

Expression of Interest (EOI)
For
Identifying OEM for
Engineering, Supply, Installation and Commissioning of Boat Hoist/Lift of 800T capacity

For the
Ship Repair Facility at Pandu, Guwahati, Assam



HOOGHLY COCHIN SHIPYARD LIMITED

A wholly owned Subsidiary of Cochin Shipyard Limited,
A Government of India Enterprise Under Ministry of Ports, Shipping and Waterways

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

October 31, 2023

DISCLAIMER

All information contained in this Expression of Interest (EOI) provided / clarified are in good interest and faith. The information contained in this Expression of Interest document or subsequently provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of IWAI/HCSL, is provided on the terms and conditions set out in this EOI and such other terms and conditions subject to which such information is provided.

The purpose of this EOI is to provide interested parties with information that may be useful to them in the formulation of their application for qualification and subsequent process to this EOI. This EOI is not an offer by IWAI/HCSL to the prospective Applicant(s) or any other person. This EOI is neither intended nor shall it be construed as creating or requiring any ongoing or continuing relationship or commitment with any party or person. This is not an offer or invitation to enter into an agreement of any kind with any party.

Though adequate care has been taken in the preparation of this EOI document, the interested firms shall satisfy itself that the document is complete in all respects. The information is not intended to be exhaustive. Interested Agencies are required to make their own enquiries and assumptions wherever required. Intimation of discrepancy, if any, should be given to HCSL immediately. If no intimation is received by this office by the date mentioned in the document, it shall be deemed that the EOI document is complete in all respects and firms submitting their interest are satisfied with the EOI Document in all respects.

The issue of this EOI does not imply that HCSL is bound to select and shortlist Applicant(s) for next stage or to enter into any agreement(s) with any Applicant(s). HCSL reserves all right to reject any applications submitted in response to this EOI document at any stage without assigning any reasons thereof. HCSL also reserves the right to withhold or withdraw the process at any stage. Neither HCSL nor its employees and associates will have any liability any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this EOI document or any matter deemed to form part of this EOI document, the information and any other information supplied by or on behalf of IWAI/HCSL. HCSL accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance/use of any statements/information contained in this EOI by the Applicant. HCSL is not making any representation or warranty, express or implied, as to the accuracy or completeness of any information/statements made in this EOI.

The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Application including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be

required by IWAI/HCSL or any other costs incurred in connection with or relating to its Application. All such costs and expenses will remain with the Applicant and IWAI/HCSL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Application, regardless of the conduct or outcome of the EOI.

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

NOTICE INVITING EXPRESSION OF INTEREST

Hooghly Cochin Shipyard Limited (HCSL) on behalf of Inland Waterways Authority of India (IWAI) invites Expression of Interest (EOI), from Original Equipment Manufacturer (OEM) or from an authorized dealer/ /authorized channel partner of OEMs for the Supply, Installation and Commissioning of Boat Hoist / Boat Lift of 800T capacity

The EOI Document containing the details of qualification criteria, submission requirement, brief objective & scope of work etc. can be downloaded from the website <http://hooghlycsl.com>

Further details, if any, may be obtained from Deputy General Manager (P&O), HCSL, Howrah, West Bengal, India-711109 during working hours.

Last date for submission of EOI is 22nd November 2023, upto 1500 hrs. Sealed envelope marked to the captioned address, containing EOI may be submitted mentioning "EOI for Engineering, Supply, Installation and Commissioning of Boat Hoist/Lift of 800T capacity" on the top cover:

Deputy General Manager (P&O)
Administrative Building, HCSL Premises, Satyen Bose Road,
P.O.- Danesh Shaikh Lane, Nazirgunge, Howrah,
West Bengal - 711109, India,
Email: pkumar.mishra@hooghlycsl.com

Note: CEO, HCSL or any of his designates reserves the right to cancel this request for EOI and/or invite afresh with or without amendments, without liability or any obligation for such request for EOI and without assigning any reason. Information provided at this stage is indicative and CEO, HCSL reserves the right to amend/add further details in the EOI.

Yours Sincerely,



Chief Executive Officer, HCSL

LETTER OF INVITATION

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

No. **HCSL/PROJ/PANDU/011/2023-24**

Dated: 31st October 2023

(This notice is issued only to elicit an Expression of Interest from Parties interested in the Project and does not constitute any binding commitment from HCSL to proceed with the Project or invite any or all the Parties in the subsequent bidding process)

Dear Sir/Madam,

Hooghly Cochin Shipyard Limited (HCSL) on behalf of Inland Waterways Authority of India (IWAI) invites Expression of Interest (EOI), from Original Equipment Manufacturer (OEM) or from an authorized dealer/ /authorized channel partner of OEMs for the Supply, Installation and Commissioning of Boat Hoist Crane of 800T capacity for the Ship Repair Facilities being developed at Pandu, Guwahati, Assam, India. OEMs having proven technology/product and meeting broad Operational Requirement as specified in **Annexure-1** of the EoI are requested to submit its response to the EoI at below mentioned address (in hard/soft copy) along with details on company background, technical features/data sheet, product catalogue, reference list etc. latest by **November 22, 2023 till 15:00 hrs.**

This Expression of Interest (EOI) is for identification of prospective vendors and finalization of tender specifications only and not for procurement. There is no commercial aspect associated to this EOI. HCSL reserves the right to evaluate the responses, based on technical merits, and identification of the participants for further discussions.

Based on the responses received to this EoI, HCSL shall collate the information and would use the inputs for the preparation of tender document for this project.

The EOI Document is also available on the HCSL website <http://hooghlycsll.com>

You may submit your responses by email latest by 22.11.2023 along with hard copy in sealed envelopes in prescribed format to the undersigned.

Yours faithfully,


31/10/2023
Chief Executive Officer (CEO), HCSL

Encl.: EOI Document.

INFORMATION & INSTRUCTION FOR APPLICANTS

1. INTRODUCTION:

This Expression of Interest (EoI) seeks response from vendors (who are involved in and have past experience of design, engineering, manufacturing and commissioning of Boat Hoist system) for the SR facility being developed at Pandu Port Assam.

Pandu Multimodal IWT Terminal is a riverine Terminal in the Indian state of Assam, serving North Eastern states in general and Assam and Guwahati in particular. This Terminal has been developed on the bank of the Brahmaputra River. The Terminal is strategically important and one of the largest river Terminal in the North Eastern state of the country wherein, in order to accommodate ship anchorage, a marine terminal / permanent jetty has been created. In addition, many passenger ships are anchored with the tourists at this Terminal. The Terminal is also included in the 'Port of call' agreement between India and Bangladesh, known as Indo-Bangla Protocol Route. Presently, no major ship repair facility is available in the Brahmaputra. Due to lack of IWT ship repair facility in the entire North Eastern region, especially for under water repairs of the vessels, the IWT operators are put into substantial financial and economic losses since the vessels need to sail to Kolkata (through Bangladesh territorial waters), which takes a voyage time of 30 days to 40 days.

The proposed ship repair facility is on the eastern side of existing jetty at Pandu Multimodal IWT Terminal at a distance of about 350m. It is proposed to construct a boat lift/hoist facility with open piled structure parallel to river flow.

IWAI and HCSL (Hooghly Cochin Shipyard Limited) have entered into an agreement on 26 August 2021 for the development of the Ship Repair Facility at Pandu Guwahati, with NTCPWC, IITM as the Project Management Consultant. As per this agreement HCSL shall be single point nodal agency for the execution of the project on deposit basis and HCSL shall appoint National Technology Centre for Ports, Waterways and Coasts (NTCPWC) – a center of Excellency set up by Ministry of Ports, Shipping and Waterways (MoPS&W) for the Design consultancy and Project Management services (PMC) for the project, considering the expertise and the acquaintance of the ground realities at Pandu, for overall management of the project.

Foundation stone for the project “Development of Ship Repair Facility at Pandu, Guwahati, Assam” laid by the Hon’ble Prime Minister of India on 13 January 2023. This project is considered by the Govt of India as a very important infrastructure development initiative for the North East as it will be first of its kind in North Eastern region of India.

The ‘Project’ is scheduled for completion by November 2024. Commiserating with the completion of the civil works it is proposed to install and commission the Boat Hoisting, for which the present EoI is called for. A drawing depicting the proposed ship repair facility is enclosed as Annexure-II. Interested agencies may also access an animated video through the

link <https://drive.google.com/file/d/1sunslZ72yzzJLrIYYj5IadIxbx--Shv/view?usp=sharing>, for understanding the concept.

2.0 PURPOSE

The intent of this Expression of Interest hereinafter referred to as the “EOI” is to:

- 2.1 Invite applications from interested organizations / companies (the “Applicant”) who are willing to design, engineering, manufacture, supply and commission a 800 T Boat Hoist/lift to IWAI/HCSL as per desired quality and delivery requirements.
- 2.2 Formulate a standard technical specification and other terms and conditions in discussions with applicants and subsequently seek formal techno-commercial proposal through a separate tender.

3.0 BROAD DETAILS OF THE SHIP REPAIR FACILITY WITH A BOAT HOIST OF 800T CAPACITY:

- 1.The Boat Hoist Jetty and the extended deck structure is supported on open piled structure of width 70m and of length 128m in the first phase with a provision to increase to 217 m in the second (final) phase. The Structure is supported by 1200mm and 1300mm piles with founding level of approximate +10m. The deck level of jetty is +53.15m. The total development area in Phase-I is 10131m² and Phase-II is 13636 m². The facility consists of boat hoist jetty of 60m long and width of 10m parallel to the river and the transfer bay consist of berthing jetty provisions along the river side. The transfer bay is of length of 68m and width of 37.5m. The repair yard length is 68m and width is 32.5m. In Phase-I, 60m length of vessels proposed to be handled in ship repair facility and in the Final phase 90m vessels shall be handled.
- 2.The ship repair facilities will function in low flood water level and high flood water level without restriction of water levels.
- 3.For easy operation of the proposed facility, a mobile boat hoist crane is planned to lift the vessels from the wet basin.
- 4.A customized Boat Hoist crane preferably has 32 wheels with wheel spacing of approximate 4.9m center to center, suitable for lifting all types of vessel mentioned above is proposed to be installed and the present EOI is with respect to the Boat Hoist Crane to be installed in the Ship Repair facility.

4.0 QUALIFYING REQUIREMENTS

1. Only those bidders who have manufactured/supplied at least 1 No. of Boat Hoist (Boat lift) of capacity of 400 Ton to 800 Ton in last 10 years (as on the initial date of opening of EOI) are only eligible to participate.
(Reference PO/ Proof must be submitted along with EOI)
2. The interested manufacturers/ suppliers should also be required to submit along with Expression of Interest, a list of customers to whom they have supplied such kind of Boat lift equipment/ systems with details.

3. Bidder should submit at least One Performance Certificate from any of the customers (preferably from Ship Building/Repair Yard/company) for satisfactory performance of the supplied Boat hoist for a minimum period of one year from the date of commissioning (as on the initial date of opening of EOI). Full contact details of the customer from whom the performance certificate is obtained are to be provided.
4. HCSL reserves the right to verify the information provided by the bidder, in case the information is found to be false /incorrect, the offer shall be rejected.

Note:

The above qualification criteria are only provisional and pertain only to experience. The final qualification criteria including experience and financial eligibility will be framed during next tendering stage when tender is invited.

5.0 THE EOI SUBMITTED BY THE FIRM SHOULD COVER THE FOLLOWING:

1. Statement of Credentials of Interested Firm as per format 1 to 6 along with documentary evidences
2. Details of the proposed 800 T boat lift
 - a) Detailed technical Specification of each components.
 - b) Complete machine schematics
 - c) The electrical power requirements.
 - d) Layout and dimensions of the proposed equipment's / system.
 - e) Delivery period.
 - f) Detailed budgetary quotation of the Boat Hoist equipment giving separate details of optional and other add-ons parts offered by the supplier
 - g) Loads and reactions to the civil foundation.
 - h) Space requirement for installation and commissioning of the machine
 - i) Technical write-up and presentation on the above equipment/ system and experience on it.
 - j) Time required for successful design, manufacture, installation and commissioning of the equipment/system at Pandu, Guwahati, Assam.
3. The participating firm must provide after sales service for at least 5 years for satisfactory performance of the equipment/ system.
4. Warranty for 24 months from the date of final commissioning.
5. Capability of the firm in this field.
6. Full details of the Manufacturer like Address of the firm, phone, fax and email addresses and name and designation of the authorised signatory and the contact person.

6.0 PROPOSAL

Interested firms meeting the qualifying requirements above are hereby invited to submit their "Expression of Interest" (EOI) by Email followed by hard copy within 7 days. The documents in support of Expression of Interest need to be submitted duly signed by the authorized

representative of the applicant with name and designation of the signatory. The Letter of Authority should be enclosed in the EoI. The information submitted will be treated as confidential. Responses to EOI are to be submitted in English language only.

7.0 EOI TIMELINES

S.NO	PARTICULARS	DATE
1	Publication of EOI	31.10.2023
2	Last date for publishing corrigendum/clarification, if any	06.11.2023
3	Last date and Time for Submission of EOI	22.11.2023 upto 15:00 hrs
4	Date & Time of opening of EOI	22.11.2023 at 15:30 hrs

8.0 GOVERNING LAWS & JURISDICTION

The EoI process shall be governed by, and construed in accordance with, the laws of India and the Courts at Kolkata (India) shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the EOI process.

FORMATS FOR SUBMISSION:

FORMAT – 1

APPLICANT'S EXPRESSION OF INTEREST

To,

Chief Executive Officer (CEO)

Administrative Building, HCSL Premises, Satyen Bose Road,

P.O.- Danesh Shaikh Lane, Nazirgunge, Howrah,

West Bengal - 711109, India,

Sub: Submission of Expression of Interest to Design, Manufacture, Supply, Installation, Testing and Commissioning of Boat Hoist Crane 800T capacity

Sir,

In response to the Invitation for Expressions of Interest (EOI) published on 31.10.2023 for the above purpose, we would like to express interest to carry out the above proposed task. As instructed, we attach 2 sets of the following documents in separately sealed envelopes and one soft copy:

1. Organizational Details (Format-2)
2. Experience and Past performance for the last 10 year (as on the initial date of opening of EOI) (Format-3)
3. Capabilities with respect to personnel equipment and manufacturing facilities for the last year ending 31.03.2023 (Format-4a ,4b)
4. Financial strength of the organization (Format-5)
5. Additional information (Format-6)
6. Declaration (Format-7)

Sincerely Yours,

Signature of the applicant

[Full name of applicant]

Stamp.....

Date:

Encl.: As above.

Note:

1. This is to be furnished on the letter head of the organization.
2. If the bidder is an authorized dealer/agency/authorized channel partner of OEMs, the separate details shall be submitted for the authorized dealer/agency/authorized channel partner apart from the OEM s

FORMAT – 2

S. No	Organizational Contact Details	
1.	Name of Organization	
2.	Main areas of business	
3.	Type of Organization Firm/ Company/ partnership firm registered under the Indian Companies Act, 1956/ the partnership Act, 1932	
4.	Whether the firm has been blacklisted by any Central Govt. / State Govt./PSU/ Govt. Bodies / Autonomous in India? If yes, details thereof.	
5.	Address of registered office with telephone no. & fax	
6.	Address of offices in India	
7.	Contact Person with telephone no. & e-mail ID	
Note: If the bidder is an authorized dealer/agency/authorized channel partner of OEMs the separate details shall be submitted for the authorized dealer/agency/authorized channel partner apart from the OEM s		

Enclose:-

1. Copy of Certificate of Incorporation.
2. Copy of Article of Association in respect of 3 above.
3. Undertaking in respect of 4 above.

Signature of the applicant
Full name of the applicant
Stamp & Date

FORMAT – 3

Experience and Past Performance in manufacture , supply , installation and commission of Boat Hoist					
Overview of the past experience of the Organization					
Sl. No	Boat Hoist (Boat lift) capacity (400 Ton to 800 Ton)	Year of supply and commissioning	Order Value of each assignment in Rs in Lakhs (Enclose copy of each order)	Mention the Name of Client/ Organization (Enclosed Completion Certificates)	Performance Certificate
1					
2					
3					
	Signature of the applicant Full name of applicant				

Note:

1. If the bidder is an authorized dealer/agency/authorized channel partner of OEMs, the separate details shall be submitted for the authorized dealer/agency/authorized channel partner apart from the OEM s
2. If the Bidder is an authorized dealer or Agency or Authorized Channel Partner, the OEMs Technical eligibility will be considered for Evaluation purpose of the Bid, subject to production of necessary Authorization letter from OEMs

FORMAT – 4 (a)

Details of the skilled personnel				
S. No	Name	Designation	Qualification	Relevant Experience
1.				
2.				
3.				
4.				
5.				
6.				

Signature of the applicant
Full name of applicant
Stamp & Date

FORMAT – 4 (b)

Major Equipment and manufacturing facilities available for fabrication of the Boat Hoist

FORMAT – 5
FINANCIAL DETAILS

S.no	Financial Year	Whether Profitable (Yes/No)	Annual net profit (in crores of Rs)	Overall Annual Turnover (in crores of Rs)	Annual Turnover from only Supply, Installation, Testing and Commissioning of Boat Hoist Crane (in Crores of Rs)
1	2022-23				
2	2021-22				
3	2020-21				
Note: <ol style="list-style-type: none"> 1. Original or notarized latest copy of the I.T.C.C., Annual report (balance sheet and Profit & Loss Account) of last 3 years to be enclosed 2. If the Bidder is an authorized dealer or Agency or Authorized Channel Partner, the OEMs Financial eligibility will be considered for Evaluation purpose of the Bid, subject to production of necessary Authorization letter from OEMs. 					

Signature of the applicant
Full name of applicant
Stamp & Date

FORMAT – 6

Additional Information
<ol style="list-style-type: none">1. Details of the proposed 800 T boat lift<ol style="list-style-type: none">k) Detailed technical Specification of each components.l) Complete machine schematicsm) The electrical power requirements.n) Layout and dimensions of the proposed equipment's / system.o) Delivery period.p) Detailed budgetary quotation of the Boat Hoist equipment giving separate details of optional and other add-ons parts offered by the supplierq) Loads and reactions to the civil foundation.r) Space requirement for installation and commissioning of the machines) Technical write-up and presentation on the above equipment/ system and experience on it.t) Time required for successful design, manufacture, installation and commissioning of the equipment/system at Pandu, Guwahati, Assam.2. The participating firm must provide after sales service for at least 5 years for satisfactory performance of the equipment/ system.3. Warranty for 24 months from the date of final commissioning.4. Capability of the firm in this field.5. Additional information, brochures etc if any

Signature of the applicant

Full name of applicant

Stamp & Date

FORMAT -7

Declaration
<p>We hereby confirm that we are interested in competing for Supply, Installation and Commissioning of Boat Hoist Crane 800T capacity</p> <p>All the information provided herewith is genuine and accurate.</p> <p>Authorized Person's Signature.</p> <p>Name and Designation:</p> <p>Date of Signature:</p> <p>Note: The declaration is to be furnished on the letter head of the organization.</p>

**SUPPLY, INSTALLATION AND COMMISSIONING OF BOAT HOIST CRANE 800T
CAPACITY****Important:**

The Employer suggested requirement is tabulated hereunder. The firms respond to the EOI shall either confirm the details furnished and/or indicate the corresponding details to the equipment proposed by them. They can also amplify the indicative Technical requirements specified hereunder and furnish full information relating to the equipment proposed.

EMPLOYER'S SUGGESTED REQUIREMENT**1. Technical Specification**

♦ Max capacity	:		800	metric ton
♦ Dock span	:		17500	Mm
♦ Clear inner width	:		18600	Mm
♦ Track	:		20900	Mm
♦ Max width	:	approx.	23400	Mm
♦ Gauge	:		20500	Mm
♦ Max length (at the base)	:	approx.	27500	Mm
♦ Clear height under transversal beam	:		18520	Mm
♦ Max height	:	approx.	22000	Mm
♦ Groups of steering wheels	:		n. 8	
♦ Electronic Steering System based on a PLC that permits the following special steering configurations				
✓ Steering on 16 wheels				
✓ Steering on 8 rear wheels				
✓ Steering on 8 frontal wheels				
✓ 90° - directional $\pm 5^\circ$				
✓ All Round Steering (Carousel Steering) by 360°				
✓ Crab Steering (diagonal steering) from 0 to 90°				
♦ Industrial tyres	:			
♦ Inflation pressure	:			
♦ N. of winches (synchronized and independent)	:			
♦ N. of lifting points	:			
♦ N. of mobile lifting points (trolleys)	:			
♦ Lifting speed when laden	:			
♦ Lifting speed when unladen	:			
♦ Travelling speed when laden	:			
♦ Travelling speed when unladen	:			
♦ Affordable slope at full load (on concrete or tarmac)	:			
♦ Water-cooled diesel engines brand				
♦ Hydraulic pumps with variable cubic capacity	:			
♦ Capacity of the fuel tanks	:			
♦ Capacity of the hydraulic circuit oil tanks	:			

♦ Polyester lifting slings, in two pieces (complete with textile cut-preventing protections) with a safety factor major than 7	:		
♦ Hoisted load displayed via high precision strain cells			
♦ Commands via remote control + cable-fed button strip			
♦ Weight of the equipment (shipping weight)	:		ton

1.1 Suggested Frame

- The frame consist of two vertical frames placed in a longitudinal travel direction and connected transversally by a single cross beam placed at the front end of the frames, obtaining a C shaped structure open at one end. To allows the yard to handle boats which are taller than cross beams connecting the two frames. This structure has box girders connected together with high strength bolted joints.
- The location of the connecting flange was studied considering that the hoist would be transported by containers/trucks and to facilitate assembly when on site using normal hoisting appliances. These box girders are constructed with flat arches and cores of sheet steel welded at full penetration. Internal stiffening diaphragms avoid any local instability.
- All welding should follow an automatic procedure approved by the competent control and test boards
- Frame welding detection should be controlled by checking and testing during the manufacture (ultrasonic, magnetic and other non-destructive tests are suggested).
- All welded plates on the steel structure should adopt the edge planer to process the groove according to the standard.
- Structural design and mechanisms should comply (please specify the standards)
- Between one of the upper longitudinal beam and the main transversal beam there should be an **articulation metallic hinge “pivot”** that enables the machine to adapt itself to the soil: the tires perfectly lean on the soil also when there are antithetic slopes. The machine should always work in isostatic conditions

1.2 OFFSET TRANSVERSAL BEAM

The machine is designed with the transversal beam positioned beyond the last lifting slings spreader.

1.3 WHEEL GROUPS

The Details of the displacement system of the machine to be provided by the bidder

The wheel should be mounted on hubs (idle and powered hubs) with bearings made of double conical rollers that can support not only the radial load but also the axial load tentatively or modify to suit the proposed equipment.

Tires: Details to be provided by the firm

▪ Rims :	Details to be provided
▪ Bearings (for idle hubs) with conical and barrel rollers	Details to be provided
▪ Inflation pressure	Details to be provided

On each wheel group should be equipped with mushroom red button to stop the machine during emergency situations and revolving lights and acoustic signals that are put into action when the machine is at work or specify the alternative to the equipment specified.

1.3.1 Motorization for travelling

Travelling is achieved through wheels hub formed of a metal pipe with a motor reduction gear unit incorporated and closed in a housing supported by the central wheel holder.

Generally it may be vacuum tight and does not require maintenance and there should not be any moving elements on the outside. On the opposite side, coaxial to the reduction gear unit, there is a axial piston hydraulic motor.

Between the motor and the reduction unit there is a negative multiple disc parking brake.

This multiple disc brake shall work when there is no supply pressure always guaranteeing maximum safety with the engine off or if the Boat Hauler is parked on a slope.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed

1.4 HYDRAULIC TRANSLATION SYSTEM

The displacement of the machine is be achieved by a hydraulic system in closed loop.

The hydraulic circuit should be kept under continuous pressure by a feeding pump which is incorporated in the main pump and compensates the losses from the system. In this way the starting and the halting of the machine are properly adjusted by means of a joystick that moves the pump disc, guaranteeing a slow and graduated variation of the displacement speed.

When the joystick is released by the operator it goes in the neutral position (the central one) and the machine gradually stops.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed

1.5 BRAKING SYSTEM

There should be two braking systems:

a) SERVICE BRAKE

This kind of brake is intrinsic in the type of hydrostatic transmission that is used for the starting of hydraulic engines.

b) PARKING BRAKE

The parking brake is installed between the hydraulic engine and the reduction gear.

It is sized to make the machine stay in its position when the maximum slope is climbed. Moreover, it compensates the wind stress on the machine during all the possible working conditions.

This should be dimensioned to support the system when the Boat Hauler reaches the maximum gradient with its load.

It should be capable of supporting the thrust provoked by wind conditions.

1.6 Steering Data

The machine should be provided with 4x2 steering wheel groups.

The rotation will be achieved by special powered slew drivers sized to support the various stresses along both the longitudinal and the horizontal direction.

The steering of the wheel group will be achieved by powered slew drives which are hydraulically controlled.

The steering should be controlled by a position sensor and is then processed by a PLC microprocessor which automatically commands the various steering degrees, always guaranteeing the most suitable working conditions and avoiding every possible sideslip. The possible steering options to be adopted:

- On all four groups
- On the front wheel groups
- On the rear wheels groups
- “Carousel” steering (360° all around steering) on the spot
- At 90° directional $\pm 5^\circ$
- “Slanting” (crab steering) from 0° to 90°

The slew drives should consist of a ring gear with n. 2 special endless screws that are activated by hydraulic engines. The whole system should be supported by special bearings with high resistance and is completely housed.

The supervision system should be controlled by a micro-processor, which automatically controls the stress on the slew drivers and, if necessary, works on parameters of the steering kinematics making it possible to achieve the optimal working conditions for the machine.

This continuous check enables the machine to smoothly steer in each condition, guaranteeing the maintenance of the components during the time.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.7 HOISTING ELEMENTS

The lifting of the maximum load (800 ton) is to be achieved by ___ polyester lifting slings that are hanged to ___ spreaders (balance sling holders). Each main spreader should support 2 under-spreaders. N. 4 lifting slings are hanged to each of the under-spreader by means of articulated joints. Therefore, each main spreader to have ___ lifting slings. Furthermore, ___ attachments (picking points) for the end spreaders to be accounted for along the main spreader.

The spreaders will be connected by means of steel ropes and pulleys that return the ropes to the oscillating carrying blocks placed along the two upper longitudinal beams.

In the spreaders, the pulleys should be positioned in such a way that the pulley receiving the entering rope is aligned with the pulley releasing the exiting rope this prevents the rotation of the spreaders guaranteeing, at the same time, a compact pulley pack.

The spreaders are to be articulated in such a way to enable the slings to always work in the most proper way and are provided with pulleys mounted on ball bearings.

The connection between the slings and the spreaders should be made with pivots that are provided with a handle and are made of high resistance steel (hot deep galvanized) with safety splints. The system guarantees quick and safe operations (sling removal / sling collocation).

On the pulleys a bearing with two roller crowns to be specified or similar, should be installed. The bearings are to be fitted with a manual greasing system.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.7.1 TRAVELLING SPREADERS – Trolleys

The machine is fitted with ___ lifting points; all lifting points will be hydraulically moved.

Their positions are electronically tracked by the PLC via electronic sensors, in order to prevent contact between the spreaders. Moreover, the PLC combines this datum with the data received from the load cells and calculates the overall loading diagram, guaranteeing that the machine always works in an allowed and safe lifting configuration.

LIFTING LINE <i>(numeration starting from the open side)</i>	MOVABLE / FIXED TROLLEY	TROLLEY TRAVEL

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.7.2 WINCHES

A total of ___ winches, synchronized and independent, ___ on each side (i.e. one per each lifting point).

Each winch should have turning grooved drum on which the wire rope winds on maximum two layers.

The drum should be supported by a big-size bearing on one side, to allow for the rotation of the drum, while on the other side, coaxial to the drum, the geared epicyclical reduction gear unit in an oil bath as well as the hydraulic motor are mounted. A negative multiple disc brake is mounted between the reduction gear unit and hydraulic motor.

A screw limit switch stops the movement at the extreme travel points (up and down).

The winches are located four by four, on the lower longitudinal beams, in such a position to allow each access for servicing and maintenance.

As already specify the winches, with big-diameter drums, spool a maximum of 2 layers of rope: this ensures that the ropes themselves are always properly positioned, preventing any possibility of their superposing in the wrong way and, consequently, avoiding risky damages or wears on the ropes themselves.

The length and the diameter of the drums are such to ensure that the sling-carrying spreaders can descend beyond the dock level by approx. 1.5 m

The particular configuration with a direct correspondence between the winch and the spreader guarantees the outmost versatility about the possibility to handle – with no load suspended – the spreaders desired by the operator.

This is for sure the most reliable system, as when a winch is moved, the closest spreader is immediately moved, as a consequence.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.7.3 HYDRAULIC PLANT FOR WINCHES FEEDING

- The lifting winches are fed by a hydraulic pump with variable cubic capacity that works on the compensated distributors.
- Each winch should be provided with an independent distributor with its own max pressure valve.
- The commands are processed by the remote control and are via “man-on-site” joysticks.
- The winches can be simultaneously or singularly commanded: it enables the perfect balancing of the ship, both in the longitudinal and in the transversal side.
- The descent movement is controlled by a counterbalance which is commanded by the oil pressure that will feed the engine during the descent operations.

1.7.4 LIFTING BRAKE SYSTEMS

Each winch is provided with a service brakes installed between the hydraulic engine and the reduction gear (the brake type is a negative one).

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.7.5 SLINGS

The machine is equipped with ____ slings, fabricated in polyester 100%, with two thermally fixed layers, painted, treated against UVA rays and abrasions. They should be prepared in compliance with the standards- specify the standard, capacity of no less than ____ tons. when in the “U” shape – safety factor > 7:1, width reduced at the ends.

Lifting sling data

- No. of slings	:
- Type	:
- Total Length of the slings	:
- Length of the textile protections	:

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.8 SLINGS CONNECTIONS

Each sling is divided in 2 elements having a length of, respectively, ____ and ____ meters. The 2 parts of each sling is joined via metallic hot-zinc-plated joints. The sling connections have quick-release pins made in high resistance steel (hot deep galvanized). The pins are equipped with handle and safety cotter pin for quick and safe operations. Also, between the slings and the

spreaders there are quick-release pins equipped with handle and safety cotter pin for easy and fast sling adjustment or removal.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.9 LIFTING SECURITIES

- The lifting movement is provided with an upper limit switch that immediately blocks the travel when the spreader reaches the maximum height allowed. A low limit switch guarantees the same function in order to prevent the spreader from going further the dock maximum level in the chosen profundity
- When the load reaches a total capacity bigger than the allowed maximum load (which corresponds to 110% of the rated load) a load limit switch will stop the lifting travel and switch on a sound alarm (claxon).
- The load controlled descent is guaranteed by balancing valves.
- Upper and low extra-travel work on a general counter (redundancy system)
- Emergency stop button with key lock.
- The following critical situations due to breakdown situations are already controlled by our basic hydraulic design:
 - longitudinal load holding
 - horizontal displacement braking

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.10 HIGH PRECISION WEIGHING SYSTEM

The load reading is made by a weighing system with digital displays positioned near the thermo-hydraulic group. In the displays it is possible to read not only the total weight, but also the load lifted on the open and on the closed side and the load lifted by every single lifting line.

The system, microprocessor controlled, is made of _____ load cells placed on the pins of the return lifting pulleys: it enables a very precise weighing reading and the possibility to visualize the load lifted by each weighing lines.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.11 THERMO-HYDRAULIC GROUPS

The sound-proof thermic groups is placed under the two lower longitudinal beams (one on each side) and are at men's height in order to enable easy inspection and maintenance operations.

Each thermic group should be insulated with a sound-proofing foam and is fitted with large hinged doors, on the front and on the back of the group itself, in order to facilitate access to all of the group's elements and components.

The “New Hydraulic Installation Optimizing System”, even in the event that one of the two engines should fail, allows the machine to perform all the movements such as travelling, steering, lifting and displacement of the upper trolleys. With only one engine at work, even at full load condition (800 ton), the machine will be able to perform all the movements in “emergency” at reduced speeds. This system, via the control of the hydraulic installation, permits to the running power unit to compensate the nonoperation of the other one, keeping all the functionalities of the machine.

Diesel engines data (n° 2 units)

- Cooling	:	
- Type	:	
- RPM	:	
- Power	:	
- Engine complying with	:	
- Cylinders	:	

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.12 GENERAL DESCRIPTION OF THE HYDRAULIC PLANT

Every pipe that feeds the engines and the hydraulic processors starts from the thermo-hydraulic group.

The pipes, whose diameter and thickness change based on the pipe’s specific use, are made of galvanized steel. Dimension of the commonly used pipes:

- External diameter =	Internal diameter =
- External diameter =	Internal diameter =
- External diameter =	Internal diameter =
- External diameter =	Internal diameter =
- External diameter =	Internal diameter =
- External diameter =	Internal diameter =
- External diameter =	Internal diameter =

The pipes are connected to the structure by fixing elements provided with rubber rings that are also used to insulating the pipes.

The connections between the engines and the winches on the wheel groups are achieved by flexible pipes made of various metallic bands covered by rubber.

The rigid connections (fittings) are special ones components that are manufactured by Voss.

The treatment for corrosion to be specified.

After the preassembly on workshop on the boat lift's structure, all hydraulic hoses (rigid pipes + fittings) are removed from the structure, undergo an internal cleansing, are carefully tapped and then painted in compliance with the marine paint cycle

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.12.1 Hydraulic installation layout

Hydraulic installation layout to be specified by the firm

It is recommended that oil is always kept in the best possible conditions, and this guarantees an excellent operation and, what is more important, guarantees an excellent performance of the pumps and the whole circuit.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

1.13 Description of hose safety device

On the hydraulic hoses where there are high pressures involved and on those at ground level, safety system is installed to be specified by the firm

1.14 ELECTRICAL INSTALLATION AND CONTROL SYSTEM

1.14.1 General description

Electrical systems and components comply with standard- specify the standard

The electrical equipment is enclosed in two robust steel closed cabinets / casings, so as to prevent accidental contact to the parts under voltage. The electrical closed cabinets / casings steel to be specified by the firm.

Moreover, the electrical cabinets / casings and the remaining electrical equipment is located such that they will be easily accessible for maintenance and repair.

All the wire channels have removable covers for easy inspection. Each electrical component is duly labelled to be codified with the same reference of the electrical drawings supplied with the equipment. It will enable an easy and comfortable maintenance of the whole electrical installation.

Note:

The details are only indicative. The firm shall furnish the details of the equipment proposed.

Remote control

All the machine displacements are commanded via a remote control (the operator will be free to move around the machine, having the best visual over all of the machine's points rather

than having to command the machine from a cabin, where he surely cannot have the same clear vision) The remote control is bidirectional: it does not only give the inputs to the machine but also captures the outputs sent by the equipment.

The outputs can be also visualized in the remote control display, where it is possible to visualize the weight and some diagnosis / alarms signals of the machine.

Moreover, the remote control is provided with an ABS tough case, having a shoulder belt for the operator. It is supplied with a battery already installed in the battery chamber, n. 2 spare batteries and n. 1 battery charger. The estimated duration of the battery's charge is 8 hours

Auxiliary box

There is an auxiliary box- Specify the details.

Emergency button strip

In some unforeseen conditions if the remote control fails Emergency button strip is provided- details to be specified by the firm.

1.14.2. Proportional distributors

In emergency situations (when all the above detailed command systems fail) is it possible to make the load safe by means of the proportional distributor levers- clarify.

1.14.3. Supervision and tele-assistance system

On the machine there is a graphic interface that enables the operator to supervise the machine status and visualize the alarms (by means of error codes and diagnosis messages).

The graphic interface consists of a display with alpha/number buttons and function buttons. By means of the same graphic interface is it possible to set / parameterize some functions of the machine, in particular the steering and the displacement movements.

For this particular operation, a safety password is required.

Furnish the list of some of the possible operations and visualizations to be provided

2.0 TRAINING ON SITE AND DOCUMENTS

2.1 MAINTENANCE TRAINING

Maintenance training to be provided by the firm with following scope:

- Routine checks and preventive maintenance.
- Fault diagnosis.
- Removal, dismantling and replacement of parts and components.

- Basic electrical checks, safety routines and component replacement.
- Approach to hydraulic systems overhaul.
- Maintenance planning records and procedures.
- Health and Safety procedures, with particular attention to equipment / systems for monitoring of load, etc.
- Verification and calibration of overload devices.

Training should be by technicians who will be fluent in English.

2.2 OPERATOR'S TRAINING

Operators' training to be provided by the firm with following scope:

- Instruction, familiarization and practice in the overall operation of the Equipment.
- Health and Safety procedures, with particular attention to distribution of the load to be lifted by the Equipment, monitoring of center of gravity, slinging, etc.
- Practice at the control and synchronization of the Equipment motions.
- Start-up and shut-down procedures.

Training should be done by technicians who will be fluent in English.

2.3 DOCUMENTS FOR MAINTENANCE AND SPARE PARTS

The machine is to be supplied along with 1 copy of the Maintenance and Operation Manual – in compliance with the Machine Directive – as well as a complete set of documents including:

- Certificates of warranty from the manufacturers of the bought-in elements
- Certificates of the ropes
- 1 copy of the wiring diagram
- 1 copy of the assembly drawing
- Chart of lubricants and lubrication timetable
- 1 copy of the list of spare parts

Upon completion of the assembly, a functional test to be made as detailed in the Maintenance and Operation Manual; upon positive result of this test, 1 copy of the Declaration of Conformity with the Machine Directive prescriptions will be supplied by the firm to the Employer.


Whenever possible, all documents should be in English.

The Maintenance and Operation manual should be in English.

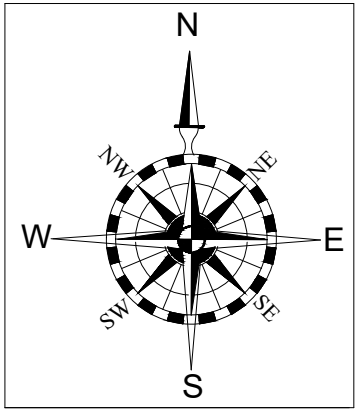
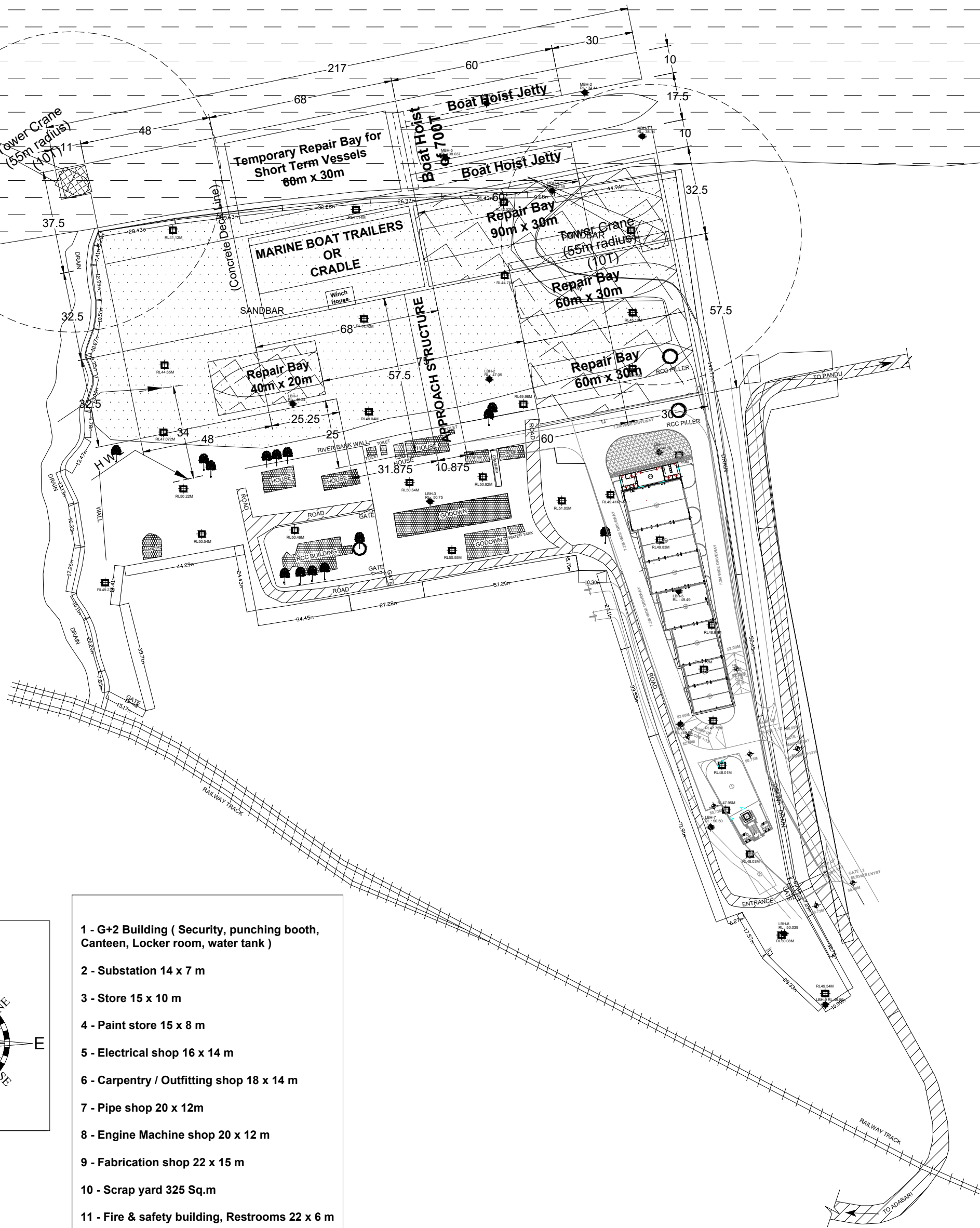
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LAYOUT OF SHIP REPAIR FACILITY PHASE I

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

BRAHMAPUTRA RIVER




- 1 - G+2 Building (Security, punching booth, Canteen, Locker room, water tank)
- 2 - Substation 14 x 7 m
- 3 - Store 15 x 10 m
- 4 - Paint store 15 x 8 m
- 5 - Electrical shop 16 x 14 m
- 6 - Carpentry / Outfitting shop 18 x 14 m
- 7 - Pipe shop 20 x 12m
- 8 - Engine Machine shop 20 x 12 m
- 9 - Fabrication shop 22 x 15 m
- 10 - Scrap yard 325 Sq.m
- 11 - Fire & safety building, Restrooms 22 x 6 m

LAYOUT OF SHIP REPAIR FACILITY PHASE I & II

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

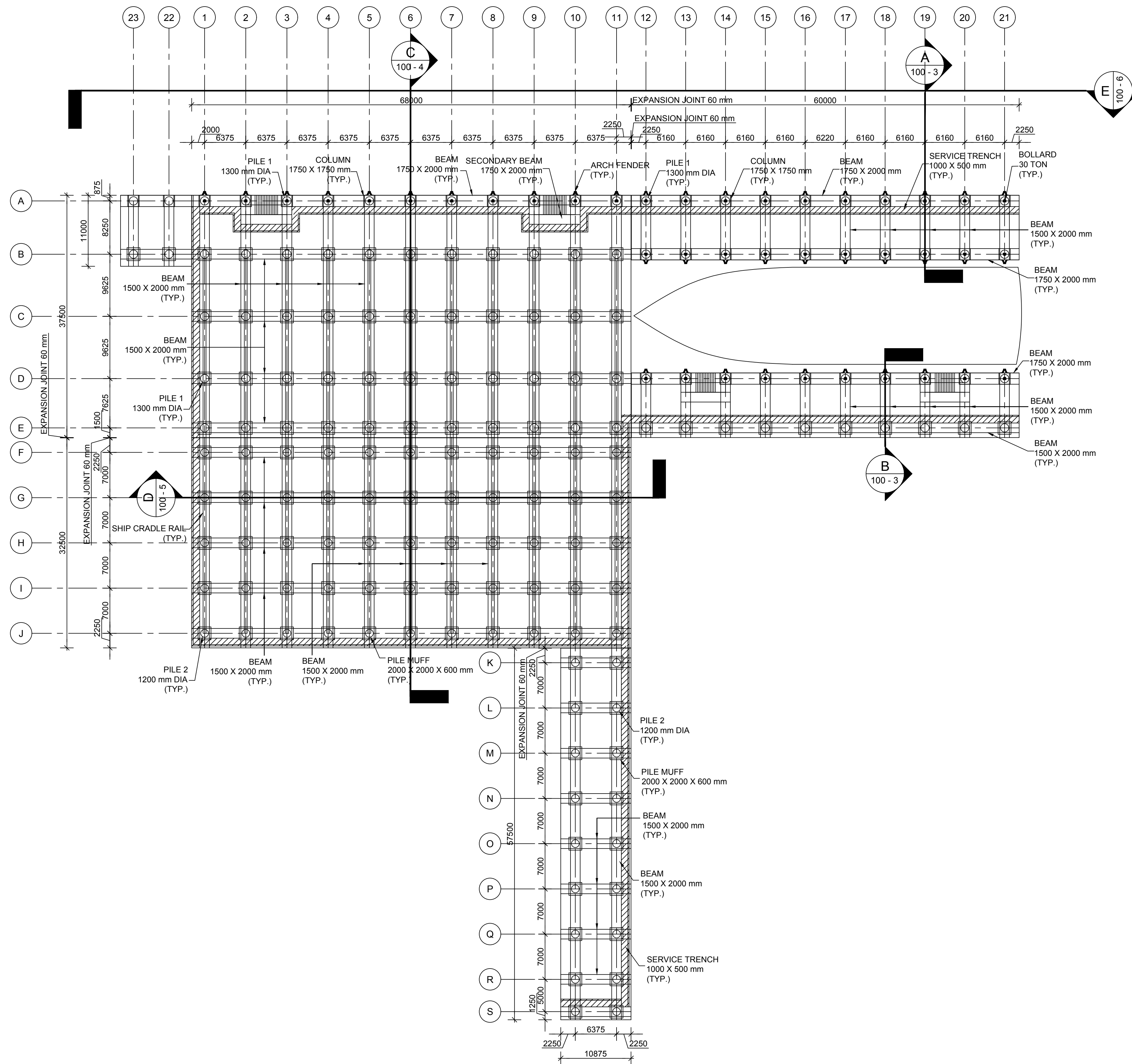
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	DATE		DRAWN	CHECKED	APPROVED			

CLIENT:	HOOGLY COCHIN SHIPYARD LIMITED		DATE: 11.04.2022
PROJECT:	DESIGN PROJECT FOR SHIP REPAIR FACILITY TO HANDLE INLAND WATERWAYS VESSELS AT PANDU, GUWAHATI		
DRAWING TITLE:	LAYOUT OF SHIP REPAIR FACILITY (SHEET 2 OF 2)		
DRAWING NO:	IITM-DOE-HCSL-SRF-100-02		REV 0
ENGINEERING FIRM:	<div><div><div>Prof.S.A.SANNASIRAJ</div><div>Prof.K. MURALI</div><div>DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36</div></div></div>		



Prof.S.A.SANNASIRAJ
DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36

Prof.K. MURALI




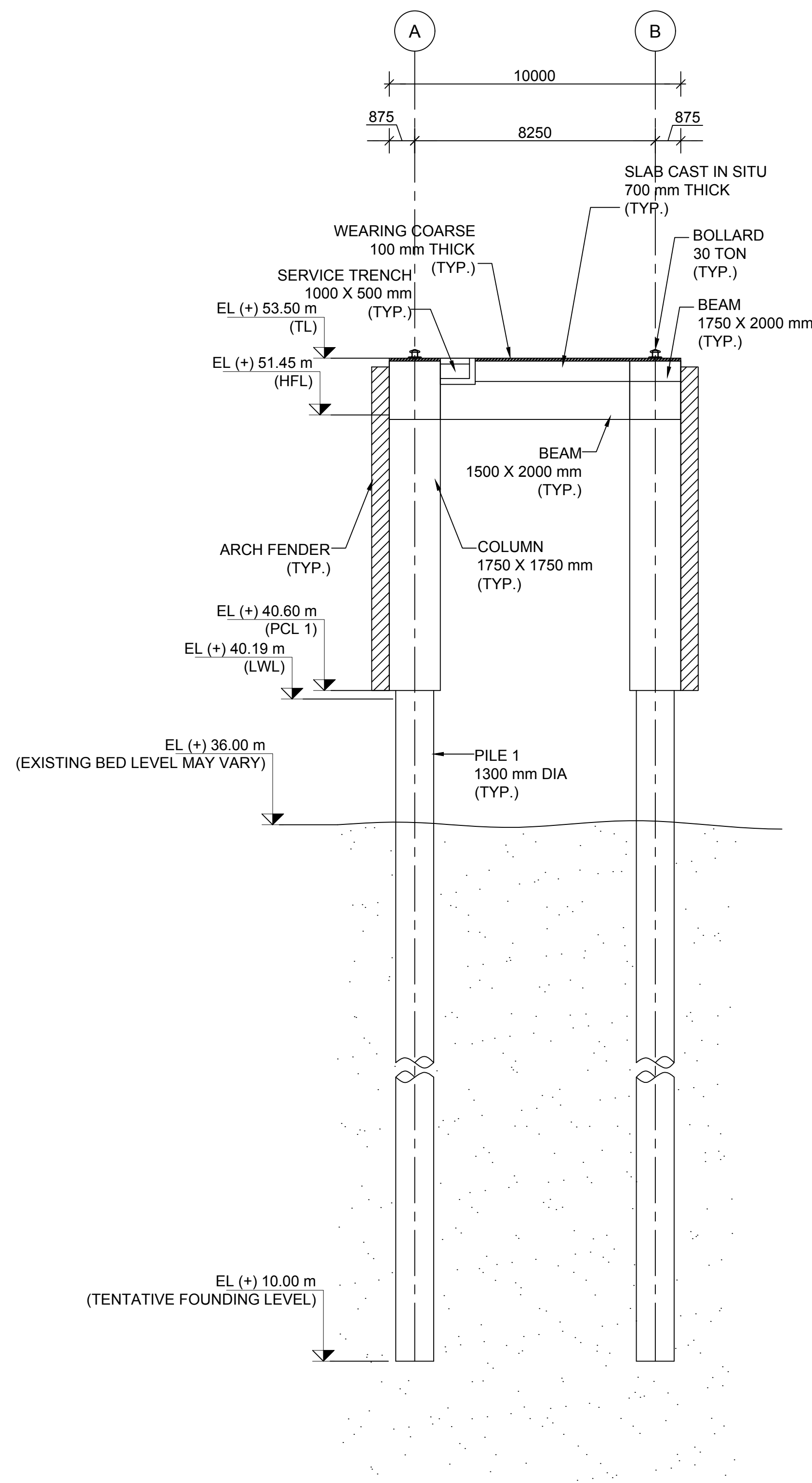
NOTES :-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS INDICATED ARE IN METERS WITH RESPECT TO MEAN SEA LEVEL.
3. CONCRETE GRADE FOR ALL RC STRUCTURE SHALL BE M40 WITH MINIMUM 28 DAYS CHARACTERISTIC STRENGTH OF 40 MPa.
4. STEEL GRADE FOR ALL REINFORCEMENTS USED IN RC STRUCTURES SHALL BE CORROSION RESISTANT STEEL WITH A MINIMUM YIELD STRESS OF 500 MPa.

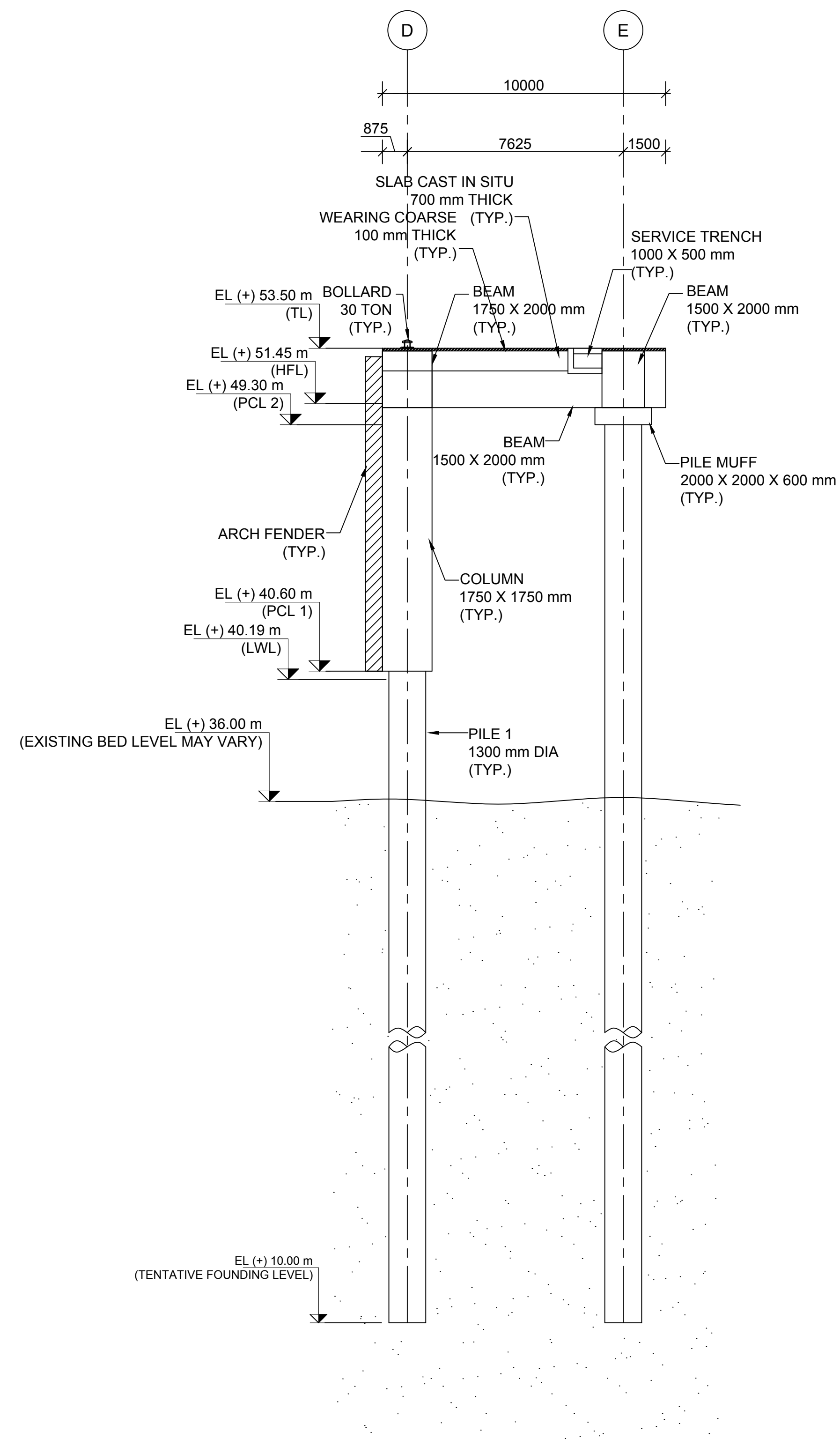
REV.	DDMMYY DATE	DRAWING NO:	TITLE	D R N	INIT.	SIGN.	INIT.	SIGN.	
					CHECKED		APPROVED		

ORIGINAL SIZE:A1

CLIENT:	HOOGLY COCHIN SHIPYARD LIMITED		DATE: 25.03.2022
PROJECT:	DESIGN PROJECT FOR SHIP REPAIR FACILITY TO HANDLE INLAND WATERWAYS VESSELS AT PANDU, GUWAHATI		
DRAWING TITLE:	GENERAL ARRANGEMENT OF SHIP REPAIR FACILITY PHASE - I (SHEET 1 OF 6)		
DRAWING NO:	IITM-DOE-HCSL-SRF-100-01		
ENGINEERING FIRM:	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>Prof.S.A.SANNASIRAJ</p> <p>DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36</p> </div> <div style="text-align: center;"> <p>Prof.K. MURALI</p> </div> </div>		



SECTION AA
Scale 1:125




SECTION BB
Scale 1:125

NOTES :-

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REV.	DDMMYY DATE	DRAWING NO:	TITLE	DRN	INIT.	SIGN.	INIT.	SIGN.		
					CHECKED		APPROVED			

ORIGINAL SIZE:A1

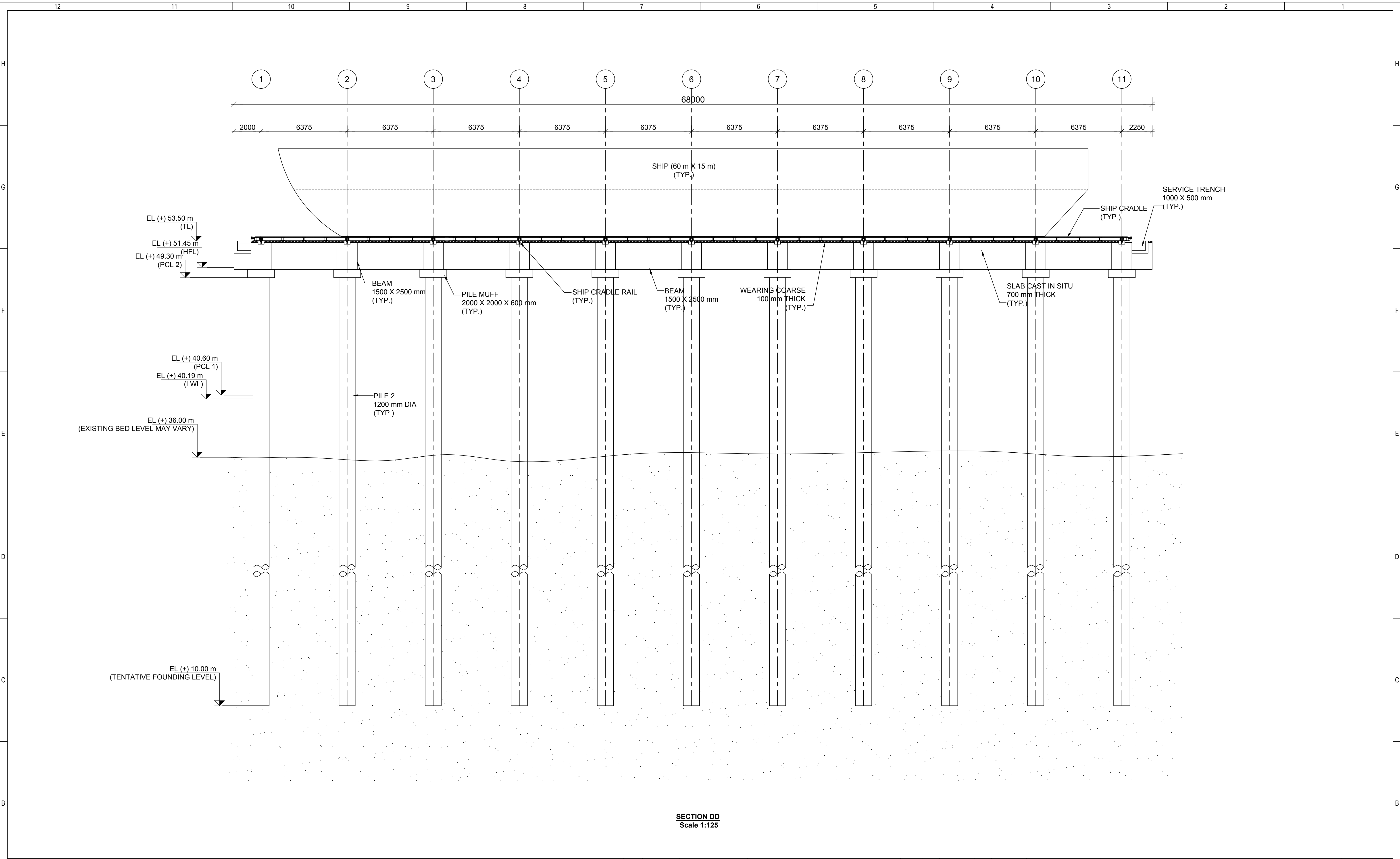
CLIENT:	HOOGLY COCHIN SHIPYARD LIMITED	DATE: 25.03.2022
PROJECT:	DESIGN PROJECT FOR SHIP REPAIR FACILITY TO HANDLE INLAND WATERWAYS VESSELS AT PANDU, GUWAHATI	
DRAWING TITLE:	GENERAL ARRANGEMENT OF SHIP REPAIR FACILITY (SHEET 3 OF 6)	
DRAWING NO:	IITM-DOE-HCSL-SRF-100-03	Scale as shown REV 0
ENGINEERING FIRM:	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <p>Prof.S.A.SANNASIRAJ</p> <p>DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36</p> </div> <div style="text-align: center;"> <p>Prof.K. MURALI</p> </div> </div>	






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ORIGINAL SIZE:A1A



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							PROJECT:	DESIGN PROJECT FOR SHIP REPAIR FACILITY TO HANDLE INLAND WATERWAYS VESSELS AT PANDU, GUWAHATI	
							DRAWING TITLE:	GENERAL ARRANGEMENT OF SHIP REPAIR FACILITY (SHEET 5 OF 6)	
							DRAWING NO:	IITM-DOE-HCSL-SRF-100-05	Scale as shown REV 0
							ENGINEERING FIRM:	<div></div> <div>Prof.S.A.SANNASIRAJ DEPARTMENT OF OCEAN ENGINEERING,IIT MADRAS, CHENNAI - 36</div> <div>Prof.K. MURALI</div>	

