Annexure III

Scope of work for the Designer

1. **Brief particulars of the floating dock are as below:-**

   As indicated in Annexure I

2. **SCOPE OF THE WORK: -**

i. The scope of the designer is broadly indicated as below:
ii. The bidder shall undertake design for floating dock in accordance With the RFP document enclosed at **Annexure I** of this tender.
iii. Preparation of concept design and required documents to enable submission of GSL's bid to ship/dock owners on No Cost No Commitment Basis.
iv. Provide necessary support to GSL for bid submission i.e., technical documentation including bill of Materials, detailed project costing on No Cost No Commitment basis.
v. Basic design including Model testing and CFD required as per RFP
vi. Complete Basic and detailed design including bill of Materials and modifications if any.
vii. Preparation of Classification drawings and production drawings.
viii. Preparation of as fitted drawings.
ix. Preparation of SOTRs as required for equipment and material.
x. Participate in TNC at different stages with GSL.
xi. The bidder is responsible for performance of the floating dock as required in the Bid.
xii. Any other requirement not mentioned in the above scope but required for the bid submission and project execution (as per RFP) is also to be provided.

3. The scope of the work is divided in two stages.

3.1 **STAGE- I**: - Scope of Deliverables By the designer before GSL securing the order on No cost No commitment basis. These documents are essential for GSL bid submission to owner on No cost no commitment basis.

i. General Arrangement
ii. Midship Section
iii. Preliminary Trim & Stability Calculation (Intact & Damage)
iv. Speed & Power Curve for the floating dock. Preliminary Resistance and Powering calculations with adequate reserve power margin to rule out underestimation. (If applicable to structure)
v. Electrical Load Analysis.
vi. Bilge/Ballast Pumping & Piping Arrangement
vii. Makers List
viii. Build Specification as per Annexure I & subsequent amendments.
ix. Compliance matrix showing compliance with RFP indicating clearly the para/document reference in the bid document.
x. Confirmation as to whether hull form of the offered design is that of a proven design and, if so, to provide with the bid the authenticated copy of model test report and details of floating dock in operation.

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xi. If hull form is not proven, commitment to undertake model test and CFD analysis on award of contract.
xii. Tank capacity plan and Floor area calculation. (If applicable to structure)
xiii. Preliminary light ship and dead weight calculations for the structure.
xiv. Broad breakdown of Hull 'Steel weight' with breakup of plates and profiles and indication of steel grade indicated in RFP in line with notation.
xv. Structural Strength: Scantling calculations and midship section modulus calculation
xvi. Preliminary Endurance Calculations (If applicable to structure)
xvii. Calculation of gross and Net Tonnage as per IMO regulations.
xviii. Bill of materials
xix. The designer is to indicate the class notation and marks along with requisite details meeting the RFP requirements. Further, the intended class marks and notations for registration of the floating dock as relevant to the chosen classification society are to be indicated.
xx. Any Other requirement not mentioned in the above scope but required by GSL for the bid. Submission to OWNER is to be fulfilled by the designer.

3.2 **STAGE II- <u>Scope Of Deliverables To Be Submitted By designer Post Award Of Contract to GSL</u>**

i. Designer has to provide final technical specifications of Equipment/Systems/Material for procurement and final build specifications of the floating dock.
ii. Designer has to provide complete design, calculations, CFD analysis, Model testing, drawings/documents etc. for construction of floating dock
iii. The designer shall carry out the following tank tests/calculations and submit reports to GSL:
   a. CFD analysis shall be carried out and report shall be submitted before conducting model test.
   b. Resistance test at the designed and ballast draught including appendages
   c. Self-propulsion test with stock propeller at design and ballast draught
   d. Paint flow test or CFD simulations of streamlines for bilge keel and bow thruster tunnel at design draught at service speed
   e. Propeller open water test for designed propeller
   f. Self-propulsion test with designed propeller at design and ballast draught
   g. Manoeuvring and sea keeping tests & calculations
   h. Crabbing calculations
   i. Operational performance study in the intended route

   The above tests shall be witnessed by the GSL/OWNER representative.
iv. Resistance and powering calculation to be worked out and data to be submitted to GSL.
v. The complete ship is to be modeled in 3D using AVEVA MARINE Software
vi. All the drawings/docs to be forwarded to GSL in .DWG/ .DXF / .DOCX / .pdf format as applicable and also in 2D as well as 3D format.
vii. Designer is to forward a comprehensive drawing schedules indicating drawings that will be sent to classification society and owners for approval. The list contains the drawings required as per classification rules as well as other drawings which do not require class approval.
viii. Designer should be able to generate all required production drawings, documents along with bill of material from 3D models.
ix. All Drawings/ analysis, calculation reports and documents required for execution and production of the project.

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x. The required information for construction, testing, inspection, trials, delivery and commissioning of the floating dock is to be approved, as applicable, by classification society /GSL/Owners, as required, meeting the technical specification. Designer reps are required to address any design/production related issues during construction.

xi. Designer rep also required for conducting inclining experiment & to attend Sea trials as required. Rep to be present in GSL till report of inclining experiment gets approved from Class along with trial conditions stability.

xii. Designer, in the initial stage, before continuing with the detail designing, to check the intact stability criteria, particularly weather(wind) criteria, in accordance with the relevant stability code with latest circulars with the given floating dock dimensions. The necessary design modification, if any, to be incorporated at no extra cost.

xiii. Technical specifications for all the equipments to be provided by the Designer. If any queries from the vendor side on the Technical specification, Designer to provide the required support.

xiv. Designer shall provide all the Schematics of ship systems, Piping & Instrumentation Diagram Schematics, Cable Schematics.

xv. Designer's authorized representative shall be part of the team for any technical discussions with OWNER pre-submission or post submission of the offer by GSL. The logistics cost of the travel shall be borne by Designer.

xvi. The Documentary proof of execution of similar design works are to be furnished. Also the details of manpower having experience and resources available with the designer are to be indicated.

xvii. Availability of AVEVA MARINE Software for basic and the detailed design is to be confirmed. All the compartment layouts, seating drawings, 'As fitted' drawings are to be prepared by the Designer.

xviii. Designer shall provide technical support and assistance during construction, trials and delivery of the floating dock.

xix. Any documents/reports/Analysis not covered above but required for completion of the project as required in RFP or requirement from GSL/ OWNER / Class to be provided by designer.

4 Tentative List of Drawings:

i. Model test report and CFD analysis

ii. Lines plan and Offset table (Essential for bid. submission)

iii. General Arrangement Plan (Essential for bid submission)

iv. Tank capacity Plan (Essential for bid submission)

v. Intact and Damage .Stability Calculations (Essential for bid Submission)

vi. Lightweight estimation and Weight Curve (Essential for bid submission)

vii. Resistance and Powering calculation (Essential for bid Submission).

viii. Tonnage Calculation

ix. Inclining Procedure and Report

x. Draught Marks Plan

xi. Keel & bilge block plan

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xii. Freeboard plan and calculations

xiii. Bilge and ballast system

xiv. Safety Plan

xv. Water and air testing plan

xvi. Hydrostatic curves (Essential for bid submission)

xvii. Cross curves of Stability (Essential for bid submission)

xviii. Docking plan showing two versions, one plan with centerline dock blocks with shores and other with shaped side blocks.

xix. Access plan

xxi. Design and layout of propulsion system, capacity calculations for all machinery equipment, technical specs for machinery. (If applicable to structure)

xx. Accommodation layouts

xxi. FIFI systems

xxii. Equipment number calculation

xxiii. Deck outfit equipment plan

xxiv. WT/water tight & gas tight door

xxv. Access hatches drawing

xxvi. Deck crane.

xxvii. LSA plan

xxviii. LSS plan

xxix. Deck covering plan

xxx. Insulation plan

xxxi. Lining, partition, ceiling

xxxii. All ship schematics & system drawings

xxxiii. Galley, pantry & laundry arrangement

xxxiv. HVAC

xxxv. Cold & cool rooms

xxxvi. Structural fire protection plan

xxxvii. Escape route plan

xxxviii. Fire Control Plan

xxxix. Bill of cables (Essential for bid submission)

xl. Bill of light fittings, switches & Sockets (Essential for bid submission)

xli. Bill of cables trays with supporting pieces (Essential for bid submission)

xlii. Electrical load analysis

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xliii. Battery capacity calculation

xliv. Lighting illumination calculations

xlv. Short circuit calculation

xlvi. Foundation drawings of all electrical systems

xlvii. Single line diagram of electrical power systems as per RFP (Essential for bid submission)

xlviii. Schematic diagrams of all electrical systems covering machinery, communication, automation systems etc. and systems as per RFP.

xlix. All electrical systems

l. Deck wise arrangement of electrical equipments

li. Arrangement of lighting

lii. cable trays arrangement

liii. Electrical cable routes

liv. Scantling calculation / structural calculations in excel for the complete ship

lv. Compartment Testing Plan

lvi. The structural designs as required

lvii. Production documentation

lviii. Tank testing plan

lix. Machinery spaces layout

lx. Exhaust arrangement auxiliary engines

lxi. Air filling and sounding arrangement

lxii. Engine room composite piping layout

lxiii. Ballast control system

lxiv. Air intake and exhaust arrangement for DGs

lxv. Firefighting systems

lxvi. Withdrawal arrangement of auxiliary engine

lxvii. Disposition of firefighting appliances

lxviii. Remote control arrangement for QC valves

lxix. Arrangement of workshop machinery

lxx. Arrangement of firefighting system

lxxi. Disposition of sea chest

lxxii. Exhaust arrangement auxiliary engines

lxxiii. Any other Machinery and piping drawings required as per enclosed RFP

lxxiv. Anchor Arrangement

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lxxv. Mooring Arrangement

lxxvi. Detail of Mooring Chocks, Bollards

lxxvii. Details for Anchor Capstan

lxxviii. Equipment Number Calculation

lxxix. Assembly And Detail of Rope Reels

lxxx. Layout of Access Hatches

lxxxi. Arrangement of Pilot Ladder

lxxxii. Arrangement & Details of Gangway

lxxxiii. Wheel House Platform

lxxxiv. External Railings, Guard Rails, Storm Rails & Stanchions

lxxxv. Arrangement of Lifeboat, Davit, Rib And Rib Davit

lxxxvi. Arrangement of Life Saving Appliances

lxxxvii. Stowage Arrangement & Detail of Life Rafts

lxxxviii. Access & Exit Plan

lxxxix. Arrgt of Anodes

xc. Arrangement And Detail of Awnings

xci. Fendering Arrangement

xcii. Arrangement & Details of Ships Name Board

xciii. HVAC and Schematics

xciv. Arrangement of Accom. Space

xcv. layout of all compartments

xcvi. Fire Control Plan

xcvii. Painting Scheme

xcviii. Composite Piping Layout Deck Wise

xcix. Crew Accommodation Plan

c. Wheel House Layout

ci. Arrangement Of Lining, Partition And ceiling

cii. Modular Accommodation Layouts

ciii. Cool & Cold Room Drawings

civ. Storm Rails Arrangement

cv. Thermal And Acoustic Insulation Plan

cvi. Flooring Plan

cvii. Structural Fire Protection Plan

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cviii. Ceiling Panel Drawings

cix. Stores Arrangement (As Per RFP)

cx. HVAC Deckwise Layout Diagram for Each Zone

cxi. HVAC Freeboard Deck Layout

cxii. Smoke Extraction System

cxiii. Tank Penetrations Details

cxiv. Insulation details

cxv. WT & GT Marking Plan

cxvi. Foundation drawings as required

cxvii. Any Other calculations/drawings/documents required for the floating dock, not indicated in this scope of work but required for completion of project to satisfy the requirement of classification society and RFP.

5. All the related drawings with respect to basic design, detailed designing as required by class/ statutory authorities/GSL/OWNER, also the QAP, trial documents, specifications of equipments, as fitted drawings, system drawings shall be submitted by the designer. The list of drawings shall be finalized during the contract finalization with the designer.

6. Evaluation criteria for GSL bid submission to OWNER

i. Previous experience as indicated in annexure II. Evaluation will be done by GSL and will be binding on the design firm.

7. **Delivery schedule:**

I. As mentioned in the **Stage I** of the Annexure III- Scope of work for the designer. The **Stage I** data to be submitted to GSL within 1 day time of order determination. The **Stage II** & essential data required to be submitted by bidder to GSL in order to meet OWNER's tender requirements shall be provided after GSL securing the bid and placing order on the designer.

II. The data essential for commercial bid submission of GSL to OWNER shall be submitted in order to meet the tender requirement of OWNER .

III. Documents to be submitted post award of contract to GSL shall be submitted in order to meet the project timelines of OWNER .

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