contract, as have been agreed to in writing by the Owner.

9. INSPECTION

(a) Obligation to carryout Inspector's instructions

The Contractor shall satisfy the Inspector that adequate provision has been made, (i) to carry out his instructions fully and with promptitude (ii) to ensure that parts required to be inspected before use are not used before inspection; and (iii) to prevent rejected parts being used in errors. Where parts rejected by the inspector have been rectified or altered, such parts shall be segregated for separate inspection and approved before being used in the work.

(b) Inspection and testing during progress of work:

The Contractor shall offer the Owner or the Inspecting authority or Officer all proper and reasonable facilities for examining inspecting and testing the materials, machinery and workmanship used or intended to be used or employed during the progress of the construction and installation of equipment of the vessel and on completion thereof shall also supply free of charge such apparatus, materials, tools or labour as may be required from time to time for the purpose of such examinations, inspections and testings. The Owner, the Inspecting authority or officer shall have access to the place or places where any part of the machinery or equipment is being constructed or is stored at all reasonable times during the execution of this Contract and in case any part of the work shall have been covered or closed without previous inspection the Contractor shall if required open such part or parts wherever necessary to enable the Owner or Inspecting authority or Officer to inspect the part so opened up at the expense of the Contractor.

(c) Intimation for Inspection & Cost involved

The Contractor shall inform the Inspector in writing when any portion of the work is ready for inspection, giving him sufficient notice to enable him to inspect the same without retarding the further progress of the work. No portion of the work shall be considered completed in accordance with the terms of the contract until the Inspector shall have certified in writing that it has been inspected, and approved by him. The expense incurred in the inspection and / or tests at the place agreed upon the contract will be defrayed by the owner, provides that the results are the event of inspection and or tests providing unsatisfactory and resulting in the non-acceptance of the plan/structure or any portion thereof, the cost of such re-inspection and / or tests shall be borne by the contractor.

10. Replacement of defective work, material and fittings

All materials, machinery and workmanship used and employed in carrying out this Contract shall be to the entire satisfaction of the Owner or the Inspecting Owner or Officer. Any portion or portions of the material, machinery or any of the works done under this Contract which may be considered by the Owner or the Inspecting Owner or officers to be defective or unsatisfactory or not in accordance with the said specifications and plans and the requirements of the vessel shall be replaced in a manner satisfactory to the Owner or the Inspecting Owner or Officer at the sole expense of the Contractors

If the Inspector shall find any work to be not in accordance with the contract, he shall be entitled to give the Contractor notice thereof and the Contractor shall forthwith make the defective work good or alter the same to make it comply with the requirements of the contract. Should he fail to do so within a reasonable time (as to which the Inspector shall be the judge), the owner may reject and replace at the cost of the contractor the whole or any portion of the work as the case may be, which is defective or fails to fulfil the requirement or the contract. Such replacement shall be carried out by the Owner within a reasonable time to the same specifications and under competitive conditions. The Contractor's full and extreme liability under this clause shall be satisfied by the payment to the owner, of the extra cost, if any, of such replacement delivered and / or constructed as provided for in the original contract, such extra cost being the ascertained difference between the price paid by the Owner, under the provisions above mentioned, for such replacement and the contract price for the work so replaced, and the repayment of any sum paid by the owner to the Contractor in respect of such defective work. Should the Owner not so replace the rejected work within reasonable time, the Contractor's full and extra liability under this clause shall be satisfied by the repaying of all money paid by the Owner to him in respect of such work.

11. TRIALS

Forthwith after the completion of the vessel in strict conformity with the Technical specifications under this contract the vessel shall undergo, in the presence of the Owner and the Inspecting Owner or Officer or their representative trials near the yards of construction or any other places as

mutually agreed upon in accordance with the provisions of the specifications and as directed by the Owner or the Inspecting Owner or Officer.

The said trials shall be at the sole expenses and risk of the Contractor who shall pay and discharge all costs and bear all liabilities whatever arising out of the same. The contractor shall supply all crew and officers, fuel, gear and equipment required for the trials, all at his own expenses and shall also be responsible for all risks to the vessel(s) and other craft or to any person or property during the continuance of such trials and make good any damage which may arise in consequence thereof and indemnify the owner and his Officers / and servants therefrom and from all claims, action, suits and proceedings and all costs, charges and expenses in respect thereof or in any way arising there out or incidental thereto. Provided that all claims in respect of the owner shall meet the employee's representatives of the Owner.

12. DELIVERY

(a) Preparing for voyage and delivery

Immediately after completion of satisfactory trials the Contractor shall proceed to make the Vessel ready for the delivery at specified destination and shall thereupon deliver the vessel or cause the same to be delivered in a proper and seaman like manner at their own risk at the said specified destination and deliver the same in the charge of the representative in such suitable place and position as may be indicated by him complete with all necessary certificates and licences and in a good, complete and satisfactory condition of repair, fair wear and tear, consequent on the voyage accepted and with all stores and equipments in the specification mentioned or herein provided for on board, any damages incurred (other than fair wear and tear) or defects discovered during such navigation being made good by the Contractor at his own expenses prior to such last mentioned delivery. A sufficient crew and all engines and other necessary and usual stores and equipment are to be provided for the delivery by the Contractor and all costs and charges of every description in connection with the delivery are to be borne by the Contractor and all dock, canal and harbour dues and charges are to be paid by him.

The contractor shall comply with all Department of Shipping Rules, if any, and must also satisfy the requirements of the insurance broker, underwriters and surveyors and not do anything or leave anything undone where by the cost of insurance premium is increased. Should the cost of insurance be in any way increased by the failure of the contractor to meet such requirements, any such increased cost shall be borne by the contractor.

(b) Spare Parts

The spare parts for 5000 hrs operation of vessel are required to be supplied along with the vessel. The cost of spares is to be included in the basic cost of vessel. A list of spares parts indicating its specification and number of parts are to be given separately.

Should it be necessary for the Contractor to send any of the spare parts by the separate means, the contractor shall be responsible for the cost of delivery

and also for the proper packing, storage and protection whilst on the board and for their subsequent reception and delivery to the representative.

(c) Provision as to Trials

As soon as the vessels shall have been re-equipped and made ready for work to the satisfaction of the representative it shall then undergo such trial as their representative may require to demonstrate that neither the hull, machinery nor any other parts of the vessel have been damaged during the delivery and that all are in good working order and that the vessel is upto the standard required when working under local conditions. Any defect noticed during such trials shall be rectified by the Contractor to the satisfactory of the Owner / Inspector or the representative.

(d) Vessels to be at Contractor's risk until the issue of certificate of delivery

The said delivery and re-equipment of the vessel at the specified destination shall be at the expense and risk of the contractor who shall pay and discharge all costs and liabilities thereof and connected therewith and shall continue to be responsible for the safety of the vessel until the Owner or his representative shall have accepted delivery thereof as hereinafter mentioned. If any loss (whether total or otherwise) shall be sustained or incurred by the vessels by any means or from any cause either during the delivery or before acceptance by the Owner then and in any such case the Contractor shall at his own expenses forthwith make good such loss subject in the case of total or constructive total loss to the provision of this contract.

(e) As to acceptance of delivery

When and as soon as the vessel shall have been duly re-equipped and made ready for work in accordance with the specifications and shall be in a complete and satisfactory condition with their certificates, licences and outfits and spare gears enumerated in the specifications on board then the vessel shall be delivered to the representative of Owner who shall thereupon give to the Contractor or to such other persons who may be appointed by the contractor to receive the certificates of such delivery and of the date thereof and the granting of such delivery and of the date thereof and the granting of such certificates shall along be evidence of the acceptance by the owner of the delivery and of the date thereof.

(f) Power for representative to dismantle and re-equip the vessels in default of Contractor

If after the arrival of the vessel at the specified destination the contractor shall fail to dismantle any equipment/machineries of the vessel and re-equip and make them ready in all respects for work to the satisfaction of the of the representative or shall in the opinion of the representative be carrying on such dismantling, re-equipment and making ready for work negligently, improperly or so slowly as to cause or be delayed then in any such case the representative on behalf of the Owner may without vitiating this Contract take

the vessel out of the possession of the Contractor and employ any persons or workmen upon such terms as he may think fit to dismantle and re-equip the vessel and make them ready for work in accordance with the specifications and this Contract and to perform any of the other obligations of the contractor under this contract which shall remain to be performed and the contractor shall pay to owner such a sum as shall be certified in writing by the representative to represents to costs and expenses incurred by the owner or the representative by reason or in course of the exercise of any of the powers conferred on the representative under this clause or the owner may at his option deduct such sum from the contract price.

(g) Penalty for deficiency in speed of the vessel

The builder shall give full guarantee in every respect in accordance with the provisions of the specifications for the construction of the fully river worthy vessel constructed out of the best material of international shipbuilding quality and workmanship with good stability as also for faultless execution of work in all its details. The total contract price of the vessel shall have to be affected or changed, by reason of the actual speed, as determined by trial runs, in accordance with the specifications, being less than the guaranteed speed under the terms of the attached specifications, if the actual speed is less than three-tenth (3/10) of knot below the aforementioned guaranteed speed.

However, commencing with and including a decrease of three-tenth(3/10) of a knot in actual speed below the trial speed of the vessel, the total contract price of the vessel shall be reduced for deficiency in speed as follows (but disregarding fractions of less than one-tenth(1/10), of knot):

For three-tenths (0.3) of a knot	1% of the basic cost of the Tug
For four-tenths (0.4) of a knot	3% of the basic cost of the Tug
For five-tenths (0.5) of a knot	10%of the basic cost of the Tug

If the deficiency in actual speed of the vessel upon said trial runs, is more than 0.5 knot below the trial speed as provided herein above, and the builder is not able to rectify even by an extension of the delivery period, then the owner at his option may reject the vessel and rescind this contract or may accept the vessel at a reduction in the price as may be agreed between the parties.

(h) Penalty for deficiency in draft of the vessel

The total contract price of the vessel has to be affected or changed by reason of the actual max. draft with full bunker, water, personnel and stores as determined by actual measurement in accordance with specification being more than that specified in the attached specifications if the actual draft is more than 50mm.

However, commencing with and including an increase of 50mm in actual draft the total contract price of the vessel shall be reduced for deficiency in draft as follows:

Up to 100mm of draft (1.80m draft): **5% of the basic cost of the Tug.**

Up to 150mm of draft (1.85m draft): **10% of the basic cost of the Tug.**

If the actual draft of the vessel is more than 1.85m and builder is not able to rectify even by an extension of delivery period, then the owner at his option may reject the vessel and rescind the contract or may accept the vessel at a reduction of the price as may be agreed between the parties.

13. Number of workmen and rate of progress to be increased on requisition of the Owner.

The contractor shall at all times during the progress of the construction and installation of equipment and machineries of the vessels and subject to the limits of his control in the matter of labour employment and sufficient number of skilled workmen and labour employment and sufficient number of skilled workmen and labourers with necessary overlooks and proceed with the works hereby agreed to be executed (hereinafter referred to as the "workers with such despatch as in the opinion of the Owner or Inspecting Owner or Officer shall be necessary in order to secure the due completion of the vessels within the time limit for that purpose by the contract and shall also at times during the progress of the works upon being required to do so by the Owner or the Inspecting Owner or officers hasten the rate of progress of the vessels and of the work in accordance with any such requisition and to the satisfaction of the Owner or the Inspecting Owner or Officer PROVIDED ALWAYS that nothing herein contained nor anything done or omitted to be done by the Owner or the inspecting Owner or officer on behalf of owner in pursuance hereof shall be deemed to release the Contractor from or diminish or affect obligation to complete the vessel within the limit by this Contract or their liability in respect thereof.

14. Liquidated damage for delay in the delivery and Force Majeure

If the contractor fails to deliver the High Powered Tugs within the period fixed for such delivery or at any time repudiates the contract before the expiry of such period the Owner may without prejudice to his right, recover damages for breach of the contract damages equivalent to 0.5% of the price of the High Powered Tugs which the contractor has failed to deliver within the period fixed for delivery for each week or part of a week subject to a maximum of 10% of High Powered Tugs price, where delivery is accepted after expiry of the aforesaid period and in case of repudiation of the contract, the security of the contractor shall be liable to be forfeited and shall also be liable for any loss which the Owner may sustain on that account. PROVIDED ALWAYS that if the Engineer-in charge shall certify in writing that such delay or any portion thereof has arisen either in connection with the works of the Contractor or their authorised subcontractor due to Force Majeure or other cause which in the opinion of the Engineer-in charge on behalf of Authority were unavoidable and could not be foreseen or overcome by the Contractor then and in such cases the liquidated damages shall not be payable in respect of the period certified to be due such cause and the Engineer-in charge on behalf of Authority shall have power to extend accordingly the time fixed for completion.

The term Force Majeure shall herein means Riots (other than among the contractor's employees) Civil commotion (to the extent not insurable), War (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power, damage from aircraft, nuclear fission, acts of God such as earthquake (above 7 magnitude in Richter scale), lightning, unprecedented floods, fire not caused by contractor's negligence and other such causes over which the contractor has no control and are accepted as such by the Chairperson whose decision shall be final and binding. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under this contract, the relative obligation required to be performed by them under this contract the relative obligation of the party affected by such Force Majeure cause lasts, provided the party alleging that it has been rendered unable as aforesaid, thereby shall notify within 15 (fifteen) days of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of such cause.

For delays arising out of Force Majeure, the bidder will not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force Majeure and neither the Authority nor the bidder shall be liable to pay extra costs provided it is mutually established that Force Majeure conditions did actually exist.

If any of the Force Majeure conditions exists in the places of operation of the bidder even at the time of submission bid, he will categorically specify in his bid and state whether they have been taken into consideration in their quotations.

15. Defect Liability

In the event of any defect being discovered in any part of the vessels, the machineries or equipments or fittings (which is not attributable to fair wear and tear of the vessel nor to improper management on the part of the official staff of the vessel during a period of 12 calendar months from the date of the delivery certificate, the Contractor shall supply to Owner or their representative at the specified destination new parts to replace any that may be proved to have been so defective or shall pay to Authority such sum as it would cost the Contractor to supply such parts for replacement from the Contractors works.' The cost of receiving any such defective parts and or fitting such parts in replacement thereof shall be borne by the Contractor or be adjusted as liquidated damages from the security deposits/payment of last instalment of the contract price to such amount as it would in the opinion of the Owner have cost the contractor if the removing and replacing had been done at their works. The contractor shall also be entitled to have any workmanship or material claimed to be defective inspected by a representative to be appointed by them for that purpose or should the Contractor so require, Owner shall be bound to consign to the Contractor at his works in and at the Contractors expenses the parts claimed by the Owner to be defective so that the contractor may have an opportunity of satisfying himself as to the defect complained of and also be in position to operate his relief if any against any sub-contractor in respect of such defective parts.

16. Registration of Vessels

The Contractor shall give all such builders and other certificates and documents and do such other acts and things as may be necessary or proper on his part for the registration of the vessel in the name of the Owner to the representative or other agent of the Owner whom the Owner may appoint for that purpose. Failing this the Contractor must arrange for the vessels to proceed to the specified destination under a "Pass" from the appropriate authorities at any port and all fines payment or penalties which may become payable by the Owner, the representative of the said agent by reason of any defect in such registration or during the delivery of the vessel to the specified destination shall be paid by the Contractor or may be deducted from the money payable to him under this contract and he shall indemnify the Owner, the representative and the said agent respectively there from and from all claims, actions, suits and proceeding and all costs, charges and expenses in respect thereof.

17. Insurance

The Contractor shall at his own cost fully insure and keep insured in the joint names of the Owner and the Contractor the vessel and the machineries, materials and thing used or intended for use in the construction and outfit thereof. Hull insurance and machinery insurance may be done by the Builder but the insurance cover should cover the effected payment as well as the extent of work completed. The contractor is also to keep insured the value of any modifications, additions and spare parts as may be agreed upon from time to time during the construction of the vessel.

The Policy/Policies shall be effected with reputable Insurance Company approved by the Govt. and shall comprise insurance against fire, launching and all other risks, accidents and damages excluding War Risk which for the time being can be covered by insurance during and after the construction of the Vessel and while she remains in the harbour or the yard of construction or when engaged on or in connection with any trials made under this Contract as well as the perils of the river and all other risk of every kind including War Risk so far as they are insurable, or whilst lying therein or on a slipway or in a dry dock or being tried near thereto previous to being accepted by Owner and the Contractor shall from time to time (if from any cause the vessels shall not be delivered to and accepted by the Owner during the term of such policies) renew and said insurance and pay and continue to pay all premium which shall become payable in respect of such insurance and within seven days from the date when such renewed insurance is effected or premium paid shall deliver to the Owner the policy or policies thereof and the receipts for such premium PROVIDED ALWAYS that in case of default by the Contractor to keep up the said insurance or to effect any such renewal insurance as aforesaid then the Owner if they shall think fits shall be at liberty to do so and thereupon the Contractor shall repay the owner the amount of the premium paid by them or the Owner shall be at liberty at his option to deduct the amount thereof from any sums payable to the Contractor under this contract PROVIDED ALSO that nothing wherein contained nor anything done or omitted to be done by the Owner in pursuance hereof shall be deemed to release the Contractor from diminish or affect his obligation to keep the

vessels machineries, materials and thing insured to the full amount of the value therefore from time to time in accordance herewith until her acceptance at the place of delivery mentioned in the Contract nor shall diminish or affect the liability of the Contractor in respect thereof. If any event shall happen giving rise to a claim under the insurance policy to be effected under this clause or if the vessel shall become a total or constructive total loss on the delivery to specified destination or after the arrival there and before the acceptance by the representative owing to perils of the river or other risks insurance so far as they are insurable to be effected for the delivery at the specified destination the Owner without prejudice to the rights to have this contract performed within such extended time and at such price as may be mutually agreed and failing agreement determined by the Owner shall give the money which shall become payable under whichever of the said policies the claim shall arise and retain the same paying the contractor the difference between the aggregate of such sums as they may have previously paid the contractor under this contract and such total amount as the Owner may certify would have been payable to the contractor if this contract had been terminated. Provided that if the vessels are covered against War Risks the premium on the account shall be payable by Owner.

18. Guarantee Engineer

After delivery of the vessels the contractor shall post one Guarantee Engineer meant for both the tugs for a period of 6 months. During this period the Guarantee Engineer should ensure successful operation of all engines and machineries on board the tugs by rectifying any defects which are noticed during such operation, so that the engines and machineries are made stable for a trouble free operation in the time to come. This is desired to ascertain initial trouble shootings, efficiency in replacing parts with spare with least downtime besides imparting training to the crew on board.

19. Manning During Guarantee Period

During the guarantee period of one year for effective operation and maintenance, the contractor shall provide certified Master, Driver and other four crew on board each of the tugs. Remuneration and other statutory charges e.g. ESI, PF, Insurance etc. including contractors overhead and profit shall be paid to the contractor on submission of monthly bill during the period of engagement, rates for these shall be separately quoted in the format given in the Cost Schedule.

The tugs shall be operated under the guidance of IWAI. P.O.L & other consumable shall be supplied by IWAI. However, repairs and maintenance under guarantee obligations as well as routine maintenance are to be carried out by the contractor.

On completion of guarantee period the tugs shall be handed over to IWAI after ascertaining the operational condition of various engines, machineries and other equipment. Based on which the 'No Demand Certificate' shall be issued as per clause no. 8(5) of General conditions of contract.

TECHNICAL SPECIFICATIONS

(SECTION-V)
HIGH POWERED TUGS

SECTION – V

TECHNICAL SPECIFICATION OF HIGH POWERED TUGS

1 GENERAL

1.1 Intent

The purpose of this document (hereinafter called the “**Specifications**”) together with the attached guidance General Arrangement Plan is to outline the technical and functional requirements for the supply and delivery of **two high powered_Tugs** (hereinafter called the “**Vessel**”) for the Inland Waterways Authority of India.

The vessel including all its material, equipment, piping, machinery, workmanship, etc., shall be in accordance with these specifications and the General arrangement plan, and to the requirements of the classification Society as also regulatory bodies, which are mentioned hereinafter and shall be fully documented as required by these bodies.

All fittings, arrangements, systems and equipment not mentioned in the specifications/drawing but required under Classification rules and other statutory requirements shall be provided at no extra cost. Anything not described or left out of this specification, but being considered as normal and necessary for the intended services, shall be supplied and fitted without extra charge.

1.2 Design Conditions and Basic Requirements

1.2.1 Design Conditions

The following ambient conditions are to be considered for the selection of ship’s equipment and machinery: -

- Maximum outside air temperature of 45°C with 90% relative humidity.
- Air temperature of 50°C with 90% relative humidity in the engine room.
- Maximum seawater temperature of 32°C.
- Atmospheric pressure of 760 mm Hg.

1.2.2 Basic Requirements

The Vessels are intended for operation in all weather conditions in the National Waterways 1 & 2 and accordingly it should be suitable for operation in Zone - 1. The vessel shall be utilized for shifting and placing of terminal barges and crane pontoons at different terminals locations, shifting, transporting and laying of navigational buoys, fire fighting and assistance to vessels on distress/rescue operations. The design of the tug shall be finalized for construction after carrying out model testing in a reputed model testing

tank as per usual procedure. The model testing shall be carried out in the presence of owner's representative.

1.3 **Description of the Vessel**

1.3.1 **Principal particulars**

The particulars given below are approximate and indicative. Hence, selection of main dimensions is the builders responsibility to achieve the bollard pull, and the speed of at the maximum draft as indicated after detail design & scale model testing in a reputed model testing tank.

Length Overall	:	26-28.00 m
Length(BP)	:	25-27.00 m
Breadth Moulded	:	7.0-8.0 m
Depth	:	2.80 m (max)
Draft (Max)	:	1.70m (fully loaded draft)
Bollard pull	:	12 tonne
Complements	:	8 nos

1.3.2 **Capacity**

Fresh Water Capacity	:	10 tonne
Fuel Oil Capacity	:	10 tonne

Adequate ballast water capacity (about 30 t) shall be provided to achieve minimum required forward and aft drafts in all loading conditions as per the rules.

1.3.3 **Trial Speed**

Vessel shall achieve an average trial Speed of 10.0 knots in forward moving condition of fully loaded with materials in still water condition.

1.3.4 **Bulkheads**

The vessel shall be divided into 5 (Five) compartments namely Engine room, store space, tank space and Fore peak compartment as shown in the GA plan.

1.3.5 **Main Engines and Auxiliary Machinery**

Two (2) Nos. high-speed Marine Diesel engines, each developing 530BHP at 1800 rpm to attain the desired speed shall be provided with steerable nozzle propeller.

Two (2) Nos. Diesel Generator sets with 50 kVA and 25 KVA capacity each shall be provided. The 50 KVA Generator shall be capable of taking the entire electrical load of the vessel while the vessel is in operation. The 25 KVA generator will provide necessary power when the vessel is at rest. The non-working generator will also be the standby power source at any time.

1.3.6 Lifting Gear

The vessel will be provided with a davit on the deck with a lifting capacity of 0.50 tonnes and maximum outreach of 6 m for handling the workboat and other materials.

1.4 Classification, Regulations and Certificates

1.4.1 Classification and Regulation

The vessel with her equipment and machinery shall be constructed in accordance with the rules and regulations for the Inland vessels and Waterways by a classification society being the member of international Association of classification society (IACS).

The vessel shall be built under the specification survey of Owner's consultants.

The vessel shall be registered, as a High powered tug at Kolkata under the IWT Directorate, Govt. of West Bengal, as per the relevant rules and regulations of I.V Act of 1917.

Life Saving appliances, Navigational aids, Fire Fighting appliances and the light and sound signals shall conform to the requirements of IV rules and regulations of IWT Directorate, Govt. of West Bengal / as framed by the state government where the vessel is to be registered.

All costs and fees for inspection and approval of Statutory Bodies for the necessary certificates shall be borne by the Builder.

1.4.2 Certificates

The builder shall obtain the following certificates/documents and deliver to the owner at the time of the vessel's delivery.

The original certificates with three copies shall be handed over prior to delivery or framed and kept onboard as the case may be.

a) Issued by appropriate authorities as applicable for this class of vessel.

- 1) Inclining Experiment Report.
- 2) Trim and Stability booklet.
- 3) Certificate of tonnage (GRT/NRT).

b) To be issued by classification Society.

- 1) Building Certificates for construction.
- 2) All Certificates of machinery and equipment.

- c) To be issued by Builders
 - 1) Builder's Certificate.
 - 2) Official Deadweight Certificates.

- d) To be issued by others:

Certificate of anchors, chain cables, shackles, hawsers, mooring ropes and equipment.

- e) Certificate of nautical/navigation instruments.
 - 1) Navigation light, Mast light Certificate.
 - 2) Magnetic compass Certificate.

- f) All costs and fees for inspection and approval of classification Societies and Statutory bodies for the necessary certificate shall be borne by the Builder.

1.5 Stability, Draught and Trim

The vessel shall have ample stability under all loading conditions and operating conditions. No permanent or fixed ballast shall be used. The stability particulars shall also comply with the load line requirements.

The Builder shall keep stringent record of all weights going onboard, during the construction. On completion of the vessel an inclining test in the presence of the Owner and Statutory authorities, shall be carried out to determine the center of gravity and lightship weight of the vessel. A trim and stability booklet shall be prepared incorporating the result of the inclining test. This booklet shall contain all operating conditions and other necessary information regarding general stability of the vessel.

The vessel shall not trim by stem at any loading condition. Docking condition shall be with minimum aft trim with necessary ballast, gravity and lightship of the vessel. A trim and stability booklet shall be prepared incorporating the result of the inclining test. This booklet shall contain all operating conditions and other necessary information regarding general stability of the vessel. Directorate IWT, Govt. of West Bengal, shall duly approve this and one set shall be placed on board the vessel.

The vessel shall not trim by stem at any loading condition. Docking condition shall be with minimum aft trim with necessary ballast.

1.6 Materials and Workmanship

All material used for the construction of the vessel shall be of approved quality. Hull material shall have good welding qualities.

All material used shall conform to the requirements of classification society and where requirements are not specified by classification society rules, the material shall conform to BIS or equivalent and to owner's approval.

The workmanship shall be to the satisfaction of the classification society and the owner.

1.7 Specification Survey, Construction Supervision and Inspection

The Owner's consultants shall carry out Specification survey and shall inspect the work at any stage during the construction of the vessel.

Any defective or sub-standard work, which was pointed out during inspection, by the surveyors or the owner's representative, shall be rectified by the Builder at no extra cost.

The Builder shall submit a monthly report of the progress of the construction of the vessel to the Owner.

1.8 Drawings, Schemes, Calculations and Manuals

The Builder shall prepare all classification/statutory construction/working drawings and as fitted drawings and submit to Owner for approval.

The charges for the approval of the Classification drawings shall be borne by the Builder.

Before delivery of the vessel the Builder shall submit one set of good quality of transparent films and four prints of all drawings including "As Fitted" drawings.

Three sets of as fitted drawings (for structural, machinery, piping, outfitting and electrical), arrangement of withdrawal and installation of steerable, propulsion system reports of various tests and inspections made, detailed lists of all standard and extra spare parts, inventory tools and additional tools, maintenance, spare parts and other instruction manuals, schemes, calculations,

All test reports, trial reports, final trim and stability booklet, etc., necessary for the operation, maintenance and repair of the vessel shall be submitted to the Owner at the time of delivery.

The following drawings shall be classified, framed and fitted on board:

- General Arrangement Plan
- Life Saving Appliances Plan
- Capacity Plan
- Tank sounding chart
- Safety plan
- Bilge, Ballast and Fire Scheme
- Electrical key diagram

Three sets of instruction books, operation and maintenance manuals, spares, catalogues given by the original machinery suppliers for all the machinery and instruments installed shall be handed over to the Owner.

Three copies of the list of supplier of all the fittings and equipment used on board with their addresses and phone/fax numbers shall be supplied to Owner/Owner's representative.

Ship's book, an operating manual for the entire vessel shall be made and supplied.

1.9 Spare Parts, Inventories and Tools

Spare parts, inventories and tools shall be supplied in accordance with:

- The Builder's / manufacturer's standard supply of spares for 5000 hour operation.

The parts shall be administrated, packed and preserved properly. Suitable racks shall be provided on board for storage.

1.10 Tests and Trials

1.10.1 General

All tests and trials required for the vessel and her equipment shall be performed in compliance with the statutory/classification/Owner's requirements.

The Builder shall prepare and submit a detailed programme of the relevant trials to the Owner and classification society for approval.

Any defect/shortfall pointed out by the surveyors/owner during the tests and trails, shall be rectified by the builder at no extra cost.

All costs involved in conducting the trials shall be borne by the Builder.

1.10.2 Welding

The vessel shall be of all welded steel construction.

All openings and holes in the structure shall be made with the consent of the classification society and shall be suitably compensated for strength.

Welding shall be of high quality and shall be performed by skilled and classification society approved personnel. Necessary precautions shall be taken to eliminate deformations. All surfaces shall be cleaned from rust and grease before welding. Approved manual, semi-automatic or automatic welding techniques shall be adopted for the construction using coated electrodes of approved make. A regular x-ray testing as per classification society rules shall be carried out to test the standard of welds. Builder shall submit inspection and testing plan to the owner for approval.

1.10.3 Tank Testing

All tanks and watertight or oil tight compartments shall be tested in the presence of the Surveyor and Owner's representative and shall comply with the rule requirements. The tests shall be carried out after completion of the construction and prior to commencement of painting. At the time of testing all welds at boundary surfaces shall be clean and free from primer/paint/oil etc. Immediately after testing these entire weld surfaces, which are cleared of any defects, shall be coated with primer/paint.

1.10.4 Inclining Test

Before the trials and with the vessel in a condition as complete as possible, an inclining test shall be conducted to ascertain the lightship displacement and center of gravity in the presence of Owner's representative, classification society/IWT. The inclining test report approved by classification society/IWT shall be made available to the Owner's representative.

1.10.5 Dock Trails

Dock trials shall be carried out in accordance with a programme agreed upon by the Owner or their authorized representatives to check the operation of the machinery. Main engines, DG sets, engine room machinery and other auxiliary machinery shall be in operation during dock trials. A report on the performance of various machinery during dock trails in the format to be agreed upon shall be submitted to the Owner or their authorized representatives.

1.10.6 Speed trials

A detailed trial schedule shall be prepared and submitted to Owners for approval. The speed trial will be conducted in still water condition.

1.10.7 Acceptance Trials

One set of trials shall be conducted in the presence of the crew of the vessel, appointed by the Owner, at the Owner's premises. All inventories on board shall be checked before acceptance of the vessel.

1.11 Delivery

The vessel shall be delivered and accepted at Kolkata. After the trials and the approval of Owner and classification Society of these trails with reports etc. the vessel shall be handed over to the Owner in a proper and clean condition with at least 50% of liquid stores on board. The costs of transportation, additional painting, checking trails and handing over and with the stores specified above shall be to the account of the Builder. All relevant documents, certificates, tools, inventories, spare parts etc. shall be on board at the time of handing over.

1.12 Miscellaneous

1.12.1 Ship's Model

One no. Ship's model of about one meter length painted to the same color scheme as the ship and placed in a box with base covered with clear Perplex sheet on all sides and top shall be supplied along with the vessel at the time of delivery.

1.12.2 Photographs

The Builder shall take photographs of the vessel at various stages of construction and shall submit them along with the monthly report to the Owner. On completion of the vessel, additional photographs shall be taken for framing purposes.

2 HULL STRUCTURE

2.1 General

The vessel shall be of all welded steel construction and all structure shall be designed and constructed in accordance with the Classification Society's requirements for inland vessels.

All scantlings shall be in accordance with the rule requirements of the classification society. Bottom shell and main deck in the region other than the engine room shall be longitudinally framed. All bulkheads shall be provided with vertical stiffeners. Continuity of structural members in basic hull structure shall be maintained. Where members are discontinuous the continuity shall be provided by means of suitable tapers, overlaps, and/or brackets.

2.1.1 Material

Structural steel of hull construction shall be classification society Grade 'B'/Equivalent. All materials including casting and forging shall be of qualities complying with the requirements of the Classification Society.

All structural steel shall be free from rust, pitting, cracks, laminations and similar defects. In case of any such defects being noticed, the plates etc. shall be renewed for the extent necessary to the approved quality/standards.

Large size steel plates shall be used for the construction of hull as far as practicable.

2.1.2 Preparation of Materials and Welding

Steel plates deformed during transportation, shall be faired by rolling before use.

Before the steel plates and rolled sections are used for construction, rust and mill scale shall be removed by means of sand blasting. The surface finish shall

be Sa 2.5. Immediately after the sand blasting, one coat of inorganic zinc silicate primer shall be applied as a temporary protection.

All welding shall be as per the requirements of the Classification society. During the welding operations all necessary precautions shall be taken, so that welds of high standards are obtained. All surfaces shall be well-cleaned and free from rust, grease etc. prior to commencement of welding. Plates shall be cut using automatic gas cutting as much as possible. Overhead welding shall be minimized and therefore necessary provisions shall be taken for down-hand welding wherever practical. Welding procedures including edge preparation and welding scheme shall be approved by the classification society wherever necessary.

Burnt out shop primer shall be removed by wire brushing and the surface repaired immediately after welding operations except at tank boundaries, which may be painted after tank testing.

Welding shall be performed only with electrodes of approved make and by qualified welders. A regular check on the quality of welding shall be carried out to the satisfaction of the Classification society/Owner. Alignment and welding sequence to reduce uneven surface of hull, deckhouse, decks etc. shall be followed. If considered necessary by the Class/Owner additional measures shall be taken to improve the quality of the weld.

Decks, bulkheads, deckhouses and other construction which are deformed due to welding shall be faired to the satisfaction of the Class/Owner.

On the berth, the hull and sections shall be earthed adequately. Clamps, dogs and other means to bring material and equipment in the right position, shall be removed in such a way that no mechanical damages take place and no visual marks are left.

2.2 Hull Form

The hull shall be of round bilge construction with a vertical bow to provide proper push contact. The vessel in the forward region above the waterline may be provided with knuckle as proposed in the lines plan.

2.3 Bottom Construction

The vessel shall have single bottom construction. Bottom shell and main deck shall be transversely framed. Solid floors shall be provided as per rule requirement.

Plate thickness in way of sea chest and bilge wells shall be at least 2 mm more than required by rules.

Drain and limber holes shall be provided to drain all water to pump suction. Special attention shall be given to stiffeners under engines to minimize vibration.

2.4 Side Shell Plating and Framing

The side shell shall be transversely framed. Deep webs shall be provided at every fourth or fifth frame space as indicated in the structural drawing in general or as per class requirements.

2.5 Deck Structure

The vessel shall have main deck and wheelhouse deck.

The decks shall be longitudinally stiffened and shall be supported by a combination of girders, transverse webs as approved by class. The main deck in way of deck cargo shall be adequately strengthened. A level surfaced /beams shall be provided in way of the deck cargo.

The deck shall be strengthened adequately in way of deck fittings or deck machinery.

The construction, materials, arrangement and fittings in the accommodation spaces shall comply with the statutory requirements applicable to this class of vessel.

2.6 Bulkheads

The vessel shall have transverse watertight bulkheads as shown in the Guidance General Arrangement plan. All bulkheads shall be vertically stiffened. Where pipes etc., are carried through the watertight bulkhead they shall be provided with necessary arrangements to the approval of classification surveyors.

2.7 Aft end Construction

The vessel shall have a plane transom stern.

The collision bulkhead shall be vertically stiffened.

2.8 Fore peak Compartment

Fore peak compartment shall be efficiently stiffened.

2.8.1 Chain Locker

2 nos. chain lockers shall be provided.

Chain lockers shall be of self-stowing type with 20% in excess of the required capacity with bilge well/mud box at the bottom and shall be located as shown in the General Arrangement plan.

Sufficient clearance above the top of stowed chain shall be maintained with arrangements to fix the end links.

A suitably sized steel grating or perforated plating of removable type shall be laid above the mud box, adequately supported to take the weight of chain.

2.9 Engine Room structure

The engine room shall be longitudinally framed with solid floors at every frame.

Main engine foundation shall be well integrated with the bottom structure. Main engine foundation shall be in accordance with the Engine Manufacturer recommendation and as per class requirements. Sufficient clearance shall be provided below the engine for easy cleaning and maintenance of sump.

Fuel oil daily service tanks shall be isolated from accommodation bulkheads/workshops.

Suitable reinforcement shall be provided under heavy concentrated loads with brackets or carlings.

Necessary chequered plate flooring, platforms and ladders shall be arranged in order to give access to machinery, etc. in all machinery spaces and steering gear compartment. Workbench, racks for spares etc. shall be arranged at suitable locations in engine room/steering gear compartment.

Special attention shall be paid to minimize structural in the machinery spaces.

2.10 Superstructure / Deckhouses and Wheelhouse

Superstructures and deckhouses shall be of all welded steel construction. All the decks shall be transversely stiffened and bulkheads shall be vertically stiffened. Suitable strengthening shall be provided in way of masts. Transverse web frames shall be provided as required by class.

Handrails of 1070 mm height shall be arranged around the open space of deckhouse and main deck as shown in the General Arrangement plan. Wheelhouse shall be arranged as shown in the General Arrangement Plan.

Effective drainage from all decks and top of the wheelhouse shall be arranged.

Doublers shall be fitted on decks in way of open drain discharges. Great care shall be taken to avoid water puddles on exposed decks.

2.11 Hull Preservation

2.11.1 General

Painting specification giving details of painting and method of application shall be submitted to the owner for approval.

The colours of finish coats shall be in accordance with the Owner's colour scheme and those of primer coats shall be in accordance with the manufacturer's recommendations. Alternate coatings shall be of different colours for easy identification. Pipelines shall be marked with a colour code system approved by the Owner.

Equipment, which the builder shall purchase, shall be painted according to each manufacturer's standard and the damaged part, after installation shall be touched up with one coat of finish paint of compatible kind.

2.11.2 Surface Preparation

Surfaces of all structural steel plates and sections to be used for fabrication shall be sand blasted to Sa 2.5 and immediately primed with inorganic zinc silicate type shop primer according to the Builder's standard.

Dry film thickness of shop primer shall be approximately 15 microns.

The steel surface of fittings such as pipe supports, grating supports, auxiliary machinery seats, etc. shall be sand blasted to Sa2.5 or pickling treated. Pipes of over 250 mm diameter shall be blasted to Sa2.5 and pipes with 250 mm diameter and below, small pieces of pipes, seats etc. shall be power cleaned with wire brush or disc sander to St 3 or pickling.

Prior to the application of main system, all weld spatters, rust grease and other contaminants shall be removed by wire brushing from the surface.

Prior to the classification society coating the surface preparation shall be as per the following table:

No	Location	Standard
1	Bottom and boot top	Sa 2.5
2	Topside	Sa 2.5
3	Fresh water and Water ballast tanks	St 3.0 (Mechanical and power tool cleaning)
4	Weather deck	St 3.0
5	Deck house exterior	St 3.0
6	Cofferdam	St 3.0
7	Fuel oil and Lubricating oil tanks	St 3.0
8	Double bottom spaces and Cofferdams	St 3.0
9	Cargo Vessels	St 3.0
10	Void spaces	St 3.0

Prior to subsequent coats damaged areas due to burning and welding and prolonged exposure during fabrication shall be cleaned by abrasive blasting to Sa 2.5. Other spaces shall be power tool cleaned to St3.0.

2.11.3 Execution of Painting

Painting work shall be executed in accordance with the Builder's painting practice and paint manufacturer's recommendations. Copper alloy, aluminium, aluminum alloy, stainless steel, non-ferrous material and galvanized surfaces shall not be painted unless specifically required. Time intervals between application of coats shall have different colors for identification. No painting exposed to weather shall be carried out in adverse weather conditions.

Application shall be done with the help of airless spray as far as possible. Where spraying is not practicable, brush or roller shall be employed.

Record of temperature and humidity shall be maintained during the painting work and submitted to owner.

Before launching, the outside hull below the waterline shall be painted with sufficient coats for adequate protection. Non-slip paint be applied on the main deck open areas and passage.

Dry film thickness shall be measured by magnetic dry film gauges or equivalent in the presence of owner and paint manufacturer. Thickness shall be measured after completion of anti-corrosive coatings and/or the final coating in accordance with Builder's practice to Owner's approval.

On the edges of small holes such as slots, drain holes, scallops, irregular manual weld beads and corners of flame cut free edges of structures, air holes, etc one additional stripe coat shall be applied before or after the classification society coat.

Builder shall provide three years guarantee for painting work carried out on under water area, ballast and fresh water tanks.

2.11.4 Paint scheme

Painting scheme in general shall be as given below (painting scheme for parts or spaces, which are not specified, shall be similar to surrounding space or comparable spaces):

Sl. No.	Location	Painting specification	Dry Film Thickness (Microns)	Number of coats
A.	OUTER HULL			
1.	Bottom, Underwater hull upto deep load line, Bilge keel, Sea chest, Rudder trunk	Epoxy primer Coal Tar Epoxy Coal Tar Epoxy Chlorinated rubber sealer coat Conventional Anti-fouling Conventional Anti-fouling Conventional Anti-fouling	25 100 100 30 100 100 100	1 1 1 1 1 1 1
2.	Rudder Inside	Bitumen solution	Twice to be filled with bituminous solution, tilted in all directions and drained	
3.	Top side area including bulwark outside	Epoxy primer Coal tar epoxy Chlorinated rubber sealer Chlorinated rubber finish	25 100 30 30	1 1 1 2
4.	Bulwark Inside	Zinc rich primer	40	1

		Zinc rich primer	40	1
		Alkyd deck paint	30	2
5.	Vessel Name, Port of Registry, Hull markings	Alkyd gloss finish	30	2
B.	TANKS			
1.	Fresh water tank	Epoxy primer	25	1
		Pure epoxy	100	2
2.	Fore peak tanks/Water ballast tanks	Coal tar epoxy	100	1
		Coal tar epoxy	100	1
		Coal tar epoxy	100	1
3.	Oil tanks	Red brown epoxy and One coat of respective oil		
4.	Aft peak and other void spaces	Bituminous solution	80	1
C.	EXPOSED DECKS AND SUPERSTRUCTURE			
1.	Exposed steel decks including wheelhouse top and 150 mm dados around all deck structures and machinery seats on decks.	Zinc chromate primer	40	1
		Zinc chromate primer	40	1
		Non-skid alkyd deck paint	40	2
2.	Outside exposed bulkheads, superstructure, handrails, stanchions, stays and ladders.	Zinc chromate primer	40	1
		Zinc chromate primer	40	1
		Alkyd Gloss finish	40	1
		Alkyd Gloss finish	40	1
3.	Port light screen	Zinc chromate primer	40	1
		Zinc chromate primer	40	1
		Alkyd Gloss finish	40	1
		Alkyd Gloss finish	40	1
4.	Standard light screen	Zinc chromate primer	40	1
		Alkyd Gloss finish	40	1
		Alkyd Gloss finish		
5.	Masts, Davits etc.	Zinc chromate primer	40	1
		Zinc chromate primer	40	1
		Alkyd Gloss finish	40	2
6.	Chain lockers, hawse pipe, anchors, chain cables	Bituminous paint	125	1
7.	Deck fittings such as bollards, towing post, fairleads, towing post, fairleads, deck	Zinc chromate primer	40	1
		Zinc chromate primer	40	1
		Alkyd Gloss finish	40	1

	rollers, other mooring fittings			
D.	INSIDE ACCOMMODATION			
1.	Internal Steel bulkheads and deck heads (uninsulated), Store spaces	Zinc chromate primer Zinc chromate primer Alkyd Gloss finish (White) Alkyd Gloss finish (White)	40 40 40 40	1 1 1 1
2.	Internal steel bulkheads (Insulated area)	Bituminous paint	80	1
3.	Flooring area	Bituminous paint	80	1
4.	Wet spaces in accommodation area like mess, galley, pantry toilets and showers.	Zinc chromate primer Zinc chromate primer Alkyd Gloss finish (White)	100 40 80	1 1 1
5.	All wood work	Varnish		2
E.	ENGINE ROOM			
1.	Above chequered plate level in engine room, deck and overheads	Zinc Chromate primer Zinc Chromate primer Alkyd paint (White)	40 40 40	1 1 2
2.	Engine room – below chequered plating including floors and girders	Zinc metal spray Epoxy primer Bituminous	100 25 80	1 1 1
3.	Machinery seats, bilges of other spaces	Bituminous	80	1
4.	Main Engine	Zinc Chromate primer Oil and Heat resistant paint	40 40	2 1
5.	Exhaust pipe, Inside of Funnel	Heat resistant paint	25	2
6.	Fire pump, fire main and hydrants	Epoxy primer Zinc Chromate primer Oil and Heat resistant paint	40 40 25	1 1 2

The builder may propose alternate painting scheme and submit for Owner's approval.

Inside of fuel oil tanks, lubricating oil tanks and other tanks for oils shall be treated with the oil carried in them.

2.12 **Miscellaneous**

2.12.1 **Hull and House Markings**

A. Ship's name and Port of Registry

The ship's name shall be marked forward port and starboard sides and transom. The port of registry shall also be marked below the ship's name on the transom.

The ship's name in brass letter shall also be fitted on the wheelhouse, port and starboard.

B. Draft marks

The draft mark shall be marked in meters and decimeters by welded 6 mm thick steel plate figures at forward and aft perpendiculars and amidships on both sides.

C. Freeboard mark

The freeboard mark shall be according to the rules of the Classification Society/Statutory Body issuing the freeboard certificate.

2.12.2 **River Chests**

At least two river chests shall be located at a suitable position in engine room for efficient suction at all loading conditions. The requirement for the fire pump shall also be considered while locating and sizing the river chests. It should be positioned in such a way to avoid intake of mud, sand etc., when the vessel is passing through shallow waters.

River chests shall be covered with hinged/bolted gratings of stainless steel retained by stainless steel bolts. The clear opening area shall be at least twice the area of valves connected to the openings.

Zinc or aluminum alloy anodes shall be fitted around river chests.

Each tank shall be fitted with one drain plug in the bottom outside the keel strake. Drain plugs shall be of stainless steel.

Tank numbers and identification names shall be written with weld beads on the manhole cover.

2.12.3 **Hawse Pipes**

Welded steel hawse pipe shall be fitted on the bow, port and starboard side and located to give satisfactory housing of the anchor shank.

The hawse pipe shall be large enough for the anchor shank suitably inclined so that the anchors fit well against the hull.

The diameter shall be dimensioned so that the longest link of the chain can pass through crossways.

2.12.4 **Fenders**

Half round steel pipe fenders shall be provided at the main deck level on the side shell as shown in the GA plan. The front flat part of the tug shall be provided with suitable neoprene rubber fenders for efficient push towing.

2.12.5 **Ladders, Bulwark and Railings**

In general, all ladders shall comply with the rule requirements. Ladders / rung ladders shall be placed under each manhole and escape hatch. All ladders shall be fitted in such a way that they can be removed whenever required.

Storm rails shall be provided along the accommodation area. All open decks shall be provided with railings and stanchions.

In general, the railings shall be provided as per rules and constructed as per BIS.

Pad plates shall be fitted in way of mooring fittings.

2.12.6 **Hull Openings, Watertight Doors & Hatches**

All hull openings wherever provided shall be adequately compensated by means of increased thickness, corner plates etc. to the satisfaction of classification society, Owner or Owner's representatives.

Sills on the main deck for all doors shall satisfy rule requirements.

Watertight doors and hatches shall be provided where necessary and shall comply with the rule requirements. All coamings shall be as per load line regulations. The scantlings of coamings shall be as per classification society rules.

All hinge pins, toggle bolts; butterfly nuts shall be of stainless steel. Manhole covers on exposed decks shall have stainless steel stud bolts and nuts.

2.12.7 **Foundations**

All auxiliary, deck machinery, electrical equipment shall be erected on foundations. Suitable reinforcement shall be provided under the machinery.

Thicker plating shall be provided under all heavy machinery on the deck.

2.12.8 **Tanks**

The structural members inside the tanks shall be provided in accordance with the rule requirements. Each tank shall have at least one manhole of adequate size for maintenance. Large tanks shall be provided with two manholes, preferably at diagonally opposite corners.

Spare packing rings and fasteners shall be supplied at the time of delivery.

3 Deck Equipment and Outfit

3.1 Mooring Equipment

3.1.1 Mooring Lines

Two nos. polypropylene mooring lines of required breaking strength and length (200 mts. Each) should be provided as per rules.

3.1.2 Bollards

At least ten numbers double bollards distributed on the port and starboard sides, as indicated in the General Arrangement plan, shall be provided conforming to the latest Bureau of Indian Standards Specifications.

3.1.3 Fairleads and Mooring Eyes

Sufficient number of fairleads shall be fitted forward and aft for passing mooring ropes.

The exact location, type, size and quantity of these and other fittings shall be as per the mooring arrangement drawing, which shall be prepared by the Builder and approved by the Owner.

3.1.4 Warping drums and Storage drums

Warping drums and storage drums shall be fitted on each of the anchor windlasses.

3.2 Anchor, Anchor Chain and Windlass

3.2.1 Anchors

Two numbers stockless HHP bower anchors of standard design of approved make shall be provided. One identical spare anchor shall be provided. One HHP Stern anchor of adequate weight as per rules shall also be provided.

3.2.2 Chain cable and shackle

The stud link chain cables for the anchors shall be as required by classification society. The chains shall be of CC2 grade.

Anchor chain shall be fitted with Kenter shackles for each 27.5 metre length, and properly marked (as per standard) and swivels fitted at each anchor. The end of the anchor chain inside the chain locker shall be fitted with quick release mechanism.

3.2.3 Windlass

One electric motor driven windlass of approved make shall be fitted at the forward end as shown in the GA plan, on a sound foundation. The cable lifters shall be capable of operating either independently or both together. The hauling speed and pull shall be as per classification society requirements. Positive securing arrangements shall be made for the cables when the anchors are in housed position, to prevent load on the brakes.

Windlass shall be fitted with one warping head and stowage drum of adequate capacity.

3.3 Hoisting Gear

3.3.1 Monorail

Monorail of adequate capacity as recommended by the engine manufacturer shall be mounted above the main engines. Hoists and pulley blocks of adequate capacity shall be provided for general use in the engine room.

3.4 Mast

The mast will be of collapsible type and will be suitably located on the wheelhouse top and stiffened adequately. The mast shall be provided with necessary arrangements for installing the navigational lights, air whistle, radars, antennae etc. The height and location of the light masts shall comply relevant rules.

3.5 Life Saving Appliances

Life saving appliances shall be supplied and installed in accordance with the IWT rules for this class of vessels. Life buoys and life jackets shall be suitably located and secured.

3.6 Fire Fighting Appliances

Fire fighting equipment applicable to this type of vessels as recommended by IMS rules shall be provided. For the purpose of external fire fighting, the vessel will be equipped with 2 numbers fire fighting pumps of 2000 litre capacity each operating at 10 bar pressure.

4 ACCOMMODATION

4.1 General

Accommodation for 1 Master, 1 driver, 6 crew shall be arranged as mentioned in Section 4.2. The relevant statutory rules regarding construction, material, space and fireproof partitioning shall be complied with.

All accommodation spaces shall be designed to have a clear height of 2000 mm.

4.2 Accommodation and Utility Space

4.1.1 Crew Accommodation

Accommodation for the vessel's crew shall be provided in accordance with the IMS rules. The furniture and other fittings shall comply crew accommodation rules. Forced air supply ventilation system is to be provided.

The crew cabins shall be located as shown in the GA plan. The cabins shall be adequately furnished.

4.2.2 Mess and Recreation

Separate mess cum recreation spaces for crew shall be provided as shown in the GA plan. The mess rooms shall be equipped with sufficient number of chairs, tables and fans. One Coloured 26 inch Television set and 1 no. 300 L capacity fridge shall be provided.

4.2.3 Galley

Galley shall be arranged as shown in the GA plan and shall be equipped with one complete set of galley equipment, which shall include equipment as listed below. The quantity of cutlery and crockery shall be adequate for the total number of crew with 10% excess as reserve. Drain shall be via galvanized perforated top plate. Forced air supply ventilation system is to be provided.

Cooking range with 2 hot plates	- 1 No.
Water boiler	-1 No.
Oven	-1 No.
Stainless steel sink	-1 No.
Wooden desk	-1 No.
Wooden cupboard	-1 No.
Cutting table	-1 No.
Refrigerator	-1 No. (300 lt.)
Water cooler	- 1 No. (30 lit)

One complete set of utensils shall be provided for the preparation of food.

4.2.4 Toilets

All the toilets shall be furnished in accordance with the rules requirements.

Two toilets, with one Indian WC and one European WC made of chinaclay and shower, for the ship's crew shall be provided.

All the toilet fittings shall be provided as per rules and shall be approved by the Owner. All toilets shall be provided with sleek and rugged storage flush tanks and shall properly secured. Toilet shall have mirrors fitted over the washbasin with lockable cupboards, cloth rails/hooks and towel rails.

4.2.5 Stores

One vessel store shall be provided below main deck forward of engine room. Wooden racks shall be provided.

Vessel's provision store shall be provided in the main deck and shall be provided with racks.

4.3 Wheel house

The wheelhouse shall be of all welded steel construction and provided with equipment as listed in the equipment list. Clear view shall be provided by means of large windows. At least two wall fans shall be provided. Clear view screen shall be fitted forward. Two nos. straight-line wipers shall be provided. The windows will be arranged to provide clear view on all sides including front and back. Some of the windows will be of openable type.

The wheelhouse shall be provided with enough space. The wheelhouse console shall be adequate in size to accommodate all controls and display units/meters.

4.4 Flooring & Deck Covering

The steel deck shall be covered with deck compound of approved type. In the Accommodation spaces, Wheelhouse, passageways and the Mess rooms, vinyl tiles shall be laid over the deck compound. The Galley, toilets and other wet spaces shall be cemented and tiled with unglazed tiles on the floor and matching glazed tiles on the walls up to a height of 1 meter. All decks shall have provisions for drainage of water through scupper pipes.

4.5 Partition Bulkheads, Lining & Ceiling

The ceiling, paneling and partitions shall be applied as per rules.

The accommodation spaces shall be insulated against heat and cold. All accommodation spaces, mess rooms, wheelhouse shall be lined on the sides with panels with removable beading all-round. The colour of the ceilings and paneling shall be of owner's choice.

The accommodation and the walls between the engine casing and the engine room shall be well insulated with fire retardant materials.

4.6 Ventilation

Engine room natural exhaust in funnel shall be fitted with balanced fire flaps. Flaps shall be easily operated from outside the machinery space and "open" – "shut" nameplates shall be fitted at all operating handles. Other Fire dampers shall be provided as required by the rules. Engine room ventilation system should cater for forced exhaust of spaces when required.

Emergency stop switch for Engine Room fans shall be arranged as required by the classification rules. The ventilation system shall be provided for Engine Room by mechanical supply or exhaust system capable of giving the required

rate of air changes per hour to meet rule requirements. Ventilation heads shall be mushroom or wall mounted louvers depending upon the final design and layout. A vent hood with stainless steel grease filter and exhaust fan shall be fitted over cooking ranges.

4.7 Insulation

The portion of the compartment facing weather shall be insulated in accordance with the statutory rules.

In place where rules for insulation against fire, heat and sound shall be applied at the same time, only the highest insulation thickness need be applied.

4.8 Doors, Windows and Scuttles

All doors shall be of such construction, finish and operation so as to suit their location and purpose.

The sill height of doors shall be in accordance with the requirements of Classification society/statutory rules as applicable and the clear heights of door openings for all cabins and public spaces shall be 1900 mm from the steel deck to top of the opening.

All doors shall be provided with suitable doorstoppers and securing arrangements. Door eyebrow shall be provided over exposed weather doors. Windows and scuttles shall be provided as per BIS where applicable. Where steel plate is cut to fit the windows/scuttles adequate compensation shall be provided.

The type, size, location and number of doors, windows and scuttles shall be as per approved plans. All wheelhouse windows shall be selected so as to minimize heat transfer.

All door openings exposed to weather shall be provided with additional doors with mosquito nets.

4.9 Miscellaneous

Sign, symbols and markings shall be provided in the accommodation spaces. All cabins/stores/utility spaces shall be provided with engraved nameplates of approved quality. All open areas shall be suitably lighted.

All beds shall be provided with high density foam mattress of 100 mm thick. Mattress cover shall be of cotton fabric, the samples of which shall be approved by the owner.

5 MACHINERY INSTALLATIONS

5.1 General

All the engine room units shall be of marine grade and the installation shall be in accordance with classification society and other statutory requirements.

Engines shall be provided with control from engine room and wheelhouse. The engine room and other machinery rooms shall be mechanically ventilated.

5.2 Propulsion machinery

5.2.1 Main engine

Two marine grade, fuel efficient, turbo charged diesel main engines of Cummins or equivalent make, developing 530 HP(approx.) each at 1800 RPM in the ambient conditions specified in para 1.2.1, suitable for continuous operation at rated power shall be provided. The engines are to be compatible to the selected steerable nozzle propeller system.

The engine shall be compact and of low weight as possible and shall be generally maintenance free. Necessary spares and after sales service for the engines shall be easily available in India.

The engine shall be complete with standard accessories, alarms and instrumentation meeting class requirements.

In addition, the following shall be provided:

- a) Silencers with spark arrestor.
- b) Closed circuit lubricating oil system with engine driven pump.
- c) Monorail with chain blocks over engines for servicing, adequate for handling heavier engine parts (Refer to 3.3.1)
- d) Fresh water, River water, F.O. and L.O. pumps.
- e) Gauges, thermometer, tachometers, flow meters for fuel oil, hour meter, pyrometers, etc.
- f) Heat exchangers for main engines and gearbox shall be of close circuit engine cooling.

The following items, common for both engines, shall be provided.

- a) Sets of Standard and Special tools and gauges for servicing, including tools for turbo-chargers, as recommended by manufacturer of engine.
- b) Crankshaft deflection gauge.

The shop test of the propulsion diesel engines shall be carried out as per the requirements of the Classification society. The engines shall be tested in the presence of the Surveyor and Owner / Owner's representative in the following manner:

- 4 hours continuously running at 100% load at rated speed.
- ½ hour running at 110% load

- ½ hour running at 75% and 50% each of the rated speed with a load according to the propeller law.
- ½ hour running at idling speed.
- Specific fuel consumption to be charted for each of the above running ranges.

Governors tests and safety functions shall also be performed. Shop test data and certificates shall be supplied. While testing the engines at shop floor, all fittings constituting the total supply of the engines shall be actually installed. Subject to satisfactory tests, the engines shall be numbered and stamped.

The propulsion systems shall be free from all vibrations throughout the entire working range.

5.3 Steerable Nozzle Propellers

The vessel shall be equipped with two sets of steerable nozzle propellers of scrotal or equivalent make. Strength of the fittings of the steerable propeller system shall be in accordance with the classification society and shall be designed for the maximum vessel speed corresponding to the MCR of the Main Engine. The steerable nozzles shall be able to swing from hard port to hard starboard through 2x35 degrees with the main engine running at MCR at fully loaded draught.

Necessary controls/Alarm panels shall be provided in the engine room and the wheelhouse as applicable.

5.4 Diesel Generator Sets

Two auxiliary engines of Cummins or equivalent make coupled with alternator sets of 50 KVA and 25 KVA capacities shall be provided. All necessary controls shall be placed at a common control panel for all gensets.

Engines and alternators shall be shop tested as per classification rule requirements.

During shop trials and during load test of generator after installation onboard, governor tests shall be carried out and instantaneous change in speed/frequency shall be noted. The tests shall be done for sudden changes in loads from 0-50%, 50% - 100% and 100%-0. Observations shall also be made regarding the initial and the final speeds of the DG set.

The engine shall be equipped with standard and special tools and accessories as per manufacturer's recommendations/Class requirements. Freshwater, river water, F.O., L.O pumps and heat exchangers shall be engine mounted.

5.5 Engine Starting

Main engines and Auxiliary Engines shall be Battery started and for this purpose adequate number of batteries as per manufacturers recommendations shall be provided in the engine room as per class

requirements. Similarly alternative system of starting for the engines through compress air as per class requirement may also be provided

5.6 Miscellaneous

5.6.1 Work Bench

Suitable workbench fitted with a vice and a double-ended bench grinder shall be provided in the engine room. One number Drilling machine shall be suitably located on the workbench.

6 ENGINE ROOM SYSTEMS

6.1 All piping systems shall be installed such that satisfactory functioning of the installations shall be possible in accordance with the rules of the classification societies, statutory bodies and relevant standards. They shall be installed together with all fittings such as flow control valves, cocks, filters, pressure gauges, thermometers, etc. according to the practice of the yard, and approved by the Owner.

All ship service piping systems shall be installed and tested in accordance with the requirements of the class / Statutory bodies.

All galvanized pipes shall be hot dipped galvanized after fabrication has been completed. Minor damages during installation shall be touched up by zinc paint. Piping in oil tanks shall not be galvanized.

Steel pipes and pipe ends on the machinery shall be blanked prior to final installation.

After completion of fabrication work all lubricating oil pipelines and fuel oil pipelines from daily service tanks to the consumers shall be pickled, oiled and blanked prior to final installation.

The pipes shall be carefully clamped and where necessary fitted with suitable draining arrangements for locations where the liquid is likely to stagnate. Clean plugs shall be provided in domestic and sanitary pipes, which are likely to be choked.

All piping in machinery spaces shall be marked with a coloured ring, to an approved colour scheme, to denote the nature of fluid or gas passing through it.

Remote controls from wheelhouse for valves/pumps shall be fitted as necessary.

All valves, pumps, vent/sounding pipes shall be fitted with engraved brass nameplates in respect of their duty. Where required for their duty flexible pipe connections shall be used.

Where necessary piping may pierce girders or any structural members provided that these structures are sufficiently compensated in accordance to classification requirements.

Non pressurized pipes such as sounding, vent, scupper, etc shall be inspected by fill up and / or flow test.

6.2 Exhaust System

All diesel engine exhaust gas pipes shall be made of steel fitted with expansion bellows and shall be rigidly secured with brackets. Mild steel flanges shall be provided. All exhaust gas pipes shall be led to transom after mixing with cooling header of main engines.

All precautions shall be taken to eliminate heat radiation from exhaust gas pipes to the surrounding areas and exhaust fumes shall be led away from the accommodation. Necessary drains from exhaust gas pipes shall be arranged and led through transom. Maximum total resistance in exhaust pipes shall not exceed the requirements of engine manufacturer.

Exhaust gas pipes from all the engines shall be led to atmosphere through the silencers and spark arrestors. Exhaust pipes from all the engines shall be insulated by rock wool with adequate thickness and fastened by galvanized steel wire and finished with galvanized sheet.

6.3 Fuel Oil System

Main propulsion engines, auxiliary engines, and other diesel engines shall use HSD oil.

Two nos. gear/screw type, electric driven fuel oil transfer pumps of about 5 m³/hr capacity at 2 bar head with suction and delivery connections shall be provided for transferring fuel oil from bunker tanks to the daily service tanks. One pump shall be in operation and the other shall act as stand-by. The pumps shall also have connections to transfer fuel oil between bunker tanks. Day tanks shall be provided with high and low level alarms and shall be equipped with waste tray and drain. Overflow and oil level gauge shall be provided.

All fuel oil pumps shall be capable of being stopped from main deck. The control position shall be such that it will not be likely to be rendered inaccessible by a fire in the engine room. Isolation valves shall be provided as necessary.

Fuel oil / Lub. Oil bunkering lines shall be provided with manifold on main deck port and starboard. Drip tray/coaming shall be provided to contain spillage.

6.4 Lubricating Oil System

Each main engine, gearbox and auxiliary engine shall have its own independent lubricating oil system.

One storage tank of suitable capacity shall be provided in the engine room to cater to the requirements of Main Engine, Auxiliary Engine and Gear Boxes.

Drawing arrangement of lube oil from main engine may be provided through pipeline.

6.5 River Chests

Two adequately sized river water inlet chests shall be provided in the engine room, integral with vessel's structure, each sufficient for total required river water capacity. Each inlet chest shall be provided with stainless steel gratings. The inlet chest shall be provided with vent pipes to the prescribed height above the freeboard deck. Compressed air cleaning is to be provided for River Chests.

6.6 Cooling Water System

The main parts of the cooling water system of the diesel engines shall be closed circuit unit built on the respective engines. The oil coolers of the reverse/reduction gearbox shall be connected to the cooling water system of the diesel engines concerned. The connected piping shall be of seamless steel tubes with diameters such that the flow velocity will be not more than 2.5 m/sec.

6.7 Bilge/Ballast/General Service/Fire Fighting System

Two nos. electric driven, self priming, centrifugal Bilge/Ballast/GS/Fire pumps of about 15 m³/hr capacity each at 6 bar head shall be provided in the engine room. Bilge system shall be equipped with necessary mud boxes. Ballast tanks shall be ballasted and deballasted by these pumps. An auxiliary bilge system equipped with hand pumps shall be provided for chain lockers, forward stores & steering gear compartment.

The bilge system shall be arranged with a valve manifold in engine room and pipeline of dimensions according to classification requirements.

Fire fighting connections shall be arranged on deck and engine room satisfying classification / statutory regulations. The capacity of fire pumps shall be as mentioned in bilge system.

An emergency fire pump shall be provided in the forward stores in an appropriate location.

6.8 Ventilation System

Mechanical ventilation shall be provided in the engine room through required number of axial flow fans of adequate capacity. One of the supply fans shall be reversible.

Exhaust fan shall be provided in Galley.

Watertight covers shall be arranged on all ventilation inlets as required by load line regulations. Fire dampers shall be fitted to all ventilators as required by rules.

6.9 Miscellaneous

6.9.1 Piping and Valves

All piping schematic drawings shall be approved by Owner/Class and Statutory Authorities. Pipes shall have suitable expansion arrangements wherever necessary and pipe material shall be suitable for the fluid that it will carry and shall comply with rule requirements.

All valves shall be of approved type. Valves fitted to the hull shall be of Cast steel body with internals of bronze/Stainless steel.

6.9.2 Insulation

In general the surface of machinery, equipment, pipes and tanks whose surface temperature is more than 60 degrees C shall be insulated.

Pipes shall be tested and painted (when necessary), before insulation is applied.

The insulation materials shall be fire resistant and shall be arranged in such a way that operation and maintenance are not hindered.

6.9.3 Nameplates

Engraved A1/Brass nameplates shall be provided on each pump, engine, valve, loose tanks etc., and where necessary for safety and control, the function and the medium used in that respective place shall be indicated on nameplates.

All Vent/Filling/ Sounding pipes shall be provided with nameplates for identification above main deck.

The nameplates fitted on weather decks and on aluminum parts shall be of stainless steel. The lettering on nameplates shall be black, however on safety and emergency valves red coloured lettering shall be adopted.

6.9.4 Instruments

The scales of instruments for pressures, temperatures etc., shall be such that the working range is not more than 70% to 80% of the full scales. The maximum allowed values shall be marked with a red line on the scale. Instruments shall have a minimum scale length of at least 8 cm.

he pressure gauges shall be marked in Bars.

The temperature gauges shall be provided with scales marked in degrees centigrade. Gauges for temperatures over 300 degrees C shall be of the pyrometer type.

7 ELECTRICAL SYSTEM

7.1 General

The complete electrical installation and workmanship shall be in accordance with the rules and regulations of the classification societies and statutory authorities applicable to this type of vessel.

The electrical rotating machinery, transformers and other electrical equipment shall work satisfactorily at an ambient temperature of 45⁰ C. All the electrical equipment shall be arranged for easy accessibility for repair and replacement.

The equipment installed shall work satisfactorily at voltage and frequency variations as specified by classification society.

Each control panel shall be provided with relevant drawing, wherein the fuse ratings of feeders shall be clearly mentioned.

All the relevant electrical drawings and plans including load chart shall be submitted to Owner for approval prior to placement of orders for equipment/installations.

7.2 Power Supply

7.2.1 General

A 415 Volts A.C 3 phase, 50 Hz electrical supply shall be used for feeding the main bus bar, and 220 volts A.C. 50 Hz electrical system shall be used for all domestic and necessary lighting requirement.

Provision for shore supply connection shall be made for powering the 220 volts system while the vessel is at harbour.

7.2.2 Main supply

The generators shall be continuously rated and shall have class 'F' insulation, suitably tropicalised and shall be designed for a temperature rise, after continuous full load working, not exceeding the temperature limits specified by the classification society.

The vessel shall have a 50 Hz. A.C. supply power generation.

Two No. diesel engine driven alternators each of 50 KVA and 25 KVA capacity shall be installed. The 50 KVA alternator shall be able to take the entire load of the vessel with 30% margin. The 25 KVA one will be able to supply required power when the vessel is at rest. Both alternators shall have automatic voltage regulators to maintain constant voltage within the permissible limits

specified by classification rules, and shall have drip proof enclosures. They shall be fitted with all necessary alarms and protections.

7.2.3 Emergency Supply

- (i) Adequate battery shall be provided for catering to emergency load.
- (ii) Adequate sets of storage batteries with charging panels for Main engines, D.G. Sets, Navigation panels and lights, emergency lights, etc. shall be provided.

7.2.4 Shore supply

A shore supply box complete with a four-core supply cable 50 m long with necessary plug and socket fittings, necessary switch, fuses, voltmeter, frequency meter and phase sequence indicator shall be provided on the main deck. A voltage available indicating lamp shall be provided on the panel. All cable, insulation, etc., shall suit the location and duty requirement shall comply with relevant rules.

7.3 Supply and Distribution

7.3.1 Main Switch Board

One main switch board of metal clad, drip proof, dead front type, mounted on resilient mountings shall be fitted on a raised platform in the engine room. The switchboard shall be completely closed at the rear and is to be serviceable from the front. It shall protect two alternators.

The alternator panels shall have meters for the measurement of voltage, frequency, current, power factor, power and earth leakage. The two alternators shall be protected through, circuit breakers of adequate capacity and shall have necessary protective circuits for under voltage, over current, reverse power and short circuit. All the out going feeders and the shore supply shall be protected through suitable circuit breakers.

The switchboard shall be designed and installed with ample space for reclassification society and maintenance.

A remote stop push for stopping the ventilation fans from wheelhouse and necessary electrical circuitry, for the operation shall be incorporated in the switchboard.

The construction and installation of switchboards shall be as per rules and they shall be fitted with all necessary alarms and fuse and switch gear.

Switchboards and all enclosed gear must be accessible for maintenance. All the emergency loads shall be powered from Emergency Switchboard (ESB). During normal operation the emergency switchboard shall be powered from the main switchboard (MSB) through a tiebreaker. In the event of a failure of

MSB, the tiebreaker shall trip and ESB bus will cater the emergency requirements.

7.3.2 Distribution Boards

Suitable number of lighting distribution boards and power distribution boards shall be provided. All the panels shall be drip proof type, sheet metal enclosed and shall be provided with suitable schematic drawings.

Whenever electrical equipment is located at a distance from its distribution board, a local control panel shall be provided. The local control panel shall have necessary control switches. In such cases suitable interlock shall be provided to prevent accidental starting during maintenance. Ammeters shall be provided either at group starters or at local control panels.

7.3.3 Transformers

Supply to lighting loads and small power loads shall be 220 V single phase through 415 V/220 V transformers. The system shall consist of three single-phase transformers, two connected in delta-delta and one standby.

7.3.4 Motors

In general squirrel cage induction motors of marine type suitable for 3 phase, shall be used. The motors shall be of drip proof or weather proof as required by the location and shall be of approved type. For specific equipment like fans, etc. motors shall be as supplied by the manufacturer and shall meet the rule requirements of classification society. All motors shall be protected through fuse, overload relay and breakers of adequate capacity. Unless specified by the maker motors with low starting current shall be of direct on line starting type.

7.3.5 Battery

Adequate number of sets of Sealed Maintenance free accumulators shall be installed for the following purpose:

- (i) Main engine starting
- (ii) Generator engine starting
- (iii) Navigational & communication system
- (iv) Emergency lighting
- (v) Lights and fans in the wheel house, crew and officers accommodation and also at deck and engine room during night in the off hours.

The batteries shall be placed on a raised platform, in a well ventilated box fitted with non absorbent insulating supports and shall be secured properly to avoid any movement during sailing.

An adequate space shall be provided above the cells for maintenance of the same. Battery space shall be well ventilated.

Battery charger shall be provided with necessary meters for reading the battery charging voltage, charging current and load current. The charger shall have necessary protective circuits for over current and reverse current.

7.4 Cables

7.4.1 Type

All cables shall be flame retardant and comply with rules of classification society.

7.4.2 Installation

All the cable runs shall be straight and accessible as far as practicable. Cables shall be installed on galvanized trays and shall be secured properly. Cables passing above main deck and wherever there is a risk of mechanical damage shall be led through galvanized pipes. Cables passing through decks and bulkheads shall be led through suitable coamings or individual watertight glands. The piercing shall be filled with approved filling material for water tightness. Vinyl bushes shall be used for penetrations through 'B' Class bulkheads. Where cables pass through non-watertight bulkhead or structural steel the holes shall be bushed with lead or approved materials. Cables passing close to radio and navigation equipment shall be properly screened. As far as possible cables for automation and instrumentation shall be laid in separate trays or when laid on same channel the distance between them shall be as per the rules.

7.5 Lighting and cabin fans

The lighting installation consists of a network of 220 V A.C. system.

The network is to be powered from the main 220 V supply. In general all the light fittings shall be of weather proof, drip proof or non-watertight as required by the location and shall be suitable for marine application.

In general 2x20 Watts fluorescent fittings shall be used. However, stores, level gauge lighting and weather deck lighting may be incandescent type.

Illumination levels in various areas shall comply with the rules of classification society and relevant statutory authorities as applicable to this class of vessel.

The fittings shall be installed for easy maintenance as far as practicable.

In addition to the above at least one set of lights and a fan in the cabins and one set of lights at all passages, engine room, wheelhouse will have provision for 220 V AC power supply from battery bank through a suitable inverter.

Lighting for Accommodation

All the cabin and passage lights shall be of fluorescent type. Switches and sockets in accommodation shall be of flush type. Watertight fittings shall be used in the toilets and gallery. Hinged type chart table lights with incandescent lamp and dimmer shall be provided.

Machinery Room Lighting

Fluorescent light fittings shall be used in the engine room for general illumination. Incandescent type lamps shall be used for tank level gauges. All the switches and sockets used shall be of watertight type.

Portable lights

Six number 40 Watts, 220 V portable hand lamps shall be provided with watertight socket and 8 meters flexible cable. Watertight and cabin type sockets / plug shall be of two pin earth type. For portable lamps and for locations in exposed decks watertight type switch sockets shall be provided.

Floodlights:

Open decks and deck machinery shall be illuminated with sufficient number of floodlights.

Rechargeable lights

2 numbers handheld chargeable lights will be provided for emergency use.

Cabin fans

Adequate number of circulating fans shall be provided in cabins, messes and wheelhouse.

7.6 Navigation and Communication Equipment

7.6.1 Navigational Lights

Two sets of electrical navigational lights shall be provided as per rules.

One set shall be powered by the emergency supply. The other set shall be powered from the regular power supply. Navigational lights shall be controlled from a control panel mounted on bridge console. The panel shall indicate the status of the lamps and shall give an audible alarm in case of fused bulb. Signal light of approved make shall be fitted as per rules.

7.6.2 Search Lights

In addition to normal light fittings one searchlight (swiveling type) of 1000 Watts with ballast shall be fitted on the wheelhouse top.

7.6.3 Navigational Console

One Navigational console having aesthetic design shall be erected in the wheelhouse and all necessary equipment/controls, including the following shall be fitted on it.

- Steering controls and rudder angle indicator
- VHF & HF units and other communication equipment as per rules
- Remote alarm panel for engine room alarms
- Navigational, search lights and deck lights controls
- Loud hailer
- Electrical air horn
- Window wiper control
- Main engine control
- Main engine load indicator
- Walkie talkie (2 sets)
- Propeller rpm indicator
- Compass

7.7 Automation and Instrumentation

An alarm control panel shall be installed in the engine room. It shall monitor temperature, pressure of main & auxiliary engines and steering gear alarms. The alarm panel shall also monitor certain important tank levels.

An audible and visual alarm shall be given in the event of a fault.

A remote indication with audible alarm for all the monitoring points shall be provided in the wheelhouse.

7.8 Earthing

In general all the electrical motors, control panels and generators, unless specified by the supplier, shall be earthed as per the rules. Suitable size of conductor shall be used for earthing purpose depending upon the current capacity of the appliance. The conductor shall be properly crimped at both the ends and one end shall be connected to the earth bolt provided on the equipment, while the other end to an earth bolt welded to the steel structure. Suitable washers and conductor terminals shall be used so that a reliable contact is made.

8. OTHER SYSTEMS

8.1 Sewage System

One no. Sewage holding tank of adequate capacity shall be provided in the engine room. One sewage bypass line shall be provided for overboard discharge in case of emergency. All discharges shall be arranged with sufficient slope towards the main sewage drain and connected to the sewage-holding tank in the engine room.

Sewage overboard discharge shall be arranged below the light ballast waterline.

Discharge from showers, sinks and washbasins shall be trapped through individual water traps and led overboard or to the holding tank separately.

Approved type of storm valves shall be provided at the overboard discharge ends as per the rules.

One sewage discharge pump of 2m³/hr @ 2 bar capacity (screw type) shall be provided for discharging sewage from holding tank. One hand pump semi rotary type shall be provided as standby.

8.2 Domestic Fresh Water System

Fresh water storage tanks of total capacity of about 10m³ shall be provided for catering to the requirements of the crew.

One fresh water overhead tank of 250 lts. Capacity shall be provided. Fresh water pump of 2m³/hr @ 2 bar shall be provided for transferring Fresh water from storage tank. One semi rotary hand pump shall be provided as stand by.

Fresh water connections to Galley, Mess, Water coolers etc. shall be passed through UV sterilizers.

8.3 Sanitary Water System

River water connection shall be supplied to all toilet flushes, toilets and galley. One overhead tank shall be provided. Supply of river water to the overhead tank shall be through as pumps.

8.4 Refrigerators & Drinking Water Coolers

One no. Drinking Water cooler shall be provided in the galley. The drinking water cooler shall have a capacity of 30-litres/hr. One Refrigerator of 300 liters capacity shall be provided in the galley.

Tank Vent, Sounding and Filling Pipes

All pipes in water tanks and dry compartments shall be of galvanized steel. For pipes in oil tanks only the parts above open decks shall be of galvanized steel. Upper ends of pipes shall be clearly labeled.

All built in and loose tanks shall be provided with a vent pipe, connected to the highest point of the tank.

Vent pipes of fuel tanks shall be fitted with flame preventing gauze as per rules. Vent pipes of oil tanks shall be fitted with air filters.

Air vents for drinking water tank shall be provided with insect proof net. Sleeve joints shall be used for pipes passing through decks.

Drip trays shall be provided below the valves of all oil tanks and coaming shall be provided at the bunkering points.

All built in tanks shall be provided with a sounding pipe with upper ends shut off with a screwed bronze cap, attached to a chain. Sounding pipes shall be led as vertical as practicable. Inclination of sounding pipes where unavoidable shall be less than 30 degrees from the vertical line. Sounding pipe shall be provided as close as possible to the suction and shall be well supported.

A strike protector of steel plate shall be fitted directly under each sounding pipe. Thickness of the sounding pipe shall meet the requirements of the classification society.

All oil tanks in the engine room shall be provided with a short sounding pipe with a self-closing sounding valve with test cock.

Tank level gauges shall be provided for all ballast tanks, fresh water tanks, peak tanks and oil tanks.

Filling connections to various tanks shall be arranged at least 300 mm above deck. They shall be suitable for coupling to standard supply hoses. Shut off by brass caps with chains shall be provided. Filling connections for fuel oil tanks shall be arranged together with a drip tray.

Air and sounding pipes shall be arranged near bulkheads and behind stiffeners wherever possible.

EQUIPMENT, SPARES AND TOOLS

9.1 Major Equipment List

9.1.1 Main Engine

Nos. : 2
Type : Single acting, 4 stroke, marine diesel engine
Power : 530BHP of Cummins make or equivalent. to attain a service speed of 6 knots with 2 nos. 300 t loaded dumb barges and free running speed of 10 knots in service condition.

Fuel : HSD

9.1.2 Steerable rudder Propeller

Nos. : 2
Capacity : To match the main engines

9.1.3 DG Sets

Nos. : 2
Engine Type : 4 stroke, water-cooled diesel engine
Elec. Output : 50 KVA & 25 KVA
Insulation : Class 'F'

9.1.4 Bilge/GS/Fire/Ballast Pumps

Nos. : 2
Capacity : 25 m³/hr each
Head : 3.5 bar
Type : Self-priming, Centrifugal
Prime mover : Electric motor

9.1.5 Emergency Fire Pump

Nos. : 1
Capacity : 15 cum. Per hour at 6 bar
Type : Self-priming, Centrifugal
Prime mover : Electric motor

9.1.6 F.O Transfer Pumps

Nos. : 2
Capacity : 5 m³/hr
Head : 2 bar
Prime mover : Screw/Gear type

9.1.7 F.W and R.W Pumps

Nos. : 2 each (One working + one standby)
 Capacity : 2 m³/hr
 Head : 2 bar
 Type : Centrifugal
 FW & RW Tanks : 250 liters capacity each
 One hand operated pump 1 each for FW and RW pump

9.1.8 **Hand P/ps (For For'd store, chain locker, sewage, and Stng.Gear Compt. Bilging)**

Nos. : 4
 Capacity : 1 1/2"
 Type : Semi Rotary/double action piston type

9.1.9 **Sewage Discharge Pump (If no built-in pump)**

Nos. : 1
 Capacity : 2 m³/hr at 2 bar
 Type : Centrifugal

9.1.10 **Engine Room Ventilation Fans**

Nos. : 2 (One Reversible)
 Capacity : of adequate capacity
 Type : Axial Flow

9.1.11 **Anchors (HHP)**

Forward Anchors : 2 nos. + 1 spare
 Weight : 175 kg each approx.
 Stern Anchor : 1 no.(115 kg) approx.

9.1.12 **Anchor Chain**

Nos. : 2
 Length : Adequate
 Dia. : Adequate
 Grade : CC2

9.1.13 **Anchor Windlass with warping and storage drum**

Nos. : 1
 Hauling force : Adequate

9.1.14 **Mooring Lines**

Nos. : 200 mts x 2
 Material : Polypropylene/Nylon
 Breaking strength : Adequate
 Dia. : Adequate

9.1.15 **Galley Equipment**

Cooking range with 2 hot plates	- 1 No.
Water boiler	- 1 No.
Oven	- 1 No.
Stainless steel sink	- 1 No.
Wooden desk	- 1 No.
Wooden cupboard	- 1 No.
Cutting table	- 1 No.
Refrigerator	- 1 No. (300 lit.)
Wet grinder	- 1 No.
Rice cooker	- 1 No.

9.1.16 Mess Room

26 inch Colour Television	- 1No.
300 Ltr refrigerator	- 1No.

9.1.17 Drinking Water Cooler

Nos.	: 1
Capacity	: 30 lt./hr

9.1.18 Navigational Equipment

As per IWT rules

9.1.19 Other wheel house equipment

Loud Hailer	: 1 No.
Nav. Lights	: Dual Type
Window Wipers	: 2 Nos.
Search Lights	: 1 No. (1000 W)
Thermometer	: 1 No.
Binoculars	: 1 No.
Portable hand lamps	: 6 Nos.
Ship's Bell (Bronze)	: 1 No.
National Flag	: 1 set
Navigational Shapes	: 1 set
Compass	: 1 No.

9.1.20 Life Saving Appliances (As per IMS Rules)

Life Buoys	: 8
Life Jackets	: 12

9.1.21 Fire Fighting Appliances

Portable fire extinguishers in accommodation	: 12
Fire extinguishers in Engine Room for quenching oil fires	: 4
Foam fire extinguisher (45 lit.)	: 2

Fire Buckets	: 3
Fireman's axe	: 1
General alarm box	: 1
Sand box with scoop	: As per rules
Emergency fire pump of hand driven	: 1

Note: The capacities/ratings/quantity/specification of the equipment given above are indicative and for guidance only and are subject to Class/Statutory Authorities/Owners' approval where applicable.

9.2 List of B&D Spare Parts (for 5000 hrs operation)

The spare parts shall be provided as may be applicable to the engine/equipment type/make. Additional spare parts over and above 5000 spares requirement, for 5000 hrs of normal operation of the vessel, as recommended by the equipment manufacturer shall be indicated by the builder separately. The lists given below are for guidance only.

9.2.1 Main Diesel Engines

9.2.2 Steerable rudder propeller

9.2.3 Generator diesel engine

9.2.4 Pumps and Motors

9.2.5 Fans and Systems

9.2.6 Heat exchangers

9.2.7 Anchor Windlass

9.2.8 Mooring Winch

9.2.9 Piping, valves and fittings

9.2.10 Electrical installation

9.3 Tools and Inventory

- Maker's standard tools and special tools necessary for overhauls during the life of the vessel are to be delivered by all the manufacturers with their supply.
- Those parts as mentioned elsewhere in this specification.
- The items shall be supplied as much as possible of standard make and form a restricted number of suppliers.

Deck:

- 2 quartz battery for marine clocks
- 1 set of prismatic binoculars (7 x 50)
- 2 black balls and 2-round/1-diamond shape
- 1 whirling hygrometer
- 1 barometer
- 1 anemometer
- 1 outdoor thermometer
- 3 flash lights (200 % batteries)
- 1 hand lead line (3 kg, 25m)
- 2 boat hooks
- 1 heaving line (30 fathom 3/4")
- 4 rubber fenders (12" diameter)
- 1 grease gun for hinges
- 1 tin with 10 kgs grease
- 1 marline spike
- 1 triangular rule (300 mm engine divided for chart type)
- 1 bucket with line 5m
- 1 tank sounding tape 5 m with plumb
- 1 drum pump
- 5 padlocks
- 1 divider
- 4 chart weights
- 1 pencil sharpener
- 2 sounding rods
- 1 measuring tape (steel, 6 metres)
- 1 measuring tape (steel, 2 metres)
- 1 carpenter hand saw 400 mm long
- 1 carpenter mallet 500g with handle (road type)

Domestic

- 18 dishes flat 10", 9" and 7" (porcelain)
- 18 plates 6" (porcelain)
- 18 table knives (stainless steel)
- 18 table forks (s.s)
- 18 soup/dessert spoons (s.s)
- 2 set pots (coffee & tea) 6 nos. per set (porcelain)
- 2 sugar basins (porcelain)
- 18 tea spoons
- 2 bowls for salad & pudding 6" (porcelain)
- 2 water jugs (s.s) medium size
- 18 bread knives (s.s)
- 2 rice bowls 10" (s.s)
- 18 cups with saucer for tea & coffee
- 1 water filters
- 18 stainless steel thali plates 12"
- 2 flat frying pans 30 cm (aluminium)
- 2 tawas 30 cm (iron)
- 2 trays (formica)

- 2 mixing bowls (available size)
- 2 bottle openers
- 1 chaki belna
- 1 cook's knife 6" blade
- 2 steel buckets with lead 10 lt., 12 lt. And 15 lt.. each
- 1 can opener
- 1 potato peeler knife (s.s)
- 1 bread toasters
- 2 dusters
- 1 chopping board (standard size)
- 1 teakettles 30 cm (aluminium)
- 1 deckchies with lid 20 cm, 25 cm, 35 cm, 50 cm each (aluminium)
- 2 coir brooms
- 2 hair brooms
- 2 lavatory brushes
- 2 scrubbing brushes
- 2 single bed sheets (for each person)
- 2 pillows (for each person)
- 2 bath towels (for each person)
- 2 face towels (for each person)
- 6 line begs
- 3 dining table cloths (size 3m X 2m approx.)

Machinery installation:

- 1 hand lamp with 10m cable and plug
- 1 set of compressions lugs up to 6 sq. mm with plier
- 1 hand tachometer
- 1 axe
- 1 iron saw with 12 blades
- 1 set of bearing pliers
- 1 grease gun
- 1 oil can
- 1 tank sounding tape 5m with plumb
- 1 stainless steel inside calipers
- 2 tachometers with holder
- 1 thermometer
- 1 marking 'V' block
- 1 portable electric grinder
- 1 portable electric drill and chuck 13 mm
- 1 set straight shank drills up to 13 mm
- 1 set taps & round dies with case
- 1 set spanners (normal size, single ended)
- 1 set spanners (double ended)
- 1 set box spanners
- 1 monkey wrench
- 1 pipe wrench
- 1 set of screwdrivers
- 1 set of screw drivers (cross head type)
- 1 set of combination pliers
- 1 set files (shape half round)
- 1 set files (shape flat)

- 1 set files (each round/half, round/traughter)
- 3 file handles
- 2 file brushes
- 2 hand hammers
- 1 lead hammer
- 1 claw hammer
- 1 centre punch
- 1 cutting punch
- 1 chisel (flat crossout)
- 1 chisel (oil groove cut)
- 1 pair of scissors for packing
- 1 pair of scissors for metal (flat & round)
- 1 hacksaw frame and hacksaw for iron and aluminium
- 1 hand vice
- 1 stone with bed
- 1 set wire rope slings of various SWLs.
- 1 manila rope slings
- 1 set shackles
- 1 rope pulley block
- 1 chain pulley block ½ ton
- 1 crow bar
- 1 set Allen keys
- 1 oil hopper with filter screen
- 1 grease pump
- 1 oil pan with strainer
- 1 paint can
- 1 set paining brushes
- 1 set eye/lifting bolts
- 2 waste boxes
- 1 set of different sizes steel washers
- 1 set of different sizes bolts & nuts
- 1 set of different sizes studs & nuts
- 1 set of different sizes split pins
- Steel and aluminium plates
- Steel wire
- emery cloth
- grinding powder
- valve grinding paste
- rubber insertions (joining 800 mm x 800 mm)
- packing materials
- inspection mirror
- gland packing
- 1 micrometer
- 1 Vernier calipers
- 1 steel square
- 1 steel scale
- 1 cloth tap measure (30m)

Electrical Installations:

- Watch maker's screw drivers
- Watch maker's screw driver cross head size (2 mm)

- Magnetic spanners
- Screw drivers cross head size 0-4
- Screw driver for hexagon socket heads 1 1/2 – 6 mm
- nut drivers 4 – 7 mm
- 1 circlip plier for inside rings
- bended flatnose plier (long grip)
- 1 tweezer flat nose
- 1 tweezer bended nose
- 1 inspection mirror
- 1 saw frame (junior) with 12 blades
- 1 set of needle files
- 1 pair (b) 200 mm
- 1 pair wire cutting pliers 150 mm
- 1 pair flat nose pliers 125 mm
- 1 pair round nose 125 mm
- Electrician's screw drivers, for wood/leather
- 1 (a) 3 mm x 75 mm
- 1 (b) 6 mm x 100 mm
- 1 (c) 8 mm x 150 mm
- 1 (d) 10 mm x 250 mm

Files with wooden handle:

- 1 (a) hand smooth cut 200 mm long
- 1 (b) knife smooth cut 150 mm long
- 1 (c) flat second cut 200 mm long
- 2 sets hydrometer for battery
- 1 syringes for battery
- 1 tool box (MS) with lock, size: 600 x 300 x 250 mm
- 1 sand paper
- 1 gross screws & nuts M3, M4, M5, M6
- 10 rolls black tape (assorted)
- 10 rolls PVC adhesive tape (assorted)
- 2 kgs plastic compound
- 1 set of spare fuses (assorted)
- 1 megger transistor
- 1 multimeter make fluke
- 1 duspol tester
- 1 soldering iron 25 Watt
- 1 soldering iron 60 Watt

LIST OF DOCUMENTS TO BE SUPPLIED BY THE BUILDER

BASIC DESIGN DRAWINGS:

- a) General arrangement plan
- b) Lines plan
- c) Docking plan

CALCULATIONS:

- a) Equipment number calculations
- b) Hydrostatic particulars
- c) Tonnage calculations
- d) Freeboard and minimum bow height
- e) Tank capacity calculations and sounding tables
- f) Trim and stability calculations (Preliminary)

STRUCTURAL DRAWINGS

- 1 Midship / Typical transverse section
- 2 Profile, Decks and Bottom plan
- 3 Watertight / Oil tight bulkheads
- 4 Shell expansion
- 5 Dock house / Superstructure
- 6 Engine foundation
- 7 Shaft brackets (A-frame)
- 8 Hawse pipe details
- 9 Welding schedule
- 10 Skeg construction, if any
- 11 Fore peak and aft peak structure
- 12 Engine Room Construction
- 13 Hatch opening details

MACHINERY DRAWINGS

- 1 Engine room layout
- 2 Engine room ventilation schematic
- 3 Air vent system schematic
- 4 River chest details
- 5 Fuel oil system schematic
- 6 Lubricating oil system schematic
- 7 Cooling water system schematic
- 8 Main engine / Auxiliary engines exhaust system schematic