



SCOPE OF WORK(SOW) AND TERMS OF REFERENCE(TOR) OF THE CONSULTANCY

1. OBJECTIVE:

MDL has to carry out construction of 31 vessels as per the recent orders along with the on-going vessels of P17A Project. In addition to the existing orders, to cater for the future orders, there is a requirement to evaluate the existing infrastructure and arrive at a comprehensive infrastructure augmentation plan considering existing MDL Yard, land available at Nhava Yard (NHV).

The primary objective of this consultancy is to provide master planning and execution plan for development of Nhava Yard into a shipbuilding cum ship repair facility at Nhava with proven technology and best industry practice in compliance with international standards and codes of practice. The new development shall provide the infrastructure backbone for shipbuilding and ship repair activities envisaged by MDL in the succeeding paragraphs.

2. BACKGROUND AND TECHNICAL REQUIREMENT DEFINITION

2.1 **BACKGROUND:** MDL's ongoing orders for four frigate class vessels (P17A) and one *Scorpene* Class submarines (P75) all for the Indian Navy has to be liquidated by the year 2025 for which MDL's facility at Mumbai is being utilized. In addition, it is mandatory that MDL carry out the construction of 6 Nos. 7500T DWT Multi-Purpose Vessels also at MDL premises for which the delivery date of the last vessel is in 2027. In the above scenario, there is a requirement to utilize the NHV facility for the construction of ICG orders for one Training Ship and 6 Nos. NGOPVs. Efforts are in progress to develop infrastructure to cater for this immediate requirement. A Floating Dry Dock (FDD) of dimension 180mx44m (outer beam) x 32m (inner beam) is also being constructed to carry



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out roll on roll off of vessels from NHY and MDL's submarine launch facility. However, for future requirements of building and repairing warships and merchant vessels, MDL intends to develop the NHY into a green field shipyard with provisions for hard stands, wet basin cum dry dock, workshops, stores and buildings, in the land area held by the Shipyard totaling to approximately 40 Acres.

UTILIZATION PLAN

2.2 NHY's utilization is planned for vessels having the following main parameters:

Parameter	Approx. value
Length	230m
Breadth	32m
Draft	9m

2.3 Ship building facility shall be suitable for construction of three vessels of the above parameters in parallel which includes erection of blocks, outfitting, fitment of Sonar Dome and propeller, launching etc.

2.4 With the development of NHY into a Greenfield Shipyard, the facility is intended for executing various projects of National & Strategic Importance and for international clients. The NHY facility is envisaged to be utilized for the following business opportunities:

(a) **New builds and repairs of ships:** The following are pertinent:

I. The following vessels can be accommodated in NHY

Category	Vessels Type	Max. Dimensions LXBXT	New Builds	Repair (Docking and Afloat)
Defence Ships	• Air Craft Carriers	284m x39m x 9.9m (T)	√	√
	• Missile Destroyers • Frigates • Corvettes • Missile Boats • Landing Platform Dock • High Speed Landing Crafts • Offshore Patrol Vessels • Pollution Control Vessels • Fast Patrol Vessels • Interceptor Boats/crafts • Work Boats	180m x 23.5m x 9m	√	√



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Commercial Vessels	<ul style="list-style-type: none"> • Tankers • Bulk Carriers • Cargo vessels • Platform Support Vessels • Offshore Supply Vessels • Hydrographic Survey Vessels • Tugs • Barges/Pontoons • Boats • Launches • Dredgers • Passenger ferries • Fishing Trawler 	230Mx32M x9M	√	√
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Note:

1. IAC-2 with the following envisaged dimensions can be built only in the Graving dry dock:
 - Overall Length : 284 metres
 - Maximum Beam : 39 Metres
 - Depth to the Flight Deck : 29 Metres
 - Depth to the Masthead : 56 Metres
 - Draught : 9.9 Metres
 - Flight Deck : 277 metres X 73.0 metres
 - Displacement : 65000 Tonnes approximately
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2. The max. dimensions of the series production vessels are taken considering that the construction will be carried out on hard stands and the vessels will be rolled out using FDD. This includes vessels upto kamsarmax size.
3. If series production is not envisaged upto VLCC can be constructed in the graving dock.
4. The standard commercial vessel type dimensions are as follows:

Type of Vessel	Length (m)	Breadth(m)	Draft (m)	DWT (Deadweight)
VLCC	>330	<60	~20	2-3.2 lakhs
Suez Max	<275	<77.5 normally less than 60m	<20.1	1.2-2lakhs
Aframax	200-250	32-44	12-16	<120000
Kamsarmax	229-230	32-33	14-15	80-82000
Panamax	200-230	<32.2	13-15	<80000



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Type of Vessel	Length (m)	Breadth(m)	Draft (m)	DWT (Deadweight)
Supramax	~200	<32.2	~12	48-60000
Handymax	150-200	30-32	10-12	10-400000

II.NHY can cater to the following business opportunities:

Business Opportunity	Coverage
IN and ICG vessels	100%
Vessels in IOR	100%
Commercial ships coming to JNPA, MbPA ports	100%
Vessels of USNS fleet	60%

(b) **Production and assembly facility:** It is envisaged that MDL's existing premises and the acquired MbPT land facility act as feeder for the NHY that pre-outfitted blocks will be received at NHY for erection at the hard stands. However, basic production and assembly facility will be created to cater to full fill the through put requirement if any for construction activities at NHY or at MDL premises for the following:

- (i) Ship units
- (ii) Ship blocks
- (iii) Equipment foundations
- (iv) Pipe fabrication, trunking, cable trays/hangers.

(c) **Heavy Engineering:**

- (i) Bridge Sections
- (ii) Suspension Bridge Sections
- (iii) Wind Mills
- (iv) Offshore Structures
- (v) Any heavy Steel Structural fabrication

ENVISAGED INFRASTRUCTURE

2.5 Marine Infrastructure:

(a) **Hard stands:** Hard stands of dimensions 265mx 124m is already being created at NHY for enabling parallel construction of three vessels of dimensions indicated at Para (6) and the same can be seen at Encl-12. The jetty to have arrangements to roll on and roll off vessels from all the three building berth to FDD. The hard stands are already being constructed under the already sanctioned CAPEX.



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(b) **Transfer and Hauling facility with Trestles:** A suitable transfer and hauling facility shall be installed for handling the vessels with parameters specified at Para 6 above. The trestles also to be designed and manufactured to suit the maximum load to be carried for roll on and roll off activity. However, these facilities can be developed as and when required.

(c) **Wet Basin convertible to Graving Dry Dock:** Impounded Wet basin of 560mx 60m convertible to a graving dry dock to be created for carrying out post launch activities like final shaft alignment, basin trials, Delivery etc. The dimensions of the wet basin have been arrived by considering feasibility of docking of FDD and IAC-2 in the dock.

(d) **Reclamation of land:** The land parcel extending to sea side to be reclaimed to use for storage units and blocks received from other yards prior erecting on hard stands. The space can also be utilized for heavy engineering activity like offshore platform construction and repair. Hard stands if any can be developed as and when required.

(e) **Berthing facility:** Refurbishing of existing jetty considering the following aspects are being undertaken with the CAPEX already sanctioned.

- (i) Mooring of FDD alongside the jetty
- (ii) Fenders, bollards
- (iii) Mooring arrangements

The extended jetty post reclamation of the land has to be fitted with Fenders, bollards and mooring arrangement.

2.6 **Workshops for repairs and basic requirements**

(a) The shipyard that is intended to be developed at the Nhava Yard is expected to receive completed blocks and units from other yards and hence, a full-fledged workshop facility is not being planned at NHY. The workshops shall have shops with requisite machinery meeting the following basic requirements:

- (i) Fabrication shop for production of Sub-Assembly & Assembly (UNITS) with EoT Crane or hydraulic jack arrangements and hydras
- (ii) Blasting and Painting chamber for handling units
- (iii) A combined workshop with EoT Crane to cater as:
 - Pipe shop
 - Machine shop
 - Sheet Metal shop

2.7 **Stores:** The following store spaces are envisaged inside the shipyard:



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- (a) Ready use stores
- (b) Equipment stores-Engg/Hull/Electrical and electronics
- (c) Bonded stores

2.8 **Steel scrap yard:** Steel scrap yard with Weigh Bridge.

2.9 **Support Services:** The following minimum support services are envisaged and the same is being undertaken with the existing CAPEX sanctioned:

- (a) Oxygen Plant
- (b) Service lines – O₂, Acetylene, Compressed air, Freshwater
- (c) Gas cylinder storage as per CCE guidelines space for O₂, Ar, LPG for canteen etc.
- (d) BMCG for industrial welding and dissolved acetylene (DA)
- (e) Gas distribution manifolds
- (f) Pipe line and equipment for gas distribution manifold
- (g) Tank for Liquid Oxygen

2.10 **Material Handling:**

- (a) Self-Propelled Modular Transporter(SPMT) for transportation of Rings from other yards to the erection site
- (b) Lifting and Transportation facility
 - (i) Crawler mounted/tyre mounted/LL
 - (ii) Goliath Crane straddling the hard stands
 - (iii) 4 nos Level Luffing crane for the graving dry dock cum wet basin
 - (iv) Goliath crane for the dry dock in the event ship construction to be carried out there
 - (v) Fixed crane for lifting blocks from sea to the SPMTs

2.11 **Civil Infrastructure**

- (a) Building for office spaces
- (b) Building for operatives
- (c) Canteen
- (d) Officers' Mess
- (e) Security Outposts
- (f) Dispensary
- (g) Electrical sub-station for power supply & distribution
- (h) Sanitary facilities
- (i) Rainwater Harvesting
- (j) Solar Panels for power generation
- (k) Fresh Water Supply
- (l) Waste/waste water management
- (m) Fire Safety



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(n) Any other essential services required for the Yard

3. **TASK OVERVIEW:** The Scope of work can be mainly categorized into three stages/Phases:

(a) **Phase -1 : Pre-construction stage:**

Preparation of Detailed Project Report (DPR), Tender Level Design of Civil, Mechanical, Electrical, Services and allied systems, Preparation of Environmental Impact Assessment (EIA) report & obtaining Environmental Clearance from MoEFCC, Preparation of Tender documents & evaluation of offers, Detailed Engineering Design.

(b) **Phase -2: Construction Stage:**

Complete Project Management including review, comment and approval of all design and drawings prepared by contractor, Supervision including site management, quality check and certification of bills and claims during construction, installation, commissioning stage and during guarantee period.

(c) **Phase-3: Post Commissioning:**

Consultant shall render professional services and advice after the commissioning of the project for settlement of any disputes, arbitrations, CTE/CVC/CAG audit query etc. in the planning and procedure of execution of this project for a period of 5 years

The above three phases and the tasks associated with each of the phases are tabulated below:

Phase	Task #	Task Description
Phase-1: Pre-Construction	1	Preparation of concept note- Approach & Methodology for Phases1&2
	2	Preparation of Layout with the Wet Basin conversable into Dry Dock
	3	Preparation of Detailed Project Report (DPR)
	4	Tender Design for award of EPC Contract
	5	Combined CRZ and Environmental Clearance with MoEF&CC
	6	Preparation of Tender Documents, Techno Commercial Evaluation of Offers, Work order etc. for EPC Contract
	7	Detailed design of Civil and Structural works.
Phase-2: Construction & Commissioning	8	Preparation of Project Management and Construction Supervision Manuals
	9	Project Supervision
	10	Supervision of Commissioning and Handing Over
	11	Preparation of 'As-Built' Drawings and O&M Manuals
Phase-3	12	Post-Commissioning services



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Phase	Task #	Task Description
Post Commissioning		

DETAILED SCOPE OF WORK

4. The detailed scope of work task-wise are enumerated in the succeeding paragraphs.

PHASE-1

5. **Task#1: Concept Note:** Approach & Methodology: The consultant shall prepare a Concept note covering the *Approach and Methodology* for execution of the assignment for all the three phases of the consultancy. This document shall be as detailed as possible covering as to how the consultant intends to achieve the objectives of each of the tasks and its associated deliverables.

Deliverable: Approach & Methodology Document

6. **Task#2: Yard Layout:** The consultant shall prepare a comprehensive yard layout considering the technical requirement definition set forth at Para (2) above. The consultant shall carry out the following tasks

6.1 The project commencement and team mobilization shall be completed within two (2) weeks from the date of signing the Agreement.

6.2 **Kick-off meeting:** The Project Director / Technical Director / Project Manager and key team members (minimum two Key design members and thus three members in total) shall attend a kick off meeting at MDL, Mumbai. MDL anticipates up to three days of presence for meetings including site walkovers. The meeting will be followed by site visit. The agenda of the kick off meeting shall include the following:

- (i) Project Objectives
- (ii) Project interfaces
- (iii) Vessels & Build/Repair strategy
- (iv) Programme and sequencing
- (v) Required marine infrastructure
- (vi) Operational requirements
- (vii) Existing ground investigation information
- (viii) Existing Data
- (ix) Contract packaging & procurement
- (x) Design codes
- (xi) Finalization of master schedule of activities
- (xii) Any other relevant matter

Deliverable: Agenda, Minutes of Meeting, Site visit notes

6.3 To take care of the multi-disciplinary nature of the project and to **integrate** a complex range of different elements into a coherent design, the



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compilation of documents, calculations and drawings requiring close attention to document control procedures, a Project Quality Management System based on the ISO 9001 approved system of the Consultant approved by MDL should be set up as one of the first activities of Project Management. The procedures and programme for quality review, checking and audit should be developed and monitored as the assignment proceeds.

Deliverable: Document management procedure

6.4 Towards preparation of the Yard Layout, the consultant shall carry out the following tasks:

6.4.1 Initial Assessment:

- (a) The consultant shall carry out an initial assessment of the Nhava Yard and conduct site visit to gather the existing yard layout facilities and operations.
- (b) Meet with key stakeholders to understand specific needs and operational challenges
- (c) Review the existing document and drawings

6.4.2 Data Collection and Analysis

- (a) Analyse the current operations, workflow and space utilization in detail
- (b) Collect data on shipyard activities including shipbuilding, repair, storage and logistics at par with global standards.

Deliverable: Inputs document

6.4.3 Sufficiency of available data shall be reviewed by the Consultant to carry out the scope of work mentioned by MDL. Identification of additional investigation/Data Gap Analysis /collection of data, if any required and methodology to collect the same is also in the scope of the Consultant at their own cost except geotechnical investigation.

The Consultant shall carryout Geo-technical investigation wherever required. The soil investigation work such as boreholes, plate load tests, chemical analysis of soil and water etc. to be done adequately enough so as to cater to the requirement of design of individual structure. The cost of carrying out soil investigation and Geotechnical reports shall be reimbursed by MDL at actual. The Consultant shall obtain approval of MDL prior to engaging agencies for carrying out the soil investigation Following the submission of Inception Report, Consultant shall visit MDL to present their findings and to explain the content of the report. Upon receipt of the written comments from MDL, Consultant shall finalize the Inception report



Deliverable: Inception report

6.4.4 Conceptual Design

- (a) Develop preliminary yard layout concepts considering various operational scenarios including placement of dock, wet basin conversable into dry dock, hardstands, workshop and other essential facilities.
- (b) Ensure conceptual designs incorporate best practices in shipyard operations.
- (c) The consultant shall make all efforts to optimize the design and thereby minimize the project cost
- (d) The concept yard layout design shall be submitted to MDL for review. Upon receipt of written comments, the consultant shall prepare the final version.

6.4.5 Detailed Design and Documents.

- (a) Post finalisation of the concept design, the consultant shall prepare detailed yard layout plans, including placement of dock, wet basin conversable into dry dock , hardstands, workshop and other essential facilities.
- (b) Equipment list: A provisional equipment list including Cranes and approximate cost estimate shall be prepared for the new facility.
- (c) Develop detailed engineering drawings and specifications.
- (d) Ensure all designs comply with relevant regulations and standards
- (e) Identify potential safety hazards and propose mitigation measures.
- (f) Ensure the design minimizes environmental impact and complies with environmental regulations.

Deliverable: Layout/Land Use Plan with annexure Equipment List

6.5 Upon agreement of the Layout/Land Use Plan, Consultant shall commence with the preparation of Basis of Design document which shall state relevant boundary conditions, assumptions and starting points underlying the design such as:

- (a) User requirements
- (b) Functional requirements



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- (c) Design life
- (d) Applicable codes, standards
- (e) Site level data
- (f) Topography, bathymetry and site hazards
- (g) Met ocean design criteria
- (h) Design vessel parameters
- (i) Structural design criteria
- (j) Mechanical and Electrical design criteria
- (k) Mechanical and electrical services to be provided to the dry dock
- (l) Equipment to be provided to the dry dock and other facilities
- (m) Design methodology
- (n) Operational loads
- (o) Geotechnical design criteria
- (p) International Ship and Port Facility Security Code compliance

6.5.1 Design criteria document should form a part of DPR and shall be a 'dynamic document', subject to regular review and updating as the work proceeds. An authorized, numbered, copy of the Design criteria shall be issued to MDL initially and at every revision. It is essential that design criteria together with As-built drawings forms the main archive of the project for future reference to MDL.

Deliverable: Basis of design

7. Task#3: Detailed Project Report(DPR):

Preparation of Detailed Project Report (DPR):

7.1 Subsequent to the above activities, Consultant shall prepare a Detailed Project Report (DPR) covering various technical, commercial and financial aspects of the proposed yard layout and allied facilities. DPR shall contain:

- (i) Information on the site conditions,
- (ii) Concept design drawings showing the proposed size and arrangements of the facility and indicating the form of construction of each of the major structural elements of the dock and other facilities. During this stage Assessment of forms of construction of the dry dock including advantages and disadvantages shall be under taken. Also assessment of alternative arrangements to optimize the interfacing of mechanical and electrical services and equipment to be carried out.
- (iii) Requirement of major machineries
- (iv) Mechanical, electrical and service facilities requirement for the Wet basin conversable into Dry Dock
- (v) Construction methodology



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- (vi) Project phasing,
- (vii) Implementation schedule
- (viii) Item wise Cost Estimates
- (ix) BAR/PERT Chart for the entire project
- (x) Consultant shall identify critical path activities in consultation with MDL and shall update the chart based on the review of the progress done periodically.
- (xi) Work Breakdown Structure (WBS) for the project
- (xii) Recommended makes for all major bought out items.
- (xiii) Final commissioning test and trial methodology
- (xiv) Man power requirement for operation and maintenance of dry dock

7.2 The DPR shall have sufficient details to ensure appraisal, approval and subsequent project implementation in a timely & efficient manner.

7.3 DPR shall also address dredging/excavation and disposal of earth considering prevailing site conditions

7.4 The suitability of dock for various types & capacities of vessels shall be analysed along with its loading pattern and these shall also be addressed in DPR.

7.5 While preparing DPR, consultant shall also study the navigational operation /manoeuvres for ships entering and departing from the dry dock facility to ensure safe operation. Consultant shall also advice on the dredging pattern required.

7.6 The scope /extend of design details provided by the consultant and that to be carried out by contractor shall be explicitly mentioned in DPR.

7.7 Modalities of equipment selection/ ordering by contractor, it's Warranty/Service addressing directly by yard shall also be indicated in DPR.

Deliverable: DPR – Civil & structural annex.

7.8 Consultant shall do the Preparation of preliminary details of the following mechanical services elements –head/flow calculations; process flow diagrams; site layout drawings; plant room layout drawings; outline HAZOP/HAZID study; and a Fire Strategy report Consultant shall prepare a layout/Single line diagram of Mechanical facilities and service routes for Dry Dock. Schematic layout of



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services distribution systems shall include sizes/capacities, specification of all equipment.

7.9 Preparation of preliminary details of the following electrical services elements – an Initial Electrical Load Estimate; a site layout drawing showing the external electrical services; HV, LV and data/communications cable routing layout drawing, an area/external lighting layout drawing; a typical substation layout drawing; an outline HV Single Line Schematic Diagram; an outline LV Single Line, outline HAZOP/HAZID study; Control room requirements, CCTV, telephone and security systems requirements.

7.10 While designing the above service facilities for the dry dock and grand assembly area the existing facilities in MDL shall be considered to maximum extent of mapping for minimizing new facilities

Deliverable: DPR – Mechanical & Electrical annex

7.11 Capital cost estimate shall be prepared for all the above works. Efforts shall be taken to have more realistic figures while estimation.

Deliverable: DPR – Cost Estimate

7.12 DPR shall be accompanied by a non-technical executive summary. Apart from the DPR annexes mentioned above, DPR shall include:

- (i) Statement of key assumptions made in the design
- (ii) Summary of findings in the Inception report
- (iii) Projects benefit assessments.
- (iv) Description of project layout with sufficient drawings to illustrate the design.
- (v) Other relevant details if any.

7.13 Presentation of DPR shall be made at MDL, Mumbai at both management and Board level by the Consultant and this will involve discussion of the DPR. Outstanding queries should be addressed and minor amendments made if necessary leading to the approval of the DPR by MDL shortly thereafter. At this stage the Layout Design and specifications for major equipment will be "frozen", no changes other than minor amendments suggested by MDL to be made.

Deliverable: Draft and Final DPR

8. Task#4: Tender Design for EPC Contract:

(a) **Tender level Design of Civil, Mechanical, Electrical, Services and allied systems:** The Consultant shall undertake the tender level engineering design, drawings and specifications prior to tenders being called for the construction. Tender level design for the entire Project shall be done ensuring proper integration of all aspects. The DPR design forms the basis for the preparation of the Tender Level Design.



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- (b) **Tender Level Design** includes:
- (i) Undertake design calculation to establish the size and arrangement of all structural elements.
 - (ii) Prepare Tender specifications & drawings indicating general arrangement plans, typical cross sections and typical details for all Civil works.
 - (iii) Prepare methods of construction (dock wall, floor, gate, foundation details, etc), standards of materials and workmanship.
 - (iv) The drawings shall communicate the structural layout sufficiently for an experienced contractor to assess construction method and prepare a tender price for the project.
 - (v) Design of mechanical equipment and service facilities including Head/flow calculations.
 - (vi) Prepare Schematic Layout of service pipe lines. Schematic layout shall include size of pipelines, number of tapping points & isolation valves, size and type of valves and state of the art monitoring systems
 - (vii) Prepare Indicative site/position layout drawings for all Services in conformity with the relevant industrial / statutory standards.
 - (viii) Prepare detailed Technical Specifications for mechanical, electrical and allied services for items mentioned above.
 - (ix) Prepare detailed Technical Specifications for all other items for the proper operation of Yard to be procured by MDL and Contractor. Specifications shall also contain relevant sizes, dimensions, type of components, capacities, controls and functional requirements
 - (x) Prepare Layout showing Location and capacity of storage tanks, compressor, pumps and other machinery including its electrics.
 - (xi) Electrical design shall include:
 - (aa) Load design calculations and finalization of Capacity, voltage level, frequency level and most feasible location of required number of substations and substation equipment.
 - (ab) Fault level calculations and finalization of entire earthing system with sizing for the new area including substation, DG, switchboards, panels, distribution boards, grid earthing inside dock, welding return earth, grid earthing works in grand assembly area, rail earth, lightning arresters, etc.



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(ac) Cable sizing indicating type of cable also for all HT & LT electrical items (power and control) from source point to end point

(ad) Method of Power feeding arrangement (HT & LT) to all machineries including pumps, cranes, etc (Cables, DSL or Duct etc) and to all electrical items.

(ae) Sizing (ampere) of switchboards distribution boards (415V, 380V, 230V, 110V, 24V-50Hz & 440V-60Hz), panels, etc for the new area.

(af) Calculations related to impressed current cathodic protection.

(ag) Preparation of drawings shall include, but not limited to, Main power distribution line diagram from source point(Main receiving station of MDL) to final outlet point of all electrical items, Electrical items layout drawing showing distance inside substation, Layout drawing of all electrical items of new area showing distance, Cable routing layout drawing (trenches, ducts & service ducts) for HT, LT, control, communication and allied facility from source point to final outlet point showing typical cross sections and distance, Layout drawing of Lighting scheme showing distance, earthing layout drawing for the new area showing distance, Layout drawing of allied systems showing distance, layout drawing of impressed current cathodic protection scheme showing distance, layout drawing of control station equipments in control room showing distance , General arrangement drawing of switchboards & distribution boards showing dimensions, Layout drawing of ventilation system showing distance, any other drawings required by the contractor to quote

(ah) Energy efficient techniques shall be considered while designing the electrical system.

(xii) The items and work shall be in accordance with Indian Standards and Indian Electricity Law, Rules & Regulations. Where appropriate Indian standards are not available, the relevant international standards shall apply.

(xiii) Design calculations for Civil, Mechanical, Electrical, services and allied facilities shall be submitted separately to MDL.

(xiv) After the tendering the contractor shall be able to quote competitive rates and of comparable nature. Therefore, consultant shall address and carry out all such design of items which are of cost intensive / critical in nature, notwithstanding omissions of any such in above details.



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(xv) The detailed Cost Estimate with rate analysis shall be submitted to MDL for approval before invitation of the Works tender. The cost estimate is critical and shall be within 10% (Plus or Minus) accuracy of tender proposal. These cost estimates will be used for establishing competitiveness of quoted prices of the vendors

(c) The yard may exercise the option of approving design, structural and engineering drawings at random / critical by an independent agency at the cost of yard. The Consultant shall hand over the design documents with design calculations to MDL for forwarding the same to the independent agency. Any clarifications from the independent agency have to be addressed by the consultant. The Consultant shall accept the recommendations given by them. In case of difference of opinion between Proof Checking authority and the Consultant, decision of MDL will be final & binding on the Consultant.

Deliverables:

Detailed Specifications and Tender Level Drawings, Design Calculations, Detailed Cost estimate

9. Task#5: Environmental Clearance:

(a) **Preparation of EIA Report by NABET Accredited Agencies:** The Consultant shall be responsible for the preparation of EIA report by NABET accredited agencies for obtaining Environmental Clearance from the Ministry of Environment, Forest & Climate Change (MoEFCC). This includes assistance during Public hearing, Presentation before Expert Appraisal Committee (EAC), Preparation of Coastal Regulation Zone (CRZ) map through MoEFCC accredited mapping agencies, Filling up of CRZ Form-1 application, Presentation before Maharashtra Coastal Zone Management Authority (MCZMA) etc.

(b) **Studies to be carried by consultant for EIA studies:** The following studies shall be carried out by consultant for EIA studies:

- (i) SLIA – Shore Line Impact Study
- (ii) Housing Radioactive Isotope
- (iii) Bathymetry
- (iv) Seismic Profiling
- (v) Geo-technical survey
- (vi) Geo-physical survey
- (vii) Bio diversity studies by NIO
- (viii) Ship Tranquillity studies
- (ix) Dredging and its impact
- (x) Impact on Coastal Zone Management Plan (CZMP)
- (xi) Wave Transformation Studies
- (xii) Dispersion Study
- (xiii) Littoral Drift Studies
- (xiv) Blasting Studies
- (xv) Seismic sub bottom studies
- (xvi) HTL/LTL Demarcation chart
- (xvii) Mathematical model studies for hydrodynamics and siltation.



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- (xviii) Maritime ecological survey
- (xix) Collection and analysis of marine water and sediment samples for physiochemical and biological parameters
- (xx) Noise level monitoring
- (xxi) Ambient air quality monitoring
- (xxii) Data collection on terrestrial ecology, socio-economic aspects etc.
- (xxiii) Study of land use through satellite data.
- (xxiv) Any other relevant studies indicated by MoEFCC
 - (i) Preparation of Draft EIA report and submission to MDL for comments
 - (ii) Finalization of Draft EIA report and preparation of executive summary for onward submission to Maharashtra State Pollution Control Board (MSPCB) for Public Consultation.
 - (iii) Technical assistance to MDL during Public Consultation. Incorporation of responses to the public consultation minutes in Final EIA report in consultation with MDL.
 - (iv) Preparation and submission of Draft Coastal regulation Zone (CRZ) Form – 1 to MDL for comments.
 - (v) Preparation and submission of Final CRZ Form – 1 to MDL for onward submission to Maharashtra Coastal Zone Management Authority (MCZMA).
 - (vi) Technical assistance to MDL during project appraisal by MCZMA.
 - (vii) Preparation and submission of Final EIA report and Environmental Appraisal Questionnaire (EAQ) to MDL for onward submission to EAC CRZ, MoEFCC seeking environmental / CRZ clearance.
 - (viii) Presentation to EAC, MoEFCC.
 - (ix) The following documents shall also be prepared and assist MDL to MCZMA for CRZ approval:
 - Project feasibility report
 - HTL/LTL demarcation
 - Environmental Management Plan (EMP)
 - Risk Management Plan (RMP)
 - Disaster Management Plan (DMP)
 - (x) Liaisoning and close follow up with concerned departments at state and central level.
 - (xi) Seek and obtain final combined CRZ and EC from MoEFCC.



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- (xii) Seek and obtain Consent to Establish from MPCB
- (xiii) Seek and obtain Consent to Operate from MPCB

Deliverables: PFR, ToR, Approval from MoEFCC, MPCB and report of various studies.

10. **Task#6: Tender Document for EPC Contract :**

Preparation of Tender Documents, Techno Commercial Evaluation of Offers, Work order preparation etc.

- (a) Consultant shall prepare tender documents and well developed tender level drawings for all works (civil, structural, mechanical, electrical, services and allied facilities etc) including individual equipment supply contracts procured by MDL for the completion and commissioning of the project in all respect.
- (b) Complete development of Nhava Yard project is envisaged to be executed through a single Contractor except procurement and commissioning of Cranes.

Procurement and commissioning of cranes will be tendered separately by MDL.

- (c) In the tender documents, the consultant shall provide:
 - (i) Instruction to bidders
 - (ii) General conditions of contract. (FIDIC)
 - (iii) Special conditions
 - (iv) Payment terms and conditions.
 - (v) Scope of work & technical specification,
 - (vi) Recommended makers list for equipments etc
 - (vii) Critical milestones events
 - (viii) Schedule of quantities(for civil works only),
 - (ix) Well-developed tender drawings,
 - (x) Level of design detailing to be under taken by contractor.
 - (xi) Expectations in terms of quality of construction.
 - (xii) Applicable standards
 - (xiii) Documentation
 - (xiv) QA&QC procedures
 - (xv) Acceptance criteria, both in the factory, if necessary and after installation.
 - (xvi) Training, commissioning and testing procedure
 - (xvii) Standard forms.
 - (xviii) Safety requirements during construction
 - (xix) Specimen Contract agreement.
 - (xx) Price format for civil works with Bill of Quantities
 - (xxi) Price format for Lump sum basis works.
 - (xxii) Unit rate price format for all works related to mechanical, electrical, services and allied facilities



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- (d) MDL tendering methodology shall be followed, which will be informed in due course of time.
- (e) Tender documents & drawings shall be submitted to MDL. A presentation shall be arranged for the review, finalization and approval by MDL. Comments / queries, if any on the above documents shall be addressed and minor amendments be made, if necessary leading to the approval of tender documents.

Deliverable: Draft & final Tender document

- (f) Subsequently tender will be issued by MDL to shortlisted firms.
- (g) Consultant shall be available for the pre-bid meeting at MDL and address queries from parties.
- (h) Subsequent to the tendering stage, MDL will forward offers except the price bids to Consultant for technical and commercial evaluation. Consultant shall do evaluation of offers received and submit recommendation for selection of contractor. It is likely that techno-commercial evaluation shall be followed by meetings with short listed bidders in the presence of MDL at Mumbai. Communication during techno-commercial evaluation shall be carried out by the Consultant directly to the bidders with copy to MDL. The report should then be updated and include recommendations. In its final form, the report shall include:
- (i) Confirmation of the responsiveness of the bidders
 - (ii) Tender summary
 - (iii) Notes of meetings
 - (iv) Comments on bidder's submissions and approach to project
 - (v) Recommendation for techno-commercial approval
 - (vi) Reasons for techno-commercial disqualification, if any

Deliverable: Technical –commercial Evaluation Report.

- (i) On approval of techno-commercial evaluation by MDL, price bid of qualified bidders will be opened by MDL. On receipt of price bids from MDL, Consultant shall carry out tabulation of prices to indicate the relative position of the bidders in terms of prices quoted. After MDL approval, further price negotiation, order finalization etc with L1 will be carried out by MDL

Deliverable: Financial Evaluation Report

- (j) Further preparation of Work Order/ Purchase Order and all necessary agreements with the Contractors/vendors also comes under the scope of consultant.

Deliverable: Work Order/ Purchase Order



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(k) Drafting work of the project shall generally be based on Autocad format. Draft of all deliverables mentioned above shall be furnished as two hard copies along with soft copy. However, final documents shall be supplied as three sets of hard copies along with soft copy.

11. Task#7: Detailed design of Civil and structural works :

Detailed design of Civil and Structural works.

Develop the tender designs and drawings for all works into detailed designs so as to provide all the necessary working drawings for construction by the Contractor, and to suit the Contractor's construction program.

Deliverables: Working Drawings shall be supplied as three sets of hard copies along with soft copy.

PHASE-2

12. Task#8: Project Management/Supervision manuals:

The consultant shall develop the following as part of Project Management/Supervision Manuals:

(a) Develop a Project Management Manual outlining processes, procedures, and best practices for managing the implementation of the yard layout. The project management manual shall consist of the following:

- (i) Define the project management framework, including roles and responsibilities.
- (ii) Outline project planning, scheduling, and tracking methods.
- (iii) Describe risk management strategies and contingency planning.
- (iv) Establish communication protocols and reporting mechanisms.
- (v) Detail quality assurance and control procedures

(b) Create a Construction Supervision Manual detailing guidelines for overseeing construction activities, ensuring compliance with design specifications, quality standards, and safety regulations. The construction supervision manual shall consist of the following

- (i) Provide guidelines for construction supervision roles and responsibilities.
- (ii) Describe procedures for monitoring and ensuring compliance with design specifications.
- (iii) Outline methods for quality control and inspection processes.
- (iv) Establish safety management practices and protocols.
- (v) Detail environmental compliance and mitigation strategies.

Deliverables: Guidelines and supervision manuals

13. Task#9: Project Supervision:



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- (a) The consultant shall undertake all activities related to the technical site supervision, contract management, cost checking/ controls, quality assurance/quality control, monitoring safety related issues, equipment trials, booking of work done measurements, finalization/ certification of bills and overall co-ordination, and providing comprehensive contract administration services to administer the construction contract, issuing site instructions, managing progress with respect to program, valuing progress claims and assessing variations and claims for the extension of time and cost, as required.
- (b) The Consultant's Site team shall be headed by a Resident Project Manager and supported by Assistant Resident Managers, Site Engineers and quantity surveyors, safety engineers as required to maintain full control over the works, and protect the interests of MDL. Qualifications and experience required for the Site team members given in Appendix -1.
- (c) Upon commencement of construction stage, Consultant shall prepare a Construction Supervision Manual detailing the various procedures and tasks to be carried out such as:
- (i) Team members, roles and responsibilities
 - (ii) Correspondence procedures
 - (iii) Quality check /control procedures
 - (iv) Contract Administration procedures
 - (v) Testing procedures
 - (vi) Commissioning procedures
- (d) The manual shall be reviewed and revised as needed at each quarterly meeting.
- (e) A pre-construction meeting should be held prior to the start of construction. The purpose of this meeting should be to review with the Contractor regarding the requirements of the contract and to develop a list of information that the contractor is required to provide as stipulated in the contract.
- (f) Priorities shall be discussed and finalized with MDL prior to implementation.
- (g) Monthly progress reports shall be prepared to provide an overview of all active contracts.
- (h) Since quarterly progress report will be required to be presented to the top management, the same shall include executive summary and graphical overview of project finances. This report shall include:
- (i) Discussion on key issues
 - (ii) Key milestones achieved since previous report
 - (iii) Photographs
 - (iv) Overview of changes / variations
 - (v) Planned Vs Actual progress chart
 - (vi) Planned Vs Actual Cash flow
 - (vii) Forecast to complete



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- (i) Monthly progress reports should be prepared for submission to MDL. As the project construction proceeds, actual costs may vary from the estimated costs due to changes in quantities of work and materials, or due to unforeseen circumstances. A close control over these costs and their effects on the overall project cost should be undertaken so that adequate budgetary control is exercised.
- (j) On a regular basis, formal progress meetings should be held with MDL, Contractors at least once in two weeks. Minutes of the meeting should be prepared and submitted to MDL for reference. Daily visit of designated engineers of the Consulting firm is to be carried out to review the progress of construction activities and advise ways & means of expediting the works to MDL.
- (k) Consultant's Resident Project Manager shall attend monthly Project Coordination Meeting with MDL. Consultant shall provide a presentation of the main points and answer questions from those present in the meeting. In addition, consultant shall prepare minutes of these meetings.
- (l) Project filing: Essential to any project is the establishment of a project filing system such that site drawings, contract correspondences, daily reports, monthly reports, time schedule etc can be readily retrieved and utilized for the purpose of administering the contract.
- (m) Review of Contractor's Methodology and Procedures: Provide completion schedule by developing Project Execution Plan and Master Project Implementation Schedule in appropriate software in line with the Target Project Completion Date and its continuous review & updation and advice to the MDL for timely corrective action of any delay. The schedules should be monitored against the works to check progress, quality and compliance to MDL requirements.
- (n) Preparation & submission of regular MIS reports as required by MDL and various government agencies. Providing all required services and assistance for replying to the queries of concerned government departments/statutory agencies and others on the progress and any other aspect related to the project
- (o) The project status shall be reviewed and progress shall be updated to MDL. Monitoring of the Master Cost and Time Plans for the Project to provide timely notification of any potential delays or budget over-runs, and provision of appropriate advice to MDL to enable corrective action to be implemented in a timely manner to minimize adverse effect. The estimated completion cost of the project and expenditures incurred will need to be reviewed and updated periodically, to ensure funds released for the project are adequately utilized and additional requirements, if any, projected well in time. Consultant shall be fully responsible for the timely completion, quality and structural safety of the construction within the budget .



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- (p) **Review Test Reports and Witness Tests:** At various points in the progress of the job, as required in the Contract Documents that specific materials or equipment shall be tested.
- (q) The objective of such tests is to monitor adherence by the contractors to the requirements of the Contract Documents and to check that the materials and equipment comply with the appropriate contract specifications. For the civil construction, Consultant should ensure quality of construction and materials used for the same.
- (r) **Review Contractor's Drawings:** The Consultant will be required to undertake Review validation, vetting and approval of Detailed construction drawings, fabrication and erection drawings, charts, drawings and calculations of all mechanical, electrical & allied services and any other related proposals required by the contract documents to be submitted by the contractor. Copies of contractor's submissions, comments and the finally accepted documents should be maintained in permanent file until completion and final acceptance of all construction undertaken by the contractors. Archiving should then be carried out in accordance with the Quality Plan with the transfer of appropriate document records to MDL.
- (s) **Technical clarification & site resolution:** Technical issues arising during construction shall be resolved by the Consultant on immediate basis. The Consultant shall be required to assemble suitable staff on site during the work execution stage for proper site supervision/ contract administration stage so that design queries can be addressed quickly and any design-related proposals from the Contractor can be efficiently handled, without delay. This includes proactively investigating possible cost savings due to design modifications, throughout the construction stage, in conjunction with the Contractor
- (t) **Initiate, Review and Document Variation Orders:** Throughout the progress of the Project, certain changes by virtue of site or other unforeseen conditions may be required. Changes may be required to plans and / or specifications due to site conditions being at variance with those assumed during design. MDL should be advised of any such changes and of any variation orders deemed necessary. When such conditions arise, an appropriate variation order should be prepared and submitted to MDL for approval. Each variation order should be accompanied by an analysis concerning the appropriate amount by which payments to any contractor are to be increased or decreased as a result of the changes to the work included in the variation order. In the case of mechanical and electrical works, consultant shall prepare a list of deviations if any from the approved drawings and layout and suggest cost implication in this regard before MDL before taking over of the project.
- (u) Evaluate and certify the works/ bills submitted by the contractor and recommend payment to MDL. Progress payments will be made to the Contractor as per the order terms, based on the bills submitted by the contractor and certification by Consultant. In this regard, Consultant shall maintain measurement of completed work for civil works and photographic records and test reports of works progressing at site.



(v) Final Inspection: Upon substantial completion, a final inspection should be undertaken by the Consultant and advice regarding additional work required, if any. On completion of remedial works, a final certificate should be issued as appropriate.

Deliverables: Project Supervision Reports

14. **Task#10: Commissioning and Handing Over:**

(a) Supervise Commissioning and Handing Over: Prior to the commissioning phase, consultant shall review the Contractor's commissioning plan and comment on adequacy and suitability of the proposal. Commissioning procedures and final tests to be performed by the contractor/supplier should be verified / witnessed and approved by the Consultant. It is essential that the operators and / or other selected personnel of MDL, who will later be associated with the operation of the new facilities, should be in attendance during the final acceptance testing.

(b) All site registers like Daily work history, Hindrance register, Cement Register, Steel Register, Site order register, Material/Equipment receipt Register, Measurement Book/ register etc. shall be maintained by the consultant.

(c) Issue of Taking Over certificate: On completion of the remedial snag works, a final "Taking-over Certificate" shall be issued by the Consultant as appropriate for all works associated with the Dry Dock project.

(d) Defects Liability Period: Once the Taking Over certificate is issued, the Consultant shall be under an obligation to inspect the above system in frequency of six months during the defect notification period of two year regardless of the defects noticed.

Deliverable: Commissioning/ Handing Over Report

15. **Task#11: As-Built Drawings and O&M manuals:**

(a) Prepare 'As-Built' Drawings and O&M Manuals: On completion of the construction, the 'as-built'/ 'as installed' modifications should be recorded on CD ROMs by the contractors. These documents/digital records should be reviewed by the Resident Project Manager and submitted to MDL as permanent records of the As-constructed /As-installed works within 3 months of the completion of the contract to which they relate. One set of hard copy shall also be furnished to MDL.

(b) The O&M manuals should be accompanied by the appropriate specifications, vendors'data, spare parts lists and similar aspects.

Deliverable: As-Built Drawings and O&M manuals



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16. Task#12: Post-Commissioning Services:

Consultant shall render professional services and advice after the commissioning of the project for settlement of any disputes, arbitrations, CTE/CVC/CAG audit query etc. in the planning and procedure of execution of this project for a period of 5 years

Deliverable: Audit Query and other dispute response document

17. SUMMARY OF TASKS AND ASSOCIATED DELIVERABLES

Task #	Deliverable #	Task Description	Deliverables
Phase1			
1	1	Concept Note	Approach & Methodology Document
2	2(a)	Kick-off meeting and site visit	Agenda, Minutes of Meeting, Site visit notes
	2(b)	Preparation of Document Management procedure	Document Management procedure
	2(c)	Inputs from Shipyards	Inputs Document
	2(d)	Preparation of inception report	Inception Report
	2(e)	Preparation of Concept Design-Yard layout	Concept Design Drawing
	2(f)	Preparation of Detailed Design Yard layout and equipment List	Detailed Design Layout drawings and Equipment list
	2(g)	Preparation of Design Basis Document	Submission of Design Basis Document
3		DPR	Report/Documentation
	3(a)	Detailed Project Report (Civil and Structural)-Preliminary	DPR Document and PPT
	3(b)	Detailed Project Report (Civil and Structural)-Final	DPR Document and PPT
	3(c)	Detailed Project Report (Mechanical & Electrical)-Preliminary	DPR Document and PPT
	3(d)	Detailed Project Report (Mechanical & Electrical)-Final	DPR Document and PPT
	3(e)	Preparation of Project Cost Estimate	Cost Estimate Document



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Task #	Deliverable #	Task Description	Deliverables
4	4	Tender Design for EPC Contract	Detailed Specifications and Tender Level Drawings, Design Calculations, Detailed Cost estimate
5		Environmental Clearance:	
	5(a)	Project Feasibility Report to MDL	PFR
	5(b)	Preparation and Submission of ToR for EIA Studies	ToR
	5(c)	Technical Assistance to MDL for appraisal at MoEF and Seek and Obtain Approval of ToR from MoEF &CC	Approval from MoEF&CC
	5(d)	Carry out Field Studies for EIA studies as per TOR and Preparation of EMP, DMP, & RMP & draft EIA report with Rapid EIA studies or Comprehensive EIA studies for submission to MPCB for Public Hearing	Report
	5(e)	Facilitate Public hearing by MPCB (if not exempted) as a pre-requisite for final EIA report	Documents required for attending the Public hearing
	5(f)	Seek and Obtain Clearance from MPCB including Public hearing and MoM of Public Hearing	Approval of MPCB
	5(g)	Preparation of the EIA report with inclusion of public hearing findings and technical assistance to MDL for CRZ recommendations from MCZMA	Final EIA report
	5(h)	Submission of requisite documentation to MDL for submission to MCZMA and Seek and Obtain CRZ clearance from MCZMA	MCZMA clearance report
	5(i)	Seek and obtain final combined CRZ and EC from MoEF&CC	Approval of MoEF&CC
		5(j)	Assisting MDL to obtain Consent to Establish from MPCB



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Task #	Deliverable #	Task Description	Deliverables
	5(k)	Assisting MDL to obtain Consent to Operate from MPCB	As required
6	6(a)	Preparation of Tender Documents	Draft and final tender documents
	6(b)	Technical-commercial evaluation	Technical-commercial evaluation report
	6(c)	Financial evaluation	Financial evaluation report
	6(d)	Work order	Work order document
7	7	Detailed design of Civil and Structural works.	Detailed design Drawings and Documentation
Phase-2			
8	8	Project Management and Construction Supervision Manuals	Guidelines and Supervision Manuals
9	9	Project Supervision	Project Supervision Reports
10	10	Supervision of Commissioning and Handing Over	Commissioning/Handing Over Report
11	11	Preparation of 'As-Built' Drawings and O&M Manuals	As-Built' Drawings and O&M Manuals
Phase-3			
12	12	Post-Commissioning services	Audit query and other dispute response document



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18. TIMELINES

Task #	Deliverable #	Task Description	Deliverables	Timelines	
				Month	Cumulative
Phase 1					
1	1	Concept Note	Approach & Methodology Document	1 month	D+1 month
2	2(a)	Kick-off meeting and site visit	Agenda, Minutes of Meeting, Site visit notes	1.5 months	D+1.5 months
	2(b)	Preparation of Document Management procedure	Document Management procedure	1.5 months	D+1.5 months
	2(c)	Inputs from Shipyards	Inputs Document	1.5 months	D+1.5 months
	2(d)	Preparation of inception report	Inception Report	1.5 months	D+1.5 months
	2(e)	Preparation of Concept Design-Yard layout	Concept Design Drawing	2 months	D+2 months
	2(f)	Preparation of Detailed Design Yard layout and equipment List	Detailed Design Layout drawings and Equipment list	3 months	D+3 months
	2(g)	Preparation of Design Basis Document	Submission of Design Basis Document	3 months	D+3 months
		DPR	Report/Documentation		
3	3(a)	Detailed Project Report (Civil and Structural)-Preliminary	DPR Document and PPT	3.5 months	D+3.5 months
	3(b)	Detailed Project Report (Civil and Structural)-Final	DPR Document and PPT	4 months	D+4 months



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Task #	Deliverable #	Task Description	Deliverables	Timelines	
				Timelines	Timelines
4	3(c)	Detailed Project Report (Mechanical & Electrical)- Preliminary	DPR Document and PPT	3.5 months	D+3.5 months
	3(d)	Detailed Project Report (Mechanical & Electrical)- Final	DPR Document and PPT	4 months	D+4 months
	3(e)	Preparation of Project Cost Estimate	Cost Estimate Document	4 months	D+4 months
4	4	Tender Design for EPC Contract	Detailed Specifications and Tender Level Drawings, Design Calculations, Detailed Cost estimate	6 months	D+6 months
5		Environmental Clearance:			
	5(a)	Project Feasibility Report to MDL	PFR	1.5 months	D+5.5months
	5(b)	Submission of ToR for EIA Studies	ToR	2 months	D+6 months
	5(c)	Technical Assistance to MDL for appraisal at MoEF and Seek and Obtain Approval of ToR from MoEF &CC	Approval from MoEF&CC	1 month	D+7 months
	5(d)	Carry out Field Studies for EIA studies as per TOR and Preparation of EMP, DMP, & RMP & draft EIA report	Report	15 months	D+22 months
5(e)	Facilitate Public hearing by MPCB as a pre-requisite for final EIA report	Documents required for attending the Public hearing	02 Months	D+24 months	



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Task #	Deliverable #	Task Description	Deliverables	Timelines	
				Timelines	Timelines
	5(f)	Seek and Obtain Clearance from MPCB including Public hearing and MoM of Public Hearing	Approval of MPCB	02 Months	D+24 Months
	5(g)	Preparation of the EIA report with inclusion of public hearing findings and technical assistance to MDL for CRZ recommendations from MCZMA	Final EIA report	2 months	D+26 months
	5(h)	Submission of requisite documentation to MDL for submission to MCZMA and Seek and Obtain CRZ clearance from MCZMA	MCZMA clearance report	3 months	D+29 months
	5(i)	Seek and obtain final combined CRZ and EC from MoEFCC	Approval of MoEF&CC	4 month	D+33 month
	5(j)	Assisting MDL to obtain Consent to Establish from MPCB		8 months	D+42 months
	5(k)	Assisting MDL to obtain Consent to Operate from MPCB		4 months After completion of Execution of work	04 Months After completion of Execution of work
6	6(a)	Preparation of Tender Documents	Draft and final tender documents	1 month	D+6 month
	6(b)	Technical-commercial evaluation	Technical-commercial evaluation report	3 months	D+9 months



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Task #	Deliverable #	Task Description	Deliverables	Timelines	Timelines
	6(c)	Financial evaluation	Financial evaluation report	1 months	D+10 months
	6(d)	Work order	Work order document	2 months	D+12 months
7	7	Detailed design of Civil and Structural works.	Detailed design Drawings and Documentation	2 months	D+14 months (Earliest Finish Time) D+42 months (latest Finish time)
Phase-2					
8	8	Project Management and Construction Supervision Manuals	Guidelines and Supervision Manuals	2 months	D+ 14 months(Earliest Finish Time) D+42 months (latest Finish time)
9	9	Project Supervision	Project Supervision Reports	48 months	D+90 months
10	10	Supervision of Commissioning and Handing Over	Commissioning/Handing Over Report	2months	D+ 92 months
11	11	Preparation of 'As-Built' Drawings and O&M Manuals	As-Built' Drawings and O&M Manuals	02 months	D+92 months
Phase-3					
12	12	Post-Commissioning services	Audit query and other dispute response document	60 months	D+150 months

D: Date of placement of Consultancy order



19. GENERAL:

The Consultant shall be responsible for planning, Engineering design, project management and commissioning of the new dry dock of approximate size of 560 M x 60 M x 13 M including all the ancillary and connected facilities.

19.1 Project Details: This scope of the Consultancy services relates to the following facilities:

(a) **DRY DOCK:** The Dry dock works shall broadly comprise of but not limited to the following elements:

- (i) Dock side walls and head wall
- (ii) Dock floor including sub-floor drainage system
- (iii) Pump house
- (iv) Entrance Works
- (v) Dock cope structure including service galleries/trenches
- (vi) Dock access stairs and emergency ladders
- (vii) Dock Entrance Gate and operating mechanism.
- (viii) Below-ground Substations
- (ix) Below-ground fire/ballast pump houses
- (x) Equilibrium filling valves, seatings, and guide ways
- (xi) Quay extension
- (xii) Grand assembly area
- (xiii) Crane foundations
- (xiv) Foundations for Winch, Capstan, Bollard etc.
- (xv) Fenders
- (xvi) Stop logs and screens at entrance works
- (xvii) Steel handrails, steel covers, steel gratings and steel ladders
- (xviii) Steel maintenance and access platforms/ladders
- (xix) Steel holdfasts
- (xx) Paving and approach road from the main yard
- (xxi) Civil Works for all Mechanical, Electrical, Services and allied facilities
- (xxii) Trenches/ducts/other facilities for routing Cables and Pipes
- (xxiii) Sacrificial Anodes for Cathodic protection.

(b) **MECHANICAL AND ELECTRICAL SERVICES:** The Mechanical services to be provided at the site shall comprise of but not limited to the following systems:

- (i) Cranes
 - (a) Goliath Gantry Crane of capacity (approx) 400 T- 1 No
 - (b) LLTT Cranes of capacity (approx) 50 T – 2 Nos
- (ii) Dock dewatering and flooding systems
 - (a) Dewatering Pumps
 - (b) Drainage Pumps and Mud pumps
 - (c) Sub-floor drainage system and pumps
 - (d) Dock flooding systems
- (iii) Winching systems for dock operations including
 - (a) Hauling-in winches
 - (b) Capstans
 - (c) Bollards and fair leads



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- (iv) Gate operating equipment
 - (v) Mechanical Services Distribution systems (piping systems)
 - (a) Firefighting water distribution system
 - (b) Potable water distribution system
 - (c) Ballast water system
 - (d) Industrial water distribution system
 - (e) Compressed air distribution system
 - (f) Oxygen and acetylene distribution systems
 - (g) LPG & carbon dioxide distribution systems
 - (vi) Bulk Gas, Water and Air Storage, and Production Facilities
 - (a) Potable water storage tank(s) and pumping system
 - (b) Firefighting water storage tank(s) and pumping system
 - (c) Liquid oxygen bulk storage and vaporizers
 - (d) LPG & carbon dioxide storage
 - (e) Acetylene manifold cylinder pallets storage and pressure regulation systems, Compressor equipment
 - (f) Firefighting and compressor cooling water pump house equipment
 - (g) Potable water storage tank(s) and pumping system
 - (h) Industrial water storage water tank(s) and pumping system
- (c) The Electrical services to be provided at the site shall comprise of but not limited to the following systems:
- (i) Substations and Substations equipment.
 - (ii) Frequency Converter & power factor correction equipment
 - (iii) Panel Modification works for meeting additional load at Main Receiving Station.
 - (iv) Cathodic protection systems wherever applicable
 - (v) Earthing Systems
 - (vi) HT, LT & Communication Cables and ducting
 - (vii) Control system and central control room for dry dock equipment.
 - (viii) Power feeding arrangement to all electrical equipment
 - (ix) Lighting arrangements including High mast
 - (x) Switch Boards, Distribution Boards and shore supplies
 - (xi) Lightning protection System wherever applicable
 - (xii) Uninterrupted Power Supply Requirements
 - (xiii) All electrics for the items mentioned at para 19.1(b)
- (d) The Allied systems to be provided at the site shall comprise of but not limited to the following systems:
- (i) Fire detection and alarm systems
 - (ii) Telephone Network
 - (iii) Ventilation of Enclosed areas / Service ducts
 - (iv) Information system requirements like CCTV, IT network, Security Systems

19.2 The tentative sketch of proposed dry dock is placed as Annexure 1.

19.3 **Scope of work shall be summarized as follows:**



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- (a) Visit the proposed site and collect the data available with MDL and other authorities, required for the design of dry dock.
- (b) Identification of additional investigation / collection of data, if any required.
- (c) Preparation of an Inception Report.
- (d) Review existing layout plan of the dry dock
- (e) Preparation of final layout Plan/ land use plan.
- (f) Preparation of Basis of design.
- (g) Preparation of Detailed Project Report
- (h) Design & Detailed Engineering
- (i) Preparation of EIA report and providing Consultancy for obtaining Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEFCC)
- (j) Preparation of Detailed cost estimate
- (k) Pre-qualification of Construction contractors.
- (l) Preparation of Tender documents.
- (m) Evaluation of Technical and Financial Bids.
- (n) Preparation of Work Order/ Purchase Order and all necessary agreements with the Contractor.
- (o) Site Project Management and Supervision during construction & commissioning.
- (p) Review, Comment and Approval of drawings and design calculations submitted by contractor.
- (q) Render professional advice as and when required.
- (r) Prepare and submit as- built drawings at the end of construction.
- (s) Inspection during Defect Liability Period of Contractor.
- (t) Assist MDL on Audit queries
- (u) Responsibility on technical details, overall performance of the system and timely completion of project.

19.4 Items excluded from the scope

- (a) Responsibility of Tender administration.
- (b) All statutory fees for obtaining license /clearance from all statutory boards
- (c) Tender Advertisement and its charges

All the above excluded scope will be carried out by MDL.

19.5 Categorization of scope of work: Scope of work can be mainly categorized into two stages:

- (a) **Pre-construction stage, Phase -1** : Preparation of Detailed Project Report (DPR), Tender Level Design of Civil, Mechanical, Electrical, Services and allied systems , Preparation of Environmental Impact Assessment (EIA) report & obtaining Environmental Clearance from MoEFCC, Prequalification of Contractors, Preparation of Tender documents & evaluation of offers , Detailed Engineering Design.
- (b) **Construction Stage-Phase -2**: Complete Project Management including review, comment and approval of all design and drawings prepared by contractor, Supervision including site management, quality



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check and certification of bills and claims during construction, installation, commissioning stage and during guarantee period.

19.6 PERSONNEL, EQUIPMENT, FACILITIES AND SERVICES OF OTHERS TO BE PROVIDED BY THE CLIENT

- (a) **Personnel:** In principle, all personnel required by the Consultant shall be arranged by themselves.
- (b) **Equipment, facilities and services of others to be provided by the client are as under:** MDL will make available to the Consultant following facilities for the duration of the contract. Air conditioned site office for the resident staff and a meeting room
- (i) Meeting table & 20 chairs for meeting room.
 - (ii) Work stations with table & chair for 20 persons, to be provided by the Client progressively as required by the Consultant. (Computer, Plotter, printer, coffee maker, fridge etc. is under Consultant's scope)
 - (iii) Ample electric power and water supply
 - (iv) Electric lighting
 - (v) Hand wash basins
 - (vi) Toilet facility
- (c) Apart from the above, all other equipment, facilities and services required are to be arranged by the Consultant themselves.

19.7 Similar Work Definition for Technical Prequalification Criteria: Experience of having rendered Consultancy Services for successfully completed Similar* Projects during last 15 years shall be as under:

*Similar Project: Consultancy Services rendered for Project Design & Supervision for Major Marine Civil Engineering works like Construction of Wet Basins or Graving Docks or Marine Jetty or Quay walls.

19.8 PAYMENT SCHEDULE FOR PRE-CONSTRUCTION STAGE and POST-CONSTRUCTION STAGE

SL	DESCRIPTION	PAYMENT SCHEDULE
1.	On Submission of Preliminary Project Report (Approach and Methodology, Layouts/ Land use plan, space utilization, Concept Designs and Basis of Designs)	10%
	- Approach and Methodology Documents (2%)	
	- Document Management Procedures (2%)	



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SL	DESCRIPTION	PAYMENT SCHEDULE
	-Input Documents (2%)	
	-Inception Report(1%)	
	-Layout/ Land Use Plan with annexure Equipment List(2%)	
	-Basis of Design (1%)	
2.	On Submission of Draft Detailed Project Report	15%
3.	On Submission of Final Detailed Project Report incorporating MDL comments	5%
4.	On receipt of all approvals from statutory authorities required for commencement of work	5%
5.	On Submission of detailed cost estimates including tender level drawings for all civil & structural, electrical & mechanical works and associated services etc. and verification by MDL	20%
6.	On Submission of Final tender documents, technical specifications for all civil & structural, electrical & mechanical works and associated services etc.	5%
7.	Evaluation of Technical Bid and submission of Evaluation Report.	2%
8.	Evaluation of Price Bid and submission of Evaluation Report.	2%
9.	Completion of all activities leading to award of Contract including Good for Construction Drawings issued along with the Contract	6%
10.	Fees for Back Office Support during the Construction Period including visits of Designers, Architects, Draughtsman etc as and when necessitated and including Issue of Balance Good for Construction Drawings and vetting of Good for Construction Drawings and detailed design for Electrical/ Mechanical systems/Shop Drawings prepared by the Contractor Payable proportionately to the percentage progress of work based on the certified RA bills of the Construction Contractor	10%
11.	On satisfactory completion and acceptance of the project as per the agreement including all consultancy services leading to the completion of entire work, obtaining necessary approvals from requisite authorities, handing over documents/ reports, submission of As built drawings, Stability Certificates and training of MDL employees	10%
12.	Rendering of Project Management including review and comment on defects observed and render remedies to resolve the defects during Defect Liability Period of Works Contract (Payable quarterly on pro-rata basis)	5%
13.	Rendering professional services and advice after the commissioning of the project for settlement of any disputes, arbitrations, CTE/CVC/CAG audit query etc. in the planning and procedure of execution of this project for a period of 5 years. (Payable @1% per annum)	5%
	TOTAL	100%

Note:-



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1. In case if the Environmental clearance is not received from the Ministry of Environment and Forests and the Project gets abandoned then the payment will be released on pro-rata basis for the services rendered.
2. Payment shall be released based on the achievement of milestones and need not be in the sequence as listed above.
3. The expenditure for carrying out site investigation by site investigation contractor is not included in the Consultancy fees and shall be reimbursed at actuals by MDL. However, the soil investigation work shall be carried out by the Consultant after obtaining approval of MDL.

19.9 PAYMENT SCHEDULE FOR ENVIRONMENTAL CLEARANCE

SL	DESCRIPTION	PAYMENT SCHEDULE
1.	Preparation of TOR for EIA studies for approval from MoEFCC	5%
2.	Technical Assistance to MDL for appraisal at MoEF and seek and obtain Approval of TOR from MoEF & CC	5%
3.	Carrying out all necessary studies, data collection and field survey as per TOR from MoEFCC and Preparation of EMP, DMP, & RMP & draft EIA report with Rapid EIA studies or Comprehensive EIA studies for submission to MPCB for public hearing	15%
4.	Facilitate Public hearing by MPCB (if not exempted) as a pre-requisite for final EIA report	5%
5.	Seek and obtain clearance from MPCB including Public hearing and MoM of Public Hearing	5%
6.	Preparation of the EIA report with inclusion of public hearing findings and technical assistance to MDL for CRZ recommendations from MCZMA and submission of Application to MCZMA alongwith necessary Reports	5%
7.	Liaisoning and close follow up with concerned departments of state and central level for Obtaining recommendation from MCZMA	15%
8.	Liaisoning and close follow up with concerned departments of state and central level for Obtaining Clearance from MoEF&CC	20%
9.	Preparation of Application to MPCB for Consent to Establish	5%
10.	Liaisoning and close follow up with concerned departments of state and central level for Obtaining Consent to Establish from MPCB	15%
11.	Liaisoning and close follow up with concerned departments of state and central level for Obtaining Consent to Operate from MPCB	5%

Note: Payment shall be released based on the achievement of milestones and need not be in the sequence as listed above.



1. DEPLOYMENT OF RESIDENT STAFF:

(a) The Consultant shall deploy the following Personnel (within 15 days of intimation for deployment) from MDL at site during the Construction Stage depending on the progress of the work:

SI No	Details of Manpower	No (min)	Anticipated Man month deployment (min)
i.	Resident Engineer (Project In Charge)	1 No	48 months
ii.	Assistant Resident Engineer (Civil/Structural)	2 Nos	48 months
iii.	Assistant Resident Engineer (Mech)	1 No	36 months
iv.	Assistant Resident Engineer (Elec)	1 No	36 months
v.	Site Engineers (Civil)	6 Nos	48 months
vi.	Civil Quality Engineers	2 Nos	48 months
vii.	Surveyors	1 No	48 months
viii.	Site Engineers (Structural)	1 No	36 months
ix.	Site Engineers (Mech)	1 No	36 months
x.	Site Engineers (Elec)	1 No	36 months
xi.	Documentation Controller Cum Office Administrator	2 Nos	48 months
xii.	Project Planning, Contract Management	2 Nos	48 months
xiii.	Safety Engineer	2 Nos	48 months

Note:- The above indication of Personnel is estimated for calculation purpose and the actual deployment may vary depending upon the site requirements on mutually agreed basis. During the construction stage, if Client requires additional staff, the same shall be employed by the Consultant at the above rates.

(b) Prior approval of MDL is required for deployment of above personnel for the Project.

(c) The Consultant shall also deploy the following Specialists at site on as and when required basis. These visits will be solely as per MDL requirement. The payment for the visit for Kick off meeting is deemed to be included in their quote and shall not be paid separately. The Consultant shall quote for Overseas as well as Indian specialists, however, the specialist (either Overseas or Indian) as required shall be deployed with prior approval of MDL.



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SI No	Details of Visiting Specialists (overseas)	Anticipated Nos	Anticipated Days (inclusive of travelling time)
i.	Project Director	1 No	48 days
ii.	Technical Director	1 No	48 days
iii.	Project Manager	1 No	96 days
iv.	Gate Specialist	1 No	12 days
v.	M & E Specialist	1 No	48 days
vi.	Specialist for Geotechnical Investigation	1 No	06 days

SI No	Details of Visiting Specialists (Indian)	Anticipated Nos	Anticipated Days
i.	Project Director	1 No	08 days
ii.	Technical Director	1 No	08 days
iii.	Project Manager	1 No	16 days
iv.	Gate Specialist	1 No	12 days
v.	M & E Specialist	1 No	16 days
vi.	Specialist for Geotechnical Investigation	1 No	02 days

2. Qualification and Experience for Resident Staff:

<u>SI NO</u>	<u>Staff Description</u>	<u>Qualification and Experience</u>
i.	Resident Engineer (Project In Charge)	BE (Civil) with min. 20 yrs exp.
ii.	Assistant Resident Engineer (Civil/Structural)	BE (Civil) with min 12 yrs exp.
iii.	Assistant Resident Engineer (Mech)	BE (Mech) with min 12 yrs exp.
iv.	Assistant Resident Engineer (Elec)	BE (Electrical) with min 12 yrs exp.



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v.	Site Engineers (Civil)	BE (Civil) with min 5 yrs exp.
vi.	Civil Quality Engineers	BE (Civil) with min 5 yrs exp.
vii.	Surveyors	Graduate with min 2 yrs exp.
viii.	Site Engineers (Structural)	BE (Civil) with min 5 yrs exp.
ix.	Site Engineers (Mech)	BE (Mech) with min 5 yrs exp.
x.	Site Engineers (Elec)	BE (Electrical) with min 5 yrs exp.
xi.	Documentation Controller Cum Office Administrator	Graduate with min 2 yrs exp.
xii.	Project Planning & Contract Management Engineer	BE with min 2 yrs exp.
xiii.	Safety Engineer	HSE qualified Graduate with 3 yrs exp

3. JOB DESCRIPTION AND RESPONSIBILITIES OF RESIDENT STAFF:

(a) Resident Engineer (Consultant's Representative) (RE)

- (i) He shall be a professionally qualified civil engineer, self-motivated person with an appropriate length and level of experience (minimum 20 years) relating to works of similar nature. As the Consultant's Representative, he will be the main contact person between MDL and the Consultant. He shall be responsible for the overall management of the construction/supply/installation works contracts on site including all technical, financial matters and administrative matters related to MDL site.
- (ii) His main tasks and responsibilities are as under:
 - (a) To be available on MDL site on full time basis.
 - (b) To be committed to team ethic with MDL, his colleagues and contractors to ensure that all the works are satisfactorily completed within the given time and cost and to the required technical standards.
 - (c) To check, modify and certify as necessary all the contractors Invoices and forward the same to MDL Engineer for final certification of payment.
 - (d) To host all formal monthly progress meetings with each contractor (formal meetings more often if needed to pursue adequate progress and resources) and prepare and correct minutes of meeting and distribute them to all parties including MDL.
 - (e) To manage his site staff including ARE, Inspectors, other staff in an effective manner to ensure full coverage of critical events, coverage as far as possible of all site monitoring activities. He should ensure that all materials and works are correctly tested and witnessed by his staff and are complying with the specifications and drawings of



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MDL tender. He must ensure that his staff are flexible in their approach, and assist each other as and when need arises.

- (f) To monitor overall progress of each contract.
- (g) To resolve all problems arising on the site such as technical, financial, administrative, supply shortfalls etc.
- (h) To anticipate critical activities in advance through keen and constant observation and to take corrective step.
- (i) To be responsible for all correspondence between MDL, Consultant, and the contractors, and to ensure that correspondence copies are correctly and promptly distributed as appropriate.
- (j) To issue site instructions and memos to the Contractors and making a copy to MDL.
- (k) To be the channel through which drawings and documents, including revisions, are issued to the contractors along with copies to MDL.
- (l) To advise MDL Engineer for issue of completion certificates at the end of construction/supply/installation works on site.
- (m) To check and agree/modify final account statements from each contractor for certification by MDL Engineer, including the remaining retention until the end of the defects liability period.
- (n) To ensure that all the defects are satisfactorily rectified during their tenure.

(b) Assistant Resident Engineer (Civil/ structural)

- (i) He shall be a qualified civil engineer, self-motivated person, with an appropriate length (minimum 12 years experience) and level of experience should be related to works of similar nature. He is responsible to the Resident Engineer (RE) for the technical monitoring of the construction/supply/installation works contracts on MDL site, including advice and assistance on financial matters within his remit. During the absence of RE, ARE would take charge of RE duties without any additional monetary benefit.
- (ii) His main tasks and responsibilities are as under:
 - (a) To be available on MDL site on full time basis.
 - (b) To be committed to team ethic with MDL, his colleagues and contractors to ensure that all the works are satisfactorily completed within the given time and cost and to the required technical standards.
 - (c) To be responsible for monitoring the quality of materials and Work, through impartial observation of testing wherever appropriate such as concrete mixes, concrete as delivered and placed, structural steel as delivered and erected, finishes as applied etc.
 - (d) To assist the RE in checking all the contractors Invoices.
 - (e) To attend all formal monthly progress meetings with each contractor and assist the RE.
 - (f) To assist the RE in monitoring overall progress on each contract
 - (g) To assist the RE to resolve, problems arising on the site such as technical, financial, administrative, supply shortfalls etc.
 - (h) To anticipate critical activities in advance through keen and constant observation and to take corrective steps if any.



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- (i) To assist the RE in preparation of correspondence between MDL, Consultant, and the contractors, and to ensure that correspondence copies are correctly and promptly distributed as appropriate and to be responsible for the inspectors under them.
- (j) To issue site instructions and memos, with the permission of the RE wherever appropriate, and marking a copy to MDL.
- (k) To assist the RE in issue of completion certificates at the end of construction/supply/installation works on site.
- (l) To assist the RE in the checking of final account statements from each contractor for certification by the Consultant, including the remaining retention until the end of the defects liability period. To assist the RE in ensuring that defects are satisfactorily rectified during their tenure.

(c) Assistant Resident Engineer (Mech)

- (i) He shall be a qualified Mechanical engineer, self-motivated person, with an appropriate length (minimum 12 years experience) and level of experience should be related to works of similar nature. He is responsible to the Resident Engineer (RE) for the technical monitoring of the construction/supply/installation works contracts on MDL site under his remit including advice and assistance on financial matters within his remit.
- (ii) His main tasks and responsibilities are concerned with Mechanical related activities on the workshops, open steel stock yard, open scrap yard and buildings as specified in Tender, but with the understanding that from time to time as necessary he will assist his colleagues on relevant works with equal enthusiasm.
- (iii) Tasks and responsibilities as for AREs above but relative to the Mechanical works, and including crane erection methods, and commissioning of all plant and equipment within their remit.

(d) Assistant Resident Engineer (Electrical)

- (i) He shall be a qualified Electrical engineer, self-motivated person, with an appropriate length (minimum 12 years experience) and level of experience should be related to works of similar nature. He is responsible to the Resident Engineer (RE) for the technical monitoring of the construction/supply/installation works contracts on site under his remit including advice and assistance on financial matters within his remit.
- (ii) His main tasks and responsibilities are concerned with Electrical related activities on the workshops, open steel stock yard, open scrap yard and buildings as specified in Tender, but with the understanding that from time to time as necessary he will assist his colleagues on relevant works with equal enthusiasm.
- (iii) Tasks and responsibilities as for AREs above but related to the Electrical works, and including crane erection methods, and commissioning of all plant and equipment within their remit.



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(e) Site Engineer for Civil/Structural/Mech/Electrical works

- (i) The selected inspectors should be self-motivated and suitably experienced engineers, who have adequate level of education, with a minimum of 5 years experience as inspectors on works of similar complexity and specialization. They will each be responsible to one of the AREs depending on the contract works they have to supervise and monitor.
- (ii) Their main tasks, as appropriate to their specialization, are:
 - (a) To be available on MDL site on full time basis.
 - (b) To be committed to team ethic with MDL, his colleagues and contractors to ensure that all the works are satisfactorily completed within the given time and cost and to the required technical standards.
 - (c) To be responsible for monitoring the quality of materials and works, through impartial observation and testing where appropriate such as concrete mixes, concrete at the time of delivery and placement, structural steel work during delivery and erection, final finishing etc.
 - (d) To check centering and shuttering, reinforcement, bar bending schedules, charts of concreting, structural steel during erection including climbing aloft to check levels, alignment etc.
 - (e) They will also be responsible to check line and levels, alignments at different levels of construction.
 - (f) To check piped and cabled services installations, including associated equipments.
 - (g) To check cranes during erection, and assist in monitoring load and running tests.
 - (h) To assist in ensuring that defects are satisfactorily rectified during their tenure.

(f) Safety Engineer

- (i) He shall be a qualified HSE Engineer, with Preferably 03 years experience relating to works of similar nature.
- (ii) Responsible for ensuring the health, safety & environment at the project site.
- (iii) Address issues regarding HSE matters of the Contractors.
- (iv) He should ensure that safe procedures are followed in connection with the erection & testing of Cranes, winches, various machineries etc.
- (v) Manage and advice on all HSE related issues.
- (vi) Ensure compliance with regulatory requirements, HSE policies and procedures, ISO & OHSAS standards.
- (vii) Actively promote safety awareness, accident prevention measures and reduce work hazards.
- (viii) Maintain records and develop reports as required.
- (ix) Manage emergency response and conduct investigations.
- (x) Conduct risk assessment and recommend corrective actions.





QUALITY AND COST BASED SELECTION (QCBS)
-EVALUATION PROCESS and ELIGIBILITY CRITERIA

1.1 Evaluation Process

- 1.1.1 An Evaluation Committee will be constituted within MDL to evaluate the responses of the bidders.
- 1.1.2 The Evaluation Committee shall evaluate the responses to the Tender and all supporting documents & documentary evidence. Inability to submit requisite supporting documents or documentary evidence, may lead to rejection of the bids.
- 1.1.3 Each of the responses shall be evaluated to validate compliance of the bidders according to the eligibility criteria, technical evaluation Forms and the supporting documents specified in this document.
- 1.1.4 The decision of the Evaluation Committee in the evaluation of responses to the Tender shall be final. No correspondence will be entertained outside the evaluation process of the Committee.
- 1.1.5 The Evaluation Committee may ask for presentation / meetings with the bidders to evaluate its suitability for the Consulting assignment.
- 1.1.6 The Evaluation Committee reserves the right to reject any or all proposals.
- 1.1.7 The Evaluation Committee would submit its recommendations to the Competent Authority.

1.2 Selection of Bidders will be on the basis of Quality cum Cost based Selection (QCBS) system.

i. Technical proposals of only "Eligible Bidders" will be evaluated as per process & criteria mentioned below.

- Proposals of the eligible Bidders during the process of evaluation will finally be ranked according to their combined score of the Technical proposal (ST) and financial proposal (SF) scores.

- The Technical proposal will be evaluated as per the Technical Evaluation Criteria. Only those bidders whose technical marks as per the technical evaluation criteria mentioned in this tender are 70 marks or more out of 100 shall be declared as qualified for evaluation of their financial proposals. Bidders who have secured less than 70 marks in the Technical Evaluation Criteria shall be rejected. The marks obtained by all technically qualified bidders will be communicated before opening of the Financial bid. The bidder with highest marks will be given a technical score (TM) of 100 marks. The technical scores of other bidders will be computed as follows:

$$ST = 100 \times T/TM$$

where T= Technical marks scored as per Technical evaluation criteria

ST = Normalised Technical Score of the bidder



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TM = Technical score of the bidder with highest marks

- After technical evaluation, financial proposals of the successful bidders will be evaluated. The lowest Financial Proposal (FM) will be given a financial score (SF) of 100 points. The normalized Financial Scores (SF) of other bidders will be determined using the following formula:

$$SF = 100 \times FM/F$$

where F = Price (in INR) of the proposal under consideration

SF = Normalised Financial Score of the bidder

FM = Financial Proposal with the lowest price

- The weightage given to the Technical (Tw) and Financial (Fw) proposals are: **Tw = 0.80, and Fw = 0.20** and the combined score will be arrived at using the following formula:

$$\text{Combined total score (S)} = (ST \times Tw) + (SF \times Fw)$$

Notes:

- All prices shall be in INR only and shall remain fixed during the execution of the contract.
 - Financial evaluation shall be on Cost to Company basis.
 - GST shall be indicated separately.
 - Any conditional bid would be rejected.
- ii. The Selected Bidder shall be the **Bidder having the highest Combined Total Score(S)**.
- iii. In the event the composite total score is tied, the bidder securing the highest technical score will be adjudicated as the Best Value Bidder for award of the Project.

1.3 **ELIGIBILITY CRITERIA:**

- Bidders should be a well established and professionally organized Consultancy firm with at least 20 years experience in the field of **rendering Similar Consultancy services. Firms having less than 20 years of relevant experience shall not be considered for further evaluation.**
Similar Project Definition:
Consultancy services for Project Design & Supervision for Major Marine Civil Engineering works like Construction of Wet Basins or Dry Docks or Marine Jetty or Quay walls
- Bidders should have an office premises located within the municipal limits of Greater Mumbai or Thane or Navi Mumbai.
- Bidders should have an average annual turnover of at least **Rs 34 Crore** during the last 03 financial years. (**Note: For the purpose of calculating the average annual turnover, fee received towards**



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consultancy services provided by the bidder shall ONLY be considered)

- ii) Bidders should have on their rolls at least the following personnel:
- (1) a Principal Designer having at least 20 years experience in Designing of Marine Infrastructure Projects.
 - (2) 02 Junior Designers (Civil) having at least 5 years experience in Designing of Marine Infrastructure Projects.
 - (3) 02 Junior Designers (Electrical) having at least 5 years experience in Designing of Electrical works Major Infrastructure Projects.
 - (4) 02 Junior Designers (Mechanical) having at least 5 years experience in Designing of Electrical works Major Infrastructure Projects.
 - (5) 01 Architect registered with the Council of Architecture, New Delhi and having atleast 04 years experience
 - (6) a Senior Engineer with Degree in Civil Engineering and minimum 10 years of experience.
 - (7) A total strength of minimum 15 employees.

• **EVALUATION OF APPLICATIONS:**

- a) The applications will be examined by a designated Evaluation Team of MDL, which may call for clarifications/ additional information from the bidders which must be furnished to the Evaluation Team within the stipulated time. The applicants shall be evaluated based on the following parameters on a scale of 100.

Sl. No.	Criteria	Weightage (Marks) (Max Marks : 100)
1	Capability Statement of the Firm (years of existence, presence and knowledge of local terrain)	20
2	Firm's Experience (Similar Consultancy Services/works completed)	35
3	Firm's Financial Capacity (Annual Financial Turnover)	15
4	Strength of Technical Team (In-house)	30
Sum total		100

- b) The applicants will be awarded marks for each of the above parameter on the following basis:

Sl. No.	Parameters	Max Points
1	CAPABILITY STATEMENT	20
	1.1 Years of Existence (Maximum marks shall be restricted to 15)	15



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Sl. No.	Parameters	Max Points	
	a) Experience of 20 years	12 points	
	b) Experience more than 20 years will be allotted 1 point for every 2 years or part thereof of additional experience	1 point for every additional 2 years	
	1.2 Presence and Knowledge of Local Terrain	5	
	a) Local office at Mumbai/Thane/Navi Mumbai	2 points	
	b) Topographical extent of works undertaken in the state of Maharashtra	2 points	
	c) Topographical extent of works undertaken in India	1 point	
2	FIRM'S EXPERIENCE	35	
	1.1 Similar Consultancy Services/works rendered* (Note*: Preconstruction stage must be completed. Construction stage may be completed or in progress)	35	
	a) Preparation of DPR for Infrastructure Projects of value more than Rs 500 Cr • 02 points for each project	4 points	
	b) Design of Wet Basins or Graving Docks • 01 project – 04 marks • 02 projects – 08 marks • 03 projects – 12 marks • More than 03 projects – 15 marks	15 points	
	c) Design of Slipways or Jetties • 03 points for each project	6 points	
	d) Design of Industrial Workshops • 02 points for each project	6 points	
	e) Works involving LL Cranes • 02 points for each project	4 points	
3	FIRM'S FINANCIAL CAPACITY	15	
	3.1 Average Annual Financial Turnover (Maximum marks shall be restricted to 15)		
	a) Annual financial turnover as per the threshold indicated	12 points	
	b) Additional financial turnover in multiples or part thereof @ 20% of the threshold value indicated	1 point for each multiple subject to max 3 points	
4	STRENGTH OF TECHNICAL TEAM	30	
	Particulars	Point System	Max Criteria/ Sub Criteria Points/marks



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Sl. No.	Parameters		Max Points	
a)	Principal Designer	Overall Experience	More than 20 years: 05 Between 15 to 20 Years : 03 Less than 15 years:00	10 Points
		Educational background	Master/Postgraduate:02 Graduate : 01 Undergraduate: 00	
		Relevant work experience	>04 projects: 03 02-04 projects: 02 <2 projects: 00	
b)	Junior Designers(civil)	Overall Experience	More than 05 years: 02 Between 03 to 05 Years : 01 Less than 03 years:00	05 Points
		Educational background	Master/Postgraduate:02 Graduate : 01 Undergraduate: 00	
		Relevant work experience	Min 02 projects: 01 <02 projects: 00	
c)	Junior Designers(mechanical)	Overall Experience	Min 05 years: 01 Less than 05 years:00	03 Points
		Educational background	Master/Postgraduate:01 Graduate / Undergraduate:00	
		Relevant work experience	Min 02 projects: 01 <02 projects: 00	
d)	Junior Designers(electrical)	Overall Experience	Min. 05 years: 01 Less than 05 years:00	03 Points
		Educational background	Master/Postgraduate:01 Graduate / Undergraduate:00	
		Relevant work experience	Min 02 projects: 01 <2 projects: 00	
e)	Architect	Overall Experience	Min. 04 years: 01 Less than 04 years:00	03 Points



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Sl. No.	Parameters			Max Points
		Educational background	Graduate : 01 Undergraduate: 00	
		Relevant work experience	Min. 02 projects: 01 <02 projects: 00	
f)	Senior Engineer	Overall Experience	Min. 10 years: 01 Less than 10 years:00	03 Points
		Educational background	Master/Postgraduate:01 Graduate / Undergraduate:00	
		Relevant work experience	Min. 02 projects: 01 <02 projects: 00	
	f) Total strength of employee > 15 Nos. (Bidder with lesser number employees will be allotted points on pro-rata basis)			03 Points



ESCALATION OF RATES DURING CONSTRUCTION SUPERVISION STAGE:

1. The rates for Pre-Construction Stage shall be firm and escalation shall not be applicable.
2. The rates for construction/ supervision stage including the rates for visiting specialists shall be fixed for one year (12 months) from the date of commencement of construction/ supervision stage beyond which the escalation shall be payable as per the multiplication factor enumerated below.
3. The Multiplication Factor (1+M) for increase in the balance Compensation (to be established at the end of each 1 year period from the date of commencement of construction/supervision stage) where M is as calculated from the equation given below:

$$M = \frac{CP_2 + \{(CP_2 - CP_1) \times 1.5\}}{CP_1}$$

Where

CP₁: Consumer Price Index as on date of start of one year period under consideration.

CP₂: Consumer Price Index as on date of completion of one year period under consideration.