

कोचीन शिपयार्ड लिमिटेड/COCHIN SHIPYARD LIMITED
कोच्ची/COCHIN - 682 015

पोत निर्माण प्रभाग/SHIP BUILDING DIVISION
आउटसोर्सिंग विभाग
OUTSOURCING DEPARTMENT



निविदा दस्तावेज़/TENDER DOCUMENT

TENDER NO. SB-OSD/HFEB/742/2023 Dtd 13-01-2023

**OUTSOURCING OF ALUMINIUM HULL STRUCTURE
FABRICATION AND MISCELLANEOUS STRUCTURAL
OUTFITTING WORKS OF BY-150 (HFEB)**



वसुधैव कुटुम्बकम्
ONE EARTH • ONE FAMILY • ONE FUTURE



JANUARY - 2023

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निविदा सूचना / TENDER NOTICE
कोचीन शिपयार्ड लिमिटेड / COCHIN SHIPYARD LIMITED
पोत निर्माण प्रभाग / SHIP BUILDING DIVISION
आउटसोर्सिंग विभाग
OUTSOURCING DEPARTMENT

SB-OSD/HFEB/742/2023

13th JANUARY - 2023

निविदा सूचना / TENDER NOTICE

संक्षिप्त विवरण / BRIEF DETAILS:

निविदा जांच संख्या और तारीख Tender enquiry No. and date	Tender enquiry No. and date	SB-OSD/HFEB/742/2023 Dtd: 11.01.2023
कार्य का नाम Name of work	Name of work	Outsourcing of The Aluminium Hull Structure & Miscellaneous Structural Outfitting Items of BY-0150 (HFEB)
निविदाएं प्राप्त करने की अंतिम तिथि और समय Last date & time of receipt of Tenders (भाग/Part I – तकनीकी-वाणिज्यिक बोली और भाग – II मूल्य बोली/ Techno-Commercial Bid & Part II-Price Bid)	Last date & time of receipt of Tenders (Part I – Techno-Commercial Bid & Part II-Price Bid)	27 th January - 2023 at 15.00 Hrs IST
पूर्व बोली बैठक की तारीख Date of Pre bid meeting	Date of Pre bid meeting	NA
भाग I (तकनीकी-वाणिज्यिक) बोली खोलने की तिथि और समय Date & time of opening of Part I (Techno –Commercial) Bid	Date & time of opening of Part I (Techno –Commercial) Bid	27 th January - 2023 at 15.30 Hrs IST
संपर्क व्यक्ति Contact Person	Contact Person	<i>For Commercial queries:</i> Mr. Sahadevan C, Mob No:81389 01956, AM (SBOC) <i>For Technical queries:</i> Mr. Joby Varghese, Mob. No: 98957 04410, AGM (HF-2)



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

1. **Cochin shipyard Limited, a leading Ship Building & ship repair industry and also well known player on the global ship building front, invites interested, reputed, resourceful and financially solvent firms/contractors to submit single stage two part bids.**
2. The Sealed competitive tenders in the prescribed form should be as per the terms and conditions as mentioned in the annexure to tender enquiry,
3. The tenders are to be submitted in two bid system; **Part I : Techno Commercial Bid** and **Part II : Price Bid** as Soft copy and should reach the undersigned on or before the date and time as stipulated:

4. **MODE OF SUBMISSION OF BIDS**

3a. Tender should be submitted in soft copy via E-mail only. CSL will not accept any other mode of tender considering prevailing COVID -19 SOP of CSL.

3b. The subject of the E mail should clearly state the tender enquiry number and due date of submission. Price Bids are to be password protected and password is not to be forwarded unless asked for.

3c. Tender Documents should be submitted in PDF Format and Directly openable from the PDF format. Offers not complying with the above shall be summarily rejected without further intimation.

3d. Tenders, Techno- commercial bid (Part-I) and Price bid(Part -II) shall be submitted separately via e mail to:

(i) jithu.gl@cochinshipyard.in

Copy to:

(ii) madhu.pk@cochinshipyard.in

(iii) ajithkumar.n@cochinshipyard.in



5. **The Bids shall be received at Cochin Shipyard Ltd on or before 15.00 Hrs on 27th January - 2023** and Part I Techno-Commercial Bid will be opened at **15.30 Hrs** on the same day.
6. Late tenders / tenders with conditions will be summarily rejected.
7. CSL takes no responsibility for delay, loss or non-receipt of tenders sent by e-mail.
8. Only technically qualified bids will be considered for price bid opening. After evaluating the bids for both technical aspects and commercial terms, the techno-commercially qualified bidders will be intimated regarding the date and time of opening of Part II - Price Bid. Intimation will be as per prevailing SOP with respect to the COVID-19 situation, until such time COVID-19 protocol is applicable in CSL.

TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

9. Merely opening of Techno-Commercial Bid cannot be construed as acceptance of offer for awarding of contract.
10. All rules & regulations specified by the Govt of Kerala and CSL, pertaining to the present COVID-19 pandemic situation should be adhered by the bidder.
11. **The following shall be submitted along with Part I (Techno-commercial) Bid:-**
 - i. **Original tender document duly signed on all pages** - including Terms & conditions of enquiry, general conditions, technical specification and drawings placed at Annexure I, II, III, IV, V, VI, Appendix A,B&C
 - ii. **The techno commercial Check List** at Annexure IV filled up completely and duly signed. **The non submission of duly filled techno commercial checklist will lead to the rejection of the bids.**
 - iii. **Copy of un-priced bid format** (price bid WITHOUT prices/numerals)
 - iv. List of deviations/exclusions from the tender enquiry terms and conditions (if any).

12. PRE CONTRACT INTEGRITY PACT

The bidders who are participating in the tender shall sign the pre contract integrity pact, in case the bid is above Rs 1 crore.


13. MSME- PRIVILEGES

Public procurement policy initiatives of Govt. of India, pertaining to MSME's, Start-up etc. as per CSL website (www.cochinshipyard.in) shall be applicable for this tender.

14. Cochin Shipyard Limited (CSL) has registered in the TReDS Portal viz., RXIL, M1xchange and Invoice Mart. Those vendors who have registered in the TReDS portal may upload the invoice in the respective portal under an intimation to concerned executing officer for processing the payment through TReDS portal. Suppliers are requested to check with the concerned executing officer regarding the Quality inspection status, where ever applicable, before uploading the invoices in TReDS portal.

15. General Manager, Ship Building Division, Cochin Shipyard Limited, is the authorized person to accept the tender or part thereof, who does not bind himself to accept the lowest tender and reserves the authority to reject any or all of the tenders received without assigning any reason.




कृते उप महाप्रबंधक / For Deputy General Manager
आउटसोर्सिंग विभाग / Outsourcing Department

ANNEXURE I

जांच की नियम और शर्तें / TERMS & CONDITIONS OF ENQUIRY

**OUTSOURCING OF ALUMINIUM HULL STRUCTURE
AND MISCELLANEOUS STRUCTURAL OUTFITTING**

ITEMS OF BY- 0150 (HFEB)

1. कार्य का विवरण / DESCRIPTION OF WORK

1.1. This tender enquiry pertains to the awarding of contract for **Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)**, as per the following documents:

1.1.1. Cochin Shipyard Ltd - Terms and conditions (Annexure I)

1.1.2. Cochin Shipyard Ltd - General conditions (Annexure II)

1.1.3. Enquiry specification (Annexure III)

1.2. The scope of work includes Fabrication of approximately 9.281 Tonnes of Aluminium Hull and approximately 1.12 Tonnes of outfitting up to the entire satisfaction of CSL / Owner / Class surveyor, and up to the delivery of the vessel; with the available infrastructure facilities and Equipments / materials / consumables provided by Cochin Shipyard Ltd (CSL) in accordance with the enclosed Specifications and drawings, delivery schedule, CSL - Terms and conditions in all respects.

1.3. *Bidders are requested to study the scope of work before submitting their offer. Clarification, if any, required may be obtained from AGM (HF-2) before quoting.*

2. विक्रेताओं के लिए पात्रता मानदंड / QUALIFICATION CRITERIA FOR VENDORS

2.1. The bidder should have undertaken similar Aluminium fabrication works and should be conversant with Ship Building / Ship Construction procedures as relevant to Aluminium unit fabrication, as well as should adhere to the CSL standard and specifications while carrying out fabrications of Aluminium hull and outfit.

2.2. The bidder during the past three (03) years ending on 31th December 2022 shall have relevant experience in similar work in reputed shipyard and must be inspected by any IACS classification society (IRS/DNV/ABS etc), The firm has to submit the document which validates the above mentioned experience requirement.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- 2.3. The Bidder should furnish the required work-specific information and satisfactory documentary evidence such as copy of work order / agreement and a certificate from the employer for satisfactory completion of work or any other relevant document indicating completion of work shall be submitted to CSL in support of its claim of experience.
- 2.4. The Bidder shall have sufficient Pulsed / Double MIG welding machine with pressure regulators for Argon gas, Helium Gas with flow meter for carrying out the works. Also, the Bidder shall have other sufficient mechanical equipments and tools etc.
- 2.5. The Bidder shall have sufficient qualified welders for welding Aluminium in Pulsed MIG processes, in 1G, 2G, 3G, and 4G position and similar position for Fillet joint. (List of welders and their performance qualification certificate to be provided)
- 2.6. They shall sufficient welders for welding of Aluminium pipes , pillars using Pulsed - TIG welding also (for any outfitting works)
- 2.7. All welders would be required to qualify relevant WPS of CSL at Contractor's cost. Additional cost for qualification to be incurred by contractor as per CSL prevailing rates @ 9100 + GST valid up to 31/03/2023 and rate will be varied thereafter.
- 2.8. Bidder shall have aggregate annual turnover should not less than Rs. 1 Crores (INR) for the last three fiscal years.
- 2.9. Bidder shall not be under a declaration of ineligibility issued by Govt. of India/ State govt./ Public Sector Undertakings etc. The bidder shall not have been debarred / black listed by CSL or by any of the Public Sector Undertaking or Government department etc.
- 2.10. For order value above one crore, executing sub contractors with HSE rating of 4 stars or above only will be considered and for new vendors, these vendors who are submitting CSL approved HSE plan along with the tender document only will be considered.
- 2.11. The firm has to submit the documents, which validates the above mentioned requirements.

3. प्रस्ताव की वैधता/VALIDITY OF OFFER

- 3.1. The offer shall be valid for acceptance for a period of 90 days from the date of opening of the Part-I Techno-Commercial Bid.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

4. अनुबंध प्रदान करने का तरीका/METHOD OF AWARDING CONTRACT

- 4.1. Contract will be concluded with the Bidder qualifying to techno-Commercial conditions and emerging as L1.
- 4.2. Once work order is placed successful bidder should be able to start the works immediately.
- 4.3. CSL reserves the right to cancel the tender if required.

5. कार्य की प्रगति तथा समापन की समय-सारणी/WORK PROGRESS AND SCHEDULE OF COMPLETION

- 5.1. All Works should be completed within 120 days from the date of receipt of 100% materials received / working area readiness from CSL.
- 5.2. The fabrication for the vessel is expected to commence tentatively by March 2023. However actual commencement may vary based on the site condition.
- 5.3. CSL shall indicate the master construction schedule of completion of the work of vessel. The contractor in turn shall submit their detailed scheduled of completion of the work, in consultation with the officer In-charge. The progress of work shall be made in tandem with the progress of completion of the vessel allowing sufficient time for other interface activities/works.
- 5.4. Yard has the right to change the schedules of the project to the interests of the company and the firm should be capable of adjusting the resources according to the instructions from the Yard contact person.
- 5.5. Detailed working schedule (Weekly/monthly) etc to be prepared and submitted to yard personnel. However, a detailed overall schedule, in a reasonable manner should be submitted prior to commencement of work.

6. कार्य प्रक्रिया / WORK PROCEDURE

- 6.1. The work procedure briefly described below, detailed for each category of works are mentioned in the Annexure III to the tender enquiry.
- 6.2. Necessary job instructions, drawings etc. for the work will be issued by CSL.
- 6.3. Contractor is to carry out the work as per the specifications / drawings supplied, and to the satisfaction of CSL.
- 6.4. Contractor should maintain the quality as per CSL Quality Standards, yard quality procedures. Inspection will be carried out during fabrication by CSL.
- 6.5. Contractor shall submit the weekly /monthly progress reports to CSL.



7. अनुबंध की वैधता / VALIDITY OF CONTRACT

7.1. Once the contract is awarded, the price offered and mutually agreed shall remain firm (Contract concluded price as per Annex-V) till completion of work and no escalation in rate shall be allowed by CSL on whatsoever reason thereafter.

8. निरीक्षण / INSPECTION

8.1. The complete work has to be carried out under the survey of ship classification society / owner / CSL. For more details please refer Annex-III

9. बोलियां जमा करने के लिए दिशानिर्देश / GUIDELINES FOR SUBMISSION OF BIDS

9.1. Technical Bid (Part –I)

9.1.1. The technical bid as specified in the scope of work (Annexure III) shall be submitted in single sealed cover, super scribed by the bid No, tender No. and date.

9.1.2. The following shall be submitted along with technical Bid, failing which the bid may be summarily rejected :-

9.1.2.1. Original tender document general Terms & conditions and technical specifications placed at Annexure I, II & III duly signed on all pages.

9.1.2.2. The commercial Check List at Annexure IV filled up completely and duly signed

9.1.2.3. Copy of un-priced bid format of each category of works at Annexure V.

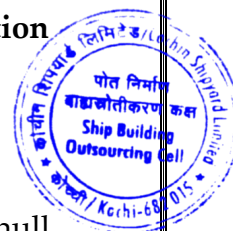
9.1.2.4. As per Govt. of India guidelines, Integrity pact (IP) should be signed for all contracts above Rs. One Crore. Accordingly IP should be signed and forwarded along with the offer.

9.1.3. The non submission of duly filled commercial checklist will lead to the rejection of the bids.

9.2. Price Bid (Part-II)

9.2.1. The bid shall be comprehensive of the nature of fabrication of Aluminium hull structure & structural outfitting shall be inclusive for all the applicable charges envisaged under the scope of the contractor as specified in the technical specification Annexure III.

9.2.2. Bidders shall quote total amount in figures and in words. Corrections and additions if any must be attested/ duly signed by the bidder. In the case of error in multiplication/addition in amount calculated, the rate quoted will be considered as correct and the amount will be calculated accordingly. Conditional rebates & discounts, incomplete/ ambiguous offer will be rejected.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- 9.2.3. The price bid shall be all inclusive of scope of contractor on lump sum basis and any rates on variable basis will not be accepted within the price bid and thereafter throughout the period of the contract. Any variable rates if deemed inevitable and applicable only in special cases/situations (not in the normal course of execution of contract) will only be considered for mutual agreement.
- 9.2.4. Price Bid Format: The price bids shall be prepared as per the format given in Annexure V to the enquiry. The bidder must quote all line items as per price bid format any failure in this regard will lead to the rejection of bid.
- 9.2.5. Rates of individual line items of the overall L1 is considered as L1 rate irrespective of lower rates in case of the line items of other bidders.
- 9.2.6. Currency: The price bids shall be prepared in Indian National Rupees for all bidders.
- 9.2.7. As per tender condition, the price bid which were not opened will not be returned back at any reason.
- 9.2.8. The bids which are not conforming above requirements shall be summarily rejected without any further notice.

10. कर / TAXES

- 10.1. GST shall be applicable extra on the prescribed work. Bidders should indicate the applicable GST percentage and HSN code of the category in the offer. Bidders are also requested to furnish the following details in the invoice/Bill.
- 10.1.1. Applicable rate of GST/SAC Code
- 10.1.2. Firms GST Reg. NO
- 10.1.3. Service accounting code (SAC) as prescribed by statutory authorities.
- 10.1.4. GST Reg. No. of Cochin Shipyard Ltd (32AAACC6905B1ZD).
- 10.2. Any new tax/duty that may be made effective by the government for this work and paid by the contractor shall be reimbursed on production of documentary evidence.

11. भुगतान की शर्तें / PAYMENT TERMS

- 11.1. Payment will be made on pro-rata basis for completion of hull fabrication and outfitting works on certification by the Officer-in-charge. First stage payment will be subject to 1st stage hull fabrication completion and submission of PBG as per tender clause.



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11.2. **Hull Fabrication** : For Hull works payment shall be in 4 stages on completion of hull structure of vessel:

- (i) 1st Stage payment of 25% after completion of frame standing
- (ii) 2nd stage payment of next 25% after completion of shell plate wrapping
- (iii) 3rd stage payment of next 40% on completion of CLASS survey, including comment closing based on the recommendation by the officer-in-charge.
- (iv) Balance 10% on successful completion of sea trails and vessel acceptance.

11.3. **Out fitting works:** For outfitting works, payment will be released in 3 stages, for the following work completion stages and on certification by the Officer-in-charge.

- i) First 50% payment will be made on completion of all outfitting works and
- ii) 40% payment will be made on commissioning of vessel.
- iii) Balance 10% on successful completion of sea trails and acceptance.

11.4. All claims for payment for the work/additional work shall be submitted by the subcontractor within one month of completion of work.

11.5. Statutory levies such as I.T, Contribution towards PF, ESI etc., shall be deducted from the bill as applicable.

11.6. Payment will be made by RTGS/NEFT to the account of contractor. The name of the bank, branch, A/C No., IFSC code & other particulars shall be furnished by the contractor in the proforma of CSL.

12. **प्रतिभूति जमा / SECURITY DEPOSIT**

12.1. The successful tenderer shall remit 3 % of the value of the contract as security deposit within 15 days of receipt of the work order. This amount has to be remitted by way of demand draft or bank guarantee (in approved proforma of CSL) from any of the nationalized banks, valid till the satisfactory completion of the entire work. The Security Deposit will be released after satisfactory completion of the contract/ guarantee period (if no separate BG as per clause 10 is not furnished) and on certification of nil liability to CSL by Officer-in charge. The Security Deposit retained will not bear any interest.

13. **निष्पादन गारंटी / PERFORMANCE GUARANTEE**

13.1. The complete work carried out by the contractor shall be guaranteed against performance of work and/or poor workmanship for a period of one year from the date of completion of work. Any damage or failure due to defects in execution of the



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

work for a period of 12 months from the date of completion such damage or failure occur within the guarantee period, the contractor shall rectify/rework the defect as applicable without any extra expenditure to CSL and such repaired work shall be guaranteed for a further period of one year from the date of repair.

13.2. Should any unsatisfactory performance and / or damage or failure occur due to poor workmanship and poor quality material used by the contractor, the contractor shall be solely responsible for payment/reimbursement of expenditure incurred by Ship owner for rectifying the defect.

13.3. Towards this, a performance guarantee equivalent to 3 % of the value of the contract to be furnished by the contractor along with submission of first bill in case of pro rata payment or completion of entire work in other cases, as per payment terms, by way of a bank guarantee (in approved proforma of CSL) from a nationalized bank valid till the expiry of the guarantee period.

13.4. Performance Guarantee is applicable for all bidders irrespective of MSME/NSIC registration for necessary coverage under the performance guarantee clause.

14. परिसमापन क्षतिपूर्ति / LIQUIDATED DAMAGES

14.1. The progress of work will be monitored against the mutually agreed detailed schedule referred in clause. Liquidated damages for delays in execution of the work envisaged as per this order, for any reason other than force majeure conditions, will be recovered at the rate of half percent (0.5%) of the basic value of the delayed work per week or part thereof, subject to a maximum of ten (10) percent of the basic value of the delayed work.

14.2. The amount of L.D. may be adjusted or set-off against any sum payable to the Contractor under this or any other Contract with CSL. Delays due to any disruptions on account of non-availability of CSL supplied material will be deducted from the total period of fabrication for the purpose of calculation of LD. In the event of non performance or non engagement of man power for the execution of job within the notice period, CSL reserves right to cancel the order and no compensation whatsoever will be entertained. CSL shall also reserve right to impose tender holiday for a period of at least 3 years for similar work in CSL.



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15. आदेश रद्द करना और जोखिम अनुबंध / CANCELLATION OF ORDER AND RISK CONTRACTING

- 15.1. In the event the contractor fails to complete the work promptly and satisfactorily as per the terms of the order, and if the work is delayed beyond the agreed schedule, CSL, without prejudice, reserves the right to cancel the order and get the work done at contractor's cost and the expenditure so incurred including any damage or loss will be recovered from him and the Security Deposit furnished by him is liable to be forfeited either in whole or in part.
- 15.2. In addition to above tender holiday will be imposed against the firm as per discretion of CSL.

16. कार्मिकों की सुरक्षा और प्राथमिक चिकित्सा/SAFETY OF PERSONNEL AND FIRST AID

- 16.1. The contractor shall be entirely responsible for the safety of all the personnel employed by him on the work. In this regard, he may adopt all the required safety measures and strictly comply with the safety regulations in force. A copy of CSL's "Safety Rules for Contractors (Revised)" is available with SB-Outsourcing department for reference.
- 16.2. The Contractor may arrange to suitably insure all his workmen/ other personnel in this regard. CSL will not be responsible for any injury or illness to the Contractor's workmen/other personnel during execution of the works due to whatsoever reasons.
- 16.3. In this regard, the Contractor will have to fully indemnify CSL against any claims made by his workmen/other personnel.
- 16.4. The Contractor shall provide and maintain so as to be readily accessible during all working hours, a first aid box with prescribed contents at every place where he employs contract labour for executing the works.

17. अप्रत्याशित घटना / FORCE MAJEURE

- 17.1. Should failure in performance of any part of this contract arise from war, insurrection, restraint imposed by Government act or legislation of other statutory authority, from explosion, riot, legal lock-out, flood, fire, act of Govt. or any inevitable or unforeseen event beyond human control which will be construed as a reasonable ground for extension of time, CSL may allow such additional time as is mutually agreed to be justified by the circumstances of the case.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

17.2. The occurrence / cessation of force majeure situation have to be informed with documentary evidence within 15days from the date of occurrence / cessation.

18. मध्यस्थता / ARBITRATION

18.1. Any disputes arising during the currency of the contract shall, in the first instance be settled by mutual discussions and negotiations. The results of such resolution of dispute shall be incorporated as an amendment to the contract, failing which the parties can resort to arbitration.

18.2. If any dispute, disagreement or question arising out of or relating to or in consequence of the contract, or to its fulfillment, or the validity of enforcement thereof, cannot be settled mutually or the settlement of which is not herein

Specifically provided for, then the dispute shall within thirty days from the date either party informs the other in writing that such disputes, disagreement exists, be referred to arbitration. The arbitrators shall be appointed and the arbitration proceedings shall be conducted in accordance with and subject to the Arbitration and Conciliation Act, 1996 (No. 26 of 1996) as amended from time to time and the decision of the Arbitrators shall be final and binding on the parties hereto. The arbitration will be done by a Board comprising one officer nominated by each party, and a mutually agreed Umpire. Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration shall be shared equally by the parties unless the award provides otherwise. The enforcement of the award shall be governed by the rules and procedures in force in the State in which it is to be executed. Performance under this Contract shall however, continue during arbitration proceedings and no payment due or payable by the parties hereto shall be withheld unless any such payment is or forms a part of the subject matter of arbitration proceedings.

18.3. In case of disputes, the same will be subjected to the jurisdiction of courts at Ernakulam, Kerala, India only.

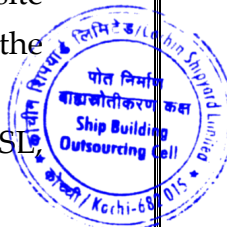
19. क्षेत्राधिकार / JURISDICTION

19.1. All questions, disputes or differences arising under/out of or in connection with this contract shall be subject to the jurisdiction of the Courts in Cochin.



20. सामान्य शर्तें / GENERAL CONDITIONS

- 20.1. Quality of workmanship shall conform to the specification/ standards laid down by CSL
- 20.2. CSL reserves the right to award the work to more than one contractor or to take over partially or fully the work depending upon the scheduled requirements.
- 20.3. Compliance of all statutory safety requirements and other safety rules stipulated by CSL and other applicable statutory bodies shall be the responsibility of the Contractor while working at CSL premises. The Contractor should ensure that their workmen and staff are adequately covered under Insurance.
- 20.4. Damages caused to the Shipyard properties/tools/accessories should be rectified by the Contractor at his cost or proportional recoveries will be made from the contractor while passing their bills for payment.
- 20.5. Cochin Shipyard Limited reserves the right to terminate the Contract at short notice in case the Contractor's performance is found not satisfactory with regard to progress of work, quality, time factor, labour dispute with their workers, poor safety records etc., and other contractual obligations. No claim whatsoever will be entertained by Cochin Shipyard Limited on this account.
- 20.6. The Contractor shall have to engage men on round the clock basis and also on Sundays and holidays, if required. Work has to be completed to the satisfaction of Cochin Shipyard representative deputed for the job. The job should be completed at the time specified by the representative deputed for the job for each stage of work.
- 20.7. The Contractor shall indemnify CSL and CSL's personnel against any claims arising out of accidents or injuries to workmen or other persons or damage to other property which may arise during the execution of the contract or from breach of any Law or Regulation prior to delivery and acceptance of the items at CSL.
- 20.8. It is also to be understood by the Contractor that Cochin Shipyard Limited does not bind itself to give the Contractor any regular or specific quantity or area of work and it shall be done at the sole discretion of CSL depending on the prevailing site conditions and other limiting factors and no claim on this account from the contractor shall be entertained.
- 20.9. The Contractor shall also be governed by the General Conditions of Contract of CSL, General Safety Rules and other relevant labour laws.
- 20.10. The contractor shall arrange to collect and clean up every day all waste, scraps; debris, etc. generated by the work men while working onboard the vessel and other locations and dispose the same suitably at his cost to the full satisfaction of CSL. In



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

case any failure on his part to comply with this requirement, CSL will arrange the required cleaning entirely at the contractors cost.

20.11. The upper age limit of all workers and supervisors employed by the contractor and those contractors who do or supervise the job themselves shall be as per the prevailing rules of CSL.

20.12. General Manager (SB) or his authorized representative will be the Officer-in-charge of this Contract.

20.13. Withdrawal of the quotation after it is accepted or failure to make contract execution within the stipulated completion period will entail cancellation of the order and forfeiture of EMD/ Security Deposit, if any/ and or risk purchase.

20.14. Subcontracting to other vendors shall be only after written intimation and approval of competent CSL authorities. Vendor shall not delegate or subcontract any of its obligations under the agreement without CSL's written consent. Vendor will remain liable for all subcontracted obligations and all acts or omissions of its subcontractors.

20.15. The procedures of work, standard operating procedures of work including documents like welding procedure specifications developed by CSL are intellectual property of CSL. Vendors shall not use or copy the procedure in any format without the written consent of competent authorities of CSL.

20.16. Vendor shall return the CSL resources to CSL immediately after provision of all deliverables and services or any termination of the agreement.

20.17. Conditional discounts, if any, will not be reckoned for tender evaluation/comparison purposes. However the same will be considered at the time of placement of purchase order if the firm turns out to be lowest bidder.

21. अधिलेखन और सुधार / OVERWRITING & CORRECTIONS

21.1. Tenders shall be free from overwriting or erasures. Corrections and additions, if any, shall be duly attested and a separate list of such corrections shall be attached with the offer.)

21.2. All terms and conditions, other than those mentioned above, contained in the Enquiry specification and drawings (Annexure I), Cochin Shipyard Ltd - General Terms and conditions (Annexure II) and other annexure pertaining to this tender shall also be attested by the bidder as a token of acceptance.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

21.3. CSL reserves the right to reject any or all bids without assigning any reasons whatsoever and or based on the past unsatisfactory performance by the bidders at CSL/other PSE's/Government Departments. After issuing the work order, CSL reserves the right to terminate the contractor if the performance of the contractor is not found satisfactory. The decision of CSL regarding the same shall be final and conclusive.



कृते उप महाप्रबंधक / For Deputy General Manager
आउटसोर्सिंग विभाग / Outsourcing Department



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

ANNEXURE-II

कोचीन शिपयार्ड लिमिटेड / COCHIN SHIPYARD LIMITED
कोच्ची / KOCHI-682015

आउटसोर्सिंग विभाग / OUTSOURCING DEPARTMENT

सामान्य शर्तें / GENERAL CONDITIONS

1. The complete work to be carried out with the highest degree of workmanship under the inspection of CSL, Classification Society (when specifically indicated in the technical specifications), Ship owner, or any other agency nominated by the Shipyard.
2. Any minor modifications, resulting from the change in statutory regulations prevailing at the time of final inspection of work by Classification Society, to be carried out by the Contractor free of cost. In case of rework/modification/additional work, written consent is to be obtained from the Officer-in-charge before commencement of the work.
3. Contractor shall carry out the complete work in accordance with Shipyard's approved drawings. Any minor modifications from drawing or any other work or supply of material, which is not specified hereunder, but is considered incidental and essential for the successful completion of the job shall be carried out by the Contractor without any additional charge.
4. Contractor shall execute, during or after completion of the work, any minor job connected with the work, should it be considered necessary by Shipyard and/or Classification Society
5. The contractor shall be responsible for any damage caused to the material supplied by CSL. Compensation with penalty for damage or loss of the item will be recovered from the Contractor, in the event of loss or damage.
6. Material supplied by CSL may not be in the required size and shape. These may be cut and prepared after proper nesting by the Contractor. Special care to be taken to reduce wastages. Shortage of any material (supplied by CSL) arising out of excess wastages due to improper planning shall have to be made up by Contractor free of cost.
7. Contractors are required to work round the clock / Sundays/ holidays as per the requirement of concerned department in order to complete the work in time.
8. Any particulars/literature/information/certificates required by the Shipyard in connection with the work is to be forwarded free of cost.
9. All correspondence with the Shipyard to be in English language. All documents and plans to be in English language and in metric units.




कृते उप महाप्रबंधक / For Deputy General Manager
आउटसोर्सिंग विभाग / Outsourcing Department

ANNEXURE III

कार्य क्षेत्र / SCOPE OF WORK

OUTSOURCING OF THE ALUMINIUM HULL STRUCTURE AND MISCELLANEOUS STRUCTURAL OUTFITTING ITEMS OF BY- 0150 (HFEB)

1 परिचय / INTRODUCTION

Fabrication of approximately 9.281 Tonnes of Aluminium Hull as per Hull Drawing, No. BY150W0001 and approximately 1.12 Tonnes of outfitting in CSL premises, Perumanoor P. O, Kochi-15.

2 पोत विवरण / VESSEL DETAILS

i. Main Particulars of vessels

LENGTH O.A	abt. 24.80 [m]
BREADTH (MLD)	abt.6.40 [m]
DEMI HULL BREADTH	abt.2.00 [m]
DEPTH (MLD)	abt.1.70 [m]
DRAFT (MLD)	abt.0.90 [m]
DESIGN SPEED	abt.6.5 [knots]

ii. Materials

Plates : AA5083 H116
Extrusions : AA6082 T5 or AA6082 T6

iii. For fabrication tolerances, please refer shipyard's hull construction standards issued by QC team for Aluminium Construction.

iv. Class Notation:

⌘ IWL, ZONE 2, FERRY
⌘ IY, BATTERY PROP, FC (Main)-Hydrogen



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

3 काम की गुंजाइश / SCOPE OF WORK

- i. Planning and Execution of the fabrication of Aluminium Hulls and outfitting of HFEB (Hydrogen Fuel Cell powered Electric Ferry Boat), including all connected hot works and dry survey required for the satisfactory completion of fabrication works complying with the requirement of Class and Owners.
- ii. Hull structure shall be fabricated as per specifications in Annexure III and hull drawing and QAP/WPS as per Appendix B & C.
- iii. Fabrication and fitment of all hull mounted appendages / hull outfit items as per Appendix A (material included in aluminium hull kits will be provided by CSL):
 - (a) Aluminium fenders
 - (b) Deck soft hatches
 - (c) Hull to super structure mounting flange
 - (d) Hull to hull trunking
 - (e) Bollards
 - (f) P -Brackets and stern-tubes
- iv. Fabrication and fitment of skin fittings such as: -
 - (a) Draft markings
 - (b) Hull markings (docking mark, homeport and vessel name and statutory name)
 - (c) Anode mounts
- v. Installation of following outfit items to be done by contractor. **(Items will be supplied by CSL)**
 - (a) Stern-tube and shafting related hot works only
 - (b) Rudder trunk and steering related hot works only
 - (c) Ramp- 2 nos approx.
 - (d) Hull penetrations for over board discharges /sea suction including brackets and echo-sounder-approx 27 nos
 - (e) Manholes-approx.10 nos
 - (f) Vertical Ladders with steps-approx-10 nos
 - (g) Handrails on main deck.
 - (h) Flush hatches with testing.-approx 6 nos
 - (i) Cables Trays and related hot works.-approx 120 kg
 - (j) Equipment foundations-approx 200 kg
- vi. Fabrication and installation of loose tanks as per hull drawing.
- vii. Tank testing (air test /hydro test) & NDT as per Class Requirements.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- viii. The fitment and welding of pipe is limited to sea suction and overboard penetration with grating, brackets and marking if any.
- ix. The existing jigs in CSL for hull fabrication can be utilised by contractor with additional modification if required with no additional amount.
- x. All tools and tackles like welding machine ,grinding machines, etc and consumables like grinding wheel, buffing wheel, flap disc, acetones etc to be arranged by contractor at own cost.
- xi. Appropriate PPE and safety appliances to workmen employed for the job as per CSL HSE standard to be arranged by contractor at own cost.

4 ठेकेदारों के कार्यक्षेत्र में निम्नलिखित भी शामिल हैं / CONTRACTORS SCOPE OF WORK INCLUDES THE FOLLOWING ALSO

- i. Bidder's scope includes Liaising with Class/Owner representative/CSL QC for inspections.
- ii. Mobilization of entire labour / Workmanship (Skilled/Semiskilled/Unskilled) required for the construction of hulls and outfit in accordance with the specifications/ drawings provided by CSL. Quality Assurance plan (QAP) and applicable welding procedure specification (WPS) will be provided by CSL. The welders to be qualified inside CSL and. **Additional cost for qualification to be incurred by contractor as per CSL prevailing rates@9100+GST** valid up to 31/03/2023 and rate will be varied thereafter. For the smooth progress of work, contractor should qualify minimum 7 welders for all respective WPS. Moreover the contractor should deploy sufficient no. of competent welders, fitters, grinders, helpers etc. round the clock for timely completion of work.
- iii. Bidders are advised to visit the fabrication site at CSL in compliance with its surroundings, familiarize with existing facilities, systems, environment, labour availability, statutory rules, CSL HSE guidelines etc. Bidder shall collect all other information including applicable laws required for preparing and submitting the bid and enter in to contract .The Contractor is bound to comply with all applicable Environmental, Health and safety rules, regulations, policies, procedures and guidelines while performing the work.
- iv. Claims and objections due to ignorance of existing conditions or inadequacy of information will not be considered after submission of bid and also during implementations.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- v. The contractor must return immediately all remnant material as part of prepared material supplied by CSL. Also all aluminium scrap arising out of fabrication must be collected appropriately and returned to CSL. Contractors are responsible to clean up the area of work w.r.t all sort of debris generated on daily basis.
- vi. The mobilisation period for commencement of job is 7 days after receiving firm work order. Welders to be positioned during the mobilisation period to qualify WPS from the date of receipt of firm purchase order.
- vii. All aluminium welding must be done with double pulse arc machine
- viii. Appropriate jigs and fixtures/buffing wheel/acetone solution to be procured and used by contractor for preparation and fitment of weld joints. No fit up with conventional method is allowed and must be done with proper jigs and fixtures.
- ix. All tests including NDT and Radiography tests will be undertaken by CSL as per NDT plan. Rectification, if any, is to be undertaken by the sub-contractor at own expense. Additional expense incurred by CSL in connection with RT failure will be deducted from final bill @ 1790+GST for every re-shoot. If any further increase in RT, same will be applied.
- x. The contractor should appoint an experienced supervisor with similar experience in aluminium fabrication for liaising with CSL and contractor should follow all CSL HSE guidelines.
- xi. Detailed project micro schedule with activities to be drawn and submitted by the contractor prior to the commencement of job after receiving firm work order.
- xii. All additional works shall be done only with the prior approval from the concerned officer in charge with a firm change order. In case of rework/modification/additional work, written consent is to be obtained from the Officer-in-charge before commencement of the work with approval from competent authority.
- xiii. Contractor shall carry out the complete work in accordance with Shipyard's approved drawings.
- xiv. Contractor shall execute, during or after completion of the work, any minor job connected with the work that is considered necessary by Shipyard and/or Classification Society.
- xv. The contractor shall be responsible for any damage caused to the material supplied by CSL. Compensation with penalty for damage or loss of the item will be recovered from the Contractor, in the event of loss or damage.

TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- xvi. Bidders are not allowed to give further sub contract to any other firm in CSL
- xvii. Contractor should have dedicated QA team and every inspection is to checked and certified by QA team before offering to CSL.
- xviii. The project review meeting will be conducted on weekly/daily at various levels.
- xix. The total job completion schedule is 120 days with following activities:
 - 1. Lifting and turning of hull structure after completion of welding in 75 days from the date of commencement of job.
 - 2. Compartment survey and NDT completion in subsequent 20 days.
 - 3. Balance outfit activities in 25 remaining days.

5 सीएसएल का दायरा / SCOPE OF CSL

- i. The job will be executed on a covered roof in CSL premises with crane and jig facility for executing the job. The material handling equipments and crane facility inside CSL can be used subject to availability and must be planned well in advance.
- ii. Design construction documents such as hull fabrication drawings, Piping drawings (for hull and bulkhead penetrations), Machinery arrangement drawings (for foundations of major machinery), hull & draft marking, technical specifications and other miscellaneous information's related to completion of the hulls and outfit.
- iii. The Prepared cut and formed material will be provided by CSL. All processed material to be collected by vendor within one day of intimation by CSL. Any delay in collecting the material beyond this period will be on account of vendor towards calculating delivery period The Delivery date will be counted from the date of supply of 90% of first lot of material.
- iv. The Quality Assurance plan (QAP) and applicable welding procedure specification (WPS) will be provided by CSL and is attached on Appendix B
- v. The Gas, electrodes and backing strip will be provided by CSL. **Approved Electrodes required for fabrication not exceeding 3.5% of Block weight will be issued by CSL free of cost along with Ceramic back strips.** If Electrode requirement of Vendor exceeds 3.5% of block weight, the same will also be issued. However, a penalty equivalent to 120% of the cost of additional (more than 3.5%) Electrodes provided by CSL will be imposed on the vendor since; it implies disproportionate use of electrodes leading to higher heat input. Uses of any other types of weld consumables are strictly prohibited. Any firm found not

TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

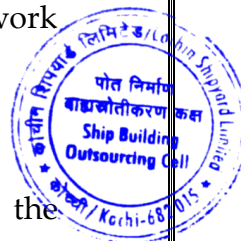
- adhering to above, will be liable for punitive action by CSL, which may amount to recover entire cost of material rendered unusable/rejected.
- vi. Additional material for modification of existing jigs will be provided by CSL.
- vii. **The Fabrication of following outfit items, not part of the hull drawing will be supplied by CSL immediately after hull fabrication is completed and prior to commencement of outfit jobs.**
- (a) Ramps
 - (b) Over-board/ sea-suctions pipes
 - (c) Cable trays and electrical items
 - (d) Equipment seats.
 - (e) Vertical ladders/ steps
 - (f) Man-holes
- viii. All material taken and their competence for execution of the work to be checked to ensure that there is no shortfall between supply and CSL material list .The shortfall if any to be intimated to CSL within 7 days of collection of material, failing which it is assumed that there is no shortfall in delivery from CSL side.
- ix. In the event of non performance or non engagement of man power for the execution of job within the notice period, CSL reserves right to cancel the order and no compensation whatsoever will be entertained. CSL shall also reserve right to impose tender holiday for a period of at least 3 years for similar work in CSL.
- x. The officer in charge for execution will be in the level of AGM/SM/Any Designated Officer

6 टिप्पणी / NOTE

The yard plan weight and outfit weight indicated in the tender is only a tentative. If the actual weight after execution is less than the indicated weight in tender, bills will be settled on actual weight only. If the actual weight is more than the indicated quantity in tender due to revision/addition/modification, an additional amount equivalent to weight will be given on actual basis as per work order rate and terms.

7 अतिरिक्त काम करता है / ADDITIONAL WORKS

- i. All additional works shall be done only with the prior approval from the concerned officer in charge with a firm change order.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- ii. Any minor modifications, resulting from the change in statutory regulations prevailing at the time of final inspection of work by Classification Society, to be carried out by the Contractor free of cost. In case of rework / modification / additional work, written consent is to be obtained from the Officer-in-charge before commencement of the work.
- iii. Contractor shall carry out the complete work in accordance with Shipyard's approved drawings. Any minor modifications from drawing or any other work or supply of material, which is not specified hereunder, but is considered incidental and essential for the successful completion of the job shall be carried out by the Contractor without any additional charge.
- iv. Contractor shall execute, during or after completion of the work, any minor job connected with the work, that is considered necessary by Shipyard and/or Classification Society
- v. The contractor shall be responsible for any damage caused to the material supplied by CSL. Compensation with penalty for damage or loss of the item will be recovered from the Contractor, in the event of loss or damage.

8 काम करने की पद्धति / METHODOLOGY OF WORKING

- i. A detailed project report to be submitted prior to commencement of works.
- ii. The subcontractor shall deploy/nominate a person who will be in charge of the work for the entire period of project execution. He shall keep close liaison with CSL officers/supervisors concerned and ensure smooth and satisfactory progress of the work from time to time and shall be available for the entire duration of the project.
- iii. Necessary competent supervisors for the work, to be deployed.
- iv. Employees of the firm shall work under close co ordination with yard personnel, structural contractors and Piping/Painting/Electrical subcontractors with a conciliatory approach and team spirit to achieve the project completion in time.
- v. The Contractor is expected to have full knowledge and understanding of the Labour rates, conditions, practices etc prevalent in the Yard and premises. The contractor shall be entirely responsible for all matters related to manpower and labour engagement for the subject contract.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

- vi. Issues related to availability and utilization of manpower shall be dealt by the Contractor. Availability of competent labour with requisite skills for the specified jobs shall be ensured by the contractor.
- vii. The complete work is to be carried out with the highest degree of workmanship under the inspection of CSL, Classification society (when specifically indicated in the technical specifications), Ship owner, or any other agency nominated by Shipyard.
- viii. The contractor shall execute the work in every area under instruction/intimation to CSL personnel at site. Clearance from CSL in terms of permits/internal regulations etc as applicable from time to time shall be obtained. The contractor shall obtain necessary hot work sanctions, permission to work in confined areas, safety clearance for scaffolding done by the contractor, electrical related provisions etc. as per CSL safety rules.
- ix. The Contractor is to ensure proper cleanliness all around his work area while working on board ship. The contractor shall arrange to collect and clean up every day, all the waste, scrap, debris etc. generated by his workmen while working on board the ship and other locations and deposit the same suitably at specified location at his cost to the complete satisfaction of Yard. In case of any failure on his part to comply with the requirement, Yard will arrange the required cleaning entirely at the contractor's cost.
- x. The firm / contractor shall be responsible for any damage caused to the material supplied by CSL. Compensation with penalty for damage or loss of the item will be recovered from the Contractor, in the event of loss or damage. The responsibility is limited only with respect to the damages caused due to any mistake or negligence of contractor.
- xi. Contractor / firm are required to work round the clock / Sundays/ holidays as per the requirement of concerned department in order to complete the work in time.
- xii. The upper age limit of all workers and supervisors employed by the contractor / firm and those contractors who do or supervise the job themselves shall be as per the prevailing rules of CSL.
- xiii. Any particulars/literature/information/certificates required by the Shipyard in connection with the work is to be forwarded free of cost.



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)


9 निरीक्षण / परीक्षण / क्यूए और क्यूसी / INSPECTION / TESTING/ QA AND QC

- i. Contractor to maintain the required dimensional accuracy and surface finish as per quality standards (to be provided by CSL).
- ii. All welding works shall be carried out by approved and qualified WPS welders only.
- iii. All welding machines are to be calibrated.
- iv. All test and Inspections shall be carried out as per approved Quality Plan.
- v. All works shall be as per strict compliance to weight control and approved CSL drawings.
- vi. All correspondence with the Shipyard to be in English language. All documents and plans to be in English language and in metric units.
- vii. Vendor is to have dedicated QA dept. Before each inspection the same is to be checked by sub contra tractors QA rep.

10 सुरक्षा / सांविधिक दायित्व / SAFETY/STATUTORY RESPONSIBILITY

- i. The contractor shall be entirely responsible for the safety of all the personnel employed by him on the work. In this regard, he should adopt all the required safety measure and strictly comply with the safety regulations in force. A copy of CSL's "Safety Rules for Contractors (Revised)" is available with SBOC Department for reference.
- ii. The Contractor should arrange to suitably insure all his workmen/other personnel in this regard. CSL will not be responsible for any injury or illness to the Contractor's workmen/other personnel during execution of the works due to whatsoever reasons.
- iii. In this regard, the Contractor will have to fully indemnify CSL against any claims made by his workmen/other personnel.
- iv. The Contractor shall provide and maintain so as to be readily accessible during all working hours, a first aid box with prescribed contents at every place where he employs contract labour for executing the works.




कृते उप महाप्रबंधक / For Deputy General Manager
आउटसोर्सिंग विभाग / Outsourcing Department

ANNEXURE- IV

तकनीकी वाणिज्यिक जांच सूची / TECHNO COMMERCIAL CHECK LIST

(To be submitted by the bidder)

TENDER NO. SB-OSD/HFEB/742/2023 Dtd: 13.01.2023

(Bidders may confirm acceptance of the Tender Conditions/deviations if any to be specified)

SL No.	Tender Enquiry Requirements	Confirmation from bidder (<u>strike off whichever is not applicable</u>)	Specific comments /Remarks
1	Scope of work as per Technical Specification/Drawings/ General Terms & conditions (Annexure III)	Agreed as per tender /Do not agree	
2	Whether technical bid & price bid are submitted in separate sealed covers?	Yes / No	
3	Schedule of work as specified in technical specification/ price bid of this tender is acceptable	Yes/ No	
4	Submission of Information/Documents with offer	Submitted/Not submitted	
5	Submission of MSME and NSIC registration document with offer	Submitted/Not submitted	
6	Offer Validity (date)	90days - Agreed as per tender/Do not agree	
7	Completion period as mentioned in the tender enquiry is acceptable	Yes/ No	
8	Taxes & Duties	Specified/included in Price	
9	Payment terms - confirm		
a	100% Payment on pro-rata basis will be paid on within 30 days of successful completion of works	Agreed as per tender/Do not agree	
b	Any others (Specify details)		



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

10	Price shall remain firm and fixed and No Escalation in prices after awarding of contract	Agreed as per tender/Do not agree	
11	Security Deposit & Performance Guarantee Clause	Agreed as per tender/Do not agree	
12	Termination of contract/risk purchase as per relevant clause in the terms & conditions of tender enquiry is acceptable	Yes / No	
13	Force Majeure	Agreed as per tender/Do not agree	
14	Liquidated damages and cancellation of contract	Agreed as per tender/Do not agree	
15	Arbitration & Jurisdiction clauses	Agreed as per tender/Do not agree	
16	Confirm all other terms and conditions of our enquiry are acceptable.	Confirmed/Not confirmed	
17	Confirm, un-priced price bid (price bid without price) is submitted with Part – I bid	Confirmed/Not confirmed	
18	Mode of submission of tender (Direct/Postal)	Direct / Postal	
19	Fully aware about the safety, general rules, regulations, standards, validity of offers and price, entry pass eligibilities.	Yes / No	
20	Is your firm registered under TReDS	Yes/No	
21	Deviations from Tender conditions	No Deviations /Deviations are specified	



हस्ताक्षर / Signature:

ठेकेदार का पता / Address of the Contractor

मुहर / Seal:

ANNEXURE-V

मूल्य बोली प्रारूप / PRICE BID FORMAT

TENDER NO. SB-OSD/HFEB/742/2023 Dtd: 13.01.2023

**OUTSOURCING OF THE ALUMINIUM HULL STRUCTURE
FABRICATION AND MISCELLANEOUS STRUCTURAL OUTFITTING
ITEMS OF BY- 0150 (HFEB)**

Sl No	Description of Work	Quantity (weight per Vessel) (A)	Rate per Kg (INR) (B)	Total amount (INR) (C) = A*B
1	Rate of fabrication of Aluminium Hulls as per Scope of works detailed in Annexure III and QAP/WPS & hull drawing as per Appendix B & C. (Rate per Kg)	10,250 Kg		
2	Rate for Fabrication/fitment installation of all hull mounted appendages/hull outfit items as per Appendix A and Scope of work as per Annexure III. (Rate per kg)	1,300 Kg		
3	SUB TOTAL (SL No. 1+ 2)			
4	GST% HSN CODE.....			
5	GRAND TOTAL (SL No. 3 + 4)			

Grand Total amount (in words) Rupees.....



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

NOTE:

- A. Price basis: For Destination (at CSL).
- B. L1 will be determined based on Sub total amount (Sl. No. 1 + 2) excluding GST.
- C. GST as per the prevailing rate will be paid.
- D. The rates quoted shall be inclusive of labor costs, cost of all other activities, other than in CSL's scope for the satisfactory completion of construction of the vessel.
- E. Quantity (weight in Kg.) shown above is only indicative, actual will be as per approved drawing.
- F. Payment will be released for actual quantity based on approved drawings and work order rate per Kg.

Signature of Contractor/authorized signature
of firm or agency:

Name of contractor or authorised signatory of
firm/agency:

Designation:

Address:

Contact No:



ANNEXURE-VI

PRE CONTRACT INTEGRITY PACT

COCHIN SHIPYARD LIMITED

OUTSOURCING DEPARTMENT

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on day of the month of, between, on one hand, the President of India acting through Deputy General Manager, Cochin Shipyard Ltd (CSL) having its registered office at Cochin, Kerala India (hereinafter called the “PRINCIPAL”, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First part and

M/s.....represented by Shri..... Chief Executive Officer (hereinafter called the “BIDDER/Seller” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the second part.

WHEREAS the PRINCIPAL proposes to procure and the BIDDER/Seller is

Willing to offer/has offered the stores and

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

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any Influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be

Entered into with a view to:-



TENDER ENQUIRY NOTICE – Outsourcing of the Aluminium Hull Structure & Structural Outfitting Items of BY- 0150 (HFEB)

Enabling the PRINCIPAL to obtain the desired said stores/equipment/item at a competition price in Conformity with the defined specifications by avoiding the high cost and the distortionary impact of

Corruption on public procurement, and Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the Contract by providing assurance to them that their competitors will also abstain from bribing and Other corrupt practices and the PRINCIPAL will commit to prevent corruption, in any form, by its Officials by following transparent procedures.

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

1. COMMITMENTS OF THE PRINCIPAL

- 1.1. The PRINCIPAL undertakes that no official of the PRINCIPAL, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting on implementation process related to the contract.
- 1.2. The PRINCIPAL will, during the pre-contract stage, treat all BIDDERS alike and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.
- 1.3. The officials of the PRINCIPAL will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the PRINCIPAL with full and verifiable facts and the same is prima facie found to be correct by the PRINCIPAL, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the PRINCIPAL and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the PRINCIPAL the proceedings under the contract would not be stalled.



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2. COMMITMENTS OF BIDDERS

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

- 2.1. The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- 2.2. The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the PRINCIPAL or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract of any other contract with the government for showing or forbearing to show favour or disfavor to any person in relation to the contract of any other contract with the Government.
- 2.3. BIDDERS of foreign origin shall disclose the name and address of their Indian agents and representatives, if any and Indian BIDDERS shall disclose their foreign principals or associates, if any.
- 2.4. BIDDERS shall disclose the payments to be made by them to their Indian agents/brokers or any other intermediary, in connection with this bid/contract and the payments have to be in Indian Rupees only.
- 2.5. The BIDDER further confirms and declares to the PRINCIPAL that the BIDDER is the original manufacturer/ integrator/authorized agent of the stores/equipment/items and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the PRINCIPAL or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.



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- 2.6. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the PRINCIPAL or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 2.7. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 2.8. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair Means and illegal activities.
- 2.9. The BIDDER shall not use improperly, for purposes of competition or personal gain, pass on to others, any information provided by the PRINCIPAL as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.
- 2.10. The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 2.11. The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 2.12. If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the PRINCIPAL, or alternatively, if any relative of an officer of the PRINCIPAL has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender. The term 'relative' for this purpose would be as defined in section 6 of the Companies Act 1956.
- 2.13. The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee or the PRINCIPAL.

3. PREVIOUS TRANSGRESSION

- 3.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.



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3.2. The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

4. EARNEST MONEY (SECURITY DEPOSIT)

4.1. While submitting commercial bid, the BIDDER shall deposit an amount NIL (to be specified in RFP) as Earnest Money as applicable/Security Deposit, with the PRINCIPAL through any of the following instruments:

- (i) Bank Draft of Pay Order in favor of CSL.
- (ii) A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the PRINCIPAL on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the PRINCIPAL shall be treated as conclusive proof of payment.
- (iii) Any other mode or through any other instrument (to be specified in the RFP).

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

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

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

5. SANCTIONS FOR VIOLATIONS

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

- (i) To immediately call off the pre contract negotiations without assigning any reason or giving any; compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.
- (ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/ Performance Bond (after the contract is signed) shall stand forfeited either fully or



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partially, as decided by the PRINCIPAL and the PRINCIPAL shall not be required to assign any reason therefore.

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

(iv) To recover all sums already paid by the PRINCIPAL, and in the case of an Indian BIDDER with interest thereon at 2% above the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% above the LIBOR (London Inter Bank Offer Rate). If any outstanding payment is due to the BIDDER from the PRINCIPAL in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To en cash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the PRINCIPAL, along with interest.

(vi) To cancel all or any other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the PRINCIPAL resulting from such cancellation/recession and the PRINCIPAL shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in the future bidding processes of CSL for a minimum period as deemed appropriate, which any be further extended at the discretion of the PRINCIPAL.

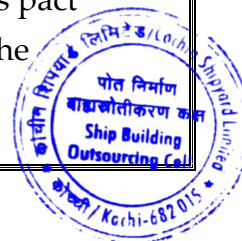
(viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middle man or agent or broker with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the PRINCIPAL with the BIDDER, the same shall not be opened.

(x) Forfeiture of Performance Bond in case of a decision by the PRINCIPAL to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

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

5.3. The decision of the PRINCIPAL to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be binding on the BIDDER. However, the



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5.4. BIDDER can approach the Independent Monitor(s) appointed for the purposes this Pact.

6. FALL CLAUSE

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

7. INDEPENDENT MONITORS

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

(i) Shri. Jagadip Narayan Singh, IAS (Retd.),

C-54, Bharatendu Harischandra Marg,

Anand Vihar, Delhi – 110092.

Mobile: 9978405930

Email: jagadipsingh@yahoo.com

(ii) Shri. Om Prakash Singh, IPS (Retd.),

Flat No. D-801, Prateek Stylome,

Sector-45, Noida,

Uttar Pradesh – 201301

Mob: 9818564455

Email: Ops2020@rediffmail.com



7.2. The task of the Monitors shall be to review independently and objectively, whether and to what extend the parties comply with the obligations under this Pact.

7.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

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- 7.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 7.5. As soon as the Monitor notices, or has reason to believe, a violation of this pact, he will so inform the Authority designated by the PRINCIPAL.
- 7.6. The PRINCIPAL accepts that the Monitor has the right to access without restriction to all Project documentation of the BUYER including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unlimited access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.
- 7.7. The PRINCIPAL will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.
- 7.8. The Monitor will submit a written report to the designated Authority of PRINCIPAL/Secretary in the Department/ within 8 to 10 weeks from the date of reference or intimation to him by the PRINCIPAL /BIDDER and, should the occasion arise, submit proposals for correcting problematic situations.

8. FACILITATION OF INVESTIGATION

In case of any allegation of violation of any provisions of this pact or payment of commission, the PRINCIPAL or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER. The BIDDER shall provide necessary information and documents in English and shall extend all possible help of the purpose of such examination/inspection.

9. LAW AND PLACE OF JURISDICTION

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the PRINCIPAL.

10. OTHER LEGAL ACTIONS

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extent law in force relating to any civil or criminal proceedings.



11. VALIDITY

11.1. The validity of this Integrity Pact shall be from date of its signing and extend upto 5 years

or the complete execution of the contract to the satisfaction of both the PRINCIPAL and the BIDDER/Seller, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

11.2. Should one or several provisions of this Pact turn out to be invalid; the remainder of this pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

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

PRINCIPAL

Name of the Officer

Designation

Dept./MINISTRY/PSU

BIDDER

CHIEF EXECUTIVE OFFICER

Witness

1.....

2.....

Witness

1.....

2.....

* Provisions of these clauses would need to be amended/deleted in line with the policy of the

BUYER in regard to involvement of Indian agents of foreign suppliers.



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APPENDIX A

LIST OF OUTFITTING ITEMS

Sl No.	Item description	Approx. Weight (in kg)
1	Hand rail with Stanchion	100
2	Deck hatches/ man-holes	250
3	Anode fitment including anode mounts	125
4	Draft marking, Hull marking and Plimsoll marking, Ship name etc.	15
5	Stern tube and shafting related hot works including P-bkt boss	90
6	Rudder trunk and steering related hot works	30
7	Hull penetrations with brackets for overboard discharges and echo-sounder	80
8	Vertical ladders and steps	50
9	Cable trays/ coamings.	120
10	Equipment foundation-mechanical/electrical	200
11	Ramps	60
TOTAL		1120

Note:

- 1) Outfitting works includes Fabrication/fitment installation of all hull mounted appendages/hull outfit items
- 2) Refer Scope of work for CSL supply items and contractor's scope of fabrication.
- 3) Bidder is advised to contact executing officer for more clarity.





IRCLASS
Indian Register of Shipping




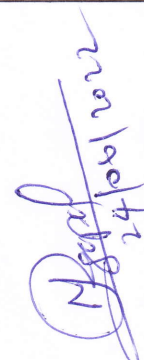
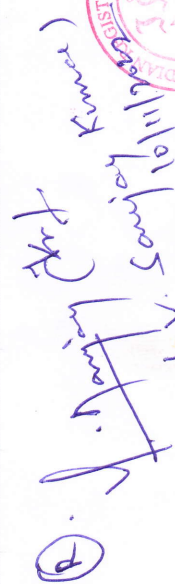

COCHIN SHIPYARD LIMITED
COCHIN - 682015

INSPECTION & QUALITY CONTROL DEPARTMENT

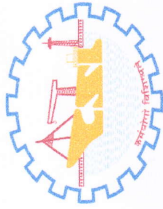
QUALITY ASSURANCE PLAN (QAP)
FUEL CELL POWERED ELECTRIC FERRY BOAT (BY-150)

(6 Pages including Cover)

ISSUED ON : 10 / 11 / 2022

PREPARED BY	APPROVED BY	ISSUED TO / APPROVED BY	
		CLASS	
 RAHUL VERMA AM(I&QC)	 NANDAGOPAL N R DGM (I&QC)	 D. J. Varney Surveyor	 IRS

COCHIN SHIPYARD LIMITED



INSPECTION AND QUALITY CONTROL DEPARTMENT

QUALITY ASSURANCE PLAN (QAP)

FUEL CELL POWERED ELECTRIC FERRY BOAT (BY-150)

CSL INSPECTION CODES

A1 : 100% ACTUAL INSPECTION
A2 : SAMPLE ACTUAL INSPECTION
W1 : 100% WITNESS OF INSPECTION
M : MONITORING
R : REVIEW DOCUMENT
R1 : 100% REVIEW DOCUMENT
W2 : SAMPLE WITNESS OF INSPECTION

ABBREVIATIONS

CSL : COCHIN SHIPYARD LTD
O : OWNER
SB : SHIP BUILDING DEPARTMENT
PO : PURCHASE ORDER
NDT : NON DESTRUCTIVE TEST
LAB : CSL LABORATORY
YP : YARD PLAN
DWG : DRAWING
INSP : INSPECTION PERSONNEL
STP : STORE PERSONNEL
CLASS : CLASSIFICATION SOCIETY
QCP : QUALITY CONTROL PERSONNEL
PR : PAINT REPRESENTATIVE
SPEC : SPECIFICATION

COCHIN SHIPYARD LIMITED



INSPECTION AND QUALITY CONTROL DEPARTMENT

QUALITY PLAN FOR CONSTRUCTION - GUIDANCE DOCUMENT

FUEL CELL POWERED ELECTRIC FERRY BOAT (BY 150)

SL No.	ACTIVITY / OPERATION	RESPONSIBILITY	CONTROL DOCUMENTS Ex: DWG / SOPs	ACCEPTANCE CRITERIA / CODES / SPEC. / STDs	VERIFYING DOCUMENTS	SURVEILLANCE INSPECTION				REMARKS
						SB	QCP	OWNER	CLASS	
1	ALUMINIUM MATERIALS 1.1 Visual inspection & check with certificates	SB & QCP	CSL/QMS/IQC/1001 & Yard standards	PO & Mill Test certificates	CSL/QMS/IQC/INSPN/FORM 7	A1	A2/R1	R	*A2	* Random inspection if required
	1.2 Matching of the plate nos. and traceability certificates.	QCP	Stamping on plate	Mill Test Certificates Traceability records	CSL/QMS/IQC-HQC/FORM01	A1	M/R	R	*A2/R	* Random inspection if required
2	ALUMINIUM PLATE AT PREPARATION 2.1 Visual inspection after Cleaning the oxide	SB/SP/QCP	Stamping on plates & Painting Standards	HULL QUALITY STANDARD CSL/QMS/IQC/SOP 01 /SOP 16 and Welder's Qualification	CSL/QMS/IQC-HQC/FORM01	A1	M	W2	*A2	* Random inspection during patrol
3	MATERIAL MARKING: 3.1 Panel marking	SB	PROCEDURE FOR INSPN OF HULL FABRICATION CSL/QMS/IQC/1002	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM02	A1	A2		*A2 or M/R	* Random inspection during patrol
	3.2 Stiffeners and brackets	SB	PROCEDURE FOR INSPN OF HULL FABRICATION CSL/QMS/IQC/1002	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM02	A1	A2	M	*A2 or M/R	* Random inspection during patrol
4	MATERIAL CUTTING: 4.1 Manual/flame gas cutting/plasma cutting	SB	CSL/QMS/IQC/1002 Marking plan & Y.P Floppy	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM03	A1	A2	M/R	*A2 or M/R	* Random inspection during patrol
5	FORMING OF PLATES : 5.1 Inspection of formed plates	SB	Templates and yard plans	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM04	A1	A2	A2	*A2 or M/R	* Random inspection during patrol
6	SUB-ASSEMBLY: 6.1 Fitting and welding	SB/QCP	CSL/QMS/IQC/1002, CSL/QMS/IQC/SOP 08 & YARD PLAN	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM05	A1	A2	A2	*A2 or M/R	* Random inspection during patrol
7	ASSEMBLY: 7.1 Inspection of fit up and welding of sub assemblies/blocks	SB&QCP	CSL/QMS/IQC/1002, CSL/QMS/IQC/SOP 08 & YARD PLAN	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM06	A1	A2	A2	*A2	* Random inspection during patrol
	7.2 Dry Survey of blocks	SB&QCP	Yard plan/IRS approved drawings	CSL/QMS/IQC/SOP 01	CSL/QMS/IQC-HQC/FORM 06 & FORM 11	A1	A1	A1	A1	* Random Survey by KIV
	7.3 NDT TESTS (Hull)	LAB	NDT PLAN	CSL/QMS/IQC/SOP 10-UT SOP 11-DP SOP 12-MP SOP 13-RT	Lab reports	M	A1	M/R	A1	

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SL No.	ACTIVITY / OPERATION	RESPONSIBILITY	CONTROL DOCUMENTS Ex: DWG / SOPs	ACCEPTANCE CRITERIA / CODES / SPEC. / STDs	VERIFYING DOCUMENTS	SURVEILLANCE INSPECTION				REMARKS
						SB	QCP	OWNER	CLASS	
8	TANK TESTING: 8.1 Air Leak Testing of Tanks/Hose Test	SB & QCP	CSL/QMS/IOC/SOP06	Visual Inspection	FORM H 07 & FORM No.06	A1	A1	W1	W1	
	OUTFIT: 9.1 Inspection of Outfit Items	SB	CSL/QMS/IOC/1003 & DWGs	Yard Standards & Marine standards	FORM No.06	A1	A1			
9	9.1.1 CSL Purchased Items	STP & INSP	Purchase Order Technical Specification & Packing List	P.O & Standards	CSL/QMS/IOC/INSP/ FORM 6	A1	A1			
	9.1.2 Fabricated / Made Outside	STP & INSP	Yard Plan / Purchase Order Technical Specification	OUTFIT QUALITY STANDARD, W.O.	FORM No. 02	A1	A1			
10	10.1 Inspection of Fabrication of Pipes Pieces, Structural Items, Layout & Pressure Testing (Pipe shop & onboard)	SB & QCP	Pipe Piece Drawing, Fabrication Drawing, Yard Plan & Arrangement Drawing	CSL/QMS/IOC/SOP 04	FORM OF 01 FORM OF 02 FORM OF 03 & FORM No.06	A1	A1	W1*	W1*	*As per relevant class rules
	10.2 NDT TESTS (piping, Stern Tube, Rudder trunk)	LAB	NDT Plan	CSL/QMS/IOC/ SOP 09-DT SOP 10-UT SOP11-DP SOP 12-MP SOP 13-RT	Lab Reports		A1		W1/R*	*As per relevant class rules
10	10.3 SYSTEM TRIALS 10.3.1(a) Inspection of installation of various machineries (Major Power/Propulsion machineries)	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	0	A2	W2*	W2*	*for critical machineries 100%
	(b) Inspection of installation of Misc machineries	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W2	A2*	* As per relevant Class rules.
10	10.3.2 (a) Inspection of electrical cabling (Major Power/Propulsion related equipment)	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W2*	W2*	*for critical equipments
	(b) Inspection of electrical cabling (Misc systems/ equipment)	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	A2	A2*	As per relevant class rules
10	10.3.3 Alignment of Motor and Propulsion system	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W1	A1	
	10.4.4 Alignment of other machineries	SB & QCP	Yard Plan, Approved Plan & OEM Manuals	CSL/QMS/IOC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W1		



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						SB	QCP	OWNER	CLASS	
	10.3.5 Commissioning of equipments and trials of various systems on board	SB & QCP	OEM Manuals & Onboard Test Protocol	CSL/QMS/IQC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W1	W1	Machinery Tests /Trials will be conducted as per relevant Class rules/Owner Requirements/Yard standards/Approved Onboard Test Protocol.
	10.4 Out fit survey of tanks before tank testing and painting	SB & QCP	Yard plan & Approved Plan	CSL/QMS/IQC/SOP 04	FORM OF 03 & FORM No.06	A1	A1	W1	A2	
	HULL OUTFIT: 11.1 Verification of Hull markings, Draft marks, Bottom plugs etc.	SB & QCP	Yard plan & Approved Plan	Visual inspection	FORM OF 03 & FORM No.06	A1	A1	W1	W1	
11	11.2 Hose testing/Vacuum testing of Bottom plugs,O/B penetrations and temporary manholes etc.	SB & QCP	Yard plan & Approved Plan	VISUAL INSPECTION CSL/QMS/IQC/SOP 04	FORM03 & FORM 6	A1	A1	W1	W1	
	11.3 Inspection and commissioning of Deck Machineries.	SB & QCP	Yard plan, Approved Plan & OEM Manuals	CSL/QMS/IQC/SOP 04	FORM03 & FORM 6	A1	A1	W1	W1*	* As per relevant class rules
	12.1 Pressure testing of pipe lines	SB & QCP	Yard plan & Approved Plan	CSL/QMS/IQC/SOP-04	FORM03 & FORM 6	A1	A1	A1	A1*	* As per relevant class rules
12	12.2 Cabling inspection	SB & QCP	Yard plan & Approved Plan	CSL/QMS/IQC/SOP-04	FORM03 & FORM 6	A1	A1	A1	W2*	* As per relevant class rules
	12.3 Survey before insulation	SB & QCP	Yard plan & Approved Plan	Yard plan & Yard Standards	FORM03 & FORM 6	A1	A1	A1	W2	
	12.4 Survey after insulation	SB & QCP	Yard plan & Approved Plan	Yard Standards & SOLAS	FORM03 & FORM 6	A1	A1	A1	W1*	* As per relevant class rules
	12.5 Survey before panchelling Ceiling flooring	SB & QCP	Yard plan & Approved Plan	Yard plan & Yard Standards	FORM03 & FORM 6	A1	A1	A1	W2	
	12.6 Inspection of FRP	SB	POTS	POTS	FORM03 & FORM 6	A2	W1	W1	A2	
13	PAINTING: Inspection of Surface preparation & painting 13.1 Inside tanks 13.2 Hull exterior&underwater area	SB&PR	Paint Schemes&standards	Painting standards+ paint representatives approval	Painting inspection reports	A1	PR	A1		
		SB&PR	Paint Schemes&standards	Painting standards+ paint representatives approval	Painting inspection reports	A1	PR	A1	A1	
14	PRINCIPAL DIMENSIONS: Check the dimensions of the vessel. (keel sighting, draft marks)	SB&QCP	Yard plan & Approved Plan	Yard standards	CSL/QMS/IQC-HQC/ FORM11	A1	A1	A1	A1	

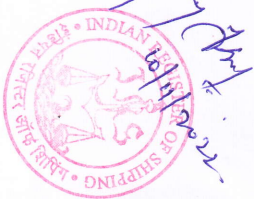



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SL No.	ACTIVITY / OPERATION	RESPONSIBILITY	CONTROL DOCUMENTS Ex: DWG / SOPs	ACCEPTANCE CRITERIA / CODES / SPEC. / STDs	VERIFYING DOCUMENTS	SURVEILLANCE INSPECTION				REMARKS
						SB	QCP	OWNER	CLASS	
15	SAFETY EQUIPMENTS: 15.1 Inspection of Safety & Fire fighting Equipments on board	SB & QCP	Approved Drgs & Certificates	Yard standards /Class rules/LSA & FSS Codes	CSL/QMS/IOC-OQC/FORM 3 & FORM06	A1	A1	W1	W1	As per Class approved plan
16	UNDocking SURVEY: Inspection of underwater area hull exterior etc including appendages; and cleaning for flooding the dock prior to undocking the vessel	SB & QCP	Yard plan & Approved Plan	Yard standards /Class rules	CSL/QMS/IOC-OQC/FORM 3 & FORM06	A1	A1	W1	W1	
17	Weather tightness & statutory compliance of Doors, means of access	SB & QCP	Yard plan & Approved Plan	Yard standards /Class rules/Loadline convention	CSL/QMS/IOC-OQC/FORM 3 & FORM06	A1	A1	W1	W1	* If applicable
18	INCLINING TEST: Conducting stability test at berth/ dock	SB & Marketing	Inclining test procedures	Yard standards /Class rules	Inclination survey Report	A1	A1	W1	W1	
19	BASIN TRIAL: Starting and running of Power Source along with auxiliaries, Emergency source operation, steering gear system, First start arrangements	SB & QCP	On board test methods & Manuals	Harbour Trial protocol	CSL/QMS/IOC-OQC/FORM03 & FORM 6	A1	A1	W1	W1	
20	SEA TRIAL: Conducting sea trial and recording	SB & QCP	Sea Trial Protocol	Sea Trial Protocol	CSL/QMS/IOC-OQC/FORM03 & FORM 6	A1	A1	W1	W1	
21	FINAL RELEASE	SB & Marketing	As per contract	All relevant verifying documents	Delivery Protocol	A1	R1	R	R	

* This QAP to be referred along with approved ITP.



REVISIONS				NOTES	PAGE	CONTENTS																																																		
No.	DESCRIPTION	DATE	SIGN	1. PORT & STARBOARD SIDES ARE SIMILAR EXCEPT NOTED. 2. TRANSVERSE SECTIONS ARE DRAWN LOOKING FORWARD, AND LONGL. SECTIONS LOOKING TO PORT 3. THE FITTING SIDE AT MOULD LINE OF THE TRANS. MEMBER IS TOWARDS MIDSHIP EXC.NOTED 4. FOR OTHER MEMBERS, IN GENERAL THE FITTING SIDE IS IN THE SAME DIRECTION SHOWN BY ARROWS TO INDICATE DIMENSION / SPACING 5. TEMPORARY LUGS ARE TO BE BURNT OFF AND SLAG FLUSHED. 6. WELDING FOR WELDING DETAILS REFER PAGE :04/14 7. MATERIAL - ALUMINIUM GRADE 5083-H116/ H321 (FOR PLATES), ALUMINIUM 6082 T5/T6 (FOR EXTRUSIONS)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	DESCRIPTION CHECK DIMENSIONS MAIN DECK (FWD OF FR 24) MAIN DECK (AFT OF FR24) SEC. AT 1575 A/B (CLOSING PLATE), VIEW STRINGERS 1 W O FENDR SHELL EXPANSION LONGL SECS., DETAILS OF STRINGERS, ECHO SOUNDER CASING LONG SECS., DET. OF 'P' BKT, SKEG, CARLING I W O FOAM FENDERS TRAN. FRAME SECTIONS FR36 TO FR50 TRAN. FRAME SECTIONS FR22 TO FR34 TRAN. FRAME SECTIONS FR7 TO FR20 TRAN. FRAME SECTIONS TRANSOM TO FR5 DETAILS OF HATCH COVERS DETAILS OF BOLLARD, TRUNK FOR VENT. DETAILS OF SUPERSTRUCTURE CONNECTION DETAILS OF GEAR BOX/ MOTOR FOUNDATION DETAIL SHEET																																																		
		<div>LIST OF EXTRUSIONS 40X5 FB - DECK STIFFENERS (U.N.O) 50X5 FB - SHELL STIFFENERS & FLANGES OF DECK FRAMES (U.N.O) 50X6 FB (RIDER BAR) - SHELL TRANS. FRAMES (U.N.O) 120X6.5+50X3 ('T' SECTION) - DECK LONGLS. I W O BOLLARDS & STRINGERS IN SHELL ((U.N.O) 40X4+40X4 ('T' SECTION) - STIFF. ON TRANS BHDS. 80X80X6 ('L' SECTION) - SUP. STRU. INTERPHASE ANGLES 50X40X5 ('L' SECTION) - IN HATCH COVER (FOR DG/ BATTERY/ TRANSFORMER ROOM) 65X65X6 ('L' SECTION) - F O TANK</div> <div>NOTE : TEMPLATES WILL BE ISSUED FOR NON NESTED ITEMS</div>				<div>WEIGHT & C.O.G</div> <table><tr><th rowspan="2">BLOCK</th><th rowspan="2">WEIGHT(T)</th><th colspan="3">C.O.G.</th></tr><tr><th>FR</th><th>Ymm</th><th>Zm</th></tr><tr><td>01</td><td>9.281</td><td>FR24+216</td><td>16</td><td>1.124</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>																BLOCK	WEIGHT(T)	C.O.G.			FR	Ymm	Zm	01	9.281	FR24+216	16	1.124																						
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		FR	Ymm	Zm																																																				
01	9.281	FR24+216	16	1.124																																																				
						<div>PRINCIPAL DIMENSIONS</div> <div>L.O.A..... 24.80 m L.B.P..... 24.10 m BREADTH MLD (B)..... 6.40 m DEMI HULL BREADTH..... 2.00 m DEPTH MAIN DK (D)..... 1.70 m DRAUGHT SCANTLING (T)..... 1.00 m MAX. SERVICE SPEED (PURE ELEC./DIESEL).....8 knots DESIGN SPEED (HYBRID).....8 knots</div>																																																		
						<div>ALL DIMENSIONS ARE IN mm. (EXC. NOTED)</div> <div>REV- 0</div>																																																		
						<div><div><div></div><div>COCHIN SHIPYARD LIMITED</div><div>COCHIN - 682 015</div></div><div><div>YARD No: BY150</div><div>APPROVED Sreekumar</div><div>CHECKED Akhila</div><div>DRAWN Mahesh</div></div><div><div>DATE : 21/10/2022</div><div>SCALE : N.T.S</div><div>DWG. No. BY150W0001</div></div></div> <div>UNIT-01</div>																																																		
						<div>CLASS : DNV & IRS</div> <table><tr><td rowspan="2">ISSUED TO</td><td>DEPT.</td><td>PLG.</td><td>O.C</td><td>O.C</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td rowspan="2">SHT NO. 01/16</td></tr><tr><td>No.</td><td>3</td><td>1</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>A3x16</td></tr></table>																ISSUED TO	DEPT.	PLG.	O.C	O.C														SHT NO. 01/16	No.	3	1	1												A3x16
ISSUED TO	DEPT.	PLG.	O.C	O.C														SHT NO. 01/16																																						
	No.	3	1	1												A3x16																																								
NON CLASSIFIED																																																								

CHECK DIMENSION

4420

6426

25270

24680

1700

4436

PS

FWD

SKEG

5136

516

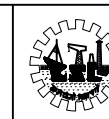
60

THICKNESS CONVENTION (TYP)

PAGE :

02/16

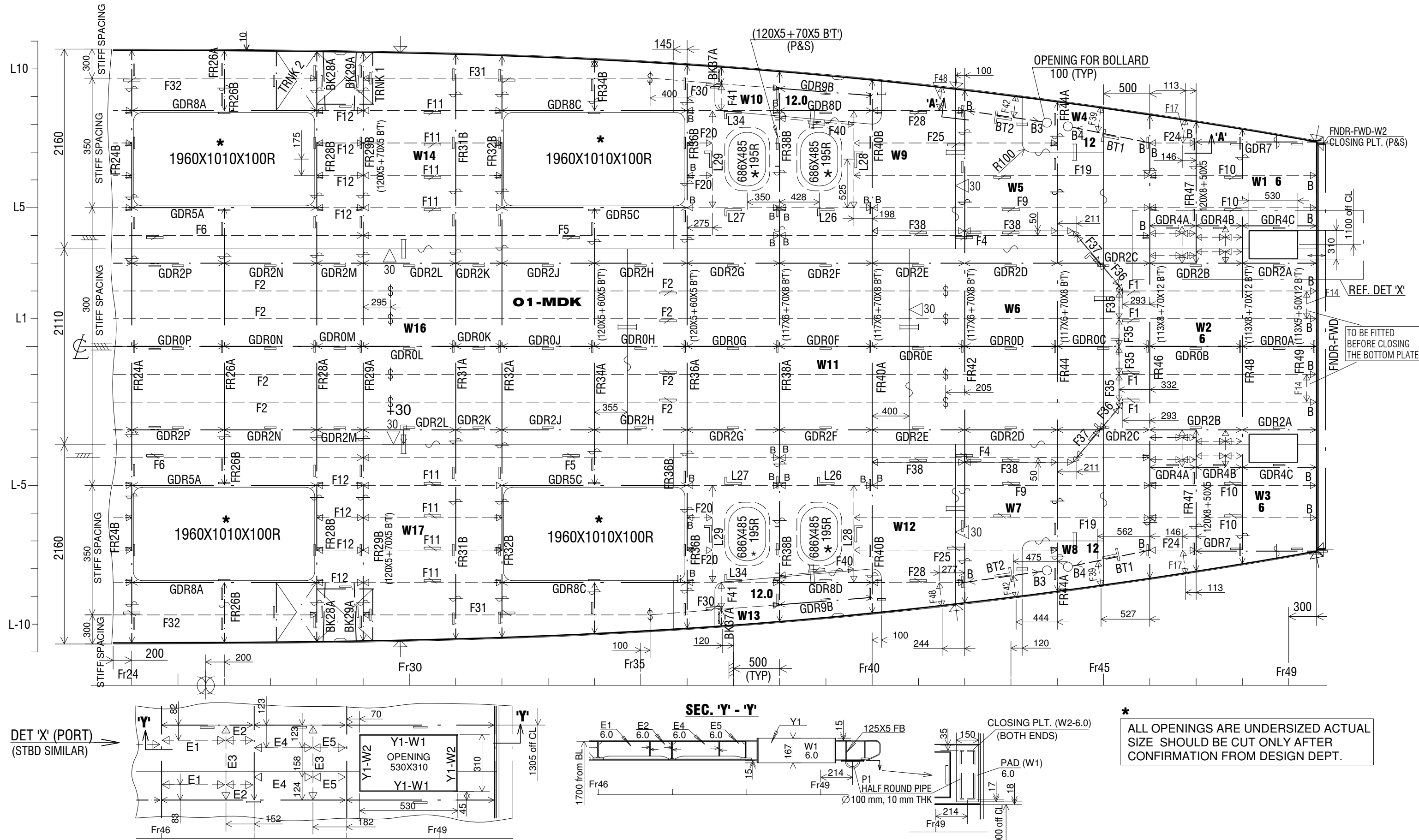
Plan view of the upper deck. The layout includes the following rooms and areas from left to right: SG ROOM, MOTOR ROOM, TRANSFORMER ROOM, BATTERY ROOM, VOID, and VOID. The deck is divided into sections by vertical lines, with labels Fr-1, Fr5, Fr10, Fr15, Fr20, Fr25, Fr30, Fr35, Fr40, Fr45, and Fr50 along the bottom edge. The top edge shows a curved boundary with a vertical dimension of 900 off CL. A circular symbol is located on the left side, near the 900 off CL dimension.

**DECK PLAN (1700 A/B)**

NOTE : BEVELS ARE NOT GIVEN BEVELS TO BE TAKEN
AT SITE DEPENDING UPON THE APPROVED WPS

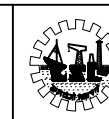
SOFT PATCHES TO BE FABRICATED SEPERATELY
AND FITTED AFTER INSTALLATION OF EQUIPMENT

DECK PLATE : 4 mm (EXCEPT NOTED)
LONGL. STIFF : 40X5 FLAT BARS (EXTRUSIONS) EXCEPT NOTED)
LONGL. GDRS : 120X5+50/5 'T'(EXCEPT NOTED)
117X6.5+50X3 'T' (EXTRUSIONS-BT1,BT2)
DECK BEAMS : 120X5+50/5 'T'(EXCEPT NOTED)



BY150-01-04-DECK2



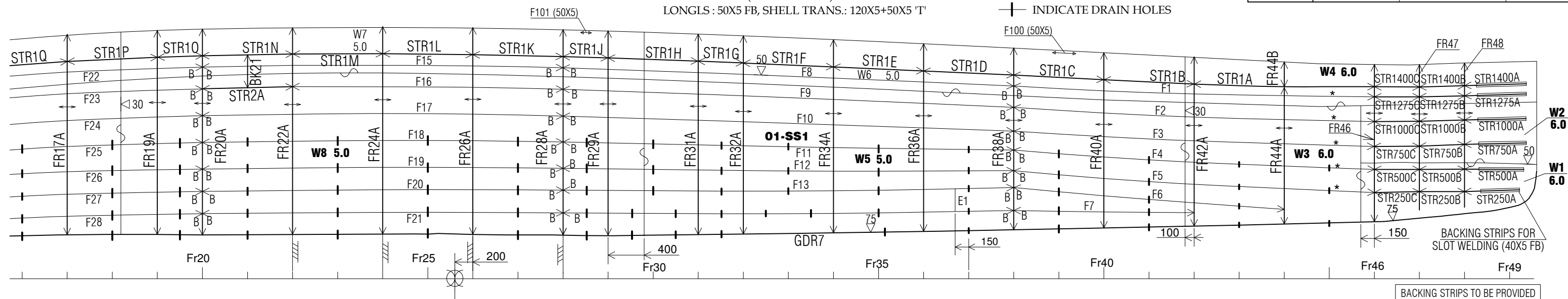


SHELL EXPANSION (OUBD OF 2200 OFF CL PORT)

(STBD SIMILAR)

LONGLS : 50X5 FB, SHELL TRANS.: 120X5+50X5 "T"

+ INDICATE DRAIN HOLES



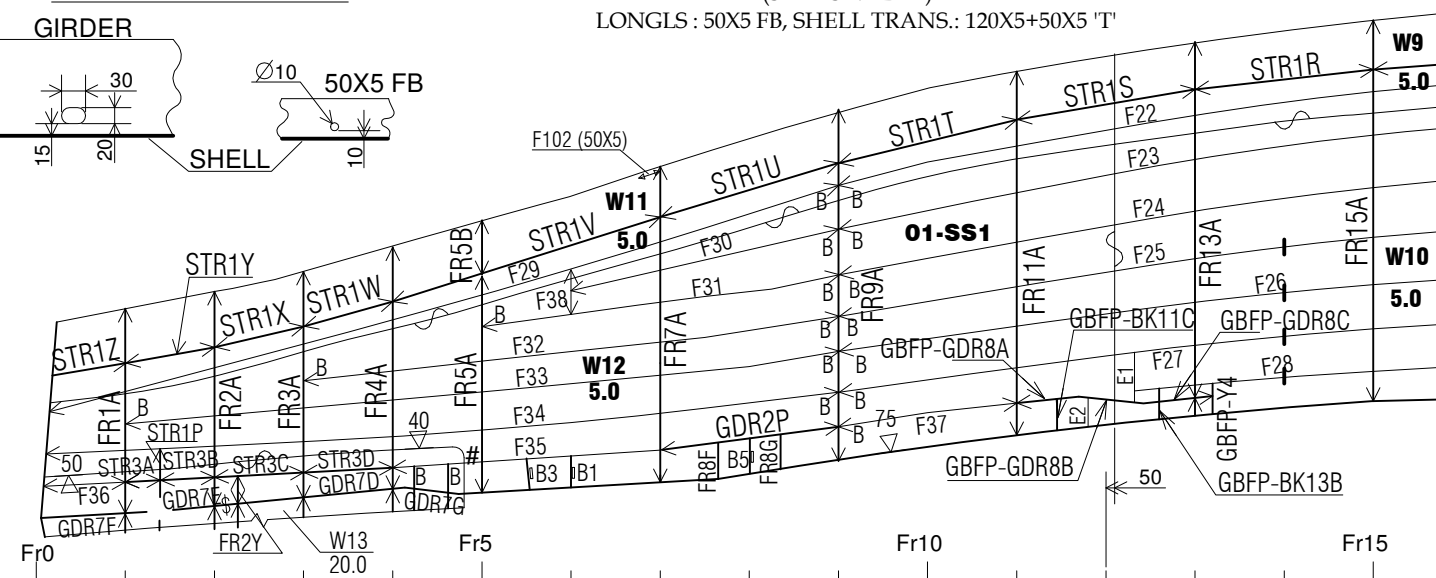
SHELL EXPANSION (OUBD OF 2200 OFF CL PORT)

(STBD SIMILAR)

LONGLS : 50X5 FB, SHELL TRANS.: 120X5+50X5 "T"

DETAILS OF DRAIN HOLES

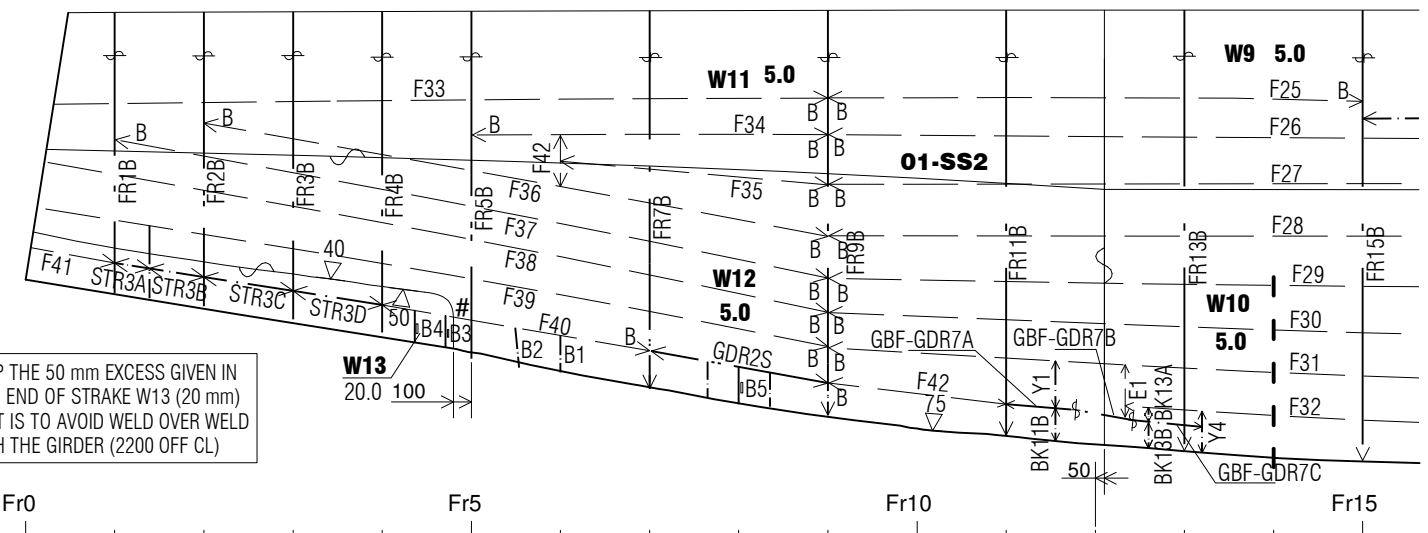
GIRDER



SHELL EXPANSION (INBD OF 2200 OFF CL PORT)

(STBD SIMILAR)

LONGLS : 50X5 FB, SHELL TRANS.: 120X5+50X5 "T"



SHELL EXPANSION (INBD OF 2200 OFF CL PORT)

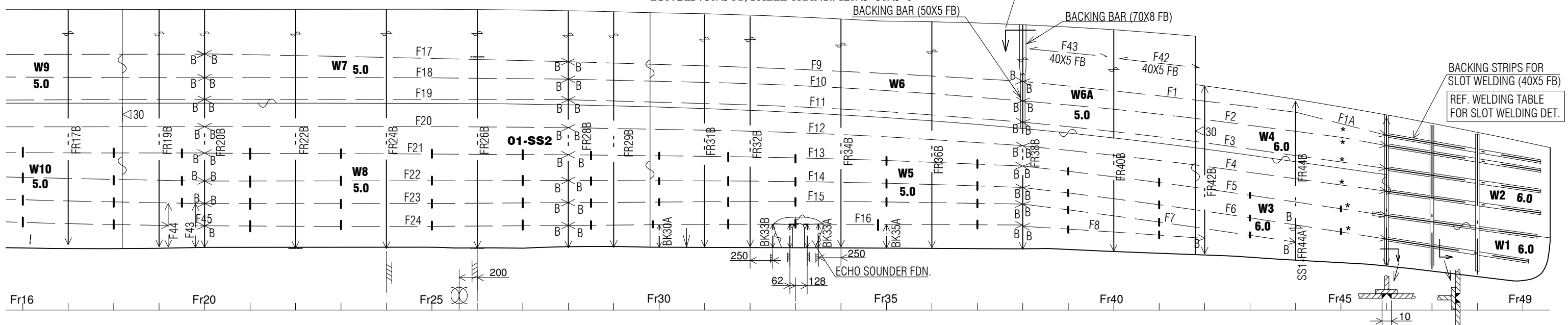
(STBD SIMILAR)

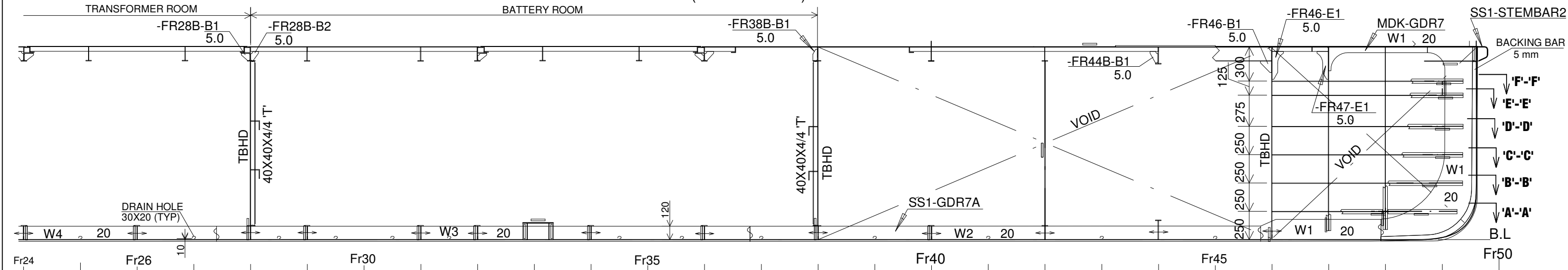
LONGLS : 50X5 FB, SHELL TRANS.: 120X5+50X5 "T"

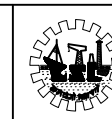
BACKING BAR (50X5 FB)

BACKING BAR (70X8 FB)

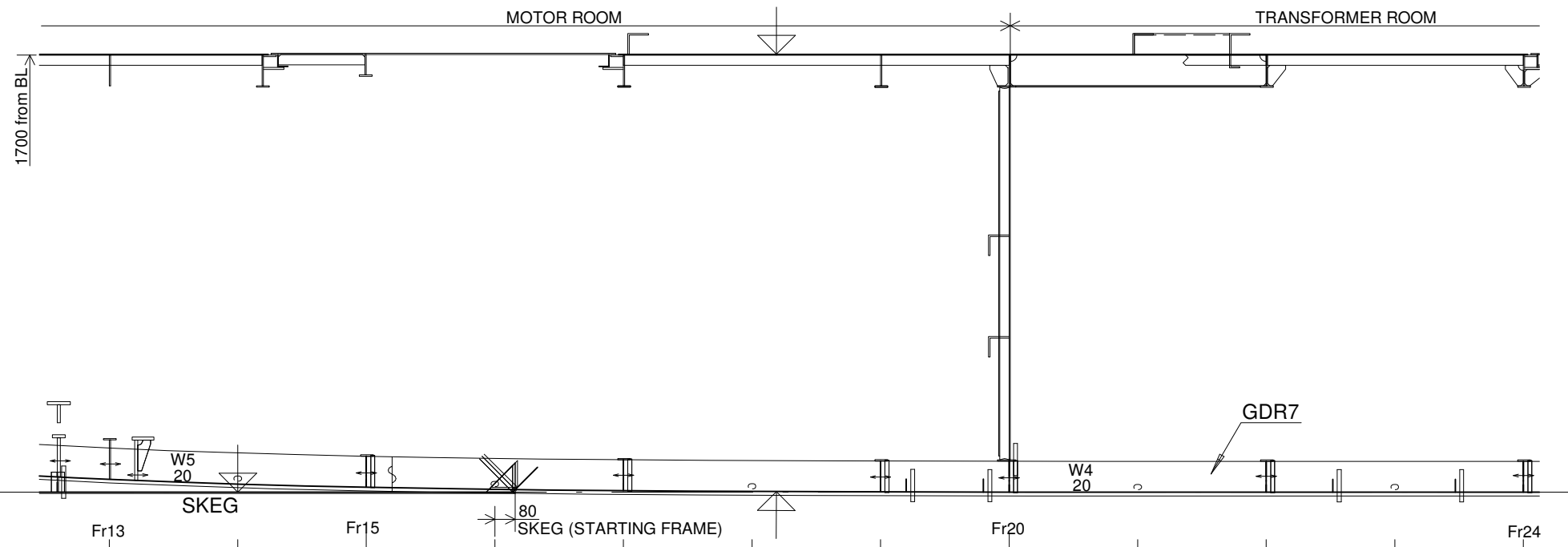
★ FWD END OF SHELL LONGLS TO BE TWISTED TO MAKE IT INLINE WITH STRINGERS AT FR 46



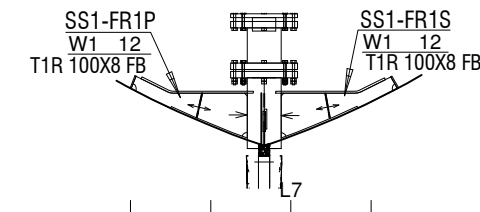




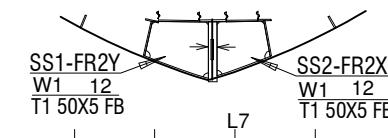
LONGL. SEC. AT 2200 OFF CL (PORT)



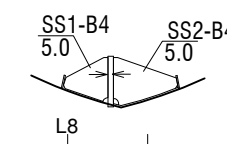
SEC. 'C'-'C'
FR1+189



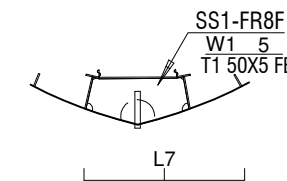
SEC. 'D'-'D'
FR2+160



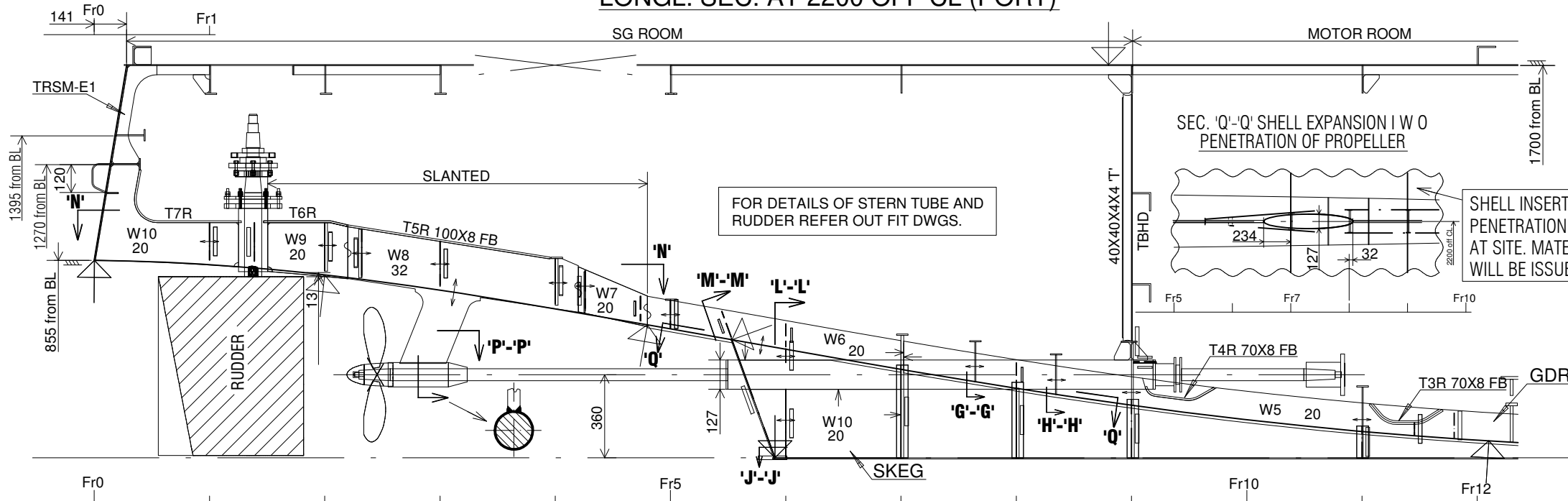
SEC. 'E'-'E'
FR4+130



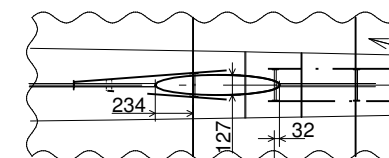
SEC. 'G'-'G'
FR8-130



LONGL. SEC. AT 2200 OFF CL (PORT)

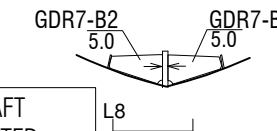


SEC. 'Q'-'Q' SHELL EXPANSION I W O PENETRATION OF PROPELLER

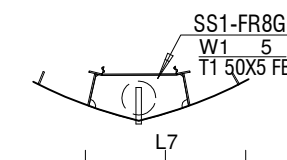


SHELL INSERT I.W.O SHAFT PENETRATION TO BE LOFTED AT SITE. MATERIAL REQUIRED WILL BE ISSUED AS PER REQUEST

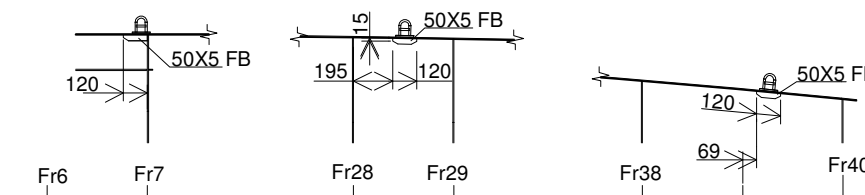
SEC. 'F'-'F'
FR5-130



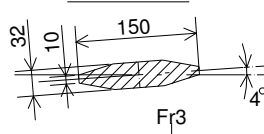
SEC. 'H'-'H'
FR8+170



LOCATION OF CARLINGS I W O FOAM FENDERS

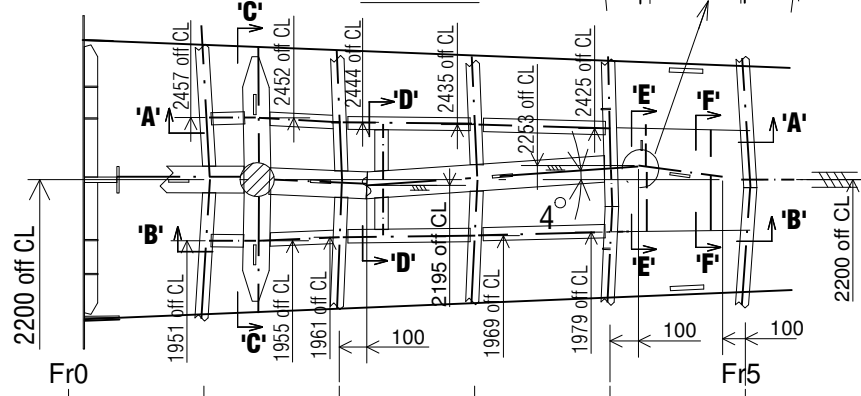


SEC. 'P'-'P'

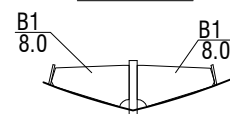


WELDING DET. BETWEEN 32 mm PL. & 20 mm PL.

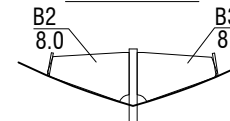
DET. 'N'-'N'



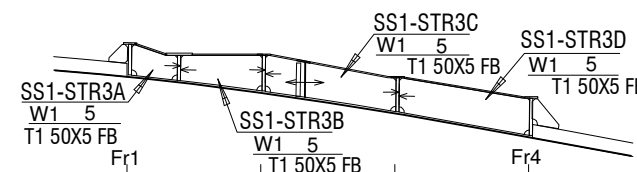
SEC. 'L'-'L'



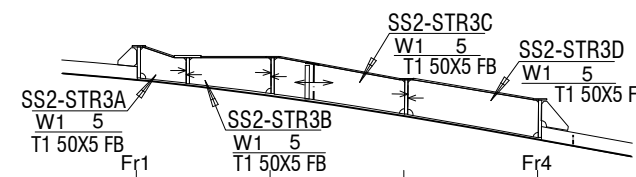
SEC. 'M'-'M'



SEC. 'A'-'A'

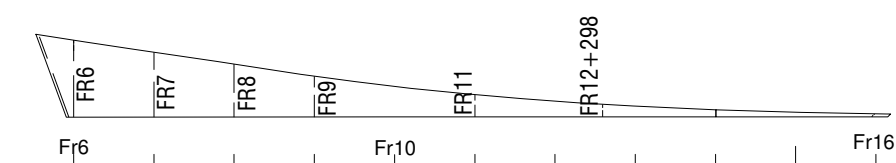


SEC. 'B'-'B'

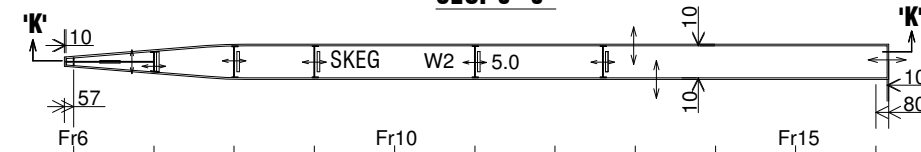


SEC. 'K'-'K'

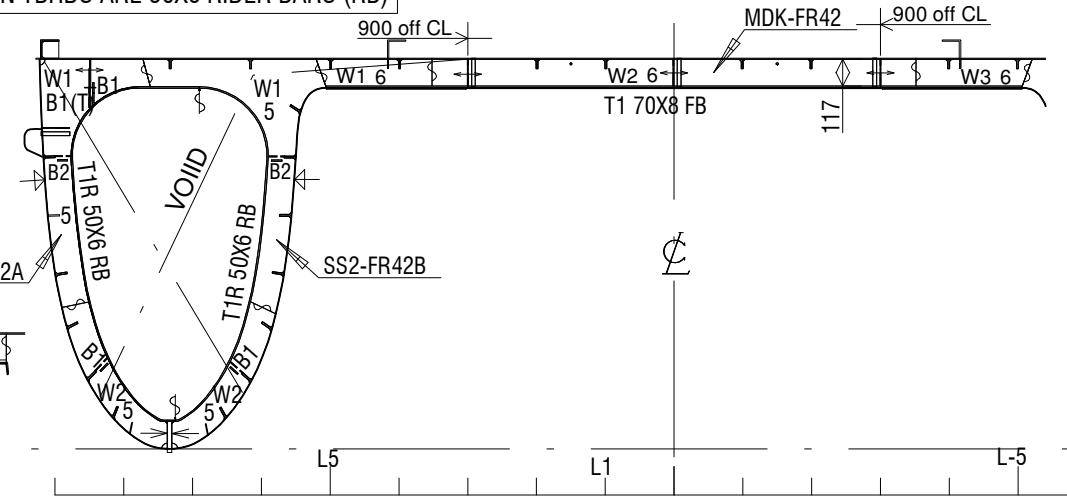
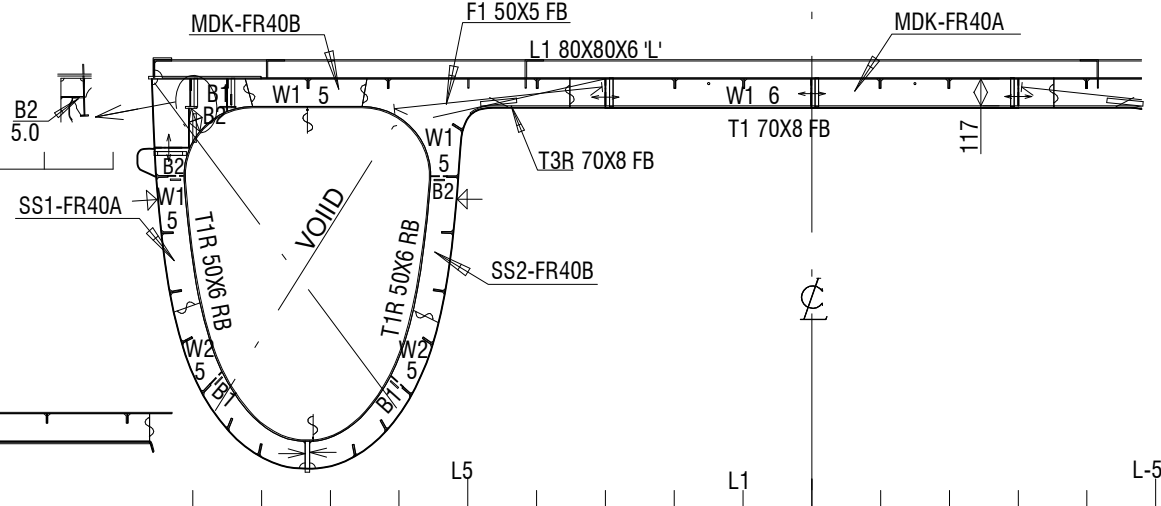
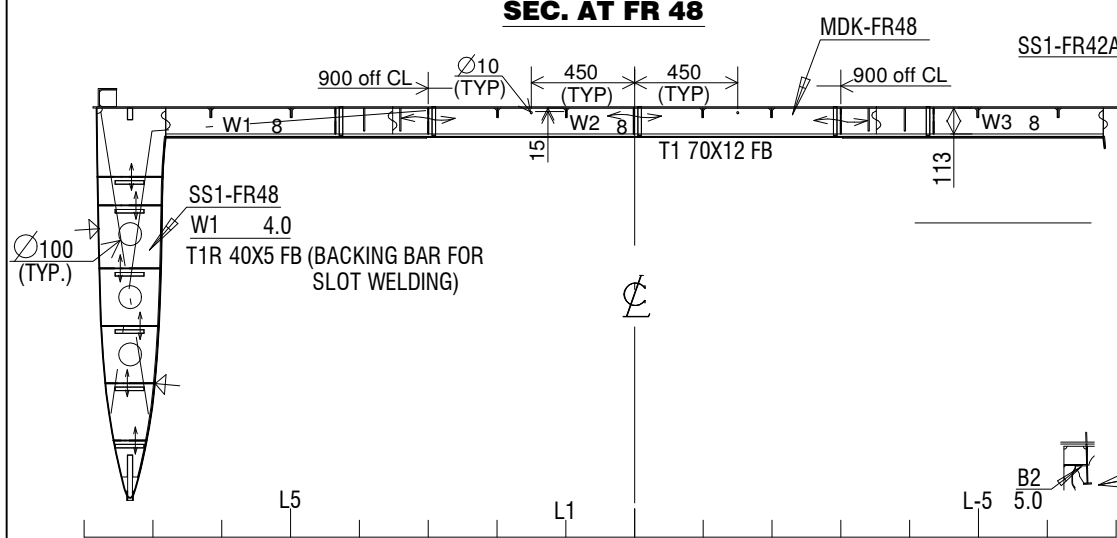
EXPANSION OF SKEG SIDE PLATE



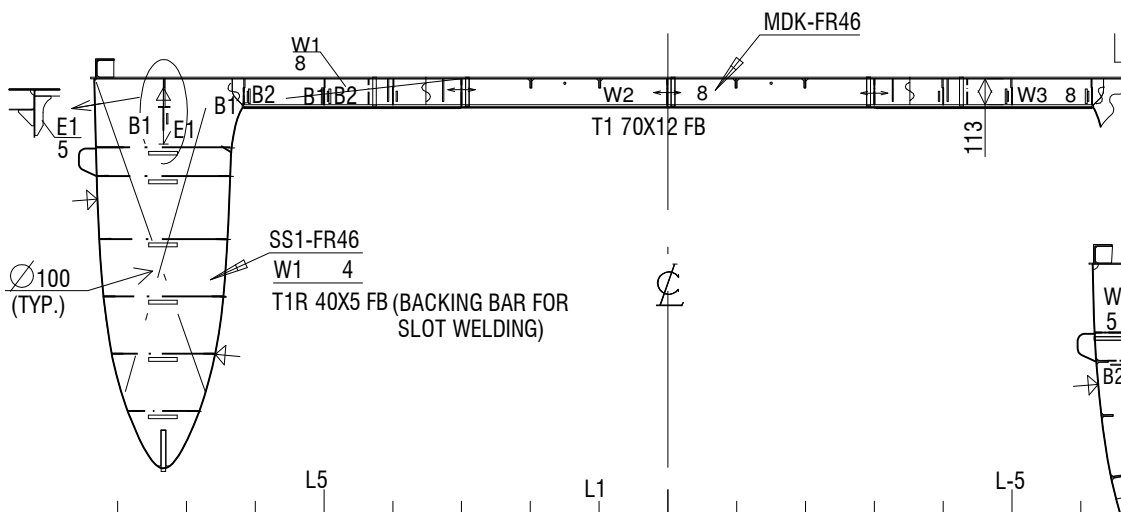
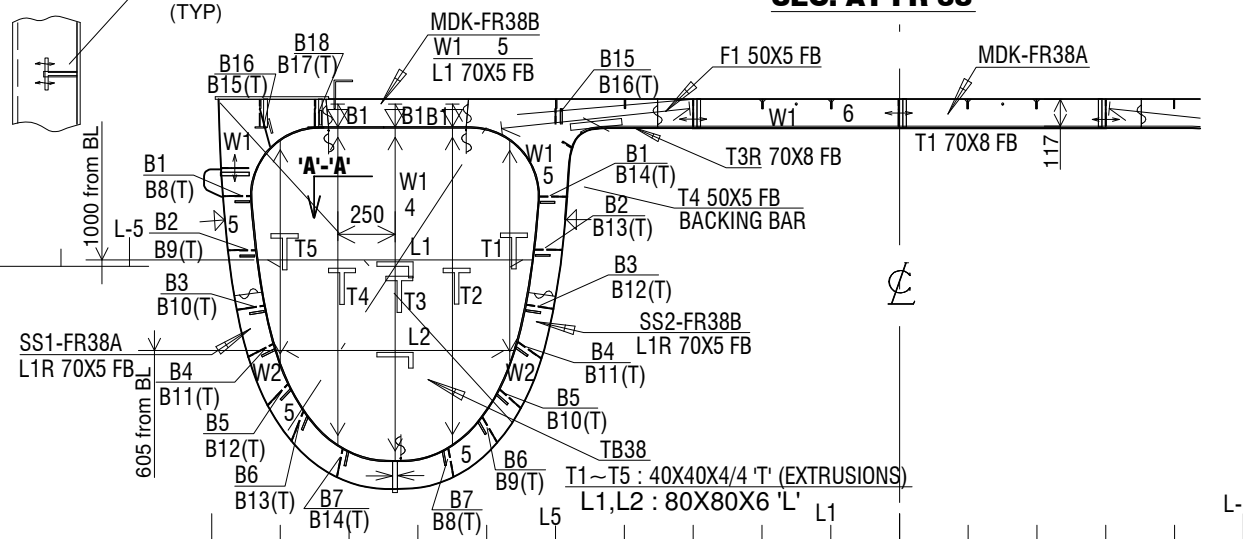
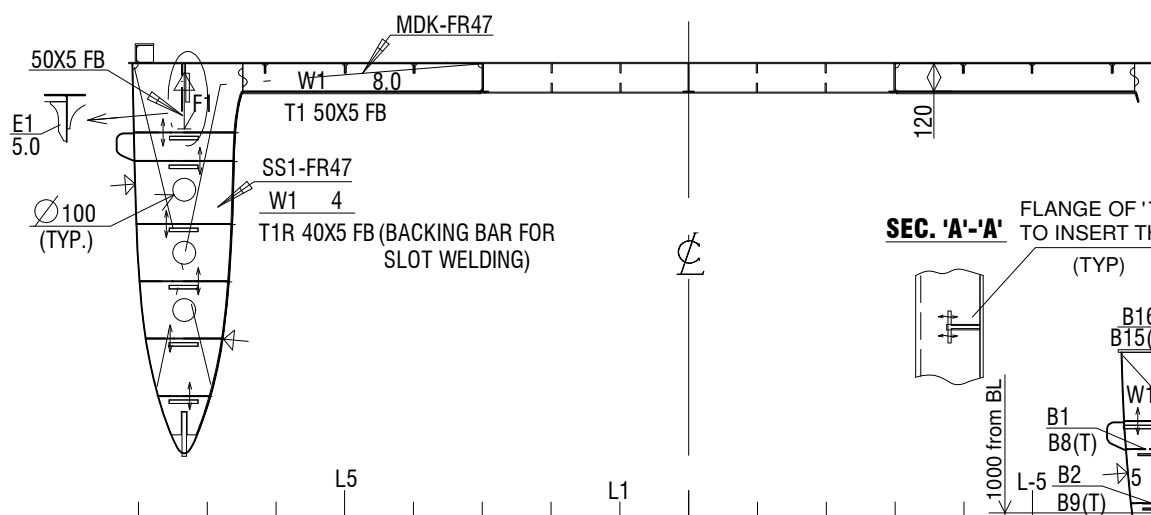
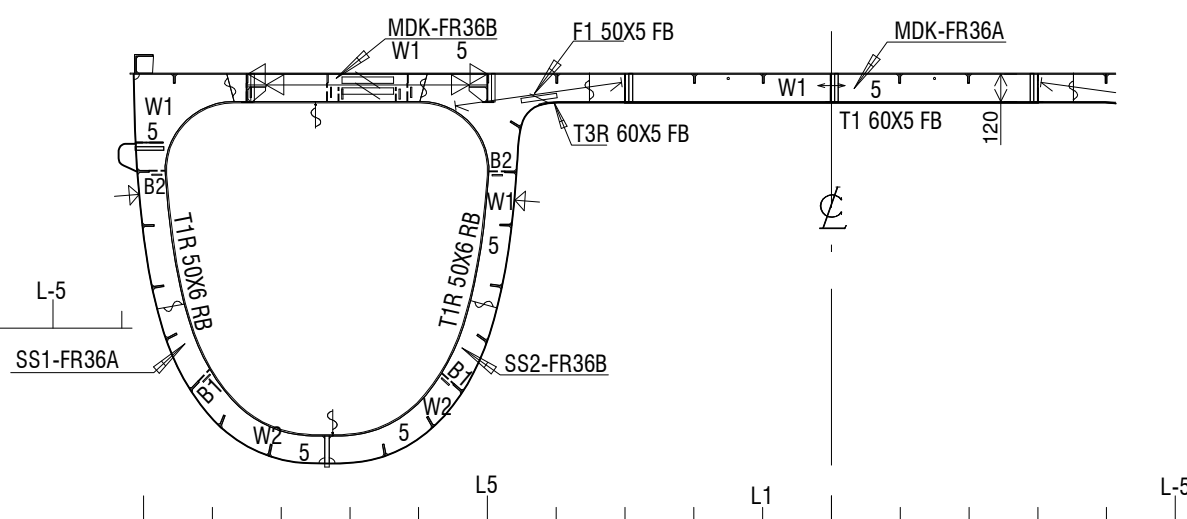
SEC. 'J'-'J'



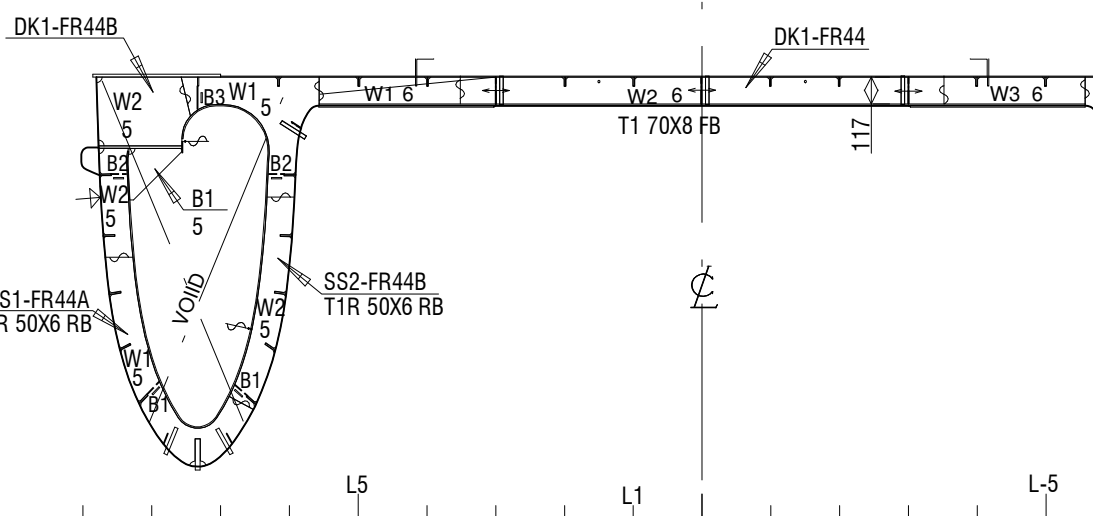
SEC. AT FR 42

SS1-FR42A

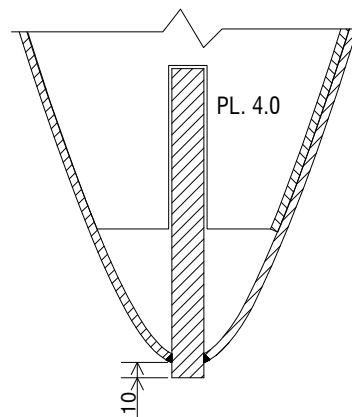
SEC. 'A'-'A'

SS1-FR36A

DET. 1

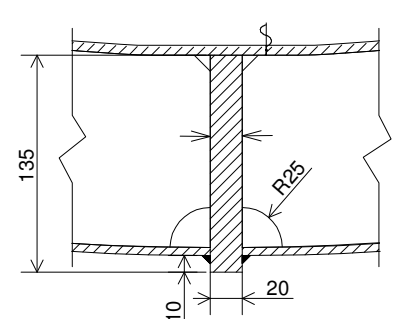


TYP. FOR FR47& FR48

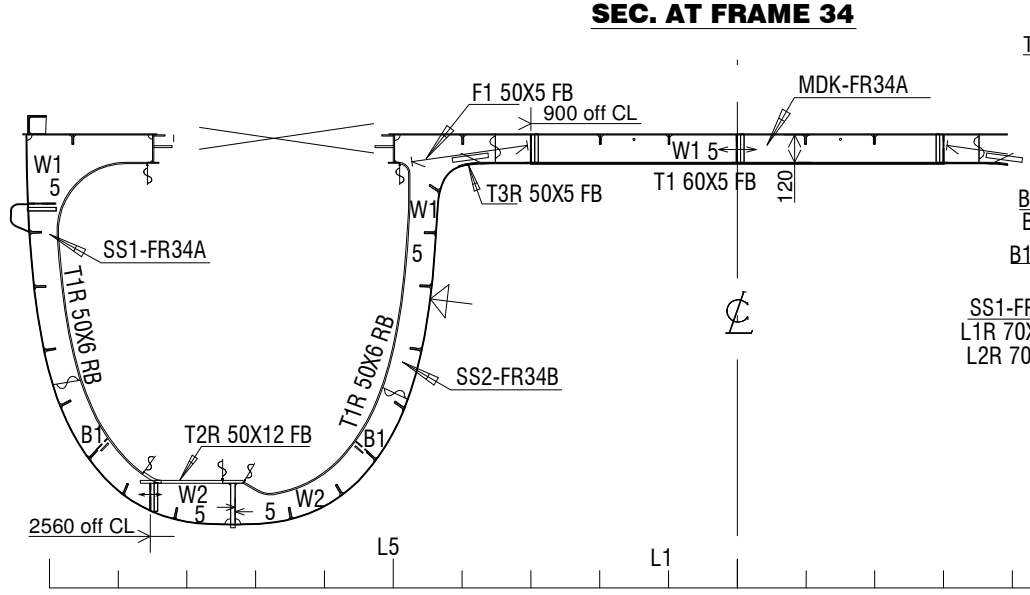


DET. 2

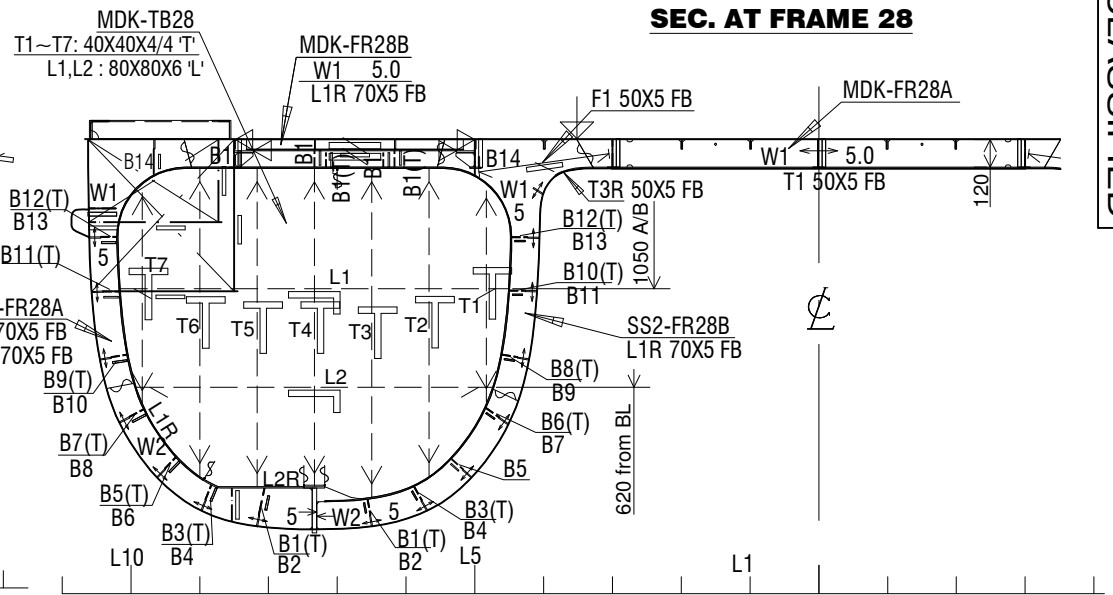
TYP. FOR FR1 TO FR42



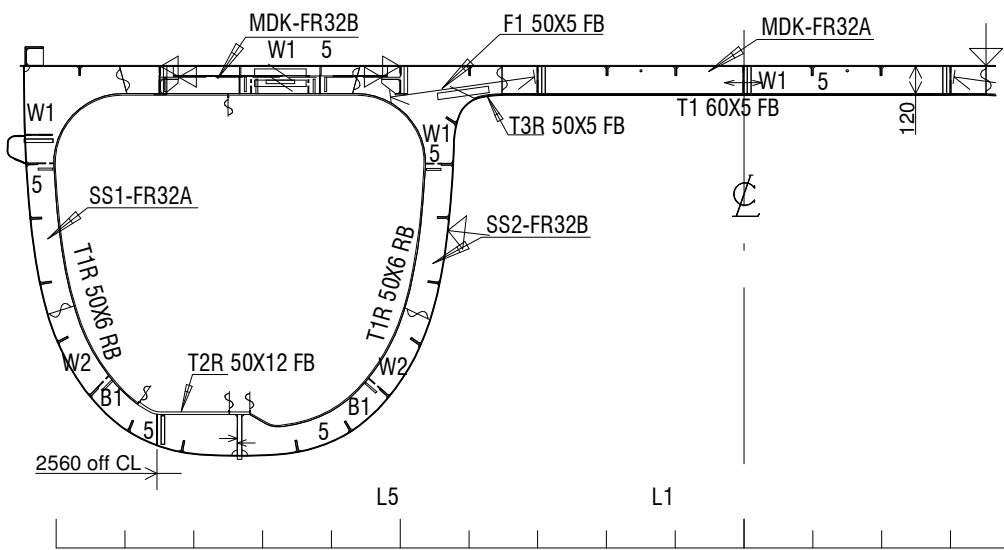
SEC. AT FRAME 34



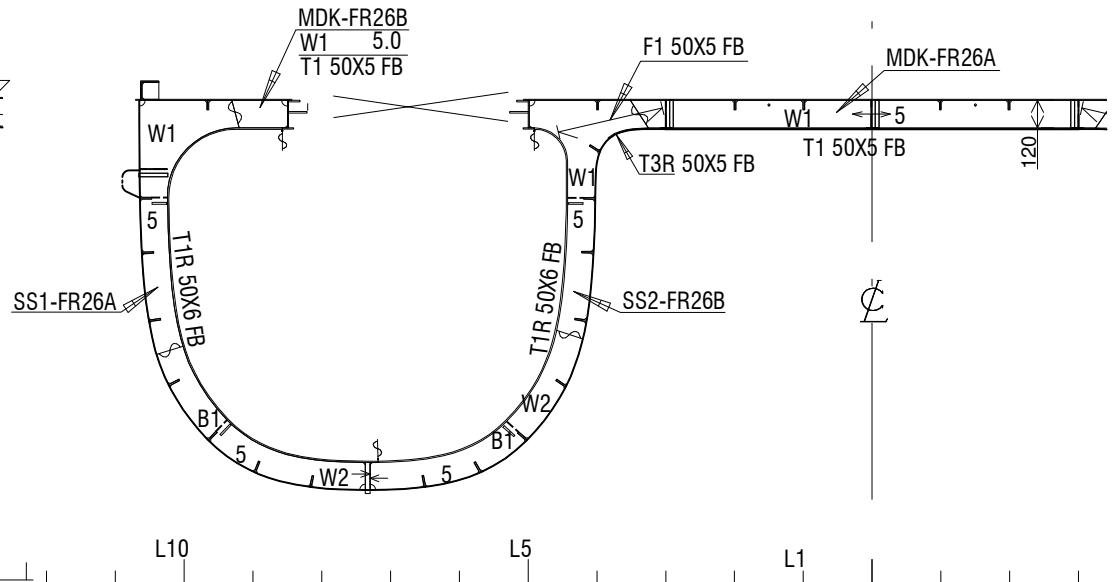
SEC. AT FRAME 28



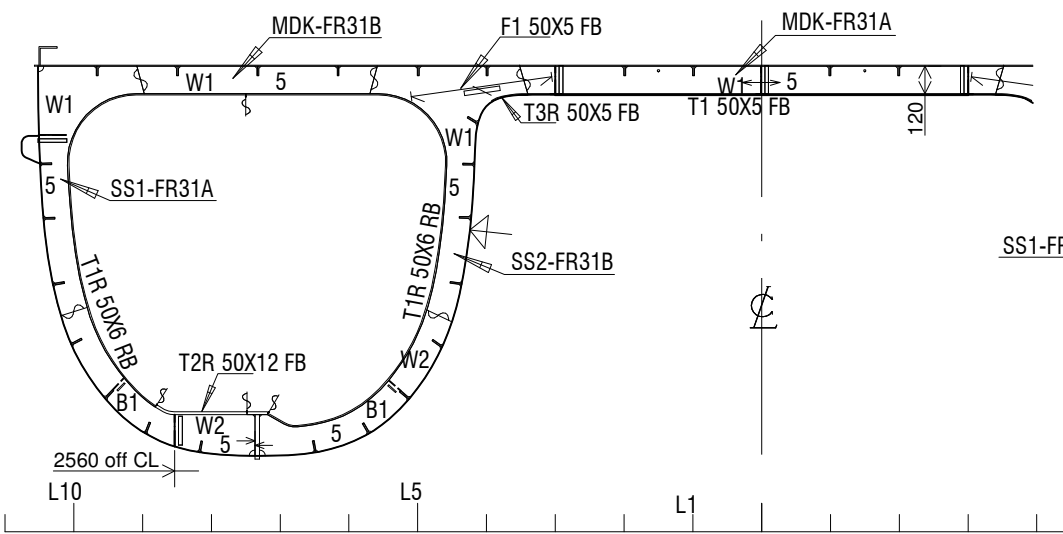
SEC. AT FRAME 32



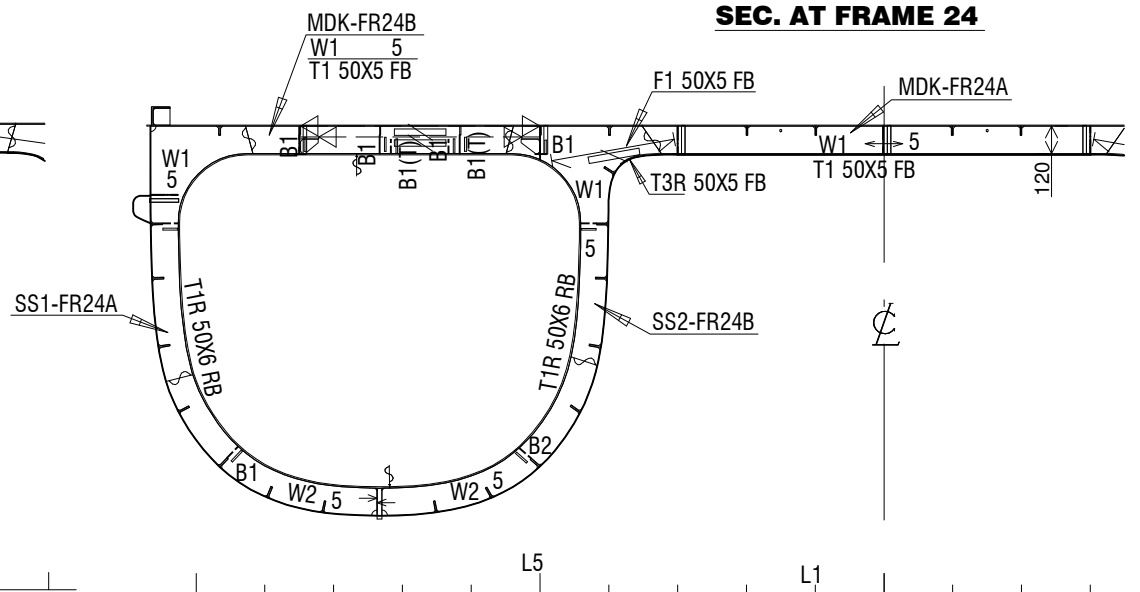
SEC. AT FRAME 26



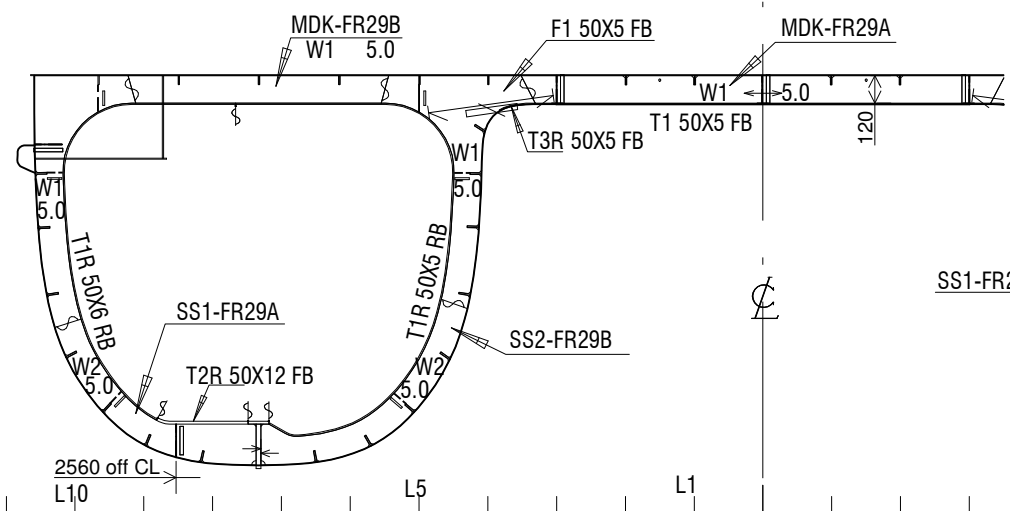
SEC. AT FRAME 31



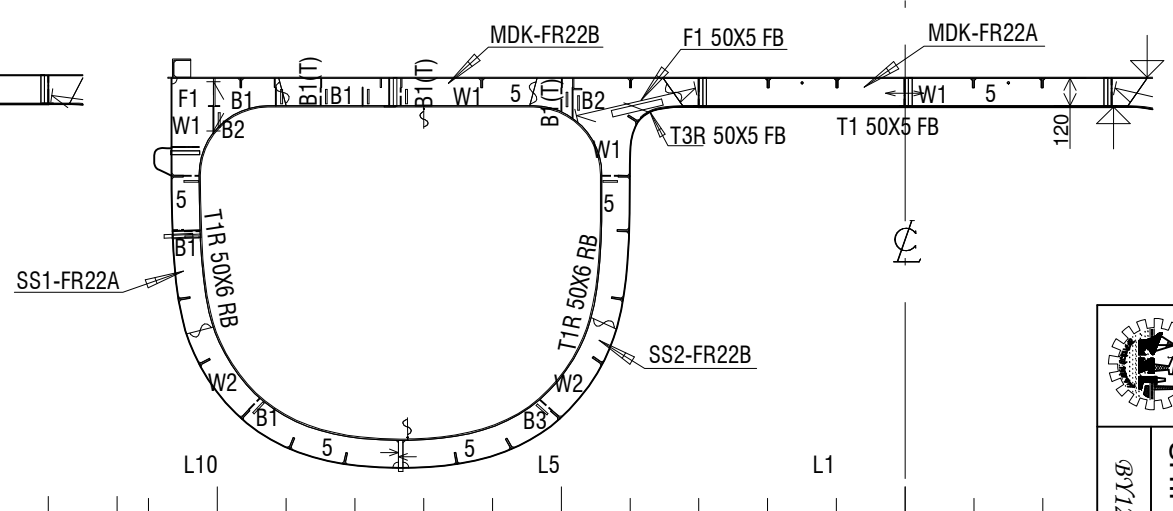
SEC. AT FRAME 24



SEC. AT FRAME 29

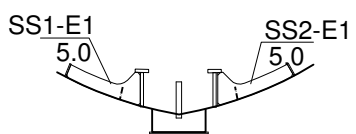


SEC. AT FRAME 22

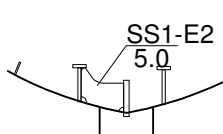


**CARLING FOR TRANSFORMER FDN. (PORT)
(STBD SIMILAR)**

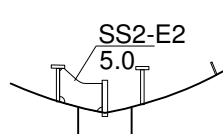
SEC. AT FRAME 12+160 (P)
STBD SIMILAR



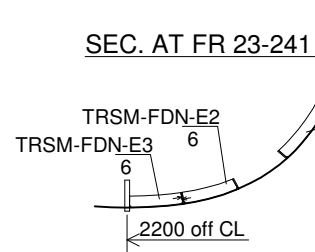
SEC. AT FRAME 12-100 (P)



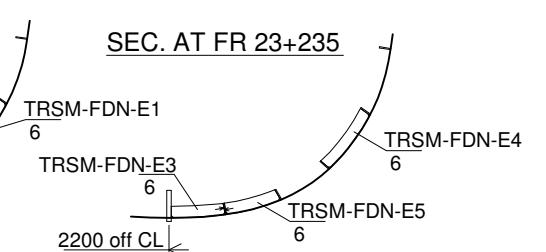
SEC. AT FRAME 12+160 (S)

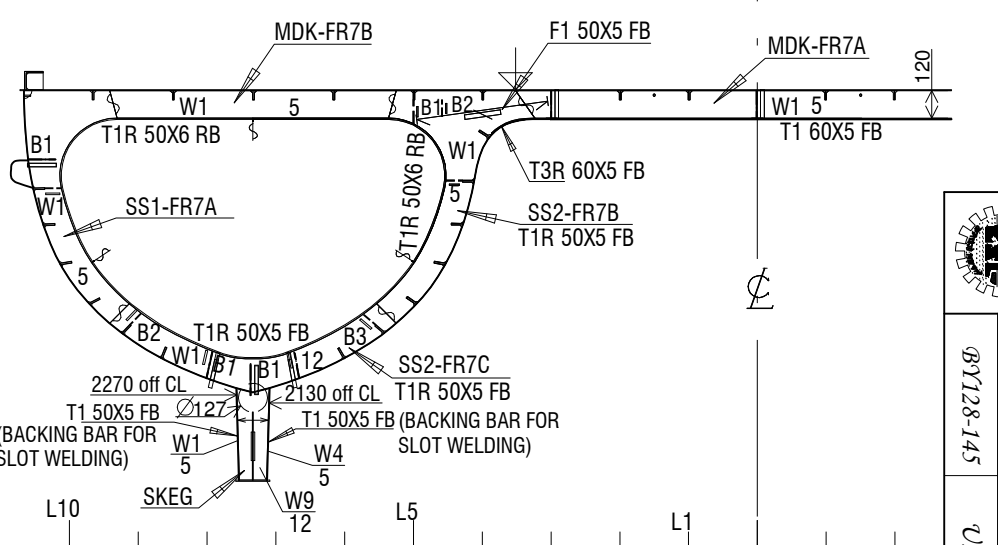


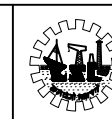
SEC. AT FR 23-241



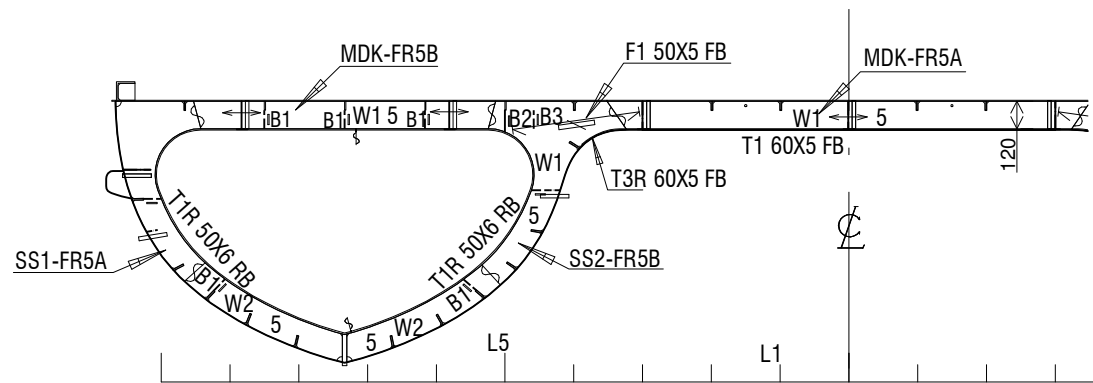
SEC. AT FR 23+235



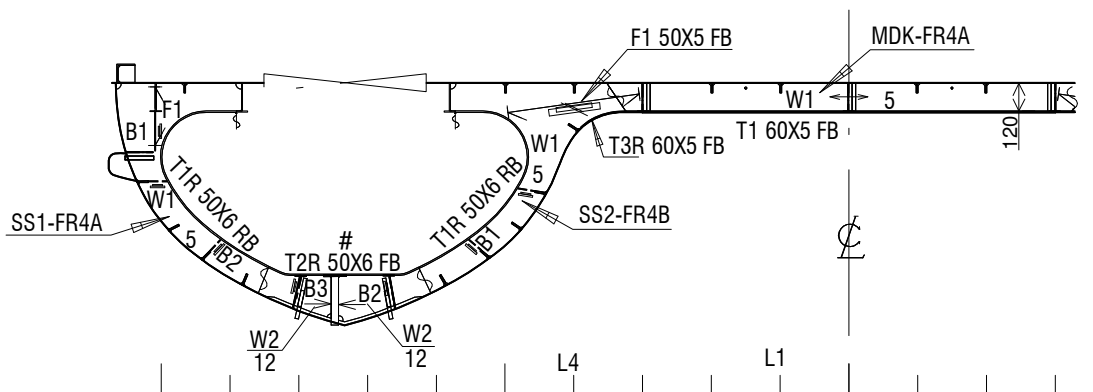




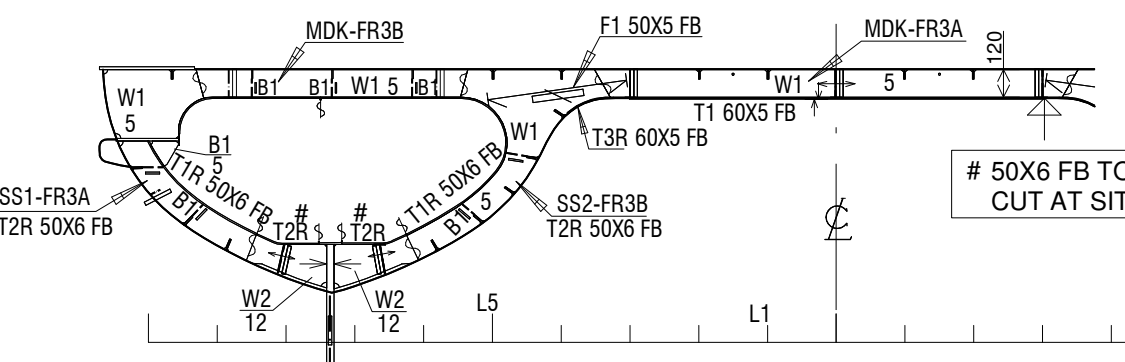
SEC. AT FRAME 5



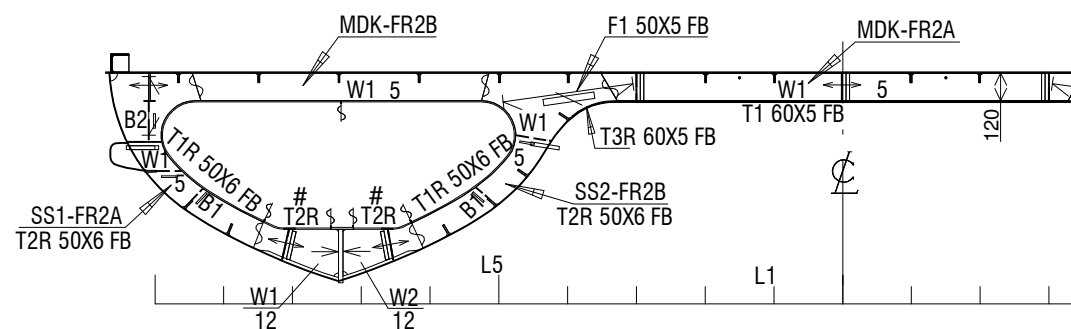
SEC. AT FRAME 4



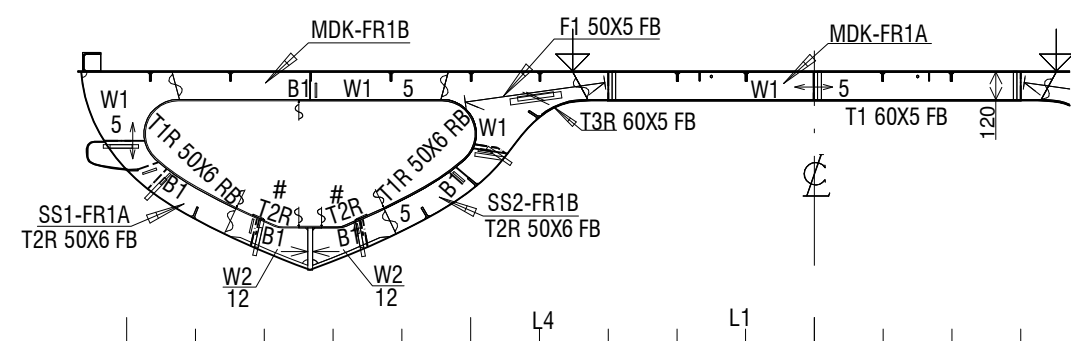
SEC. AT FRAME 3



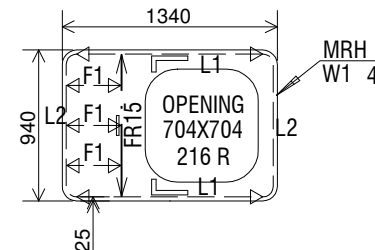
SEC. AT FRAME 2



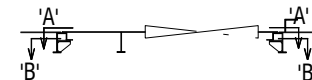
SEC. AT FRAME 1



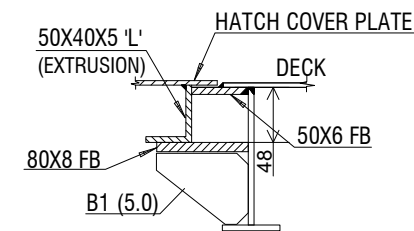
STRU. ARR. OF HATCH I W O MOTOR ROOM



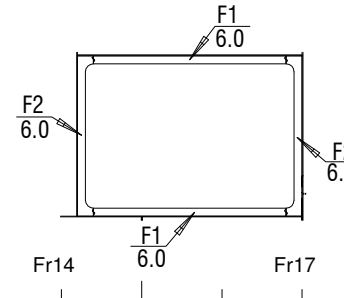
TYP. LONG. SEC I W O HATCH



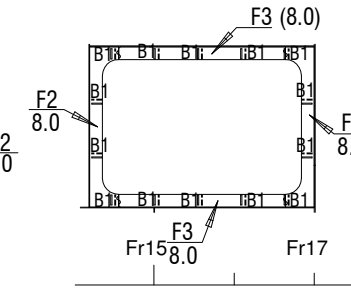
**TYP ARR. I W O HATCH
IN BATTERY/ DG ROOM**



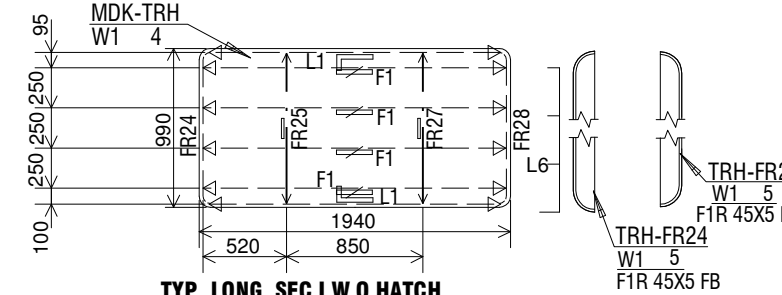
SEC. 'A'-A'



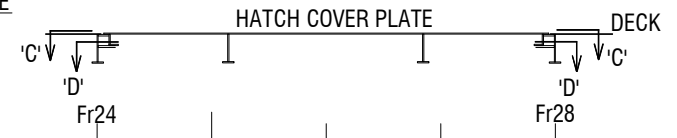
SEC. 'B'-B'



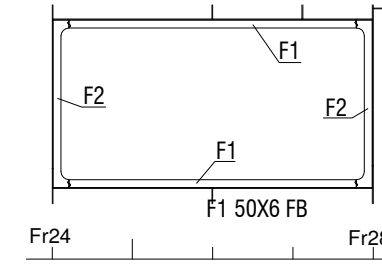
STRU. ARR. OF HATCH I W O TRANSFORMER ROOM



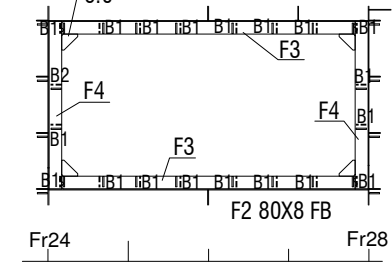
TYP. LONG. SEC I W O HATCH



SEC. 'C'-C'

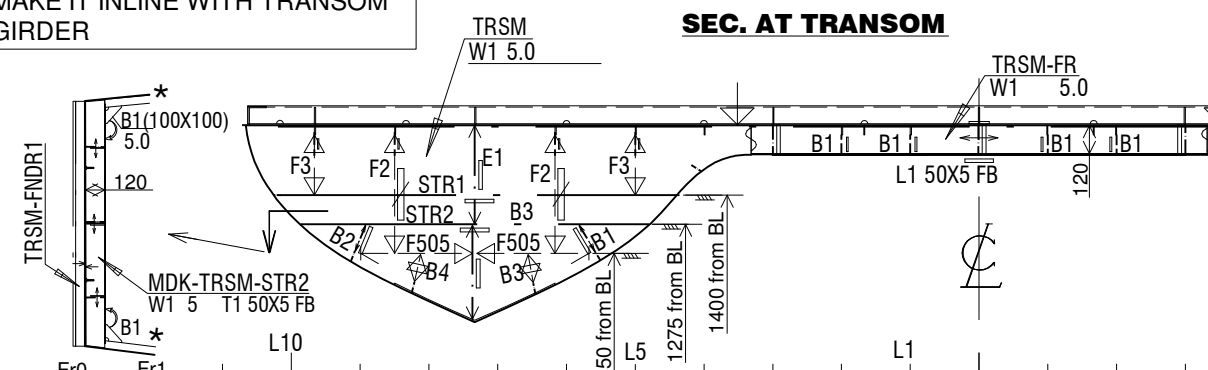


SEC. 'D'-D'

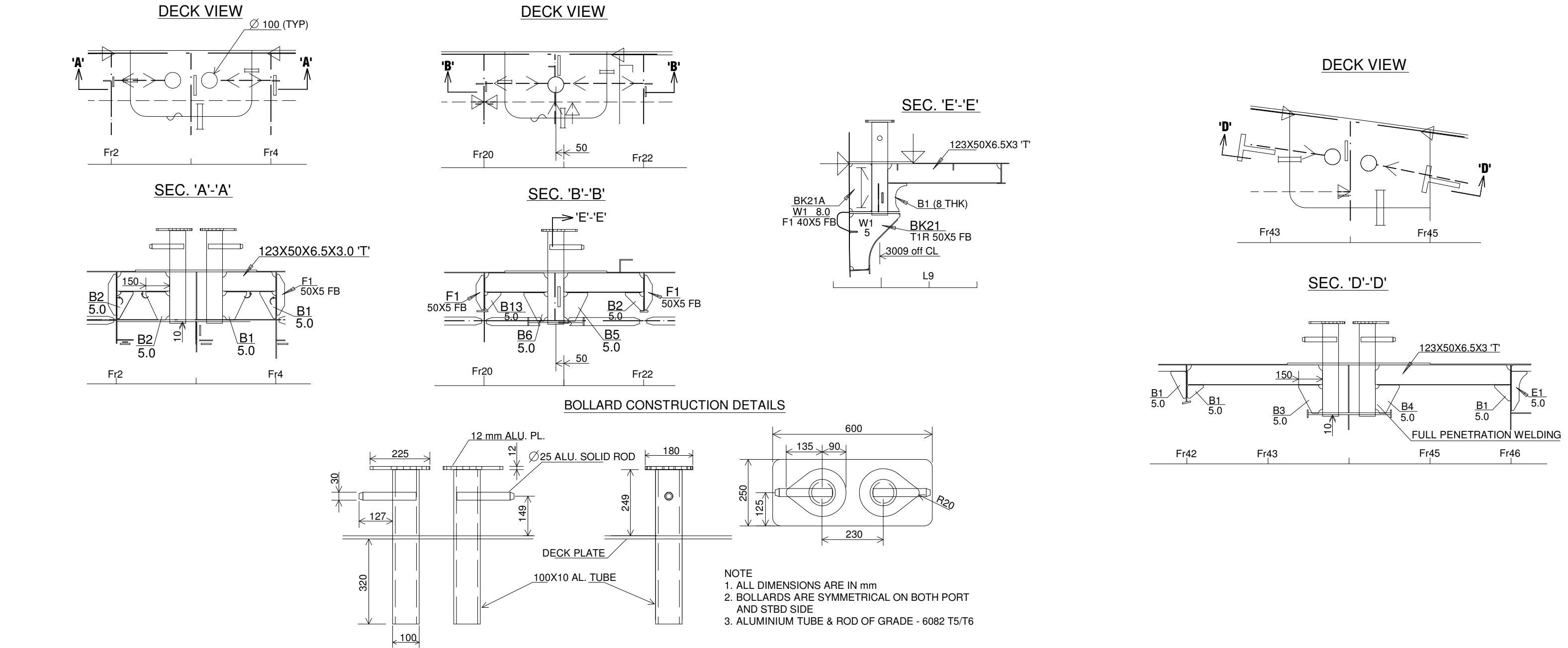


*
STIFFENER TO BE KNUCKLED TO
MAKE IT INLINE WITH TRANSOM
GIRDER

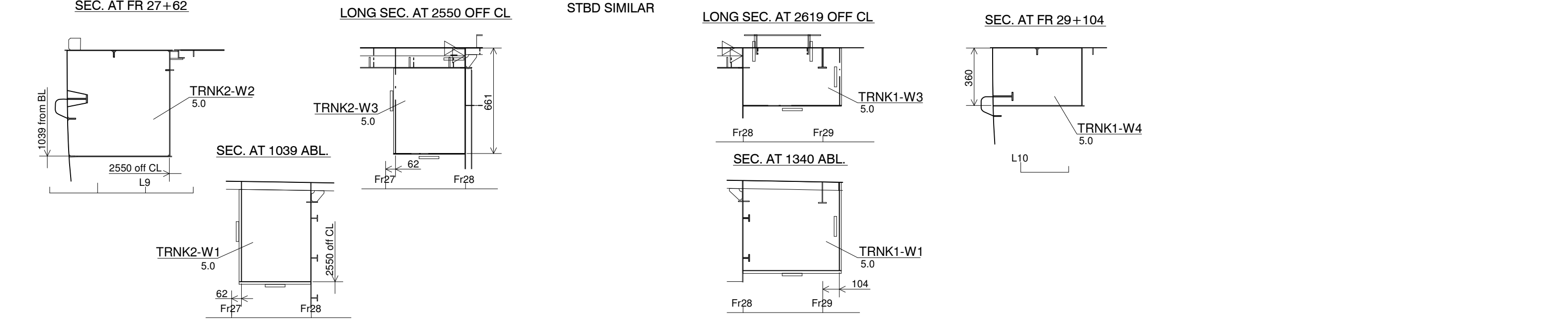
SEC. AT TRANSOM

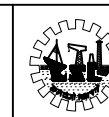


DETAILS OF STRU. ARR. I W O BOLLARD



DETAILS OF VENT TRUNKS (PORT)





NOTE:

HULL SUPERSTRUCTURE INTERPHASE ANGLES TO BE TACK WELDED AND FINAL WELDING TO BE DONE AFTER ALIGNING WITH THE FRP STRUCTURE

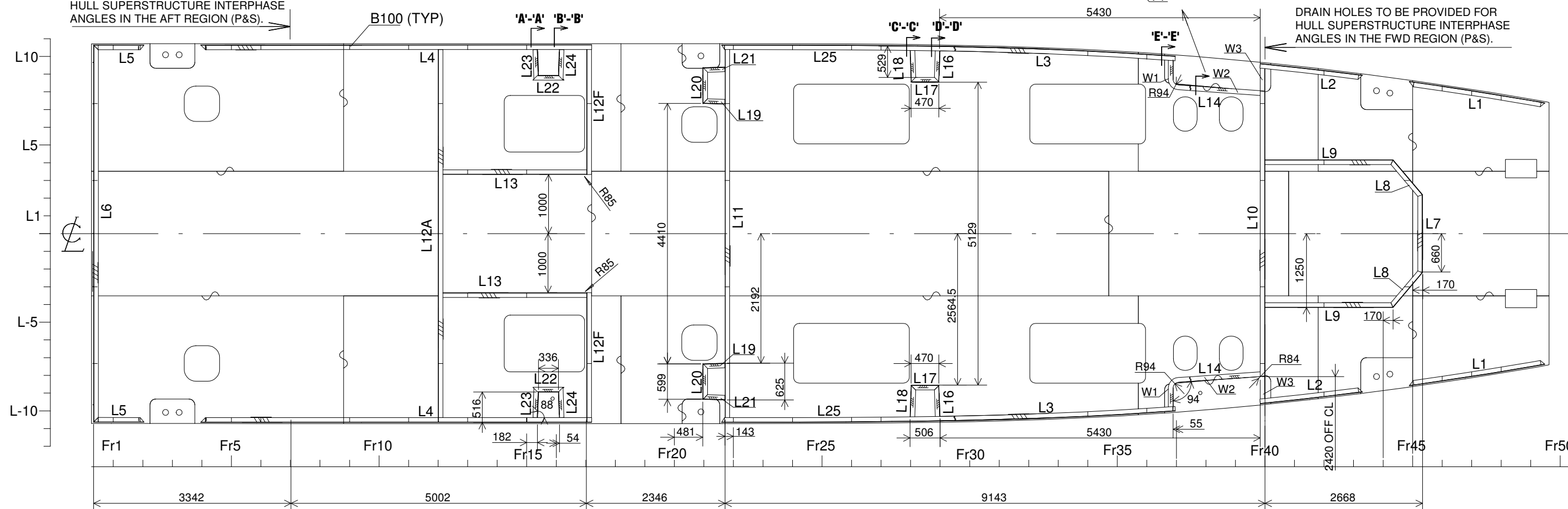
I W O DECK PLATE OF THICKNESS MORE THAN 4 mm, THE WEB OF 80X80X6.0 'L' AND GUSSET PLATE ARE TRIMMED SUCH THAT THE TOP EDGE OF THE ANGLE IS 1784 ABL AS MENTIONED IN SECTION AT 'A' - 'A'

DETS. OF SUPER STRUCTURE CONNECTION

DRAIN HOLES TO BE PROVIDED FOR HULL SUPERSTRUCTURE INTERPHASE ANGLES IN THE AFT REGION (P&S).

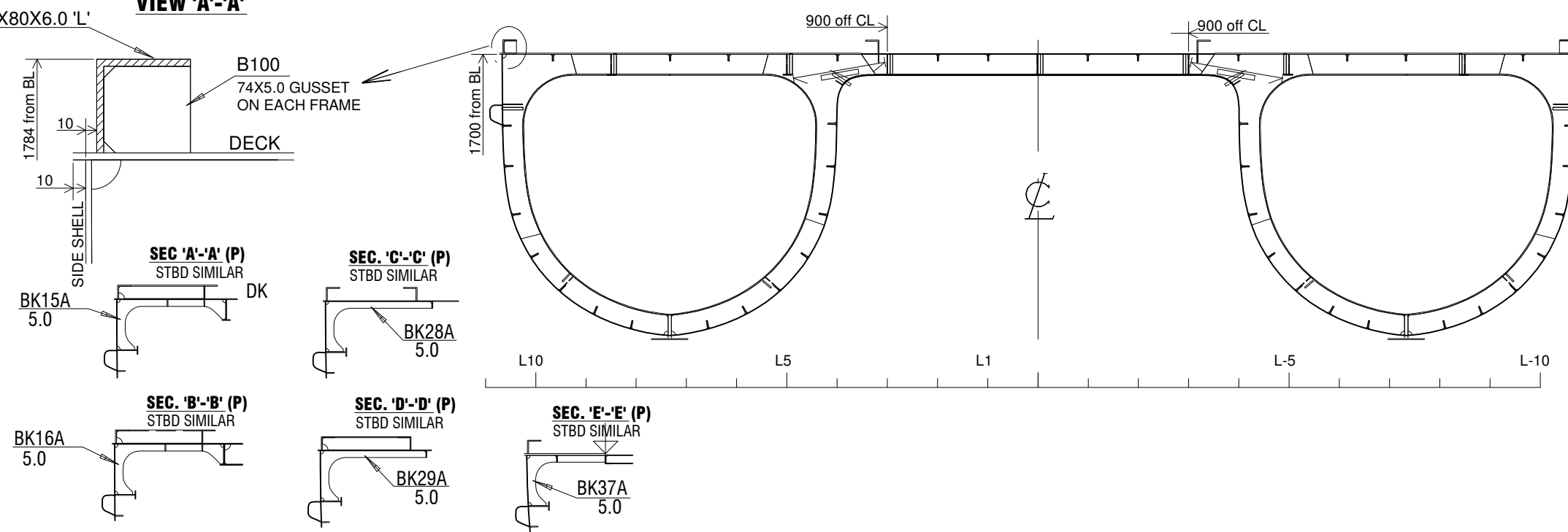
DRAIN HOLES TO BE PROVIDED FOR HULL SUPERSTRUCTURE INTERPHASE ANGLES IN THE FWD REGION (P&S).

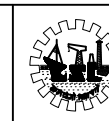
DET. OF DRAIN HOLES



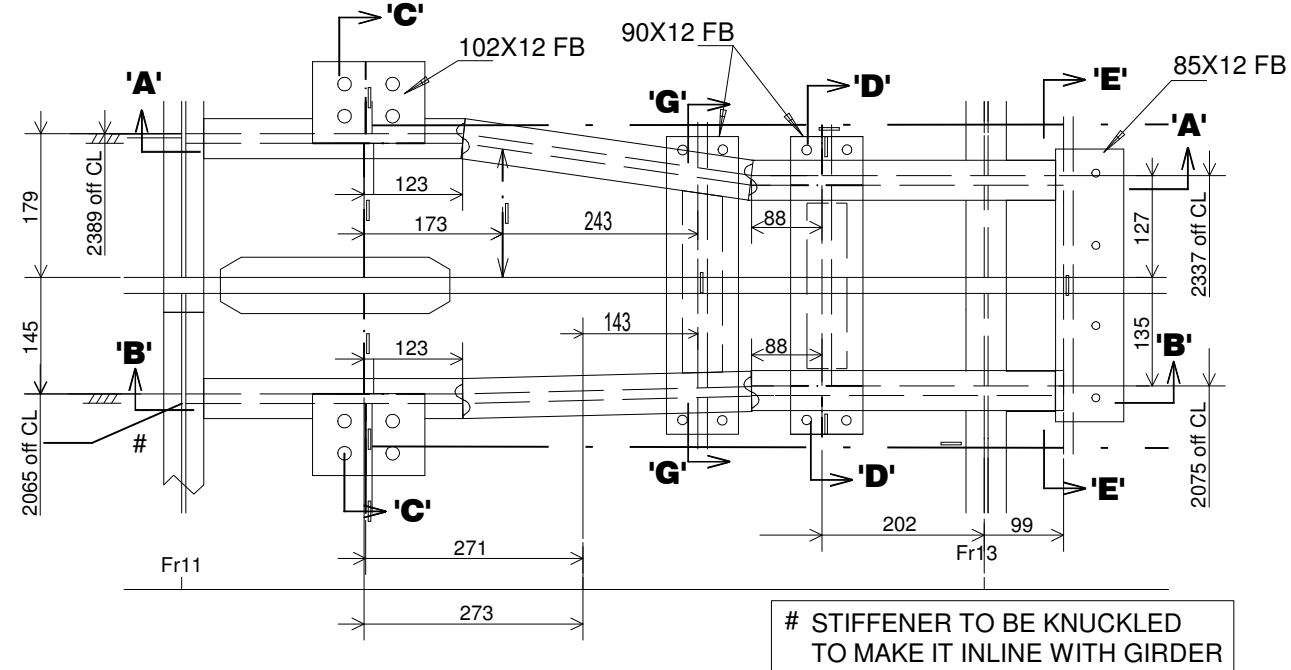
SEC. AT FRAME 15

VIEW 'A'-A'

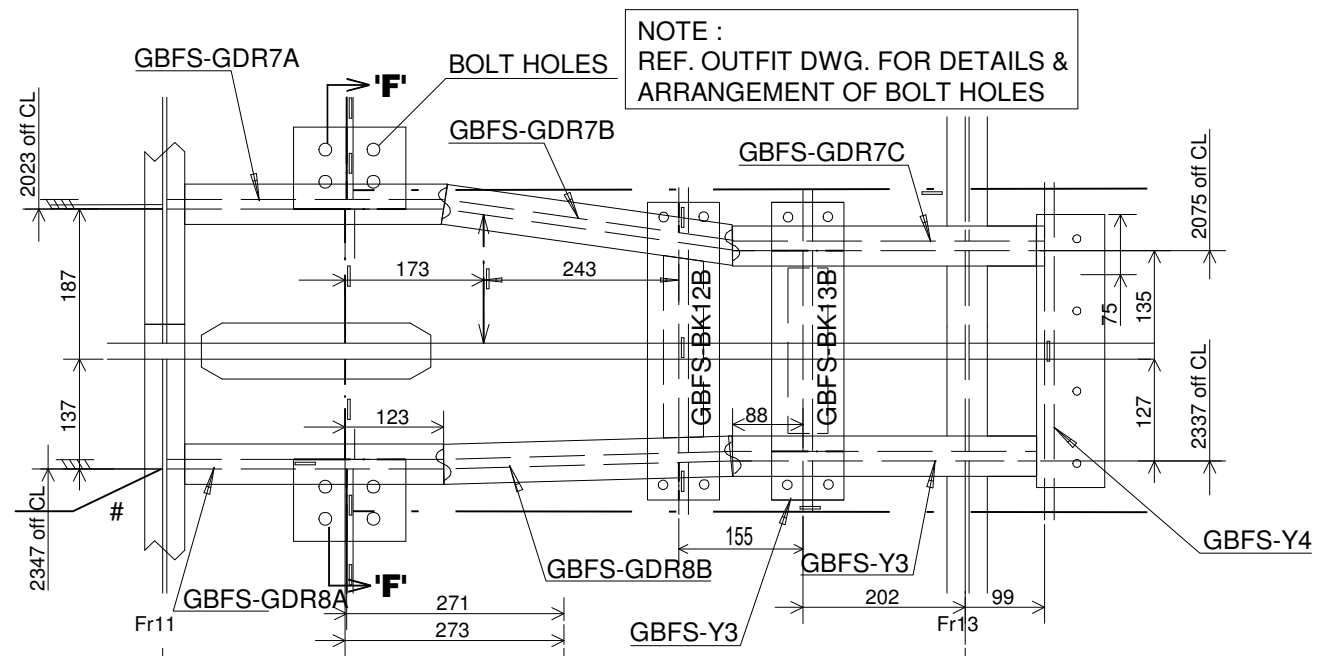




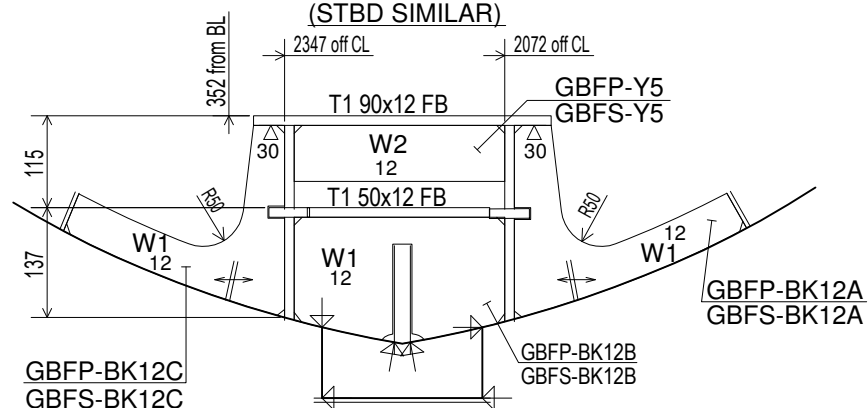
TOP VIEW OF FOUNDATION (PORT)



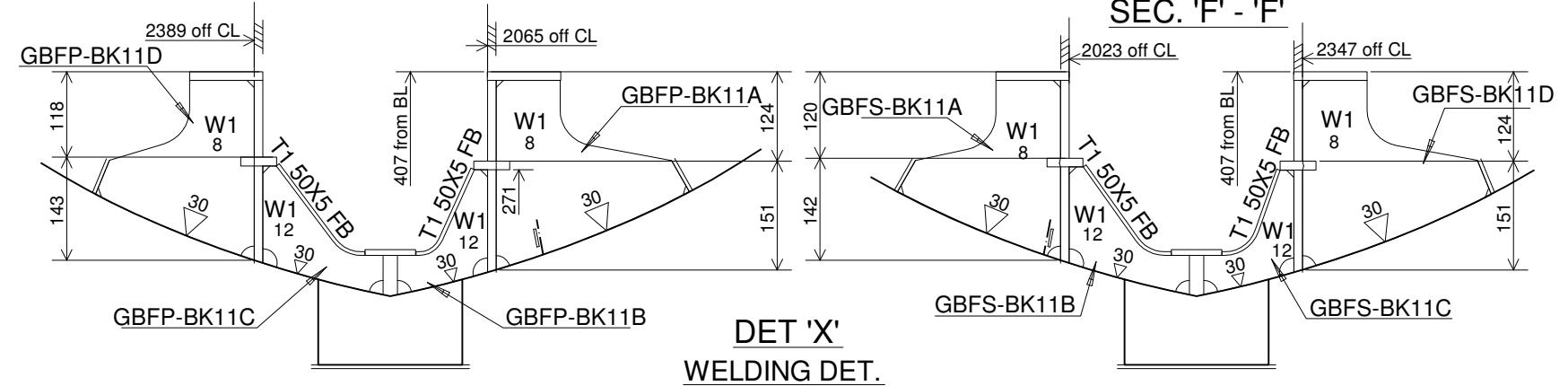
TOP VIEW OF FOUNDATION (STBD)



SEC. 'G' - 'G'
(STBD SIMILAR)

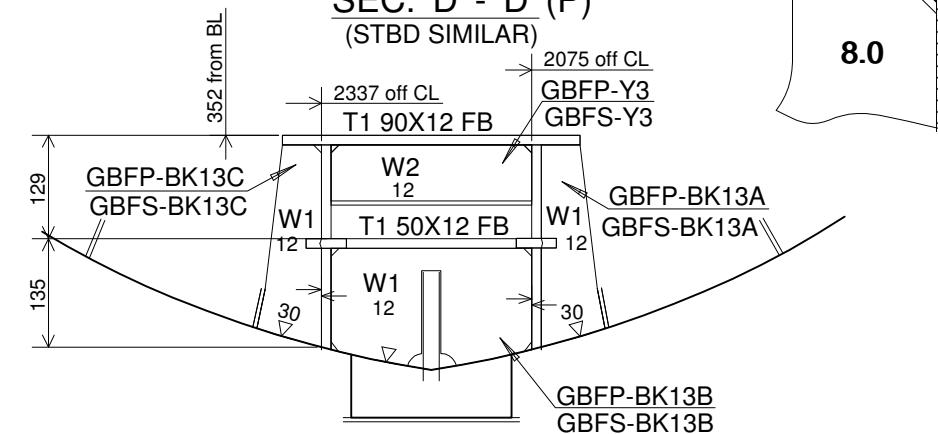


SEC. 'C' - 'C'

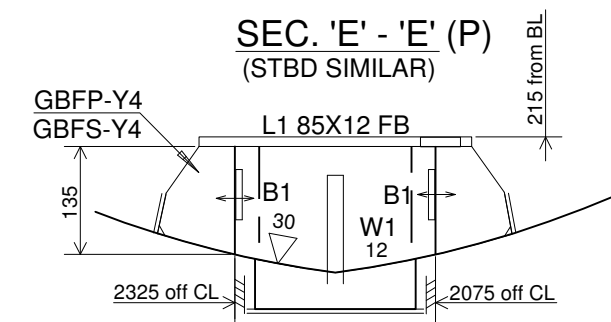


DET 'X'
WELDING DET.

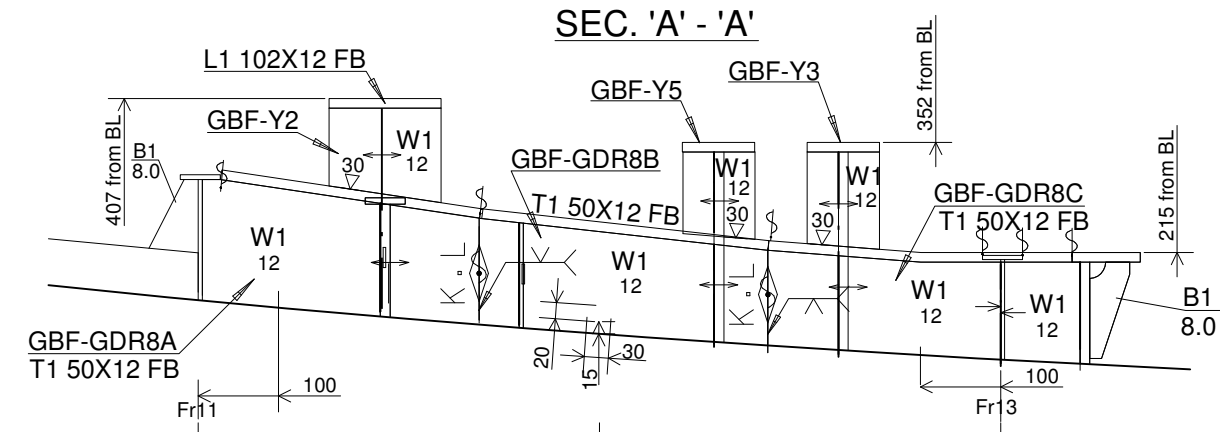
SEC. 'D' - 'D' (P)
(STBD SIMILAR)



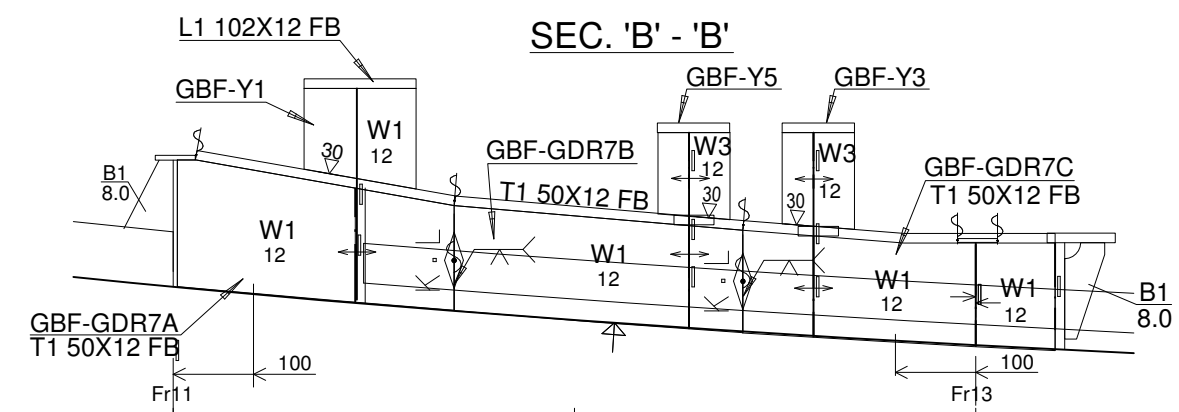
SEC. 'E' - 'E' (P)
(STBD SIMILAR)



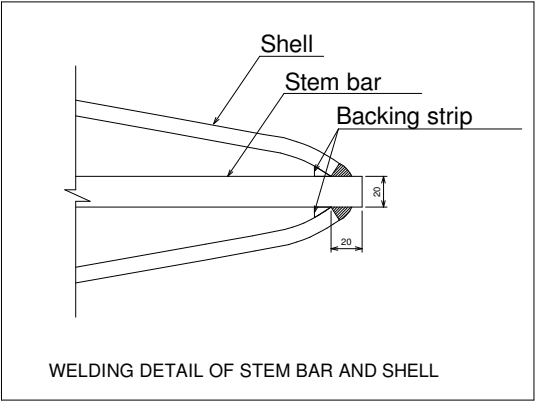
SEC. 'A' - 'A'



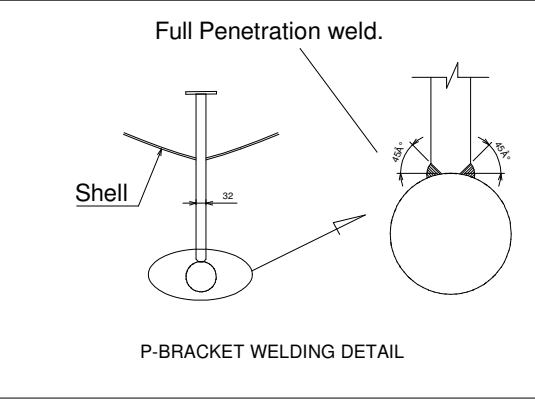
SEC. 'B' - 'B'



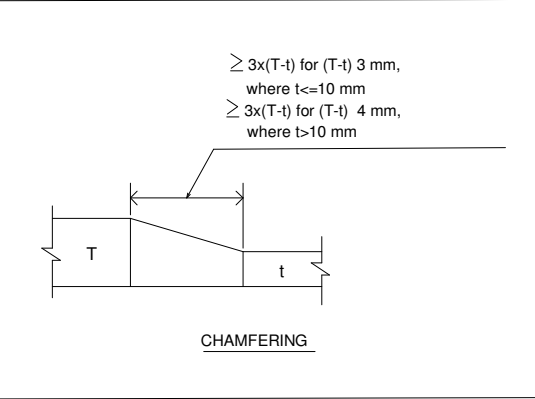
S.no.	Connection		t1	t2	Welding Type	tmin	WF	p/d	T (mm)	W (mm)	
	of	to									
Bottom Shell											
1	longitudinal stiffeners	bottom plating		5	5/12	SI	5	0.13	4	2.6	3.6
2	centre girder	Shell Plate		20	5	DC	5	0.4	1	2.5	3.5
3	centre girder	Shell Plate		20	6	DC	6	0.4	1	2.5	3.5
4	centre girder	Shell Plate		32/20	12	FP					
5	transverse webs	centre girder		5	20	DC	5	0.13	1	2.5	3.5
5	transverse webs	centre girder		12	20	DC	12	0.13	1	4.0	3.5
6	Tripping Brackets	Web		5	5	DC	5	0.35	1	2.5	3.5
7	Skeg	Shell Plate		5	5	FP					
Side Structure											
8	stiffeners	side plating		5	5/6	SI	5	0.13	4	2.6	3.6
9	webs	side plating	at ends	6.5	6	DC	6	0.2	1	2.5	3.5
10			elsewhere	6.5	6	CH	6	0.15	1.8	2.5	3.5
11		face flat	at ends	6.5	3	DC	3	0.2	1	2.5	3.5
12			elsewhere	6.5	3	CH	3	0.15	1.8	2.5	3.5
Deck											
13	strength deck	side plating		4	5	DC	4	0.45	1	2.5	3.5
14	strength deck	side plating		6	5	DC	5	0.45	1	2.5	3.5
15	strength deck	side plating		6	6	DC	6	0.45	1	2.7	3.8
16	ordinary stiffeners and inter coastal girders	deck plating		5	5	SI	5	0.13	4	2.6	3.6
17	Deck Girders	plating	at ends	5	5	DC	5	0.2	1	2.5	3.5
18			elsewhere	5	5	CH	5	0.15	1.8	2.5	3.5
19		face plate	at ends	5	5	DC	5	0.2	1	2.5	3.5
20			elsewhere	5	5	CH	5	0.15	1.8	2.5	3.5
21	hatch coamings	deck plating	in general	5	5	DC	5	0.35	1	2.5	3.5
22			at corners of hatchways for 15 % of the hatch length	5	5	DC	5	0.45	1	2.5	3.5
23	Deck plating	Angles connecting super structure		5	6	DC	5	0.35	1	2.5	3.5
Bulkheads											
24	tank bulkhead structures	tank bottom		5	4	DC	4	0.45	1	2.5	3.5
25		boundaries other than tank bottom		5	4	DC	4	0.35	1	2.5	3.5
26	watertight bulkhead structures	boundaries		5	5	DC	5	0.35	1	2.5	3.5
27	non water tight bulkhead structures	boundaries		5	5	SI	5	0.13	4	2.6	3.6
28	stiffeners	bulkhead plating	in general	4	4	SI	4	0.13	4	2.5	3.5
29			at ends (25% of span), where no end brackets are fitted	4	4	DC	4	0.35	1	2.5	3.5
Structures located forward of 0.75L from the AE											
30	bottom longitudinal ordinary stiffeners	bottom plating		5	6	CH	5	0.2	1.8	2.5	3.5
31	Panting stringers	side plating		4	6	CH	4	0.2	1.8	2.5	3.5
32	backing bars	side plating		5	6	DC	5	0.2	1	2.5	3.5
After peak											
33	internal structures	each other		5	5	DC	5	0.2	1	2.5	3.5
34	side ordinary stiffeners	side plating		5	5	DC	5	0.2	1	2.5	3.5
Machinery Space											
35	centre girder	Shell Plate	in way of main engine foundations	20	5	DC	5	0.45	1	2.5	3.5
36			in way of seating of auxiliary machinery and boilers	20	5	DC	5	0.35	1	2.5	3.5
37			elsewhere	20	5	CH	5	0.25	1.8	2.5	3.5
38	side girders/ Floors	bottom plating	in way of main engine foundations	5	5	DC	5	0.45	1	2.5	3.5
39			in way of seating of auxiliary machinery and boilers	5	5	DC	5	0.35	1	2.5	3.5
40			elsewhere	5	5	CH	5	0.2	1.8	2.5	3.5
Web Frames											
41	Web Frame	Plating (Bottom and side Shell, Deck)	at ends	5	5	DC	5	0.2	1	2.75	3.9
42			elsewhere	5	4/ 5/ 6	CH	4	0.15	2.2	2.64	3.7
43		face plate	at ends	5	5	DC	5	0.2	1	2.75	3.9
44			elsewhere	5	5	CH	5	0.15	1.8	2.75	3.9
Hatch Covers											
45	ordinary stiffener	plating		5	4	SI	4	0.13	4	2.5	3.5
Rudders											
46	Horizontal and vertical webs directly connected to solid parts	each other		12	20	DC	12	0.45	1	5.4	7.6
47	other webs	each other		12	20	DC	12	0.2	1	2.5	3.5
48	webs	plating		12	12	DC	12	0.2	1	3.0	3.5



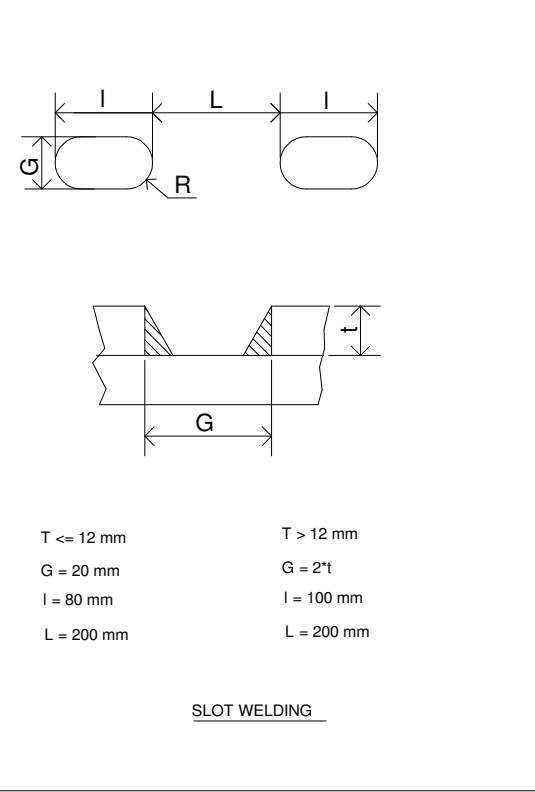
WELDING DETAIL OF STEM BAR AND SHELL



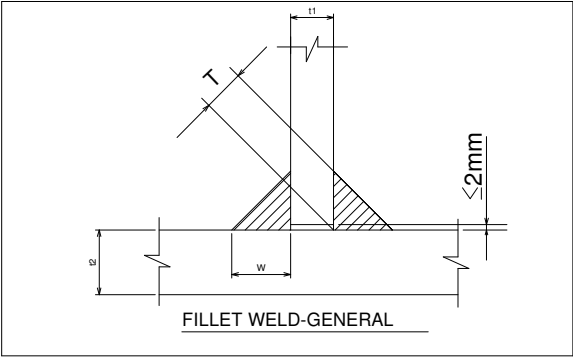
P-BRACKET WELDING DETAIL



CHAMFERING

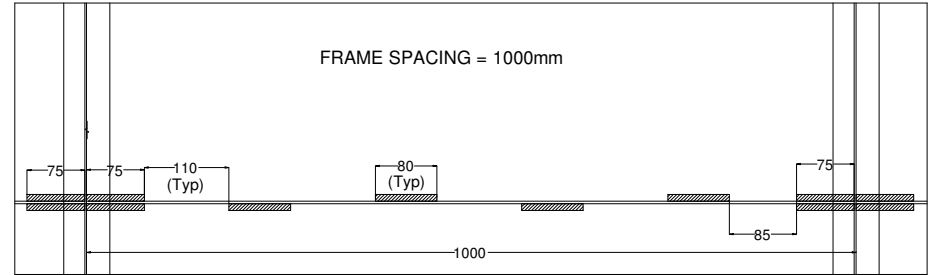
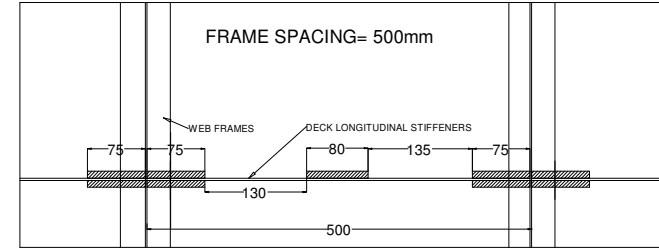


SLOT WELDING



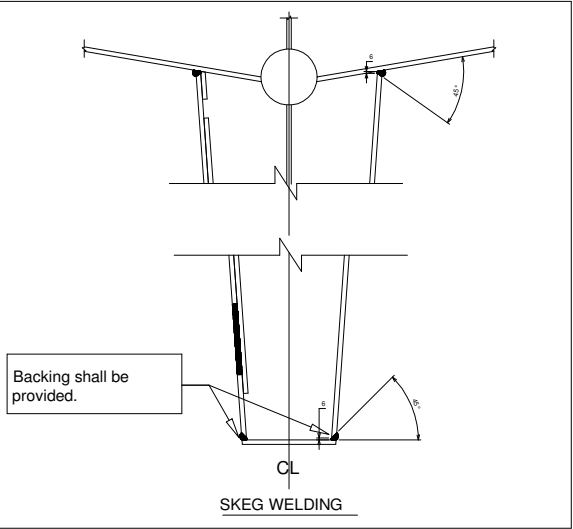
FILLET WELD-GENERAL

STAGGERED INTERMITTENT WELDING OF DECK LONGITUDINALS

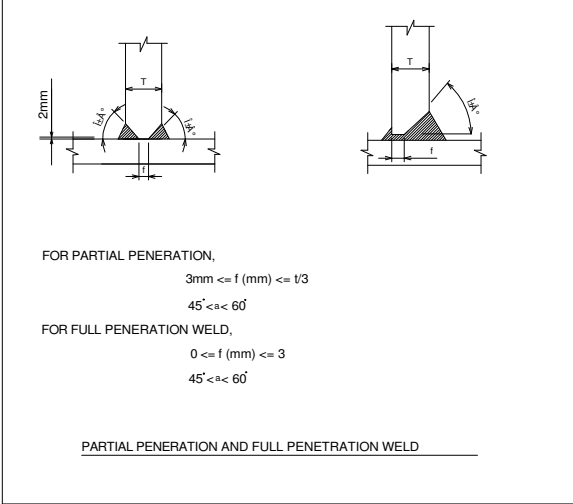


DECK PLATE THICKNESS : 4mm
DECK STIFFENER THICKNESS : 5mm
WEB FRAME THICKNESS : 5mm

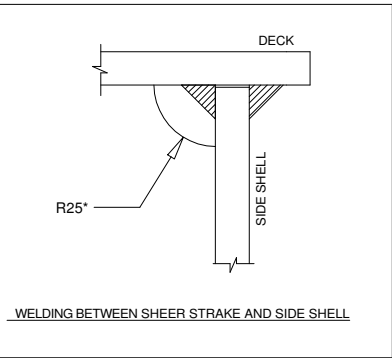
** With reference to rules for High Speed, Light Craft and Naval Surface Craft, Pt. 3 Ch. 3 Sec. 8



SKEG WELDING



PARTIAL PENETRATION AND FULL PENETRATION WELD



WELDING BETWEEN SHEER STRAKE AND SIDE SHELL