



# COCHIN PORT TRUST

Civil Engineering Department  
E-Tender No. T15/T-1946/2021-C

NOTICE INVITING REQUEST FOR PROPOSAL  
FOR  
Construction of International and Domestic Cruise Terminal and  
Other Allied Facilities at Mormugao Port Trust



## VOLUME-III SPECIAL CONDITION OF CONTRACT SPECIFICATIONS JUNE 2021

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## SPECIAL CONDITION OF CONTRACT SPECIFICATIONS

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## 1 V3. SUMMARY

### 1.1 V3. GENERAL

The Specifications ,as detailed in Volume V of the RFP documents ,shall apply to all Works which are required to be executed under the Contract or otherwise directed by the Employer.

The Specifications must be read in conjunction with the General Conditions of Contract, Employer's Requirement, Job Matrix ,Milestone, Drawings and other documents forming the Contract Documents. Notwithstanding the Subdivision of the Special Condition of contract under different headings, every part of it shall be deemed supplementary to and complementary of every other part. The heading in these Special Condition of contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof, or of the Contract.

### 1.2 V3. Abbreviations and Acronyms

The following abbreviations shall have the meaning as set forth below:

ASTM	American Society for Testing and Materials
BS	British Standard published by British Standards Institution
CD	Chart Datum for the Cochin Port Trust
CEMP	Construction Environmental Management Plan
CWMS	Construction Work Method Statement
CoPT	Cochin Port Trust
CPCB	Central Pollution Control Board
EMP	Environmental Management Plan
GSPCB	Goa State Pollution Control Board
HAT	Highest Astronomical Tide
HAZID	Hazard Identification
IS	Indian Standard published by Bureau of Indian Standards
ISO	International Standards Organization
ITP	Inspection and Test Plan
LAT	Lowest Astronomical Tide
MoPT	Mormugao Port Trust
NCR	Non-Conformance Report
PIMT	Project Implementation and Monitoring Team
PMP	Project Management Plan
PQP	Project Quality Plan
QA	Quality Assurance
QC	Quality Control

RL	Reduced Level
SHE	Safety, Health and Environment
TPR	Third Party Review

The Contractor shall use the above abbreviations and nomenclature on its documentation.

### 1.3 V3. Definitions

Words including Contract, Contractor, Employer, Drawings, Site used in this General Conditions of Contract shall be considered to have the meaning as understood from the Definitions of these terms given in the General Conditions of Contract in **Volume-I**.

### 1.4 V3. Reference Standards

**1.4.1 V3.** The Details covered by this Special Conditions of Contract shall comply with the latest editions and revision notes of Indian, British ,American and other recognized International Standards as may be specified elsewhere in the Contract Documents.

**1.4.2 V3.** The latest edition of all Standards till 30 (thirty) days before the final date of submission of the Bid, shall be adopted. The Contractor shall maintain a copy of the latest editions of the Standards, Laws and Codes applicable to the work to be undertaken on site.

**1.4.3 V3.** The Contract Documents reference to a number of codes, standards and guidelines. In some cases, these documents may be in disagreement or conflict. Where conflicts or omissions are identified, the Contractor shall notify the Employer who shall make a determination and advise the Contractor accordingly. The Employer's determination will generally adopt the most conservative or stringent requirement.

### 1.5 V3. Working Drawings

**1.5.1 V3.** Three sets of Hard copies of the Working Drawings (Good for Construction), on the basis of which actual execution of the Works is to proceed along with soft copy in drawing format, shall be furnished free of cost by the Contractor.

**1.5.2 V3.** The Drawings provided for tendering purposes in the Tender Documents shall be used as a reference only. For Tender Drawings refer Volume-VI.

## 2 V3. Work Covered under Contract

The Works under this Contract broadly includes Design, Supply, Construction Development ,Installation and Commissioning of Terminal Building , Ancillary Building ,Road, Boundary wall ,Landscaping & Hardscaping along with other services and utilities. The details are covered in Tender documents( Employer's requirement, Job Matrix, Milestone ,scope of work) and Drawings of the Contract Documents.

## 3 V3. Site Location

**3.1.1 V3.** The site location for the Works are at Head Land Sada in Mormugao Port Trust area adjacent to Breakwater ,as shown on the Drawing provided in Volume -VI. The Contractor shall submit details of any temporary works associated with the Works.

**3.1.2 V3.** The Contractor's local office, his own working area and all of the Contractors Works shall be subject to compliance with MoPT established guidelines and applicable local authorities rules and regulations.

## 3.2 V3. Permissions and Permits

**3.2.1 V3.** The Contractor shall at all times comply with the latest requirements of:

- a) Applicable Navigation, Shipping and Goa Inland Vessel (GIV) Rules;
- b) Port Authority Acts;
- c) Marine Oil Pollution Management Plan and Contingency Plan
- d) Emergency Response Plan;
- e) Cyclone Contingency Plan;
- f) State and National Environment Regulations.

**3.2.2 V3.** The Contractor shall ensure that all Plans and Procedures Developed in accordance with the requirements of the Contract are integrated with those of the Port operations at Mormugao Port Trust, Goa .

**3.2.3 V3.** The Contractor shall obtain advance approvals from the required authorities prior to executing the Works.

**3.2.4 V3.** The Contractor shall make all arrangements with and obtain the necessary approvals from the Relevant Authorities for temporary traffic arrangements and control.

**3.2.4 V3.** The Contractor shall exhibit such marks and keep illuminated during the darkness hours near the various parts of the Works as the relevant authorities or the Employer may from time to time require or approve.

#### **4. V3. ADMINISTRATIVE REQUIREMENTS**

##### **4.1. V3. PROJECT MANAGEMENT AND COORDINATION**

###### **4.1.1 V3. Project Coordination Meetings for Interfacing Contracts**

The Contractor's Representative shall attend regular meetings as required by the Employer to coordinate and manage the interface between the Works under this Contract. The frequency of such meetings may vary depending on the nature of the interface and associated Works. However the Contractor should anticipate that meetings will be held at least fortnightly throughout the duration of the Contract.

The Contractor shall be responsible for establishing and maintaining direct lines of communication, as coordinated with the Employer, with the relevant parties for the day to day coordination of his activities.

###### **4.1.2 V3. Weekly Meetings**

The Contractor's Representative shall attend Weekly Meetings to be chaired by the Employer to discuss the progress of the Works and other relevant matters. The Weekly Meeting Agenda will typically include, but not be limited to:

- a) Adoption of Previous Minutes.
- b) Outstanding Matters.
- c) Health and Safety.
- d) Quality Assurance.
- e) Interface Coordination with adjacent works.
- f) Progress of the Works.
- g) Programme Milestones, Achievements and Slips.
- h) Resources (i.e. Plant and Equipment, etc.)
- i) Survey and Clearance of the Works.
- j) Contractual Matters.
- k) Progress Payment Claims and Payments.
- l) Environment Compliance Issues.
- m) Other points, as necessary.

**4.1.3 V3.** When required by the Employer, separate meetings covering occupational Health and Safety; Environmental Management, Quality etc. shall be held independently of the weekly meetings with the Contractor's specialist personnel in attendance and other Contractor's Safety Representatives also in attendance when, and if, deemed necessary, by the Employer or the Employer's Safety representative. Any unresolved issues arising from these supplementary Meetings can be included and form part of the weekly site meetings. Joint (Contractor and Employer) site quality walks and safety walks shall be carried out at regular intervals.

**4.1.4 V3.** Daily and informal routine discussions shall also be held each day, as/when necessary, between the Employer's and the Contractor's representatives.

**4.2. V3. Contractor's Project Management Plan.**

**4.2.1 V3.** The Contractor shall submit, within fifteen (15) days from the issue of Letter of Award, for the Employer's review and acceptance, a detailed Contractor's Project Management Plan (PMP) that provides specific details as to the execution process, methods and procedures which the Contractor will adopt for the Project.

**4.2.2 V3.** The PMP shall include Methodology, Policies, Organization And Resources to manage Scope, Change, Schedule/Programme, Security, Interface, Budget And Cost, Quality, Human Resources, Communication, Risk, Procurement, Environment, Labour Management Plan, Taking Over Plan, Workmen's accommodation, etc. Detailed requirements for some of these plans are included in this Special Condition of Contract.

**4.2.3 V3.** The PMP should reflect the holistic thinking process of the Contractor for the successful completion of Works from the commencement until completion.

**4.3. V3. Contractor's Project Organization and Staffing**

**4.3.1 V3.** The Contractor shall employ on this Project, a competent team of Managers, Technical Staff, etc. so as to complete the Works satisfactorily as per the various requirements of the Contract. The Contractor shall submit his proposed staffing plan and organization to the Employer for review and approval within fifteen (15) days from the issue of Letter of Award, which shall include:

- a) The Contractor's proposed Staff Organization in Chart form showing the details of his proposed staff for each position;
- b) CVs of the Contractor's proposed Key Staff with adequate details and copies of documentary proof for the individual's qualifications and experience (with contract titles, position(s) held) and dates to substantiate that he/she is competent for undertaking the proposed position;
- c) The scope of responsibilities of each staff member and the reporting lines between individual staff;
- d) The documents that each Key Personnel staff is authorized to sign on behalf of the Contractor.

**4.3.2 V3.** The Staff Organization shall cover the Contractor's Key Staff, as well as other working-level staff, with a narrative of the authorities and responsibilities of each staff member in execution of the Works, whether on site or in office locations, or in deciding technical details of the Contractor's submittals.

**4.3.2 V3.** Each member in the Contractor's Staffing Proposal, including the Key Staff, shall be allocated to this Contract on a full-time basis on site until the activities that he is responsible for, have already been completed. Should it be necessary to replace Key Staff, before the activities he is responsible for have been completed, the Contractor shall submit the CV of the proposed substitute to obtain the Notice of No Objection from the Employer, at least 30 days before the proposed change. The substitute shall not be less qualified or experienced than the person he is replacing.

#### **4.4. V3. Project Controls Execution**

**4.4.1 V3.** The Contractor shall employ the appropriate level of suitably qualified and experienced personnel, having competencies in preparing Integrated Project Programme, Cost, Resource Allocation, and Establishment of a baseline plan for monitoring and performance measurement.

**4.4.2 V3.** The Contractor's Project Controls will be executed on the Employer's programmes through integration of the following:

- a) Time Management;
- b) Cost Management;

- c) Resource Management;
- d) Change Management;
- e) Performance Measurement;
- f) Reporting.

**4.4.3 V3.** The Contractor's Project Controls must include Work Breakdown Structures, Organizational Breakdown Structures, Milestones, Cost And Programme Information, Risk, Scope And Deliverables in sufficient detail to allow a Schedule Baseline to be set at a level that facilitates visibility of Performance and ease of Reporting.

**4.4.4 V3.** The Contractor shall develop the Contract Price into the Budget Baseline and define the Resources (Labour, Plant/Equipment, Material, Subcontract and Overhead) required to deliver the Contract Scope at the lowest level of Work Breakdown Structure (WBS). Individual WBS Elements are broken down to align with the Integrated Schedule Activities and each activity is broken down and Coded by cost Elements.

**4.4.5 V3.** The Contractor is required to ensure that Schedule And Execution Risks are supported with Mitigation Measures. The Contractor shall establish and use Quantifiable Performance Measurement Tools and Key Performance Indicators (KPI) for each stage of the Contractor's Project Management process. KPIs are to be reported on a weekly and monthly basis in accordance with the Employer's requirement and must address all foreseeable contract risks and give early warning of Project performance.

**4.4.6 V3. Contractors Emergency Contact Details**

Prior to commencement of construction Works, the Contractor shall provide to the Employer, and all other relevant Agencies, the 24 hour contact telephone number of two (02) persons with Authority over the Works during the Construction Period. The persons shall have Authority to take immediate action to shut down any activity, or to affect any emergency measures as directed by the Employer or any other relevant government agencies.

**5. V3. WORK PROGRESS DOCUMENTATION**

**5.1 V3. Detailed Work Sequence and Methodology**

**5.1.1 V3.** The Contractor shall be responsible for Scheduling, Actions, Personnel, Materials and all other aspects of the works (for Design And Construction) necessary to achieve completion of the whole of the Works within the approved programme/schedule and subject to the restrictions contained in this contract, including granting of Right of Access to the site areas and use as specified earlier.

**5.1.1 V3.** Along with the submission of the detailed programme/schedule (in accordance with Conditions of Contract), the Contractor shall submit to the Employer for approval, the detailed design and construction work sequence and Methodology (including Mechanical Equipment proposed to be used), sequence of various activities, Key Milestones (including priority works) and the overall programme from Contract start to completion of all works.

**5.1.2 V3.** The detailed Works Programme and Methodology shall be consistent with the overall sequencing of the Work Methodology submitted in the Contractor's Bid and shall provide additional details of the Contractor's proposed method of Design and Construction and Sequence of work, with particular attention to priority works. The Works shall be planned such that proper Site Safety, Drainage and free flow of traffic are maintained at all times. The Contractor's works Sequence and Scheduling shall conform with any additional construction sequence or phasing requirements and shall include due allowance for all inspection, testing and document review requirements nominated on the drawings and/or elsewhere in this Special Condition of Contract.

## **5.2 V3. CONTRACT PROGRAMME**

### **5.2.1 V3. General**

- a) The required time for completion of the works is stated in the Notice Inviting Request of Proposal (RFP) .
- b) The Contractor shall submit a Detailed Time Programme (DTP) to the Employer for acceptance as required under this Contract.
- c) All Programmes submitted to the Employer including any subsequent updates or revisions must be prepared and maintained using Primavera P6 version 7.0. or suitable approved Software .The concerned officials of the Contractor shall be well conversant with the Software.

- d) The DTP prepared by the Contractor is to have a WBS based on information provided by the Employer. The logic and activity sequence of the DTP should also follow the Critical Path Method (CPM) standard. The WBS shall be used for design submissions, Shop Drawings, Procurement, Subcontractors, And Construction, Inspection, Commissioning and Taking-Over operations.
- e) The DTP shall identify submission dates of Work Method Statements (WMS), various interfaces and other key deliverables as identified in the specifications.
- f) The Contractor shall allow for ten (10) days review time by the Employer of all submittals within the DTP.
- g) The DTP shall at all times accurately reflect the Contractor's current plan for the work and shall be the primary tool utilized by the Contractor to document the progress of the works and to communicate the timely completion of the Works.
- h) The Contractor's monthly progress reports (Monthly Reports) and applications for Interim Payment Certificates must incorporate an updated DTP indicating work activities and status in accordance with the requirements of this Special Condition of Contract.

### 5.2.2 V3. Contractor's Detailed Time Programme (DTP)

The Contractor shall submit the detailed time programme to the Employer in accordance with the requirements of the Contract and subject to the additional requirements of this Special Condition of Contract..

The work programme shall be submitted in both A1 hard copy (six copies) and Primavera P6 version 7.0 electronic format or other form approved by the Employer. Electronic copy shall be either on CD-ROM or on DVD or via Project Management Information System (PMIS) as instructed by the Employer. Contractor shall supply, at his own cost, one copy of the licensed software used for making the work programme, capable of being run on two separate work stations, to the Employer in addition to the soft copy stated above.

The work programme shall be consistent with the overall sequencing of the programme submitted in the Contractor's Tender and shall provide additional details of the Contractor's proposed design timelines and method of construction and sequence of work including but not limited to the following:

- a) All design phases with review time and re-submissions.
- b) All physical work to be undertaken in the performance of the Contract obligations, including Temporary Works.
- c) All major activities including design.
- d) The requested date for issue of any information by the Employer.
- e) Incorporation of principal aspects of design programme and design submission programme.
- f) Due time allowance for review by the Employer of the Contractor's submissions, as well as the subsequent amendment and re-submission by the Contractor in the design review and comment process.
- g) Time required for gaining any permits, permissions or approvals from government or statutory authorities as may be required under the Contract.
- h) Time required for the submission and approval of materials, procurement of critical materials and equipment, fabrication of special products/equipment etc.
- i) All activities of the Employer that are likely to affect the progress of the Works etc.
- j) Completion of priority works .
- k) The Contractor shall provide a manpower histogram, which shall be extracted or based on the cost/resource loaded programme.
- l) Off-site procurement and delivery activity durations shall not exceed 60 calendar days.
- m) Manufacturing, inspection and shipping activities shall be broken down into sufficient detail to allow adequate progress reporting.
- n) Sufficient allowance shall be made for Preparation, Submission and Review of Submittals. Allowance shall be made for Reworking and resubmitting Major Submittals that may not receive an "Accepted" status at the first submission.
- o) All logical Dependencies between the Major Activities.
- p) The time and sequence required for executing the Works broken down into activities not exceeding one month.

- q) Dependencies between items of work as normally identified in Critical Path Analysis methods in precedence GANTT form.
- r) The minimum duration of each item of work.
- s) All relevant time, site or other restraints including those imposed by the Tender Documents.
- t) Milestones, including priority Milestones, with their dates.
- u) The sequence of activities that form the critical path for the completion of the Project.
- v) The proposed human resources and plant for each item of work on the Critical Path.
- w) Interface requirements and/or dependencies with Works to be accomplished by other adjacent contractors.
- x) Any work to be subcontracted with the name of the subcontractor identified.
- z) Points of interface between the Contractor and the Employer.
- aa) All contract Milestones, including inspections, Taking-Over, and testing.
- bb) Each separable portion of the Works if applicable.
- cc) Total float on all activities and the Critical Path.
- dd) Projected impacts due to severe weather including annual monsoon season.

**5.2.3 V3.** The Contractor shall submit a Narrative Report with the DTP (Baseline). The Contractor shall submit a proposed Narrative Format to the Employer for acceptance which shall include, as a minimum, the following:

- a) Description of the Scope of the Works, including design and construction phases.
- b) Detailed description of the Contractor's approach to design and construction, including the sequencing and the execution of the Works (including any Phasing or Staging as required by Contract).
- c) Description of the Critical Path.
- d) Any adjustments made to the Baseline since the issue of any previous issue of a DTP report, and the date of the associated Employer's confirmation of acceptance.
- e) Potential or anticipated issues that may affect progress.
- f) Lists of :
  - i) Calendars used.

- ii) Lags used (only lags previously confirmed by the Employer can be included).
- iii) Constraints used (only constraints previously confirmed by the Employer can be included).
- g) Graphs, histograms or lists indicating anticipated use of the following resources and work shifts:
  - i) Labour resources (Design And Construction (by site)) break up by major competencies and/or trades.
  - ii) Equipment resources (by site).
  - iii) Principal Quantities (by site), (i.e. Volume of Excavation, Volume of Concrete, Tonnage of Steelwork/Reinforcement, Area of Formwork, Length Of Pipe ,Electrical cable, Electrical fittings Work, etc.).
  - h) Work Shifts (e.g. single, double, or triple shifts).
  - i) Work weeks (5, 6, or 7 day work week).
  - j) Production rates.
  - k) Holidays and Special non-working days.
  - l) Other details as appropriate or required by Employer.

**5.2.4 V3.** The overall programme duration shall take into account all Statutory holidays and any other applicable Construction Industry or corporate holidays. It shall also show the impact of seasonal monsoon periods.

**5.2.5 V3.** The base unit of measurement of activity duration will be one calendar day. The Contractor shall specify the normal weekly hours to be worked for all labour and major items of plant.

**5.2.6 V3.** The Contractor shall indicate on the Activity/Time Chart, the Critical Path, and shall indicate which activities (related to design and construction as appropriate) shall be undertaken on a twenty-four (24) hour per day basis (if approved by the Employer) and show the time for each activity in sufficient detail to enable an assessment to be made of the progress of the activities toward completion of the Works.

**5.2.7 V3.** If the Employer is of the opinion that the Detailed Time Programme (DTP) submitted by the Contractor does not enable the Employer to readily evaluate the Contractor's progress, the Contractor shall, upon being so

notified by the Employer, continue to submit amendments (within seven days) of the DTP until the said programme is approved by the Employer. If so required by the Employer, the Contractor shall amplify or further breakdown any part of the Design and/or Construction phases of the programme.

- 5.2.8 V3.** The Employer shall review the programme for its adherence to Contract and scope of works but shall not be responsible to ensure that the programme will result in the required timely completion of the Works.
- 5.2.9 V3.** At such time that the DTP is approved in writing by the Employer, it shall become and, thereafter, be referred to as the approved Contract Programme. The Contractor shall adhere to and perform the Works in accordance with the approved Contract Programme unless otherwise agreed in writing by the Employer.
- 5.2.10 V3.** The Contractor acknowledges that the Employer will rely upon the approved Contract Programme in co-ordinating other works within site.

#### **UPDATES OF CONTRACT PROGRAMME**

- 5.2.11 V3.** The Employer may, from time to time, direct the Contractor to supply to the Employer with an updated Contract Programme. The Contractor shall within seven (07) days after the receipt of such a direction supply to the Employer an updated Contract Programme and shall continue to submit amendments of the Contract Programme until it is approved by the Employer. The Contractor shall comply with the approved updated Contract Programme when so approved by the Employer.
- 5.2.12 V3.** Once the first Contract Programme (Baseline) has been accepted by the Employer, the Baseline version as included within this document (the 'Original Accepted Baseline',) must be incorporated (un-amended), within all of the Contractor's future Contract Programme (DTP) updates and revisions.
- 5.2.13 V3.** If it is considered necessary to prepare, at a later date, any DTP revised baseline(s) each revision must be submitted together with any substantiating information, to the Employer for review and comment. The Contractor must not incorporate a revised baseline into any DTP updates or any DTP revisions unless the Employer has provided written acceptance for the revised baseline's incorporation. All DTP updates and DTP revisions

must incorporate the original accepted baseline, in addition to any subsequently accepted revised baselines.

- 5.2.14 V3.** In the event of the Employer notifying his acceptance for the incorporation of a revised baseline, then the Contractor must, as part of his next submitted DTP revision or DTP update, identify each amended activity as part of the accompanying DTP narrative report.

#### **REVISION OF CONTRACT PROGRAMME**

- 5.2.15 V3.** The Contractor may from time to time submit a revised Contract Programme with the purpose of re-organisation of the Execution of the Works so as to enable the Contractor to complete the works in the shortest practicable time. The revised Contract Programme must first be approved by the Employer and, if and when, such approval in writing is given, the Contractor shall comply with the revised Contract Programme.

#### **EFFECT OF ACCEPTANCE OR APPROVAL OF CONTRACT PROGRAMME**

- 5.2.16 V3.** The acceptance or approval by the Employer of a Contract Programme, or revision thereof, shall not relieve the Contractor of its obligation to complete the works within the contracted time for completion and will not give rise to a variation under the contract.

#### **5.2.17 V3. Work Progress Reporting**

During the performance of the Design and Construction Works, the Contractor shall submit to the Employer, Progress Reports as defined in this Special Condition of Contract and in the Format required by the Employer in both hard copy and in a Digital format. These submissions will continue until the Contractor has completed all work known to be outstanding at the completion date stated in the Taking-Over Certificate for the works.

#### **DAILY SITE RECORDS**

- 5.2.18 V3.** The Contractor shall maintain Daily Records of the number of each class of the Contractor's Personnel and of each type of Contractors Equipment on the site along with Brief Description of the actual construction activities undertaken each day at site, safety mishaps (including all injuries) and any Environmental Issues/Mishaps, Coordination Issues, and any other Noteworthy Activities or events.

These records shall be kept in the form of separate pro-forma Daily Site Record Forms corresponding to each day throughout the Works. The Contractor shall finalise the format of the Daily Site Record Form with the Employer prior to the commencement of the design works and construction works on site.

The Contractor shall present the Daily Site Record Form to the Employer (or delegated representative) each day for acceptance. Once agreed, the Contractor and the Employer shall both sign the Daily Site Record Form and each shall retain hardcopy of the signed form for record purposes.

The Contractor shall note that the requirements of this Clause are separate from and additional to the requirements of the Conditions of Contract regarding records of the Contractors Personnel and Equipment.

### WEEKLY PROGRESS REPORTS

**5.2.19 V3.** The Contractor shall submit at the end of each week to the Employer a Weekly Progress Report summarising significant progress or problems encountered during the preceding week in respect to all parts/phases of the works (design and construction) under the contract.

The Contractor shall finalise the format and content of the Weekly Progress Reports with the Employer prior to the commencement of design works and construction works on site.

The Weekly Progress Report shall also include but not be limited to:

- a) Progress for that week in terms of all activities including Design And Construction. Construction progress will include quantities and production rates also.
- b) Key decisions required from the Employer in the next week.
- c) Key design and construction milestones and progress towards each.
- d) Major events for the upcoming week.
- e) Three week look-ahead programme indicating progress in the previous week and the activities planned for the next two weeks.
- f) Measurement of KPIs (S-curves for Actual vs Planned).
- g) Submittal and RFI logs.
- h) Safety Health and Environment (SHE) report with colour of photographs.

- i) Records of manpower and equipment compared to programmed requirements.
- j) Approved Daily Site Record Forms applicable to that week as a separate appendix.

### MONTHLY PROGRESS REPORTS

**5.2.20 V3.** In addition to the Weekly Progress Reports, the Contractor shall submit each month within seven (7) days of the last day of the period or the agreed cut-off date with the Employer, an overall Monthly Progress Report summarising the contents of the submitted Weekly Progress Reports for that month in respect to all parts/phases of the Works under the contract. The submission of the Monthly Progress Report shall be subject to the requirements of the Conditions of Contract and the additional requirements of this Specification. The Report shall indicate the Progress and Financial status of the works of the previous month. The Report shall accurately estimate the work completed on each activity, including Design, Procurement, Engineering and Construction Activities on the approved DTP.

**5.2.21 V3** The Contractor shall finalise the Format and Content of the Monthly Progress Reports with the Employer. In addition to information from the Weekly Progress Reports, the Monthly Progress Report shall also include, but not be limited to:

- a) Executive Summary of previous month's events including a clear summary statement of the current progress position.
- b) Describe DTP current Critical Path.
- c) Details of Design Progress including Design interface Coordination, started or completed during the month as related to the Temporary Works, Permanent Works.
- d) Total work progress at the end of the previous month with progress chart showing progress achieved as a percentage against planned progress.
- e) State existing status, rate of progress, estimated time of completion and cause of delays (if any).
- f) Description of work accomplished since submission of previous progress Programme.

- g) Programme Update: Compare actual work (Design And Construction) status against the Contractor's Baseline Programme submitted in electronic format, indicating the following:
- i) Activity Description.
  - ii) Original Duration.
  - iii) Remaining Duration.
  - iv) Current Early Start.
  - v) Current Early Finish.
  - vi) Planned Percent Complete.
  - vii) Target Early Start.
  - viii) Target Early Finish.
  - ix) Actual Percent Complete.
  - x) Date Variance.
  - xi) Percent Variance.
- h) S-curves for physical progress against planned.
- i) Details of work for the next month (by site).
- j) Safety and health performance reporting.
- k) Information regarding any design changes.
- l) Information regarding any variations.
- m) Details of inspections and approvals required to proceed with Work.
- n) Records of manpower, equipment etc. (compared to programmed requirements).
- o) Information required from the Employer.
- p) Environmental Monitoring reporting, including separate Waste Management reporting.
- q) Weather records.
- r) Records of delays and stoppages with supporting reasons.
- s) Value of work done.
- t) Actual and anticipated cash flow.
- u) Changes or additions to Contractors supervisory personnel since the preceding progress report.
- v) Causes of any delays.
- w) Proposed actions by the Contractor to restore the programme, including what is being done or what is planned to be done in each problem area.
- x) Identify anticipated problems or changes and present plan to deal with them so as to minimize or prevent delays.

- y) Status of equipment and material deliveries.
- z) Request for Information (RFI) status.
- aa) Submittals summary and status.
- bb) Instructions summary and status.
- cc) Defects summary and status.
- dd) Schedule of warranties and guarantees.
- ee) Schedule of insurances and insurance claims.
- ff) Subcontracts awarded in the previous month.
- gg) Photography of salient activities pertaining to work progress in the month

**5.2.22 V3** Updates and Revisions to required programmes and reports shall not modify or limit in any way, the Contractor's obligations to meet the Time for Completion.

Copies of the site progress photos for the month shall be provided in a separate appendix.

### **5.2.23 V3 Notice to the Employer**

Unless specified otherwise or elsewhere in this Special Condition of Contract, the Contractor shall give the Employer not less than 24 hours' notice in writing of the intended time for commencement of any construction activities at site to enable the Employer to make his arrangements for the inspection of operations on the site.

The Contractor shall also give the Employer not less than 7 days' notice in writing of the commencement of any preparation, Construction or Manufacturing activity occurring at the Manufacturer's or Supplier's site, or at a location not within the Manufacturer's or Supplier's site, of any article or material to be used in the works, whether by the Contractor or any Subcontractor, stating the time and place of the works such that the Employer may make his arrangements for the supervision or inspection of such works at the manufacturer's or supplier's site. The Contractor shall bear the costs for Employer costs for inspections at Manufacturers/ Supplier's sites.

### **5.2.24 V3 Photographic and Videographic Documentation**

The Contractor shall arrange to take colour photographs throughout the works for the purposes of recording the overall progress of the works and recording details of each aspect of the Works or as otherwise directed by

the Employer. The photographs shall be of acceptable quality and shall be taken by a professionally competent person with a digital camera having resolution in excess of 10 Megapixels and able to record the date of photographs taken in the prints. Salient activities and corresponding photography pertaining to work progress are to be attached to the corresponding monthly progress reports. Further, the Contractor shall arrange for videography (HD quality) of important events of the Works or as otherwise directed by the Employer.

The Contractor shall submit to the Employer weekly six sets of CD/DVDs each containing the electronic files of each photograph/video taken as both, a) uncompressed, full resolution files and, b) compressed, reduced resolution files suitable for attachment to email (i.e. <1MB per file). The Employer shall select the photographs to be retained and the Contractor shall mount two hardcopy prints of each selected photograph in albums of acceptable quality. The albums shall be kept by the Contractor and produced to the Employer upon request and shall be handed over to the Employer at the completion of the Works. A compact disc containing the electronic files for the selected photographs shall be supplied each week. Each photograph in the album shall be suitably captioned and the electronic files appropriately named.

#### **5.2.24 V3 Six Monthly Report**

The contractor shall submit draft reports on six monthly returns to be sent to Central Pollution Control Board, Bengaluru or local office as applicable within 7 days of the last day of the period in hard and soft copies, in consultation with the Employer.

### **6. V3 CONTRACTOR'S DESIGN WORK**

**6.1.1 V3** It is the Employer's intent that the Contractor will analyse the Employer's Requirements thoroughly and use their full creativity to complete the Design. The Employer intends to allow the Contractor maximum flexibility to Design and Produce a set of full, thorough and state-of-the-art, Sustainable Facilities and Infrastructure.

**6.1.2 V3** The Employer has provided the Employer's requirements in Section VI of these documents. These documents are intended to provide the Contractor with sufficient information so as to clearly understand the Employer's intent, goals and objectives in execution of the works. The

Contractor will be required to adopt the General Concepts, as provided, and Expand and Develop the same to Produce Complete, Thorough, Comprehensive and high quality Designs, Working Drawings, and Specifications for review and approval by the Employer. While developing the complete and Final Designs And Specifications, the Contractor shall review the concepts Design and Planning for Betterments or Improvements which may be incorporated to better achieve the Employer's Goals and Objectives and which may result in overall improved functionality. These betterments, if any, shall be submitted by the Contractor to the Employer for review and for the approval by the before

### **6.1.2 V3 GENERAL DESIGN OBLIGATIONS**

The Contractor shall prepare the full and complete Design and Drawings for the Works as per the Contract.

### **6.1.3 V3 Design Method Statement**

Prior to the commencement of any design works, the Contractor shall submit to the Employer for approval, a Design Method Statement as outlined below describing how he intends to Manage, Control, Programme and Carry out the necessary design work in accordance with his obligations under the Contract. It will include:

- a) The proposed design organisation.
- b) Programme of the design work.
- c) A Design QA/QC plan, certification and procedures.
- d) AN integrated schedule of staged/segmented, sequential design, construction and supporting activities that results in the earliest possible completion and Employer's Taking-Over of Section I (complete and usable) and the complete Works (Section II).

**6.1.4 V3** For each stage, the Contractor will submit a design package that has all of the elements/components required for 100% Design of the stage. All planning documents, calculations, applicable codes and specifications, design guidance and ready-for-construction drawings with complete construction details, must be included.

## **DESIGN REQUIREMENTS**

- 6.1.5 V3** Design requirements are contained in multiple parts of the Contract Documents. The Contractor shall scrutinise all of the documents to ascertain all of the Design, Design Process, Design Quality And Design Management requirements for inclusion in the Design Method Statement.
- 6.1.6 V3** The Contractor shall be deemed to have scrutinised, prior to the Commencement Date, the Design Criteria, Specifications and Drawings and all subordinate and supporting documents. The Tender Documents contain concept design drawings and specifications provided by the Employer. The Contractor shall use these concept drawings and specifications provided and develop them further in parts and in the whole to full and final design, ready for construction purposes. The Contractor shall be responsible for the Design And Specifications of the whole of the Works. They are also responsible for the Redesign and Re-specification of all parts of the Works described in the Tender issued by the Employer that are affected in any way by the Designs of the Contractor, and for the accuracy of that part of the Specifications and the Drawings relating to such design (including Design criteria and calculations).
- 6.1.7 V3** The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Design Criteria, Concept, Specifications or the Drawings as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information, except as stated specifically. In the event of, if finding a discrepancy, difference or conflict between documents, then the resolution, thereof, shall be interpreted and applied to the benefit and in favour of the Employer. Any data or information received by the Contractor, from the Employer or otherwise, shall not relieve the Contractor from his responsibility for the full, thorough and complete design of that part of the Works to be designed by the Contractor as required under the Contract and for the execution of the Works.

### **CONTRACTOR'S DESIGNER(S)**

- 6.1.8 V3** The Contractor shall carry out, and be responsible for, the full and complete design of the Works. Design shall be prepared by a qualified designer or design firm or a consortium of design firms jointly complying with the following criteria:

- a) Successfully completed detailed Design pertaining to project/s as defined in similar works under MEC of Volume -I ,over the past 7 (seven) years ending last day of month previous to the Bid Due Date.
- b) Successfully completed Structural design of Building of total floor area of 4,000 Sqm over the past 7 (seven) years ending last day of month previous to the Bid Due Date.
- c) Successfully completed Building Mechanical, Electrical & Plumbing (MEP) design for total floor area of 4,000 Sq.m over the past 7 (seven) years ending last day of month previous to the Bid Due Date.

**6.1.9 V3** Unless otherwise stated in the Contract, the Contractor shall submit to the Employer for review and approval the name and particulars of the designer or firm as the case may be and the key personnel proposed to be involved in design along with his technical proposal.

**6.1.10 V3** Within 15 days of Commencement Date, the Contractor shall re-submit the credentials of design firm, who shall carry out the Design works for this contract. The following shall be submitted for the approval of the Employer;

- a) Profile, details and experience of the design individual / organisation.
- b) Completion certificates confirming that the design firm meets the qualification criteria as mentioned in **6.1.8 V3** above.
- c) Full and detailed CVs of persons proposed to be deployed.

**6.1.11 V3** Approval of the design firm shall be subject to the specific written approval of the Employer.

**6.1.12 V3** The Contractor warrants that he, his Designer/Design firm, Design Subcontractors, if any, have the experience and capability necessary for producing a complete, thorough and quality Design that meets or exceeds all Employers Requirements and complies with all applicable codes. The Contractor is required to ensure that the Designer or the key personnel of the design firm shall be available to attend meetings and/or discussions with the Employer, as may be required by the Employer, until the expiry of date of the relevant Defects Notification Period.

## CONTRACTOR'S DOCUMENTS

**6.1.13 V3** All Contractors' Documents shall be submitted to the Employer for review in accordance with the Procedures outlined herein and in accordance with the requirements of the Conditions of Contract.

**6.1.14 V3** The Contractor shall prepare all and any Contractor's Documents and shall also prepare any other documents necessary for successful completion of the Project with required Quality and within established and approved schedules. Such preparation shall include review (including Third Party Review, detailed below), verification and warranting of the Contractor's Documents by Designer(s), approved by the Employer as specified above. The Employer shall have the right to inspect the preparation of these documents, wherever they are being prepared.

**6.1.15 V3** Contractor's Documents shall comprise the following items and any other documents that may be requested by the Employer:

**a) DESIGN BASIS**

**6.1.16 V3** This document shall provide all information which the Contractor intends to use as the basis for preparation of Approvals, Construction Drawings, Monitoring and Construction Specifications.

**6.1.17 V3** This document shall also detail the Design Parameters for each Material to be used in the work, and shall include preliminary testing results which verify that the available Material is in accordance with the proposed Design Parameters.

**b) DETAILED DESIGN, CONSTRUCTION DRAWINGS AND SPECIFICATIONS**

**6.1.18 V3** The Design shall include full Design calculations and Drawings and shall provide the full and detailed design of the Works showing the Contractor's application of the Employer's Requirements and any other data the Contractor reviewed or obtained, including details of any proprietary products to be used.

The Drawings shall be the Drawings which the Contractor intends to use for the construction of the Works.

The specifications shall be the specifications which, when read in conjunction with the drawings, shall describe the materials and workmanship to be used for the construction of the Works.

**c) TESTING AND MONITORING REGIME**

**6.1.18 V3** The Contractor shall submit with each part of his Design, details of the testing regimes that he will implement to demonstrate that the As-Built Works comply with his Design.

**6.1.19 V3** All Contractors' Documents shall include revision numbering and issue dates duly signed by authorised official.

### **6.1.20 V3 DESIGN REVIEW**

The Employer through Consultant or on their own will provide a high level review of the design works and will also perform a Structural review of the Design of critical structures performed by contractor's designer(s), If on structural review by the Employer the design is found to be acceptable, then the Employer will issue a notice of no objection. The contractor will submit the structural review of critical Structures segments to the TPR (below) for review prior to submitting to the Employer.

The Employer's high level review is for general compliance with the criteria, Scope of Work and Intent of the Contract in accordance with the Specifications and the Drawings. The Employer's high level review may not cover the Technical or Engineering part of the Contractor's Documents. The Contractor remains solely and totally responsible for the thoroughness and quality of the Contractor's Documents.

### **6.1.21 V3 CLASSIFICATION OF CONTRACTOR'S DOCUMENTS**

Following review of the Contractor's Documents, the Employer shall reply to the Contractor with a classification of the Contractor's documents as follows:

Classification Category	Definition	Action by Contractor
1	The Contractor's Document is acceptable without comment.	Contractor may proceed with construction.
2	The Contractor's Document is acceptable subject to changes or clarification requested by the Employer.	The Contractor shall make the changes requested prior to commencement of construction.

Classification Category	Definition	Action by Contractor
3	The Contractor's Document is unacceptable for the reasons given by the Employer. Construction work shall not commence.	The Contractor shall revise the document and re-submit to the Employer for further review.

### 6.1.22 V3 THIRD PARTY REVIEWER (TPR)

All Technical Design Submittals (Designs, Drawings, Calculation etc. in paragraph above) prepared by Contractor shall be thoroughly reviewed and approved by the TPR prior to submission to the Employer. The TPR shall be IIT Chennai or IIT Mumbai or IIT Delhi or IIT Kanpur or institution of International Repute subject to the approval of the Employer, at no additional cost to the Employer.

The Scope, Roles And Responsibilities of the TPR shall be submitted by the Contractor and approved by the Employer. These primary roles and responsibilities should include, but not be limited to:

- a) Thorough review of all Design, Technical And Specification Documents provided from the Contractor Design team. The Contractor, at his own discretion, can determine how best to utilise the services of the TPR to maximize efficiency and completeness while maintaining schedule integrity.
- b) The TPR shall endeavour to ensure that the proposed Designs And Specifications meet the goals and objectives of the Project. The review will also include detailed review for functionality, quality, form and fit, safety, efficiencies, interfaces, technical adequacy and solutions, relationships to adjacent systems and structures, cost effectiveness, sizing, sustainability, etc. Additionally, improvements, if any, shall be noted.
- c) Specifications review to ensure that the Technical Specifications are properly coordinated with the design, properly describe the components and material to be incorporated into the design and facilities, provide enough and proper detail for the Contractor to understand the requirements, and are otherwise thorough and complete.

- d) Identify, review and validate all applicable technical, regulatory and referenced codes and specifications to ensure compliance.

**6.1.22 V3** The Contractor will ensure proper and effective coordination of the TPR including related review conferences which may include some combination of the following:

- a) Traditional review - Contractor submits Design documents to the TPR and stops work while the review process occurs for each segment/phase of the Contractor's Design submission.
- b) In-progress review - Same as traditional review except the Contractor continues Design effort while the TPR reviews.
- c) On-board review – TPR and the Contractor visit the activity to review the Design documents submitted by Contractor; designated on board/ in progress, or on board/ traditional depending on whether or not the Contractor continues or stops work while the TPR reviews.

**6.1.23 V3** If through TPR or other means, it is determined by the Employer that the Objectives, the Employer, will require the Contractor to immediately provide a resolution and correction plan, that will ensure mitigation of the deficiencies and achieve the design quality and standard as required by contract.

**6.1.24 V3** The Contractor will account for all TPR reviews and follow-ups in the Contract Programme.

**6.1.25 V3** It will be the responsibility of the Contractor, acting in a professional capacity, to ensure Accuracy, Completeness, and Correctness of the Design, Cost Estimate and all Engineering Concepts and details of the work, including coordination of the various Architectural, Civil, Structural, Mechanical, Electrical, and other subdivisions thereof with each other and with the Specifications.

### DESIGN REVIEW PROCESS

**6.1.26 V3** The Contractor shall submit to the TPR all elements of the Contractor's Documents prior to commencing any work on Site.

**6.1.27 V3** Submissions shall be made in stages to the TPR/Employer appropriate to the Contractor's design development and in accordance with the agreed programme.

- 6.1.28 V3** After the TPR's review achieves a category "2" status, the Contractor's Documents shall be subject to review by the Employer, in accordance with the requirements stated above.
- 6.1.29 V3** Unless otherwise stated in the Employer's Requirements, each review period shall not exceed 15 days, calculated from the date on which the Employer receives a Contractor's Document and the Contractor's notice. This notice shall state that the Contractor's Document is considered ready, both for review (and approval, if so specified) in accordance with this sub-clause and for use. The notice shall also state that the Contractor's Document complies with the Contract, or the extent to which it does not comply. No extension of time shall be considered for any delay related to this review. No work shall start on site until Employer's reviews completed and approval accorded ..
- 6.1.30 V3** If at any time, the Contractor makes a change to any Contractor's Documents, the Contractor shall re-submit the Contractor's Document for further review and the above procedure shall again be adhered to.
- 6.1.31 V3** The Contractor shall acknowledge and accept any Designs which were not prepared by the Contractor and which form part of the Contractor's Documents and takes responsibility for such Designs as if they were prepared by the Contractor.
- 6.1.32 V3** All submissions shall be in electronic format (AutoCAD + working calculation files plus record copy in PDF format) and hardcopy. The design submission shall include detailed design calculations, results / recordings of all investigation work, and detailed drawings.
- 6.1.33 V3** The Employer may, within the review period, give notice to the Contractor that a Contractor's Document fails (to the extent stated) to comply with the Contract. If a Contractor's Document so fails to comply, it shall be rectified, resubmitted and reviewed again (and, if specified, approved), at the Contractor's cost and time.

## **7. V3 Quality Review**

- 7.1 V3** The Contractor is required to implement a highly effective and thorough QA/QC program as stated in subsequent paragraph. The Contractor will ensure that the final Design is complete and thorough and meets all quality standards as contained in the Contractors Quality Management Plan and meets the Employer's Requirements.

Examination and/or approval by the Employer of any drawings or other documents submitted by the Contractor shall not relieve the Contractor of his obligations, responsibilities or liabilities under the Contract.

If the Employer instructs that further Contractor's Documents are required, the Contractor shall prepare them promptly.

Nothing done or omitted by the Employer shall relieve the Contractor of his duty or responsibilities or liabilities under the Contract.

## **7.2 V3 Contractor's undertaking**

**7.2.1 V3** The contractor shall undertake that the design of that part of the Works to be designed by the contractor will be in accordance with:

- a) The Laws, Regulations and Codes of the Country;
- b) All documents forming the Contract ; and
- c) All MoEF&CC requirements and obligations.

**7.2.2 V3** The Contractor shall be responsible for the completion of the Design of the Works, and when the Works are completed for ensuring, that they are fit for such purposes for which the part or whole is intended as are specified in, or implied by, the Contract. Nothing done or omitted by the Employer shall relieve the Contractor of his duty or responsibilities or liabilities under the Contract.

## **7.3 V3 Technical Standards and Regulations**

The design of the Works to be designed by the Contractor shall comply with the Country's Technical Standards, Building, Construction And Environmental Laws, Laws applicable to the product being produced from the Works and other standards specified in the Employer's Requirements, applicable to the works, or defined by the applicable laws.

If changed or new applicable standards come into force in the Country after the prescribed dates mentioned in Employer's Requirements, the Contractor shall give notice to the Employer and (if appropriate) submit proposals for compliance. In the event that:

- a) The Employer determines that compliance is required,

- b) The proposals for compliance constitute a Variation, and
- c) Then the Employer shall initiate a Variation in accordance with relevant Clause.

#### **7.4 V3 Design Error**

If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Contractor's Documents, they and that part of the Works to be designed by the Contractor shall, subject to the approval of the Employer, be corrected at the Contractor's cost and time, notwithstanding any consent or approval under this Clause.

#### **7.5 V3 Submittal Procedures**

All Communications submitted by the Contractor as defined in the Conditions of Contract shall have a unique sequential reference number to facilitate tracking of the Contractors submissions and correspondence by the Employer.

Contractor's submission shall be made in both hard and soft copy format to the Employer, as specified or requested by the Employer. The cost of submissions to the Employer in all formats shall be deemed to have been included in the Contract Price.

#### **7.6 V3 Requests for Information**

Where the Contractor requires additional information or clarification in order to carry out the Works, or where he identifies any ambiguity or inconsistency in the Contract Document he shall immediately submit to the Employer a Request for Information (RFI). The response for RFI shall normally be given within seven(7) days after receiving the same.

The Request for Information forms shall be provided with a sequential number or reference to facilitate tracking by the Employer.

#### **7.7 V3 Notice to the Employer**

Unless specified otherwise elsewhere in this Specification, the Contractor shall give the Employer not less than 24 hours' notice in writing of the intended time for commencement of any construction activities to enable the Employer to make his arrangements for the inspection of operations on the Site.

The Contractor shall also give the Employer not less than seven (07) days' notice in writing of the commencement of any preparation, construction or manufacturing activity occurring at the Manufacturer's or Supplier's site, or at a location not within the Manufacturer's or Supplier's site, of any article or Material to be used in the works, whether by the Contractor or any Subcontractor, stating the time and place of the works such that the Employer may make his arrangements for the supervision or inspection of such works at the manufacturer's or supplier's site.

## **8. V3 REGULATORY REQUIREMENTS**

### **8.1 V3 Permits, Permissions and Statutory Approvals**

**8.1.1 V3** The Contractor shall comply with all statutory obligations and regulations of relevant Authorities or services or utility providers, or any other relevant body or organisation with authority or jurisdiction in India relating to the execution of the Works.

**8.1.2 V3** Where any conflict arises between the requirements of the various relevant authorities, the more stringent provision shall apply subject to the agreement of the relevant authorities.

**8.1.3 V3** The Contractor shall allow sufficient time in his programme for the issue of any statutory notices by the relevant Authorities which may be required prior to the commencement of the relevant Works. The Contractor shall provide the Employer with documents of evidence that the relevant Authorities have been notified of the proposed Works in accordance with relevant regulations and ordinances.

**8.1.4 V3** The Contractor shall give notice to the relevant Authorities at least one month or as appropriate to get the necessary approvals in advance of commencement of any new activity and shall keep the relevant Authorities regularly informed of the Works. The Contractor shall liaise with the relevant Authorities to give all information on working areas, types of plant and durations of activities, deemed necessary by the Authorities. The Contractor shall if required, also advise the Authorities on completion of each and every separate activity. In particular, at least one months' notice shall be given to the Authorities for the removal or relocation of any navigation affected by the Works.

**8.1.5 V3** The Contractor shall identify the permissions and submissions that are required by the regulatory Authorities for the performance of the Works.

Where required, the Contractor shall prepare and submit to the relevant Authorities for their endorsement details of the proposed construction sequence and methods to be employed on the Works and an action plan as required in the Contract. No construction work shall be commenced prior to the endorsement and approval of the relevant submissions by Authorities. In this respect the Contractor shall note that the Authorities' requirements may include the submission of the following for their approval at least one month in advance of the commencement date of the Works;

Detailed plans of the landside and marine Works showing the proposed overall limits of the working area(s) and the space requirements of each of the operations;

List of all personnel who would be working at site;

Name of the person(s) in charge of the Works who can be contacted by the relevant Authorities on a 24-hour basis and means and procedures to contact them;

Proposed schedule of all Works carried out under the Contract indicating different types of operations, their number, duration, space requirements and phasing;

A full description of the method for all work activities including the number and type of plant / craft to be employed, together with a complete list of vessels and craft to be used for all types of marine Works;

Details of weather conditions in which operations would cease and all working marine craft would be removed from the working area;

Other as may be required.

**8.1.6 V3** Health Safety & Environment permits and all related issues are the responsibility of the Contractor. All correspondence between the Contractor and relevant Authorities including all submissions shall be copied to the Employer. All Environmental permitting issues will be dealt through Employer.

## **9. V3 Health and Safety Requirements**

### **9.1 V3 General**

**9.1.1 V3** The Contractor shall comply with all health and safety requirements of the Contract including statutory requirements, requirements of Goa State Government Department, requirements stipulated, and any reasonable direction issued by the Employer's safety Department or authorised personnel of the Employer from time to time. The Contractor shall document, implement and maintain a safety system complying with international standards acceptable to Employer.

**9.1.2 V3** All works shall be carried out in a safe manner and free from any danger and shall comply with the relevant Laws regarding safety of the Works.

**9.1.3 V3** The Contractor shall take all precautions necessary to protect the health and safety of persons where works may expose workmen and other persons on, or within the vicinity of the site, to conditions which are dangerous or potentially dangerous to health, including the noxious effects of dust, fumes, liquids, infection, fire, explosion, or other hazards. Any identified hazard posing risk of bodily harm to personnel or property damage shall be rectified immediately.

## **9.2 V3 Health and Safety Manager**

**9.2.1. V3** The Contractor shall have in place a qualified experienced and proactive Health and Safety Manager approved by the Employer prior to commencing the Works. The Contractor's Health and Safety Manager shall have good communication skills (written and spoken). The officer so designated shall be made known to all employees by the posting of his name, designation and photograph in prominent positions on Site. Provision shall be made to provide adequate communication with all members of the work force.

**9.2.2. V3** The Health and safety Manager in addition to Employer, or any Employer's representative, shall have full written authority from the Contractor to stop work in the event that he deems necessary or any condition which may pose 'Imminent Danger to Life and Health' (IDLH) to any person or safety. He/she shall be fully familiar with pertinent safety requirements and policy as contained in statutory requirements, the Employer HSE Plan, the Contractor's HSE Plan, and any other regulatory document pertaining to safety in the workplace in India.

## **9.3. V3 Health and Safety Management Plan**

**9.3.1. V3** The Contractor shall prepare and submit for approval a Health and Safety Management Plan (HSMP) complying with the requirements of the

Contract, the Employer's HSE Plan, and international best practice and with Indian and local laws and regulations and which shall be implemented throughout the Works. The plan shall describe the responsibilities and procedures for all aspects of the safety management on the Works and shall be capable of regular audit throughout the course of the Works.

**9.3.2. V3** The Contractor shall submit the HSMP to the Employer within 28 days of the Contract Commencement Date or at least 14 days prior to the intended commencement of any permanent Works under the Contract, whichever is the earlier. The Employer will take maximum 14 days for issuing comments (if any) to be incorporated by the Contractor.

**9.3.3. V3** The resolution of such comments on the HSMP submission to the satisfaction of the Employer and the subsequent acceptance of the HSMP by the Employer shall constitute a Hold Point on the commencement of any permanent Works under the Contract.

**9.3.4. V3** The Contractor shall ensure its HSMP include:

- a) Safety Policy Statement of Senior Management and a project responsibility matrix;
- b) Normal protocols for personnel requiring access into and out of working areas;
- c) Emergency plans (in line with existing Emergency and Disaster Management Plans for the project) for all identifiable potential incidents such as fires, foundering, oil spills and the like;
- d) Requirements for routine internal safety audits;
- e) Drills frequency and type. Drills shall be separated into those required for statutory or insurance purposes and additional drills proposed for the Works.;
- f) Emergency evacuation procedures, lifeboat and evacuation drills and other emergency response equipment;
- g) Certification of crane drivers/Machine operators, in full compliance with Indian requirements;
- h) Job Hazard Analysis. The Contractor shall provide written working procedures, directions including Job Hazard Analysis or Job Safety Analysis (JHA/JSA) and undertake drills on all equipment in order to ensure the safe and timely execution of the Works. JHA/JSA, procedure revisions and drills shall be ongoing during the course of the Works according to a programme approved by the Employer and set out in the

- Health and Safety Management Plan; Based on JSA and anticipated risks, mitigation measures for activities planned, based on hierarchy of control will be developed and submitted to Employer for approval;
- i) Work over and on water specific risks and mitigations;
  - j) Fire fighting and emergency breathing apparatus;
  - k) Hazardous and explosive materials register and storage;
  - l) Project specific Contractor's site safety instructions for Contractor's Personnel, Employer's Personnel Visitors;
  - m) Any onshore or offshore activities which cannot be undertaken 24 hours per day due to safety or other constraints;
  - n) Accident / Near Miss investigation procedures;
  - o) Competency testing;
  - p) Employee training;
  - q) Tool Box Meetings, Work Area Inspections; Signage, First Aid facilities and trained personnel;
  - r) Equipment lock out procedures;
  - s) Confined space access procedures;
  - t) Auditing frequency;
  - u) Reporting;
  - v) Contractors Anti-Child Labour Policy or statement.

#### 9..4. V3 Training

All personnel shall be suitably qualified, experienced and trained by the Contractor for the equipment or duty that they are engaged on.

A sufficient number of the Contractor's employees who speak the language of the State/region shall be fully qualified in first-aid so that first-aid will be immediately available in case of accident at any time and at any place throughout the Site and any off-site camps, housing or other facility. The persons so designated shall be made known to all employees by the posting of their name, designation and photograph in prominent positions on Site. Such first-aiders or medical service providers shall be trained.

#### 9..5. V3 Substances Hazardous to Health

The Contractor shall not use or generate any material in the Works which are hazardous to the health of persons, animals or vegetation. Where it is necessary to use some substances which can cause injury to the health of workers/environment, the Contractor shall provide protective clothing or

other appliances for security of his workers or requisite control measures to prevent effect on environment, as approved by the Employer.

### 9..6. V3 Safety Audits

The Contractor's Head Office personnel qualified and experienced to do so, shall undertake audits of the site management performance and project operations during the Works in order to evaluate the degree of compliance of the Contractor's site operations to the Contract requirements for Health and Safety.

Audits shall be undertaken by an audit team. The audit team shall consist of the Contractor's Head Office Representative (team leader), a Representative of the Employer and Employer. An audit agenda based on the Contractor's commitments will be prepared and agreed prior to the audit.

Any audit shall follow the normal procedure for this type of activity with an Entry Meeting, the Audit and a Close-out Meeting where preliminary findings will be discussed direct with the Contractor's project staff. An audit report shall be prepared and agreed by the audit team. Non-compliances shall be actioned by the Contractor.

Based on the audit, the audit team will issue an audit report, indicating the site Health and Safety Performance based on performance indicators as internationally acceptable in the industry. The Audit report will also have corrective and preventive action plan based on risk grading. The contractor is to develop the findings closure plan and issue a compliance report fortnightly based on findings and severity.

Contractor shall routinely audit the use of training aids and drills and provide training and direction to the project management staff and to all supervisors and crews.

The Contractor's head office personnel shall arrange regular audits of all project management personnel against documented company procedures and Indian Occupational Health and Safety Law and Regulations.

The Employer shall be entitled to hold a Health and Safety audit of the Contractors safety procedures and the practices on site at any time with no notice. The contractor shall provide all required assistance to the Employer in this respect including access to appropriate information, site areas and

personnel. The costs of this assistance shall be borne by the Contractor and no delays shall be attributable to such audit activities. Such audits will be undertaken quarterly or six monthly as per Employers discretion.

### 9..7. V3 Incidents and Accidents

Incident and Accident reporting and statistics shall be undertaken to the relevant Indian Standard, Employer's and Contractor's requirements.

The Contractor shall send, to the Employer, details of any accident on or about the Site or in connection with the execution of the Works, as soon as practicable and, in any event within 24 hours after its occurrence. The Contractor shall also report such accident to the appropriate Authority whenever such report is required by the Laws. In the case of any fatality or serious accident, the Contractor shall in addition notify the Employer immediately by the quickest available means. Investigation techniques of Root Cause Analysis (such as Five Why, Causal tree Analysis or Fish bone Analysis, etc.) shall be used by the Contractor.

If an accident results in an injury to an employee or damage to equipment or release of hydrocarbons from the vessel or requires evacuation of personnel from floating equipment, oil spill clean-up, subsequent hospitalization of any individual or major repairs to equipment the Contractor shall arrange for a qualified independent third party investigation and report. The third party investigator shall be approved by the Employer.

A preliminary report shall be prepared and submitted to the Employer within 24 hours and a detailed report shall be submitted within seven (7) calendar days of the occurrence of the accident or incident. Should any construction activity need to stop work for:

- a) The duration of the investigation, attendance of witnesses etc.;
- b) Modifications to safety plan, Job Safety/Hazard Analysis;
- c) Modification and validation of work procedures;
- d) Government Agency inspections and procedures;
- e) Any other reason;

### 9..8. V3 All costs associated with the delay shall be at the cost of Contractor.

The Contractor's attention is drawn to the likelihood that any downtime resulting through loss of life, limb or other serious accident or incident may be considered as prima facie evidence that the Contractor's Works and

Safety Management Plan and or Environmental Management Plan procedures and recruitment and training system are inadequate and/ or deficient. The Employer and other Agencies may require a complete reworking and independent audit of the Contractor's safety system and job safety analysis sub elements and environmental protection procedures. The cost of such delays and reworking of procedures caused by such activities will be at the cost of Contractor.

## 10. V3 ENVIRONMENTAL REQUIREMENTS

### 10.1 V3 General

**10.1.1 V3** The Contractor shall take all precautions for safeguarding the environment during the course of the execution of the Works. He shall abide by all laws, rules and regulations in force governing pollution prevention/abatement and environmental protection that are applicable in the area where the Works are situated/ carried out.

**10.1.2 V3** The Contractor is bound to strictly adhere to the Environmental and Social Impact Assessment (ESIA) shared by the Client. Any violation to the ESAI requirement shall incur a fine of one thousand (Rs. 1000) for the first violation, second violation will attract a fine of ten thousand rupees (Rs. 10,000) and the third violation onwards can lead to a fine of fifty thousand rupees (Rs.50,000) followed by Termination of Contract.

**10.1.3 V3** The Contractor shall observe and comply with all environmental requirements (including all applicable laws, regulations and any requirement of any relevant Authority (central/state or regional regulatory authority) and any directions of the Employer), the requirements of the Environmental Clearance and other Permits for the permanent Works as held by the Employer and any other requirements that apply to the Site generally.

**10.1.4 V3** The Contractor shall apply for and obtain Environmental Permits as applicable for the execution of the Works from the relevant Indian Authorities (central/state or regional regulatory authority) before commencing work on site if applicable. The Contractor shall submit a copy of such Permissions / Approvals obtained by him for the execution of Works.

**10.1.5 V3** The Contractor shall consider all Site conditions and adopt pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment. The principles and techniques applied during the Works

shall be tailored to the hazards and risks associated with the nature of the task and consistent with applicable regulatory requirements and Best Management Practices (BMP) as appropriate.

**10.1.6 V3** The Contractor shall implement effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs during the execution, with a focus on areas that are considered for Work activities.

**10.1.7 V3** The Contractor will avoid the release of pollutants or, when avoidance is not feasible, minimize and/or control the intensity and mass flow of their release in compliance with regulatory requirements. This applies to the release of pollutants to air, water, and land due to routine, non-routine, and accidental circumstances with the potential for local, regional, and trans boundary impacts (if any). In case of any contamination (soil/groundwater/marine), Contractor shall be responsible for adequate clean-up (remediation) in consultation with Employer.

**10.1.8 V3** The Contractor shall be responsible for any environmental impact(s) due to its operations and shall be liable to undertake remedial measures in consultation with the Employer//regulatory authorities as the case may be.

### **10.2 V3 Construction Environmental Management Plan (CEMP)**

The contractor shall submit a Construction Environmental Management Plan within 28 days of the Contract Commencement Date or at least 14 days prior to the intended commencement of any permanent Works under the Contract, whichever is the earlier. The Employer will take maximum 14 days for issuing comments (if any) to be incorporated by the Contractor.

### **10.3 V3 General Environment Management**

Permits: Contractor, in consultation with Employer, shall ensure that all applicable Permits/Licenses/Certificates/No Objection Certificate required for construction works shall be obtained prior to commencement of works.

The Contractor shall ensure that applicable Permits (as and when applicable) are obtained well on time and provide copy of application submitted along/or with license obtained to Employer. The Contractor shall ensure that the permits are valid at any given point of time.

CEMP shall include the following:

Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.

All the recommendations mentioned in the EIA/EMP shall be implemented.

The Contractor shall undertake monitoring of various aspects through an agency approved by MoEF&CC / CPCB / GSPCB or as defined in the permits obtained by the Contractor and furnish reports to the Employer.

Notification of Accident/Incident: Goa State Pollution Control Board (GSPCB) shall be kept informed of any accident or unforeseen act or event as a result of such water or air is being polluted.

If noise and gaseous pollutants exceeds permissible limits, the Contractor shall propose and implement mitigation plan as per approval of the Employer.

The Contractor must take all reasonable steps to minimize dust nuisance during the construction of the Works.

Any structural damage caused to the existing roads by the Contractor's construction equipment shall be made good by the Contractor without any extra cost to the Employer.

Dumping of debris in or nearby water bodies shall be strictly avoided. Waste products shall be collected, stored and taken to approved disposal sites as per norms.

#### **10.4 V3 Air Emissions Management**

The Contractor must take all reasonable steps to minimize dust nuisance during the construction of the Works.

All existing roads used by vehicle of the Contractor or any of his sub-contractors or suppliers of materials or plant, which are being used by traffic, shall be kept clean of all dust/mud or other extraneous materials dropped by the said vehicles or their tyres. Similarly, all dust/mud or other extraneous materials from the Works spreading on these roads shall be immediately cleared by the Contractor.

Clearance shall be affected immediately by manual sweeping and removal of debris, or, if so directed by the Employer, by mechanical sweeping and cleaning equipment, and all dust, mud and other debris shall be removed

entirely from the road surface. Additionally, if so directed by the Employer, the road surface shall be hosed or watered using suitable equipment and adequate records of same shall be maintained.

Compliance with the foregoing will not relieve the Contractor of any responsibility for complying with the requirements of all relevant authorities in respect of the roads used by him.

Monitoring plan developed as part of CEMP shall include the following elements on air emissions management.

- i) Monitoring to be for PM2.5, PM10, SO2, Pb and NOX carried out at one station in the project site.
- ii) Data on ambient air quality shall be submitted to the MoPT and other regulatory and statutory bodies as directed by the Employer.
- iii) Monitoring shall be done twice a week, 4 weeks in a season (except monsoon) during construction.
- iv) Procedure for regular monitoring should be installed to ensure that emissions from DG sets are well below the prescribed emission standards for DG sets.
- v) The Contractor shall maintain log books to reflect working condition of Pollution Control Devices (PCDs) and also self-monitoring results and keep it open for inspection.

The Contractor shall ensure sprinkling of water on roads or Project area where general dust emission is high, especially if the construction area is near the residential areas.

Procedure for selection of construction vehicles/ machinery and maintenance shall be developed by the Contractor and shall include the following:

- a) Vehicles are to be attached with latest pollution control measures and shall comply with relevant IS. Pollution Under Check (PUC) certificate of all vehicles to be maintained and kept.
- b) Ensure vigorous maintenance and stringent overhauling to minimize gaseous exhaust fumes of dumpers, shovel and other heavy

machineries. Develop preventive maintenance schedule of vehicles and submit compliance status at six monthly intervals.

### 10.5 V3 Air Quality Monitoring

Air Quality monitoring in Construction areas shall be undertaken by the Contractor in compliance with EIA guidelines.

Respirable dust sampler with gaseous sampling attachment to be used for sampling of air for PM2.5, PM10, SO2, NOx for a period of 24 hours duration. Sampling analysis will be carried out as per IS-5182:1999, Indian Standards for measurement of air pollution.

### 10.6 V3 Water and Waste Water Management

#### 10.6.1 V3 Water Usage

Contractor shall ensure the following for water usage in general for domestic and works:

There shall not be any groundwater drawl within CRZ area. Provision for water from other sources other than groundwater shall be ensured. No ground water is to be utilised for any construction activity.

#### 10.6.2 V3 Industrial Effluent Management

Workshop effluents: Effluents generated by servicing of the vehicles contain pollutants such as suspended solids, oil & grease. Oil and grease trap shall be provided to such effluents.

Settling tanks shall be provided for cleaning the waste water from the site workshop.

Effluent shall be discharged only to the place mentioned in the CEMP or else effluent to be discharged only on land after treatment for sprinkling or horticulture within the site. No discharge in the sea or any other receptor shall be undertaken until or unless permitted by the GSPCB.

Water Quality Monitoring: The Contractor shall engage a GSPCB/CPCB/MoEF& CC approved laboratory to undertake monitoring.

### 10.7. V3 Noise Management

### 10.7.1 V3 General Requirements

Installation and operation of Diesel Generator (DG) set shall comply with the guidelines of CPCB. DG Installation Certificate from Electrical Inspectorate shall be obtained.

Acoustic enclosures shall be provided to control noise levels. Necessary Acoustic enclosures or measures to control noise levels generated from the DG sets shall be installed by the Contractor as per Environment Protection Rules, 1986. In case DG set is manufactured before 2005, the Contractor shall ensure acoustic enclosure conforming to CPCB requirements.

Ambient noise levels should be strictly maintained within the standards by adopting appropriate techniques.

Exposure time of the workers to the higher noise level shall be reduced.

Steps shall be taken to control noise levels so as to maintain ambient air quality standard in respect of noise as laid down in Air (Prevention and Control of Pollution) Act, 1981. Regularly monitoring and maintaining DG sets (six monthly) shall be done and it shall be ensured that the noise level does not reach outside the site premises.

Regular preventive maintenance shall be undertaken and records maintained.

### 10.8. V3 Noise Monitoring

Adequate measures shall be taken for control of noise levels below 85 dB(A) in the work environment.

Noise generated in the premises shall be within the prescribed limit 75 dB(A) during day and 70dB required during night time.

Ambient noise quality monitoring shall be carried out.

While installing any new DG set (manufactured after January 2005), the maximum permissible sound pressure shall be 75dB(A) at 1m from the enclosure surface.

Compliance with standards stipulated shall be followed for ambient noise.

Noise levels to be monitored between 06:00 a.m. and 10:00 p.m. for daytime and between 10:00 p.m. and 06:00 a.m. for night-time.

The Contractor shall ensure use of vehicles/ equipment with less or noise pollution potential which shall include the following (but not be limited to) the following:

- a) Construction techniques and machinery shall be selected to minimize noise.
- b) The Contractor shall use equipment and vehicle that are in good working order, well maintained and have noise suppression equipment (e.g. Mufflers, noise baffles) intact and in working order.
- c) Construction vehicles to be used shall not emit noise greater than 90 dB (A) for eight hour operation shift

The Contractor shall ensure that the siting of construction machinery/equipment shall comply with the following:

At construction sites within 150 m of human settlements, if any, noisy construction shall be stopped between 10:00 pm and 6:00 am.

Noise producing sources such as the concrete mixers, generators, etc. shall be provided with noise shields around them. The noise shields can be any physical barriers, which provide adequate attenuation of noise levels.

### 10.9. V3 Waste Management (including hazardous waste)

The Contractor shall implement procedures and processing to pursue a goal of “zero” waste discharge from his construction activities. This will require that the Contractor employ sustainable concepts and practices including recycling, re-use, segregation, and others to minimize, if not eliminate, material and substances into the waste stream. General Measures to include but not be limited to the following:

- i. There shall not be any disposal of effluent/solid waste etc. into the sea.
- ii. Solid waste shall be segregated from hazardous waste/municipal solid waste and stored separately till treatment/recycling, re-use.
- iii. All solid waste generated from the construction and domestic activities shall be collected, treated and disposed in such a manner so as not to cause environment pollution.
- iv. If no other use is identified for construction waste, it shall be dumped in selected pits, developed on infertile land, if approved by the Employer.
- v. Solid Waste generated at sites is to be collected and processed for

- recycling/re-use wherever possible. Disposing it off landfill site should only be a last resort.
- vi. Selection of disposal sites shall be carried out in consultation with GSPCB, revenue department and forest department in order to ensure that no natural drainage, productive lands or natural habitat is adversely impacted due to disposal of waste.
  - vii. Segregation of biodegradable and plastic wastes shall be done.

### 10.10. V3 Marine Environment Management

Under no circumstances shall, materials including construction debris from the Works under the Contract, be allowed to pollute, or fall into the waters of sea /Creek . All such material shall be promptly recovered and removed by the Contractor at no cost to the Employer. Floating debris within the site arising from any source shall be collected and disposed appropriately by the Contractor at regular intervals as agreed by the Employer. Floating debris shall be prevented from dispersing outside the Project Site limit.

The Contractor shall keep the Employer indemnified against the cost of any clean-up due to pollution of the marine environment or any Socio-economic and other aspects management.

No explosives shall be used in construction works. The Contractor shall develop management system as part of CEMP, which shall include:

- i) Implementation and communication procedures.
- ii) Procedure for submission of monthly report on number of complaints received, number of days of resolution, pending complaints and associated reasons for pendency.

During the construction phase, the proposed construction activity shall be notified by the Contractor, as per the direction of the Employer. Prior to commencement of construction activity, local residents and fishermen shall be advised about the installation, period of installation and associated activities.

Socio-economic aspects: The Contractor shall take into consideration the following socio-economic aspects:

- i) Use of local labour to the maximum extent

- ii) Use of district hospital at Kochi for medical facilities.
- iii) Complaints received by locals or other evidence of illegal harvesting. Illegal wood/vegetation harvesting to be recorded.
- iv) Providing drinking water to workers,
- v) Providing personal hygiene and first aid facilities,
- vi) Preference to local villagers for non-skilled jobs subject to their willingness.

The Contractor shall ensure strict compliance of all applicable labour laws of centre/ state government by developing procedures (covering subcontractors also):

- i) Provision of minimum wages for construction workers as per the Goa State Government norms or Central Government norms as may be applicable.
- ii) Ensure that the movement of fishing boats or fishermen communities shall not be disturbed during operation of the project.

### 10.11. V3 Monitoring

Monitoring of aspects as detailed in this Document shall be undertaken.

The Contractor shall develop a detailed monitoring plan as part of CEMP and the guidelines of MoEF&CC.

All the equipment utilized for monitoring shall be duly calibrated as per approved QA Plan of the Contractor.

Monitoring standards to be followed are detailed under detailed Standards and Formats of Reporting. The Contractor shall ensure that for monitoring parameters, where national/ regional/ local regulatory requirements are silent, and compliance with the baseline values as detailed in the EIA undertaken for the Project are compared. Compliance shall be determined for such aspects based on baseline changes.

### 10.12. V3 Organisation Structure

The Contractor shall ensure appointment of competent Environmental Officer(s), who shall work in coordination with Employer, and his staff, for effective environment management and implementation of CEMP.

The Environmental Officer(s) shall be responsible for:

- i) Preparing CEMP specific to work type and submit to the Employer for review prior to commencement of work;
- ii) Ensuring compliance with regulatory framework and best practices as identified in the CEMP;
- iii) Obtaining all pertinent environmental permits and approvals prior to commencement of work onsite after due approvals from Employer;
- iv) Conduct continual checks for validity of environmental permits and approvals and obtain necessary extension(s) in advance so as to ensure smooth flow of work;
- v) Ensure compliance with environmental monitoring as prescribed in Annexure-Check off list, assess data, maintain records and generate timely reports for further submission to the Employer;
- vi) Conduct regular checks for compliance against management measures and address environmental concerns onsite. Additionally, report any noncompliance to the Employer;
- vii) Provide training to working staff and initiate sensitization sessions on environment practices to be followed onsite for effective environment management; and
- viii) Inscribe corrective action measures into existing environment management structure and ensure compliance to the same with approval from the Employer.
- ix) Actively participate in Environment Management Cell meetings and provide status of implementation of Construction Environment Management Plan, associated monitoring activities, difficulties/issues in implementation, other aspects of importance, etc.
- x) Working with and through the Employer, liaise with Goa State Pollution Control Board, District Collector and other agencies on all matters concerning pollution affecting establishments and units.
- xi) Coordinate activities towards award of environment protection incentives.
- xii) Meet regularly with the Employer, and/or his staff, and Employer as requested. The Employer shall organize regular coordination meetings for passing of information, reporting of issues, review of current and upcoming events, status of open issues, coordination and reporting of environmental concerns, reports, notices, etc. and other matters relating to the Project and environmental aspects of the same.
- xiii) Adequate funds shall be earmarked for implementing Environment Management Plan in a time-bound manner. The

budget allocated shall not be diverted for any other purpose. Capex earmarked for implementation of CEMP shall be submitted as part of six monthly reports for review to Employer.

He/she shall be fully familiar with pertinent safety requirements and policy as contained in statutory requirements, the Employer HSE Plan, the Contractor's HSE Plan, and any other regulatory document pertaining to safety in the workplace in India.

## **11. V3 Quality Management**

### **11.1 V3 Quality Management Program Requirements**

**11.1.1 V3** The Contractor shall be responsible for all quality management in the planning and execution of the Works. The quality management shall cover all stages of work such as setting out, selection of materials, selection of construction methods, selection of equipment and plant, deployment of personnel and supervisory staff, quality control testing, etc.

The Contractor shall be responsible for the following work under the quality provisions of this Contract:

- a) Implementing their corporate Quality Management System and providing evidence of third party assessment and endorsement;
- b) Developing and implementing an effective and comprehensive Project Quality Plan (PQP) to cover all Works under the Contract, whether permanent or temporary both on-site and off-site;
- c) This PQP shall be submitted to "The Employer" for his/her review and approval prior to using in the contracted Works. The Contractor shall make changes and adjustments to the PQP as recommended by the Employer.
- d) Operating, maintaining and reviewing the Project Quality Plan and associated quality management system procedures; and
- e) Keeping Quality Records in accordance with Project Quality Plan.

### **11.2 V3 Project Quality Plan**

**11.2.1 V3** The Contractor shall prepare a project specific Project Quality Plan in line with his Corporate Quality System. The PQP shall be Contract-specific and

shall include specific quality practices, resources, activities and responsibilities relevant to the Contract Works.

The Contractor shall submit the PQP to the Employer within 45 days of the Contract Commencement Date or at least 14 days prior to the intended commencement of any permanent Works under the Contract, whichever is earlier. The Employer will take maximum 7 days for issuing comments (if any) to be incorporated by the Contractor.

The resolution of such comments on the PQP submission to the satisfaction of the Employer and the subsequent acceptance of the PQP by the Employer shall constitute a Hold Point on the commencement of any permanent Works under the Contract.

### **11.2.2 V3 System Element Procedures**

Quality System Procedures shall be prepared to meet the requirements of Employer's Quality Plan. These Procedures and Instructions shall be submitted to the Employer for approval 14 days prior to the commencement of the relevant activity.

### **11.2.3 V3 Hold Points & Witness Points**

Hold Points are those points beyond which the work may not proceed without review and comment by the Employer.

Witness Points are those points beyond which the work may not proceed without approval of the Employer.

As a minimum requirement, the specified Hold Points shall be included in the Inspection and Test Plans where identified in the technical Clauses of the Specification by the words "to the approval of the Employer", "Employer for Approval", "and "agreement of the Employer" or similar.

The Employer may nominate additional Witness and Hold Points in the Contractor's Inspection and Test Plans.

Where Hold Points are nominated, no work shall proceed unless agreed by the Employer.

For avoidance of doubt, the review by the Employer of any Hold Point or Witness Point will not relieve the Contractor of any responsibility for the

satisfactory execution or performance of the work that is the subject of the review.

### **11.3 V3 Documentation**

In addition to the documentation required by ISO 9001, copies of all relevant Codes of Practice, Test Methods and Standards referred shall be kept on Site.

### **11.4 V3 Inspection and Test Plans (ITPs)**

Inspection and Test Plans (ITP's) shall be prepared for each of all on- site and off-site construction activities/processes for which the Contract requires inspections of test to be performed. ITPs shall describe all inspections and tests required, the criteria for acceptance and the person in charge and responsible for each inspection or test. ITPs shall note any Hold Points or Witness Points that require the Employer's approval or presence.

Proforma ITPs shall be submitted to the Employer for review and approval within 14 days (unless specified otherwise) before the subject operation/activity is first undertaken. Operations which are subject to inspection or test shall not commence until the relevant ITP is accepted by the Employer.

The ITPs shall cover all inspection and testing required by the Contract and shall include surveying and measuring verification processes, as well as sampling procedures. All quality control laboratory tests shall be performed in accordance with the relevant Indian or other standards approved in writing by the Employer for the relevant test. Test reports shall be certified by an approved signatory.

The ITPs shall clearly state the times within which each activity will be completed. All test reports shall be made available immediately on its receipt. Failure to produce satisfactory test reports within the specified time may be considered to demonstrate that the work to which the test report relates is unsatisfactory, and remedial work may be ordered to be undertaken forthwith.

### 11.5 V3 Sampling and Testing

All sampling and testing required by the Contract or instructed by the Employer shall be carried out only by such independent commercial testing facilities as may be approved by the Employer.

The Contractor shall submit to the Employer the name(s) of the independent commercial testing facilities that are proposed. The submission shall contain such data as is necessary to fully demonstrate to the Employer that (each) such testing facility is adequately equipped, supervised and staffed and has relevant previous experience. The testing facility shall obtain the accreditation from the National Accreditation Board for Testing and Calibration Laboratories (NABL) for the relevant tests unless otherwise approved by the Employer, and where appropriate, shall be on a list approved by the relevant Authorities. The Contractor's submission shall also include the lists of sampling and tests proposed to be undertaken by the testing facility (or facilities) together with a statement for each test regarding whether it is to be executed at the testing facility or elsewhere (including on Site). In the latter case, and for all sampling, attendance of personnel from the testing facility shall be provided during the sampling and/or execution of the test. Once any testing facility has been approved in writing by the Employer, it shall be appointed by the Contractor and then will be termed an Approved Laboratory for the tests listed within such approval.

The Contractor may propose to undertake testing at the Field Laboratory on Site, provided these meet all the above requirements, and in particular that the testing facility is operated, managed and staffed by independent commercial testing company. Should the Employer at any time be dissatisfied with the quality of testing carried out at the testing facilities established on Site, he may require such tests to be performed at a permanent independent commercial testing facility away from the Site until such time as the Contractor can demonstrate to the Employer's satisfaction that the necessary improvements have been made at the testing facilities on Site.

Should the Contractor have reasonable cause to change testing facilities, he may propose an acceptable alternative to the Employer. Should the Employer at any time have reasonable cause to be dissatisfied with the performance of any Approved Laboratory, he will so inform the Contractor

who shall propose an acceptable alternative independent testing facility. In either case, after receiving written approval of the new testing facility (and upon completion of any test or series of tests already committed) the Contractor shall make the necessary change in appointment. Costs, if any, of or associated with any such change shall be borne by the Contractor.

The management of each Approved Laboratory shall nominate in writing the person or persons who are authorised by them to sign test reports, and a copy of this authorisation shall be sent to the Employer. No test report shall be accepted by the Employer as valid without the signature of a person whom the Employer has been informed in writing, is so authorised to sign test reports from that Approved Laboratory.

Where tests or other samples are required to be made, prepared or selected, such work as is necessary to cut or otherwise make or prepare the selected specimen(s) shall be executed by the Contractor under the supervision of the Approved Laboratory unless specifically agreed otherwise by the Employer. If any test or sample preparation, making or selection proceeds without such supervision they shall not be accepted and the work re-executed. The Employer shall be notified prior to the carrying out of such work so that he can be present. The Employer may also instruct that the Contractor carry out additional sampling or testing in order to verify that the requirements of the Contract are being met.

The Employer shall reserve the right to carry out his own independent sampling and testing for the purposes of cross-checking and verification of the Contractor's sampling and testing. The Contractor shall provide all reasonable access to the Works for the Employer to carry out such independent sampling and testing. Where the findings of the Employer's independent sampling and testing indicate a non-conformance with the Contract Requirements, the Contractor shall immediately raise a Non-Conformance Report covering the work represented by the non-conforming results.

Any additional sampling or testing related to replacement of damaged or lost samples, to the methods of working or construction, to previously failed tests or any other cause whatsoever, shall be executed by an Approved Laboratory.

The Contractor shall clearly identify methods of sampling and testing and the party or parties responsible in the ITPs for the relevant construction activity.

### **11.6 V3 Storage of Samples**

Where samples are required by the Contract, the Contractor shall provide and maintain a suitable facility or facilities to temporarily store such samples on Site. The samples shall be kept as long as the Employer requires, and then taken to an Approved Laboratory for testing and/or disposed of, by the Contractor.

### **11.7 V3 Inspection**

The Contractor shall provide the Employer with access to all laboratories and other facilities used for quality control tests such that it can be verified that the specified requirements are being met.

### **11.8 V3 Identification and Traceability**

All test samples shall be marked with a unique reference and in a manner such that the reference will not be erased or otherwise lost prior to testing. Should it not be appropriate for the samples to be immediately collected by the Approved Laboratory, the Contractor shall deliver them to an approved sample store(s) on Site. Such sample store(s) shall be provided and maintained by the Contractor. The Contractor shall provide and maintain within the sample store(s), all necessary racks and/or equipment and keep them in good repair.

All quality records shall be traceable from the Inspection and Test Procedures to the deliverable set.

### **11.9 V3 Records**

The Contractor shall generate quality records covering all construction / execution activities.

Conformance records shall be stored and maintained such that they are readily retrievable in facilities that provide a suitable environment to minimise deterioration or damage, and to prevent loss. Records shall be

retained progressively and handed over completely, within four weeks of the issue of the Taking-over Certificate for the completed Works.

Conformance records shall be available at all reasonable times, and copies provided within 24 hours of receipt of the test results.

### **11.10 V3 Non-conformance**

The Contractor shall notify the Employer of any product or service non-conformance. Notification shall be submitted as Non-Conformance Reports (NCR) and shall indicate the proposed method of rectification and shall be subject to acceptance by the Employer. Additionally, the Employer may require the Contractor to raise an NCR for any work that is in the opinion of the Employer not in conformance to the requirements of the Contract. The Contractor shall prepare Standard forms for use as Non-Conformance Reports; the format of these forms shall be agreed with the Employer prior to the Works.

Work which is the subject of a Non-conformance Report shall not be covered prior to inspection and agreement with the Employer.

### **11.11 V3 Surveillance and Audit**

The Employer, or his representative, shall carry out Quality Surveillance and Audits (scheduled and unscheduled) to ensure conformance to the requirements of the Contract. These will involve system element audits, product and service audits, and process and technical procedure audits.

The audits to be undertaken will be in addition to the Contractor's audits and will not relieve the Contractor of its responsibilities under the Contract. The Employer will carry out audits in accordance with ISO 19011:2011 at times to be determined by the Employer. The Contractor will be given at least five (05) days' notice that a quality audit is to be carried out. The Contractor shall provide or arrange to be available all necessary facilities, documents etc. including Sub-Contractors etc. for audits.

### **11.12 V3 Sub-Contractors**

The Contractor shall be fully responsible for integrating all Sub-Contractors' Quality Systems into its own Quality System or alternatively for arranging for the Sub-Contractor to work within a Quality system developed and provided by the Contractor.

The Contractor shall be the single point of responsibility for the production, implementation and auditing of the Quality System required under the Contract.

## **12 V3 TEMPORARY FACILITIES AND CONTROLS**

### **12.1 V3 Contractor's Site Establishment Plan**

The Contractor shall submit his own Site Establishment Plan to the Employer for approval at least seven (07) days prior to the commencement of any site establishment, temporary or any other Works under the Contract.

This submission shall include confirmation of the Contractor's intended date for the commencement of site establishment and any other site work.

The Contractor's Site Establishment Plan shall include details of the proposed facilities including but not limited to the following items:

- a) General layout of site fencing (8 m high fencing), site access points, stacking and storage of construction material, other security arrangements;
- b) General layout of construction facilities including the Contractor's field offices, sheds, sanitary and first aid facilities, Field Laboratory and GoPT's and IN's offices;
- c) Details of arrangements for emergency access/egress and evacuation points;
- d) General layout of work areas, casting yards, crushing yard, fabrication or coating workshops, if Contractor's Work Plan defines onshore casting/crushing/fabrication/coating;
- e) Dust protection measures from adjacent bulk stockpiles of materials; and ;
- f) All other details relating to the site establishment as required under the Contract or by any relevant authority.

The approval of the Site Establishment Plan by the Employer shall constitute a Hold Point on the commencement of site establishment, temporary or any other Works under the Contract.

Labour camp, any batching plant and stone crushing plant are not allowed inside the Project Site and Naval area.

Any request by the Contractor to change the agreed proposals shall be subject to the agreement of the Employer.

## 12.2 V3 Temporary Utilities

It is the responsibility of the Contractor to arrange and obtain permission from the relevant Authorities for the installation, connection and disconnection of temporary services and utilities such as power, water, and any other services the Contractor deems necessary to execute the Works. The Contractor shall be responsible for all costs associated with the supply of these services.

The Contractor shall install, maintain and pay for such services like water and power and any other facility/service required for the construction of Works. The Contractor shall lay cables/pipelines from nearest connection points up to the Site at his own cost. In case of the realignment of utilities due to the construction constraints, the same shall be carried out by the Contractor at this own cost and nothing extra shall be payable on this account.

The Employer / IN at its own discretion may provide LT power supply and drinking water provision (for running offices), at one location near the vicinity of the Project Site, which are chargeable as per MES rates. The Contractor shall arrange to have suitable metering devices towards quantifying consumption.

All temporary services shall be removed and made good on completion of the Works, as per the directions of the Employer.

## 13. V3 CONSTRUCTION FACILITIES

### 13.1 V3 Contractor's Site Compound

The entire Contractor's Site Compound (with 8 m high fencing) including Contractor's site offices, sanitary and first aid facilities, car parking, field laboratory, security facilities, Employer's and IN's Field Offices and the like shall be confined within the area designated for the Contractor's site establishment as instructed by the Employer.

The Contractor shall take all necessary measures to reduce dust from adjacent areas, including from bulk stockpiles and crushing yard by means of barriers or other suitable systems. Special precautions are to be taken during the monsoon period taking into account the prevailing wind directions.

The Contractor shall submit the proposed location and layout of the Contractor's Site Compound to the Employer for approval as part of his Site Establishment Plan.

### 13.2 V3 Provision of Field Laboratory

The Contractor shall submit the details of the Site Laboratory to be set up by him for the successful completion of the Work. The Contractor shall obtain the approval of Employer prior to commencement of such laboratory set up.

The laboratory shall be equipped with the required testing equipment. The testing equipment shall be calibrated as per QA Plan of the Contractor.

The Contractor is encouraged to use the approved construction material testing laboratories located in Goa for fulfilling the testing requirements on day to day basis required under the Contract for site control on the quality of materials and the Works. In case the contractor sets up his own laboratory at site it shall meet the requisite requirements .

The Contractor shall be responsible for all aspects of maintenance and operation of the Laboratories, including all associated costs with purchase, delivery, erection, calibration of equipment, operation, including sampling, storage, curing and testing of materials, periodic re-calibration of equipment, supply of consumables, recording and submitting test results to the Employer and removal on completion of the Works.

The field laboratory shall be provided with equipment including but not limited to the following:

General:

(a)	Oven - Electrically operated, thermostatically controlled range upto 200 OC sensitivity 10C	1 No.
(b)	Platform balance 300 kg capacity	1 No.
(c)	Balance 20 kg capacity- self indicating type	1 No.

(d)	Electronic Balance 5 kg capacity accuracy 0.5 gm	1 No.
(e)	Water bath - electrically operated and thermostatically controlled with adjustable shelves, sensitivity 10c	1 No.
(f)	Thermometers: Mercury-in-glass thermometer range 00c to 2500c Mercury-in-steel thermometer with 30cm stem, range upto 3000c	2 Nos.
(g)	Gas stove or electric hot plate	1 No.
(h)	Glassware, spatulas, wire gauzes, steel scales, measuring tape, casseroles, karahis, enameled trays of assorted sizes, pestle-mortar, porcelain dishes, gunny bags, plastic bags, chemicals, digging tools like pickaxes, shovels etc.	As required
(i)	Set of IS sieves with lid and pan: 450mm diameter: 106mm, 75.0mm, 63mm, 53mm, 37.5mm, 26.5mm, 19.0mm, 13.2mm, 9.5mm, 6.7mm, and 4.75mm size	1 set
	200mm diameter: 2.36mm, 2.0mm, 1.18mm, 600 micron, 425 micron, 300 micron, 150 micron, and 75 micron	1 set
(j)	Water testing kit	1 set
(k)	First aid box	1 set
(l)	GPS set	2 sets

For soils and stones:

(a)	Riffle Box	1 No.
(b)	Atterberg Limits (liquid and plastic limits) determination Apparatus	1 set
(c)	Compaction Test Equipment both 2.5 kg and 4.5 kg rammers (Light and Heavy compactive efforts)	1 set
(d)	Dry Bulk Density Test apparatus (sand pouring cylinder, tray, can etc.) complete	1 set
(e)	Speedy Moisture Meter complete with chemicals	1 set
(f)	Post-hole Auger with extensions	1 set
(g)	Core cutter apparatus 10 cm dia, 10/15 cm height, complete with dolly, rammer etc.	1 set

(h)	Aggregate Impact Value Test apparatus/Los Angeles Abrasion Test apparatus	1 set
(i)	Flakiness and Elongation Test Gauges	1 set
(j)	Standard measures of 30, 15 and 3 liters capacity along with standard tamping rod	1 set
(k)	California Bearing Ratio test apparatus	1 set

For Cement & Cement Concrete:

(a)	Vicat apparatus for testing setting times	1 Set
(b)	Slump testing apparatus	2 sets
(c)	Compression and Flexural strength testing machine of 200 ton capacity with additional dial for flexural testing	1 No.
(d)	Needle Vibrator	2 Sets
(e)	Air Meter	1 No.

#### 14. V3 PROVISION OF EMPLOYER / CONSULTANT'S OFFICE

**14.1 V3** The Contractor shall provide and maintain a separate fully furnished and air-conditioned office accommodation for the sole use of the Employer and the supervisory staff of the Employer. The Employer's Office shall be located in such a location and position as directed by the Employer.

The Contractor shall provide the specified Employer's Office (fully furnished and operational) within 3 (Three) months of the Contract Commencement Date.

The complete establishment of the Employer's Office to be provided by the Contractor to the satisfaction of the Employer shall constitute a Hold Point on the commencement of any permanent Works on site under the Contract. The Employer's Office shall be provided and maintained until 28 days after the issue of the Taking-Over Certificate for the complete Works.

The Employer's Office shall accommodate 10 people and shall consist of:

- i) 4 office rooms with each floor area of at least 9m<sup>2</sup>;

- ii) Cubicle space to accommodate 10 people with a floor area of at least 40 m<sup>2</sup> total with provision for printing facilities;
- iii) 1 discussion room with a floor area of at least 20 m<sup>2</sup> for Consultants /GoPT with provision of printing facilities and storage.
- iv) 1 fire-proof store rooms with a floor area of at least 10m<sup>2</sup> with suitable stacks;
- v) 01 server room with a floor area of at least 10m<sup>2</sup> with all necessary connections;
- vi) Washroom for women with at least one basin and one WC;
- vii) Washroom for men with at least three basins, three urinals and 3 WCs;

The areas above are exclusive of wall thickness, services provisions, printing facilities and circulation areas. All latest applicable codal provisions for fire and safety are to be provisioned for. The office shall be of construction and design suitable for prevailing climatic conditions. The containers or porta cabins can be used for making office space.

The office shall be provided with all plumbing, water services, drains, all electrical items like lights and complete wiring(including internet network), providing water supply including all pipes, fittings, tanks, pumps, valves etc. complete, septic tank, sewer lines, equipment, furniture, furnishing (including waste disposal) and the like, completely finished and ready for occupation including consumable items for pre-fabricated unit(s). It also includes replacement of any item provided in this Section.

The Employer's Office shall be properly ventilated and proofed against weather, water ingress, insects and termites. Each room shall be fitted with a false ceiling and the space between the roof and the ceiling shall be properly ventilated. The minimum headroom shall be 2.7 m.

All areas should be adequately networked for telephone and internet connections.

List of minimum furniture and other facilities /tools to be provided and maintained for Employer's Office shall be as shown in table below:

S. No.	Description	Qty.
1.	Executive desk with two lockable drawers and chair (swivel with leather upholstery)	4Nos.
2.	Cubicle furniture with two lockable drawers and chairs (swivel with cloth upholstery)	10 Nos.

S. No.	Description	Qty.
3.	Mobile connection with smartphone handset	6 Nos.
4.	A3heavy duty laser colour printer/copier/scanner with network facility	01 No.
5.	A4 heavy duty laser colour printer/copier/scanner with network facility	02 Nos.
6.	A3 heavy duty photocopier with network facility	01 No.
7.	Document shelves/stacks	06Nos.
8.	Visitors Chairs(swivel with cloth upholstery)	20Nos.
9.	Drawing Rack	12Nos.
10.	Bulletin Boards (1.2m X 2m)	02Nos.
11.	White Boards (1.2m X 2m)	02Nos.
12.	Safety helmets and reflective vests	25Nos.
13.	Safety Shoes of various sizes	14Nos.
14.	Conference table with 12 chairs	01 No.
15.	LED projector with screen	01 No.
16.	Laptops(Dell or HP or equivalent & i5 or higher processor with 1 TB hard disk and 6 GB or more ram) preinstalled with all required applications	02 Nos.
17.	Desktop (Dell or HP or equivalent & i5 or higher processor with 1 TB hard disk and 6 GB or more ram) preinstalled with all required applications	02 No.

**14.2 V3** The Contractor shall arrange to provide uninterrupted supply of electricity and water for the office building. In case of failure of main power/water supply, alternative source shall be available for providing uninterrupted supply.

**14.3 V3** The Contractor shall undertake maintenance of the Employer's Office throughout the Works including the day to day upkeep of the building and the surroundings, attending to repairs to various parts of the building, furniture, fittings, office equipment and the connected services as and when necessary, periodic white/colour washing of the building and painting of wood work, steel work, replacing the broken window/door/ventilator glasses, furniture and other hardware and maintaining necessary watch and ward during day and night.

Upon completion of the works and before handing over, the Contractor shall remove the Employer's Office from site.

#### **14.4 V3 Assistance to the Employer/ Consultant**

The Contractor shall allow for the provision of labourers to assist the Employer, if and when required throughout the Works.

The Contractor shall provide and maintain two (02) numbers air-conditioned new vehicles (Mahindra XUV500 make or equivalent), to accommodate 5-6 people each, and for the exclusive use of the Employer / Consultant.

All vehicles shall be equipped with fire extinguisher and first aid kits. The vehicles shall be fitted with seatbelts for the driver and all passengers as well as any other safety equipment as may be required under the prevailing local, port and Contractor's site regulations.

The proposed make, model and condition of the vehicles shall be subject to the approval of the Employer.

The Contractor shall provide the specified Employer's Vehicles within 28 days of the Contract Commencement Date or at least 07 days prior to the commencement of any site establishment, temporary Works or any other site Works under the Contract, whichever is earlier. The vehicles shall be provided and maintained until 28 days after the issue of the Taking-Over Certificate for the complete Works.

A vehicle shall be replaced with a new vehicle after its maximum run of 100,000 km or five years of manufacture, whichever is earlier. All necessary taxes for operating the vehicles shall be fully paid and all necessary papers shall be provided as required by prevailing Motor Vehicles Act with comprehensive insurance cover for the vehicles. The Contractor shall also make available drivers having valid license at such times and for such duration as instructed by the Employer.

The vehicles shall be maintained in a smooth running condition. All expenses required for keeping the vehicles in smooth running condition such as fuel, lubrication oil and other consumables, necessary service and maintenance, drivers, repairs and replacement etc. shall be met by the Contractor. In the event of any vehicle being off the road for maintenance

or on account of breakdown, the Contractor shall provide equivalent substitute vehicle(s) immediately.

If the Contract Works are not completed within the stipulated period or within the granted extended time of completion, provision and maintenance of vehicles shall be carried out by the Contractor at his own cost and no payment shall be made for the same.

The Contractor shall provide and maintain Personal Protective equipment (PPE) as may be required by the Employer for inspection of the works.

The above requirement of Employer shall include Consultant.

#### **14.5 V3 Provision for Security Operation**

The Contractor shall be responsible for physical security of the assets and persons at his Work Site. The security personnel deployment shall be carried out based on the requirement. The security posture shall consist of security processes, guarding manpower and technology control which shall be decided in consultation with the Employer.

The security guards shall be deployed at a calculation of 2% of the total work force of the Contractor for managing security operation of the Work Site. All compliances need for manpower deployment shall be followed by the Contractor. All supervisory control shall remain with the Employer.

#### **14.6 V3 Contractor's Site Access Management Plan**

The Contractor shall submit his Site Access Management Plan to the Employer for approval at least 07 days prior to the commencement of any site establishment, temporary or any other Works under the Contract. The Contractor shall follow the overall Project Site Management Plan. Contractor's Site Access Management Plan will be reviewed and approved by the Employer.

The Contractor's Site Access Management Plan shall include figures or drawings and accompanying notes detailing the proposed site traffic management Works (subject to the further requirements of this section of the Specification) including but not limited to the following items:

### 14.7 V3 General methodology and route for accessing Site;

Arrangement and approximate timing for the delivery of materials and equipment throughout the course of the Works as well as any special arrangements or controls for mobilisation of oversize plant or delivery of oversize equipment;

### 14.8 V3 Labour timing;

Proposed internal construction traffic controls (signage, line-marking, signals etc.) both for internal site roads and at interfaces with existing external roads;

Any proposed temporary traffic controls for existing external roads that may be necessary from time to time to facilitate delivery of materials or equipment to site or any other Works on such roads; and

Arrangement for marine access to marine construction work and Site Portions including navigational arrangement, temporary aids to navigation, anchoring and mooring arrangement.

The Contractor shall prepare the Site Access Management Plan with a view to minimizing interference with existing traffic (both landside road traffic and marine traffic and shipping) to and from the existing facilities in the vicinity of the site. All vehicles or marine craft using the existing public roads/ waters external to the site shall comply with the prevailing local and port rules and regulations as well as the requirements of any other relevant authorities.

The Site Access Management Plan shall identify such facilities as are necessary to ensure that construction dust and debris is not carried onto the existing port/Naval roads, thoroughfares or adjoining properties by vehicles leaving the site. Any damage or disturbance caused by vehicles leaving the site shall be rectified immediately by the Contractor to the satisfaction of the Employer.

The approval of the Site Access Management Plan by the Employer shall constitute a Hold Point on the commencement of site establishment, temporary or any other Site Works under the Contract as well as mobilization of plant and delivery of any materials or equipment to the site.

Any request by the Contractor to change the agreed proposals shall be subject to the agreement of the Employer.

Following shall be considered regarding the access to Project Site:

**Security clearances:** Security clearances for personnel, vehicles, equipment for entry into Port premises shall be provided by Port Authority on best effort basis. Details of manpower to be employed shall be provided to IN at least six working days in advance. Application shall include complete details of personnel, photographs, UID No., permanent address, contact numbers and shall mandatorily contain police verification certificates. Port Authority shall have the right to undertake photography of personnel employed and undertake physical/electronic search / frisking of body and equipment / materials / cargo.

**Security against Items or Damage:** The Contractor shall be responsible for safety of his stores / items / works. The Employer / IN will not be responsible for the Contractor's stores / items / works.

**Entry / Exit:** The entry / exit shall be as per the existing provisions in force and as amended from time to time. The gates for entry / exit will be specified by the Station Commander. A separate register shall be implemented / maintained by the Contractor for movement of personnel and materials at the security gates. The data should be made available to the Employer / IN on a regular basis. The Project Site including Contractor's Work Area shall be fenced with 8 m dust proof protection with gates for access to IN.

**Identity Cards or Passes:** The issuance of passes for personnel would be as per the existing provisions, as amended from time to time.

#### **14.9 V3 Temporary Barriers and Enclosures**

The Contractor shall maintain fencing, employ watchmen and any other measures necessary so as to maintain the security of the Field Office, Work Site, and all other facilities related with this Contract, at all times pursuant to the requirements of Clause 4.22 of the Conditions of Contract.

Temporary fencing shall be installed and maintained by the Contractor for the security of plant, equipment and materials used in connection with the Works.

The temporary fence shall be completed as soon as practical following initial Possession of the Site and removed immediately prior to issue of the Taking-Over Certificate for the Works (or part thereof).

It remains the responsibility of the Contractor to establish the type of fencing that the Contractor requires to separate the construction area from public areas, other sites and port/Naval operational areas and to provide the level of site security/safety the Contractor deems necessary for the site and work areas. A view cutter of 8m height is required to be installed on the periphery of the work areas.

Construction work shall be confined to areas within the fenced construction site area except with the written approval of the Employer.

#### **14.10 V3 Project Information Sign Board**

The Contractor shall erect two signboards at prominent locations on the Site to identify the site to occasional visitors. The size, layout and location of the signboards shall be agreed with the Employer.

The Contractor shall not erect within or near the site or elsewhere on the Employer's/Naval land any sign or notice board without prior approval, except safety signs.

The Contractor shall dismantle, remove and dispose of all such signs off site upon issue of the Taking-Over Certificate for the Works.

### **15. V3 PRODUCT/ MATERIALS REQUIREMENTS**

#### **15.1 V3 Common Requirements**

Materials to be used in the Work shall conform to the specifications mentioned on the drawings, the requirements laid down in this section and specifications for relevant items of work covered under these Specifications.

Only new products, materials or equipment shall be supplied for use in the permanent Works. Pre-owned or pre-used products, materials or equipment shall not be supplied unless specifically accepted in writing by the Employer.

Products, materials and equipment to be incorporated in the permanent Works shall not be used in any temporary Works prior to their

incorporation into the permanent Works unless specifically accepted in writing by the Employer.

If any material, not covered in these Specifications, is required to be used in the Work, it shall conform to relevant Indian Standards, if there are any, or to the requirements specified by the Employer.

### 15.2 V3 Approval of Manufacturers and Suppliers

The Contractor shall submit details of the proposed source, manufacturer or supplier of all products, materials or equipment to be used in the permanent Works to the Employer for approval. The details to be submitted by the Contractor shall include but not be limited to the following::

- i) Name of the product, material or equipment to which the submission relates including reference to relevant sections of the Contract Documents;
- ii) Name of the proposed source, manufacturer or supplier; Certificates, test results or any other information or evidence demonstrating that the proposed product, material or equipment confirms to the requirements of the Contract;
- iii) Declaration that the product, material or equipment shall be supplied in accordance with the requirements of the Contract including all specified markings and certificates;
- iv) Instructions or directions for the handling, storage or usage of the product, material or equipment from the source, manufacturer or supplier;
- v) Any other relevant technical details as may be required under the Contract or by the Employer.

The Contractor shall submit such details to the Employer for approval at least 14 days prior to placing orders for the subject product, materials or equipment. The approval of the submission by the Employer shall constitute a Hold Point on the delivery of the subject product, materials or equipment to site. Irrespective of any such approval, the Contractor shall remain responsible for the quality and conformance of the subject product, material or equipment to the requirements of the Contract.

**15.3 V3** Once approved, sources shall not be changed without the written approval of the Employer. If it is found after trial that sources of supply previously approved do not produce uniform and satisfactory products, or if the product from any other source proves unacceptable at any time, the

Contractor shall furnish acceptable material from other sources at his own expense.

#### 15.4 V3 Samples

Where required by the Employer, the Contractor shall at his own expense, submit to the Employer for approval, samples of any of the materials and components to be used in the Contract Works. The quality of materials and components to be used in the Works shall not be inferior to the approved samples.

Aggregates from the quarries shall be submitted by the Contractor to the Employer at no extra cost.

Samples provided to the Employer or his representative for their retention are to be in labelled boxes suitable for storage.

Samples required for approval and testing must be supplied well in advance at least 48 hours or minimum period required for carrying out relevant tests to allow for testing and approval. Delay to Works arising from the late submission of samples will not be acceptable as a reason for delay in the completion of the Works.

If materials are brought from abroad, the cost of sampling/testing whether in India or abroad shall have to be borne by the Contractor.

#### 15.5 V3 Alternatives or Equivalents

In all cases where the name of a particular type or make of material, product, equipment or item is referred to in the Contract, this indicates the minimum acceptable standard. The Contractor may offer equipment or materials other than those specified and in all such cases, the Contractor's offer shall be of at least equal quality. The same shall apply where the words "or approved equivalent" are used.

In these instances, the Contractor shall submit to the Employer for approval, a statement detailing the alternative material or equipment and shall include full technical descriptions, drawings and specifications and shall provide such further information as is required to demonstrate to the Employer that the alternatives are equivalent in every way to those specified.

Acceptance of the Contractor's offered alternatives shall be subject to the acceptance and approval of the Employer who shall not be bound to accept any such offer.

### **15.6 V3 Delivery, Storage and Handling Requirements**

No products, materials or equipment shall be delivered to site until the Contractor has established all traffic and environmental controls on site and has adequate facilities on site for unloading and storage of the products, material and equipment prior to their incorporation into the Works.

All products, materials and equipment delivered to site shall be handled and stored so as to prevent damage or deterioration prior to their incorporation into the permanent Works. All stockpiles and storage stacks shall be maintained by the Contractor in a safe state with sufficient working space provided to permit safe access by the Employer for inspection and checking of the delivered products, materials and equipment.

All proprietary products, materials and equipment used on the Works shall be handled, stored, used, fixed or applied strictly in accordance with the manufacturer's instructions and to the satisfaction of the Employer. The Contractor shall obtain the manufacturer's instructions in this regard at the time of ordering and shall submit to the Employer along with his submission of the proposed source.

### **15.7 V3 Tests and Standard of Acceptance**

All materials, even though stored in an approved manner, shall be subjected to an acceptance test prior to their immediate use.

Independent testing of cement for every consignment shall be done by the Contractor at site in the laboratory approved by the Employer before use. Any cement with lower quality than those shown in manufacturer's certificate shall be debarred from use. In case of imported cement, the same series of tests shall be carried out before acceptance.

### **15.8 V3 Testing and Approval of Material**

The Contractor shall furnish test certificates from the manufacturer/supplier of materials along with each batch of material(s) delivered to site.

The Contractor shall be responsible or testing of all materials, finished products used in the construction as per requirements of Conditions of Contract and the relevant Specifications. The testing of all the materials shall be carried out by the Employer or his representative for whom the Contractor shall make all the necessary arrangements and bear the entire cost.

Tests which cannot be carried out in the field laboratory have to be got done at the Contractor's expense at any recognised laboratory/testing establishments in India or abroad, as approved by the Employer. All necessary cost for witnessing the test by Employer's representative shall have to be borne by the Contractor.

#### Rejection of Materials not conforming to the Specifications

Any stack or batch of material(s) of which sample(s) do not conform to the prescribed tests and quality, shall be rejected by the Employer, or his representative, and such materials shall be removed from site by the Contractor at his own cost. Such rejected materials shall not be made acceptable by any modifications.

### 15.9 V3 Testing and Approval of Plant and Equipment

All plant and equipment used for preparing, testing and production of materials for incorporation into the permanent Works shall be in accordance with manufacturer's specifications and shall be got approved by the Employer before use.

## 16. V3 PROJECT EXECUTION

### 16.1 V3 Examination and Preparation

#### 16.1.1 V3 Construction Work Method Statements

In addition to the submission of the Detailed Construction Sequence and Methodology as defined in this Section, the Contractor shall submit separate individual Construction Work Method Statements (CWMS) detailing the sequence and method of working he intends to adopt for various items of works. The CWMS shall be consistent with the overall Detailed Construction Sequence and Methodology and shall comply with any additional construction sequence or phasing requirements nominated on the Drawings and/or elsewhere in this Specification. The purpose of the

CWMS is to aid the planning and integration of activities and correct technical execution of the Works within the requirements of the Contract. In this regard, it shall be written such that it can be understood completely by the labour and supervisory personnel responsible for the Works.

The CWMS shall provide detailed information regarding materials, equipment and plant to be utilised, labour requirements, time frame and schedule of the Works including Sub-Contractors, prerequisite conditions, details and order of activities for each operation, safety measures, environmental controls and any other relevant technical aspects including those detailed elsewhere in the Specification or Drawings.

The CWMS shall be consistent with the requirements of the approved Project Quality Plan and shall include a description of testing and inspection records, reporting channels (including names of responsible supervisory personnel) and frequency and actions where records indicate non-conformance with the Specification. The relevant agreed ITPs for the subject Works shall be appended to the CWMS for easy reference.

Proposed repair methods for the rectification of any anticipated minor defects or damage shall also be appended to the CWMS.

Where any construction activity includes an interface with either the existing operations, or with an associated contract, the CWMS shall also include the procedures to be followed by his staff and equipment for the management of such interfaces.

Unless specifically noted otherwise in the relevant sections of this Specification, the Contractor shall submit the proposed CWMS to the Employer for approval at least 21 days prior to the intended date for first commencement of the construction Works to which the CWMS relates. The Employer will take maximum 14 days for issuing comments (if any) to be incorporated by the Contractor and resubmit/approval.

The resolution of such comments on the CWMS submission will be to the satisfaction of the Employer and the Employers subsequent approval of the CWMS shall constitute a Hold Point on the commencement of the Works to which the CWMS relates.

Examination and/or approval by the Employer of the CWMS submitted by the Contractor shall not relieve the Contractor of his responsibilities or liabilities under the Contract. The sole responsibility for the safety and

adequacy of the methods adopted by the Contractor will remain with the Contractor, irrespective of any approval given by the Employer.

The Contractor shall be responsible for issuing copies of the approved CWMS to the relevant Works personnel and supervisory staff to ensure that they are fully familiar with the CWMS.

Notwithstanding any approval of the CWMS, the Employer shall reserve the right to require further amendment or modification of the CWMS in the event that additional issues are observed on site following commencement of the construction Works to which the CWMS relates. Similarly, the Contractor is free to propose further amendment or modification to the CMWS subject to the approval of the Employer.

### 16.1.2 V3 Survey and Layout Data

Levels shall be set out to Port's Chart Datum (CD), which is 0.582 m below AMSL. Coordinates are based on the Indian Geodetic Datum survey grid system as adopted from the Survey of India.

The Reference Bench Mark for the area shall be obtained by the Contractor from the Employer. The Contractor shall establish working Bench Marks tied with the Reference Bench Mark in the area soon after taking possession of the site.

Throughout the duration of the Works, the Contractor shall be responsible for the establishment, maintenance and protection of suitable permanent and temporary benchmarks and control points for the setting out of the Works and for the correctness of all such setting out.

The Contractor shall provide sufficient permanent survey marks to properly set out the Works and shall take all necessary precautions to prevent these marks from being disturbed. The working Bench Marks/levels shall be as approved by the Employer. Checks must be made on these Bench Marks at least once every month and adjustments, if any, agreed with the Employer and recorded. An up-to-date record of all Bench Marks including approved adjustments, if any, shall be maintained by the Contractor and also a copy supplied to the Employer for his record.

### 16.1.2 V3 Structures' Condition Survey

Prior to commencement of any construction Works in the vicinity of any structure owned or operated by the Mormugao Port Trust property or privately owned property, the Contractor shall undertake a Condition Survey of the in-situ position and condition of all area likely to be impacted by the Contractor's Works. The Condition Survey shall be carried out by suitably qualified persons approved by the Employer and it shall be capable of audit by third parties.

The Condition Surveys shall include all parts of the structure and surrounds likely to be impacted by the Contractor's operations and shall be subject to agreement with the Employer.

### **16.1.3 V3 Damage to existing Structures**

If, in the sole opinion of the Employer, the Contractor has caused damage to any part of an existing structure by unloading or loading or any other operations, the Contractor shall be responsible for carrying out repairs to the structure to the satisfaction of the Employer/relevant authority.

All costs and expenses associated with the repairs to such damage or the replacement of damaged parts shall be at the cost of Contractor.

### **16.1.4 V3 Existing Utilities and Services**

All information regarding the existing or future utilities and services shown on the Drawings has been obtained and/or reproduced from various sources and is for indication only. The Contractor shall be responsible for making his own assessment of the exact details, lines, levels, nature, type, size, location and all other matters of relevance to the existing utilities and services at the site prior to commencement of any site Works.

Any unidentified services uncovered by the Contractor shall be immediately brought to the attention of the Employer.

The information on affected services and utilities may not be exhaustive and the final position of these services within the Works shall have to be drawn up based on the information furnished by different authorities linked with the utilities as directed by the Employer. The Contractor's programme must take into account the period of notice and duration of diversion work concerning each authority as given on the Drawings and the Contractor

must also allow for any effect of these services and alterations upon the Works and for arranging regular meetings with the various authorities on commencement of the Contract and throughout the period of the Works in order to maintain the required co-ordination. During the period of the Works, the Contractor shall have no objection if the public utility bodies / authorities vary their decisions in the execution of their proposals in terms of programme and construction, provided that, in the opinion of the Employer, the Contractor has received reasonable notice thereof before the relevant alterations are put into operation.

The Contractor shall take every precaution to avoid damage to existing utilities and services at the site. No clearance or alterations of utilities or services shall be carried out unless specifically ordered by the Employer.

Any services affected by the Works must be temporarily supported by the Contractor who must also take all measures reasonably required by the various bodies to protect their services and property during the progress of the Works. The work of temporarily supporting and protecting the public utility services during execution of the Works shall be deemed to be part of the Contract and no extra payment shall be made for the same.

The Contractor may be required to carry out the removal or shifting of certain service/utilities on specific orders from the Employer. Such work shall be taken up by the Contractor only after obtaining clearance from the Employer and ensuring adequate safety measures.

## **17 V3 EXECUTION**

### **17.1 V3 General**

In every case, the Works shall be carried out to the satisfaction of the Employer and conform to the location, lines, dimensions, grades and cross-sections shown on the drawings or as indicated by the Employer. The quality of materials, processing of materials as may be needed at the site, salient features of the construction work and quality of finished work shall comply with the requirements set forth in succeeding sections of this Specification.

### **17.2 V3 Radio Communications**

Any radio frequencies proposed for use by the Contractor for site communications shall be subject to the approval of the Employer or

relevant Authority. The Contractor shall be responsible for arranging all permits and licences required for the operation of radio equipment throughout the Works.

### 17.3 V3 Construction Plant and Equipment

In addition to the general conditions indicated in the Contract Documents, the following conditions regarding use of equipment in executing the works shall be satisfied:

- i) The Contractor shall be required to give a trial run of the equipment for establishing their capability to achieve the laid down Specifications and tolerances to the satisfaction of the Employer before commencement of the Works;
- ii) All equipment provided shall be of proven efficiency and shall be operated and maintained at all times in a manner acceptable to the Employer;
- iii) All the plant/equipment to be deployed on the Works shall be approved by the Employer for ensuring their fitness and efficiency before commencement of work;
- iv) Any material or equipment not meeting the approval of the Employer shall be removed from the site forthwith;
- v) No equipment shall be removed from site without permission of the Employer; and the Contractor shall also make available the equipment for site quality control work as directed by the Employer;
- vi) All equipment shall comply with the environmental requirements set out in this Document; and.
- vii) No batching plant and stone crushing plant are allowed inside the Project Site.

### 17.4 V3 Cranes and Lifting Equipment

All cranes, lifting equipment and winches shall comply with Indian and Local Government requirements and third party surveyor requirements, for example Lloyds, B.V., DNV, ABS, and Indian Safety Authority or similar approved.

Test certificates, maintenance records and the like for all cranes, wires, slings and winches shall be available for inspection by the Employer and for third party audit. Slings for which test certificates are not available shall not be used and shall be removed from site prior to the commencement of the Works.

## 18. V3 REPAIR METHODS

The Contractor shall submit to the Employer for approval, details of all proposed repair methods to be employed as may be necessary to rectify any minor defects or incidental damage in elements of the permanent Works.

Details shall include but not be limited to information on the type and manufacturer of any proprietary products to be used and any specific directions from the manufacturer regarding their use, detailed work methods for affecting the repairs and any other relevant technical information as may be required by the Employer.

The Contractor shall generally submit these details pre-emptively as part of his CWMS for the relevant construction activity. Where additional or unforeseen repairs are required, the Contractor shall make additional submission as directed by the Employer.

## 19. V3 CLEANING AND WASTE MANAGEMENT

### 19.1 V3 Site Maintenance

The Works includes the housekeeping of the Site including but not limited to:

- i) Daily cleaning of the Site including all amenities and facilities supplied by the Contractor to the Employer;
- ii) Collection and disposal of all domestic, toxic and hazardous waste, oils, empty drums and other containers, waste timber, asbestos impregnated products all in accordance with all applicable Laws and regulations governing the disposal of these items or materials ;
- iii) Retrieval of any waste materials deposited on the sea bed by the Contractor;
- iv) Collection and storage of all surplus construction material;
- v) Special clean-ups required throughout the monsoon season and tie down Works required for cyclone alerts including any damage preventative measures to both temporary facilities and amenities and to partly or wholly constructed installations and enclosures;
- vi) Final clean-up and re-instatement of the Site;
- vii) Compliance with all environmental protection requirements.

## 19.2 V3 Construction Waste Management and Disposal

The Contractor is required to implement procedures for waste minimization to reduce, reuse, recycle and recover as much waste material or reuse as is practical. Waste minimization and segregation shall be exercised during mobilisation, installation, execution and demobilization phases of the Works.

The Contractor shall endeavour to minimise waste materials such as equipment consumables, packaging and the like. All scrap generated during construction shall be segregated into components such as glass, paper products, aluminium, steel, rubber, insulation materials, plastics, steel, wood and the like.

All demolished and excavated material, excess building materials and waste, other than material designated to be stockpiled on the site, shall be removed from the Site and disposed off, in a legal manner. No waste shall be disposed in the Coastal Regulation Zone (CRZ) area. All permits and approvals necessary for the removal and disposal of demolition materials shall be obtained in advance. The municipal wastes generated by labour during construction, shall be handled, transported and disposed as per the relevant municipal handling rules.

All unused material shall be removed from site in a progressive manner either by use of a weekly emptied dump hopper or similar removal arrangement. The sellable wastes shall be sold only to the authorized vendors. The Site and surrounds shall be kept tidy at all times.

Plastics and rubber shall not be disposed off by burning and is to be handled and disposed as per the draft plastic rules. Asbestos use shall be minimized and shall be disposed off, in accordance with all relevant regulations. Materials infested by vermin, pests or rot shall be destroyed in a way that will minimise the risk of infecting other materials. Hazardous wastes shall be handled, stored, managed and disposed off, in compliance with the relevant regulations.

The Contractor shall take all precautions to ensure that with the exception of materials that will form part of the Works, no materials of any kind being used or transported to or from the Site fall on adjoining property or public thoroughfares or into the water. Any material or item that does so fall shall be removed as early as practical, to the satisfaction of the Employer.

Construction and demolition (C&D) wastes from this Contract shall remain the property of the Contractor and shall be removed by the Contractor from the Site or adjoining area as applicable to the satisfaction of the Employer. All such work shall be carried out at the Contractor's own expense for which payment shall be deemed to have been included in the Contract Sum.

If there is any change in the existing rules and the new rules become effective for the construction, transportation, treatment and disposal for municipal, hazardous, C&D, electrical and electronic and plastic wastes, the new rules have to be followed. All such work shall be carried out at the Contractor's own expense for which payment shall be deemed to have been included in the Contract Price.

### **19.3 V3 Protecting Installed Construction**

The Contractor shall follow procedures and assignments as contained in the Project Site Management Plan and will minimize impact to the ongoing operations wherever possible, or as directed by the Employer.

## **20. V3 COMPLETION PROCEDURES**

### **20.1 V3 General**

Requirements for Tests on Completion, Employer's Taking Over of the Works and Defects Liability shall be as per the requirements of the Conditions of Contract and subject to the additional requirements outlined in this Specification. The additional requirements specified in the following sections shall not be interpreted as limiting the Contractor's responsibilities under Contract in this regard in any way.

### **20.2 V3 Preliminary Inspection of the Works at Completion**

In addition to the requirements of the Contract regarding Tests on Completion, the Contractor shall undertake joint general inspection of the completed Section with the Employer, Employer and Operator of the project, at least 14 days prior to the Contractor's intended submission of application for a Taking-over Certificate for the Section.

The Contractor shall record any and all defects or omissions identified during the joint inspection including any, that in the sole opinion of the Employer and/or Operator, are required to be rectified prior to the issue of

a Taking-Over Certificate and those that may be rectified after issue of the Taking-Over Certificate under Defects Liability.

Following the joint inspection, the Contractor shall submit the agreed Draft List of Defects and Minor Omissions including the agreed disposition with respect to the timing and method of rectification of each to the Employer for approval. The Contractor shall also include on the List any outstanding documentation or administrative requirements under the Contract. The Contractor shall advise the date for rectification of each individual item on the Draft List of Defects and Minor Omissions.

The acceptance of this Draft List of Defects and Minor Omissions by the Employer shall constitute a Hold Point on the submission of application for a Taking-Over Certificate for the Section by the Contractor.

### **20.3 V3 Inspection of the Works at Completion**

Within 7 days following receipt of the Contractor's application for a Taking-Over Certificate for the Section (subject to the requirements above), the Contractor shall undertake a further joint general inspection of the Section with the Employer

This final inspection shall be to confirm that all items previously identified on the Draft List of Defects and Minor Omissions as being required to be rectified prior to issue of the Taking-Over Certificate, have been rectified and to re-confirm the status of the items permitted to be rectified after issue of the Taking-Over Certification for the Works under Defects Liability.

Following the joint inspection, the Contractor shall submit the agreed Final List of Defects and Minor Omissions including the agreed disposition with respect to the timing and method of rectification of each to the Employer for approval.

The acceptance of this Final List of Defects and Minor Omissions by the Employer as well as completion of all Tests on Completion and submission of all other required documentation and submittals per the requirements of the Contract shall constitute a Hold Point on the issuing of the Taking-over Certificate for the Section.

## **21. V3 SUBMITTALS AT COMPLETION**

### **21.1 V3 Operation and Maintenance Data**

The Contractor shall provide a full set of all operations and maintenance manuals as may be required under the Contract in hardcopy (03 No. copies) and electronic PDF format to the Employer prior to submittal of the Contractor's application for a Taking-Over Certificate for the completed Section.

These manuals shall provide sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the Plant/Structure. The wording of all such manuals shall be agreed with the Employer in advance.

A Section shall not be considered to be completed for the purposes of Taking Over as defined in the Conditions of Contract until the Employer has received in the form required by the Contract, final operation and maintenance manuals in such detail, and any other manuals specified in the Specifications and the Drawings for these purposes.

### **21.2 V3 As-Built Drawings**

The Contractor shall prepare, and keep up-to-date, a complete set of "As-Built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the Work as executed. These records shall be kept on the Site and shall not be used by the Contractor for any purpose other than for the purposes of the preparation of the As-Built Drawings in accordance with the requirements of the Contract.

The Contractor shall prepare a full set of As-Built drawings for the whole of the Works based on the Contract Drawings with amendments made to reflect any major changes in set out, design or construction method.

All dimensions, levels and set-out coordinates shall be updated based on the in-survey, progress and As-built surveys undertaken throughout the Works. Additional information on the As-Built pile founding depths and set-out shall be added to the drawings based on the Contract piling records.

The Contractor shall submit the draft As-Built drawings in hardcopy (03 No. A3) and electronic CAD and PDF format to the Employer for approval prior to the submittal of the Contractor's application for a Taking-Over Certificate for the completed Works.

The Contractor shall incorporate all comments and amendments required by the Employer and once agreed, shall submit the final As-Built Drawings in hardcopy (03 No. A3 and 03 No. A1) and electronic CAD and PDF format to the Employer.

The Works shall not be considered to be completed for the purposes of Taking Over as defined in the Conditions of Contract until the Employer has received these documents in the form required by the Contract.

## **22. V3 WARRANTIES**

The Contractor shall provide a full set of all warranties for products of workmanship as may be required under the Contract in hardcopy (02 No. copies) and electronic original format and PDF format to the Employer prior to submittal of the Contractor's application for a Taking-over Certificate for the completed Section.

The wording of all such warranties shall be agreed with the Employer and the Employer in advance.

## **23. V3 Project Record Documents**

The Contractor shall provide a full set of the Project Quality Records in hardcopy (02 No. copies) and electronic original format and PDF format to the Employer within 28 days of issue of the Taking-Over Certificate for the completed Section.

The Contractor shall maintain separate volume covering Quality Documentation for any outstanding minor Works carried out under Defects Liability Period. This separate volume shall be submitted to the Employer at |