Request for Qualification cum Proposal

For

Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis

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Instructions to Bidder for e-Tendering

1. Enrolment process on the Tender web-site

- Bidders are required to enrol on the e-Procurement module of the Central Public Procurement (CPP) Portal (URL: https://eprocure.gov.in/eprocure/app) by clicking on the link "Online Bidder Enrolment". Enrolment on the CPP Portal is free of charge.
- As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (DSC)- (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India, with their profile.
- Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
- Bidder then logs in to the site through the secured log-in by entering their user ID /password and the password of the DSC / eToken.

2. Tender search

- There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organisation name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organisation name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.
- Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Favorites' folder. This would enable the CPP Portal to intimate the bidders through SMS / e- mail in case there is any corrigendum issued to the tender document.
- The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3. Preparation of bids

- Make folders with the name of the tender number so as to identify the folders easily during the bid document uploading.
- File and Folder name should not contain any special characters (&, #, etc.) or space in between.
- Download the tender document, ITB (Instruction to Bidders) of the required tender in that folder.
- Scan the Bid Security Declaration in Format given in Appendix-VI
- Scan the Tender fee instruments for offline payments if any.
- In the case of offline payment, the details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the

data entered during bid submission time. Otherwise, the bid submitted will not be acceptable.

- Scan and keep ready Pre-qualification documents like life certificates, PAN etc. if any
- Prepare the technical bid document and then convert into PDF
- Prepare the Price Bid i.e. fill up required figures in the downloaded word document. The Price Bid file with the same name has to be uploaded while uploading the financial bids. If there is any change in Name it may not get uploaded or give an error.
- Keep all the documents in the same folder for the easy bid document upload
- The bid summary has to be printed and kept as an acknowledgement as a token of the submission of the bid. It will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening date. For any clarifications from the TIA (Tender inviting authority), the bid number can be used as a reference.

4. Submission of bids

1. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document. Offers which are not digitally signed will not be accepted. Applicant shall submit their offer in electronic format on CPP Portal only.
3. Bidder should prepare the Bid Security (EMD) Declaration as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the Tender Processing Section, latest by the last date of bid submission. Otherwise the uploaded bid will be rejected.
4. The Price Bid format has been provided with the tender document to be filled by all the bidders. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders are required to download the Price bid file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the Price bid file is found to be modified by the bidder, the bid will be rejected.
5. The serve time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
6. All the documents being submitted by the bidders would be encrypted using PKI (Public Key Infrastructure) encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.
7. Any document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers / bid-openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
   - Upon the successful and timely submission of bids, the portal will give a

successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

- The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

5. Password maintenance

- The length of the password should be of 8 to 32 characters
- The password should be of any English lowercase and uppercase (a-z and A-Z) characters.
- The password must contain at least one number between 0-9.
- The password must contain at least one special character from these [! @ # $ ^ * _ ~]
- Sample password is just like Admin123$, India2000#, etc.

6. About DSC

- Digital Signature Certificates (DSC) is the digital equivalent (that is electronic format) of physical paper certificates.
- Like physical documents are signed manually, electronic documents, for example e-forms are required to be signed digitally using a Digital Signature Certificate. Transactions that are done using Internet if signed using a Digital Signature certificate becomes legally valid.
- Bidders have to procure Class 2 or 3 signing certificates only. Only Class 2 or 3 is valid for e- tendering purpose.
- The Certifying Authorities are authorized to issue a Digital Signature Certificate with a validity of one or two years. The maximum period for which the DSC is issued is only two years. On the expiry of the term, the Digital Signature Certificate can be revalidated by paying the fees again.
- Digital Signatures are legally admissible in a Court of Law, as provided under the provisions of IT.
- Digital Signature Certificate (DSC) is not required by Companies but by individuals. For example the Director or the Authorized signatory signing on behalf of the Company requires a DSC.
- Each user logs in to the tender site thro' the secured log in by giving the user id/ password allotted during registration & then by giving the password of the DSC. The DSC password will get locked if successively wrong password is given many times.

7. DSC providers for Private firms

A licensed Certifying Authority (CA) issues the digital signature. Certifying Authority (CA) means the authority that has been granted a license to issue a digital signature certificate under Section 24 of the Indian IT-Act 2000.

- The vendors like TCS (www.tcs-ca.tcs.co.in), Sify, MTNL, nCode (dsc@ncodesolutions.com), e-Mudhra (www.e-mudhra.com) are issuing DSC's for bidders.
- The time taken by Certifying Authorities to issue a DSC may vary from three to seven days.

8. Advantage of "My Space" on CPP Portal

- The bidder can upload Non Sensitive frequently asked documents prior at any point of time once he logs in to the Bid. These are not encrypted.

- These can be anything like GST, PAN Certificate, VAT Certificate, Equipment Details, Manpower Details, Copies of Balance Sheet of last few years, Details of quantity of work executed etc.
- In some case the TIA might have uploaded a format while in many cases it may just be a scanned copy of the original which needs to be uploaded.
- This will avoid repeated upload of common documents and also save space and time.

9. System requirements

- Windows XP with latest service pack
- Loaded IE 7.0 or above
- Loaded JRE 1.6 or above
- Antivirus Software with latest definition.
- Internet connectivity
- Scanner to scan the documents if required
- Printer and PDF Creator.

10. Assistance to Bidders

- Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.
- For any technical queries for online submission please call the 24x7 Helpdesk numbers of Eprocure. The Helpdesk numbers +91120-4200462/4001002/4001005 +918826246593, email: support-eproc@gov.in

11. Preparation & Submission of BIDs:

(i) Detailed tender documents for RFQ cum RFP may be downloaded from e-tender portal of the Authority from the dates as per "Important Information" and tender may be submitted online following the instruction appearing on the screen. A manual containing the detailed guidelines for e-tendering is also available on e- tender portal of the Authority.

(ii) The following documents shall be prepared and scanned in different files (in PDF or ZIP or JPEG format) and uploaded during the online submission of BID. The scanning of the pages to be uploaded shall be done in not more than 100 dpi. The documents as per Clause 2.13.2 of RFQ cum RFP shall also be submitted in "ORIGINAL" to **Archaeological Survey of India** before the prescribed date & time for submission of BIDs.

Technical Bid

(a) (Letter comprising the Technical BID) Appendix-I;

(b) Power of Attorney for signing the BID as per the format at Appendix-II;

(c) Certificates in accordance with Appendix-I (all annexure)

(d) BID Security in the format at Appendix-VI

(e) Registration copies of GST (applicable only for Indian bidder)

(f) Integrity Pact as per Appendix-VII

(g) Non-Disclosure Agreement as per Appendix-VIII

(h) Details required as per Clause 3.5.2 & Clause 3.5.3.

Financial Bid

(a) Letter comprising the Financial Bid- Appendix-I B

(b) Price Bid- Appendix-I B Annex- I

An undertaking from the person having Power of Attorney referred to in Sub Clause 11-(ii)(b) above that they agree and abide by the Bid documents uploaded by the Authority and amendments uploaded, if any.

GLOSSARY

Aggregate Score	As defined in Clause 3.5.1
Bids	As defined in Clause 1.3.2
Bid Price	As defined in Clause 1.3.6
Bid Due Date	As defined in Clause 1.4
Bid Security	As defined in Clause 1.3.4
Bidding Documents	As defined in Clause 1.3.2
Bidding Process	As defined in Clause 1.2.1
Bid Stage	As defined in Clause 1.2.1
Construction Period	As defined in Clause 1.1
Contractor	As defined in Clause 1.1.2
Conflict of Interest	As defined in Clause 2.2.1(c)
Defects Liability Period	As defined in Clause 1.1.3
Eligible Experience	As defined in Clause 3.2.1
Eligible Projects	As defined in Clause 3.2.1
EPC	Engineering, Procurement and Construction
EPC Contract	As defined in Clause 1.1.2
Estimated Project Cost	As defined in Clause 1.1.4
Financial Capacity	As defined in Clause 2.2.2 (B)
Government	Government of India
Integrity Pact	
	Letter of Award
	As defined in Clause 1.2.8
LOA	
Lowest Bidder	As defined in Clause 2.2.4 (ii)
	As defined in Clause 1.1.1
Net Worth	As defined in Clause 1.2.1
Project	As defined in Clause 1.2.1
Qualification	
Qualification Stage	Indian Rupee
Re. or Rs. or INR	As defined in the Disclaimer
	As defined in Clause 2.2.2 (A)
RFQ cum RFP	As defined in Clause 2.2.2 (A)
Technical Capacity	
Threshold Technical Capacity	

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

Disclaimer

1. This RFQ cum RFP document is neither an agreement nor an offer by the **Archaeological Survey of India (ASI)** to the prospective Bidder or any other person. The purpose of this RFQ cum RFP is to provide information to the interested parties that may be useful to them in the formulation of their proposal pursuant to this RFQ cum RFP.

2. ASI does not make any representation or warranty as to the accuracy, reliability or completeness of the information in this RFQ cum RFP document and it is not possible for ASI to consider particular needs of each party who reads or uses this RFQ cum RFP document. This RFQ cum RFP includes statements which reflect various assumptions and assessments arrived at by Authority in relation to this tender. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. Each prospective Bidder should conduct its own investigations and analyse and check the accuracy, reliability and completeness of the information provided in this RFQ cum RFP document and obtains independent advice from appropriate sources.

3. ASI will not have any liability to any prospective Construction Company/ Firm/ or any other person under any laws (including without limitation the law of contract, tort), the principles of equity, restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this RFQ cum RFP document, any matter deemed to form part of this RFQ cum RFP document, the award of the Assignment, the information and any other information supplied by or on behalf of ASI or their employees, any consultants or otherwise arising in any way from the selection process for the Assignment. ASI will also not be liable in any manner whether resulting from negligence or otherwise however caused arising from reliance of any Bidder upon any statements contained in this RFQ cum RFP.

4. ASI will not be responsible for any delay in receiving the proposals. The issue of this RFQ cum RFP does not imply that ASI is bound to select the Bidder or to appoint the Selected Bidder, as the case may be, for this tender and ASI reserves the right to accept/reject any or all of proposals submitted in response to this RFQ cum RFP document at any stage without assigning any reasons whatsoever. ASI also reserves the right to withhold or withdraw the process at any stage with intimation to all who submitted the RFQ cum RFP Bid.

5. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. ASI accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

6. ASI reserves the right to change/ modify/ amend any or all provisions of this RFQ cum RFP document. Such revisions to the RFQ cum RFP/ amended RFQ cum RFP will be made available on the website of ASI.

7. About Archaeological Survey of India (ASI)

The Archaeological Survey of India (ASI), established in 1861, is the premier organization under the Ministry of Culture, Government of India, entrusted with the protection, preservation, conservation, and management of the nation's rich and diverse cultural heritage. With a legacy spanning more than one and a half centuries, the ASI has played a pivotal role in documenting, researching, and safeguarding India's archaeological and historical assets, ranging from prehistoric sites and ancient settlements to medieval monuments and colonial-era structures.

In addition to conservation and research, ASI plays a vital role in public outreach through the establishment and management of site museums, interpretation centres, and visitor facilities at important heritage locations. These institutions are designed to present archaeological findings, historical narratives, and cultural values in an engaging and educational manner. Through systematic interpretation, exhibitions, publications, and digital initiatives, ASI enhances public understanding and appreciation of India's heritage.

ASI is also responsible for promoting value-added and sustainable heritage tourism by integrating conservation with visitor infrastructure, interpretation services, and experiential learning. It ensures that tourism development remains sensitive to archaeological integrity, historical authenticity, and environmental sustainability.

In the context of the Lothal Archaeological Site, ASI functions as the nodal authority for planning and implementation, ensuring that development initiatives strengthen site interpretation, visitor experience, and educational outreach, while preserving the site's outstanding historical and cultural significance.

NOTICE FOR

INVITATION OF RFP CUM RFQ

Archaeological Survey of India (ASI)

COMPETITIVE BIDDING

Request For Qualification (RFQ) cum Request For Proposal (RFP) for the Selection of Contractor for Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis

Archaeological Survey of India (ASI) invites online proposals through e-procurement from interested applicants for the purpose of selecting an EPC Contractor for Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat. The salient features of the project, eligibility criteria and prescribed formats for submission can be accessed in the RFP document uploaded on the website: https://asi.nic.in/, or from the Central Public Procurement Portal: http://eprocure.gov.in.

Interested applicants are requested to submit their proposals at Central Public Procurement Portal of Government of India on or before _____ __, 2026.

To submit their proposals online, applicants will have to procure a digital signature certificate as per the Information Technology Act, 2000 for the purpose of signing their electronic proposals. Proposals which are not digitally signed will not be accepted. Applicants shall submit their proposals in electronic format on Central Public Procurement Portal only.

ARCHAEOLOGICAL SURVEY OF INDIA
Dharohar Bhawan, 24, Tilak Marg, New Delhi – 110001.
Ph.No. : _____ Fax No. : _____
CIN: _____
Email id: dirmuse.asi@gov.in dirmuse.new@gmail.com

1. INTRODUCTION

1.1 ABOUT ARCHAEOLOGICAL SURVEY OF INDIA

The Archaeological Survey of India (ASI) is an attached office of the Ministry of Culture, Government of India. Under the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act), ASI administers more than 3,650 ancient monuments, archaeological sites, and remains of national importance. These include temples, mosques, churches, tombs, cemeteries, palaces, forts, stepwells, rock-cut caves, ancient mounds, and other sites representing remains of ancient habitation.

ASI is inviting bids from prospective bidders for **Design and Construction of the Lothal Archaeological Site, Lothal, District Ahmedabad, Gujarat**, including the **Museum cum Orientation Centre at Lothal**, in accordance with the scope of work defined in this **Schedule-B**, read in conjunction with **Volume-1 (RFP-cum-RFQ Document), Drawings, Specifications, and Price Bid**, and **subject to the terms and conditions of the Draft Agreement**.

All planning, design, and execution activities under this scope shall be carried out under the overall supervision and control of the **Archaeological Survey of India (ASI)**, **in conjunction with the Principal Project Consultant / Design Anchor (AHC)**, as defined in the Draft Agreement.

1.2 THE LOTHAL ARCHAEOLOGICAL SITE, LOTHAL, DISTRICT AHMEDABAD

1.2.1 The Proposed **Lothal Archaeological Site development** comprises of:

a) Interpretation Centre
- Cultural & Community Block
- Exhibition & Experience Block
- Knowledge & Learning Centre Block
- Cafe
- Public Toilet

b) Site Infrastructure comprising of:
i) Tensile Structure (Approx 300m x157m)
ii) Bridge & Access Cores including 3 sets of escalators (Built-up over ruins)
iii) Pond
iv) Wetland Basin / Water Canal
v) Gutter
vi) Pavement
vii) Stairs
viii) Amphitheatre 1 & 2
ix) Roads
x) Dockyard

xi) Activity Area
xii) Golf Cart Parking
xiii) Driver's Lounge
xiv) Bus Parking
xv) Car Parking
xvi) Toilet Block Ruins site surroundings
xvii) Landscape (Soft & Hard scape)
xviii) Café Block

1.2.2 Role of ASI

The Archaeological Survey of India (ASI) shall act as the **Statutory Custodian Authority** of the protected archaeological site at Lothal under the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act)** and all amendments thereto.

ASI shall have the authority to **review, supervise, direct, regulate, and monitor** all works within the protected and regulated areas of the site, including but not limited to works affecting **archaeological remains, ruins, soil strata, visual corridors, landscape character, and the overall heritage setting** of the site.

All planning, architectural, engineering, conservation, construction methodology, and execution-related activities shall be undertaken **under the overall statutory supervision of ASI**, and **in conjunction with the Principal Project Consultant (PPC) / Design Anchor, AHC**, in accordance with the provisions of the Draft Agreement.

No excavation, construction activity, piling, foundation work, alteration of ground levels, or movement of heavy machinery shall be undertaken without **prior written approval of the Archaeological Survey of India (ASI), issued in conjunction with the Principal Project Consultant (PPC) / Design Anchor, AHC**.

Any instructions, directions, safeguards, or conditions issued by ASI **in consultation with the Principal Project Consultant (AHC)** in the interest of heritage conservation, archaeological protection, and statutory compliance shall be **final and binding** on the EPC Contractor. Compliance with such directions shall be deemed to be included within the Contractor's scope of work, obligations, cost, and time, and **no additional claims for cost or extension of time shall be admissible on this account**, except as provided under the Draft Agreement.

1.2.3 Location

It is proposed to develop an **Museum cum Orientation Centre along with associated site infrastructure** at the **Lothal Archaeological Site**, near **Saragwala village, Lothal**, District – Ahmedabad, Gujarat. The proposed development shall be conceived as a heritage-responsive intervention intended to **interpret, present, and enhance understanding of the archaeological significance of Lothal**, while ensuring protection, conservation, and contextual integration with the existing archaeological remains, in accordance with the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**, and approvals issued by the **Archaeological Survey of India (ASI)**

in conjunction with the **Principal Project Consultant (AHC)**.

The Museum cum Orientation Centre shall provide curated spaces for interpretation, learning, and visitor engagement relating to the **archaeological, historical, cultural, urban, and technological aspects of the Lothal site**, based on interpretive narratives, layouts, and content frameworks approved by ASI in conjunction with the Principal Project Consultant (AHC).

Lothal is located in **Dholka Taluka of Ahmedabad District, Gujarat**, and enjoys proximity to **National Highway No. 47** and **State Highway No. 8**, providing road connectivity to key urban centres including **Ahmedabad, Bhavnagar, and Rajkot**. The site is situated approximately **six kilometres south-east of the Lothal–Bhurkhi railway station** on the Ahmedabad–Bhavnagar railway line.

The archaeological site is surrounded by the villages of **Saragwala, Uteliya, and Gundi**, where agriculture constitutes the primary occupation. The relationship between the site and the surrounding rural landscape forms an important contextual setting for the project and shall be respected in all planning and design decisions.

Lothal is one of the significant urban centres of the **ancient Indus Valley Civilization**, dating to approximately **2400 BC**. Archaeological excavations at the site have revealed substantial remains reflecting advanced urban planning, water management systems, and built structures of historical and archaeological importance. The proposed development at Lothal is intended to **respect the integrity of the archaeological site**, reinforce its historical value, and facilitate informed public engagement, without compromising the authenticity, scale, or cultural significance of the protected remain

1.2.4 Access to Project site:

The project site is accessible from **NH-47 (Ahmedabad–Rajkot Highway)**, which connects to the site via **SH-1** towards Dhingada village and further through the **Dhingada–Gundi–Saragwala village road**. Adequate directional signage with good legibility exists along **NH-47, SH-1, and the village roads**, indicating directions and distances to the project site.

The **Saragwala–Gundi road**, an all-season paved road, connects to **SH-8 and SH-1** from Arnej and Dhingada respectively. These State Highways further connect to NH-47 at Bagodara. A **rammed earth road** exists between Saragwala and Uteliya villages, passing through the project site. These village roads collectively provide access to the site from the surrounding region.

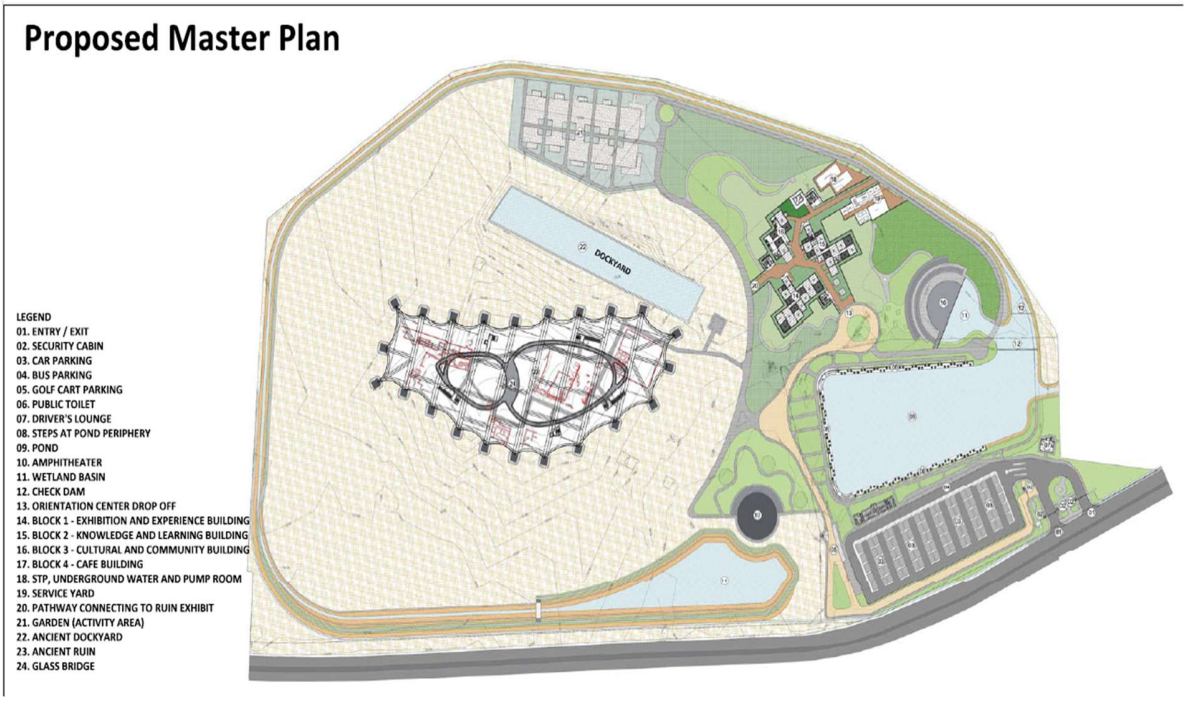
The overall connectivity of highways and village roads to the project site is illustrated in the relevant drawings, indicating **good road accessibility** to the project area.

1.2.5 Master Plan

An **Indicative Master Plan Layout**, showing the principal components of the proposed development

The **Lothal Archaeological Site, Lothal, District – Ahmedabad, Gujarat** (hereinafter referred to as the "Project") shall be developed as a facility of appropriate scale with **world-class**

infrastructure, comprising exhibition spaces, interpretive facilities, specialised event areas, visitor amenities, and logistics infrastructure, in accordance with the design intent, statutory requirements, and approvals issued by **ASI in conjunction with AHC**.



Note: The detailed designed scheme for Tensile Structure to be prepared by EPC contractor shall cover entire exposed brick structures area.


LEGENDS
01 DROP OFF
02 LANDSCAPING
03 PUBLIC TOILET
04 BLOCK 1 - EXHIBITION & EXPERIENCE BUILDING
05 BLOCK 2 - KNOWLEDGE AND LEARNING BUILDING
06 BLOCK 3 - CULTURAL AND COMMUNITY BUILDING
07 GRASS PAVER LANDSCAPE
08 CAFE BUILDING
09 PATHWAY CONNECTING TO POND
10 PATHWAY CONNECTING TO RUIN EXHIBIT
11 STP
12 UNDERGROUND WATER TANK AND PUMP ROOM
13 FUEL TANK
14 DG SET
15 TRANSFORMER
16 PANEL ROOM
STP & WATER TANK
FIRE & WATER TANK & PUMP ROOM
BLOCK 4 - CAFE
PLANTER BED
LANDSCAPE

A. Area Summary for Master Plan:

The area summary for the full development of the masterplan is as shown below:

ASI Lothal Area Statement				
Sr. No.	**Area (SQ.M)**	**Area (SQ.M)**	**Nos.**	**Total Area**
	Site Area	**3,41,366**	**1**	**3,41,366**
1	Pond	16,449	1	16,449
2	Wetland Basin / Water canal	12,423	1	12,423
3	Gutter	3,256	1	3,256
6	Pavement	22,957	1	22,957
7	Stairs	1,425	1	1,425
8	Amphitheatre 1	2,010	1	2,010
9	Amphitheatre 2	1,801	1	1,801
10	Road	11,225	1	11,225
11	Dockyard	7,855	1	7,855
12	Activity area	4,872	1	4,872
13	Golf cart parking	581	1	581
14	Driver's lounge	150	1	150
15	Bus parking	896	1	896
16	Car Parking	3,200	1	3,200
17	Toilet	404	1	404
18	Ruins site surrounding	1,38,061	1	138060.98
19	Landscape	1,06,646	1	106645.5
20	Orientation centre (Ground Coverage)	7,156	1	7,156
			TOTAL	**3,41,366**
Builtup over Ruins				
21	Bridge	2,479	1	2,479
22	Core	56	6	338
			TOTAL	**2,816**

Note: Areas have been rounded off

1.2.6 Scope of Work

1.2.6.1 A brief scope of the Works for the Project is outlined below:

The Project comprises the development of the components as indicated in the **approved Master Plan** and with areas as tabulated under **Clause 1.2.5(A) – Area Summary**, to be executed on an **Engineering, Procurement and Construction (EPC) basis** within a total duration of **(3) months for design and (21) months for construction**, inclusive of design, approvals, construction, testing, and commissioning.

The Scope of Works shall include the execution of works **complete in all respects**, including but not limited to **civil works and RCC structures**, architectural envelope works, external

finishes, all structural components, foundations, superstructure, internal and external MEPF and infrastructure provisions, fire protection systems (as applicable to structure), ICT and audiovisual infrastructure provisions, external development works, landscaping, site development, site lighting, and all allied works, in compliance with the requirements for **IGBC Campus Platinum rating** and **GRIHA 5-Star certification**, as applicable.

1.2.7 EPC Scope in museum & exhibition design

All interior works of exhibition and museum spaces are also included in the EPC scope at Provisional Sum, and executed through a separate tender. This includes, without limitation:

- Interior finishes and fit-outs
- Exhibition and museum areas
- Museum content, artefacts, and displays
- Curation, theming, and interpretive installations
- Audio-visual content production and multimedia programming
- All Low Side and associated building level services, this tender only provides the high side space to accommodate the equipment

To clarify further that the exhibition design, exhibition detailing, museum content, and associated works should be included in the EPC cost. However, the installation, construction & fabrication in exhibition & museum spaces shall be executed through a separate tender/package, independent of the EPC contract, but as a Provisional Sum as per Price Bid.

Notwithstanding the above exhibition & museum design work, the EPC Contractor shall be responsible for ensuring full coordination with the appointed Exhibition Design Consultant and the Principal Project Consultant / Design Anchor, Architect Hafeez Contractor (AHC), including but not limited to alignment of structural provisions, interfaces, services coordination, access requirements, load considerations, and construction sequencing.

The EPC Contractor shall incorporate all such coordinated requirements into the works strictly in accordance with approvals and directions issued by AHC, and in compliance with approvals granted by the Archaeological Survey of India (ASI).

Final review, approval, and sign-off of all coordinated interface matters between the EPC works and the exhibition design shall rest solely with the Principal Project Consultant (AHC).

1.2.8 Anchor Design and Design Control

The **Master Plan, Concept Design, architectural language, spatial hierarchy, circulation strategy, material intent, experiential sequencing, and the Design Basis Report (DBR)** prepared by **Architect Hafeez Contractor (AHC)** shall collectively constitute the **Anchor Design** for the Project.

The EPC Contractor shall undertake all detailed design development, engineering, coordination, and construction **strictly in conformity with the Anchor Design**, and in accordance with the directions and approvals issued by **ASI in conjunction with the Principal Project Consultant / Design Anchor, AHC**, as per the Draft Agreement.

No deviation, modification, simplification, value engineering proposal, material substitution, or design alteration that affects **architectural intent, spatial quality, proportions, materiality, heritage sensitivity, or visual character** shall be permitted without prior

written approval of **ASI in conjunction with AHC and the Authority**, as applicable.

Any unauthorised deviation from the Anchor Design shall be **rectified by the EPC Contractor at its own cost and risk**, without entitlement to any additional payment, compensation, or extension of time.

1.2.9 Formation Levels & Site Investigations

The formation levels indicated in the Tender Documents are **indicative minimum levels only**.

The EPC Contractor shall be **solely responsible** for carrying out detailed topographical surveys, LiDar & GPR surveys as the site is archaeologically sensitive, geotechnical investigations, flood analysis, hydrological studies, and soil assessments, and for finalising the formation levels in consultation with the **Archaeological Survey of India (ASI)** and the Authority, **in conjunction with the Principal Project Consultant (AHC)**.

The EPC Contractor shall ensure that the final formation levels do not adversely impact **archaeological remains, protected zones, site hydrology, or the heritage setting**.

No claim for **additional cost, variation, compensation, or extension of time** shall be admissible on account of the finalisation or revision of formation levels, except as expressly provided under the **Draft Agreement**.

Details of Formation Level

Element	**Level (m)**	**Filling (Approx.)**	**Consideration / Remarks**
Minimum Existing Ground Level (as per contour survey)	**≈ 12.00**	—	Minimum natural ground level observed within project site
Existing Ground Levels (overall site)	≥ 12.00 (variable)	—	Existing levels vary across the site as per approved contour map
Uniform Formation Level for Roads, Pathways & Site Development Areas (Design Intervention Zones)	**13.71**	Variable (≈ 1.5–2.0 m, location-specific)	Adopted based on **1 in 100-year flood level with 1.0 m freeboard**
Plinth Level of Buildings (where construction is permitted)	**14.16**	—	Fixed at **+450 mm above finished road / pathway level (13.71 m)**
Archaeologically Sensitive / Excavated Areas	Existing levels to be retained	Nil	**No cutting, filling, grading, or compaction permitted**

Element	Level (m)	Filling (Approx.)	Consideration / Remarks
Pedestrian Skywalk over Archaeological Excavations	Elevated structure (approx. +6.0 m above existing ground)	Nil	Designed to span without any ground intervention
Parking, Plazas, Services & Internal Circulation (with design intervention)	13.71	As required	To match uniform site formation level
Non-intervention / Buffer Areas	Existing levels	Nil	No earthwork or design intervention

Notes / Binding Clarifications

1. A **uniform formation level of 13.71 m** shall be adopted for **roads, pathways, plazas, parking, and site development works** in all areas where **design intervention is proposed**.
2. **All building plinths shall be set at 450 mm above the finished road/pathway level**, resulting in a **plinth level of 14.16 m**.
3. **Archaeologically sensitive and excavated areas shall remain completely untouched**, with zero earthwork, unless expressly permitted by the **Archaeological Survey of India (ASI)**.
4. Existing ground levels shall be considered **as per the approved contour survey**, with the **minimum observed level being approximately 12.00 m**.
5. Any deviation from the above levels shall require **prior written approval of ASI**, followed by design approval by **Architect Hafeez Contractor (AHC)**.
6. The EPC Contractor shall be deemed to have accounted for variable filling quantities and shall not be entitled to any additional cost or time on this account.

1.2.10 The name of the work, its estimated cost with schedule time of completion is given below:

Name of the Work	Estimated Project Cost (In Rs. cr.)	Completion of Work (Months)
Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis including Defects Liability Period of 10 (Ten) years for Structural, Steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years.	283 Cr. (including GST)	**3 Month design + 21 Month constructions**

1.2.11 The selected Bidder (the **"Contractor")** shall be responsible for designing, engineering, procurement and construction of the Project under and in accordance with the provisions of an engineering, procurement and construction contract (the **"EPC** Agreement") to be entered into between the Contractor and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto

1.2.12 The scope of work will broadly include Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis including Defects Liability Period of 10 (Ten) years for Structural, steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years.

1.2.13 The estimated cost of the Project (the "Estimated Project Cost") has been specified in the clause 1.2.10 above. The assessment of actual costs will have to be made by the Bidders.

1.2.14 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor's work and obligations.

1.2.15 The statements and explanations contained in this RFQ cum RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFQ cum RFP and should not be construed or interpreted as limiting in any way or manner the scope of work and obligations of the Contractor set forth in the Agreement or The Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFQ cum RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFQ cum RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by The Authority.

1.2.16 The Authority shall receive Bids pursuant to this RFQ cum RFP in accordance with the terms set forth herein as modified, altered, amended and clarified from time to time by the Authority, and all Bid shall be prepared and submitted in accordance with such terms on or before the date specified in Clause 1.4 for submission of Bids (the "Bid Due Date").

1.2.17 **Scope of Project & Design work covered in this proposal**:

The scope of work in this proposal includes Detail Designing & Architectural work of Museum cum Orientation Centre and all other components as detailed. This includes:

The Scope of Work under this Project shall include **design development, Procurement, engineering, and construction of the Museum cum Orientation Centre and associated infrastructure**, including **RCC structure, architectural envelope, exhibition and museum spaces interiors (design included in the EPC scope and execution through a separate tender under Provisional Sum) and site works**, in accordance with the Anchor Design prepared by **Architect Hafeez Contractor (AHC)** and approvals issued by **ASI in conjunction with AHC**.

1.2.17.1 Design and Architectural planning

- The EPC Contractor shall be responsible for carrying out the **detailed design, engineering, coordination, and execution** of all Project components **strictly based on the Anchor Design, Master Plan, and Design Basis Report (DBR)** prepared by **Architect Hafeez Contractor (AHC)**, and in accordance with directions and approvals issued by the **Archaeological Survey of India (ASI) in conjunction with AHC**.
- The EPC Contractor shall engage **pre-qualified and competent design consultants** for architectural, structural, and engineering services as required for execution of the **RCC structure, architectural envelope, and site infrastructure**, strictly in conformity with the approved Anchor Design.
- The EPC Contractor's scope shall be **the construction of the Museum cum Orientation Centre building shell**, including:
  - RCC foundations, substructure and superstructure
  - Architectural form, massing, circulation framework and external finishes
  - Roof structures, cores, bridges and structural interfaces
- **All interior works of any nature whatsoever are also included** in the EPC Contractor's scope. This includes, without limitation:
  - Interior finishes and fit-outs
  - Exhibition and gallery spaces
  - Museum displays, artefacts, replicas and theming
  - Graphics, infographics, historic data, translations
  - Multimedia systems, hardware, software and content
  - All Low Side and associated building level services, this tender only provides the high side space to accommodate the equipment
  - The **exhibition design, exhibition detailing, museum content, and**

associated works shall be executed through a separate tender/package, independent of the EPC contract.

- Notwithstanding the above, the **EPC Contractor shall be responsible for ensuring full coordination** with the appointed Exhibition Design Consultant and the Principal Project Consultant / Design Anchor, **Architect Hafeez Contractor (AHC)**, including but not limited to alignment of structural provisions, interfaces, services coordination, access requirements, load considerations, and construction sequencing.
- The EPC Contractor shall incorporate all such coordinated requirements into the works **strictly in accordance with approvals and directions issued by AHC**, and in compliance with approvals granted by the **Archaeological Survey of India (ASI)**.
- **Final review, approval, and sign-off of all coordinated interface matters between the EPC works and the exhibition design shall rest solely with the Principal Project Consultant (AHC).**

- **Infrastructure and Site Development**

  The EPC Contractor shall be responsible for execution of **site development and infrastructure works**, including but not limited to:

  - Tensile Structure (Approx Dimensions – 300m x 157m)
  - Ponds and water bodies
  - Bridge and core structures
  - Roads, pavements, pathways and site circulation
  - External electrical infrastructure
  - Water supply and sewerage infrastructure
  - Land filling and grading in accordance with approved formation levels

1.2.17.2 Archaeological Coordination and Site Protection

Given the archaeological sensitivity of the Lothal site, **planning and coordination with ASI shall be mandatory and binding**.

The EPC Contractor shall ensure the following:

- **Equipment Planning:**
  All construction vehicles, machinery, piling rigs and equipment movement shall be planned strictly within **ASI-approved site extents** and load limitations.
- **Logistics and Movement Plan:**
  A detailed **Site Logistics and Movement Plan**, including construction methodology, access routes, equipment details and protection measures, shall be submitted for **prior written approval of ASI in conjunction with AHC**.
- **Definition of Site Extents:**
  Work boundaries, protected areas, existing ruins and potential archaeological zones shall be clearly identified and demarcated in coordination with ASI.
- **Approval Requirement:**

No mobilisation, excavation, construction activity, or machinery movement shall commence without written approval of the Logistics and Movement Plan by ASI in conjunction with the Principal Project Consultant (AHC).

- **The proposed locations of the pedestals of Tensile fabric main trusses and other similar structures are very close to the archaeological excavated structures and are required to be checked by the EPC Contractor by site survey using LiDAR / GPR survey, and the pedestals construction & its excavation should be carried out in a manner so as to not disturb the existing archaeological excavated structures. The approval of the same shall be obtained from the ASI prior to start of work.**

Notes

- All works related to **exhibits, theming, artefacts, museum content, multimedia systems, fabrication, installation or supervision** are **also included in the EPC scope** and shall be undertaken by the EPC Contractor through Exhibition Design Consultant appointed by him under this Agreement. However, the execution of these interior & low side MEPF work shall be carried out through a separate tender prepared and floated by the EPC Contractor, the cost of the same is considered as Provisional Sum with EPC Contractor's coordination & supervision charges.
- Costs for development of **external infrastructure beyond the Project site**, including approach roads from highways, external water supply lines, and external electrical supply lines from the nearest source, are **not included** in the Project cost estimation unless expressly stated otherwise in the Draft Agreement.

1.2.17.3 Engagement of Pre-Qualified Architectural and Engineering Design

The EPC Contractor shall, at its own cost, engage qualified and experienced architectural and engineering design consultants, pre-qualified as part of this RFQ-cum-RFP process, with demonstrated experience in institutional, public, and heritage-sensitive projects.

The engagement of such consultants shall be limited to detailed design development, surveys, coordination, and construction documentation, and shall be carried out strictly in accordance with the approved Master Plan, approved architectural intent, Design Basis Report (DBR), specifications, tender conditions, and directions issued by the Principal Project Consultant, Architect Hafeez Contractor (AHC).

In this regard:

- The Architectural Consultant appointed by the EPC Contractor shall prepare detailed architectural drawings, documentation, and stage-wise design submissions, strictly in conformity with the approved Master Plan, Concept Design, and DBR prepared by AHC and approved by the Archaeological Survey of India (ASI).
- The EPC Contractor's Architectural Consultant shall function under the overall design control, review, and approval framework established by AHC, and shall ensure that the architectural intent, spatial hierarchy, built form, scale, proportions, material language, and heritage sensitivity are fully maintained.
- The EPC Contractor shall engage all necessary specialist and allied consultants,

including Structural Consultant, MEP Consultant (limited to structural and services coordination), Landscape Consultant, Lighting Consultant (external and architectural lighting only), and Infrastructure Consultants. All such consultants shall work in close coordination under the EPC Contractor's responsibility.

- The EPC Contractor and its appointed consultants shall carry out all surveys, investigations, and technical studies as specified in the tender documents and DBR, and shall prepare stage-wise detailed design submissions, including coordinated construction drawings and shop drawings, prior to commencement of execution.
- All drawings, design submissions, specifications, and coordinated documents prepared by the EPC Contractor and its consultants shall be submitted to AHC for review and approval. No construction activity shall commence without written approval from AHC.
- The EPC Contractor shall remain fully responsible for inter-disciplinary coordination, constructability, and compliance of the detailed designs with statutory requirements, ASI conditions, approved tender provisions, and execution constraints, while ensuring strict adherence to the approved architectural intent.
- Any revisions, rework, or additional detailing required to achieve compliance with the approved Master Plan, architectural intent, DBR, specifications, tender conditions, statutory provisions, or directions issued by AHC shall be carried out by the EPC Contractor at its own cost and responsibility, without any additional financial implication to the Authority and without entitlement to extension of time.

1.2.17.4 Architectural Objectives and Expectations

The following architectural objectives and expectations shall be achieved by the selected EPC Contractor through its design consultants for the Orientation / Interpretation Centre:

- ✓ The design shall strictly adhere to and preserve the intent of the approved Master Plan and approved architectural intent prepared by AHC.
- ✓ The architectural expression shall be contextual, respectful, and responsive to the archaeological and heritage significance of the Lothal site.
- ✓ The built form shall ensure clarity of circulation, structural integrity, durability, and long-term maintainability, while remaining sensitive to the surrounding landscape and protected zones.
- ✓ The architectural design shall establish the Orientation / Interpretation Centre and associated tensile structure as a landmark of national importance, without adversely impacting archaeological remains, viewsheds, or the heritage setting.
- ✓ The design shall facilitate future flexibility for non-structural interior fit-outs, which shall not form part of the EPC Contractor's scope.

1.2.17.5 Exhibition & Museum Design

- The engagement of Exhibition Design Consultants, and all works related to exhibition design, museum content, artefacts, displays, graphics, multimedia, curation, theming, interior fit-outs, and interpretive installations, shall be executed through a separate tender/package and are also included in the scope of the EPC Contractor under this

Agreement.

- The exhibition design programme, gallery sequencing, interpretive content, and internal planning indicated in the tender drawings and documents are indicative in nature only, intended to convey overall spatial and experiential intent. The detailed exhibition design, interior detailing, services integration, and content development shall be undertaken by the appointed Exhibition Design Consultant.
- All works inside the Orientation / Interpretation Centre beyond the core-and-shell provision, including all interior architectural works and all building services requirements (low-side and associated high-side components) required for exhibition and interior functioning, shall be entirely under the scope of the EPC Contractor through Exhibition Design Consultant.
- The EPC Contractor's scope shall also be to provide the completed core and shell of the Orientation / Interpretation Centre, including structural works, external envelope, base building services provisions, and completed toilet blocks including plumbing tanks, plumbing systems, finishes, and fixtures, in accordance with approved drawings and specifications.
- Electrical Systems:
    - The electrical plant and infrastructure have been planned based on load assumptions considered in the approved DBR for interior areas and shall form part of the EPC scope.
    - All low-side electrical works within the Orientation / Interpretation Centre, including internal distribution, wiring, fittings, fixtures, exhibition-related power, lighting, controls, and interior integration, shall be entirely executed by the Exhibition Design Consultant, in coordination with interior layouts.
- HVAC Systems:
    - The EPC Contractor shall provide space provisions for VRF outdoor units, power points for indoor and outdoor units, and condensate drain piping for indoor units, as part of base building works.
    - All remaining HVAC works, including the complete high-side and low-side VRF system, indoor and outdoor units, refrigerant piping, controls, accessories, testing, commissioning, and integration with internal design, shall be entirely designed, supplied, installed, and commissioned by the EPC Contractor designed through Exhibition Design Consultant, based on approved internal detail drawings.
- Notwithstanding the above, the EPC Contractor shall be responsible for ensuring effective coordination between its appointed consultants, Exhibition Design Consultant(s), and AHC, for all interface matters, including structural provisions, load assumptions, service interfaces, access requirements, construction sequencing, and dimensional coordination.
- The EPC Contractor and its consultants shall also be responsible for the design, detailing, or execution of exhibition or museum works; through a separate tender, they

shall ensure that all EPC works are carried out in a manner that does not impede, conflict with, or compromise the design, installation, operation, or future execution of the exhibition works.

- No changes, modifications, or alterations to the approved civil, structural, or architectural works forming part of the EPC scope shall be permitted on account of exhibition design development. All exhibition works shall be fully accommodated within the approved and executed architectural and structural framework.
- Any revisions, adjustments, or rework required in the EPC works to achieve coordination with the approved exhibition design, or due to non-compliance with the approved architectural intent, DBR, specifications, or directions issued by AHC, shall be carried out by the EPC Contractor at its own cost and responsibility, without any additional financial implication to the Authority and without entitlement to extension of time.



View of the Interpretation Centre

1.2.18 Project Schedule:

The milestone wise project scheduling is tabled below:

Project Schedule & Milestone Programme (Indicative)

Total Duration: 24 Months *(3 Months Design & Approvals + 21 Months Construction)*
(Subject to confirmation and internal review by ASI)

S. No.	Milestone	Start	Finish	Duration
1	Design Development, ASI & Statutory Approvals (All Components)	Month 0	Month 3	3 Months

S. No.	Milestone	Start	Finish	Duration
2	Site Preparation, Archaeological Protection & External Infrastructure	Month 3	Month 14	11 Months
3	Interpretation Centre – Core & Shell Construction	Month 4	Month 18	14 Months
4	Museum cum Orientation Centre – Designing of Interior works including exhibition spaces, exhibits and MEPF (including Tendering process and award of work to exhibition contractor)	Month 10	Month 12	3 months
5	Museum cum Orientation Centre – construction and execution of Interior works including exhibition spaces, exhibits and MEPF	Month 13	Month 22	10 months
6	Tensile Structure over Archaeological Excavations	Month 9	Month 18	9 Months
7	Testing, Commissioning, GRIHA 5-Star Closure & Final Handover	Month 23	Month 24	2 Months

1.3 Brief description of Bidding Process

1.3.1 ASI has adopted a Two envelope Bid System (collectively referred to as the "Bidding Process") for selection of the bidder for award of the Project. Under this process, the bid shall be invited under two parts. Eligibility and qualification of the Bidder will be first examined based on the details submitted under first part (Technical Bid) with respect to eligibility and qualifications criteria prescribed in this RFQ cum RFP. (The "Bidder"). The Financial Bid under the second part shall be opened only for those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFQ cum RFP.

The Bidding Document as uploaded can be viewed and downloaded free of cost by anyone including intending bidder. But the tender can only be submitted after uploading the mandatory scanned documents such as Bid Security Declaration & all other documents shall be as per Notice Inviting e-tender / RFQ cum RFP.

Government of India has issued guidelines (see Appendix-V) for qualification of bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply *mutatis mutandis* to this Bidding Process. The Authority shall be entitled to disqualify the Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid, and should give an undertaking to this effect in the form at **Appendix-I**.

1.3.2 Interested bidders are being called upon to submit their Bid in accordance with the terms

specified in this Bidding Document. The Bid shall be valid for a period of not less than 180 days from the date specified in the **BID DATA SHEET** for submission of BIDs (the "Bid Due Date").

1.3.3 The Preliminary Design prepared by the Authority/ consultants of the Authority (the "Preliminary Design Details") with the technical specifications, drawings etc will also be provided to the Bidders, the aforesaid documents and any addenda issued subsequent to this RFQ cum RFP Document, will be deemed to form part of the Bidding Documents.

1.3.4 **BID Security**

The Bidder shall furnish as part of its BID, a BID Security in the format at Appendix-VI shall be accepted in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (including e-Bank Guarantee) from any of the Commercial Banks or payment online in an acceptable form.

1.3.5 Bidders are invited to examine the Project in detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids for award of the Contract including implementation of the Project.

1.3.6 Bids will be evaluated for the Project on the basis of the lowest cost required by a Bidder for implementing the Project (the "Bid Price"). The total time allowed for completion of construction under the Contract (the "Construction Period") and the period during which the Contractor shall be liable for rectification of any defect or deficiency noticed as occurred in the Project after completion of the Construction Period (the "Defects Liability Period") shall be 10 (Ten) years for Structural, steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years and is indicated in the draft EPC Agreement forming part of the Bidding Documents. The Project shall be awarded to the Bidder quoting the lowest Bid Price who has qualified under both technical & financial parameters.

In this RFQ cum RFP, the term "Lowest Bidder" shall mean the Bidder who is offering the lowest Bid Price.

1.3.7 Generally, the Lowest Bidder shall be the selected Bidder. The remaining Bidders shall be kept in reserve and may, in accordance with the process specified in the RFQ cum RFP, be invited to match the Bid submitted by the Lowest Bidder in case such Lowest Bidder withdraws or is not selected for any reason. In the event that none of the other Bidders match the Bid of the Lowest Bidder, the Authority may, in its discretion, invite fresh Bids from the remaining Bidders or annul the Bidding Process, as the case may be.

1.3.8 Further and other details of the process to be followed at the Bid Stage and the terms thereof will be spelt out in the Bidding Documents.

1.3.9 Any queries or request for additional information concerning this RFQ cum RFP shall be submitted in writing or by fax and e-mail to the officer designated in Clause 2.11.4 below. The envelopes/ communications shall clearly bear the following identification/ title:

"Queries/ Request for Additional Information: Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis"

Bid Data Sheet

S.NO.	PARTICULARS	DETAILS
1.	**Name of Project**	Detailed Design, Procurement, Construction, Testing and Commissioning of Museum cum Orientation Centre at Lothal, Gujarat through Engineering, Procurement and Construction (EPC) mode
2.	**Issue of RFP**	**Monday, 09-02-2026**
3.	**Pre-Bid Meeting**	**Monday, 23-02-2026**
4.	**Reply to queries and issue of addendum/ corrigendum; if any**	**Friday, 06.03.2026**
5.	**Bid Due Date***	**Thursday, 12.03.2026 @ 1500 hrs (IST)**
6.	**Bid Validity**	**180 days from Bid Due Date**
7.	**Bid Security (Earnest Money Deposit)**	**INR 5.66 Crore (2% of the Contract Value)**
8.	**Opening of Technical Bid**	Will be notified in due course
9.	**Concept Presentation by Bidder**	Will be notified in due course
10.	**Declaration of Technical Evaluation Result**	Will be notified in due course
11.	**Opening of Price Bid**	Will be notified in due course
12.	**Declaration of Final Result**	Will be notified in due course
13.	**Issue of LOA**	Will be notified in due course
14.	**Performance Security**	**5% (five per cent)** of accepted contract value or revised contract value (if Contract value is increased more than 10% of the accepted contract value after revision) Successful Bidder shall have to submit an irrevocable bank guarantee from Public Sector Bank or a Private Sector Bank having Net Worth of Rs.10,000 Crore for the said amount as per proforma within 30 (thirty) days of receipt of LOA.
15.	**Retention Money**	**5% (five percent of EPC Cost),** which shall be deducted from every RA bill @ 6% until 5% is EPC is recovered. 2.5% shall be refunded within 60 days of issuance of completion certificate and balance after DLP or clearance certificate from labour office, whichever is later. The EPC Contractor, however, will have an option to submit Bank Guarantee in approved proforma from a nationalised bank for the full 5% Retention Money as set out in the Tender at the commencement of the Works and no cash deduction towards the same from bill shall be made.
16.	**Defects Liability Period**	**10 (ten) years** for Structural, steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be **2 (two) years** from

		completion certificate.
17.	**Commencement of works in relation to the Project**	**Within 15 (fifteen)** days from the date of issue of LOA
18.	**Time for completion of Project**	2 years from the date of issue of LOA.
20.	**Jurisdiction of Courts**	New Delhi

****Note***: *Bid Due Date shall be strictly adhered to by the Bidder and ASI shall not grant any extension to the Bid Due Date.*

2. INSTRUCTIONS TO BIDDERS (ITB)

A. GENERAL

2.1 Scope of Bid

2.1.1 The Authority wishes to receive Bids for Selection of experienced and capable Contractor for the "Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis".

2.2 Eligibility of bidder

2.2.1 For determining the eligibility of Bidder for their qualification hereunder, the following shall apply:

(a) **Joint Venture / Consortium NOT allowed.**

(b) A Bidder should be a company incorporated under the Indian Companies Act, 1956.

(c) A Bidder shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:-

(i) the Bidder, its Member or any constituent thereof and any other Bidder, its Member or any constituent thereof have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of the Bidder, its Member thereof (or any shareholder thereof having a shareholding of more than 5 per cent of the paid up and subscribed share capital of such Bidder, Member, as the case may be), in the other Bidder, its Member is less than 5 per cent of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in section 4A of the Companies Act 1956/2013. For the purposes of this Clause 2.2.1(c), indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the "Subject Person") shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub- clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

(ii) a constituent of such Bidder is also a constituent of another Bidder; or

(iii) such Bidder, or any Associate thereof, receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member thereof; or

(iv) such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or

(v) such Bidder, or any Associate thereof has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's' information about, or to influence the Bid of either or each other; or

(vi) such Bidder, or any Associate thereof, has participated as a consultant to the Authority in the preparation of any documents, design or technical specifications of the Project.

(d) A Bidder shall be liable for disqualification, if any legal, financial or technical adviser of the Authority in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the Agreement. In the event any such adviser is engaged by the selected Bidder or Contractor, as the case may be, after issue of the LOA or execution of the Agreement for matters related or incidental to the project, then notwithstanding anything to the contrary contained herein or in the LOA or the Agreement and without Prejudice to any other right or remedy or the Authority, including the forfeiture and appropriation of the Performance Security, as the case may be, which the Authority may have there under or otherwise, the LOA or the Agreement, as the case may be, shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Selected Bidder or Contractor for the same. For the avoidance or doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this RFQ cum RFP. Nor will this disqualification apply where such adviser is engaged after a period of 1 (One) year from the date of commercial operation of the Project.

2.2.2 To be eligible for bidding, the Bidder, shall fulfil the following conditions of eligibility:

(A) Technical Capacity:

(i) For demonstrating technical capacity and experience (the **"Technical Capacity"**), the Bidder, should have achieved minimum annual value of general construction work (as certified by CA, and at least 50 % of which is from Engineering Civil/Electrical/Mechanical as relevant to the work being procured) construction works, carried out in any of the year over the past 7 (seven) financial year preceding the Bid Due Date and have received payments

for Similar Projects including any other building projects in Turnkey/ Design & Build/EPC/PPP/Item Rate projects, such that the sum total thereof is at least Rs. 566 Cr. (Rupees Four Hundred Eighty Crores Only) (the **"Threshold Technical Capacity"**).

(ii) Provided that Similar Projects on Turnkey / Design & Build / EPC/PPP/Item Rate must meet following requirement.

A. Experience of having successfully completed or substantially completed (received more than 80% of project cost) Similar Projects during last 7 years ending previous day of last date of submission of application:

a. **At least three Similar Projects– Rs. 113 Cr. each**

or

b. **At least two Similar Projects –Rs. 141 Cr. each**

or

c. **At least one Similar Project – Rs. 226 Cr.**

- **"Similar Project"** means

(a) Museum, Public Exhibition Building, Airport, Stadium or Convention / Exhibition Centre having minimum built-up area of 100,000 Sq.ft in a single project;

OR

(b) Interpretation Centre, Visitor Centre, Experience Centre, Memorial or equivalent having minimum built-up area of 25,000 Sq.ft in a single project.

and

- At least 2 (two) projects completed in last 7 years incorporating large span Tensile / Membrane Roof structures each having minimum roof area of 16,650 Sqm

and

- At least 1 (one) project completed in last 7 years having structural steel fabrication & erection of minimum 2,500 MT in a single project.
- Projects of academic, healthcare, commercial, office, retail, residential or mixed-use typologies shall not be considered as Similar Projects.

AND

B. Experience of having **successfully provided architectural services**, including for an **Item Rate Project**, for a **Museum / Interpretation Centre or similar Public Cultural Facility** in **India or abroad**, during the **last 10 (Ten) years** ending on the previous day of the last date of submission of application.

For the purpose of this clause, qualifying **"Similar Projects"** shall be as defined in A. above

The Applicant shall satisfy **any one** of the following experience criteria:

a. Experience of **at least three (3) Projects** of minimum **Rs. 113 Crore** each
or
b. Experience of **at least two (2) Projects** of minimum **Rs. 141 Crore** each
or
c. Experience of **at least one (1) Project** of minimum **Rs. 226 Crore**

C. Experience of having **successfully provided exhibition design services**, including for an **Item Rate Project**, for a **Museum / Interpretation Centre or similar Public Cultural Facility** in **India or abroad**, during the **last 10 (Ten) years** ending on the previous day of the last date of submission of application.

The Applicant shall satisfy **any one** of the following experience criteria:

a. Experience of **at least three (3) Projects** of minimum **Rs. 14 Crore** each
or
b. Experience of **at least two (2) Projects** of minimum **Rs. 18 Crore** each
or
c. Experience of **at least one (1) Project** of minimum **Rs. 28 Crore**

AND

The following enhancement factor shall be applied for Clause 2.2.2(A) (i) & (ii) for updating the values of work to bring them to the base year. The current financial year in which the bid is invited shall be considered as base year:

Year	Financial year	Enhancement factor
Base (Year of Inviting Tender)	2025-2026	1.00
-1	2024-2025	1.07
-2	2023-2024	1.14
-3	2022-2023	1.22
-4	2021-2022	1.31
-5	2020-2021	1.40
-6	2019-2020	1.50
-7	2018-2019	1.61

Criteria B & C of above requirement can be fulfilled through a sub-consultant member of the team. Work requirement above shall not be applicable in case Bidder has performed these services in-house as a Turnkey / Design & Build / EPC / PPP contractor.

Note (For B & C above):

- *Provide qualifications for the design firm (sub-consultant), including background, expertise and approach. Describe capability and those aspects of the firm that make it especially suited to this project. Identify the location of the office, how long the firm has been practicing, the size of the firm including total professional and support staff by discipline, and any resources that are significant for this project. The firm should have been providing consultancy services in respective design profession/discipline for a minimum of 10 years.*
- *Team/Expertise Required for sub-consultant to be engaged/appointed by EPC contractor:*

a. ***Architectural Design Team:***

a.1 *Lead Architect with Masters – Minimum 20 Years Experience*

a.2 *Urban Designer with Masters – Minimum 15 Years Experience*

a.3 *Landscape Architect – Minimum 15 Years Experience*

a.4 *Conservation Architect – Minimum 10 Years Experience*

a.5 *Archaeologist – Minimum 10 Years Experience*

a.6 *Structural Engineer – Minimum 15 Years Experience*

b. **Exhibition Design Team:**

b.1 *Lead Museum Designer: M. Des. with minimum 15 years of experience having led museum design team from developing the design to execution and handover of minimum 2 museums of minimum area of 25,000 Sqft which would have included re-creations, graphics, AV, interactives and integration and installation of above on site.*

b.2 *Lead Exhibition Designer: M. Des. with minimum 15 years of experience having led exhibition design team from developing the design to execution and handover of minimum 2 exhibition of minimum area of 25,000 Sqft which would have included re-creations, graphics, AV, interactives and integration and installation of above on site.*

b.3 *Museologist: Minimum 10 years' experience.*

b.4 *Graphic Designer: Minimum 10 years' experience of undertaking museum info-graphics, murals and panels.*

b.5 *Writing/Editing: Minimum 10 years' experience of having undertaken museum projects.*

b.6 *Historian: Minimum 10 years' experience of having undertaken museum projects.*

b.7 *Archaeologist: Minimum 10 years' experience of having undertaken museum projects.*

b.8 *Curator: Minimum 10 years' experience CV required to demonstrate research on similar projects/ maritime history research/ ancient India/ economic history of India/ trade.*

b.9 *Other relevant experts: Having experience of developing museums/ history/ interactive visitor experience.*

c. MEPF (Mechanical, Electrical, Plumbing & Fire-fighting)

c.1 TECHNICAL ELIGIBILITY OF MEPF SUB CONTRACTOR

1) The subcontractor must have MEPF Design lead of at least 15 yrs. experience of designing heritage project or similar building.
2) The subcontractor should have in-house team or can have MOU with 3rd party having relevant experience for specialized works like radiant system, IT/ AV, security, etc.
3) MEPF subcontractor will be required to create an on-site office fully equipped, set up a site office which will be capable of developing as-built drawings & also co-ordinating with arch./ consultants & his principle office's shop drawings.
4) The subcontractor should be capable of working of 3D drawing, creating BIM model on licence software.
5) The subcontractor should be capable of executing MEPF work parallel to civil work of site work, to bring down the execution time for MEPF service at site with the use of pre-fabricated ducting; pre insulated piping, piping with grooved fittings & integrated support system for MEPF service & other technologies which will bring down the overall installation time.
6) The subcontractor should have onboard testing balancing & commissioning agency for overall engineering services like HVAC, Plumbing, Fire fighting/ Electrical works
7) The subcontractor should have GRIHA certified/ BEE certificated professional to compliment GRIHA certification & also support in final testing, Commissioning & balancing activities.
8) The subcontractor should have accredited/ certified/ validated measuring instruments for carrying out testing, commissioning & balancing. Validation certificates should be submitted for all measuring instruments while commissioning the trial run.
9) The subcontractor to submit testing, commissioning & balancing protocol/ documents for the approval of client, arch./ consultant & PMC
10) Subcontractor to carry out the detailed thermo-graphic analysis for entire electrical system like transformer, DG, Panel, junction box, concealed cabling, post commissioning. This should being the part of fire audit report post completion of project, before project handing over to client for operations.

c.2 HVAC System:

1) The subcontractor should have completed at least 1 project with 80% capacity (value) or 2 nos of 60% capacity each of this tender in last 7 years.
2) The subcontractor should have not delayed the initial design submission at most by 3 months.
3) The subcontractor should have completed 1200 TR of water cooled Chillers system minimum 3 projects in last 7 years.

4) The subcontractor should have the experience in executing "GRIHA" platinum rating Building at least 1 project in last 7 years

c.3 Electrical System:

1) The subcontractor should have completed at least 1 project with 80% capacity or 2 nos 60% of capacity each of this tender in last 7 years.
2) The subcontractor should have not delayed the initial design submission at most by 3 months.
3) The subcontractor should have the experience in executing "GRIHA" platinum rating Building at least 1 project in last 7 years
4) 66 kV switch yard:
   a) The subcontractor should have all the statutory approvals from the concern electrical authorities (CPWD/any STATE PWD dep/CEI)
   b) The subcontractor should have completed 33KV underground cable laying work minimum 2 projects in last 7 years
   c) The subcontractor should have experience of 33 kV switch yard work of 5 MVA & above and should have completed minimum 2 project in last 7 years.
5) Electrical Distribution Work:
   a) The subcontractor should be having valid 33 KV Electrical valid electrical licence issued in any state in India.
   b) The subcontractor should have experience of completing underground 11 kV cable laying work for Government/ semi-govt./ private sectors in last 5 years

c.4 Fire Fighting System:

1) The subcontractor should have completed at least 1 project with 80% capacity or 2 nos 60% of capacity each of this tender in last 7 years.
2) The subcontractor should have not delayed the initial design submission at most by 3 months.
3) The subcontractor should have following experience in completion of minimum projects in past 3 years:
   a) Installation of Hydrant system of having minimum 100 nos. hydrant in the single premises
   b) Installation of minimum 5000 sprinklers with Sprinkler Installation Valves.
   c) Subcontractor should have performed Hydraulic calculations on Pipenet Software for Hydrant & Sprinkler Systems.
   d) Installation of 2 nos of 171 cum/hrs capacity electrical driven FFTG pump sets, 1 Nos of Diesel engine driven pump set of 171 cum/hrs & 2 nos. 10.8 cum/hrs jockey pump sets
   e) Installation of gas flooding system for server room/ electrical panel

room/ UPS rooms of minimum 150 m3 room volume

f) Installation of passive fire protection system with minimum 100 sq. ft. of UL listed Bulk Head system & other passive sealant system of 2 hrs fire rated

c.5 IBMS vendor.

1) The subcontractor should have completed at least 3 projects with 80% capacity of this tender in last 5 years. The nominated sub-contractor shall engage specialised IBMS OEM who should meet all the requirements mentioned in this sub head.
2) The subcontractor should have not delayed the initial design submission at most by 3 months.
3) The subcontractor should have the experience in executing "GRIHA" platinum rating Building at least 2 project in last 7 years
4) Only original manufacturer of Integrated BMS, Fire Alarm, CCTV and Access control system will be pre qualified. If system integrator is selected, there must be tri-party agreement between main contractor, manufacturer & the system integrator. Minimum 3 project in last 5 years should be completed by the "tri-party"
5) Integrated IBMS job of the similar nature with minimum 1 projects of approximate 5 crores value will be pre qualified however they need to produce completion letter from respective clients.
6) Minimum points executed in single project:
   - 3000 Input output points
   - 4000 Smoke detectors
   - 1000 IP cameras
   - 200 Access card readers
7) The IBMS system proposed in this job is going to be latest state of art system, which will have software integration with Chiller Plant Manager, VRV system, Fire alarm and evacuation system, DG, Electrical panels, UPS, and Energy meters apart from hard wired point for AHUs, Fans and various types of pumps MEPF systems. This would also have capability for web based graphic software and latest dynamics. The contractor should have completed minimum 1 projects in last 5 years for above integration capabilities.

c.6 Plumbing work :

1) The subcontractor should have completed at least 1 project with 80% capacity or 2 nos 60% of capacity each of this tender in last 7 years.
2) The subcontractor should have not delayed the initial design submission at most by 3 months.
3) The subcontractor should have the experience in executing "GRIHA" platinum rating Building at least 2 project in last 7 years
4) subcontractor should have completed minimum three projects with installation

of min 250 KLD STP Plant.

5) Subcontractor should have experience of SBR Technology minimum 2 projects in last 7 years.

6) Subcontractor should have completed at least 2 High rise projects in plumbing services including Hydro-pneumatic, Water supply, drainage system, storm water network, hard/soft landscape plumbing work, Rain water harvesting & STP etc.

7) Subcontractor should have experience of installing all types for plumbing piping work in water supply (i.e. GI, CPVC , UPVC ,SS ,COPPER , PPR ,PB and Pex Pipes, DI pipe) and drainage system (i.e. SWR UPVC , PP , CI HUBLESS ,RCC,DWC Pipes, GI Pipes, Stoneware pipes).

d. Audio – Visual, Acoustics & Multimedia

1. Specialised AV & Multimedia Consultant

Responsible for Design, Acoustics Planning, and Content Creation.

A. Firm/Entity Eligibility

Project History: The entity must have completed Consultancy work for at least three (3) similar projects within the last 7 years.

Definition of Similar Work: Projects must be of the nature of Museums, Art Galleries, Customer or Executive Briefing Centres, or Immersive Customer Experiences.

Scope Definition: Projects must involve Acoustic, Audio-Visual (AV), and Multimedia Systems, explicitly including the Design of Content for Multimedia.

Financial & Volume Criteria: Validated by Purchase Orders and Completion Certificates meeting one of the following:

Three similar works costing not less than 40% of the estimated cost.

OR Two similar works costing not less than 50% of the estimated cost.

OR One similar work costing not less than 80% of the estimated cost.

Creative Portfolio: The firm must submit a digital showreel or portfolio demonstrating high-quality content design from the projects listed above.

B. **Key Personnel Requirements**

Role	**Qualifications & Experience**	**Updates & Modernization**
Acoustics Consultant	• **Education:** Degree in Acoustical Engineering OR B.Arch with specialization in	• **Added:** Preference for experience in *Immersive Audio* environments (e.g., Dolby Atmos/Spatial Audio).

	Acoustics, OR a work history in this area of more than 10 years. • **Exp:** Min. **10 Years** in design/supervision of large-scale museums, auditoriums, or immersive spaces.	
AV Consultant	• **Education:** Bachelor's in Electrical, OR Degree in Electronics and Communications OR Multimedia. • **Exp:** Min. **10 Years** in design/supervision. • **Tools:** AutoCAD, **SketchUp**.	Proficiency in **SketchUp** and AutoCAD for 3D spatial planning, projector throw calculation, and sightline analysis. AVIXA CTS-D certification recommended.
Multimedia/ Video Expert	• **Education:** Masters in Multimedia, Film Direction, **Interaction Design, or New Media Arts** or similar design degree. • **Exp:** Min. **10 Years**. • **Skills:** AV design, scripts, infographics, animation.	Proficiency in **Adobe Creative Suite** (After Effects, Premiere, Photoshop). • **Visualization:** Ability to use **SketchUp** to visualize content placement within the 3D environment.

2. AV System Integrator (SITC Agency)
Responsible for Supply, Installation, Testing, and Commissioning.1
A. Firm/Entity Eligibility (Updated)2

- Project History: The entity must have completed Supply, Installation, Testing, and Commissioning (SITC) works for at least three (3) similar projects3 within the last 7 years.
- Definition of Similar Work: Projects must be of the nature of Museums, Art Galleries, Customer or Executive Briefing Centres, or Immersive Customer Experiences.
- Financial & Volume Criteria: Validated by Purchase Orders and Completion Certificates meeting one of the following:
  - Three similar SITC works costing not less than 40% of the estimated cost.
  - OR Two similar SITC works costing not less than 50% of the estimated cost.
  - OR One similar SITC work costing not less than 70% of the estimated cost.

B. Technical & Personnel Requirements

1. Documentation & Shop Drawings:
   - The Integrator must demonstrate the capability to produce detailed Shop Drawings and Rack Elevations.
   - The drafting team must be proficient in SketchUp to provide 3D visualizations of equipment mounting details and rack layouts prior to installation, alongside standard AutoCAD 2D drawings.
2. Authorized Dealership (MAF):
   - Must hold valid Manufacturer Authorization Forms (MAF) for primary AV brands (Projectors, LED, Audio, Control) to ensure warranty support.
3. Technical Certification:
   - The Project Manager or Lead Site Engineer must hold a valid AVIXA CTS-I (Certified Technology Specialist - Installation) certification.
4. Show Control Programming:

   The entity must demonstrate in-house capability for Timeline-based Show Control Systems such as Medialon or similar (e.g., Alcorn McBride, Dataton Watchout). This ensures the ability to program complex, synchronized multimedia sequences essential for these specific venue types.

e. Signages and Way Finding Expert

Masters in Town Planning/ Tourism/ B. Arch with minimum 15 years' experience

1) Firm shall have min 10 years' experience of Signage & Wayfinding Design Consultancy in Design of museum, exhibit centre, heritage buildings, conventional centre, international airport, hospitality projects, exhibition centres township.

2) Annual Turnover - 2 Cr
3) No of Projects executed - 300+
4) Experience Project with Similar Scale - 3 nos & Similar Nature - 1 no
5) Having Inhouse Team off Professional with experience in Architecture, Product Designers and Graphics Designers
6) Consultancy Design Studio with an inhouse Team of 10+ members

f. Lighting Expert

Lead Designer/Principal Designer owner in the design firm, must be holding a minimum of a Masters' Degree in Design or Architecture or Lighting Design. MINIMUM Working experience for this point is 10 years. The Only exception to the Masters' Degree in Design/Architecture etc can be an Industry known & accepted Principal Designer with 25+ years of established lighting experience with resume + affidavit supported background in theatrical or thematic or museum lighting.

The EPC Contractor shall suggest names of minimum 2 prequalified SUB-Contractors as Lighting Designers for DESIGN Development of Lighting System & minimum 1 Prequalified SUB-Contractor as Lighting Integrators for Supply, Supervision, Aiming, Testing & Commissioning of Indoor & Outdoor Lighting system and the Main Architect & his lighting consultant shall approve them based on their experience and current capability.

Lighting Design Sub-Contractor

The aforementioned Lighting Design Sub-Contractor should have completed/ongoing at least 2 similar typology Lighting Design projects for Museums, Exhibition/Convention Centres, Art Galleries, Metro Stations/Airports with Permanent Art installations, and these projects must be involving ARCHITECTURAL INDOOR, OUTDOOR LIGHTING System. Completion/Ongoing certificates stating Project Name, PO Number & Date, PO Value with PO Copy attached (rates may be redacted) showing the SCOPE of work of similar typology of items to this tender included, to be attached supported by DBR and finished/ongoing photographs of the above 2 projects. AND the Lighting Design Team members should meet the following criteria :-

- Lead Designer/Principal Designer/Associate Designer employed in the design firm and intending to work on This NHMC EPC project, must be holding a minimum of a Masters' Degree in Lighting Design or Lighting Planning or Lighting Management or Theatre Lighting and employed constantly within the same firm for a minimum of 5 years, meeting above criteria. MINIMUM Working experience for this point is 5 years.
- Lighting Design sub-contractor must show in-house capability employed in the design firm, showing proven in-house proficiency in ACAD and REVIT and/or SKETCHUP and DIALUX EVO and/or DIALUX and/or AGI32 with ability to create realistic lighting renders using real IES/LDT files plugged into Dialux/Relux/AGI to simulate accurate & intended/planned lighting effects &

strategies on the Main Architect given 3D/2D wireframe model of the NHMC project components. Professional competency in Photoshop/3D Max for photorealistic Lighting renders is a required skill.

g. Sustainability

Education - Post-Graduation specialising in Environmental/sustainable Design, Environmental Engineering, and other allied Subjects

Experience - Min. 7 years' experience to include at least 4 rated project (GRIHA 5 star or LEED Platinum)

Accreditation - LEED AP BD+C and/or GRIHA CP, GRIHA evaluator

h. FACADE SUBCONTRACTOR'S QUALIFICATION:

- All the work shall be executed only by pre-qualified specialized contractor under single point responsibility, who is having experience in the engineering, fabrication, finishing and installation of cladding, fully or Unitized Structural Glazed panel/window including glazing and sealing of glass, Aluminium composite panel and polycarbonate and sheet metal cladding, Patch fitting door and fixed panel and connected works of similar nature of this project.
- The contractor must have minimum 25000 sft of covered fabrication area equipped with the state of art CNC cutting, notching, engraving, drilling, routing etc machines. The factory must have a minimum space 1500 sft air-conditioned dust free enclosed area for structural sealant application in factory.
- The contractor must have minimum 5 in house cad draughtsman having experience in façade draughting of 5 years.
- The contractor must have in house structural design engineer having a design experience of not less than 5 years in the façade works.
- The contractor shall have an annual turnover of 3 times the project estimated value and also shall have funds of a sum of 30% of the project value.
- The contractor shall have minimum strength of 100 labours comprising of 20% skilled worker and 80% unskilled workers.
- The contractor must have registration with all the relevant statutory authority.
- The contractor must have a project time scheduling and monitoring team of min two people having experience in operating editing modifying and updating time schedule in Microsoft office or Primavera software.
- The contractor must have Cad Revit Sketch up software and all drawings must be made in BIM software to carry out the clash checks.
- The contractor must have own anchor pull out testing machine, wind speed measuring machine, decibel meter, temperature measuring lazer devices, total station, lazer plumb, load cells from 100 kg to 5000 kg. on site water hose testing set as per AMAA 501.2
- Subcontracting any part of work by specialized signage, backlit facade and

Structural Glazing agency is specifically prohibited, except for that which may be approved by Authority/PMC/Architect in writing prior to award of the Contract. If approval is granted to subcontract installation and/or glazing, approval is contingent upon the supervision of his subcontractor(s) by the same full-time supervisor who co-ordinates and supervises full scale mock-up work at the testing laboratory and installation at the project.

- The façade contractor himself shall have an experience of more than 10 years in the façade industry and shall have executed min 2 project as EPC project.

i. Mega-Span Tensile Fabric Canopy System

i. The intent of this Pre-Qualification process is to shortlist only those bidders who possess demonstrated capability, proven experience, and institutional capacity to design, engineer, fabricate, erect, and commission large-span tensile membrane roofing systems of international scale and complexity, particularly systems comparable to closed or partially closed stadium roofs, mega-span public structures, and long-span tensile enclosures.

Given the unprecedented span, archaeological sensitivity, and performance-based nature of the project, participation shall be restricted to bidders who either independently, or through formal association, have executed globally benchmarked tensile structure projects and possess deep technical competence in tensile membranes, cable systems, form-finding, erection methodology, and long-term performance behaviour.

ii. ELIGIBLE BIDDING STRUCTURE

The bidder shall be:

- A lead Indian entity in formal technical association with an international / Indian tensile specialist

The bidding entity must include, either as a named specialist subcontractor, an agency that has direct experience in large-span closed or semi-closed stadium roofs or equivalent mega-span tensile structures.

iii. TECHNICAL EXPERIENCE CRITERIA – CORE REQUIREMENT

- Mega-Span Tensile Roof Experience (Mandatory)

The bidder (or its associated tensile specialist) shall have successfully completed at least:

- One (1) tensile or membrane roofing project with a clear span of not less than 100 m,

within the last 15 years, for any of the following building typologies:

- Closed or retractable roof stadiums
- Covered sports arenas
- Exhibition halls / convention centers
- Airport terminals with tensile roofing
- Large public infrastructure with membrane roofing

Temporary structures, exhibition pavilions, tents, or demountable event canopies shall not be considered.

- Closed / Semi-Closed Stadium Roof Experience (Preferred & Weighted)

  Preference shall be given to bidders associated with agencies that have executed closed or semi-closed stadium roofs, including but not limited to:

  - Cable-supported membrane roofs
  - ETFE / PTFE / PVC tensile systems
  - Hybrid steel–cable–membrane roofing

  Such experience shall demonstrate:

  - Wind-critical roof behavior
  - Drainage and ponding control
  - Large-scale erection sequencing
  - Integration with primary steel arches or compression rings

iv. DESIGN & ENGINEERING CAPABILITY

- Specialist Tensile Engineering (Mandatory)

  The bidder shall demonstrate access to dedicated tensile structure engineering expertise, either in-house or through a named associated consultant, with proven experience in:

  - Form-finding analysis
  - Non-linear membrane and cable analysis
  - Prestress optimization
  - Creep and relaxation modeling
  - Wind-induced behavior of flexible membranes
  - Drainage and ponding analysis

  At least one completed project shall have involved independent proof checking or wind tunnel testing.

- International Engineering Association (Preferred)

  Where the lead bidder is an Indian entity, it must associate with an international tensile consultant / contractor who has executed stadium-scale tensile works.

  The association shall be evidenced by:

  - A signed MoU / Technical Collaboration Agreement, and
  - Clear definition of roles covering design, engineering review, patterning strategy, erection methodology, and performance assurance.

v. FABRICATION & INSTALLATION EXPERIENCE

- Tensile Fabric Fabrication Capacity

The bidder or its associated specialist shall demonstrate:

- Access to industrial HF / RF welding facilities suitable for architectural membranes
- Experience in fabrication of large membrane panels (>1,500 sqm single panel equivalent)
- Controlled QA/QC processes including seam testing and traceability

On-site hot-air welding alone shall not be considered sufficient.

- Erection Under Constraints (Mandatory)

  The bidder shall demonstrate experience in at least one project involving restricted erection conditions, such as:

  - Limited crane access
  - Heritage / sensitive sites
  - Tight tolerances and controlled tensioning
  - Phased erection over live public zones

  This is critical given ASI constraints at Lothal.

vi. FINANCIAL CAPACITY

- Turnover Requirement

  The associated tensile specialist shall have 100 Crore turnover qualification in last 3 financial years. The associated tensile specialist may contribute up to 50% of the turnover qualification, provided the association agreement is submitted.

- Project Value Experience

  The bidder shall have executed at least one tensile or long-span roofing project of value not less than:

  - INR 50 Crores,

  completed within the last 10 years.

vii. KEY PERSONNEL CRITERIA

The bidder shall nominate the following key professionals, either in-house or through association:

1. Tensile Structure Design Lead
   - Minimum 15 years experience
   - At least 2 mega-span tensile roofs executed
2. Erection & Tensioning Specialist
   - Experience in controlled prestressing of membrane systems
   - Stadium or large-roof experience mandatory
3. Quality & Fabrication Manager
   - Experience in architectural membrane fabrication QA

CVs, project sheets, and role descriptions shall be submitted.

viii. HERITAGE & STATUTORY EXPERIENCE (Preferred)

Additional weightage shall be given to bidders who have experience in projects involving:

- Archaeological or heritage sites
- ASI / UNESCO / protected monuments
- Non-intrusive or reversible construction systems

This aligns with the conservation-led philosophy of the project.

ix. EXCLUSIONS (IMPORTANT)

The following shall not qualify for PQ:

- Pure tent or temporary structure contractors
- Event canopy fabricators
- Agencies with experience limited to car parks, walkways, or small atriums
- Firms without proven large-span tensile or stadium-scale experience

x. SUBMISSION REQUIREMENTS

The PQ submission shall include:

- Project datasheets with spans, areas, and system description
- Client completion certificates
- Drawings / photographs of completed works
- Association agreements (where applicable)
- CVs of key personnel
- Financial statements
- Fabrication facility details

xi. CLIENT'S RIGHT

The Authority reserves the right to:

- Verify claims through independent checks
- Reject bids with exaggerated or misleading experience
- Seek clarifications or additional documentation
- Limit the number of pre-qualified bidders in the interest of quality and heritage protection

*****The firm should provide CV of all the personnel mentioned above in the format given in appendix - VIII.***

*****Experts can either be on the roll / on contract of Bidder or its Sub-consultant except the Lead Architect and the Lead Designer who has to be on regular employment either of Applicant or of its Sub-consultant.***

*****Neither at RFP stage nor during construction, these experts can be replaced without prior approval of ASI.***

*****Replacement can be considered only with equally or better experienced and competent***

expert.

*****In no case, more than 4 replacement will be allowed. However, Lead Architect and Lead Design Expert cannot be replaced under any usual circumstances.***

(B) Financial Capacity:

(a) Average annual financial turnover during last three years should be at least Rs. 283 Cr. (Rupees Two Hundred Eighty-Three Crore only)

(b) Bid Capacity

Bidder shall also fulfil the eligibility criteria such that their available bid capacity is more than the Rs. 283 Cr. (Rupees Two Hundred Eighty-Three Crores only). The available bid capacity will be calculated as under:

Assessed Available Bid capacity = (A*N*2 - B)

Where

A = Maximum value of civil engineering works in respect to Projects (Turnkey / EPC / PPP Contract / Item Rate contracts / Design & Build Construction works) executed in any one year during the last five years ($updated to the price level of the year indicated in Table below) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

B = Value (updated to the price level of the year indicated in Table below) of existing commitments and on-going works to be completed during the (Two years) years. i.e. period of completion of the work for which bid is invited.

Note: *The statement showing the value of existing commitments and on-going works as well as the stipulated period completion remaining for each of the works listed should be countersigned by the Engineer in the charge, not below the rank of an Executive Engineer or equivalent. Also, such list of ongoing works including agreement values and balance works shall be declared on non-judicial stamp paper of worth INR 100/- and notarized.*

The following enhancement factor shall be applied for updating the values of work to bring them to the base year. The current financial year in which the bid is invited shall be considered as base year.

Year	Financial year	Enhancement factor
Base (Year of Inviting Tender)	2025-2026	1.00
-1	2024-2025	1.07
-2	2023-2024	1.14
-3	2022-2023	1.22
-4	2021-2022	1.31

-5	2020-2021	1.40
-6	2019-2020	1.50
-7	2018-2019	1.61

(c) **Profitability:** The Bidder should not have suffered any financial loss for more than one year during the last three years, ending at the close of the preceding financial year. The Bidder should submit attested copies of auditor's report.

(d) **Net Worth:** The Bidder shall have a minimum Net Worth (the "Financial Capacity") of Rs. 42 Cr. (Rupees Forty-Two Crores only) at the close of the preceding financial year. All the above items should be certified by the Chartered Accountant.

2.2.3 Joint venture not allowed

2.2.4 The Bidder shall enclose with its Bid, to be submitted as per the format at Appendix-I, complete with its Annexes, the following:

(i) Certificate(s) from its statutory auditors[1] or the concerned client(s) stating the payments received or in case of an EPC/ PPP/item rate/construction project, the construction carried out by itself, during the past 7 years, in respect of the Similar Projects; and

(ii) Certificate(s) from its statutory auditors specifying the financial capacity parameters of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such net worth conforms to the provisions of this Clause 2.2.4 (ii).

For the purposes of this RFQ cum RFP, net worth (the "Net Worth") shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

[1] In case duly certified audited annual financial statements containing explicitly the requisite details are provided, a separate certification by statutory auditors would not be necessary in respect of Clause 2.2.4 (i). In jurisdictions that do not have statutory auditors, the firm of auditors which audits the annual accounts of the Bidder may provide the certificates required under this RFQ cum RFP

2.2.5 The Bidder should submit a Power of Attorney as per the format at Appendix-II, authorising the signatory of the Bid to commit the Bidder.

2.2.7 Any entity which has been barred by the Central/ State Government/PSU, or any entity controlled by it, from participating in any project, and the bar subsists as on the date of bid, would not be eligible to submit the bid.

2.2.7.1 Debarment from bidding.

(i) A bidder shall be debarred if he has been convicted of an offence—

- under the Prevention of Corruption Act, 1988; or
- the Indian Penal Code or any other law for the time being in force, for causing any loss of life or property or causing a threat to public health as part of execution of a public procurement contract.

(ii) A bidder debarred under sub-section (i) or any successor of the bidder shall not be eligible to participate in a procurement process of any procuring entity for a period not exceeding three years commencing from the date of debarment. Department of Expenditure (DoE) will maintain such list which will also be displayed on the Central Public Procurement Portal.

(iii) A procuring entity may debar a bidder or any of its successors, from participating in any procurement process undertaken by it, for a period not exceeding two years, if it determines that the bidder has breached the code of integrity. The Ministry/Department will maintain such list which will also be displayed on their website.

(iv) The bidder shall not be debarred unless such bidder has been given a reasonable opportunity to represent against such debarment.

2.2.8 The Bidder should, in the last (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial Authority or a judicial pronouncement or arbitration award against the Bidder, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder.

2.2.8.1 The Bidder may provide details of all their on-going projects along with stage of litigation, if so, against the Authority / Governments.

2.2.8.2 The Bidder may also provide details of on-going process of blacklisting if so, under any contract with Authority / Government.

2.2.8.3 The Authority reserves the right to reject an otherwise eligible bidder on the basis of the information provided under clause 2.2.8. The decision of the Authority in this case shall be final.

i)

2.2.9 The Technical Capacity and Net Worth of the Bidder shall be computed under Clauses 2.2.2, 2.2.4 & Clause 3 (Criteria for Evaluation).

2.2.10 The following conditions shall be adhered to while submitting the bid :

(a) Bidder should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexes is insufficient. Alternatively, Bidder may format the prescribed forms making due provision for incorporation of the requested information;

(b) Information supplied by the Bidder (or other Member) must apply to the Bidder, Member named in the Bid. Invitation to submit Bids will be issued only to Bidder whose identity and/ or constitution is identical to that at qualification;

(c) in responding to the bid submissions, Bidder should demonstrate their capabilities in accordance with Clause 3.1 below; and

(d) in case the Bidder does not have the relevant experience for any specific element of

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the project, it shall be deemed to have given an undertaking to engage specialized personnel/ sub-contractors in accordance with the Agreement.

2.2.11 Authority Not withstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of the Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.3 Number of Bids and costs thereof

2.3.1 No Bidder shall submit more than one Bid for the Project.

2.3.2 The Bidder shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bid Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.4 Site visit and verification of information

Bidders are encouraged to submit their respective Bid after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations (including National Green Tribunal), and any other matter considered relevant by them.

The Geotechnical and other related data provided by the Authority are based on the investigation conducted by Authority and are for reference purposes only. The Bidder should satisfy himself with the data furnished and make his own investigations if required for submitting his offer.

2.5 Acknowledgement by Bidder

2.5.1 It shall be deemed that by submitting the Bid, the Bidder has:

(a) made a complete and careful examination of the RFQ cum RFP;

(b) received all relevant information requested from the Authority;

(c) accepted the risk of inadequacy, error or mistake in the information provided in the RFQ cum RFP or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.4 above; and

(d) Agreed to be bound by the undertakings provided by it under and in terms hereof.

2.5.2 The Authority shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFQ cum RFP or the Bidding Process, including any error or mistake therein or in any information or data given by the Authority.

2.6 Right to accept or reject any or all Applications/ Bids

2.6.1 Notwithstanding anything contained in this RFQ cum RFP, the Authority reserves the right to accept or reject any Bid and to annul the Bidding Process and reject all Applications/ Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore. In the event that the Authority

rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

2.6.2 The Authority reserves the right to reject any Application and/ or Bid if:

(a) at any time, a material misrepresentation is made or uncovered, or

(b) The Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the Bid.

If such disqualification/ rejection occur after the Bids have been opened and the Lowest Bidder gets disqualified/ rejected, then the Authority reserves the right to:

(i) invite the next lowest Bidder to match the price bid of the first lowest bidder

(ii) Take any such measure as may be deemed fit in the sole discretion of the Authority, including annulment of the Bidding Processes.

2.6.3 In case it is found during the evaluation or at any time before signing of the EPC Agreement or after its execution and during the period of subsistence thereof, including the Defects Liability Period, that one or more of the bid conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Contractor either by issue of the LOA or entering into the EPC Agreement , and if the Bidder has already been issued the LOA or has entered into the EPC Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFQ cum RFP, be liable to be terminated, by a communication in writing by the Authority to the Bidder , without the Authority being liable in any manner whatsoever to the Bidder and without prejudice to any other right or remedy which the Authority may have under this RFQ cum RFP, the Bidding Documents, the EPC Agreement or under applicable law.

2.6.4 The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFQ cum RFP. Any such verification or lack of such verification by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

B. DOCUMENTS

2.7 Contents of the Bid

This RFQ cum RFP comprises the disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.10.

VOLUME 1	**Request for Qualification cum Request for Proposal**
Section 1	Introduction
Section 2	Instructions to Bidders
Section 3	Criteria for Evaluation
Section 4	Fraud & Corrupt Practices
Section 5	Pre-Bid Conference
Section 6	Miscellaneous

Appendices

I. Letter comprising the Bid

II. Power of Attorney for signing of Bid

III. Guidelines of the Department of Disinvestment

IV. Appendix-VI- BID Security Declaration

V. Appendix-VII- Integrity Pact

VI. Appendix-VIII- Non-Disclosure Agreement

VOLUME 2 **EPC Agreement & Schedules**

VOLUME 3 **Codes of Practices & Technical Specifications**

VOLUME 4 **Drawings**

2.8 Clarifications

2.8.1 Bidders requiring any clarification on the RFQ cum RFP may notify ASI in writing or by fax and e-mail in accordance with Clause 1.3.9. They should send in their queries before the date specified in the schedule of Bidding Process contained in Clause 1.4. The Authority shall endeavour to respond to the queries within the period specified therein.

2.8.2 ASI shall endeavour to respond to the questions raised or clarifications sought by the Bidder. However, ASI reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification.

2.8.3 ASI may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by ASI shall be deemed to be part of the RFQ cum RFP. Verbal clarifications and information given by ASI or its employees or representatives shall not in any way or manner be binding on ASI.

2.9 Amendment of RFQ cum RFP

2.9.1 At any time prior to the deadline for submission of Bid, ASI may, for any reason, whether at its own initiative or in response to clarifications requested by the Bidder, modify the RFQ cum RFP by the issuance of Addenda.

2.9.2 Any Addendum thus issued will be published on the website https://eprocure.gov.in/eprocure/app

2.9.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, ASI may, in its sole discretion, extend the Bid Due Date.

C. PREPARATION AND SUBMISSION OF BID

2.10 Language

The Bid and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Bidder with the Bid may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Bid, the English language translation shall prevail.

2.11 Format and signing of Bid Application

2.11.1 The Bidder shall provide all the information sought under this RFQ cum RFP. The Authority will evaluate only those Bids that are received online in the required formats and complete in all respects and Bid Security Declaration, Tender Document Fee, and POA are received in Hard copies. Incomplete and /or conditional Bids shall be liable to rejection.

Sealing and Marking and submission of Bids Documents comprising Technical and Financial Bid

2.11.2 The Bidder shall submit the BID online along with other supporting scanned documents as mentioned below.

Technical Bid

(a) (Letter comprising the Technical BID) Appendix-I;

(b) Power of Attorney for signing the BID as per the format at Appendix-II;

(c) Certificates in accordance with Appendix-I (all annexure)

(d) BID Security as per the format at Appendix-VI

(e) Registration copies of GST (applicable only for Indian bidder)

(f) Integrity Pact as per Appendix-VII

(g) Non-Disclosure Agreement as per Appendix-VIII

(h) Details required as per Clause 3.5.2 & Clause 3.5.3.

Financial Bid

(a) Letter comprising the Financial Bid- Appendix-I B

(b) Price Bid- Appendix-I B Annex- I

2.11.3 The documents supporting the BID shall be submitted in a separate envelope marked as "Enclosures of the BID". The documents shall include:

(i) Power of Attorney for signing the Bid as per the format at Appendix-II;

(ii) BID Security in the format at Appendix-VI .

The envelope specified in Clauses 2.11.3 shall be placed in an outer envelope, which shall be sealed. The envelopes shall clearly bear the identification "BID for the Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis" and shall clearly indicate the name and address of the Bidder. In addition, the BID Due Date should be indicated on the right hand top corner of each of the envelopes.

2.11.4 Each of the envelopes shall be addressed to: the Authority's address details

ATTN. OF: **Director General**, Archaeological Survey of India

ADDRESS: **Archaeological Survey of India**
Dhrohar Bhawan, 24, Tilak Marg
New Delhi -110001._

TEL NO: _____

E-MAIL: dirmuse.asi@gov.in dirmuse.new@gmail.com

2.11.5 If the envelopes are not sealed and marked as instructed above, the Authority assumes no

responsibility for the misplacement or premature opening of the contents of the Bid and consequent losses, if any, suffered by the Bidder.

2.11.6 Bids submitted by fax, telex, telegram or e-mail shall not be entertained and shall be rejected.

2.12 Bid Due Date

2.12.1 Bids should be submitted before 1500 hours on the Bid Due Date, at the address provided in Clause 2.11.4 in the manner and form as detailed in this RFQ cum RFP. A receipt thereof should be obtained from the person specified in Clause 2.11.4.

2.12.2 The Authority may, in its sole discretion, extend the Bid Due Date by issuing an Addendum in accordance with Clause 2.9 uniformly for all Bidders.

2.13 Late Bids

Bids received by the Authority after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

2.14 Modifications/ substitution/ withdrawal of Bids

(i) The Bidder may modify, substitute or withdraw its e- BID after submission prior to the BID Due Date. No BID shall be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.

(ii) Any alteration / modification in the BID or additional information supplied subsequent to the BID Due Date, unless the same has been expressly sought for by the Authority shall be disregarded.

(iii) The bidder may modify its e-BID online on the e-tendering portal at any time before the deadline for submission of bids by using the bid modification option available on the portal. The last digitally signed e-BID submitted prior to the deadline shall be considered as final.

(iv) For withdrawal of BID, bidder has to click on withdrawal icon at e-tendering portal and can withdraw its e-BID.

(v) Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, bidder cannot re-submit the e-BID.

2.15 Bidder's Responsibility

The Bidder is expected to examine carefully the contents of all the documents provided. Failure to comply with the requirements of RFP cum RFQ Document will be at the Bidder's own risk.

It would be deemed that prior to the submission of Bid, the Bidder has:

a. made a complete and careful examination of requirements, and other information set forth in this RFP cum RFQ Document;

b. received all such relevant information as it has requested from ASI; and

c. made a complete and careful examination of the various aspects of the Project including but not limited to:

   i. the Project Site;

   ii. all other matters that might affect the Bidder's performance under the terms of this

document.

ASI shall not be liable for any mistake or error or neglect by the Bidder in respect of the above.

D. EVALUATION PROCESS

2.16 Opening and Evaluation of Technical Bids

2.16.1 The Authority shall open the Technical Bids online at 15.30 hours IST on the Bid Due Date, at the place specified in Clause 2.11.4 and in the presence of the Bidders who choose to attend.

2.16.2 Bids for which a notice of withdrawal has been submitted in accordance with Clause 2.14 shall not be opened.

2.16.3 The Authority will subsequently examine and evaluate Bids in accordance with the provisions set out in Section 3.

2.16.4 Bidders are advised that qualification of Bidders will be entirely at the discretion of the Authority. Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.

2.16.5 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.

2.16.6 The Authority reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all bid (s) without assigning any reasons.

2.16.7 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, the Authority may, in its sole discretion, exclude the relevant project from computation of the Eligible Score of the Bidder.

2.16.8 In the event that a Bidder claims credit for an Eligible Project and such claim is determined by the Authority as incorrect or erroneous, the Authority shall reject such claim and exclude the same from computation, make a further deduction equivalent to the claim rejected hereunder. Where any information is found to be patently false or amounting to a material misrepresentation, the Authority reserves the right to reject the Application and/ or Bid in accordance with the provisions of Clauses 2.6.2 and 2.6.3.

2.16.9 The Authority will evaluate the Technical BIDs for their compliance to the eligibility and qualification requirements pursuant to clause 2.2.1 & 2.2.2 of this RFQ cum RFP.

2.16.10 After evaluation of Technical Bids as per the Evaluation Criteria, the Authority will publish a list of technically responsive Bidders whose financial bids shall be opened. The Authority shall notify other bidders that they have not been technically responsive. The Authority will not entertain any query or clarification from Bidders who fail to qualify.

2.17 Confidentiality

Information relating to the examination, clarification, evaluation, and recommendation for the qualified Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to or matters arising out of, or concerning the Bidding Process. The Authority will treat all

information, submitted as part of Bid, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

2.18 Tests of responsiveness

2.18.1 Prior to evaluation of Bids, the Authority shall determine whether each Bid is responsive to the requirements of the RFQ cum RFP as per Clause 2.11. Bid shall be considered responsive only if: it does not contain any condition or qualification; and it is not non-responsive in terms hereof.

2.18.2 The Authority reserves the right to reject any Bids which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the Authority in respect of such Bid.

2.19 Clarifications of Bids/ Shortfall Documents

2.19.1 To facilitate evaluation of BIDs, the Authority may, at its sole discretion, seek clarifications from any Bidder regarding its Bid. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.

2.19.2 If the Bidder does not provide clarifications sought under Clause 2.19.1 above within the prescribed time, its Bid shall be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.

2.20 Proprietary data

All documents and other information supplied by the Authority or submitted by the Bidder to the Authority shall remain or become the property of the Authority. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The Authority will not return any Bid or any information provided along therewith.

2.21 Correspondence with the Bidder

Save and except as provided in this RFQ cum RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid. However, the Authority would display the result of the technical evaluation on its web portal including reasons for non-responsiveness, if any and the financial bid will be opened thereafter.

2.22 BID Security

2.22.1 The Bidder shall furnish as part of its BID, BID Security in the format at Appendix-VI.

a) Any BID not accompanied by the BID Security shall be summarily rejected by

the Authority as non-responsive.

b) The suspension as per BID Security shall be imposed by the Authority as damages payable to the Authority for, inter-alia, time cost and effort of the Authority without prejudice to any other right or remedy that may be available to the Authority under the bidding documents and / or under the Agreement, or otherwise, under the following conditions:

i) If a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as specified in Section 4 of this RFQ cum RFP;

ii) If a Bidder withdraws its BID during the period of Bid validity as specified in this RFQ cum RFP and as extended by mutual consent of the respective Bidder(s) and the Authority;

iii) In the case of Selected Bidder, if it fails within the specified time limit –

1. to sign and return the duplicate copy of LOA;
2. to sign the Agreement within the time frame as mentioned in the EPC Agreement; or
3. to furnish the Performance Security within the period prescribed therefore in the Agreement or in this RFQ cum RFP.
4. fail to commence the work within the stipulated time period prescribed in the contract.
5. In case the Selected Bidder, having signed the Agreement, commits any breach thereof prior to furnishing the Performance Security.

g) Within 30 (days) from the date of Letter of Award, the successful bidder shall furnish a performance security of 5% of Contract Value in accordance with the provisions and format given in the agreement.

2.23 Integrity Pact

2.23.1 Integrity Pact as per Appendix-VII duly signed by the tenderer shall be submitted. Any tender without signed integrity Pact shall be liable for rejection.

The bidders are requested to download the Integrity Pact as uploaded in the tender documents duly signed by Authority and upload the same after duly signed & stamped by the contractor on e-tendering website.

2.24 Non-Disclosure Agreement – the bidder shall sign a non-disclosure agreement.

2.25 Prices to Be In Figures and Words

The BID shall be furnished in the format exactly as per Appendix-I B Annex-I, clearly indicating the BID amount in both figures and words, in Indian Rupees, and signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

In case, there is an error in a total corresponding to the addition or subtraction of sub- totals, the sub-totals shall prevail and the total shall be corrected. When there is a difference between the prices in figures and words, the price in words shall prevail.

Such discrepancy in an offer shall be conveyed to the Bidder by asking him to respond by a

target date and if the bidder does not agree or rectifies the discrepancy, the same is liable to be rejected.

3. CRITERIA FOR EVALUATION

3.1 Evaluation parameters

3.1.1 Only those Bidders who meet the eligibility criteria specified in Clause 2.2.1 above shall qualify for evaluation under this Section 3. Bids of firms who do not meet these criteria shall be rejected.

3.1.2 The Bidder's competence and capability is proposed to be established by the following parameters:

(a) Technical Capacity; and

(b) Financial Capacity

3.2 Technical Capacity for purposes of evaluation

3.2.1 Eligible Experience for purpose of evaluation in respect of each category shall be measured only for Similar Projects (as difined) and this will be called as the "Eligible Projects."

3.2.2 For a project to qualify as an Eligible Project the Bidder should have completed or substantially completed the project of the prescribed nature and magnitude as indicated in Clause 2.2.2, during the 07 (seven) financial years immediately preceding the Bid Due Date. For the avoidance of doubt, construction works shall not include supply of goods or equipment alone except when such goods or equipment form part of a turn-key construction contract / EPC / Design & Build / Item Rate / PPP contract for the project. Further, the cost of land shall not be included hereunder.

3.2.3 The Bidder shall quote experience in respect of a particular Eligible Project under any one category only, even though the Bidder may have played multiple roles in the cited project. Double counting for a particular Eligible Project shall not be permitted in any form.

3.3 Details of Experience

3.3.1 The Bidder should furnish the details of Eligible Experience parameters given in the Clause 3.5.2 for the last 7 (seven) financial years immediately preceding the Bid Due Date.

3.3.2 The Bidders must provide the documentary information relating to Technical Capacity as per format at Annex-II (A-F) of Appendix-I.

3.3.3 The Bidder should furnish the required Project -specific information and evidence in support of its claim of Technical Capacity, as per format at Annex-II of Appendix-I.

3.4 Financial information for purposes of evaluation

3.4.1 The Bid must be accompanied by the Audited Annual Reports of the Bidder for the last 5 (five) financial years, preceding the year in which the Bid is made.

3.4.2 In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 5 (five) years preceding the year for which the Audited Annual Report is not being provided.

3.4.3 The Bidder must establish the minimum Financial Criteria specified in Clause 2.2.2 (B), and provide details as per format at Annex-III (A-C) of Appendix-I.

3.5 Qualification of Bidders

3.5.1 The credentials of eligible Bidders shall be measured in terms of their Score. The sum total of the Scores for all Eligible Projects and other criteria as mentioned in Clause 3.5.2 shall be the 'Aggregate Score' of a particular Bidder. All Bidders who fulfil the minimum score of 70% as per Clause 3.5.2 both in Financial and Experience parameters and together also shall qualify for financial opening and meet the other conditions specified in this RFQ cum RFP shall be qualified.

3.5.2 The Bidders meeting the qualification requirements as per this RFQ cum RFP shall be notified officially after due verification of their credential information in support of qualification.

A- FINANCIAL PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Max. Marks**
1	Average annual turnover	Average annual turnover > 283 Cr. up to 300 Cr. – 3 marks For every additional 200 Cr. – 1 mark (Maximum 5 additional marks making it total maximum 8 marks)	3	8
2	Bid Capacity	Bid Capacity > 283 Cr. to 300 Cr. (2 marks) For every additional 200 Cr. – 1 mark (Maximum 6 additional marks making it total maximum 8 marks)	2	8
3	Profitability	The Bidder having net profit positive for last 3 financial years respectively = 2 marks The Bidder having net profit positive for more than the last 3 audited financial years 2 marks per year – max. 8 marks	2	8
4	Net worth	> 42 Cr. to 50 Cr. (2 marks) For every additional 20 Cr. – 1 mark (Maximum 6 additional marks making	2	6

		it total maximum 8 marks)		
		TOTAL		30

B- EXPERIENCE PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Maximum Marks**
1	a) At least three Similar Project– Rs. 113 Cr. Each or b) At least two Similar Completed Project –Rs. 141 Cr. each or c) At least one Similar Completed Project – Rs. 226 Cr.		5	15
	Note for 1 above: *In case Bidder has completed the Similar Project of following value, additional 5 marks will be allotted:* *a) At least three Similar Projects of Rs. 170 Cr. each* *or* *b) At least two Similar Completed Project of Rs. 211 Cr. Each* *or* *c) At least one Similar Completed Project of Rs. 339 Cr.* *In case Bidder has completed the Similar Project of following value, additional 10 marks will be allotted (maximum total 15 marks):* *a) At least three Similar Projects of Rs. 226 Cr. each* *or* *b) At least two Similar Completed Project of Rs. 282 Cr. Each* *or* *c) At least one Similar Completed Project of Rs. 452 Cr.*			
2	In similar projects, mentioned above in B (1) if executed Museum Building/Convention or Exhibition centre with minimum 25,000 sq. m built up area.	>25,000 sq. m – 5 marks > 30,000 sq. m – (5 +4) = 9marks >40,000 sq. m – (9+3) = 12 marks	5	15

B- EXPERIENCE PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Maximum Marks**
		> 50,000 sqm – (12+3) = 15 marks		
3	Successfully provided architectural services for similar project as defined having a. For At least three Projects of minimum – Rs. 113 Cr. each or b. For At least two Projects of minimum – Rs. 141 Cr. each or c. For At least one Project of minimum – Rs 226 Cr.		2	5
	Note for 3 above: *In case Bidder has completed the Similar Project of following value, additional 3 marks will be allotted:* *a) For At least three Projects of minimum – Rs. 170 Cr. each* *or* *b) For At least two Projects of minimum –Rs. 211 Cr. each* *or* *c) For At least one Project of minimum – Rs 339 Cr.*			
	Note for B (3) above Provide Examples of Work depicting a relevant (museum/exhibition) completed projects. Images may be photographs and legible drawings and diagrams. Concise captions identifying the role and responsibilities of the Bidder, and other salient characteristics or accomplishments to be included. A Project List page shall precede the illustrations and list the referenced projects under the 3 headings and in the sequence, they are presented. For each project, identify the: Project Name, Date Completed; Client, Location, Area in Gross Square Meter; Budget; Construction Cost, Project Team and relevance to this project. The projects should have been completed within the last 7 years, of a similar type, scale and complexity as the National Maritime Museum.			
4	Successfully provided exhibition		2	5

B- EXPERIENCE PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Maximum Marks**
	design services for similar project as defined having c. For At least three Projects of minimum – Rs. 14 Cr. each or d. For At least two Projects of minimum – Rs. 18 Cr. each or c. For At least one Project of minimum – Rs 28 Cr.			
	Note for 4 above: *In case Bidder has completed the Similar Project of following value, additional 3 marks will be allotted:* *c) For At least three Projects of minimum – Rs. 21 Cr. each* *or* *d) For At least two Projects of minimum –Rs. 27 Cr. each* *or* *c) For At least one Project of minimum – Rs 42 Cr.*			
	Note for B (4) above Provide Examples of Work depicting a relevant (museum/exhibition) completed projects. Images may be photographs and legible drawings and diagrams. Concise captions identifying the role and responsibilities of the Bidder, and other salient characteristics or accomplishments to be included. A Project List page shall precede the illustrations and list the referenced projects under the 3 headings and in the sequence, they are presented. For each project, identify the: Project Name, Date Completed; Client, Location, Area in Gross Square Meter; Budget; Construction Cost, Project Team and relevance to this project. The projects should have been completed within the last 7 years, of a similar type, scale and complexity as the National Maritime Museum.			
6	Team experience and Sub-Consultants, roles and responsibilities, team organization of Key Personnel given in clause 2.2.2.	Provide the professional qualifications and a brief description of the role and capability of		

B- EXPERIENCE PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Maximum Marks**
	(CV format given in Annexure - VIII)	each key team member along with a resume/CV **Team/Expertise Required.** **Lead Designer& Lead Architect: 3 Marks** **Lead Exhibition & Museum Designer: 3 marks** **MEPF Designer: 2 Marks** **Tensile fabric designer: 4 Marks** **Each other experts: 0.5 Marks each (max 3 marks)**		15
7	**Concept Presentation** The duration of concept presentation shall be 30 minutes and another 10-15 minutes for question answer session. The Power Point Presentation should focus on the previous similar completed or ongoing projects of applicant having architectural and exhibit design services as its essential components. Marking shall be done on Quality of Construction, Architectural Design carried out by the Bidder and its sub-consultants in the past.	Marking will be given by a committee of competent ASI officials. Final marks will be average marks given by the committee members.		15

B- EXPERIENCE PARAMETERS				
Sl. No	**Criteria**	**Sub-criteria**	**Minimum Marks**	**Maximum Marks**
		TOTAL MARKS		70
		Grand Total (A + B)		100

3.5.3 The EPC bidder shall also upload the following documents along with the bid to enable the Authority to have an insight into the understanding of the tender and preparedness of the bidder toward the tender:

a) Proposed Overall Project Schedule in network form showing all the details unit wise in Primavera P6 (Latest Version) in pdf. Write up on Project Planning, Scheduling, Monitoring & Control system (proposed). Progress Measurement Methodology with details such as weightages, milestones etc.

b) Organizational set up for Planning, Scheduling, Monitoring & Control at EPC Contractor's Design Office and Site Office. Function wise Resource Deployment Schedule (HO & Site manpower and construction equipment).

c) Project Approach & execution methodology. Software to be used for planning and material control.

d) Certificates of ISO 9001, ISO 18001 & ISO 14001 or international equivalent.

A proposal will be considered unsuitable and will be rejected at this stage if it does not respond to important aspects of Bidding Document or if it fails to achieve the minimum score as per Clause 3.5.1. The Authority will notify Bidders who fail to score the minimum score about the same and return their Financial Proposals unopened after completing the selection process.

3.6 Opening of Financial Bid

The Client will notify the Bidders who secure the minimum qualifying score, indicating the date and time set for opening the Financial Proposals. The notification may be sent by registered letter, facsimile, or electronic mail.

The Financial Proposals will be opened publicly in the presence of Bidders' representatives who choose to attend. The name of the Bidder, their technical scores and the proposed prices will be read aloud and recorded when the Financial Proposals are opened. Evaluation Committee will determine whether the Financial Proposals are complete in all respects, unqualified and unconditional, and submitted in accordance with the terms hereof.

3.7 Selection of Bidder

3.7.1 Subject to the provisions of Clause 2.6, the Bidder whose BID is adjudged as responsive in terms of Clause 2.18 and who quotes lowest price shall be declared as the selected Bidder (the "Selected Bidder").

If the Bid of the successful Bidder is seriously unbalanced in relation to the Authority's estimate of the cost of work to be performed under the contract, the Authority may

require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Authority may require that the amount of the performance security set forth in EPC Agreement Article 7 be increased and an additional performance security may be obtained at the expense of the successful Bidder to a level sufficient to protect the Authority against financial loss, at his discretion, in the event of default of the successful Bidder under the Contract. In the event that the Authority rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

3.7.2 In the event that two or more Bidders quote the same BID price (the "Tie BIDs"), the Authority shall identify the Selected Bidder by the following criteria –

i) The bidder who has executed larger area of Tensile fabric structure in 1 project in last 7 (seven) years will be considered as selected bidder.

ii) In case of tie bidder qualify or does not qualify under clause 3.7.2 i), then the bidder who has larger average annual turnover in last three years will be considered as selected bidder.

3.7.3 After selection, a Letter of Award (the "LOA") shall be issued, in duplicate, by the Authority to the Selected Bidder and the Selected Bidder shall, within 3 (three) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the BID Security of such Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOA.

3.7.4 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the bidder to execute the Agreement within the period prescribed in Clause 1.4. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

4. FRAUD AND CORRUPT PRACTICES

4.1 The Bidder and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, the Authority may reject the Bid without being liable in any manner whatsoever to the Bidder if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process.

4.2 Without prejudice to the rights of the Authority under Clause 4.1 hereinabove, if the Bidder is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, such Bidder shall not be eligible to participate in any tender or RFQ cum RFP issued by the Authority during a period of 2 (two) years from the date such Bidder is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case maybe.

4.3 For the purposes of this , the following terms shall have the meaning hereinafter respectively assigned to them:

a) **"corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Contract or arising therefrom, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) save and except as permitted under sub clause (d) of Clause 2.2.1, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Contract, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Contract, who at any time has been or is a legal, financial or technical adviser of the Authority in relation to any matter concerning the Project;

b) **"fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process ;

c) **"coercive practice"** means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

d) **"undesirable practice"** means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process;

or (ii) having a Conflict of Interest; and

e) **"restrictive practice"** means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

5. PRE-BID CONFERENCE

5.1 Pre- Bid conference of the Bidders shall be convened at the designated date, time and place as intimated in due course of time. A maximum of two representatives of prospective Bidders shall be allowed to participate on production of authority letter from the Bidder.

During the course of Pre- Bid Meeting, the Bidders will be free to seek clarifications and make suggestions for consideration. ASI shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

5.2 During the course of Pre-Bid conference, the Bidder will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

In case any bidder does not attend the pre-bid meeting, it shall be deemed considered that the bidder has a clear understanding of the scope & terms & conditions of the bidding document and does not have any comments/ deviations to the requirements of the bidding document.

Nonattendance of the pre-bid meeting will neither be a cause for dis-qualification of the bidder nor a cause for bidder's ignorance to submit the bid as per provisions of the bidding document.

6. MISCELLANEOUS

6.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at [Delhi, India] shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

6.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

(a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;

(b) consult with any Bidder in order to receive clarification or further information;

(c) qualify or not to qualify any Bidder and/ or to consult with any Bidder in order to receive clarification or further information;

(d) retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or

(e) Independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

(f) Transfer of "Assignment" of bid process or Contract as the case may be to Authority after its formation.

6.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder and the Bidding Documents, pursuant hereto, and/ or in connection with the Bidding Process, to the fullest extent permitted by applicable law, and waives any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

6.4 The RFQ cum RFP documents are to be taken as mutually explanatory unless otherwise expressly provided elsewhere in this RFQ cum RFP.

Appendix-I- Letter Comprising the Technical Bid

(Refer Clause 2.12.2)

To,

Dated: [**********

****

**********]

Sub: Bid for Technical Bid for Construction of Museum cum Orientation Centre at Lothal, Gujarat on EPC basis.

Dear Sir,

With reference to your RFQ cum RFP document dated ……., we, having examined the RFQ cum RFP, EPC Agreement, Schedules, Drawings, price Bid, Technical specifications document and understood its contents, hereby submit our Bid for the aforesaid project. The Bid is unconditional and unqualified. We acknowledge that the Authority reserves the right of "Assignment" of ownership during bid process or after award of contract, to Authority in its post formation. We undertake to fully co-operate with the Authority for any documentation legally enforceable for recognition and effectuation of such transfer of ownership.

2. We acknowledge that the Authority will be relying on the information provided in the Bid and the documents accompanying such Bid for selection of the Bidders for the aforesaid project, and we certify that all information provided in the Bid and in all is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying such Bid are true copies of their respective originals.

3. This statement is made for the express purpose of qualifying as a Bidder for the design and construction of the aforesaid Project (incl. Defects Liability Period.)

4. We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the Qualification statement.

5. We acknowledge the right of the Authority to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

6. We certify that in the last three years, we have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial Authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public Authority nor have had any contract terminated by any public Authority for breach on our part.

7. We declare that:

   (a) We have examined and have no reservations to the RFQ cum RFP, EPC Agreement, Schedules, and Drawings, Technical specifications, including any Addendum issued by the Authority; and

   (b) We do not have any conflict of interest in accordance with Clauses 2.2.1(c) and 2.2.1(d) of the RFQ cum RFP document; and

   (c) We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 8.3 of the RFQ cum RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and

   (d) We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 8 of the RFQ cum RFP document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

8. We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.17.7 of the RFP document.

9. We believe that we satisfy (ies) the Technical and Financial Capacity and other financial criteria and meet(s) all the requirements as specified in the RFQ cum RFP document and are qualified to submit a Bid.

10. We certify that in regard to matters other than security and integrity of the country, we have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory Authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.

11. We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.

12. We further certify that no investigation by a regulatory Authority is pending either against us or against our CEO or any of our directors/ managers/ employees.

13. [We further certify that we are not disqualified in terms of the additional criteria specified by the Department of Disinvestment in their OM No. 6/4/2001 -DD-II dated 13.7.01, a copy of which forms part of the RFQ cum RFP at Appendix-V thereof.]

14. We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the provisions of this RFQ cum RFP, we shall intimate the Authority of the same immediately.

15. The Statement of Legal Capacity as per format provided at Annex-IV in Appendix-I, Integrity Pact as per Appendix-VII of the RFQ cum RFP document, and duly signed, is enclosed. The power of attorney for signing of bid, as per format provided at Appendix-II respectively of the RFQ cum RFP, are also enclosed.

16. We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of Bidders, selection of the Bidder, or in connection with the selection/ Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.

17. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

18. We have studied all the Bidding Documents carefully and also surveyed the project. We understand that except to the extent as expressly set-forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Agreement.

19. We offer BID Security to the Authority in accordance with the RFQ cum RFP Document.

20. We agree and undertake to abide by all the terms and conditions of the RFP document.

21. We certify that in terms of the RFQ cum RFP, our Net Worth is Rs. _____ crores (Rupees _____ Crores only)

22. We undertake to engage personnel specialized/ sub-contractors for design and construction of those elements of the Project for which we do not have adequate experience.

23. We hereby submit our BID and offer a BID Price as indicated in Financial Bid for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

24. We shall keep this offer valid for 180 (One hundred and Eighty) days from the BID Due Date specified in the RFQ cum RFP.

In witness thereof, we submit this bid under and in accordance with the terms of the RFQ cum RFP document.

Yours faithfully,

Date: (Signature, name and designation of the Authorised Signatory)

Place: Name and seal of the Bidder

Note: Paragraphs in square parenthesis may be omitted, if not applicable, or modified as necessary.

Appendix-I – Annex-I Details of Bidder

1. (a) Name:
   (b) Country of incorporation:
   (c) Address of the corporate headquarters and its branch office(s), if any, in India:
   (d) Date of incorporation and/ or commencement of business:

2. Brief description of the Company including details of its main lines of business and proposed role and responsibilities in this Project:

3. Details of individual(s) who will serve as the point of contact/ communication for the Authority:

   a) Name:
   b) Designation:
   c) Company:
   d) Address:
   e) Telephone Number:
   f) E-Mail Address:
   g) Fax Number:

4. Particulars of the Authorised Signatory of the Bidder:

   a) Name:
   b) Designation:
   c) Address:
   d) Phone Number:
   e) Fax Number:

5. The following information shall also be provided:

Name of Bidder:

No.	Criteria	Yes	No
1.	Has the Bidder been barred by the Central/ State Government, or any entity controlled by it, from participating in any project (BOT, EPC or otherwise).		
2.	If the answer to 1 is yes, does the bar subsist as on Bid Due Date.		

A statement by the Bidder disclosing material non-performance or contractual noncompliance in past projects, contractual disputes and litigation/ arbitration in the last three years is given below (Attach extra sheets, if necessary) w.r.t Clause 2.2.8

Name of Bidder:

No.	Criteria	1st last year	2nd last year	3rd last year
1.	The Bidder should, in the last (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial Authority or a judicial pronouncement or arbitration award against the Bidder, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder, along-with the updated details of ongoing process of litigation / Blacklisting.			

Appendix-I – Annex-II A- Technical Capacity of the Bidder

Details of Similar Works
(Details to be filled online)

S. No	Name of work and its location	Name of Client & its contact details	Date and No. of Completion Certificate	Date of Start	Date of Completion	Cost of Work on completion	Value of TDS	Project Type and Details	Reference and Page No. of Documentary Proof of the detail
1.									
2.									
3.									

If any detail is not mentioned in the Work Completion Certificate, documentary proof of detail is to be submitted and uploaded on Tender Website along with the Completion Certificate.

Signature of Bidder with Seal

Appendix-I – Annex-II B- Technical Capacity of the Bidder

: -

Details of Work Experience Certificates for Projects other than Similar Works

(Details to be filled online)

S. No	Name of work and its location	Name of Client & its contact details	Date and No. of Completion Certificate	Date of Start	Date of Completion	Cost of Work on completion	Value of TDS	Project Type and Details	Reference and Page No. of Documentary Proof of the detail missing in completion certificate
1.									
2.									
3.									

Certified that the Completion Certificates of above works are enclosed with the Bid Documents.

a) Details mentioned in the above Form are as per Completion Certificates and have not been presumed.

b) If any detail is not mentioned in the Work Completion Certificate, documentary proof of detail is to be submitted and uploaded on Tender Website along with the Completion Certificate.

Signature of Bidder with Seal

Appendix-I – Annex-II C - Technical Capacity of the Bidder

TDS DETAILS OF PROJECTS
(Details to be filled online)

S. No.	Name of Work	Name of Clients	Project Cost in Crores	No. And Date of Completion Certificate	Cost of the work on completion in Crores	Payments Received as per TDS In Crores	TDS Corresponding to the Payments
1.							
2.							
3.							

Note: Value of Work done will be considered commensurate with value of TDS Certificates

Signature of Bidder with Seal

1. Experience for any activity relating to an Eligible Project shall not be claimed twice. In other words, no double counting in respect of the same experience shall be permitted in any manner whatsoever.

2. Certificate from the Bidder's statutory auditor or its respective clients must be furnished as per formats below [@]for each Eligible Project. In jurisdictions that do not have statutory auditors, the auditors who audit the annual accounts of the Bidder may provide the requisite certification.

3. If the Bidder is claiming experience it should provide a certificate from its statutory auditors or the client in the format below:

4. It may be noted that in the absence of any detail in the above certificates, the information would be considered inadequate and could lead to exclusion of the relevant project in computation of Score.

5. In case of work done Outside India, the Contractor will get their certificate in English Language from the Indian Embassy /Consulate / High Commission in the respective country as an Affidavit for the correctness of their work experience outside India.

Certificate from the Statutory Auditor/ Client regarding construction works[@]

Based on its books of accounts and other published information authenticated by it, {this is to certify that …….. *(Name of the Bidder)* was engaged by…….. *(Title of the project company)* to execute …… *(Name of project)* for ……. *(Nature of project)}*. The construction of the project commenced on …….. *(Date)* and the project was/ is likely to be commissioned on …… *(Date, if any)*. It is certified that Bidder received payments from its Clients for Construction Works executed by them, in the aforesaid construction works.

We further certify that the total estimated capital cost of the project is Rs. …… cr. (Rupees ……crore), of which the Bidder received Rs. …… cr. (Rupees…… crore), in terms of Clauses 3.2.1 and 3.2.2 of the RFQ cum RFP, during the past five financial years as per year-wise details noted below:

Name of the audit firm:

Date: authorized Signatory

Appendix-I – Annex-II D - Technical Capacity of the Bidder

Draft Proforma for Work Experience Certificate from Clients/ Statuary Auditor of the Bidder. *

Name of Contractor: .....

1	Name of work / project & Location				
2	Name and Address of the Clients				
3	Agreement Amount				
4	Estimated Cost				
4	Tender Amount				
5	Cost of work on completion				
6	Date of start				
7	Stipulated date of completion.				
8	Actual date of completion/ likely date of completion				
9	Amount of compensation levied for delayed completion, if any				
10	Type of Work: Residential/ Non-Residential Building				
11	Total Built up Area of the Project				
12	RCC Framed Structure or other type of Structure				
13	No. of Basements in any Building of this work				
14	Maximum Height of any Building of this work				
15	Maximum No. of storeys of any Building of this work				
16.	Performance report	Very Good	Good	Fair	Poor
(a)	Quality of work.	Very Good	Good	Fair	Poor
(b)	Resourcefulness	Very Good	Good	Fair	Poor
(c)	Financial soundness	Very Good	Good	Fair	Poor
(d)	Technical proficiency	Very Good	Good	Fair	Poor
(e)	General behavior	Very Good.	Good	Fair	Poor

The Experience Certificate is to be submitted separately for each work duly signed by Executive Engineer or above rank for Govt. Work.

*All copy of certificates should be certified by the person authorized to sign the bid.

Date **Name & Designation**

Signature with Seal

Appendix-I – Annex-III A - Financial Capacity of the Bidder

COMPLETE FINANCIAL DETAILS

(Details to be filled online)

Tender For: ……

MANDATORY INFORMATION DOCUMENTS:

		Year 5	**Year 4**	**Year 3**	**Year 4**	**Year 1 (last Financial Year)**
i)	Profit/Loss					
ii.)	Average Annual Financial turnover as on 31st March of last FY					
iii.)	Net Worth (paid up capital + reserves) as on 31st March of last FY					
iv)	Working Bid Capacity= [AxNx2]-B					

1. Summarized page of Audited Profit & Loss Account of previous five Financial Years duly certified by the Statutory Auditor is to be submitted.

2. Summarized page of Audited Balance Sheet of last Financial Year (ending 31st March of preceding FY) duly certified by the chartered account, is to be submitted.

3. In case the Bidder does not have a statutory auditor, it may provide the certificate from its Chartered Accountant

Signature of Statutory Auditor with Seal

Seal and Signature of bidder

Appendix-I – Annex-III B - Financial Capacity of the Bidder

(Refer to Clauses 2.2.2(B), 2.2.4 (ii) and 3.4 of the RFQ cum RFP)

(In Rs. crore)

Bidder type		**Net Cash Accruals**					**Net Worth£**
(1)		**Year 1** (2)	**Year 2** (3)	**Year 3** (4)	**Year 4** (5)	**Year 5** 6)	**Year 1** (7)
Single entity Bidder							
TOTAL							

Name & address of Bidder's Bankers:

For conversion of other currencies into rupees refer clause 2.2.6 (i).
The Bidder should provide details of its own Financial Capacity.

Instructions:

1. The Bidders shall attach copies of the balance sheets, financial statements and Annual Reports for 5 (five) years preceding the Bid Due Date.

   The financial statements shall:

   (a) reflect the financial situation of the Bidders;

   (b) be audited by a statutory auditor;

   (c) be complete, including all notes to the financial statements; and

   (d) Correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

2. Net Cash Accruals shall mean Profit after Tax + Depreciation.

3. Net Worth shall mean shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

4. Year 1 will be the latest completed financial year, preceding the bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.2.12.

5. The Bidder shall also provide the name and address of the Bankers to the Bidder.

7. The Bidders shall provide an Auditor's Certificate specifying the net worth of the Bidder and also specifying the methodology adopted for calculating such net worth in accordance with Clause 2.2.4 (ii) of the RFQ cum RFP document.

Appendix-I - Annex-III C - Financial Capacity of the Bidder

Information required to evaluate the BID Capacity under clause 2.2.2(B) (b)

To calculate the value of "A"

1. A table containing value of Civil Engineering Works in respect to Projects (EPC Contract/ Item Rate Contract/ Construction works) undertaken by the Bidder during the last 5 years is as follows:

Sl. No	Year	Value of Civil Engineering Works Undertaken w.r.t. Projects (Rs. In Crores)
1	2025-26/ 2025	
2	2024-25/ 2024	
3	2023-24/2023	
4	2022-23/2022	
5	2021-22/2021	

2. Maximum value of projects that have been undertaken during the F.Y. _____ out of the last 5 years and value thereof is Rs. Crores (Rupees _____). Further, value updated to the price level of the year indicated in Appendix is as follows:

   *Rs. Crores x*_____(Updation Factor as per Appendix) = *Rs.* _____*Crores*

   (Rupees)

…….. …….. Signature, name and designation of Authorised Signatory For and on behalf of …… *(Name of the Applicant)*	…….. …….. Name of the Statutory Auditor's firm: Seal of the audit firm: (Signature, name and designation and Membership No. of authorised signatory)

To calculate the value of "B"

A table containing value of all the existing commitments and on-going workings to be completed during the next years is as follows:

Sl. No.	Name of Project/Work	Percentage Of participation of Bidder in the project	Stipulated period of completion as per Agreement /LOA	Value of contract as per Agreement /LOA	Value of work completed	Balance value of work to be completed	Anticipated date of completion	Balance value of work at 2021-20 price level
				Rs. in Crore	Rs. in Crore	Rs. in Crore		Rs. in Crore
1	2	3	4	5	6	7	8	9 (3x 7 x #)

Updation Factor as given below:

For Year	F.Y. / Calendar Year	Updation Factor
Base	2025-26/ 2025	1.00
-1	2024-25/ 2024	1.07
-2	2023-24/2023	1.14
-3	2022-23/2022	1.22
-4	2021-22/2021	1.31
-5	2025-26/ 2025	1.40

The Statement showing the value of all existing commitments and ongoing works as well as the stipulated period of completion remaining for each of the works mentioned above is verified from the certificate issued that has been countersigned by the Client or its Engineer-in-charge not below the rank of Executive Engineer or equivalent in respect of EPC Projects **or** Concessionaire / Authorized Signatory of the Authority in respect of EPC Projects.

……. …….. Signature, name and designation of Authorised Signatory For and on behalf of …… *(Name of the Applicant)*	……. …….. Name of the Statutory Auditor's firm: Seal of the audit firm: (Signature, name and designation and Membership No. of authorised signatory)

Appendix-I – Annex-IV Statement of Legal Capacity

(To be forwarded on the letterhead of the Bidder)

Ref Date:

To,

Dear Sir,

We hereby confirm that we satisfy the terms and conditions laid out in the RFQ cum RFP document.

We have agreed that (insert individual's name) will act as our representative and has been duly authorized to submit the RFQ cum RFP. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.

Thanking you,

Yours faithfully,

(Signature, name and designation of the authorised signatory)

For and on behalf of.....

Appendix-I B- Letter comprising the Financial BID

(Refer Clauses 2.12.2 and 2.19*)*

Sub: BID for *** ** Project
Dated:
Dear Sir,

With reference to your RFQ cum RFP document dated *** **, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.

2. I/ We acknowledge that the Authority will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the Bid are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.

3. The Bid price has been quoted by me/us after taking into consideration of all the terms and conditions stated in the RFQ cum RFP, EPC Agreement, Schedules, Drawings, all the documents provided in the tender document package, our own estimates of Costs and after careful assessment of the site and all the conditions that may affect the project cost and implementation of the Project and we understand that no additional payments shall be allowed on the basis of change in site parameters at a later date.

4. I/We acknowledge the right of the Authority to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

5. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
6. I/ We shall keep this offer valid for 180 (one hundred and Eighty) days from the BID Due Date specified in the RFQ cum RFP.

7. I/ We understand that ASI is not bound to accept the lowest or any tender it may receive.

8. I/ We hereby submit our BID and offer a BID Price of Rs. ..... (Rs..... in words) as detailed in Price Bid for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.

Yours faithfully,

Date:
Place:

(Signature, name and designation of Authorised Signatory)

Name & seal of Bidder:.....

Appendix- I B – Annex- I PRICE BID

Based on the scope of work, drawings, specifications, tender conditions, addendum & corrigendum (if any), bidder shall quote lump sum price against each of the subheads as listed below. All these documents shall be read in conjunction with each other for the most stringent requirements to follow & any discrepancy among these referenced documents must be brought to the notice prior to submission of bid:

PART-A: COST OF BUILDING WORKS (Fully facilitated as per Scope, Design Basis Report, Technical Specifications, Design Intent, Tender Drawings & Tender Documents in complete)

Sr. No.	ITEM DESCRIPTION	AMOUNT (INR)
1)	Cultural & Community Block	
2)	Exhibition & Experience Block	
3)	Knowledge & Learning Centre Block	
4)	Infrastructure Work (With PTFE Tensile Fabric with structure)	
	TOTAL OF A (1 TO 4)	

PART-B: COST OF EXHIBITION INTERIOR WORKS UNDER PROVISIONAL SUMS

(Fully facilitated as per Scope, Design Basis Report, Technical Specifications, Design Intent, Tender Drawings & Tender Documents in complete)

(This cost is fixed and no percentage above/below/at par is to be quoted by the bidder);

The following works are under provisional sum:

Sr. No.	ITEM DESCRIPTION	AMOUNT (INR)
1)	Exhibition Galleries, detailed design of the galleries, making its presentation based on design intent for approval, getting approval from Curation Committee, ASI, Principal Project Consultant (AHC) and fabrication, production, and installation including coordination of various items, Artefacts, theming, interior of the Exhibition spaces, Lighting, etc.	**Up to 30.00 Crore** (*upper ceiling*)
	Design Engineering including safety certification and, statutory approvals and audits, Interfacing, Coordinating & and all other obligations including all insurances, Bank Guarantee, Supervision charges etc. for stipulated timely completion in percentage (%) for the amount of work awarded (only on 1 above)	**10% (ten percent)**
	TOTAL B	**Up to 33.00 Crore** (*upper ceiling*)
	(LD CLAUSE shall be applicable on provisional sum also)	
	TOTAL OF A & B	

(Rupees_____
_____ Only)

NOTE :

1. The Bid Value shall be the total of 2 parts (Part A & B) and for all the above to include all items as mentioned in the Scope of works, Specifications and works as indicated in the drawings.

2. The Bid Value mentioned to also include the cost of all temporary works and activities required to complete the works, taxes, royalties, departmental fees for various sanctions and approvals, etc., unless specifically mentioned otherwise.

3. The total price quoted for the EPC tender should include the items, components & equipment as per the scope of work, technical specifications, design basis report, drawings given in the tender documents and should also include all costs towards taxes, insurances, packaging, freight, customs duties, clearances, forwarding and all government applicable taxes.

The list in the price-bid of the tender document is indicative and not to be limited to these heads in the price-bid. The client will not reimburse any other amount over and above the total quoted price. Payment shall be made as per the approved stages of payment schedules as per Schedule-H of Volume-2 (EPC Agreement) on the basis of the approved project schedule.

Appendix-II Format for Power of Attorney for signing of Bid

(Refer Clause 2.2.5)

Know all men by these presents, We…….. (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms. (name), …… son/daughter/wife of…… and presently residing at……., who is presently employed with us and holding the position of …… , as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental submission of our bid for the ASI Project proposed or being developed by the ASI (the "Authority") including but not limited to signing and submission of all bids and other documents and writings, participate in Bids and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the EPC Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or until the Appointed Date under EPC Agreement

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ……., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ……

DAY OF ……. 2…..

For

……..

(Signature, name, designation and address)

Witnesses:
1.
2.

(Notarised Signature)

Accepted

……
(Signature)

(Name, Title and Address of the Attorney)

Notes:

+ *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*

+ *Wherever required, the* Bidder *should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the* Bidder.

+ *For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by* Bidders *from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.*

Appendix-III: DELETED

Appendix-IV: DELETED

Appendix- V Guidelines of the Department of Disinvestment

(Refer Clause 1.3.1)

No. 6/4/2001-DD-II
Government of India
Department of Disinvestment
Block 14, CGO Complex
New Delhi.
Dated 13th July, 2001.

OFFICE MEMORANDUM

Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment

Government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier, criteria like net worth, experience etc. used to be prescribed. Based on experience and in consultation with concerned departments, Government has decided to prescribe the following additional criteria for the qualification/ disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

(a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/ adverse order by a regulatory Authority that casts a doubt on the ability of the bidder to manage the public sector unit when it is disinvested, or which relates to a grave offence would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.

(b) In regard to matters relating to the security and integrity of the country, any charge-sheet by an agency of the Government/ conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/ persons.

(c) In both (a) and (b), disqualification shall continue for a period that Government deems appropriate.

(d) Any entity, which is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred an appeal against the order based on which it has been disqualified. The mere pendency of appeal will have no effect on the disqualification.

(e) The disqualification criteria would come into effect immediately and would apply to all bidders for various disinvestment transactions, which have not been completed as yet.

(f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.

(g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/ Managers/ employees, full details of such investigation including the name of the investigating agency, the charge/ offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, a similar undertaking shall be obtained along with EOI.

sd/-
(A.K. Tewari)
Under Secretary to the Government of India

Appendix-VI- BID Security

BG from BID SECURITY

Bank Guarantee

(*On non-judicial stamp paper of the appropriate value in accordance with Stamp Act. The stamp paper should be in the name of the Executing Bank).*

From:

..... [Insert Bank's Name, and Address of Issuing Branch or Office] ...

To:

_____,

Archaeological Survey of India,

_____

_____

_____.

Beneficiary: Archaeological Survey of India (hereinafter called "the Authority")

Date:.....

Bid Security No.: .....

We have been informed that . . . . . ***[*Insert *name of the Bidder]***..... (hereinafter called "the Bidder") intends to submit to you its bid (hereinafter called "the Bid") for the execution of . . . . . [***name of contract***]. . . . . under Invitation for Bids No. . . . . .dated ……("the IFB").

WHEREAS, the Bidder is required to furnish Bid Security for the sum of ***[Insert Value of Bid Security required]***, in the form of Bank Guarantee, according to your conditions of Bid.

AND

WHEREAS, ...***[Insert Name of the Bank]***, with its Branch .....***[Insert Address]*** having its Headquarters office at..... ***[Insert Address]***, hereinafter called the **Bank,** acting through .....***[Insert Name and Designation of the authorised persons of the Bank]***, have, at the request of the Bidder, agreed to give guarantee for Bid security as hereinafter contained, in favour of the Authority:

1. KNOW ALL MEN that by these present that I/We the undersigned ***[Insert name(s) of authorized representatives of the Bank],***being fully authorized to sign and incur obligations for and on behalf of the Bank**,** confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Authority full amount in the sum of ***[Insert Value of Bid Security required]*** as above stated.

1. The Bank undertakes to immediately pay on presentation of demand by the Authority any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Authority on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.

1. The Bank shall pay the amount as demanded immediately on presentation of the demand by Authority without any reference to the Bidder and without the Authority being required to show grounds or give reasons for its demand of the amount so demanded.

1. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.

1. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Authority and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Authority at any time.

1. This guarantee will remain valid and effective from**……..……. *[Insert date of issue]***till ……..*[insert date, which should be minimum 45 days beyond the expiry of bid validity date in the IFB]*. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.

1. The Bank Guarantee is unconditional and irrevocable.

1. The expressions Bank and Authority herein before used shall include their respective successors and assigns.

1. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Authority. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.

1. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee (s) of Bidder in favour of the Authority. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Authority.

Date …… ……
Place……. Bank's Seal and authorized signature(s)
[Name in Block letters]……....
[Designation]……..……
[P/Attorney] No.
Witness:
1 Signature
Name & Address & Seal
2 Signature Bank's Seal
Name & address & Seal *[P/Attorney]* No.
Note: All italicized text is for guidance on how

Appendix-VII- Integrity Pact

(Refer Clause 2.23)

BETWEEN

ASI hereinafter referred to as "The Principal/ Authority" (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

AND

……..hereinafter referred to as "The Bidder / Contractor" (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

Preamble

The Principal intends to award, under laid down organizational procedures, contract(s) for (Name of the contract) (hereinafter referred to as the 'Project'). The Principal necessarily requires full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/or Contractor(s).

Section 1: Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

a. No employee of the Principal, personally or through family members or through any other channel, will in connection with the tender for or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit, which the person is not legally entitled to.

b. The Principal will, during the tender process treat all Contractor(s)/Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Contractor(s)/Bidder(s) the same information and will not provide to any Contractor(s) /Bidder(s), confidential/additional information through which the Contractor(s)/Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. The Principal will exclude from the process all known prejudiced persons. The Principal shall obtain bids from only those parties who have been short-listed or pre-qualified or through a process of open advertisement/ web publishing or any combination thereof.

(2) If the Principal obtains information on the conduct of any of its employees, Contractor(s) and/or Bidder(s), which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer

and **subject to its discretion,** can **additionally** initiate disciplinary actions.

(3) The Principal will enter into agreements with identical conditions with all Contractor(s)/Bidder(s) **for the different Work Packages in the aforesaid Project.**

(4) The Principal will disqualify from the tender process all Contractor(s)/Bidder(s); who do not sign this Pact or violate its provisions.

Section 2: Commitments of the Bidder(s) / Contractor(s)

(1) The Bidder(s) / Contractor(s) commit(s) itself/themselves to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

(a) The Bidder(s) / Contractor(s) will not, directly or through any other person or firm offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage, of any kind whatsoever, during the tender process or during the execution of the contract.

(b) The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

(c) The Bidder(s)/Contractor(s) will not use improperly, for purpose of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(d) The Bidder(s) / Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s) / Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s) / Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only.

(e) The Bidder(s) / Contractor(s) will, when submitting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder(s) / Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3: Disqualification from tender process and/or exclusion from future contracts.

(1) If the Bidder(s) / Contractor(s), before awarding the Project or during execution has committed a transgression by violating Section 2 above or in any other form so as to put his reliability or credibility in question, the Principal, at its sole discretion, is entitled to disqualify the Bidder(s) / Contractor(s) from the tender process or terminate the contract, if already awarded, for that reason, without prejudice to any other legal rights or remedies available to the Principal under the relevant clauses of EPC Agreement, Schedules of the tender/contract.

(2) If the Contractor(s)/Bidder(s) has committed a transgression through a violation of any of the terms under Section 2 above or in any other form such as to put his reliability or credibility into question, the Principal will also be entitled to exclude such Contractor(s)/Bidder(s) from future tenders/contract award processes. The imposition and duration of the exclusion will be determined by the Principal, keeping in view the severity of the transgression. The severity will be determined by the circumstances of the case, in particular, the number of transgressions and/or the amount of the damage.

(3) If it is observed after payment of final bill but before the expiry of validity of Integrity Pact that the contractor has committed a transgression, through a violation of any of the terms under Section 2 above or any other term(s) of this Pact, during the execution of contract, the Principal will be entitled to exclude the contractor from further tender/contract award processes.

(4) The exclusion will be imposed for a minimum period of six (6) months and a maximum period of three (3) years.

(5) If the Contractor(s)/Bidder(s) can prove that he has restored/recouped the damage to the Principal caused by him and has installed a suitable corruption prevention system, the Principal may, at its sole discretion, revoke or reduce the exclusion period before the expiry of the period of such exclusion.

Section 4: Compensation for Damages

(1) If the Principal has disqualified the Bidder(s)/Contractor(s) from the tender process prior to the awarding of the Project according to Section 3, the Earnest Money Deposit (EMD)/ Bid Security furnished, if any, along with the offer, as per terms of the Invitation of Tender, shall also be forfeited. The Bidder(s)/Contractor(s) understands and agrees that this will be in addition to the disqualification and exclusion of the Contractor(s)/Bidder(s) as may be imposed by the Principal, in terms of Section 3 above.

(2) If, at any time after the awarding of the Project, the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Security Deposit/Performance Bank Guarantee furnished by the contractor, if any, as per the terms of the NIT/Contract shall be forfeited without prejudice to any other legal rights and remedies available to the Principal under the relevant clauses of General/ Special Conditions of Contract.

The Contractor(s)/Bidder(s) understands and agrees that this will be in addition to the disqualification and exclusion of the Bidder(s)/Contractor(s), as may be imposed by the Principal in terms of Section 3 above.

Section 5: Previous transgression

(1) The Bidder(s)/Contractor(s) herein declares that it has committed no transgressions in the last 3 years with any other Company in any country conforming to the anti-corruption approach as detailed herein or with government/ any other Public Sector Enterprise in India that could justify its exclusion from the tender process.

If at any point of time during the tender process or after the awarding of the Contract, it is found that the Bidder(s)/Contractor(s) has made an incorrect statement on this subject, he can be disqualified from the tender process or if, as the case may be, that the Contract, is already awarded, it will be terminated for such reason and the Bidder(s)/Contractor(s) can be black listed in terms of Section 3 above.

Section 6: Independent External Monitor / Monitors DELETED

Section 7 Criminal charges against violating Bidder(s)/Contractor(s)/Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder/Contractor or any employee or a representative or an associate of a Bidder/Contractor, which constitutes a criminal offence under the IPC/PC Act, or if the Principal has substantive suspicion in this regard, the Principal will forthwith inform the same to the Authority.

Section 8 - Duration of the Integrity Pact

This Pact shall come into force when both parties have legally signed it. The Pact shall expire, in case of the Contractor(s), 3 (three) months after the last payment under the Contract is made and in case of the unsuccessful Bidder(s), 2 (two) months after the contract for the project has been awarded.

If any claims is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by Authority.

The Bidder(s)/Contractor(s), however, understands and agrees that even upon the completion of the Project and/or the last payment under the Contract having been made, if any transgression/violation of the terms of this Pact comes/is brought to the notice of the Principal, it may, subject to its discretion, blacklist and/or exclude such Bidder(s)/Contractor(s) as provided for in Section 3, without prejudice to any other legal right or remedy so available to the Principal.

Section 9 - Other provisions

(1) This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

(2) Changes and supplements as well as termination notices need to be made in writing.

(3) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement shall remain valid and binding. In such a case, the parties will strive to come to an agreement in accordance to their original intentions.

(4) Wherever he or his as indicated in the above sections, the same may be read as he/she or his/her, as the case may be.

(For & On behalf of the Principal)
Contractor)
(Office Seal)

(For & On behalf of Bidder/

(Office Seal)

Place _____

Date _____

Witness 1: (Name & Address)

_____

_____

Witness 2: (Name & Address)

_____

{COUNTERSIGNED and accepted by:

Appendix-VIII- NON-DISCLOSURE AGREEMENT

THIS NON-DISCLOSURE AGREEMENT (this "Agreement") is entered into on by Authority and (name of the Bidder) between the undersigned parties on the date specified below.

WHEREAS, either Party possesses certain confidential proprietary information; and WHEREAS, in connection with the pursuit, evaluation and/or feasibility of a business relationship, and/or the consummation of a transaction (collectively, the "Business Purposes") between the two parties hereto, including their affiliates, subsidiaries, stockholders, partners, co-venture, trading partners, employees and other organizations (hereinafter referred to as Affiliates), confidential proprietary information of one Party may become available to the other Party.

WHEREAS, either Party desires to prevent the unauthorized use and disclosure of its confidential proprietary information.

NOW THEREFORE, in consideration of these premises and for other good and valuable consideration, Receipt of which is hereby acknowledged, the parties agree as follows:

I. "**Confidential Information**". For purposes of this Agreement, Confidential Information shall mean all strategic and development plans, financial condition, business plans, co-developer identities, data, business records, customer lists, project records, market reports, employee lists and business manuals, policies and procedures, information relating to processes, technologies or theory and all other information which may be disclosed by one Party or to which the other Party may be provided access by the disclosing Party or others in accordance with this Agreement, or which is generated as a result of , incidental to or in connection with the Business Purposes, which is not generally available to the public.

II. **Non-disclosure Obligations**. The Receiving Party promises and agrees to receive and hold the Confidential Information in confidence. Without limiting the generality of the foregoing, the Receiving Party further promises and agrees:

A. to protect and safeguard the Confidential Information against unauthorized use, publication or disclosure;

B. not to use any of the Confidential Information except for the Business Purposes. C. not to, directly or indirectly, in any way, reveal, report, publish, disclose, transfer or otherwise use any of the Confidential Information except as specifically authorized by the Disclosing Party in accordance with this Non-Disclosure Agreement.

C. not to use any Confidential Information to unfairly compete or obtain unfair advantage vis-a-vis Disclosing Party in any commercial activity which may be Comparable to the commercial activity contemplated by the parties in connection with the Business Purposes.

D. to restrict access to the Confidential Information to those of its officers, directors, and employees who clearly need such access to carry out the Business Purposes.

E. to advise each of the persons to whom it provides access to any of the Confidential Information, that such persons are strictly prohibited from making any use, publishing or otherwise disclosing to others, or permitting others to use for their benefit or to the detriment of the Disclosing Party, any of the Confidential Information, and, upon Request of the Disclosing Party, to provide the Disclosing Party with a copy of a written agreement to that effect signed by such persons.

F. to comply with any other reasonable security measures requested in writing by the Disclosing Party.

G. To refrain from directly contacting or communicating by whatsoever means to the Source(s) of Information without written consent of the Disclosing Party.

H. To undertake not to disclose any names and their particulars to third parties without the written consent by the Disclosing party.

III. **Exceptions**. The confidentiality obligations hereunder shall not apply to Confidential Information which:

A. is, or later becomes, public knowledge other than by breach of the provisions of this Agreement; or

B. is in the possession of the Party with the full right to disclose prior to its receipt from the Disclosing Party, as evidenced by written records; or

C. is independently received by the Receiving Party from a third party, with no restrictions on disclosure.

IV. **Return of Confidential Information**. The Receiving Party agrees, upon termination of the Business Purposes or upon the written request of the other Party, whichever is earlier, to promptly deliver to the other Party all records, notes, and other written, printed, or tangible materials in the possession of the Receiving Party, embodying or pertaining to the Confidential Information.

V. **No Right to Confidential Information**.

A. The Receiving Party hereby agrees and acknowledges that no license, either express or implied, is hereby granted to the Receiving Party by the other Party to use any of the Confidential Information.

B. The Receiving Party further agrees that all inventions, improvements, copyrightable works and designs relating to machines, methods, compositions, or products of the other Party directly resulting from or relating to the Confidential Information and the right to market, use, license and franchise the Confidential Information or the ideas, concepts, methods or practices embodied therein shall be the exclusive property of the other Party, and the Receiving Party has no right or title thereto.

VI. **No Warranty**. The Disclosing Party has not made and will not make any representation or warranty as to the accuracy or completeness of its Confidential Information or of any other information provided to the Receiving Party, and the Receiving Party agrees that the Disclosing Party shall have no liability resulting from the use of the Confidential Information or such other information.

VII. **No Commitment**. The disclosure of Confidential Information does not, and is not intended to, represent a commitment by the Disclosing Party to enter into any business relationship with the Receiving Party or with any other entity. If the Parties desire to pursue business opportunities, they will execute a separate written agreement to govern such business relationship.

VIII. **Compelled Disclosure**. If the Party faces legal action to disclose Confidential Information received under this Agreement, then the Party shall promptly notify the other Party in order that it may have the opportunity to intercede and contest such disclosure and, upon request, shall cooperate with the other Party in contesting such a disclosure. Except in connection with failure to discharge the responsibilities set forth in the preceding sentence, neither Party shall be liable in damages for any disclosures pursuant to such legal action.

IX. **Losses**. The Receiving Party agrees to indemnify the other Party against any and all losses, damages, claims, or expenses incurred or suffered by the other Party as a result of the Receiving Party's breach of this Agreement.

X. **Communication**: The two parties agree that the communication between the parties is considered delivered and reached other party if transmitted by fax or electronic means with proof of sending machine. The date of receiving the messages, notices or letters is the date of sending authenticated by the sending machine. All notices under this Agreement shall be deemed to have been duly given upon the mailing of the notice, postpaid to the addresses listed above, or upon the facsimile transmission, to the party entitled to such notice at the facsimile number set forth below.

XI. **Counterparts.** Either the original or copies, including facsimile transmissions, of this Agreement, may be executed in counterparts, each of which shall be an original as against any party whose signature appears on such counterpart and all of which together shall constitute one and the same instrument.

XII. **No Solicitation of Employees**. The Receiving Party agrees that it will not, for a period of five (5) years from the date of this Agreement, initiate contact with the other Party's employees in order to solicit, entice or induce any employee of the other Party to terminate an employment relationship with the other Party to accept employment with the Receiving Party.

XIII. **Term and Termination**. This Agreement shall commence on the date first written above. The Receiving Party's right to use the Confidential Information in connection with the Business Purposes shall continue in effect until the period of one year from the date above or the other Party provides the Receiving Party with written notice of termination of such right, whichever is earlier. Notwithstanding the foregoing, the Receiving Party's obligations with respect to the Confidential Information hereunder shall continue in full force for at least five years from the termination date and/or effect until further notice from the other Party.

XIV. **Remedies**. The Receiving Party understands and acknowledges that any disclosure or misappropriation of any of the Confidential Information in violation of this Agreement may cause the Disclosing Party irreparable harm, the amount of which may be difficult to ascertain and, therefore, agrees that the Disclosing Party shall have the right to apply to a court of competent jurisdiction for an order restraining any such further disclosure or misappropriation and for such other relief as the Disclosing Party shall deem appropriate. Such right of the Disclosing Party shall be in addition to Remedies otherwise available to the Disclosing Party at law or in equity.

XV. **Entire Agreement.**. This Agreement embodies the entire understanding between the parties respecting the subject matter of this Agreement and supersedes any and all prior negotiations, correspondence, understandings and agreements between the parties respecting the subject matter of this Agreement. This Agreement shall not be modified except by a writing duly executed on behalf of the party against whom such modification is sought to be enforced. Should any provisions of this Agreement be found unenforceable, the remainder shall still be in effect.

XVI. **No Waiver**. The failure of either Party to require performance by the other Party of any provision of this Agreement shall in no way effect the full right to require such performance at any time thereafter.

XVII. **Successors and Assigns**. Neither shall any Party have any right to assign its rights under this Agreement, whether expressly or by operation of law, without the written consent of the other Party. This Agreement and the Party's obligations hereunder shall be binding on their Representatives, permitted assigns, and successors of the Parties and shall ensure to the benefit of Representatives, assigns and successors of the Parties.

XVIII. **Governing Law**. This Agreement shall be governed by and construed in accordance with the laws of India and the Party’s country laws on equal force. If there is any conflict of laws, the law of India shall prevail.

XIX. **Attorneys' Fees.** If any action at law or in equity is brought to enforce or interpret the provisions of this Agreement, the prevailing party in such action shall be entitled to attorneys' fees.

XX. **Modification:** This Agreement constitutes the sole understanding of the parties about this subject matter and may not be amended or modified except in writing signed by each of the parties to the Agreement.

XXI. Legal Address of the Parties:

Party A: **Party B:**

Engineering, Procurement and Construction

Agreement for

Detailed Design, Procurement, Construction, Testing & Commissioning of the Museum cum Orientation Centre, Lothal Archaeological Site, Lothal, District – Ahmedabad, Gujarat, for Archaeological Survey of India (ASI), on EPC Basis

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PART I - PRELIMINARY

ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT

THIS AGREEMENT is entered into on this the…… day of……..., 2026

BETWEEN

On behalf of the President of Republic of India, Director General, Archaeological Survey of India (ASI), hereinafter referred to as the **"Authority"** which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) of One Part;

AND

M/s._____means the selected bidder incorporated under Indian Companies Act, _____ having its registered office at _____, (hereinafter referred to as the **"Contractor"** which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the Other Part.

WHEREAS:

(A) ARCHAEOLOGICAL SURVEY OF INDIA (ASI) is an attached office of the Ministry of Culture. Under the provisions of the AMASR Act of 1958, the ASI administers more than 3650 ancient monuments, archaeological sites and remains of national importance. These can include everything from temples, mosques, churches, tombs, and cemeteries to palaces, forts, step-wells, and rock-cut caves. The Survey also maintains ancient mounds and other similar sites which represent the remains of ancient habitation.

(B) The Authority had accordingly invited proposals by its Request for Qualification cum proposal No. (the **"Request for Qualification cum proposal "or "RFQ&P")** for shortlisting of bidders for EPC of the **"Project"** and had shortlisted certain bidders including, inter alia, the Contractor.

(C) Any and all of the rights of the Authority hereunder shall be assignable without any limitation whatsoever, without any prior written consent of the Contractor to Proposed Authority. In the event that the proposed Authority requires formal documentation relating to such assignment granted by the Authority as stated herein, Contractor shall cooperate fully with the Authority, and from time to time, at the Authority's request, Contractor shall promptly:

a) Execute any and all assignments, instruments and other documents that the Authority may deem necessary or useful in order to formally assign to Authority the entire right, title and interest vested in the Contract to Authority.

b) Provide for any confirmations, no objections that may be necessary to effectuate the assignment of rights, title and interest vested in the Contract to such other Authority.

Upon such assignment of Contract being made, the Assignee Company, i. e. Authority shall undertake and shall be obligated to perform all the duties and obligations under the Contract that the Company (ASI) was obligated to perform and all such business transaction undertaken between the Assignee Company and Contractors relating to development of

Project shall be binding, valid and subsisting as if the same were entered into originally.

The consideration of the Contract shall be the consideration for the Assignment and the Parties shall pass necessary resolutions to such effect.

(D) After evaluation of the bids received, the Authority had accepted the bid of the selected bidder and issued its Letter of Award No._____dated _____ (Hereinafter called the "LOA") to the selected bidder for " Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre is proposed to be developed at Lothal, Gujarat on EPC" at the contract price specified hereinafter, requiring the selected bidder to inter alia:

(i) Deliver to the Authority a legal opinion from the legal counsel of the selected bidder with respect to the authority of the selected bidder to enter into this Agreement and the enforceability of the provisions thereof, within 10 (ten) days of the date of issue of LOA; and

(ii) Execute this Agreement within 40 (Forty Days) days of the date of issue of LOA.

(E) The Contractor has fulfilled the requirements specified in Recital (E) above;

NOW THEREFORE in consideration of the foregoing and the respective covenants and agreements set forth in this Agreement, the sufficiency and adequacy of which is hereby acknowledged, the Authority hereby covenants to pay the Contractor, in consideration of the obligations specified herein, the Contract Price or such other sum as may become payable under the provisions of the Agreement at the times and in the manner specified by the Agreement and intending to be legally bound hereby, the Parties agree as follows:

ARTICLE-1

1. Definitions and Interpretation

1.1 Definitions

The words and expressions beginning with capital letters and defined in this Agreement (including those in Article 28) shall, unless the context otherwise requires, have the meaning ascribed thereto herein, and the words and expressions defined in the Schedules and used therein shall have the meaning ascribed thereto in the Schedules.

1.2 Interpretation

1.2.1 In this Agreement, unless the context otherwise requires,

(a) references to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;

(b) references to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;

(c) references to a "person" and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;

(d) the table of contents, headings or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;

(e) the words "include" and "including" are to be construed without limitation and shall be deemed to be followed by "without limitation" or "but not limited to" whether or not they are followed by such phrases;

(f) references to "construction" or "building" include, unless the context otherwise requires, survey and investigation, design, developing, engineering, procurement, supply of plant, materials, equipment, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project Works, including maintenance during the Construction Period, removing of defects, if any, and other activities incidental to the construction and "construct" or "build" shall be construed accordingly;

(g) references to "development" include, unless the context otherwise requires, detailed design, construction, renovation, refurbishing, augmentation, up-gradation and other activities incidental thereto during the Construction Period, and "develop" shall be construed accordingly;

(h) any reference to any period of time shall mean a reference to that according to Indian standard time;

(i) any reference to day shall mean a reference to a calendar day;

(j) references to a "business day" shall be construed as a reference to a day (other than a Sunday, Public Holiday) on which the banks in Delhi are generally open for business;

(k) any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;

(l) references to any date, period or Project Milestone shall mean and include such date, period or Project Milestone as may be extended pursuant to this Agreement;

(m) any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;

(n) the words importing singular shall include plural and vice versa;

(o) references to any gender shall include the other and the neutral gender;

(p) "lakh" means a hundred thousand (100,000) and "crore" means ten million (10,000,000);

(q) "indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;

(r) references to the "winding-up", "dissolution", "insolvency", or "reorganisation" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganisation, dissolution, arrangement, protection or relief of debtors;

(s) save and except as otherwise provided in this Agreement, any reference, at any time, to any agreement, deed, instrument, licence or document of any description shall be construed as reference to that agreement, deed, instrument, licence or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Clause shall not operate so as to increase liabilities or obligations of the Authority hereunder or pursuant hereto in any manner whatsoever;

(t) any agreement, consent, approval, authorisation, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Authority's Engineer shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party or the Authority's Engineer, as the case may be, in this behalf and not otherwise;

(u) the Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;

(v) references to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears;

(w) the damages payable by either Party to the other of them, as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the **"Damages");** and

(x) time shall be of the essence in the performance of the Parties' respective obligations. If any time period specified herein is extended for the reasons specified in the Agreement, such extended time shall also be of the essence.

1.2.2 Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Contractor to the Authority shall be provided free of cost and in 3 (three) copies, and if the Authority is required to return any such Documentation with its comments and/or approval, it shall be entitled to retain two copies thereof.

1.2.3 The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, shall not apply.

1.2.4 Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act, 1897 shall not apply.

1.3 Measurements and arithmetic conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down.

1.4 Priority of agreements and errors/discrepancies

1.4.1 This Agreement, and all other agreements and documents forming part of or referred to in this Agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and

agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:

(a) this Agreement; and

(b) all other agreements and documents forming part hereof or referred to herein; i.e. this Agreement at (a) above shall prevail over the agreements and documents at (b).

1.4.2 Subject to the provisions of Clause 1.4.1, in case of ambiguities or discrepancies within this Agreement, the following shall apply:

(a) between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;

(b) between the Clauses of this Agreement and the Schedules, the Clauses of agreement shall prevail and between Schedules and Annexures, the Schedules shall prevail;

(c) between any two Schedules, the Schedule relevant to the issue shall prevail;

(d) between the written description on the Drawings and the Specifications and Standards, the specifications shall prevail;

(e) between the dimension scaled from the Drawing and its specific written dimension, the later shall prevail; and

(f) between any value written in numerals and that in words, the later shall prevail.

1.5 Joint and several liability

1.5.1 If the Contractor has formed a Consortium of two or more persons for implementing the Project:

(a) these persons shall, without prejudice to the provisions of this Agreement, be deemed to be jointly and severally liable to the Authority for the performance of the Agreement; and

(b) the Contractor shall ensure that no change in the composition of the Consortium is effected without the prior consent of the Authority.

1.5.2 Without prejudice to the joint and several liability of all the members of the Consortium, the Lead Member shall represent all the members of the Consortium and shall at all times be liable and responsible for discharging the functions and obligations of the Contractor for the contract price. The Contractor shall ensure that each member of the Consortium shall be bound by any decision, communication, notice, action or inaction of the Lead Member on any matter related to this Agreement and the Authority shall be entitled to rely upon any such action, decision or communication of the Lead Member. The Authority shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or liable for the *inter se* allocation of payments among members of the Consortium.}

PART II - SCOPE OF PROJECT

ARTICLE-2

2. Scope of the Project

2.1 Scope of the Project

Under this Agreement, the scope of the Project (the **"Scope of the Project")** shall mean and include:

(a) Detailed Design, Procurement, Construction, Testing & Commissioning including Defects Liability Period of 10 (Ten) years for Structural, Steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years. of Museum cum Orientation Centre for Archaeological Survey of India (ASI) at Lothal, Gujarat on EPC Basis;

(b) set forth in Schedule-A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. These schedules are included in Part 2 of the tender documents; and

(c) performance and fulfilment of all other obligations of the Contractor in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement.

ARTICLE-3

3. Obligations of the Contractor

3.1 Obligations of the Contractor

3.1.1 Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, detailed design, engineering, procurement (within India or outside India), construction, Testing & Commissioning of the Museum cum Orientation Centre at Lothal, Dist. Ahmedabad (Gujarat) for Archaeological Survey of India (ASI) and services/ utilities as defined in Scope and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder. The drawings provided in the tender are for reference and indicative. The contractor has to do the detailed design, drawing preparation with all calculations at his end before getting their approval for construction.

3.1.2 The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.

3.1.3 Subject to the provisions of Clauses 3.1.1 and 3.1.2, the Contractor shall discharge its obligations in accordance with Good Industry Practice and as a reasonable and prudent person.

3.1.4 The Contractor shall remedy any and all loss or damage to the roads and services/ utilities in and around the battery limits which get damaged from the date of Letter of Award until the end of the Construction Period at the Contractor's cost, save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority or on account of a Force Majeure Event.

3.1.5 The Contractor shall remedy any and all loss or damage to the roads and services/ utilities in and around the battery limits which get damaged during the Defects Liability Period at the Contractor's cost to the extent that such loss or damage shall have arisen out of the reasons specified in Clause 17.3.

3.1.6 Deleted

3.1.7 The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:

(a) make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-F and obtain and keep in force and effect such Applicable Permits in conformity with the Applicable Laws;

(b) procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes and systems used or incorporated into the Project and Services;

(c) make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;

(d) ensure and procure that its Sub-contractors comply with all Applicable Permits and

Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement;

(e) not do or omit to do any act, deed or thing which may in any manner be violative of any of the provisions of this Agreement;

(f) support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;

(g) ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with the Schedule- R and the Applicable Laws;

(h) keep, on the Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope Orders and other communications given under this Agreement. The Authority's Engineer and its authorised personnel shall have the right of access to all these documents at all reasonable times;

(i) cooperate with other contractors employed by the Authority and personnel of any public authority; and

(j) not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Authority or of others.

(k) the Contractor shall be responsible for usage of BIM model in the project and CAD requirements in all stages of Design and Construction as per the requirements mentioned in Schedule Q, Technical Specifications

(l) the Contractor shall prepare Project specific Health, Safety and Environment plan based on guidelines provided in Schedule-R for implementation after it is approved by the Authority

(m) contractor and their sub-contractors shall comply with Project Management requirements as mentioned in Schedule-S

(n) Adhering and complying to EC (Environmental Clearance) / GPCC (Gujarat Pollution Control Committee) and the compliance reports and documentation.

(o) Adhering to updated National Green Tribunal (NGT) guidelines and also their monthly mandatory Compliances reports and required documentation.

(p) Documentation and compliances required for obtaining IGBC Certification during the currency of the contract and also at the time of handover

3.1.8 The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works.

3.2 Obligations relating to sub-contracts and any other agreements

3.2.1 The Contractor shall not sub-contract any Works in more than 70% (seventy percent) of the total contract amount of the Project under his complete responsibility & supervision, as the case may be, for such Works. The Parties further agree that all obligations and liabilities

under this Agreement for the entire project Works shall at all times remain with the Contractor.

3.2.2 In the event any sub-contract for Works, the Contractor shall communicate the name and particulars, including the relevant experience of the sub-contractor, to the Authority prior to entering into any such sub-contract. The Authority shall examine the particulars of the sub-contractor from the national security and public interest perspective and may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.

3.2.3 In the event any sub-contract referred to in Clause 3.2.2 relates to a sub-contractor who has, over the preceding 3 (three) years, not undertaken at least one work of a similar nature with a contract value exceeding 40% (forty percent) of the value of the sub-contract to be awarded hereunder and received payments in respect thereof for an amount equal to at least such 40% (forty percent), the Authority may, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, require the Contractor not to proceed with such sub-contract, and the Contractor shall comply therewith. Sub-Contractor executing the Electrical works shall have a valid Class A certified license for carrying out work in the State of Gujarat. Sub-Contractor executing the Lift/ Escalator works shall have a valid license for carrying out work in the State of Gujarat.

3.2.4 It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, and no default under any such agreement shall excuse the Contractor from its obligations or liability hereunder.

If a proposed sub-contractor has been approved by Authority, the Contractor shall not replace such approved sub-contractor with another sub-contractor without obtaining the Authority's prior approval for the proposed replacement.

Notwithstanding any consent to sub-contract given by the Authority if in his opinion it is considered necessary, the Authority shall have full authority to order the removal of any sub-contractor from the site or off- site place of manufacture or storage. Contractor shall be fully responsible on behalf of all sub-contractors for all terms and terms and conditions of the contract irrespective of the sub-contractor's approval by the Authority.

Contractor or his representative only shall represent for all works with the Authority during the currency of the project, for complete scope even in case of all his subcontracts / subcontractors.

3.2.5 Minimum following activities shall be performed by the Contractor directly and shall not be sub-contracted: -

a) Overall Project Management
b) Planning, Scheduling, Monitoring
c) Procurement Services
d) Quality Control
e) Health, Safety & Environment, Labour Camps.
f) Labour, NGT, EC, DPCC & IGBC Compliances

g) Construction Management
h) Performance Guarantee Test Run.

3.3 Employment of foreign nationals

The Contractor acknowledges, agrees and undertakes that employment of foreign personnel by the Contractor and/or its Sub-contractors and their sub-contractors shall be subject to grant of requisite regulatory permits and approvals including employment/residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. Notwithstanding anything to the contrary contained in this Agreement, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Subcontractors or their sub-contractors shall not constitute Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Agreement.

3.4 Contractor's personnel

3.4.1 The Contractor shall ensure that the personnel engaged by it or by its Sub-contractors in the performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions in conformity with Good Industry Practice.

3.4.2 The Authority's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel. Provided that any such direction issued by the Authority's Engineer shall specify the reasons for the removal of such person. In case Authority observed misconduct negligence or incompetence etc. on the part of any representative, agent, servant and workmen or employees etc. of the contractor, the Authority /SPV shall have full power and without giving any reason to the contractor, instruct the contractor to remove such engineer / staff / worker from site and provide suitable replacements. The decision of the Authority/ Authority's Engineer shall be final and binding on the contractor. The contractor shall not be allowed any compensation on this account.

3.4.3 The Contractor shall on receiving such a direction from the Authority's Engineer, order for the removal of such person or persons with immediate effect. It shall be the duty of the Contractor to ensure that such persons are evicted from the Site within 10 (ten) days of any such direction being issued in pursuance of Clause 3.4.2. The Contractor shall further ensure that such persons have no further connection with the Works under this Agreement. The Contractor shall then appoint (or cause to be appointed) a replacement.

3.4.4 Unless the Contractor's Representative (Project-in-charge) is named in the Contract, the Contractor shall, within 7(seven) days of issue of LOA, submit to the Authority's Engineer for consent the name and particulars of the person the Contractor proposes to appoint after Authority's approval. The Contractor shall not revoke the appointment of the Contractor's Representative without the prior information to the Engineer. The Contractor's Representative so nominated shall have full authority to act on behalf of the Contractor. The Contractor's Representative shall give his whole time to directing the preparation of the Construction and/or Manufacture Documents and the execution of the Works. The Contractor's Representative shall receive (on behalf of the Contractor) all notices, instructions, consents, no objection certificate approvals, certificates, determinations and other communications under the Contract. Whenever the Contractor's Representative is to be absent from the Site, a suitable replacement person shall be appointed, with prior consent of Authority/ Authority's Engineer. Failure on part of the Contractor to comply with these provisions shall constitute a

breach of Contract.

3.4.5 The Contractor's Representative may delegate any of his powers, functions and authorities to any competent person, and may at any time revoke any such delegation. Any such delegation or revocation shall be in writing and shall not take effect until the Authority/ Authority's Engineer has given prior consent thereto. The Contractor's Representative and such persons shall be fluent in the language of day to day communication and the Contractor shall be bound by and fully liable for the acts or omissions of the Contractor's Representatives or any of his employees and/or delegates, agents or nominees.

3.4.6 Technical Staff for Work

a) The contractor shall employ at his cost the adequate number of technical staff during the execution of this work depending upon the requirement of work or as per the resource schedule approved by Authority. For this purpose, the numbers to be deployed, their qualification, experience as decided by Authority shall be final and binding on contractor. The contractor shall not be entitled for any extra payment in this regard. The technical staff should be available at site, whenever required by Authority to take instructions.

b) Within 7(seven) days of the date of Letter of Award, the contractor shall submit a site organizational chart and resume including details of experience of the Project-in-Charge and other staff proposed to be deputed by him and the technical team shall be deputed by them on the Project after getting approval from Authority/ Authority's Engineer. If desired by the contractor at later date, the Contractor's representative (Project-in-Charge) and other staff whose resume is approved by Authority can be replaced with prior written approval of Authority and replacement shall be with equivalent or superior candidate only. Decision of Authority/ Authority's Engineer shall be final and binding on the contractor. For the period of absence in non deployment of qualified manpower by the contractor, the Authority shall at its discretion decide to deduct payments.

c) Even after approving the site organizational chart, the Authority/ Authority's Engineer due to technical reasons and exigency of work can direct the contractor to depute such additional staff as in view of Authority/ Authority's Engineer is necessary and having qualification and experience as approved by the Authority/ Authority's Engineer. The removal of such additional staff from the site shall only be with the prior written approval of Authority/ Authority's Engineer. The contractor shall not be paid anything extra whatsoever on account of deployment of additional staff and decision of the Authority/ Authority's Engineer shall be final and binding on the contractor.

d) In case the contractor fails to employ the staff as aforesaid he shall be liable to pay a reasonable amount not exceeding a sum of Rs. 1,00,000/ - for each month of default in the case of each person. The decision of the Authority/ Authority's Engineer as to the number of Technical Staff to be adequate for the project and the period for which the desired strength of technical staff was not employed by the contractor and as to the reasonableness of the amount to be deducted on this account shall be final and binding on the contractor as to the amount and the contractor's liability to pay the said amount.

3.5 Advertisement on Site

The Site or any part thereof shall not be used in any manner to advertise any commercial product or services. The Contractor shall not publish, advertise or otherwise circulate alone or in conjunction with any other person, any articles, photographs or other materials relating to

the Contract, the Site, the Works, the Project or any part thereof, nor impart to the Press, or any radio or television network any information relating thereto, nor allow any representative of the media access to the Site, Contractor's Works Areas, or off-Site place of manufacture, or storage except with the permission, in writing, of the Authority. The Contractor shall ensure that his sub-contractors of any tier shall be bound by a like obligation and shall, enforce the same at his own expense. The provisions of this Sub-Clause shall not exempt the Contractor from complying with any statutory provision in regard to the taking and publication of photographs

3.6 Contractor's care of the Works

The Contractor shall bear full risk in and take full responsibility of his own and of all the sub-contractors for the care of the Works, and of the Materials, goods and equipment for incorporation therein, from the date of Letter of Award until the date of Provisional Certificate (with respect to the Works completed prior to the issuance of the Provisional Certificate) and/or Completion Certificate (with respect to the Works referred to in the Punch List), save and except to the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.

3.7 Electricity, water and other services

The Contractor shall be responsible for procuring of all power, water and other services that it may require for construction, Labour camps and other purposes to fulfill all obligations of the contract at his own cost outside the battery limit(for labour camps). The contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply in any weather round the year or during any part of the day. Power and water for their men in Labour Camps and at site office, stores, offices of Authority / Authority's Engineer and upto the final Handover for testing, Commissioning and handover shall be borne by the Contractor to complete their scope and contractual obligations. As an obligation the power and water required for testing & commissioning of all systems, services & utilities shall be provided by Authority. The contractor shall follow relevant guidelines and requirements as stated in the Schedule-R.

3.8 Unforeseeable difficulties

Except as otherwise stated in the Agreement:

(a) The Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;

(b) The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and

(c) The Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

3.9 Contractor's Equipments

3.9.1 All Contractor's Equipment and Temporary Works provided by the Contractor shall, when brought on to the site with prior written information, be deemed to be exclusively intended for execution of the Works and not be removed without the consent in writing of the Authority. Such consent shall not be unreasonably withheld or delayed.

3.9.2 Upon completion of the Works the Contractor shall remove from the Site all the said Constructional Plant and his unused materials.

3.9.3 The Authority shall not, at any time, be liable for the loss or damage to any of the Constructional Plant, Temporary Works or materials.

3.9.4 In respect of any Constructional Plant which the Contractor shall have imported for the purpose of the Works, the Authority may assist the Contractor, where required, in procuring any necessary Government consent for re-export of the same after the completion of the Works.

3.9.5 The Authority may assist (but is not obligated to) the Contractor, where required, in obtaining clearance through the Customs of Constructional Plant, materials and all other project related items required for the completion of Works.

3.10 Security of the Site and Labour Camp

The Contractor shall be wholly responsible for security of site, Labour Camps, Works. Stores and yards shall be safely fenced all-round to the satisfaction of the Authority.

a. The Contractor shall be responsible for keeping unauthorised persons off the Site and Labour Camps; and

b. Authorized persons shall be limited to the Employees of the Contractor, Subcontractor or persons authorized by the Authority.

3.11 Land For Labour Huts/ Accommodation

3.11.1 The contractor shall arrange the land outside the site battery limit for temporary office, their accommodation and labour huts at his own cost and get the clearance of local authorities for setting up/construction of labour camp and same is deemed to be included in the offer quoted by the contractor for the works. The contractor shall ensure that the area of labour camp is kept clean and sanitary conditions are maintained as laid down by the local authorities controlling the area and as per the Guidelines in the Contract or as advised by Authority. The vacant possession of the land used, for the purpose shall be given back by contractor to its owner after completion of the work and that too without any encumbrances and back in its original shape so that it does not invite any penalty by Authority on the complaints of the Land Owner.

The Retention Money of the contractor shall be released only after contractor demolishes all structures including foundations and gives back clear vacant possession of this land to its owner.

3.11.2 In the event the contractor has to shift his labour campus at any time during execution of the work on the instructions of local authorities or as per the requirement of the work progress or as may be required by Authority, he shall comply with such instructions at his cost and risk and no claim **(**including time & cost) whatsoever shall be entertained on this account.

3.12 Setting Out of the Works

3.12.1 **Accurate Setting Out**

The Contractor shall be responsible for:

(a) the accurate setting out of the Works in relation to the original points, lines and levels

of reference given by the Authority in writing;

(b) the correctness of position, levels, dimensions and alignments of all parts of the Works;

(c) the provisions of all necessary instruments, equipment, apparatus and labour in connection with the foregoing responsibilities; and

(d) Carefully laying, protecting and preserving all bench marks, sight rails, pegs and other things used in setting out the Works.

(e) The contractor shall provide, fix and be responsible for the maintenance of all necessary stakes, templates, level marks, profiles and other similar things and shall take all necessary precautions to prevent their removal or disturbance and shall be responsible for consequences of such removal or disturbance should the same take place and for their efficient and timely reinstatement. The Contractor shall also be responsible for the maintenance of all existing survey marks, either existing or supplied and fixed by the Contractor. The work shall be set out to the satisfaction of the Authority/ Authority's Engineer. The approval thereof or joining in setting out the work shall not relieve the Contractor of his responsibility.

(f) Before beginning the works, the Contractor shall, at his own cost, provide all necessary reference and level posts, pegs, bamboos, flags ranging rods, strings and other materials for proper layout of the work in accordance with the scheme, for bearing marks acceptable to the Authority/ Authority's Engineer. The Centre longitudinal or face lines and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct marks at the centre to enable theodolite to be set over it. No work shall be started until all these points are checked and approved by the Authority/ Authority's Engineer in writing. But such approval shall not relieve the contractor of any of his responsibilities. The Contractor shall also provide all labour, materials and other facilities, as necessary, for the proper checking of layout and inspection of the points during construction.

(g) Pillars bearing geodetic marks located at the sites of units of works under construction should be protected and fenced by the Contractor. On completion of works, the contractor shall submit the geodetic documents according to which the work was carried out.

(h) The Authority/ Authority's Engineer shall communicate or confirm his instructions to the contractor in respect of the executions of work in a "work site order book" maintained in the office having duplicate sheet and the authorised representative of the contractor shall confirm receipt of such instructions by signing the relevant entries in the book.

(i) All instructions issued by the Authority/ Authority's Engineer shall be in writing. The Contractor shall be liable to carry out the instructions without fail.

(j) If the Contractor after receipt of written instruction from the Authority/ Authority's Engineer requiring compliance within seven days fails to comply with such drawings or 'instructions' or both as the Authority/ Authority's Engineer may issue, may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect to such drawings or `instructions' and all cost and expenses incurred in connection therewith as certified by the Authority/ Authority's Engineer/ Site-in-Charge shall be borne by the contractor or may be deducted from amounts due or that may become due to the contractor under the contract or may be recovered as a debt.

(k) The Contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the levels and correctness of every part of the work and shall rectify effectually any errors or imperfections therein. Such rectifications shall be carried out by the Contractor, at his own cost.

(l) The Contractor shall clear the job site of all unwanted trees, bushes, undergrowth and over ground and underground structures, pipes and installations, and shall re-route, if necessary, any private utilities located on or within the job sites and shall take care to keep the job site clean at all times for easy access to the job site and also from the safety point of view to the satisfaction of the Authority/ Authority's Engineer.

(m) The Contractor shall clean and keep clean the work site from time to time to the satisfaction of the Authority/ Authority's Engineer for easy access to work site and to ensure safe passage, movement and working. All dismantled material shall be shifted /removed by Contractor at his own cost to designated place. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required in accordance with Good Industry Practice, Applicable Laws and instructions of the Authority/ Authority's Engineer, unless required to be maintained at the Site as per the instructions of Authority/ Authority's Engineer.

The checking of any setting-out or of any line or level by the Engineer shall not in any way relieve the Contractor of his responsibility for the accuracy or correctness thereof and the Contractor shall carefully protect and preserve all bench-marks, sight-rails, pegs and other things used in setting out the Works.

3.12.2 Errors in Setting out

If at any time during the execution of the Work, an error appears in the positions, levels, dimensions or alignment of any part of the Works, the Contractor on being required to do so or on being instructed by the Authority/Authority's Engineer shall, at Contractor's cost, rectify such error to the satisfaction of the Authority/Authority's Engineer.

3.13 Materials Obtained From Dismantlement to Be Authority's Property

All materials like stone, boulder and other materials obtained during the work of dismantling, excavation etc. will be considered Authority property and such materials shall be disposed-off to the best advantage of Authority according to the instructions in writing issued by the Authority/ Authority's Engineer.

3.14 Sale of Scrap

All the material which enters into the site and is not to be consumed within the project shall also be brought within with prior written information. It will only be permitted to be taken out of site for scrap or dumping as waste, with prior written information to Authority and with permission of relevant authority of the location where dumping is being done by Contractor.

For sale of all the materials which is neither usable for the purpose for which it was originally procured nor of any operational value should be considered as a scrap including but not limited to structural steel, reinforcement, empty cement bags, e-waste, industrial sweepings, the contractor shall duly inform the Authority before selling of such material and the amount earned from the Scrap Sale shall be deposited in Contractor's Account.

3.15 Co-Ordination with Other Agencies

Work shall be carried out in such a manner that the work of other Agencies operating at the site is not hampered due to any action of the Contractor. Proper Co-ordination with other Agencies like GERC, NHAI, UGVCL, etc. & its contractors will be Contractor's responsibility. In case of any dispute, the decision of ASI shall be final and binding on the contractor. No claim whatsoever shall be admissible to the contractor on this account.

ARTICLE-4

4. Obligations of the Authority

4.1 Obligations of the Authority

4.1.1 The Authority shall, at its own cost and expense, undertake, comply with and perform all its obligations set out in this Agreement or arising hereunder.

To assist in the discharge of its obligations, the Authority has appointed **Architect Hafeez Contractor (AHC)** as the **Principal Architectural Consultant** for the Project.

AHC shall be responsible for the **review, checking, detailed technical and engineering verification, and approval of all design and technical submissions** made by the Contractor, including architectural, structural, MEP, tensile and allied design documents, drawings, calculations, specifications, method statements and coordinated submissions, to ensure compliance with the approved design intent, Design Basis Report (DBR), applicable codes, standards and statutory requirements.

AHC shall also carry out **periodic and need-based site visits** to verify that the Works are being executed in accordance with the approved drawings and to ensure that the approved architectural and design intent of the Project is maintained.

The **Authority / Archaeological Survey of India (ASI)** may appoint a **separate Project Management Consultant (PMC)** for the Project.
AHC shall not function as the Project Management Consultant (PMC) and shall not be responsible for **day-to-day project management, construction supervision, quality control, safety management, scheduling, cost control, certification of bills, or contract administration**, which shall be managed by the **Authority and/or the PMC appointed by the Authority**, as applicable.

All submissions relating to **design review, technical approvals and design coordination** shall be routed through **AHC**.
Final approvals, wherever required, shall rest with the **Authority and the Archaeological Survey of India (ASI)**.

4.1.2 **The Scope of the Project, Project Facilities, Specifications and Standards, and the criteria for testing of the completed Works are provided for reference purposes only, and the responsibility for compliance thereof shall finally rest with the** Contractor**.**
However, all drawings, designs and technical submissions shall be submitted to and approved by AHC**, prior to implementation, in accordance with the provisions of this Agreement.**

4.1.3 **The Authority shall provide to the Contractor:**

- The Project Site in accordance with the provisions of Clauses **8.2 and 8.3**, within a period of **15 (fifteen) days** from the date of issuance of the Letter of Acceptance (LOA);
- All environmental clearances (EC), as required under Clause **4.3**;
- Ensure release of **timely payments**, advances and approvals for extra items, in accordance with this Agreement.

4.1.4 **Delay in providing the Project Site in accordance with Clause** 4.1.3 **shall not entitle the Contractor to any** damages**, except entitlement to** extension of time**, if any, in accordance with Clause** 10.5 **of this Agreement.**

4.1.5 **Notwithstanding anything to the contrary contained in this Agreement, the Parties expressly agree that** no aggregate damages **shall be payable under Clauses** 4.1.4 **and** 8.3**, and the Contractor's sole remedy shall be** extension of time**, subject to approval of the Authority.**

4.1.6 **The Authority, being the** Archaeological Survey of India (ASI)**—an attached office of the Ministry of Culture administering ancient monuments, archaeological sites and remains of national importance under the** AMASR Act, 1958**—undertakes to observe, comply with and perform, subject to and in accordance with the provisions of this Agreement and Applicable Laws, the following:**

a) Upon written request from the Contractor, provide reasonable support in procuring Applicable Permits from Government Instrumentalities;
b) Provide reasonable assistance in obtaining access to infrastructure facilities and utilities such as water and electricity on terms no less favourable than those available to similarly placed consumers;
c) Ensure that no barriers having a **Material Adverse Effect** on the Works are erected or placed on or about the Site, except for reasons of emergency, national security, law and order or statutory requirements;
d) Not do or omit to do any act which may violate the provisions of this Agreement;
e) Support, cooperate with and facilitate the Contractor in implementation of the Project; and
f) Upon written request and subject to Clause **3.3**, provide reasonable assistance for visas and work permits for expatriate personnel, if any.

4.2 Environmental Clearances and other approvals

All approvals including **environmental clearances (EC)** if required for construction of the Project shall be obtained by the bidder.
The present status of such clearances is provided in **Schedule–F**.

ARTICLE-5

5. Representations and Warranties

5.1 Representations and warranties of the Contractor

The Contractor represents and warrants to the Authority that:

(a) it is duly organised and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;

(b) it has taken all necessary corporate and/or other actions under Applicable Laws to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;

(c) this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable obligations against it in accordance with the terms hereof;

(d) it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;

(e) the information furnished in the Bid and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;

(f) the execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

(g) there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;

(h) it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;

(i) it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;

(j) no representation or warranty by it contained herein or in any other document furnished by it to the Authority or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

(k) no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or

employee of the Authority in connection therewith;

(l) all information provided by the {selected bidder/ members of the Consortium} in response to the Request for Qualification and Request for Proposals or otherwise, is to the best of its knowledge and belief, true and accurate in all material respects; and

(m) nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority and any Sub-contractors, designers, consultants or agents of the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

(a) it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;

(b) it has taken all necessary actions under the Applicable Laws to authorise the execution, delivery and performance of this Agreement;

(c) it has the financial standing and capacity to perform its obligations under this Agreement;

(d) this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(e) it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;

(f) it has complied with Applicable Laws in all material respects;

(g) it has good and valid right to the Site and has the power and authority to grant the Project Site in respect thereof to the Contractor; and

(h) It has procured land for project Site and environment clearances such that the Contractor can commence construction forthwith on the work Site.

5.3 Disclosure

In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

ARTICLE-6

6. Disclaimer

6.1 Disclaimer

6.1.1 The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Qualification cum Proposal, Scope of the Project, Specifications and Standards of design, construction & maintenance , Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all information provided by the Authority in the tender documents or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause 4.1.2 and Clause 5.2, the Authority makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard.

6.1.2 The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.

6.1.3 The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause 6.1.1 above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.

6.1.4 The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause 6.1.1 above shall not vitiate this Agreement, or render it voidable.

6.1.5 In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause 6.1.1 above, that Party shall immediately notify the other Party, specifying the mistake or error.

6.1.6 Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof. Contractor shall keep the Authority indemnified for any such risks.

PART III - CONSTRUCTION AND MAINTENANCE

ARTICLE-7

7. Performance Security

7.1 Performance Security

7.1.1 The Contractor shall, for the performance of its obligations hereunder during the Construction Period, provide to the Authority performance security, within 30 (thirty) days of the date of LOA. Performance Security may be furnished in the form of an account payee demand draft, bank guarantee, fixed deposit receipt from a nationalized or commercial scheduled bank, issued/confirmed from the bank in an irrevocable and unconditional guarantee in the form set forth in Annex -I of Schedule-G (the **"Performance Security"**) for an amount equal to 5.0% (five percent) of the Contract Price. The Performance Security shall be valid until 60 (sixty) days after the Defects Liability Period. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security, the Authority shall release the Bid Security to the Contractor. For the avoidance of doubt, the parties expressly agree that the Contractor shall provide, extended performance security no later than 30 (thirty) days prior to the expiry of the Performance Security for the construction period and defects Liability Period specified in Clause 17.1.2.

7.1.2 Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of Clause 7.1.1 and within the time specified therein or such extended period as may be provided by the Authority, in accordance with the provisions of Clause 7.1.3, the Authority may encash the Bid Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

7.1.3 In the event the Contractor fails to provide the Performance Security within 30 (thirty) days of the date of LOA, it may seek extension of time for a period not exceeding 5 (five) days on payment of Damages for such extended period in a sum calculated at the rate of 0.05% (zero point zero five per cent) of the Contract Price for each day until the Performance Security is provided.

7.2 Extension of Performance Security

The Contractor may procure the extension of the validity of the Performance Security, as necessary, at least 2 (two) months prior to the date of expiry thereof. Upon the Contractor providing an extended Performance Security, the previous Performance Security shall be deemed to be released and the Authority shall return the same to the Contractor within a period of 7 (seven) business days from the date of submission of the extended Performance Security.

7.3 Appropriation of Performance Security

7.3.1 Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate the relevant amounts from the Performance Security as Damages for such Contractor's Default.

7.3.2 Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security as aforesaid failing which the Authority shall be entitled to terminate the Agreement in accordance with Article 23. Upon replenishment or furnishing of a fresh Performance Security, as the case may be, as aforesaid, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor's Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement in accordance with Article 23.

7.4 Release of Performance Security

7.4.1 The Authority shall return the 50% of Performance security after successful completion / testing / commissioning and handing over of the project and 50 % after the DLP of 2 years.

7.4.2 The Authority shall return the Additional performance security, taken in case of unbalanced bid, within 28 (twenty eight) days from the date of Issue of Completion Certificate.

7.5 Retention Money

7.5.1 From every payment for Works due to the Contractor in accordance with the provisions of Clause 19.5, the Authority shall deduct 6% (six per cent) thereof as guarantee money for performance of the obligations of the Contractor during the Construction Period (the **"Retention Money")** subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.

7.5.2 Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money as Damages for such Contractor's Default.

7.5.3 The Contractor may, upon furnishing an irrevocable and unconditional bank guarantee substantially in the form provided at Annex-II of Schedule-G, require the Authority to refund the Retention Money deducted by the Authority under the provisions of Clause 7.5.1. Provided that the refund hereunder shall be made in tranches of not less than 1% (one per cent) of the Contract Price.

7.5.4 Within 15 (fifteen) days of the date of issue of the Completion Certificate, the Authority shall discharge the bank guarantees furnished by the Contractor under the provisions of Clause 7.5.3 and refund the Retention Money not exceeding the 2.5% of the Certified Bill Amount remaining with the Authority after adjusting the amounts appropriated under the provisions of Clause 7.5.2 and the amounts refunded under the provisions of Clause 7.5.3.

a) The release/ refund of Retention money of balance 2.25% of Contract Price shall be subject to the observance / compliance of the conditions as under and whichever is later:
b) Expiry of the Defects Liability period or as per extended DLP period as approved by the Authority.
c) The contractor produces a clearance certificate from the labour office. As soon as the work is virtually completed, the contractor shall apply for the labour clearance certificate

to the Labour Officer under intimation to the Authority/ Authority's Engineer. The Authority/ Authority's Engineer, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending, on record till after 3 months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate.

The release/ refund of Retention money of balance 0.25% of Certified Bill Amount shall be subject to the adjustment of damages under latent Defect Period of 10 years (Limited to Structure & Mechanical Parts of all equipments of all facilities) from the date of issue of Completion Certificate.

7.5.5 The Parties agree that in the event of Termination of this Agreement, the Retention Money and the bank guarantees specified in this Clause 7.5 shall be treated as if they are Performance Security and shall be reckoned as such for the purposes of Termination Payment under Clause 23.6.

7.5.6 Authority reserves the right of part or full forfeiture of retention money in addition to other claims in the event of Contractor's failure to fulfill any of the Contractual Obligations or in the event of termination of contract as per terms and conditions of the contract.

ARTICLE-8

8. Right of Way

8.1 The Site

The site of the Project works (the "Site") shall comprise the site described in Schedule-A in respect of which the possession of land shall be provided by the Authority to the Contractor. The Authority shall be responsible for:

(a) acquiring Site in accordance with the site plan finalised by the Authority, free from all encroachments and encumbrances, and free access thereto for the execution of this Agreement; and

(b) Obtaining licences and permits for environment clearance (EC) for the Project Works.

8.2 Procurement of the Site

8.2.1 The Authority Representative and the Contractor shall, within 7 (seven) days of the date of Letter of Award (LOA), inspect the Site and prepare a memorandum containing an inventory of the Site including the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site. Subject to the provisions of Clause 8.2.3, such memorandum shall have appended thereto an appendix (the "Appendix").

Whenever the Authority is ready to hand over any part or parts of the Site included in the Appendix, it shall inform the Contractor, by notice, the proposed date and time such of handing over. The Authority Representative and the Contractor shall, on the date so notified, inspect the specified parts of the Site, and prepare a memorandum containing an inventory of the vacant and unencumbered land, buildings, structures, road works, trees and any other immovable property on or attached to the Site so handed over. Signing of the memorandum, in two counterparts (each of which shall constitute an original), by the authorised representatives of the Parties shall be deemed to constitute a valid evidence of giving the relevant Project Site to the Contractor.

8.2.2 The Authority shall provide the Project Site to the Contractor in respect of all land included in the Appendix as specified in Schedule-A.

8.2.3 Notwithstanding anything to the contrary contained in this Clause 8.2, the Authority shall specify the parts of the Site, if any, for which Project Site shall be provided to the Contractor on the dates specified in clause 8.2. Such parts shall also be included in the Appendix prepared in pursuance of clause 8.2.1.

8.2.4 Work Front

(a) The work front/ job site/ Free Issue Material (if applicable) required by the Contractor for the performance of the works shall be handed over by the Authority to the Contractor sequentially in the stages meeting the Contractor's requirements for the works with a view that the Contractor shall so plan his works as to perform and achieve completion in a sequential manner without starting all the works at the same time such

that the Schedule does not get disturbed at all. Contractor shall deploy men & material in accordance with the work front so that the delays are compensated & schedule remains unaffected. No compensation of time & cost shall be provided in view of delays on work front.

(b) To this end, within 4 (Four weeks) of the Letter of Award, the Contractor shall finalise in consultation with the Authority/ Authority's Engineer, sequential requirements of the work front/ job site/ Free Issue Material taking into account other works concurrently being undertaken by the Authority at and about the same job site and/or on the performance or completion of which the Contractor's performance depends.

8.3 Damages for delay in handing over the Site

8.3.1 In the event of delay of full or partial handover of any part of the Site by the Authority on or before the date(s) specified in Clause 8.2 for any reason other than Force Majeure or breach of this Agreement by the Contractor, the Authority shall not pay any remunerative Damages to the Contractor. Only the time extension in lieu of delays in handover may be granted by the Authority subject to Authority's approval.

8.3.2 Notwithstanding anything to the contrary contained in this Agreement, the Contractor expressly agrees that Works on all parts of the Site for which Project Site is granted within 90 (ninety) days of the date of Letter of Award, or with respect to the parts of the Site provided in clause 8.2 or Schedule-A, no later than the date(s) specified therein, as the case may be, shall be completed before the Scheduled Completion Date and shall not qualify for any Time Extension under the provisions of Clause 8.3.1.

8.3.3 Notwithstanding anything to the contrary contained in this Agreement, the Authority may at any time withdraw any Works forming part of this Agreement, subject to such Works not exceeding an aggregate value, such value to be determined in accordance with Items of Price Bid, equal to 10(ten) percent of the Contract Price.

8.3.4 Provided that if any Works are withdrawn after commencement of the Construction of such works, the Authority shall pay to the Contractor 110% (one hundred and ten per cent) of the fair value of the work done, as assessed by the Authority's Engineer

8.4 Site to be free from Encumbrances

Subject to the provisions of Clause 8.2, the Site shall be made available by the Authority to the Contractor pursuant hereto free from all Encumbrances and occupations and without the Contractor being required to make any payment to the Authority on account of any costs, compensation, expenses and charges for the acquisition and use of such Site for the duration of the Project Completion Schedule. For the avoidance of doubt, it is agreed that the existing rights of way, easements, privileges, liberties and appurtenances to the Site shall not be deemed to be Encumbrances. It is further agreed that, unless otherwise specified in this Agreement, the Contractor accepts and undertakes to bear any and all risks arising out of the inadequacy or physical condition of the Site.

8.5 Protection of Site from encroachments

On and after signing the memorandum and/or subsequent memorandum referred to in Clause 8.2.1, and until the issue of the Completion Certificate, the Contractor shall maintain a round-the-clock vigil over the Site and shall ensure and procure that no encroachment thereon takes

place. During the Construction Period, the Contractor shall protect the Site with safe & sound fencing and from any and all occupations, encroachments or Encumbrances, and shall not place or create nor permit any Sub-contractor or other person claiming through or under the Agreement to place or create any Encumbrance or security threat over all or any part of the Site or the Project Assets, or on any rights of the Contractor therein or under this Agreement, save and except as otherwise expressly set forth in this Agreement. In the event of any encroachment or occupation on any part of the Site, the Contractor shall report such encroachment or occupation forthwith to the Authority and undertake its removal at its own cost and expenses.

8.6 Special/temporary Roads

The Contractor shall bear all costs and charges for any special or temporary Project Site required by it in connection with access to the Site. The Contractor shall obtain at its cost such facilities on or outside the Site as may be required by it for the purposes of the Project Works and the performance of its obligations under this Agreement.

8.7 Access to the Authority and the Authority's Engineer

8.7.1 The site handed over to the Contractor hereunder shall always be subject to the right of access of the Authority and the Authority's Engineer and their employees and agents for inspection, viewing and exercise of their rights and performance of their obligations under this Agreement.

8.7.2 The Contractor shall ensure, subject to all relevant safety procedures, that the Authority has un-restricted access to the Site during any emergency situation, as decided by the Authority's Engineer.

8.8 Geological and archaeological finds

8.8.1 It is expressly agreed that mining, geological or archaeological rights do not form part of this Agreement with the Contractor for the Works, and the Contractor hereby acknowledges that it shall not have any mining rights or interest in the underlying minerals, fossils, antiquities, structures or other remnants or things either of particular geological or archaeological interest and that such rights, interest and property on or under the Site shall vest in and belong to the Authority or the concerned Government Instrumentality. The Contractor shall take all reasonable precautions to prevent its workmen or any other person from removing or damaging such interest or property and shall inform the Authority forthwith of the discovery thereof and comply with such instructions as the concerned Government Instrumentality may reasonably give for the removal of such property. All gold, silver and other minerals of any description and all precious stones, coins, treasure, relics, antiques and all other similar things which shall be found in, under or upon the site, shall be the property of the Authority.

For the avoidance of doubt, it is agreed that any reasonable expenses incurred by the Contractor hereunder shall be reimbursed by the Authority. It is also agreed that the Authority shall procure that the instructions hereunder are issued by the concerned Government Instrumentality within a reasonable period.

ARTICLE-9

9. Utilities and Trees

9.1 Existing utilities and roads

Notwithstanding anything to the contrary contained herein, the Contractor shall ensure that the respective entities owning the existing structures, or utilities on, under or above the Site are enabled by it to keep them in continuous satisfactory use, if necessary.

9.2 Shifting of obstructing utilities

The Contractor shall, in accordance with Applicable Laws and with assistance of the Authority, cause shifting of any utility (including electric lines, water pipes and telephone cables, trunk sewers, temporary structures and trees etc. with their due permissions) to an appropriate location or alignment, if such utility or obstruction adversely affects the execution of Works in accordance with this Agreement. The actual cost of such shifting shall be borne by the Contractor and no time costs shall be borne by the Authority.

9.3 New utilities

9.3.1 The Contractor shall allow, subject to such conditions as the Authority may specify, access to, and use of the Site for laying telephone lines, water pipes, electric cables or other public utilities. Where such access or use causes any financial loss to the Contractor, it may require the user of the Site to pay compensation or damages as per Applicable Laws. For the avoidance of doubt, it is agreed that use of the Site under this Clause 9.3 shall not in any manner relieve the Contractor of its obligation to construct and maintain the Project Works in accordance with this Agreement and any damage caused by such use shall be restored forthwith at the cost of the Authority.

9.3.2 The Authority may, by notice, require the Contractor to connect any adjoining road and services to the Project roads and services, and the connecting portion thereof falling within the Site shall be constructed by the Contractor at the Authority's cost in accordance with Article 10.

9.3.3 Deleted.

9.3.4 In the event the construction of any Works is affected by a new utility or works undertaken in accordance with this Clause 9.3, the Contractor shall be entitled to a reasonable Time Extension as determined by the Authority's Engineer.

ARTICLE-10

10. Design and Construction of the Project Works

10.1 Obligations prior to commencement of Works

10.1.1 Within 10 (ten) days of the date of letter of Award, the Contractor shall:

(a) appoint its representative, duly authorised to deal with the Authority in respect of all matters under or arising out of or relating to this Agreement;

(b) appoint a design director (the **"Design Director")** who will head the Contractor's design unit and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs & shop drawings and their approval and during execution;

(c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement, the Applicable Laws and Applicable Permits; and

(d) make its own arrangements for quarrying of materials needed for the Project Works under and in accordance with the Applicable Laws and Applicable Permits.

10.1.2 Deleted

10.1.3 The Contractor shall submit to the Authority and the Authority's Engineer a detailed resource schedule over and above the version already submitted by the contractor at the time of bid submission with modifications if any, called. Programme (the "Programme") for the Works, developed using networking techniques giving the following details:

Part I Contractor's organisation for the Project, the general methods and arrangements for design and construction, environmental management plan, Quality Assurance Plan including design quality plan, traffic management and safety plan covering safety of users and workers during construction, Contractor's key personnel and equipment.

Part II Programme for completion of all stages of construction and Project Milestones of the Works as specified in Project Completion Schedule set forth in Schedule-J. The Programme in required format Primavera –P6 Latest version with all the 3M's (Men, Material & Machinery & their justification calculation wherever required / desired) shall include:

(a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of design and stages of Works;

(b) the periods for reviews under Clause 10.2;

(c) the sequence and timing of inspections and tests specified in this Agreement.

The Contractor shall submit a revised programme whenever the previous programme is inconsistent with the actual progress or with the Contractor's obligations

Part III Monthly cash flow forecast.

Consent by the Authority/Authority's Engineer to Programmes shall not relieve the Contractor of any of his responsibilities or obligations under the Contract. If the Programmes indicate that a Key Date has not, or will not be met, it shall not, by itself entitle the Contractor to an extension of time in relation to such Key Date.

10.1.4 The Contractor shall compute, on the basis of the Drawings prepared in accordance with Clause 10.3.4, and provide to the Authority's Engineer, the length, area and numbers, as the case may be, in respect of the various items of work specified in Price Bid (Appendix-1B-Annex-I, RFQ cum RFP) and comprising the Scope of the Project. The Parties expressly agree that these details shall form the basis for estimating the interim payments for the Works in accordance with the provisions of Clause 19.3. For the avoidance of doubt, the sum of payments to be computed in respect of all the items of work shall not exceed the Contract Price, as may be adjusted in accordance with the provisions of this Agreement.

10.1.5 The Contractor shall appoint a safety consultant (the **"Safety Consultant")** to carry out safety audit at the design stage of the Project Works in accordance with the Applicable Laws and Good Industry Practice. The Safety Consultant shall be appointed after proposing to the Authority a panel of three names of qualified and experienced firms from whom the Authority may choose one to be the Safety Consultant. Provided, however, that if the panel is not acceptable to the Authority and the reasons for the same are furnished to the Contractor, the Contactor shall propose to the Authority a revised panel of three names from the firms empanelled as safety consultants by the Authority for obtaining the consent of the Authority. The Contractor shall also obtain the consent of the Authority for the key personnel of the Safety Consultant who shall have adequate experience and qualifications in safety audit of the project. The Authority shall, within 15 (fifteen) days of receiving a proposal from the Contractor hereunder, convey its decision, with reasons, to the Contractor, and if no such decision is conveyed within the said period, the Contractor may proceed with engaging of the Safety Consultant.

10.1.6 The safety audit pursuant to Clause 10.1.5 shall be carried out by the Safety Consultant in respect of all such design details that have a bearing on safety of Users as well as pedestrians, workers, employees working within and around the site involved in or associated with accidents. The recommendations of the Safety Consultant shall be incorporated in the design of the Project Works and the Contractor shall forward to the Authority's Engineer a certificate to this effect together with the recommendations of the Safety Consultant. In the event that any works required by the Safety Consultant shall fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Contractor shall make a report thereon and seek the instructions of the Authority for Change in Scope. For the avoidance of doubt, the Safety Consultant to be engaged by the Contractor shall be independent of the design and implementation team of the Contractor.

10.2 Design and Drawings

10.2.1 Design and Drawings shall be developed in conformity with the Specifications and Standards set forth in Schedule-D.

10.2.2 **BUILDING INFORMATION MODEL (BIM) AND COORDINATION DRAWINGS using BIM TOR & Standards, Methods & Procedures (SMPs)**

Building Information Modelling & Engineering Content Management Systems

This SMPs is to facilitate the proposed Contractor to prepare the same in their approach and methodology in the bid submissions. They will have to prepare such SMPs and assign the qualified / trained and skilled manpower for BIM and GIS. Contractor shall prepare the same with best coverage and incorporate most efficient steps to achieve BIM LOD500.

It is required that the Contractor will employ all BIM tools and skill sets necessary to facilitate the construction coordination, scheduling, procurement and phasing of the Works in a proficient and professional manner consistent with a Project of this size and value.

10.2.2.1 GENERAL

10.2.2.1.1 PURPOSE.

The key objective of Building Information Modeling - is to monitor, coordinate and trace the design, construction, commissioning and operations by various stake holders, this enables all the stake holders, agencies and Contractor to visualize the virtual construction detailing and constructability issues in smooth way to take make the time bound decision and ensure the project traceability in the most efficient way. This SMPs and TOR are for the ready reference, Contractor Shall Propose More details than it has been mentioned in this document. Deliverable of all the design, detailing and allied meta data of BIM 300 to BIM LOD 500 shall be achieved and delivered in this Project by the Contractor.

1.1.1 This Building Information Modelling – Standards, Methods and Procedures (SMPs) shall describe the use of Building Information Modelling (BIM) from Design to Commissioning stage.

1.1.2 This SMPs shall be used as a reference for the Contractor to develop specific SMPs that shall detail all the specifics using CAD/GIS/BIM software and also by using appropriate Electronic Content Management System (ECM) software to control the specific development of BIM and CAD processes for this project.

1.1.3 Such SMPs established by Contractor shall ensure the detailed methodology for managing the production, distribution and quality of the design information generated by BIM, CAD & GIS (Geographical Information System.) using the disciplined process for collaboration with specified file formats, models and identities up to the specified Level Of Detailing (LOD) 500 as per the AIA etc. complete.

1.2 SCOPE.

To prepare Building Information Models for the entire project by Contractor at design stage, Construction and commissioning stage in conjunction with the specified standards methods and procedures (SMP) for the scope of work shall be specified in the Project Interface Manual's Interface Matrix using the standards software package and submit the 3D model with time and cost linked (5 D - BIM) with LOD 500 to the Client / Stake holder for further necessary action along with its time to time coordination and support. To fly the UAV/ Helicopter etc. for taking the aerial imageries and prepare the DSM, DEM and DTM. To Conduct the LiDAR data capturing to prepare As-Built BIM and Models and get it approved from the client.

1.2.1 The BIM SMP outlines the roles and responsibilities that are necessary for a successful collaborative Building Information Modelling approach shall be prepared

and submitted by the Contractor.

1.2.2 The Common Data Environment (CDE) is mandated for the structure and the controlled sharing of the building information with known provenance and status in a multi-disciplinary environment.

1.2.3 Contractor's SMPs are required to control the production and coordination of the design information, construction works, commissioning and operations.

1.2.4 To Prepare at Detailed Design Stage 4D BIM: Measurements, Scheduling and Planning

1.2.5 To Prepare at Detailed Design Stage 5D BIM: Cost estimation, Budgets and Quantity Take offs.

1.2.6 To Prepare at Detailed Design Stage 6D BIM: Energy Analysis, Efficiency Studies, and Sustainability

1.2.7 To Prepare at As-Built Documentation Stage or Before Handing Over & Completion 7D BIM: Facility Management and Operations with As-Built Laser Scanning.

1.2.8 To Prepare at Commissioning Stage BIM & GIS: GIS Driven Decision Support Systems.

1.3 DEFINITION.

1.3.1 The following terms are specific to this SMP:

a. **AIA:** American Institute Of Architects.

b. **BS1192 -** Collaborative production of architectural, engineering and construction information. Code of practice.

c. **Building Information Modelling and Management (BIM) –** The managed approach to the collection and exploitation of information across the life cycle of a built environment asset. As its heart are computer generated models containing all graphical and tabular information about the design, construction and operation of the asset.

d. **Component –** An individual building element that can be reused. Examples include doors, stair cores, furniture and internal room layouts, façade panels, etc. Components are typically inserted and moved/rotated into required position.

e. **Assembly –** A composition or collection of components and/or modelled elements arranged to define part or all of a building model, structure or site. An Assembly typically contains information that can be referred without repositioning.

f. **BIM Container-** An optional 'Parent' repository which can be used to compile assemblies and components for specific purposes including export and publication. A container can exist for each individual profession/discipline or for multiple disciplines, for building or for a complete project.

g. **WIP –** Work In Progress: each individual company or discipline's own work. This is information that has not been issued or shared with other parties. Refer to BS1192.

h. **Shared –** Information that has been reviewed and is available to other

parties. Refer BS1192 for guidelines.

i. **IFC –** Industry foundation class is a neutral and open specification file format. The data model facilities interoperability between object-based software platform.

j. **Published –** Documents and other data outputted from shared information. Typically, this shall include contract drawings, reports and specifications but can also include **information for data exchange between BIM software, such as IFC files. Refer to BS1192.**

k. **Output files –** A generated rendition of graphical or non-graphical information (a plan, section, elevation, schedule, table or other view of a project).

l. **2D/3D Model –** A design model with entities having two/three dimensional properties which are coordinated to the agreed geospatial reference system.

m. **COBIE –** Construction-Operations Building Information Exchange – a standard spreadsheet data format that controls the transition of as built data into operations and maintenance.

n. **Common Data Environment (CDE) –** A single source of engineering information for the project. It is used to collect, manage and disseminate all relevant approved project documents.

o. **Drawing definition –** Drawing file which defines and constructs the composition of drawing ready for documentation production.

p. **Drawing file –** Native CAD file, usually in 2D form.

q. **Drawing rendition (DRG) –** Output from the drawing definition, drawing renditions provide static 'snap-shots' in a form that enables the information to be viewed, printed and marked up.

r. **ECM (Engineering Content Management) –** A set of hardware/software and processes that control the engineering content of CAD models and drawings together with their versions within the constraints of the common data environment.

s. **Geospatial System –** Name or description of the system of referencing by coordinates used for geographical information.

t. **GIS:** Geographical Information System.

u. **Layer/Level –** Attribute given to entities within BIM/GIS/CAD files that enables their visibility to be controlled. Further values may be assigned to the attribute to control whether it can be edited or deleted.

v. **Master Document Index (MDI) –** A list of agreed model file and drawing deliverables produced by the Contractor against agreed milestones.

w. **Model composite –** A model file containing multiple references of BIM models coordinated using a common geospatial reference system to form a complete model representation of the information.

x. **Model extraction –** A 2D model file containing elements generated from an external 3D model, usually in the form of sections, elevations and plans. Can contain graphical or non- graphical content.

y. **Model file (MD2/MD3)** – Native CAD file that can be in the form of a 2D/3D model.

z. **Model Rendition (MDR)** – Output from a model file, model renditions provide static 'snap- shot' in a form that enables the information to be viewed, printed and marked.

aa. **Model view** – The view within BIM & CAD files which contains entities or reference files using real-world coordinates.

bb. **Originator** – The author of models, drawing and documents.

cc. **Production drawing** – An immutable electronic/ physical data produced from a drawing definition, having received all necessary reviews prior to issue.

dd. **Status** – Defines the 'fitness' of information in a model, drawing or document.

ee. **TOR-** Terms of Reference.

ff. **Uniclass** – Unified classifications for the construction industry as per AIA or BS.

gg. **Workspace** – A predefined folder structure containing configuration and content relevant to the specific application.

hh. **Zone** – A manageable spatial 2D or 3D subdivision of a model allowing more than one person to work on the model, floor plan or staircase etc. at a time. Each zone is a reference file and when all references are viewed in a 'model composite' the full model shall be represented.

1.4 RESPONSIBILIES.

To Conduct the BIM creation activities as per the tender documents, Terms of References and ensure the smooth coordination with the Authority by delivering BIM in required file formats in line with the specifications and details approved from the client and detailed design consultants so that the methodology for managing the production, distribution and quality of the design information generated by BIM, CAD & GIS systems, using a disciplined process for collaboration of each and every specified file and model with its naming policy should be decided and implemented in order to ensure safe, transparent, traceable and efficient execution of designs for this said project within the stipulated time frame.

The BIM Activity Matrix:

Activity	LOD 300	LOD 350	LOD 400	LOD 500
3D Modelling / BIM	**100% Detailed BIM Model** covering Architectural, Structural, MEP, Tensile Structure, Infrastructure and allied works, developed based on CAD drawings, SketchUp models, approved DBR and tender documents issued by AHC.*(EPC Contractor)*	**Good-for-Construction BIM Model**, fully coordinated across all disciplines and interfaces.*(EPC Contractor)*	**Fabrication & Assembly BIM Model**, including shop drawings, coordination models and mock-ups for execution.*(EPC Contractor)*	**As-Built BIM Model**, reflecting final constructed conditions and coordinated records.*(EPC Contractor)*
4D Scheduling	Construction sequencing, planning and baseline programme linked to BIM.*(EPC Contractor)*	Updated construction schedules linked to execution progress.*(EPC Contractor)*	Progress simulation and sequencing updates.*(EPC Contractor)*	Final as-built construction programme.*(EPC Contractor)*
5D Budgeting / Quantities	Detailed quantities, BOQs and cost integration based on BIM model.*(EPC Contractor)*	Procurement-linked quantity and cost control.*(EPC Contractor)*	Final cost reconciliation and procurement closure.*(EPC Contractor)*	As-built quantities and cost data.*(EPC Contractor)*
6D Sustainability (GRIHA 5-Star)	Energy and performance analysis based on detailed BIM model and approved design intent.*(EPC Contractor)*	Updated simulations based on construction-stage refinements.*(EPC Contractor)*	Performance validation based on installed systems.*(EPC Contractor)*	Final GRIHA 5-Star documentation, audit closure and compliance submissions.*(EPC Contractor)*
7D Facility Management	—	—	Asset data preparation (if required under	FM-ready as-built BIM, O&M data and asset registers

Activity	LOD 300	LOD 350	LOD 400	LOD 500
			EPC scope).*(EPC Contractor)*	(if required).*(EPC Contractor)*

1.4.1 **The Principal Consultant:**

1.4.1 Role of the Principal Architectural Consultant

The Principal Architectural Consultant, **Architect Hafeez Contractor (AHC)**, shall provide the following to the Contractor:

1. **Design Reference Information**
    - Architectural and allied design information in **AutoCAD drawings** and **3D SketchUp models** (Architecture and Structure only), representing the approved design intent.
    - No BIM models shall be provided by AHC or the Authority.
2. **Programme Inputs**
    - Indicative project timelines and milestone-level construction planning, provided in **MS Project**, for reference only.
3. **Indicative Quantities**
    - Broad measurements and quantities derived from reference drawings, prepared in **CPWD DSR format in MS Excel**, for indicative guidance only.
4. **Design-Stage Performance Inputs**
    - Conceptual building performance and sustainability intent studies, where applicable, developed using appropriate analytical tools (such as Rhino / Grasshopper / Design Builder / Radiance / Daysim or equivalent), strictly as **design intent reference**.
5. **Design Review & Approval (Non-PMC Role)**
    - AHC shall **review and approve design and BIM submissions** made by the Contractor **only to verify compliance with the approved design intent, DBR, specifications and statutory requirements**.
    - AHC shall be responsible for overall supervision and execution of the project through the EPC Contractor, however AHC **shall not function as the Project Management Consultant (PMC)** and shall not be responsible for day-to-day construction supervision, planning, quality control, safety, billing or contract administration.

Note: All BIM activities shall commence **only after appointment of the EPC Contractor**, and the **first mandatory BIM submission stage shall be LOD 300**.

1.4.2 Role of the Contractor – BIM Responsibilities

The Contractor shall be **solely responsible**, at its own cost and risk, for development, coordination, implementation and delivery of BIM for the Project.

The Contractor shall provide:

1. **100% Detailed Design BIM Model – LOD 300**
2. **Good-for-Construction BIM Model – LOD 350**

3. **Fabrication & Assembly BIM Model – LOD 400**
4. **As-Built BIM Model – LOD 500**
5. **4D BIM** for construction sequencing and planning
6. **5D BIM** for quantities, procurement and cost management
7. **6D BIM** for energy performance and **GRIHA 5-Star compliance** based on the actual constructed design
8. **7D BIM**, if required under the EPC Agreement, for asset data and facility management

Approval or review by AHC shall **not relieve the Contractor** of responsibility for accuracy, constructability, coordination, safety or contractual compliance.

1.4.3 Contractor's Design Coordinator

The Contractor's Design Coordinator shall:

a) Prepare and submit a **BIM Implementation Plan (BEP)** aligned with the Contractor's work packages

b) Define zoning strategy, discipline model segregation, and LOD requirements for each stage

c) Establish BIM-based construction sequencing and interface management

d) Coordinate between design teams, specialist consultants, subcontractors and site teams

e) Ensure timely delivery of coordinated design outputs aligned with the construction programme

f) Manage interdisciplinary coordination and interface resolution

g) Submit discipline-wise BIM plans for review and approval

h) Ensure all BIM outputs are **Good for Construction / Fit for Procurement**, as applicable

1.4.4 Contractor's BIM Manager

The Contractor's BIM Manager shall:

a) Lead BIM implementation across all disciplines and stages

b) Ensure BIM models meet required LOD, accuracy and data standards

c) Manage clash detection, resolution, sequencing and coordination

d) Ensure BIM workflows comply with **BS 1192 / ISO 19650 or equivalent**

e) Coordinate BIM-related IT infrastructure and CDE setup

f) Maintain BIM quality assurance and version control

g) Ensure compliance with approved BIM standards and procedures

1.4.5 Contractor's CAD Manager

The Contractor's CAD Manager shall:

a) Ensure all CAD outputs extracted from BIM comply with project standards

b) Maintain consistency between BIM and CAD deliverables

c) Resolve all 2D extraction and detailing issues from BIM models

d) Report to the Contractor's BIM Manager

1.4.6 Common Data Environment (CDE)

a) The Contractor shall establish and maintain a **Common Data Environment (CDE)** suitable for multi-disciplinary collaboration

b) The CDE shall support version control, permissions, workflows and audit trails

c) The system shall comply with **BS 1192 / ISO 19650 principles**

d) Access shall be provided to the Authority, ASI and AHC, as approved by the Authority

2. BIM MODELLING

2.1 Model Production

2.1.1 All design and construction information shall be developed as **discipline-specific BIM models** and coordinated within a composite model.

2.1.2 All models shall be spatially coordinated and linked to geospatial references.

2.1.3 Clash detection and resolution shall be completed **prior to construction**.

2.2 Model File Composition

2.2.1 Models shall be generated using standardised seed files

2.2.2 Model files shall be created at **1:1 scale**

2.2.3 Graphical elements shall reside in model space; sheets shall be generated from views

2.2.4 Title blocks shall be maintained in sheet views only

2.3 Data Segregation & Zoning

2.3.1 Zoning and file breakdown strategy shall be submitted for approval prior to implementation

2.3.2 Structures and systems shall be modelled in logical, manageable segments

2.3.3 Sub-division shall be adopted to ensure file performance and coordination efficiency

2.4 Model Outputs

2.4.1 Only **approved data** shall be shared within the CDE

2.4.2 Composite models may be used to generate coordinated 3D views, drawings and reports

2.4.3 All data shall be structured using consistent naming, classification and metadata conventions

2.4.4 As-built data shall be delivered in formats compatible with **COBie** or equivalent, where applicable

2.5 Model reviews

The Contractor shall ensure that the level of complexity and granularity for each discipline BIM / GIS / CAD model is appropriate for each stage of the Works.

2.5.1

The Contractor shall ensure complete BIM model integration and coordination of all discipline outputs in terms of design, constructability, spatial and functional provisions. This shall be demonstrated through coordinated design review sessions, including consolidation of all relevant discipline models into a common composite model, where constructability and engineering assurance coordination shall take place.

All BIM modelling, coordination, integration and management responsibilities shall rest **solely with the Contractor**. Any review or comments by the Architect shall be limited to verification of compliance with the approved design intent, Design Basis Report (DBR), and statutory requirements, and shall not constitute BIM management or detailed engineering checks.

2.6 Level of detail to be modeled in BIM is from LOD300 to LOD500.

The level of detail to be modelled in BIM shall be **from LOD 300 to LOD 500 only**.

2.6.1

The table below highlights common requirements for ready reference of BIM outputs and recommends indicative levels of detail corresponding to drawing scales. These are provided for guidance only.

Ref BIM Data Sharing	**Ref. Max Scale**
Detailed Architectural Design	1:100
Detail Drawing Production (Civil, Electrical, Mechanical, Automation, etc.)	1:100
Component Constructability Details	1:100
BIM Clash Detection / Resolution	1:100
Construction Sequencing	1:200
Energy Analysis	1:200

Note:
No BIM submissions are required prior to LOD 300. Conceptual and master planning information is provided separately in **CAD drawings and SketchUp models** by the Architect and shall not be construed as BIM deliverables.

BIM Methodology & SMP

To prepare, share, approve, amend, schedule and support BIM activities, the Contractor shall provide a **detailed BIM methodology**, including Standard Operating Procedures (SOPs), Scheduling, Planning and BIM Execution Plans (BEPs) for BIM, Facility Management and GIS-driven decision support systems. All such documents shall be prepared by the Contractor and submitted for approval to the Authority / ASI. This document does not restrict the Contractor from proposing additions or improvements to achieve smooth BIM workflow, traceability and best industry practices.

Design Phase & Submissions

The Design Phase shall commence immediately upon issuance of LOA **(subject to ASI review and confirmation, where applicable)**.

Contractor's submittals during the Design Phase shall include the following stages:

1. Design Development (DD)
2. Detailed Design (DTD)
3. Working Drawings / Good for Construction Drawings (GFC)
4. Shop Drawings (SHD)
5. As-Built Drawings (ABD)

i. Design Development (DD) Stage

The DD stage shall be sufficiently detailed to show all main elements of the design and shall include, but not be limited to:

- Compliance report with design criteria, codes and statutory regulations
- Design manuals
- Preliminary off-site testing recommendations
- References to applicable design codes and standards
- GA drawings, plans, elevations and sections at suitable scales
- Structural calculations and drawings
- Finishes and landscape schedules
- Design submission programme and approval schedule
- Site survey drawings and reports
- 3D renderings and visuals (non-BIM)
- Design simulations, if required

ii. Detailed Design (DTD) Stage

The Detailed Design submission shall be a complete and consolidated set of documents covering all interdependent disciplines, including:

a) General

- Dimensions of all major features and elements
- Material specifications and catalogues
- Loadings, forces and movement considerations
- Reinforcement layouts
- Joint and connection details
- Construction interface provisions
- Utilities diversion / protection layouts

b) Drawings

- Structural GA, reinforcement and misc. drawings
- Utility network drawings (storm water, sewerage, water supply, rainwater harvesting)

c) Documents

- Design specifications
- Construction specifications
- Survey reports
- Temporary works designs
- Erection and construction analysis

iii. Good for Construction (GFC) Drawings

Upon approval of Detailed Design, the Contractor shall submit GFC drawings including bar bending schedules, installation details, finishes schedules and all construction details necessary for execution.

iv. As-Built Drawings (ABD)

a) The Contractor shall maintain records of all deviations during construction.

b) Records shall be updated on CAD drawings and consolidated upon completion.

c) All ABDs shall be certified by the Contractor as true records of executed works.

10.2.3

The Contractor shall appoint, at its own cost, a Proof Consultant from a panel approved by the Authority.

10.2.4

The Proof Consultant shall:
a) Evolve a systems approach with the Contractor's Design Director
b) Proof-check detailed calculations, drawings and designs

10.2.5 Design Responsibility

a) Contractor shall submit drawings checked by Proof Consultant and Architect
b) Submission represents Contractor's confirmation of compliance
c) Architect and Proof Consultant shall review within stipulated timelines
d) Non-compliant drawings shall be revised at Contractor's cost
e) Review by Architect / Authority / PMC shall not relieve Contractor of responsibility
f) Delays due to surveys shall be Contractor's responsibility
g) Contractor warrants competence of its designers
h) Structural designs shall be vetted by IIT / Institute of National Repute

10.2.6

Any cost or delay arising from reviews shall be borne by the Contractor.

10.2.7

Works shall be executed strictly in accordance with approved drawings.

10.2.8

Within 90 days of Project Completion, the Contractor shall submit complete As-Built Drawings in hard and soft copy formats.

10.3 Construction of the Project Works

10.3.1 The Contractor shall construct the Project Works as specified in Schedule-B and Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. The 24 months from the date of LOA shall be the scheduled completion date (the **"Scheduled Completion Date")** and the Contractor agrees and undertakes that the construction shall be completed on or before the Scheduled Completion Date, including any extension thereof.

10.3.2 The Contractor shall construct the Project Works in accordance with the Project Completion Schedule set forth in Schedule-J. In the event that the Contractor fails to achieve any Project Milestone or the Scheduled Completion Date within a period of 30 (thirty) days from the date

set forth in Schedule-J, unless such failure has occurred due to Force Majeure or for reasons solely attributable to the Authority, the Authority shall hold Damages for that stage of work to the tune of a sum calculated at the rate of 0.05% (zero point zero five percent) of the Contract Price for delay of each day reckoned from the date specified in Schedule -J and until such Project Milestone is achieved or the Works are completed; provided that if the period for any or all Project Milestones or the Scheduled Completion Date is extended in accordance with the provisions of this Agreement, the dates set forth in Schedule-J shall be deemed to be modified accordingly and the provisions of this Agreement shall apply as if Schedule-J has been amended as above; provided further that in the event the Works are completed within or before the Scheduled Completion Date including any Time Extension, applicable for that work or section, the Damages paid under this Clause 10.3.2 shall be refunded by the Authority to the Contractor, but without any interest thereon. The payments withheld during non-achievement of any stage shall be carried forward for the next stage and shall be considered for release if the delay has been recouped. For the avoidance of doubt, it is agreed that recovery of Damages under this Clause 10.3.2 shall be without prejudice to the rights of the Authority under this Agreement including the right of Termination thereof. The Parties further agree that Time Extension hereunder shall only be reckoned for and in respect of the affected works as specified in Clause 10.5.2.

10.3.3 The Authority shall notify the Contractor of its decision to impose Damages in pursuance with the provisions of this Clause 10.3. provided that no deduction on account of Damages shall be effected by the Authority without notifying the Contractor of its decision to impose the Damages, and taking into consideration the representation, if any, made by the Contractor within 20 (twenty) days of such notice. The Parties expressly agree that the total amount of Damages under Clause 10.3.2 shall not exceed 10% (ten percent) of the Contract Price.

10.3.4 Execution In Accordance with Specifications, Drawings, and orders etc.

a) All items of work in the Stage Payment shall be carried out as per the technical specifications, design parameters, detailed approved drawings and instructions of the Authority/ Authority's Engineer of ASI and the rates shall include for supply of required materials including proper storage, consumables, skilled & unskilled labour, all tests required before dispatch, during execution or before handover, as per standards or as approved/ advised by ASI, supervision and tools, tackles, plant & machinery complete as called for in the detailed specifications and conditions of the contract. The contractor shall execute the whole and every part of the work in the most substantial and workman like manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work assigned by the Authority/ Authority's Engineer.

b) The contractor shall comply with the provisions of the contract and execute the works with care and diligence and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

c) The Contractor shall within scope of his work prepare detailed working and other plans, drawings and designs required for or in connection with the performance of the work or

selection, procurement or making any supply, and these plans/ drawings shall be got approved from the ASI before the Contractor commences the performance of the relative work or making the relative supply.

d) The Contractor shall within the scope of his work also carry out investigative and design studies and prepare detailed design for the various materials and works covered in the contract documents. Such detailed designs along with referred codes, standards and practices, back-up calculations, computer runs and other details on basis of which the designs have been prepared shall be subject to the Authority's approval. Detailed working drawings, quantities of all items and material specifications shall be prepared and established on the basis of the approved design(s) and shall also be subject to the Authority's approval. The Contractor shall furnish six prints each of the drawings for approval of the Authority/ Authority's Engineer.

The Contractor shall not permit any work to be done or any material to be supplied or fabricated or manufactured at variance with drawings/ designs/ specifications approved by the Authority/ Authority's Engineer or other specified authority. The approved drawings may be released to the Contractor for fabrication/ installation progressively.

e) Unless otherwise required at least 6 (six) sets of direct reading reproducibles, no lower in quality than auto positive of extra thin paper able to produce clean legible prints (the reproducibles to be submitted in roll forms) and 6 (six) sets of prints of all approved plans/drawings/ designs/ specifications prepared by the Contractor and the quantities of all items, together with similar sets of reproducibles and prints of all revisions/amendments/ modifications therein shall be lodged with the Authority/ Authority's Engineer for the record of the Authority such sets of plans/ drawings/designs/ specifications shall be signed by the Contractor and shall indicate thereon the number and date of each revision/ amendment and of the communication of the Authority/ Authority's Engineer or any other agency appointed by Authority for the approval thereof, by which the approval was given.

f) All the Final drawings shall bear the certification stamp as indicated below, duly signed by both, the Contractor and the approving authority, Authority/ Authority's Engineer:

Certified True for Project		
Contract No.		
Signed (Contractor)		
Signed (Design Consultant of the Contractor)		
Signed Proof Consultant		
Signed ARCHITECT		
Signed Authority/ Authority's Engineer		

The drawings and documents to be submitted by the Contractor to Authority after award of the work as per the requirements enlisted in the bidding document elsewhere shall be for review, information and record. The Contractor shall ensure that drawings and documents submitted to Authority's are accompanied by relevant calculations, data as required and essential for review of the document / drawings by Authority. All documents and drawings including those of Contractor's sub-vendor's manufacturer's etc. shall be submitted to Authority after having been fully vetted in detail, approved and corrected by the Contractor

& shall bear Contractors seal / certifications to this effect. All documents / drawings & submissions made to Authority without compliance to this requirement will not be acceptable and the delay & liability owing to this shall be to the Contractor's account.

g) The review of documents and drawings by Authority shall not be construed by Contractor as limiting any of his responsibility to meet the requirements of specifications, drawings etc. and liabilities for mistakes and deviations. Upon receiving the comments on the drawing / documents reviewed by Authority, Contractor shall incorporate the comments as required and ensure their compliance. The subsequent submission by the Contractor of the updated drawings / documents shall be accompanied by a compliance report etc. The submissions calling for repeated reviews by the Authority shall be avoided by the Contractor and it shall not entitle any cost or time to the contractor. Any inaccuracies, errors and non-compliance to contractual requirements will be rectified by the Contractor. Delay occurring on this shall be to the account of the Contractor. The Works shall be free of all Defects in materials and workmanship and shall be adequate, stable, safe and strictly compliant with the instructions of Authority/ Authority's Engineer, the Drawings and Designs, the Specifications and Good Industry Practice, such that the project when complete shall be capable of meeting the Guaranteed Performance Levels.

10.3.4 Role of ARCHITECT & Operator during the contract:

The **Architect**, Architect Hafeez Contractor (AHC), shall act as the **design interface** between the EPC Contractor and the Authority / Authority-appointed Project Management Consultant (PMC), limited strictly to matters relating to **architectural design intent, approved design basis, and compliance with the tender documents and statutory approvals**.

The Architect shall provide design-related clarifications and responses to queries raised by the EPC Contractor during the **detailed design and Good for Construction (GFC) stages**, and shall review the detailed design submissions, drawings, BIM outputs and GFC drawings prepared by the EPC Contractor to verify that the **approved architectural intent, parameters, specifications and preliminary design principles** have been duly adhered to.

The Architect shall also **review and comment on samples, mock-ups and material submissions** proposed by the EPC Contractor, solely to verify compliance with the approved technical specifications, material language and architectural intent established in the tender documents.

During testing, commissioning and handover, the Architect may carry out **limited and need-based site visits** to verify that the executed works, finishes and systems conform to the **approved design intent and specifications**.

Such reviews shall not constitute construction supervision, quality control, certification or project management, which shall remain the responsibility of the EPC Contractor and the Authority / PMC.

The **EPC Contractor shall share the detailed design submissions with the Operator**, wherever applicable.

The Operator may provide inputs **limited strictly to operational and functional considerations**, such as maintenance access, usability and operational efficiency.

No input, recommendation or suggestion by the Operator shall:

- Alter the approved architectural envelope
- Modify the Master Plan
- Change the architectural layout, built form, massing or spatial planning
- Affect statutory or ASI-approved parameters

In the event the Operator does not provide comments within **15 (fifteen) days** of receipt of the design submission, the design shall be deemed to be **approved from an operational and functional perspective only**.

All final approvals of design submissions shall remain with the **Authority / Archaeological Survey of India (ASI)**, based on design review and recommendations by the Architect, as applicable.

10.3.5 Materials to be provided by the Contractor

a) The contractor shall, at his own expense, provide all materials, required including Cement & Steel for the works. The contractor shall at his own expense and without delay; supply to the Authority/ Authority's Engineer samples of materials to be used on the work and shall get the same approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Authority/ Authority's Engineer furnish proof, to the satisfaction of the Authority/ Authority's Engineer that the materials so comply. The contractor shall at his risk and cost, submit the samples of materials to be tested or analysed in India or Abroad and bear all charges and cost of testing. The Authority/ Authority's Engineer or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance and cost in obtaining the right and visit to such access. The Authority/ Authority's Engineer shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Authority/ Authority's Engineer shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Authority/ Authority's Engineer shall also have full power to require other proper materials to be substituted thereof and in case of default, the Authority/ Authority's Engineer may cause the same to the supplies and all costs which may require such removal and substitution shall be borne by the contractor.

b) The Contractor shall be responsible at his own cost and initiative within the scope of services, to take delivery of the materials from the port of delivery in India in respect of imported materials and from the factory or ware-house or other place(s) of delivery in respect of indigenous materials and to transport these to the Contractor's stockpiles, godowns or other places of storage arranged by him for this purpose, and to transport the same from said godowns or place(s) of storage to the work site for incorporation in the permanent works.

The work of delivery and transportation of materials shall include (but not be limited to) the following-

i.) Payment of custom duty, Clearance of the goods through custom and port clearance including filling and/or filing of all custom manifests, bills of entry, and custom declarations and other documents as may be required for the clearance of the goods from customs or port authorities, including making necessary payment of Customs Duties.

ii.) Stevedoring, clearing, forwarding and handling services as required for imported and indigenous materials and consignments including payment at contractor's cost of any insurance (the insurance shall be in a fully convertible currency), demurrage, wharfage, port charges, siding charges, retention charges, detention charges or other charges whatsoever and howsoever designated or levied by any railway, air-port, ship and/or other authorities for or in connection with the loading, unloading or detention of any materials or vessels or other means of transport beyond the free period or unloading, clearance, retention or detention or loading, as the case may be, provided by the relevant

authority(ies) or carrier(s) in this behalf.

iii.) All works and operations necessary to lift and to remove the material from port, ware-house, railway or other siding, factory or other places of delivery, loading, handling, transporting and unloading and safely stacking, placing or storing the same at godowns, yards or other place(s) of storage including lashing or other-wise securing or protecting the same in transit and during and in storage.

iv.) All acts, deeds, matters or things required to fulfil all local, municipal and other statutory authorities with respect to the transportation of any materials through or into any State, municipal, local or other barriers or limits or for the import of the materials or any of them within the limits of such barrier, including payment of octroi or other local toll (if applicable), terminal and/or entry or other taxes payable on the passage or entry of the materials through or within any local limits, for which purpose the ASI shall give the Contractor and/or Contractor's designate(s) any and all authority(ies) as may be reasonably required in this behalf. If Road Permits, Entry Permits, Transit Permits or the like for the transportation of any materials is to be obtained in the name of the ASI, it shall at the request of the Contractor sign and provide such documents as are required to be furnished by the ASI to obtain the Permit(s).

v.) All other acts, deeds, matters and things whatsoever ancillary, auxiliary or incidental to the above including but not limited to the grading of the site and/or creation of temporary approaches and ramps etc. as may be required.

10.3.6 Materials and Samples

a) The materials/products used on the works shall be one of the approved make/ brands out of list of manufacturers / brands /makes given in the tender documents or shop drawings submitted or as approved in the Detailed Engineering or shop drawings submitted after the award of Work. The contractor shall submit samples/ specimens out of approved makes of materials/ products to the Authority/ Authority's Engineer for prior approval. In exceptional circumstances Authority/ Authority's Engineer may allow alternate equivalent makes/brands of products/ materials at his sole discretion. The final choice of brand / make shall remain with the Authority/ Authority's Engineer, whose decision in this matter shall be final and binding and nothing extra on this account shall be payable to the Contractor. In case single brand/ make are mentioned, other equivalent makes/ brands may be considered by the Authority/ Authority's Engineer. In case of variance in CPWD/IS/BIS Specifications from approved products/makes specification, the specification of approved product/make shall prevail for which nothing shall be paid extra to the Contractor. In case no make or brand of any materials, articles, fittings and accessories etc. is specified, the same shall comply with the relevant Indian Standard Specifications and shall bear the IS/BIS mark. The Authority's Engineer and the Authority shall have the discretion to check quality of materials and equipments to be incorporated in the work, at source of supply or site of work and even after incorporation in the work. They shall also have the discretion to check the workmanship of various items of work to be executed in this work. The contractor shall provide the necessary facilities and assistance for this purpose.

b) The above provisions shall not absolve the contractor from the quality of final product and in getting the material and workmanship quality checked and approved from the Authority/ Authority's Engineer.

c) The contractor shall well in advance, produce samples of all materials, articles, fittings,

accessories etc. that he proposes to use and get them approved in two sets duly signed and in writing by Authority. The materials articles etc. as approved shall be labelled as such and shall be signed by Authority and the Contractor's representative. One set in the site office of the Authority/ Authority's Engineer.

d) The approved samples shall be kept in the custody of the Authority/Authority's Engineer till completion of the work. Thereafter the samples except those destroyed during testing shall be returned to the contractor. No payment will be made to the contractor for the additional required samples or samples destroyed in testing.

e) The brands of all materials, articles fittings etc. approved together with the names of the manufacturers and firms from which supplies have been arranged shall be recorded in the site order book.

f) The contractor shall set up and maintain at his cost, a field testing laboratory for all day to day tests at his own cost to the satisfaction of the Authority/ Authority's Engineer. This field testing laboratory shall be provided with equipment and facilities to carry out all mandatory field tests as per the requirements of selected materials and specifications. The laboratory building shall be constructed and installed with the appropriate facilities, Temperature and humidity controls shall be available wherever necessary during testing of samples. All equipments shall be provided by the Contractor so as to be compatible with the testing requirements specified. The Contractor shall maintain all the equipments in good working condition for the duration of the contract. The Contractor shall provide approved qualified personnel to run the laboratory for the duration of the Contract. The number of staff and equipment available must at all times be sufficient to keep pace with the sampling and testing programme as required by the Authority/ Authority's Engineer. The Contractor shall fully service the site laboratory and shall supply everything necessary for its proper functioning, including all transport needed to move equipment and samples to and from sampling points on the site, etc. The Contractor shall re-calibrate all measuring devices as per or established norms for each testing equipment annually whenever so required by the Authority/ Authority's Engineer and shall submit the results of such calibration without delay. All field tests shall be carried out in the presence of Authority's representative. All costs towards samples, materials, collection, transport, manpower, testing etc. shall be borne by the Contractor and are deemed to be included in the rates quoted by him in the Offer/ tender.

The contractor(s) shall display the calibration certificate of each equipment at the location of equipment & shall get recalibrated at least one week before its expiry date. Irrespective of any loss due to theft, fire or whatsoever. No claim shall be entertained towards cost and time.

Contractor/subcontractors has / have to deploy security personnel for safeguarding of materials procured and bought at site. Irrespective of any loss due to theft, fire or whatsoever. No claim shall be entertained towards cost and time

10.3.7 Materials Procured With the Assistance of Authority

If any material for the execution of this contract is procured with the assistance of Authority either by issue from its stores or purchase made under orders or permits or licenses obtained by Authority, the contractor shall hold and use the said materials economically and solely for the purpose of this contract and shall not dispose them without the permission of Authority/ Authority's Engineer. The contractor, if required by the Authority, shall return all such surplus or unserviceable materials that may be left with him after the completion of the

contract or at its termination on whatsoever reason, on being paid or credited such price as the Authority/ Authority's Engineer shall determine having due regard to the conditions of materials. The price allowed to the contractor, however, shall not exceed the amount charged to him excluding the element of storage charges which shall be 10% of the cost charged to contractor. The decision of the Authority/ Authority's Engineer shall be final and conclusive.

Contractor**,** subcontractors has / has to deploy security personnel for safeguarding of materials procured and bought at site. Irrespective of any loss due to theft, fire or whatsoever; no claim shall be entertained towards cost and time.

10.3.8 Contractor to Supply Tools & Plants

The contractor shall provide at his own cost all materials, machinery, tools & plants as require for completion of work. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Authority/ Authority's Engineer as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement or examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Authority/ Authority's Engineer at the expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his Retention Money or the proceeds of sale thereof, or of a sufficient portions thereof.

10.3.9 Shipping/International Air Freight and Other Documents

a) Without prejudice to any other obligations of the Contractor under the Contract, and in addition to any other documents required to be furnished by the Contractor under the Contract, the Contractor shall, in respect of all items and materials imported into India, after making necessary payments to Customs and clearing the consignments, obtain and furnish to the Authority, along with his monthly invoices, the following documents (hereinafter for the sake of brevity collectively referred to as the "the said documents") according to the provisions of the following clauses, namely :

Signed Invoice(s) with all terms and conditions including quantity, value etc.

1. Clean Bill of Lading;
2. Packing lists
3. Certificate of origin of goods to be given by seller or a recognized chamber of commerce or another agency designated by the local government for this purpose.
4. Consular's Invoice, if necessary;
5. Export License/documents, if applicable; and
6. Any other document(s) or literature submitted by him during Custom clearance;
7. Phytosanitary Certificate (in original) for packing material as per International norms.
8. Manufacturing Test Certificate and guarantee.
9. Certificate of Insurance.

b) The bill of lading shall clearly indicate the description of the items/materials giving the dimensions, quantities, weights, Port of loading, and all other details required for

Customs clearance of the consignment, and/or as may be specified by the Authority from time to time in this behalf. The Bill of Lading shall show the gross freight amount, and shall either indicate or be accompanied by the carrier's statement of charges and shall carry all other particulars necessary to bind the carrier.

c) The Contractor shall not less than 7(seven) clear days before the contemplated date of shipment, inform the Authority/ Authority's Engineer of the contemplated date of relative shipment of the item(s) or material(s) and of the contemplated date of arrival thereof in India. The Contractor shall also, within 48 (Forty-Eight) hours of shipment, send intimation of shipment by fax or scanned copy by email to the addresses of the Authority.

d) The Invoice shall be drawn in the name of the Contractor Account and shall state the quantity and detailed description of each item supplied reflecting the value of each item/material and the basis of delivery at site. The Invoice and Bill of Lading shall also indicate on the face of it, the Number, date and validity of the Import License (if the Import License has been revalidated, Number and date of re-validation) against which the Import is being made. The description of each item/material indicated in the Invoice and the Bill of Lading shall conform to the description of the item/material as given in the relative Import License(s)/Permit(s) issued to the owner in this behalf.

The Contractor shall ensure that all imports into India are in conformity with Export-import policy in force- FEMA Rules.

10.3.10 Packing and Forwarding

a) IMPORTED SUPPLIES

1) The Contractor wherever applicable, shall, after proper painting, pack and crate all materials for shipment in a manner suitable for export to a tropical, humid climate in accordance with internationally accepted export practices and in such a manner so as to protect them from damage and deterioration in transit by road, rail and/or sea and during storage at Contractor's Own Warehouse and at the site, as the case may be, till the time of erection. Without prejudice to any other liabilities or obligations of the Contractor, the Contractor shall be responsible for all damage(s) to the materials due to improper packing.

2) The Contractor shall notify the Authority/ Authority's Engineer of the date of each shipment from the port of embarkation as well as of the expected date of arrival of such shipment at the designated port of arrival only for the Authority/ Authority's Engineer's information.

3) The Contractor's notification shall give complete shipping information concerning the weight, size and content of each package and such other information as the Authority may require. The packing material used should be duly certified by a Phytosanitary Certificate issued as per international norms.

b) INDIGENOUS SUPPLIES

1) The Contractor shall, wherever applicable, after proper painting, pack and crate all items in such a manner as to protect them from deterioration and damage during rail and road transportation, during storage at Contractor's Own Warehouse and at the

site, as the case may be till the time of erection.

2) Without prejudice to any other liabilities or obligations of the Contractor, the Contractor shall be responsible for all damage(s) due to improper packing. The Contractor shall notify Authority/ Authority's Engineer of the date of each shipment from the works and expected date of arrival at the site for the information of Authority/ Authority's Engineer.

3) The Contractor's notification shall also give all shipping information concerning the weight, size and content of each packing and such other information as the Authority/ Authority's Engineer may require.

The following documents shall be sent to the Authority/ Authority's Engineer within 3 (three) days from the date of shipment:

- Invoice (2 copies)
- Packing List (2 copies)
- Test Certificate (4 copies)
- Railway Receipt/Lorry Receipt (2copies)
- Insurance Certificate (2 copies) or copy of Contractor's Policy
- Third Party Inspection Release Note or Inspection Certificate as per QAP approved by Authority/ Authority's Engineer or waiver certificate issued by Authority/ Authority's Engineer.

c) EQUIPMENT

The Contractor shall be exclusively responsible to arrange for importation into India in its own name on drawback or re-export or other basis all equipment, if any, required to be imported into India for the purposes of the work and to pay and bear the customs, import and other duties and levies (if any) payable thereon or in respect thereof, and will be solely responsible for the timely and proper compliance of all applicable terms and conditions and formalities relative thereto.

The Contractor shall within 4 (Four) Weeks from the date of receipt of Letter of Award, furnish to the Authority/ Authority's Engineer a list of the said equipment which he proposes to import into India on a draw-back/re export basis for the purposes of the work, together with complete details thereof. The Authority may without obligation or responsibility render such assistance as may be reasonably required by the Contractor from the Authority to enable the Contractor to obtain the relative Import License(s)/Permit(s) for the importation of the said equipment on a draw-back/re-export basis.

d) MISCELLANEOUS IMPORTS

1) The Contractor shall be exclusively responsible at his own costs and initiative to arrange for importation into India, to import into India, to pay Custom duties and Port and other charges and levies, to clear from Customs and to transport to job site all consumables, spares for the Contractor's equipment and other materials and things provided that the Authority may, without obligation or responsibility, render the Contractor such assistance by way of recommendation to the Import Control authorities in India or otherwise as may be reasonably required by the Contractor from the Authority to enable the Contractor to obtain Import License(s)/Permit(s) for

importation of such consumables, spares, material and other items as the Authority considers necessary for importation by the Contractor for the purpose of the Contract, taking into account local availability.

2) Any obligation undertaken or recommendation, facility or assistance provided by the Authority to the Contractor for or in relation to the importation of any equipment or material whatsoever into India by or on behalf of the Contractor pursuant to the provisions hereof or otherwise shall be without any responsibility or liability whatsoever upon the Authority and without right in the Contractor to raise any claim or demand or to seek extension of time on account of any delay or failure on the part of the Authority or any delay or failure by the Contractor in obtaining Import License(s) and/or permits for importation thereof into India.

3) All materials and equipment Imported into India by or on behalf of the Contractor for and in connection with the work and any obligation undertaken or recommendation, facility or assistance provided by the Authority relative thereto shall be on the clear understanding that the materials and equipment shall be utilised only for and relative to the performance of the work covered by the Contract.

4) All the equipment and temporary works and materials when brought to or erected on the job site, shall be exclusively intended for execution of works and the Contractor shall not remove the same or any part thereof, except for the purpose of moving it from one part of the job site to another, without the prior consent in writing of the Authority/ Authority's Engineer.

5) Upon completion of the works, the Contractor shall within the scope of work remove from the job site all the equipment and temporary works remaining thereon.

6) All equipment, materials and temporary works shall at all times be and remain at the risks of the Contractor in all respects. The Authority shall not, at any time, be liable for the loss or destruction of or damage to any equipment, temporary works or materials for any reason whatsoever.

10.3.11 Notice Before Covering up the Work

The contractor shall give not less than seven day notice before covering up or otherwise placing beyond the reach of measurement any work, to the Authority/ Authority's Engineer in order that the same may be inspected and measured. If any work is covered up or placed beyond the reach of inspection/measurement without such notice or his consent being obtained the same shall be uncovered at the contractor expenses and he shall have to make it good at his own expenses without any claims whatsoever.

10.4 Maintenance during Construction Period

During the Construction Period, the Contractor shall maintain, at its cost, the existing facility of the Project and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at its cost, interrupt if such interruption is necessary for the efficient progress of Works. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the Project site.

10.5 Extension of time for completion

10.5.1 Without prejudice to any other provision of this Agreement for and in respect of extension of time, the Contractor shall be entitled to extension of time in the Project Completion Schedule (the **"Time Extension")** to the extent that completion of any Project Milestone is or will be delayed by any of the following, namely:

(a) delay in providing the environmental clearance, specified in Clause 4.1.4;

(b) Change of Scope (unless an adjustment to the Scheduled Completion Date has been agreed under Article 13);

(c) occurrence of a Force Majeure Event;

(d) any delay, impediment or prevention caused by or attributable to the Authority, the Authority's personnel or the Authority's other contractors on the Site; and

(e) any other cause or delay which entitles the Contractor to Time Extension in accordance with the provisions of this Agreement.

10.5.2 The Contractor shall, no later than 7 (seven) business days from the occurrence of an event or circumstance specified in Clause 10.5.1, inform the Authority's Engineer by notice in writing, with a copy to the Authority, stating in reasonable detail with supporting particulars, the event or circumstances giving rise to the claim for Time Extension in accordance with the provisions of this Agreement. Provided that the period of 7 (seven) business days shall be calculated from the date on which the Contractor became aware, or should have become aware, of the occurrence of such an event or circumstance.

Provided further that notwithstanding anything to the contrary contained in this Agreement, Time Extension shall be due and applicable only for the Works which are affected by the aforesaid events or circumstances and shall not in any manner affect the Project Completion Schedule for and in respect of the Works which are not affected hereunder.

10.5.3 In the event of the failure of the Contractor to issue to the Authority's Engineer a notice in accordance with the provisions of Clause 10.5.2 within the time specified therein, the Contractor shall not be entitled to any Time Extension and shall forfeit its right for any such claims in future. For the avoidance of doubt, in the event of failure of the Contractor to issue notice as specified in this clause 10.5.3, the Authority shall be discharged from all liability in connection with the claim.

10.5.4 The Authority's Engineer shall, on receipt of the claim in accordance with the provisions of Clause 10.5.2, examine the claim expeditiously within the time frame specified herein. In the event the Authority's Engineer requires any clarifications to examine the claim, the Authority's Engineer shall seek the same within 15 (fifteen) days from the date of receiving the claim. The Contractor shall, on receipt of the communication of the Authority's Engineer requesting for clarification, furnish the same to the Authority's Engineer within 10 (ten) days thereof. The Authority's Engineer shall, within a period of 60 (sixty) days from the date of receipt of such clarifications, forward in writing to the Contractor its determination of Time Extension.

Provided that when determining each extension of time under this Clause 10.5, the

Authority's Engineer shall review previous determinations and may increase, but shall not decrease, the total Time Extension.

10.5.5 If the event or circumstance giving rise to the notice has a continuing effect:

(a) a fully detailed claim shall be considered as interim;

(b) the Contractor shall, no later than 10 (ten) days after the close of each month, send further interim claims specifying the accumulated delay, the extension of time claimed, and such further particulars as the Authority's Engineer may reasonably require; and

(c) the Contractor shall send a final claim within 30 (thirty) days after the effect of the event or the circumstance ceases.

Upon receipt of the claim hereunder, the Authority's Engineer shall examine the same in accordance with the provisions of Clause 10.5.4 within a period of 60 (sixty) days of the receipt thereof.

10.6 Incomplete Works

In the event the Contractor fails to complete the Works in accordance with the Project Completion Schedule, including any Time Extension granted under this Agreement, the Contractor shall endeavour to complete the balance work expeditiously and shall pay Damages to the Authority in accordance with the provisions of Clause 10.3.2 for delay of each day until the Works are completed in accordance with the provisions of this Agreement. Recovery of Damages under this Clause shall be without prejudice to the rights of the Authority under this Agreement including the right to termination under Clause 23.1.

10.7 Deleted

10.8 Carrying out part work at risk & cost of contractor

If Contractor fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Authority/ Authority's Engineer.

The Authority/ Authority's Engineer without invoking action under clause 23.0 of contract may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to Authority, by a notice in writing to take the part work/part incomplete work of any item(s) out of his hands and shall have powers to:

a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or

b) Carry out the part work / part incomplete work of any item(s) by any means at the risk and cost of the contractor.

The Authority/ Authority's Engineer shall determine the amount, if any, is recoverable from the contractor for completion of the part work/ part incomplete work of any item(s) taken out

of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by Authority because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Authority/ Authority's Engineer as to the value of work done shall be final and conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the Authority are less than the amount payable to the contractor at his agreement rates, the difference shall not be payable to the contractor.

If the contractor fails to pay the damages to the Authority within the aforesaid period of 30 days, the Authority/ Authority's Engineer shall have the right to sell any or all of the contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract.

In the event of above course being adopted by the Authority/ Authority's Engineer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

10.9 Mobilization of Men, Materials and Machinery:

All expenses towards mobilization at site and de-mobilization including bringing in equipment, work force, materials, dismantling the equipments, clearing the site etc. shall be deemed to be included in prices quoted and no separate payment on account of such expenses shall be entertained.

It shall be entirely the Contractor s responsibility to provide, operate and maintain all necessary construction equipments, scaffoldings and safety, gadget, lifting tackles, tools and appliances to perform the work in a workman like and efficient manner and complete all jobs as per the specifications and within the schedule time of completion of work. Further, contractor shall also be responsible for obtaining temporary electric and water connection for all purposes. The contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply.

It shall be the responsibility of the contractor to obtain the approval for any revision and/or modification desired by him from Authority before implementation.

The procurement and supply in sequence and at the appropriate time of all materials and consumable shall be entirely the contractor s responsibilities and his rates for execution of work shall be inclusive of supply of all these items.

It is mandatory for the contractor to provide safety equipments and gadgets to his all workers, supervisory and Technical staff engaged in the execution of the work while working. The minimum requirement (but not limited to) shall be gum boots, safety helmets, Rubber hand gloves, face masks, safety nets, safety belts, goggles etc. as per work requirements. Sufficient

nos. of these equipments and gadgets shall also be provided to Authority by the contractor at his own cost for use of Authority's Officials and/ or workforce while working/supervision of work at site. No staff/ worker shall be allowed to enter the site without these equipments/ gadgets.

The cost of the above equipments/ gadgets are deemed to be included in the rates quoted by the contractor for the items & works and contractor shall not be entitled for any extra payment in these regard. The above norm is to be strictly complied with at site. In case the contractor is found to be deficient in providing Safety Equipments/ Gadgets in the opinion of Authority's Engineer, the Authority's Engineer at his option can procure the same at the risk & cost of contractor and provide the same for the use of worksite and shall make the recoveries from the bills of the contractor for the same. The contractor shall abide by all rules & regulations pertaining to Health, Safety and Environment.

One copy of contract documents including drawings furnished to the contractor shall be kept at the site and the same shall at all reasonable times be available for inspection.

All materials, construction plants and equipments etc. once brought by the contractor within the project area, will not be allowed to be removed from the premises without the written permission of the Authority's Engineer. Similarly all enabling works built by the contractor for the main construction undertaken by him, shall not be dismantled and removed without the written authority of the Authority.

Contractor shall have to prepare the Bar Bending Schedule, shop and fabrication drawings along with bill of materials free of cost, if required for any of the items of work. Six copies of these drawings each including for revision will be submitted to Authority for approval. Before executing the item, shop drawings and bar bending schedule should be approved by Authority.

All contractors plant, machinery and equipment shall be kept in perfect condition during currency of the contract and shall adhere to the NGT & EC guidelines.

Detailed Engineering Drawings should be prepared in detail in CAD or any other software as instructed by the Authority and should cover all the details including the bar bending schedule, Bill of materials, Joints and weld details or other shop drawings as per the requirement.

Any comments/ changes in the Drawings due to the insufficient information or misinterpretation of available data shall be rejected and nothing extra shall be payable to the Contractor for the same.

All contractors' plant, machinery and equipment shall be kept in perfect condition during currency of the contract. As on date of tendering, the maximum. age of Equipment & Machinery including but not limited Excavators, Cranes, Rollers, Batching plant, Dumpers, tippers, Water trucks, etc. shall not be more than 5 years.

Record of all such equipment & m/c with all technical details, purchase details to be kept ready or updated on monthly basis.

10.10 Work in Monsoon and rains

a) Contractor must take due cognizance of the presence of rainy season / days in his scheduled completion period and accordingly, shall take all necessary actions to protect,

reorganize and progress the work , uninterruptedly during the monsoon period .

b) Contractor to collect all meteorological data from the local authority and collect necessary information about the intensity, frequency and period of rainy season.

c) No extension of time due to interruption /suspension of work , water logging , reduced /slowing down of progress , non-availability of manpower etc. , whatsoever may be the reason, shall be tenable on account of monsoon and further no claim for stand-by of manpower and equipment, other resources etc. shall be paid for. The execution of the work may entail working in the monsoon also. The contractor must maintain labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No special/ extra rate will be considered for such work in monsoon. The bid shall be considered inclusive of cost of dewatering due to rains required if any and no extra rate shall be payable on this account. The stipulated period for completion of project includes the monsoon period, holidays, festivals and harvesting/ cropping season.

d) During the Monsoon season, the Contractor shall be responsible for making arrangements to combat monsoon to ensure uninterrupted site works, will make arrangements for keeping the cement godown, steel yard, prefabrication yard, and all other working area free of water logging and make necessary approach to work site as required.

e) The execution of the work shall entail working in all seasons including the monsoons. In so far as necessary, the Contractor shall maintain at site at all times such material, labour, pumps, equipment and machinery as may be required for the performance of the work during the monsoon or other rains and shall plan well in advance for the collection of material and equipment and the erection of such tarpaulins, sheds, wind breakers and/or other Protection as shall or may be necessary for the work during the monsoon or other rains so that the rains or monsoon shall not hamper working. Contractor shall also arrange and bring to each job site such special equipment and machinery as may be necessary to enable work during the monsoon, and shall, at his own cost and initiative, arrange at all times for dewatering the job sites so as to keep the construction site and areas to be worked upon, free of water.

f) Contractor shall provide scheme for suitable coverage of the work area in addition to other covered pre-fabrication yards proposed by them for continuity of works during monsoon and shall implement the schemes for effective mitigation of effects of monsoons at no extra cost to the Owner.

g) All electrical installations, equipment shall be placed on plinths above ground under proper rain shed to avoid any inundation, short circuit and hazards of electrocution.

h) Contractor shall organize his work particularly for the underground activities in foundation, excavation in a way that instead of opening up fronts everywhere and in scattered locations (provided there is no priority concern) only those many structures and /or areas should be worked where concerted and continuous effort and resources could be engaged to bring the work up to the desired level expeditiously to minimize any rework resulting from water accumulation / rain.

i) To maintain the standard welding quality and progress, localized welding booth in sufficient numbers as per instruction of Engineer- in charge shall be installed for

protection against wind and rain.

10.11 Work on Sundays, Holidays and during Night

For working on Sundays/Holidays, the contractor shall obtain the necessary permission from Authority/ Authority's Engineer in advance. Any liasioning or approval required from the Government Authorities shall be in scope of the contractor. The contractor shall be permitted to work beyond the normal hours with prior approval of Authority/ Authority's Engineer and the contractors quoted rate is inclusive of all such extended hours of working and no extra amount shall be payable by the owner on this account. The contractor shall have no claim on this account whatsoever. If work demand, the contractor shall make arrangements to carry out in two, three shifts with the approval of Authority/ Authority's Engineer at no extra cost to Authority.

10.12 Watch, Ward and Lighting of Work Place

The contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, Obstructions, lights, watchmen etc. during the progress of work as directed by Authority/ Authority's Engineer.

10.13 Cement, Steel and material Stockyard

10.13.1 Cement shall be procured by Contractor confirming to BIS: 8112 and / or BIS: 1489 Specification latest edition or higher Grade as per approved list attached. The cement shall be procured directly from the reputed manufacturers/ stockiest as per approved list of Authority/ Authority's Engineer. Relevant vouchers and test certificates will be produced as and when required. The cement shall be stored by the contractor in such suitable covered and lockable stores, well protected from climate and atmospheric effects. The cement go-down shall be constructed by the contractor as per the best Industry Standards at his own cost. The cement will remain under double lock, one from Authority and other from Contractor. The cement in bags shall be stored in go-downs in easy countable position. Cement bags shall be used on first in first out basis. Cement stored for beyond 90 days will be required to be tested at contractors cost, before use in works.

10.13.2 Steel confirming to BIS specifications (latest edition) shall be procured by the contractor directly from reputed manufacturers/producers as per approved list of Authority. The manufacturer has to give a certificate that the material supplied is not a re-rolled product. Relevant vouchers & test certificates will be produced by the contractor. Re-rolled sections will not be allowed. Reinforcement steel, structural steel shall be stored and stacked in such manner so as to facilitate easy identification, removal etc. The contractor shall take proper care to prevent direct contact between the steel and the ground/water for which he shall provide necessary arrangement at his own cost including ensuring proper drainage of area to prevent water logging as per directions of the Authority/ Authority's Engineer. Steel shall also be protected, by applying a coat of neat cement slurry over the bars for which no extra payment shall be made. Test certificates for each consignment of steel shall be furnished and tests to be got carried out from the authorized laboratory as per the directions of Authority/ Authority's Engineer, before incorporating the materials in the work.

All steel to be procured as per office memorandum "DG/CPWD works manual / 350" issued by Authority of Director General CPWD on 29-06-2017 w.e.f 01-07-2017 with its Annexure- I.

10.14 Records of Consumption of Cement and Steel

10.14.1 For the purpose of keeping a record of cement and steel Procured by the contractor received at site and consumed in works, the contractor shall maintain a properly bound register in the form approved by the Authority, showing columns like quantity received and used in work and balance in hand etc.

10.14.1 The register of cement & steel shall be kept at site in the safe custody of Authority/ Authority's Engineer during progress of the work. This provision will not, however, absolve the contractor from the quality of the final product.

10.15 Furnished Office Accommodation & Mobility Communication To Be Arranged By Contractor

10.15.1 Contractor, after approval of the Authority, shall provide fully furnished site office for Authority staff, Authority engineer staff. Should there a situation of relocation arise during the Contract period, it will be done without any consideration of extra time and cost to the Authority.

10.15.2 The contractor shall maintain the aforesaid facilities intact/operational during the tenancy of the contract or maximum up to 6 months beyond the stipulated contractual completion date if the work is delayed due to any reasons. Operation and maintenance cost of all such materials, equipments / services shall be borne by the contractor.

10.15.3 The Site office shall be provided with all office utilities required during the currency of the project for Authority/Authority's engineer (PMC) based on the space & capacity illustrated below for entire office complex the air conditioning, wall mounted fans, adequate nos. of cabinets in each rooms & halls, furniture, work stations, sofas at receptions/waiting area.

i. One (01) Room of min. 100 sq.ft area with attached toilet of adequate size & one (01) room having four(04) seats of area 50 sq.ft.
ii. One (01) Room/hall for min. 45 persons of area 50 sq.ft each.
iii. Four (04) rooms 100 sq.ft area each, ten (10) nos. Cubical of area 70 Sq.ft each .
iv. 1 no. large meeting room for min. 40 persons with LCD Projector & screen of size 6" x 5", LED screen of 50" and white board of 6" x 5".
v. Two (02) nos. of smaller meeting with LCD projector & screen for six persons each.
vi. One (01) reception and waiting area of 120 Sq.ft.
vii. Gents' toilet with minimum five (06) Urinals, three (03) WC, three (03) wash basins and ladies toilet with two (02) WC and one (02) wash basins.
viii. All office spaces shall be provided with good Wi-Fi & LAN connectivity and intercom facility with telephone sets for each room and workstations.
ix. One (01) no. large Storage Room of min. 800 Sq.ft. for samples with adequate nos. proper sturdy MS Racks and adequate nos. of closed almirahs.
x. One (01) no. record room for storage of files, bills etc. - 500 Sq. ft. with Almirahs, Racks etc. for storage.
xi. Two (02) nos. pantry of adequate capacity (01 for Authority + 01 for PMC) with following facilities in each.
    a. Gas stove & Cylinder (including refilling),
    b. Microwave Oven of 20 L capacity,
    c. Min. 200 Ltr. Fridge,
    d. Water cooler cum purifier (including refilling cartridge),
    e. Utensils & cutlery as per requirement of standard quality.

f. Cafe coffee day vending Machine with the options of tea, coffee (Hot & cold) , Soup & Other Beverages,
g. Kitchen cabinet
h. All the consumable as and when required.

xii. Paved and shaded parking shall be provided for min. 20nos Cars and adequate nos. of Motor cycles.

xiii. Three (03) nos. pantry boys (01 for Authority office + 02 for PMC office) and one (01) nos. office boy for printing, binding & copying.

xiv. One (01) driver room of adequate size with adequate nos. of fans, coolers, sitting and toilet facilities.

Requirements of Site Office (List of Approved Makes)		
ELECTRICAL		
Sl. No.	Details of Materials	Brands/ Manufacturer's Name
1	MS Conduit (ISI Mark) (ISI Mark)	BEC/ NIC/ Steel Craft / AKG
2	PVC/ FR Conduit (ISI Mark)	BEC/POLYPACK/ PRECISION/ AKG
3	MCB (10KA)	MDS/SIEMENS/MERLIN GERIN/ L&T HANGER/ ABB
4	Distribution Board	MDS/SIEMENS/SCHNEIDER/ABB
5	ELCB/ ELMCB/RCCB	DATAR/MDS/SIEMENS/SCHNEIDER/ABB
6	PVC Insulated Copper Conductor FRLS Flexible / Standed Wire	POLYCAB/ SKYLINE/ HAVELL'S / FINOLEX/ RAJANI GANDHA/ DELTON
7	Modular Switches & Sockets	NORTHWEST/MK/CRABTREE/CLIPSAL/PRECISION
8	Lighting Fixtures	WIPRO/ TRULITE/ ARTLITE/PHILIPS
9	Telephone Tag Box	KRONE/TVS/R&M
10	WALL MOUNTED FAN	CROMPTON/ KHAITAN /HAVELLS
11	Change over Switch	HH-ELCON/HPL/SOCOMAC/L&T/ ASKON
PLUMBING		
1	CHINAWARE	HINDWARE/ PARRYWARE or equivalent
2	C. P. Fittings	JAQUAR or equivalent
3	KITCHEN Sink	Franke/Jayna or equivalent
CIVIL		
1	PAINT	BERGER or equivalent
2	FALSE CEILING	GYPSUM or equivalent
3		
OFFICE EQUIPMENTS & FURNITURE		
1	One (01) nos. multipurpose online colour printer, photcopier &	Sharp / cannon or equivalent
2	One (01) nos. multipurpose offline colour printer, photcopier &	Sharp / cannon or equivalent
3	One online plotter	HP or equivalent

4	Internet broadband / Wi-fi connection of minimum 16	Airtel/ Reliance or equivalent
4	Complete Furniture	GODREJ or Equivalent
5	Air conditioning	Hitachi, O General, Daikin

10.15.4 The contractor shall make all arrangements for ground breaking ceremony/inaugural function etc. or any such functions or ceremonies for the project as required and the cost towards it deemed to be included in his offer. Any expenditure already incurred/to be incurred by Authority in this regards, shall be recovered from the contractor.

10.16 Labour Laws

10.16.1 Labour Laws to be complied by the Contractor

The contractor shall obtain a valid license under the contract labour (Regulation & Abolition) Act 1970 and the contract labour Act (Regulation & Abolition) Central Rules 1971 and amended from time to time, and continue to have a valid license until the completion of the work including defect liability period. The contractor shall also adhere by the provision of the child labour and submit an undertaking as per Schedule-R-Annexure-V (Prohibition and Regulation) Act. 1986 and as amended from time to time.

The contractor shall also comply with provisions of the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979. The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996. Contractor shall follow all the provisions of EC (Environmental clearance) dated 29th August 2017 for the project.

Any failure to fulfil above requirement shall attract the penal provisions of this contract arising out the resultant for non-execution of the work before the commencement of work. No labour below the age of 18 years shall be employed on the work.

10.16.2 Payment of wages:

i) The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him

iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

iv) (a) The Authority/ Authority's Engineer concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfilment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.

(b) Under the provision of Minimum Wages (Central) Rules, 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Authority's Engineer shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Authority's Engineer concerned.

v)The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, The Payment of Bonus Act, 1965, Gratuity Act, 2025; Employer's Insurance Act, EPF and the Contractor's Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.

vi) The contractor shall indemnify and keep indemnified Authority against payments to be made under and for the observance of the laws aforesaid.

(vii) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

10.16.3 Labour Safety Provision

The contractor shall be fully responsible to observe the labour safety provisions:

The contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, lights, watchmen etc. during the progress of work as directed by Authority/ Authority's Engineer. In case of all labour directly or indirectly employed in work for the performance on the contractor's part of this contract, the contractor shall comply with all rules framed by Govt. from time to time for the protection of health and sanitary arrangements for workers.

10.16.4 Observance of Labour Laws

a) The contractor shall be fully responsible for observance of all labour laws applicable including local laws and other laws applicable in this matter and shall indemnify and keep indemnified Authority against effect or non-observance of any such laws. The contractor shall be liable to make payment to all its employees, workers and sub-contractors and make compliance with labour laws. If Authority is held liable as "Principal Authority" to pay contributions etc. under legislation of Government or Court decision in respect of the employees of the contractor, then the contractor would reimburse the amount of such payments, contribution etc. to Authority and/ or same shall be deducted from the payments, Retention Money etc. of the contractor.

b) The contractor shall also ensure the compliance of EPF & MP Act, 1952 by the sub-contractors, if any, engaged by the contractor for the above said work. The contractor shall submit affidavit to indemnify and save harmless Authority from and against all actions, suits, proceedings, losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against Authority by reasons of any act or omission of the Contractor, his agents or employees in connection with complying the provisions of the Employees Provident Fund & Miscellaneous Provisions Act, 1952 as amended from time to time. All sums payable by way of compensation / penalty / damages / interest on the outstanding amounts payable by the Contractor shall be considered as reasonable and be payable by the Contractor to Authority immediately and if the Contractor does not pay the amount immediately the same will be deducted from the Retention Money or earnest money or any other amount available with Authority or any money payable to the Contractor by Authority. Contractor should submit a Compliance Certificate along with the details of employees and recoveries made to the Authority as per the proforma approved by Authority mentioned in every bill as per the provisions of the EPF and ESI Act as amended from time to time.

c) The Contractor shall submit proof of having valid EPF registration certificate. He shall within 7 days of the close of every month, submit to Authority a statement showing the recoveries of contributions in respect of each employee employed by or through him and shall furnish to Authority such information as the Authority is required to furnish under the provisions of para 36 B of the EPF scheme 1952 to the EPF authorities and other information required by EPFO authorities from time to time. He shall also submit a copy of challan every month in token of proof of having deposited the subscription and contribution of workers engaged on the project.

d) The Contractor shall submit proof of having valid ESI registration for Construction site workers located in the ESI implemented areas for every construction site workers before his/her engagement on the Authority site of works as per requirement of ESI act, 1948 amended upto date and rules made thereunder.

e) The contractors are required to ensure that in ESI implemented areas, every construction site worker has been registered online and they are required to ensure that these workers and their families have got their photography and capturing of biometrics at nearest ESIC branch office and got their respective Pehchan cards (from ESIC office) issued for extension of ESI benefits to all the engaged construction site workers.

f) The contractors are required to submit proof of having registered / got issued Pehchan cards in respect of every Construction site workers in ESI implemented areas before engagement at site of works.

g) The contractors are required to comply with all the relevant provisions of ESI act, 1948 as amended from time to time and deposit of his contribution as may be required under the above said act to the ESI authorities at required intervals / time of deposit and submit the proof to Authority.

h) The contractor shall at all times indemnify Authority against all claims, damages or compensation under the provision of ESI Act, 1948 or any modifications thereof or as consequence of any accident or injury to any workman or other persons in or about the

works, whether in the employment of the contractor or not, against all costs, charges and expenses of any suit, action or proceedings arising out of such incident or injury and against all sum or sums which may with the consent of the contractor be paid to compromise or Compound any such claim.

10.17 Minimum Wages Act

The contractor shall comply with all the provisions of the minimum wages Act, 1948, contract labour Act (Regulation & Abolition) 1970, and rules framed there under and other labour laws/local laws affecting contract labour that may be brought into force from time to time.

10.18 Labour Records

10.18.1 The contractor shall submit by the 4th & 19th of every month to the Authority/ Authority's Engineer a true statement, showing in respect of the second half of the preceding month and the first half of the current month, respectively, of the following data:

a) The number of the labour employed by him (category-wise).

b) Their working hours.

c) The wages paid to them.

d) The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused.

e) The number of female workers who have been allowed Maternity Benefits and the amount paid to them.

f) Any other information required by Authority's Engineer

Failing which the contractor shall be liable to pay to Authority, a sum not exceeding Rs.200/- for each default or materially incorrect statement.

10.18.2 In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with all the rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by the Authority and its contractors.

10.18.3 Leave and pay during leave shall be regulated as per the latest provisions/ amendments in the relevant act.

10.18.4 In the event of the contractor(s) committing a default or breach of any of the provisions of the Labour Regulations and Model Rules for the protection of health and sanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and' Rules which is materially incorrect, he/they shall, without prejudice to any other liability, pay to Authority a sum not exceeding Rs.20,000/- for every default, breach or furnishing, making, submitting, filing such materially incorrect statements and in the event of the contractor(s) defaulting continuously in this respect, the penalty may be enhanced to Rs.2,0000/- per day for each day of default subject to a maximum of 5 per cent of the estimated cost of the work put to

tender. The decision of the Authority shall be final and binding on the parties

10.19 Labour Accommodation

Should it appear to the Authority that the contractor is not properly observing and complying with the provisions of the Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R&A) Central Rules 1971, for the protection of health and sanitary arrangements for work-people employed by the contractor (hereinafter referred as "the said Rules") the Authority shall have power to give notice in writing to the contractor requiring that the said Rules be complied with and the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the contractor shall fail within the period specified in the notice to comply with and/observe the said Rules and to provide the amenities to the work-people as aforesaid, the Authority shall have the power to provide the amenities hereinbefore mentioned at the cost of the contractor. The contractor shall erect, make and maintain at his/their own expense and to approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed, according to approved standards, the Authority shall have power to give notice in writing to the contractor requiring that the said accommodation and sanitary arrangements be remodeled and/or reconstructed according to approved standards, and if the contractor shall fail to remodel or reconstruct such accommodation and sanitary arrangements according to approved standards within the period specified in the notice, the Authority shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the contractor.

The contractor(s) shall at his/their own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land outside the battery limit and to be approved by the Authority/ Authority's Engineer.

10.20 Labour Cess

The rates of the contractor shall be inclusive of labour cess Authority shall make a recovery @ 1% on account of labour cess from each Stage payment of the contractor and labour cess so recovered/deducted shall be deposited with the Labour Board of the concerned state.

Every contractor, sub-contractor, affiliates, their legal assigns or heirs as the case may, shall be responsible for registration of every Building worker who has completed eighteen years of age but has not completed sixty years of age and who has been engaged in any Building or Other Construction Work for not less than Ninety Days during the preceding twelve months; with the Board / Funds as applicable under various sections of "The Buildings And Other Construction Workers (Regulation Of Employment And Conditions Of Service) Act, 1996 And The Building And Other Construction Workers' Welfare Cess Act, 1996.

The contractor shall also be responsible for maintaining register of beneficiaries i.e. the workers in such form as may be prescribed by the competent authority & the same shall be kept open at all reasonable times for inspection of relevant authority and officials of Authority.

The contractor shall be further responsible for maintaining such register & records; giving such particulars of Building workers employed by him, the work performed by them, the

number of hours of work which shall constitute a normal working day, the wages paid to them, the receipts given by them and, such other particulars in such form as may be prescribed by the Authority.

In the event of contractor failing to comply with the above clause(s) in part or in full, Authority, without prejudice to any other rights or remedy available under law or any other clause(s) of contract, shall be at absolute liberty to forfeit any sum or sums that are payable or could become payable on account of execution of contract work and decision of Authority / Authority's Engineer shall be final & binding in this regard on the contractor.

10.21 Recovery of Compensation Paid To Workmen

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Workmen's Compensation Act, 1923, Authority is obliged to pay compensation to a workman employed by the contractor, in execution of the works, Authority will recover from the contractor, the amount of the compensation so paid; and, without prejudice to the rights of the Authority under sub-section (2) of Section 12, of the said Act, Authority shall be at liberty to recover such amount or any part thereof by deducting it from the Retention Money or from any sum due to the contractor whether under this contract or otherwise. Authority shall not be bound to contest any claim made against it under sub-section (1) of Section 12, of the said Act, except on the written request of the contractor and upon his giving to Authority full security for all costs for which Authority might become liable in consequence of contesting such claim.

10.22 Ensuring Payment and Amenities to Workers If Contractor Fails

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971, Authority is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers, Authority will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to any other right or remedy available under this contract, Authority shall be at liberty to recover such amount or any part thereof by deducting it from the Retention Money or from any sum due by Authority to the contractor whether under this contract or otherwise Authority shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the Authority full security for all costs for which Authority might become liable in contesting such claim.

ARTICLE-11

11. Quality Assurance, Monitoring and Supervision

11.1 Quality of Materials and workmanship

The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

11.2 Quality control system

11.2.1 The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the **"Quality Assurance Plan"** or **"QAP").**

11.2.2 The Contractor shall, within 4(four) weeks of the letter of Award, submit to the Authority's Engineer its Quality Assurance Plan which shall include the following:

(a) organisation, duties and responsibilities, procedures, inspections and documentation;

(b) quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the Specifications and Standards and Good Industry Practice; and

(c) internal quality audit system.

The Authority's Engineer shall convey its comments to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 11.2.

11.2.3 The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.

11.2.4 The cost of testing of Construction, Materials and workmanship under this Article 11 shall be borne by the Contractor.

11.3 Methodology

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority's Engineer for review the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority's Engineer shall complete the review and convey its comments to the Contractor within a period of 10 (ten) days from the

date of receipt of the proposed methodology from the Contractor.

11.4 Inspection and technical audit by the Authority

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Project Works and issue appropriate directions to the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

11.5 External technical audit

At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor for taking remedial action in accordance with this Agreement. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause 11.5, the external technical audit shall not affect any obligations of the Contractor or the Authority's Engineer under this Agreement.

11.6 Inspection of construction records

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

11.7 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority and the Authority's Engineer a monthly report on progress of the Works and shall promptly give such other relevant information as may be required by the Authority's Engineer.

11.8 Inspection

11.8.1 The Authority's Engineer and its authorized representative shall at all reasonable times:

(a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and

(b) during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.

(c) Third party inspections shall be carried out for Indian & imported materials. All expenses towards the Inspections for contractor/ Sub contractor including travel (India or overseas), boarding, visa, permit, insurances, accommodation and fooding shall be borne by the Contractor. However, the expenses towards the travel, accommodation, fooding for the Authority/ Authority's representative shall not be borne by the contractor. For testing of imported equipments, the contractor shall hire third party inspection agency of International repute such as TUV, SGS, Lloyd or equivalent. The cost of hiring such party shall be borne by the Contractor.

No material shall be dispatched from the works without written consent of the Authority/ Authority's Engineer.

11.8.2 The Contractor shall give the Authority's Engineer and its authorized agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

11.8.3 Deleted.

11.8.4 The issue of this inspection/rejection report does not acquiesce or condone the late delivery and does not intend or amount to an extension of the delivery period or keeping the contract alive. The goods are being passed / rejected without prejudice to the rights of the Government of India under the terms and conditions of the contract.

11.9 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Authority's Engineer for pre-construction review:

(a) manufacturer's test reports and standard samples of manufactured Materials; and

(b) samples of such other Materials as the Authority's Engineer may require.

11.9.1 Cost of Samples and Testing

(a) Samples for testing, as per approved Quality Assurance Plan, shall be provided by contractor at his cost. The Engineer may require additional samples for testing at Authority's cost.

(b) Cost of assistance, labour, electricity, fuel, stores, apparatus and instruments, consumables and tests performed at site shall be borne by contractor.

(c) The Contractor shall pay for all tests whether at site, outside laboratories, (preferably National Test house**)** factories etc. in India or in any other country. Nothing shall be payable on this account to the Contractor. All expenses towards the tests for contractor/ Sub contractor including travel (India or overseas), boarding, visa, permit, insurances, accommodation and fooding shall be borne by the Contractor.

11.10 Tests

11.10. l For determining that the Works conform to the Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority's Engineer shall comprise at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

11.10.2 In the event that results of any tests conducted under this Clause 11.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority's Engineer in this behalf. The Authority's Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial

measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

11.11 Examination of work before covering up

In respect of the work which the Authority's Engineer is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Authority's Engineer whenever any such work is ready and before it is covered up. The Authority's Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority's Engineer does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority's Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority's Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority's Engineer, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

11.12 Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority's Engineer shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Authority's Engineer requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor; and may be deducted by the Authority from any monies due to be paid to the Contractor.

Such examination of work by the Authority's Engineer shall not relieve or absolve the contractor of its obligation & liabilities under this Agreement in any manner whatsoever.

11.13 Remedial work

11.13.1 Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to:

(a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;

(b) remove and re-execute any work which is not in accordance with the provisions of this

Agreement and the Specification and Standards; and

(c) execute any work which is urgently required for the safety of the Project Works, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

11.13.2 If the Contractor fails to comply with the instructions issued by the Authority's Engineer under Clause 11.13.1, within the time specified in the Authority's Engineer's notice or as mutually agreed, the Authority's Engineer may advise the Authority to have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.

11.14 Delays during construction

Without prejudice to the provisions of Clause 10.3.2 in the event the Contractor does not achieve any of the Project Milestones or the Authority's Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project Works is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority's Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Project Completion Date.

11.15 Quality control records and Documents

The Contractor shall hand over to the Authority's Engineer a copy of all its quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.2.

11.16 Video recording

During the Construction Period, the Contractor shall provide to the Authority for every calendar quarter, a video recording, which will be compiled into a 3 (three)-hour compact disc or digital video disc, as the case may be, covering the status and progress of Works in that quarter. The video recording shall be provided to the Authority no later than 15 (fifteen) days after the close of each quarter after the date of LOA.

In addition to above clause additional requirements as per Schedule-S, ANNEXURE:II (R) should be adhered to.

11.17 Suspension of unsafe Construction Works

11.17.1 Upon recommendation of the Authority's Engineer to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority's Engineer, such work threatens the safety of the Users and pedestrians.

11.17.2 The Contractor shall, pursuant to the notice under Clause 11.17.1, suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the Users and pedestrians. The Contractor may by notice require the Authority's Engineer to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked. Upon receiving the recommendations of the Authority's Engineer, the Authority shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure set forth in this Clause 11.17 shall be repeated until the suspension hereunder is revoked.

11.17.3 Subject to the provisions of Clause 21.6, all reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension (the **"Preservation** Costs"), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.

11.17.4 If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

11.18 Aerial Photography- Deleted

11.19 Certificate of Verification of Materials and Good Condition

11.19.1 The Contractor shall, before supply of material covered within the scope of supply, at his own risks, costs and initiative, undertake or cause to be undertaken all tests, analysis and inspections as shall be required to be undertaken with regard to the materials under the specifications and any codes, practices, orders and instructions with respect thereto and shall cause the results thereof to be recorded, reported or certified, as the case may be, and shall not offer for delivery or deliver any material(s) which has/have not passed such tests/analysis or inspection and which are not accompanied by the tests results, reports and/or certificates in this behalf provided in the applicable specifications, code(s) and/or practices.

11.19.2 On arrival of the material at site, the Contractor shall give written notice thereof to the Authority's Engineer and Inspection Agency notified by the Authority in this behalf, to inspect the materials, and shall keep in readiness for inspection, the materials and the relevant tests results, reports and certificates hereto.

Notwithstanding any other provisions in the contract documents for analysis or tests of materials and in addition thereto, the Contractor shall, if so required by the Authority's Engineer or Inspection Agency in writing at his own risks and costs, analyse, test, prove and weigh all materials (including materials incorporated in the works) required to be analysed, tested, proved and/or weighed by the Authority/ Authority's Engineer or Inspection Agency in this behalf and shall have such analysis or tests conducted by the agency(ies), or authority(ies) if any specified by the Authority's Engineer or Inspection Agency. The Contractor shall provide all equipment, labour, materials and other things whatsoever required for testing, preparation of the samples, measurement of work and/or proof of weighment of the materials as directed by the Authority's Engineer or Inspection Agency.

11.19.3 If on Inspection or proof, analysis or tests as aforesaid the Authority's Engineer or Inspection

Agency nominated by the Authority in this behalf is prima facie satisfied that the material received is in conformity with the material requirements of the Bill of Materials and description given in the shipping documents and in the Contractor's invoices in this behalf and that the test reports/results/certificates given in respect thereof are prima facie in conformity with the relevant result/reports/certificates required in respect thereof in terms of the specifications and/or relevant codes and practices, and that the material appears to be prima facie in good order and condition, the Authority's Engineer shall issue to Contractor, a Certificate of Verification and Good Condition in respect of such material, and this shall constitute the Certificate of Verification and Good Condition elsewhere envisaged in the contract documents. Such certificate is only intended to satisfy the Authority that prima facie the material supplied by the Contractor is in order and shall not anywise absolve the Contractor of his/its full responsibility under the contract in relation thereto, including in relation to specification fulfillment and/or performance or other guarantees.

11.19.4 Notwithstanding that any area(s) or source(s) has/have been suggested by the Authority to the Contractor from which any material for incorporation in the works can be obtained, the Contractor shall independently satisfy himself of the suitability, accessibility and sufficiency of the source(s) of supply suggested by the Authority and suitability of the material available from such source(s) with the intent that any suggestion as aforesaid shall not anywise relieve the Contractor of his full liability in respect of the suitability and quality of the material(s) obtained from said source(s) and the Contractor shall obtain material(s) therefrom and incorporate the same within the permanent works entirely at his own risks and costs in all respects, with the intent that any such suggestion by the Owner shall only be by way of assistance to the Contractor and shall not entail any legal responsibility or liability upon the Authority.

11.20 Quality Control Checklist

List of items for which formats shall be prepared by the Contractor & submitted for approval of Authority-

1. Excavation Checklist
2. Formwork Checklist
3. Concrete checklist
4. Piling works checklist
5. Structural Steel (Fabrication, Erection, Painting etc.) Checklist
6. Finishing (Plastering, Painting, False Ceiling, flooring etc.) checklist
7. Waterproofing checklist
8. Road works (Excavation, WMM, Bituminous work etc.)
9. Façade works Checklist
10. Lighting (external, Internal, Fixtures etc.) checklist
11. HVAC works
12. Plumbing (Sanitary fixtures, pumps etc.)Works
13. Fire Fighting Works
14. Cable laying, Piping etc.
15. STP, WTP
16. UG tanks

but not limited to these items in order to complete the scope of the project.

ARTICLE-12

12. Completion Certificate

12.1 Tests on completion

12.1.1 At least 30 (thirty) days prior to the likely completion of the Project Works, or a Section or any Part thereof, the Contractor shall notify the Authority's Engineer of its intent to subject the Project Works or a Section/ or any part thereof, to Tests. The date and time of each of the Tests shall be determined by the Authority's Engineer in consultation with the Contractor, and notified to the Authority who may designate its representative to witness the Tests. The Contractor shall either conduct the Tests as directed by the Authority's Engineer or provide such assistance as the Authority's Engineer may reasonably require for conducting the Tests. In the event of the Contractor and the Authority's Engineer failing to mutually agree on the dates for conducting the Tests, the Contractor shall fix the dates by giving not less than 10 (ten) days' notice to the Authority's Engineer.

12.1.2 All Tests shall be conducted in accordance with Schedule-K. The Authority's Engineer shall either conduct or observe, monitor and review the Tests conducted by the Contractor, as the case may be, and review the results of the Tests to determine compliance of the Project Works or a Section or any part thereof, with Specifications and Standards and if it is reasonably anticipated or determined by the Authority's Engineer during the course of any Test that the performance of the Project Works or Section or any part thereof, does not meet the Specifications and Standards, it shall have the right to suspend or delay such Test and require the Contractor to remedy and rectify the Defect or deficiencies. Upon completion of each Test, the Authority's Engineer shall provide to the Contractor and the Authority copies of all Test data including detailed Test results. For the avoidance of doubt, it is expressly agreed that the Authority's Engineer may require the Contractor to carry out or cause to be carried out additional Tests, in accordance with Good Industry Practice, for determining the compliance of the Project Works or Section or any part thereof with the Specifications and Standards.

12.1.3 Integrated Testing and System Commissioning -

i) Mechanical Completion

Contractor shall notify Authority in writing that the site is mechanically completed and all the major pre-commissioning check list points are liquidated and unit is ready for start-up and commissioning & trial runs.

When the construction of the site has been completed including completion of all punch list items as provided by Authority/ or its representative and regulatory bodies like Factory Inspector etc. to make the system ready for pre-Commissioning, other than in minor respects which do not prevent commissioning, all civil works is completed, all equipment and machinery are installed and aligned, all piping and instrumentation work is completed including insulation & painting, all electrical work is completed, all hydrostatic/ pneumatic testing is done, speed and direction of rotation of all prime movers is checked, relays are set and all scales, meters, measuring devices and recorders are calibrated, all instrumentation jobs are completed in all respect all the loops and interlocks are tested and set as per requirements, The date of completion of pre-commissioning as aforesaid shall be deemed to be the date of Mechanical Completion of the site for the purpose of this contract.

ii) Performance Guarantee

The Contractor shall be responsible for performance guarantees in terms of product quality and rated capacity including turn down capacity of unit and/ or facility and/ or systems so far

as relate to or depend upon or arise out of any study performed and/ or done and/ or designs, drawings and/ or specifications.

iii) Start-Up and Commissioning

After completion of erection and prior to startup of the Unit/ Facility, Authority will inspect the Unit/ Facility as to their being erected in accordance with the requirements and as to their readiness for start-up in all respects. All modifications required for safe and smooth startup of the plants and facilities will be incorporated by Contractor in their detail engineering and will be implemented before commissioning. Contractor shall also arrange services of Licensor for necessary assistance during inspection & start-up at site.

In course of such an inspection, Authority/ Authority's Engineer shall indicate in writing those adjustments, alternations and/ or repair relating to the Unit/ Facility/ equipment as it deems necessary for start-up, commissioning and performance test run and such adjustments, alterations, and/ or repairs shall be immediately arranged to be carried out by Contractor as part of start-up operation. The time required for these adjustments, alterations and/ or repairs shall be mutually agreed between Contractor and Authority but it would not be considered for any time and cost extension whatsoever.

Contractor shall submit list of systems and prepare list of pre-commissioning activities to be performed for all applicable disciplines against each system, including flushing schemes for piping sub-systems. These documents shall be prepared, discussed and submitted to Authority/ Authority's Engineer at least 90 days before start up pre-commissioning activities for all the facilities.

Requisite documentation formats and procedures for carrying out pre-commissioning start up and commissioning activities will be prepared by the Contractor and firmed up in consultation with Authority/ Authority's Engineer in line with pre-commissioning schedule requirements.

Contractor will arrange their own operating manpower as required for commissioning of facilities such as:

i.) Commissioning Co-coordinator
ii.) Shift In-charge
iii.) Control Room Co-coordinator iv.)
Field Supervisors
v.) Trained Operators
vi.) Technicians for Equipment & Instrument troubleshooting

Contractor shall arrange the vendor representatives required for commissioning at his own cost.

12.2 Provisional Certificate

12.2.1 Subject to the provisions of Clause 12.2.5, upon completion of all Works forming part of the Project Works, save and except the Works for which Time Extension has been granted under Clause 10.5, the Authority's Engineer shall, at the request of the Contractor, issue a provisional certificate of completion substantially in the form set forth in Schedule-L (the **"Provisional Certificate")** if the Tests for and in respect of the completed Works are successful. The Provisional Certificate shall have appended thereto a list of outstanding items of work (the **"Punch List")** that need to be completed in accordance with the provisions of this Agreement. The Contractor undertakes to complete the minor outstanding items of works in respect of those Sections of the Project Works for which the Provisional Certificate has been issued, within a period of 30 (thirty) days of the date of Provisional Certificate, and those parts of the Works in respect of which Time Extension has been granted, within the extended period thereof. For the avoidance of doubt, the Parties agree that the Punch List shall include all Works for which Time Extension has been granted and shall also include any minor outstanding items of work forming part of the completed Sections if such works do not materially affect the use of the completed Sections for their intended purpose. The Parties further agree

that Provisional Certificate shall not be issued if the completed Works cannot be safely and reliably placed in service of the Users thereof.

12.2.2 Upon issue of Provisional Certificate, the provisions of Articles 14 and 17 shall apply to the completed parts of the Project Works and the property and ownership of all such completed Works shall vest in the Authority.

12.2.3 If the Authority's Engineer determines that the Project Works or any completed part thereof does not conform to the provisions of this Agreement and cannot be safely and reliably placed in operation, it shall forthwith make a report in this behalf and send copies thereof to the Authority and the Contractor and withhold issuance of the Provisional Certificate until the Defects or deficiencies are rectified by the Contractor and Tests are successful in accordance with this Article 12.

12.2.4 Notwithstanding anything to the contrary contained in Clause 12.2.3, the Authority may, at any time after receiving a report from the Authority's Engineer under that Clause, direct the Authority's Engineer to issue a Provisional Certificate under Clause 12.2.1 and such direction shall be complied forthwith.

12.2.5 No Provisional Certificate shall be issued under the provisions of this Clause 12.2 until the Contractor has submitted valid claims for payment of at least 80% (eighty per cent) of the amount arrived at after reducing the lump sum price specified in Clause 19.1.1 by the amount attributable to works which have been withdrawn under the provisions of Clause 8.3.3. For the avoidance of doubt and by way of illustration, the Parties agree that the works withdrawn under Clause 8.3.3 have a value of 10% of the contract price, a Provisional Certificate shall not be issued until valid claims for payment of an amount of 80% of the contract price have been submitted by the Contractor in accordance with the provisions of this Agreement. It is further agreed that all price adjustments made in pursuance of Clause 19.10 shall not be reckoned for computation of the claims for payments referred to in this Clause 12.2.5.

12.2.6 **Contract Closure Procedures**

a) Contractor after completing the works in all respects as specified elsewhere in the BID documents required to complete the following activities in Clause 12.2.7 but not limited to the same for closing of the contract.
b) Payment against Contractor's Final Bill shall be released upon the satisfactory completion of activities pertaining to closing of the contract.

12.2.7 **Requirement for Contract Closing**

The EPC Contractor shall be required to submit the following documents but not limited to the same on completion of work along with the final bill:

a) Certificate for successful completion of Commissioning and Performance test.
b) Certificate of submission of Approved or certified As-built documents / drawings.
c) Reconciliation of Free Issue Material, if any.
d) Reconciliation of materials procured by the Contractor.
e) Site clearing as per Contract.
f) Handing over of spares and surplus materials after reconciliation, codification & acceptance for two years of DLP and as per the equipment maintenance schedule.
g) Supply and acceptance of special tools and tackles
h) Submission of Operating/Maintenance Manuals.
i) List of all equipments, items to be handed over to the Authority from O&M perspectives.

j) Submission of any balance documents to the Authority for claiming Tax Benefits, as applicable.
k) Requisite approvals from Statutory Authorities and Government bodies.
l) No dues certificate from Statutory Authorities and Government bodies.
m) Settlement of all extra claims with Authority, if any.
n) No claims certificate
o) Contractor Demobilization checklist as per Attachment-I.
p) Completion of Contract closeout checklist.
q) Detailed contract close out report.
r) Any other documents to be submitted as specified elsewhere in the contract.
s) No liability certificate: Self–certification from the contractor that no payment is balance to their subcontractors and suppliers on account of service rendered /materials supplied by them or provide list of balance payments due indicating reason for non-payment/ time frame for payment.

12.2.8 Checklist for Contract Closeout.

The broad check list is enclosed in the Schedule-L**.** However, Contractor to prepare his own exhaustive checklist including detailed procedure for contract closeout and get it reviewed by Authority before implementation.

12.3 Completion of remaining Works

All items in the Punch List shall be completed by the Contractor in accordance with the provisions of this Agreement. For any delay in their completion other than for the reasons solely attributable to the Authority or due to Force Majeure, the Authority shall be entitled to recover Damages from the Contractor in accordance with the provisions of Clause 10.3.2 of this Agreement.

12.4 Completion Certificate

12.4.1 Upon completion of all Works, including the items specified in the Punch List, and the Authority's Engineer determining the Tests to be successful, it shall forthwith issue to the Contractor and the Authority a certificate substantially in the form set forth in Schedule-L (the **"Completion Certificate").**

12.4.2 Upon receiving the Completion Certificate, the Contractor shall remove its equipment, materials, debris and temporary works from the Site within a period of 30 (thirty) days thereof, failing which the Authority may remove or cause to be removed, such equipment, materials, debris and temporary works and recover from the Contractor an amount equal to 120% (one hundred and twenty per cent) of the actual cost of removal incurred by the Authority.

12.4.3 Without prejudice to the obligations of the Contractor specified in Articles 14 and 17, the property and ownership of all the completed Works forming part of the Project Works shall vest in the Authority.

12.4.4 The Project shall be deemed taken over on successful commissioning of the same with supply of all documents, spares, surplus material, as built drawings etc. as per contractual provisions by the Contractor and acceptance of the same by the Authority.

12.5 Rescheduling of Tests

If the Authority's Engineer certifies to the Authority and the Contractor that it is unable to issue the Completion Certificate or Provisional Certificate, as the case may be, because of events or circumstances on account of which the Tests could not be held or had to be suspended, the Contractor shall be entitled to re-schedule the Tests and hold the same as soon as reasonably practicable.

12.6 Site Clearance

a) The contractor shall ensure that the working site is kept clean and free of obstructions with regular site-keeping/ housekeeping schedule approved by Authority's Engineer or as directed by Authority for easy access to job site and also from safety point of view. Before handing over the work to the Authority the contractor shall remove all temporary structures like the site offices, cement go-down, stores etc., scaffolding rubbish, debris etc. left over materials tools and plants, equipments etc., clean the site to the entire satisfaction of the Authority/ Authority's Engineer. If this is not done the same will be got done by Authority at his risk and cost.

b) The contractor shall clean all floors, remove cement/ lime/ paint drops and deposits, clean joinery, glass panes etc., touching all painter's works and carry out all other necessary items of works to make the premises clean and tidy before handing over the building, and the rates quoted by the contractor shall be deemed to have included the same.

c) On completion of Work the Contractor shall also clear away the labour camps, hutments and other related installations and restore the land which is outside the site battery limit, to its original condition to the satisfaction of the Authority within 45 (forty five) days of the physical completion of Work. The cost on account of delay in return of land and reinstatement of original condition within the stipulated time as determined by Authority's Engineer will be recovered from the Contractor's dues.

d) No final payment in settlement of the accounts for Works shall be made or held to be due to the Contractor, till, in addition to any other condition necessary for such final payment, site clearance and clearances of labour camps etc. shall have been effected by him. Such clearance may be made by the Engineer through any other agency at the expense of the Contractor in the event of the Contractor's failure to comply with this provision within 7 days after receiving notice to that effect from the Engineer. All expenses on such removal / clearance shall be debitable to the Contractor as loans due from the Contractor to the Authority, and the Authority shall be competent to recover the same from Contractor's on-account or final bills, or from Performance Security amount or from any other amount payable to the Contractor in any other Contract.

12.7 Set-Off of Contractor's Liabilities

Authority shall have the right to deduct or set off the expenses incurred or likely to be incurred by it in rectifying the defects, works delayed by the Contractor, works damaged and not rectified by the Contractor, extra/ additional / substituted items left delayed even after approval and/or any claim under this agreement against the Contractor from any or against any amount payable to the contractor under this agreement including Retention Money and proceeds of performance guarantee.

12.8 Possession Prior To Completion

a) Authority shall have the right to take possession of or use any completed or partially completed work or part of the work. Such possession or use shall not be deemed to be any acceptance of any work not completed in accordance with the contract agreement. If such prior possession or use by Authority delays the progress of work an equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly. The decision of Authority in such case shall be final binding and conclusive.

b) When the whole of the works or the items or the groups of items of work have been completed the contractor will give a notice to that effect to the Engineer in writing at least 15 days in Advance. The Engineer shall within 7 days of the date of receipt of such notice inspect the works and give instructions in writing to the contractor specifying the balance items of work which are required to be done by the contractor and shall also notify the

contractor of any defect in the works affecting completion.

c) The contractor shall during the course of execution prepare and keep updated a complete set of 'as built' drawings to show each and every change from the contract drawings, changes recorded shall be countersigned by the Authority/ Authority's Engineer and the contractor. Four copies of 'as built' drawings shall be supplied to the Authority by the contractor within 30 days of the completion. All costs incurred in this respect shall be borne by the contractor.

ARTICLE -13

13. Change of Scope

13.1 Change of Scope

13.1.1 The Authority may, notwithstanding anything to the contrary contained in this Agreement, require the Contractor to make modifications/alterations to the Works **("Change of Scope")** before the issue of the Completion Certificate either by giving an instruction or by requesting the Contractor to submit a proposal for Change of Scope involving additional cost or reduction in cost. Any such Change of Scope shall be made and valued in accordance with the provisions of this Article 13.

13.1.2 Change of Scope shall mean:

(a) change in specifications of any item of Works given in the tender ;

(b) omission of any work from the Scope of the Project except under Clause 8.3.3; provided that, subject to Clause 13.5, the Authority shall not omit any work under this Clause in order to get it executed by any other authority; and / or

(c) Any additional work, Plant, Materials or services which are not included in the Scope of the Project, including any associated Tests on completion of construction.

13.1.3 If the Contractor determines at any time that a Change of Scope will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Authority of executing, maintaining or operating the Project Works, (iii) improve the efficiency or value to the Authority of the completed Project Works, or (iv) otherwise be of benefit to the Authority, it shall prepare a proposal with relevant details at its own cost. The Contractor shall submit such proposal, supported with the relevant details and the amount of reduction in the Contract Price to the Authority to consider such Change of Scope. The Authority shall, within 15 (fifteen) days of receipt of such proposal, either accept such Change of Scope with modifications, if any, and initiate proceedings therefore in accordance with this Article 13 or reject the proposal and inform the Contractor of its decision. For the avoidance of doubt, the Parties agree that the Contractor shall not undertake any Change of Scope without the express consent of the Authority, save and except any Works necessary for meeting any Emergency.

13.2 Procedure for Change of Scope

13.2.1 In the event of the Authority determining that a Change of Scope is necessary, it may direct the Authority's Engineer to issue to the Contractor a notice specifying in reasonable detail the works and services contemplated thereunder (the **"Change of Scope Notice")**

13.2.2 Upon receipt of a Change of Scope Notice, the Contractor shall, with due diligence, provide to the Authority and the Authority's Engineer such information as is necessary, together with preliminary documentation in support of:

(a) the impact, if any, which the Change of Scope is likely to have on the Project Completion Schedule if the works or services are required to be carried out during the Construction Period; and

(b) the options for implementing the proposed Change of Scope and the effect, if any, each such option would have on the costs and time thereof, including the following details:

(i) break down of the quantities, unit rates and cost for different items of work;
(i) Proposed design for the Change of Scope; and
(iii) proposed modifications, if any, to the Project Completion Schedule of the Project Works.

For the avoidance of doubt, the Parties expressly agree that, subject to the provisions of Clause 13.4.2, the Contract Price shall be increased or decreased, as the case may be, on account of Change of Scope.

13.2.3 The Contractor's quotation of costs for the Change of Scope shall be determined on the following principles:-

(a) the latest available edition of Delhi Schedule of Rates (DSR) Published by CPWD will be adopted for the valuation of any works which are not already covered by the items included in Price Schedules. Payments for the Variations Items shall be made in INR only.

(b) the market rates substantiated with well negotiated quotations, followed by work order and/ or Tax Invoice shall be considered only when the executed variation items are not covered under Price Schedule or the above referred schedule of rates. A fixed percentage of 15% shall be added to cover the Contractor's Overhead and Profit for the rates evaluated under this category (b). These rates shall be considered only after approval of Authority / Authority's Engineer.

(c) In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para:

i) If the market rate for the substituted item so determined is more than the market rate of agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

ii) If the market rate for the substituted item so determined is less than the market rate of the agreement (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)

(d) Market Rates to be determined as per various sub-clauses in Article 13 and shall be on the basis of prevailing rates of Material (unless mentioned otherwise), Relevant Labour authority rate for Labour, market rates of T&P etc. plus 15% towards Contractors Profits and Overheads.

The following factors may be considered in the justification of rates on which Contractor s overhead & profit shall not be applicable**:**

i) Buildings and Other Construction Worker Cess as applicable in the state of work place

ii) EPF (Authority Contribution) component, as per EPF act on the portion of labour s wages

iii) GST

13.2.4 Upon reaching an agreement, the Authority shall issue an order (the **"Change of Scope Order")** requiring the Contractor to proceed with the performance thereof. In the event that the Parties are unable to agree, the Authority may:

(a) issue a Change of Scope Order requiring the Contractor to proceed with the performance thereof at the rates and conditions approved by the Authority till the matter is resolved

in accordance with Article 26; or

(b) Proceed in accordance with Clause 13.5.

(c) The contractor shall submit the Change Management request as per Appendix attached.

13.2.5 The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the works undertaken by the Contractor under this Article 13.

13.3 Payment for Change of Scope

Payment for Change of Scope shall be made in accordance with the payment schedule specified in the Change of Scope Order.

13.4 Restrictions on Change of Scope

13.4.1 No Change of Scope shall be executed unless the Authority has issued the Change of Scope Order save and except any Works necessary for meeting any Emergency.

13.4.2 Unless the Parties mutually agree to the contrary, the total value of all Change of Scope Orders shall not exceed 10 (ten) per cent of the Contract Price.

13.4.3 Notwithstanding anything to the contrary in this Article 13, no change made necessary because of any default of the Contractor in the performance of its obligations under this Agreement shall be deemed to be Change of Scope, and shall not result in any adjustment of the Contract Price or the Project Completion Schedule.

13.5 Power of the Authority to undertake works

13.5.1 In the event the Parties are unable to agree to the proposed Change of Scope Orders in accordance with Clause 13.2, the Authority may, after giving notice to the Contractor and considering its reply thereto, award such works or services to any person on the basis of open competitive bidding from amongst bidders who are pre-qualified for undertaking the additional work; provided that the Contractor shall have the option of matching the first ranked bid in terms of the selection criteria, subject to payment of 2% (two per cent) of the bid amount to the Authority, and thereupon securing the award of such works or services. For the avoidance of doubt, it is agreed that the Contractor shall be entitled to exercise such option only if it has participated in the bidding process and its bid does not exceed the first ranked bid by more than 10% (ten percent) thereof. It is also agreed that the Contractor shall provide assistance and cooperation to the person who undertakes the works or services hereunder, but shall not be responsible for rectification of any Defects and/ or maintenance of works carried out by other agencies.

13.5.2 The works undertaken in accordance with this Clause 13.5 shall conform to the Specifications and Standards and shall be carried out in a manner that minimizes the disruption in operation of the Project Works. The provisions of this Agreement, insofar as they relate to Works and Tests, shall apply *mutatis mutandis* to the works carried out under this Clause 13.5.

13.6 Escalation

No claim on account of any escalation on whatsoever ground shall be entertained at any stage of works. All rates quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation shall be applicable on this contract unless concurred by Authority / Authority's Engineer in the very first place and

thereafter approved on case to case basis with complete documentation as desired by Engineer / Authority's Engineer.

13.7 Material(s) supplied by the Authority

Authority has the right to procure any of the materials if he desires to supply. A suitable adjustment in the Contract Price shall be decided by the Authority.

Annexure I - Change Request (CR)

Doc No: IICC-GEN- CIV-ECR-0001

Scope	Specs	Cost	Time		Function	Design
Project Title:				**CR No.:**		
Originator:				**Initiation Date:**		
Authority:				**Authority Contact:**		

Description:

Justification:

Time Implication
Cost Implication

Spec Section: **A.** Civil/Site **B**. Structural **C**. Mechanical **D**. Piping **E**. Electrical **F**. Architectural **G**. Instrumentation

Authority's Engineer (PMC) Recommendation:

- Approved
- Conditional Approval
- Rejected :Take no further action

Reason for Rejection:

Authority's Engineer Dy. PD's Sign:

Authority's Engineer PD's Sign:

Date:

Authority Approval:

Authority's Observations / Comments:	
Authority's Signature:	Date :

Distribution: Authority, Authority's Engineer, ARCHITECT, etc.

Annexure II - Change Authorization (CA)

Doc No: IICC-GEN- CIV-PCA-0001

Project Title:	**CR/PCA No.:**
Originator:	**Initiation Date:**
Authority:	**Authority Contact**

Description:

Justification:

Reference Documents:

SPECIFICATION SECTION: A. Civil/Site B. Structural C. Mechanical D. Piping E. Electrical F. Architectural G. Instrumentation

CR Amount Add Deduct } ₹ _ Days _____

PCA Add Deduct } ₹ _ Days _____

Method for Determining Change in the Contract Price

	Price Lump Sum	Unit Price	Time & Materia
The Original Contract Price:			
Net Change Authorizations previously approved:			
Contract Price previous to this CA:			
Amount of this CA:			
Proposed Revised Contract Price:			
Revised date of Substantial Completion:			

Signature of EPC Contractor **Date**
Recommendation:

The cost and time impacts together with supporting documentation have been reviewed and are hereby recommended for

Approval	**Rejection**	**the amounts indicated above**
Reasons for Approval: **A**. Authority Request **B**. Design Revision / Bulletin **C**. Scope Change **D**. Differing Site Condition **E**. Code Change **F**. RFI Response **G**. Shop Drawing **H.** Third Party **I.** Schedule Acceleration **J.** Schedule Impact **K**. Market Condition		
Reasons for Rejection:		

Authority Engineer Team: **Dy. Project Director** **Project Director** **Date**

Authority's Approval

Authority's Observations / Comments :	
Authority's Signature	**Date :**

Distribution:

1. Authority / Authority's Engineer.
2. EPC Contractor with covering letter with approved authorization to proceed.

Annexure III - Change Authorization Summary (CAS)

Doc No: IICC-GEN-CIV-CAS-0001

Change Authorization Cost Breakdown

Project Title:		**CR/CA No.:**	
Originator:		**Initiation Date:**	
Authority:		**Authority Contact:**	

Sr. No.	Contractor/ Sub-Contractors Change Description	Direct Cost			Contractor OH&P	Other	Total	Time Extension
		Labor	Material	Equipment				
	Contractor Work Total :							
	Bond :							
	Contractor OH&P :							
	Total :							

ARTICLE-14

14. Maintenance - Deleted

ARTICLE-15

15. Supervision and Monitoring During Maintenance –Deleted

ARTICLE-16

16. Traffic Regulation

16.1 Traffic regulation by the Contractor

16.1.1 The Contractor shall take all the required measures and make arrangements for the safety of Users during the construction and maintenance of the Project internal & external adjoining Roads under use during construction or a Section thereof in accordance with the Specifications. It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic/ users passing through during construction or maintenance at its own cost

16.1.2 All works shall be carried out in a manner creating least interference to traffic passing through the Project area or a Section thereof. In sections where maintenance works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Authority's Engineer for any proposed arrangement for traffic regulation/diversion on the adjoining roads during Construction and Maintenance, which approval shall not be unreasonably withheld.

ARTICLE-17

17. Defects Liability

17.1 Defects Liability Period

17.1.1 The Contractor shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project Works or any Section thereof, till the expiry of Defects Liability Period of 10 (Ten) years for Structural, Steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years. commencing from the date of Provisional Certificate (the **"Defects Liability Period").** Provided further that in the event no Provisional Certificate is issued, the Defects Liability Period shall commence from the date of the Completion Certificate.

17.1.2 Extension of Defect Liabilities - Deleted.

17.2 Remedying Defects

The Contractor shall repair or rectify all Defects and deficiencies observed by the Authority during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by the Authority in this behalf, or within such reasonable period as may be determined by the Authority at the request of the Contractor, in accordance with Good Industry Practice.

17.3 Cost of remedying Defects

For the avoidance of doubt, any repair or rectification undertaken in accordance with the provisions of Clause 17.2, including any additional testing, shall be carried out by the Contractor at its own risk and cost, to the extent that such rectification or repair is attributable to:

(a) The design of the Project;
(b) Plant, Materials or workmanship not being in accordance with this Agreement and the Specifications and Standards;
(c) Improper maintenance during construction of the Project Works by the Contractor; and/ or
(d) Failure by the Contractor to comply with any other obligation under this Agreement.

17.4 Contractor's failure to rectify Defects

In the event that the Contractor fails to repair or rectify such Defect or deficiency within the period specified in Clause 17.2, the Authority shall be entitled to get the same repaired, rectified or remedied at the Contractor's cost so as to make the Project Works conform to the Specifications and Standards and the provisions of this Agreement. All costs consequent thereon shall, after due consultation with the Authority and the Contractor, be determined by the Authority. The cost so determined and an amount equal to twenty percent of the cost as Damages shall be recoverable by the Authority from the Contractor and may be deducted by the Authority from any monies due to the Contractor.

17.5 Contractor to search cause

17.5.1 The Authority may instruct the Contractor to examine the cause of any Defect in the Works or part thereof before the expiry of the Defects Liability Period.

17.5.2 In the event any Defect identified under Clause 17.5.1 is attributable to the Contractor, the Contractor shall rectify such Defect within the period specified by the Authority, and shall

bear the cost of the examination and rectification of such Defect.

17.5.3 In the event such Defect is not attributable to the Contractor, the Authority shall, after due consultation with the Authority and the Contractor, determine the costs incurred by the Contractor on such examination and notify the same to the Contractor, with a copy to the Authority, and the Contractor shall be entitled to payment of such costs by the Authority.

17.6 Extension of Defects Liability Period

The defect Liability period shall be deemed to be extended till the defects identified under clause 17.2 have been remedied.

ARTICLE-18

18. Authority's Engineer

18.1 Appointment of the Authority's Engineer

18.1.1 **The Authority shall appoint a** Project Management Consultant (PMC) **as a** separate and independent agency**, who shall act as the** Authority's Engineer **under this Agreement, for the purposes of** programme management, construction management supervision, monitoring, coordination, testing, commissioning and handover of the Project **(the "Authority's Engineer").**

The Authority has also appointed **Architect Hafeez Contractor (AHC)** as the **Principal Project Consultant and Design Anchor** for the Project, responsible for architectural leadership, design intent, design review and approval of design submissions, as defined elsewhere in this Agreement.

The roles and responsibilities of the Authority's Engineer (PMC) and the Principal Project Consultant (AHC) are **distinct and complementary**, and shall be exercised in accordance with their respective scopes under this Agreement.

18.2 Duties and Authority of the Authority's Engineer

The Authority's Engineer shall perform its duties and exercise its authority in accordance with the provisions of its agreement with the Authority, including but not limited to:

- Construction and programme management
- Site supervision and monitoring of quality, safety and progress
- Coordination of testing, commissioning and handover
- Issuance of instructions, notices and directions as provided under this Agreement

18.2.1 **Deleted**

18.2.2 **Deleted**

18.3 Delegation by the Authority's Engineer

18.3.1 The Authority's Engineer may, by written order, delegate any of its duties and responsibilities to suitably qualified and experienced personnel who shall be accountable to the Authority's Engineer, or revoke any such delegation, with due intimation to the Authority and the Contractor. Notwithstanding such delegation, the Authority's Engineer shall remain responsible for all actions and omissions of such personnel.

18.3.2 Any failure by the Authority's Engineer to disapprove any Works, Plant or Materials shall not constitute approval and shall not prejudice the right of the Authority to reject any Works, Plant or Materials not in accordance with this Agreement or the Specifications and Standards.

18.4 Instructions of the Authority's Engineer

18.4.1 The Authority's Engineer may issue written instructions to the Contractor for remedying any Defect or for ensuring compliance with this Agreement. The Contractor shall comply with such instructions issued by the Authority's Engineer or by any authorised representative acting under Clause 18.3.

18.4.2 All instructions of the Authority's Engineer shall be issued in writing. Where oral instructions are issued in exceptional circumstances, such instructions shall be confirmed in writing within 2 (two) working days.

18.4.3 If the Contractor does not receive written confirmation of any oral instruction within the time specified in Clause 18.4.2, the Contractor shall seek written confirmation from the Authority's Engineer and obtain acknowledgement thereof.

18.4.4 Deleted

18.5 Determination by the Authority's Engineer

18.5.1 The Authority's Engineer shall consult with each Party in an endeavour to reach agreement wherever this Agreement provides for the determination of any matter by the Authority's Engineer. If such agreement is not achieved, the Authority's Engineer shall make a fair determination in accordance with this Agreement having due regard to all relevant circumstances. The Authority's Engineer shall give notice to both the Parties of each such agreement or determination, with supporting particulars.

18.5.2 Each Party shall give effect to each agreement or determination made by the Authority's Engineer in accordance with the provisions of this Agreement. Provided, however, that if any Party disputes any instruction, decision, direction or determination of the Authority's Engineer, the Dispute shall be resolved in accordance with the Dispute Resolution Procedure.

18.6 Remuneration of the Authority's Engineer

The remuneration, costs and expenses of the Authority's Engineer shall be borne and paid by the Authority in accordance with the terms of the agreement executed between the Authority and the Authority's Engineer.

PART IV - FINANCIAL COVENANTS

ARTICLE-19

19. Payments

19.1 Contract Price

19.1.1 The Authority shall make payments to the Contractor for the Works on the basis of the EPC price under various heads in Price-Bid, accepted by the Authority in consideration of the obligations specified in this Agreement for an amount of **Rs. ____ (Rs_____only)** (The **"Contract Price"),** which shall be subject to adjustments in accordance with the provisions of this Agreement. The Parties further agree that save and except as provided in this Agreement, the Contract Price shall be valid and effective until issue of Completion Certificate.

19.1.2 The Contract Price includes all duties, taxes, royalty, and fees that may be levied in accordance with the laws and regulations in force as on the Base Date on the Contractor's equipment, Plant, Materials and supplies acquired for the purpose of this Agreement and on the services performed under this Agreement, but excluding GST. Nothing in this Agreement shall relieve the Contractor from its responsibility to pay any tax including any tax that may be levied in India on profits made by it in respect of this Agreement. All payments under this Agreement shall be made in Indian Rupees.

19.1.3 The Contract Price shall not be adjusted for any change in costs stated in Clause 19.1.2 above, except as stated in Clause 19.17.

19.1.4 The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs, unless otherwise provided for in this Agreement.

19.1.5 Unless otherwise stated in this Agreement, the Contract Price covers all the Contractor's obligations for the Works under this Agreement and all things necessary for the Construction and the remedying of any Defects in the Project Works.

19.1.6 All the payment transactions by Authority to contractor, or by contractor to all its sub-contractors, both in value terms as well as in lieu of number of transactions shall be made through ECS/EFT mechanism instead of payments through Cheques.

19.2 Advance Payment

19.2.1 The Authority shall make an interest- bearing advance payment @ 8% per annum -(the "Advance Payment"), equal in amount to 10 (ten) percent of the Contract Price, for mobilisation expenses and for acquisition of equipment. The Advance Payment shall be made in three instalments. The first instalment shall be an amount equal to 2% (two percent) of the Contract Price, the second instalment shall be equal to 3% (Three percent) of the Contract Price, and the third instalment shall be equal to 5% (Five percent) of the Contract Price.

19.2.2 The Contractor may apply to the Authority for the first instalment of the Advance Payment at any time after the date of Letter of Award and in 30 days from LOA, along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, in the form provided at Annex-III of Schedule- G, to remain effective till the complete and full repayment thereof. Excavation has to start immediately at site after 15 days of LOA to make 1st Advance Payment admissible.

At any time after 30 (thirty) days from the date of Letter of Award , the Contractor may apply for the second instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110% (one hundred and ten per cent) of such instalment, in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof along with proof of satisfactory utilization of first instalment of the Advance Payment. Contractor has to make Labour camp outside the site, at a location selected by them and concurred by Authority/ Authority's Engineer, set up the site office, all associated utilities at site and bring all the equipments/ machineries at site including Batching Plant, Tower cranes, setting up of site Laboratory. as per approved schedule by the Authority etc. to make 2nd Stage Advance payment, admissible.

19.2.3 At any time, after 60 (sixty) days from the date of letter of Award , the Contractor may apply to the Authority for the third instalment of the Advance Payment along with an irrevocable and unconditional guarantee from a Bank for an amount equivalent to 110%) (one hundred and ten per cent) of such instalment, in the form provided at Annex-III of Schedule-G, to remain effective till the complete and full repayment thereof along with proof of satisfactory utilization of second instalment of the Advance Payment. The Contractor has to place purchase orders as per the approved Project Procurement schedule for the period ending 90(ninety) days from the LOA before making the release of 3rd Stage of Payment admissible.

19.2.4 The first and the second instalments shall be paid by the Authority to the Contractor within 15 (fifteen) days of the receipt of its respective requests in accordance with the provisions of this Clause 19.2.

19.2.5 The advance payment shall be repaid through percentage deductions from the stage payments determined by the Authority/Authority's engineer in accordance with Sub-Clause 19.5, as follows: (a) deductions shall commence in the next Stage Payment Statement following that in which the total of all certified stage payments (excluding the advance payment and deductions and repayments of retention) exceeds 20% (twenty percent) of the Contract Price; and (b) Deductions shall be made at the rate of 10% (ten percent) of each Stage Payment Statement with interest until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid along with interest prior to the time when 80% (80 percent) of the Contract Price has been certified for payment.

19.2.6 If the Advance Payment has not been fully repaid prior to Termination under Clause 21.7 or Article 23, as the case may be, the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Authority. Without prejudice to the provisions of Clause 19.2.7, in the event of Termination for Contractor Default, the Advance Payment shall be deemed to carry interest at the rate of 10% (ten per cent) per annum from the date of Advance Payment to the date of recovery by encashment of the Bank Guarantee for the Advance Payment. For the avoidance of doubt, the aforesaid interest shall be payable on each instalment of the Advance Payment, regardless of whether the instalment or any part thereof has been repaid to the Authority prior to Termination.

19.3 Procedure for estimating the payment for the Works

19.3.1 The Authority shall not make interim payments to the Contractor before completion of a stage.

19.3.2 The Contractor shall base its claim for interim payment for the stages completed till the end

of the previous month for which the payment is claimed, valued in accordance with Clause 19.3.1, supported with necessary particulars and documents in accordance with this Agreement.

19.3.3 Any reduction in the Contract Price arising out of Change of Scope or the works withdrawn under Clause 8.3 shall not affect the amounts payable for the items or stage payments thereof which are not affected by such Change of Scope or withdrawal.

19.4 Stage Payment Statement for Works

The contractor shall submit stage payment statement based on the broad percentage breakup as given in Schedule H, towards cash flow approval, on the basis of approved resource schedule which shall be incorporated in the Agreement within 30 days of LOA.

19.5 Stage Payment for Works

19.5.1 On the basis of this "Stage Payment Statement", Contractor will put-up by the **seventh** day of the month quantity statement for all the items of works as per the approved stage payment statement given in Schedule-H.

Quantity statement of each part shall be prepared based on the broad percentage breakup as given in Schedule H with end of the previous statement as cut off for measurement consideration. The stage payment Statement shall be accompanied with the progress reports and any supporting documents including all mandatory Labour compliances and obligations. The contractor shall not submit any claim for incomplete stages of work.

The corrections of the statement shall be verified by Authority in 21 working days. The Invoice (3 copies) shall be submitted on the basis of the verified statement as per the Schedule-O and the payment shall be released in 14 working days of the Invoice Submission.

19.5.2 Within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, the Authority/Authority's engineer shall determine and shall deliver to the Contractor an IPC certifying the amount due and payable to the Contractor, after adjusting the payments already released to the Contractor against the said statement. For the avoidance of doubt, the Parties agree that the IPC shall specify all the amounts that have been deducted from the Stage Payment Statement and the reasons therefor.

19.5.3 In cases where there is a difference of opinion as to the value of any stage, the Authority's Engineer's view shall prevail and interim payments shall be made to the Contractor on this basis; provided that the foregoing shall be without prejudice to the Contractor's right to raise a Dispute.

19.5.4 The Authority's Engineer may, for reasons to be recorded, withhold from payment:

(a) the estimated value of work or obligation that the Contractor has failed to perform in accordance with this Agreement and the Authority's Engineer had notified the Contractor; and

(b) The estimated cost of rectification of work done being not in accordance with this Agreement.

(c) non-Compliances of Non-conformance

(d) Deduction due to safety score as per Audit rating

19.5.5 Payment by the Authority shall not be deemed to indicate the Authority's acceptance, approval, consent or satisfaction with the work done.

19.5.6 Payments against supply of Capital Goods/ Equipments/ Machinery at site as per approved Procurement Schedule/ plan

a) On receipt at site with signed invoices, all bills of lading / airway/ certificate of origin /packing list/ phytosanitary certificate / Inspection release note/ quality tests reports – 65% of Invoice.

b) On Installation complete in all respects – 25% of Invoice Value.

c) On integrated Testing & Commissioning – 5 % of Invoice Value.

d) On handing over – 5% of Invoice value.

19.5.7 Payments against – steel, cement, Structural Steel – at site as per approved Procurement Plan - 75% on receipt at site. (As advance)

This advance shall be recovered from the stage payment bill subsequent to the month, followed by next month of the delivery month.

19.5.8 All the Invoices for Items in Clause 19.5.6, 19.5.7 have to be provided with Input Tax credit, if any, to the Authority.

19.5.9 If there are benefits from Imports the same have to be passed on the Authority under any Scheme, wherever as applicable.

19.6 Deleted

19.7 Deleted

19.8 Deleted

19.9 Time of payment and interest

19.9.1 The Authority shall pay to the Contractor any amount due under any payment certificate issued by the Authority's Engineer in accordance with the provisions of this Article 19, or in accordance with any other clause of this Agreement as follows:

(a) payment shall be made no later than 35 (thirty five) working days from the date of submission of the Stage Payment Statement by the Contractor to the Authority's Engineer for certification in accordance with the provisions of Clause 19.4 for an IPC; provided that, in the event the IPC is not issued by the Authority's Engineer within the aforesaid period of 35 (thirty five) days, the Authority shall pay the amount shown in

the Contractor's Stage Payment Statement and any discrepancy therein shall be added to, or deducted from, the next payment certificate issued to the Contractor; and

(b) payment shall be made no later than 35 (thirty five) working days from the date of submission of the Final Payment Certificate for Works along with the discharge submitted to the Authority's Engineer in accordance with the provisions of Clause 19.15 for certification.

19.10 Final Payment Statement

19.10.1 Within 60 (sixty) days after receiving the Completion Certificate under Clause 12.4, the Contractor shall submit to the Authority's Engineer for consideration six copies of a Final Payment Statement (the **"Final Payment Statement")** for Works, with supporting documents showing in detail, in the form prescribed by the Authority's Engineer:

(a) the summary of Contractor's Stage Payment claims for Works as submitted in accordance with Clause 19.4;

(b) the amounts received from the Authority against each claim; and

(c) any further sums which the Contractor considers due to it from the Authority.

If the Authority's Engineer disagrees with or cannot verify any part of the Final Payment Statement, the Contractor shall submit such further information as the Authority's Engineer may reasonably require. The Authority's Engineer shall deliver to the Authority:

(i) an IPC for those parts of the Final Payment Statement which are not in dispute, along with a list of disputed items which shall then be settled in accordance with the provisions of Article 26; or

(ii) a Final Payment Certificate in accordance with Clause 19.15 if there are no disputed items.

19.10.2 If the Authority's Engineer does not prescribe the form referred to in Clause 19.13.1 within 15 (fifteen) of the date of issue of the Completion Certificate, the Contractor shall submit the statement in such form as it deems fit.

19.11 Discharge

Upon submission of the Final Payment Statement for Works under Clause 19.13, the Contractor shall give to the Authority, with a copy to the Authority's Engineer, a written discharge confirming that the total of the Final Payment Statement represents full and final settlement of all monies due to the Contractor in respect of this Agreement for all the Works arising out of this Agreement, except for any monies due to either Party on account of any Defect. Provided that such discharge shall become effective only after the payment due has been made in accordance with the Final Payment Certificate issued pursuant to Clause 19.15.

19.12 Final Payment Certificate

19.12.1 Within 30 (thirty) days after receipt of the Final Payment Statement for Works under Clause 19.13, and the written discharge under Clause 19.14, and there being no disputed items of claim, the Authority's Engineer shall deliver to the Authority, with a copy to the Contractor, a final payment certificate (the **"Final Payment Certificate")** stating the amount which, in the opinion of the Authority's Engineer, is finally due under this Agreement or otherwise. For the avoidance of doubt, before issuing the Final Payment Certificate, the Authority's Engineer shall ascertain from the Authority all amounts previously paid by the Authority and for all sums to which the Authority is entitled, the balance, if any, due from the Authority to the Contractor or from the Contractor to the Authority, as the case may be.

19.12.2 The Authority shall, in accordance with the provisions of Clause 19.9, pay to the Contractor the amount which is stated as being finally due in the Final Payment Certificate.

19.13 Deleted

19.14 Change in law/Taxes

19.14.1 If as a result of Change in taxes, the Contractor suffers any additional costs in the execution of the Works or in relation to the performance of its other obligations under this Agreement, the Contractor shall, within 15 (fifteen) days from the date it becomes reasonably aware of such addition in cost, notify the Authority with a copy to the Authority's Engineer of such additional cost due to Change in taxes during the currency of the project.

19.14.2 If as a result of Change in Law, the Contractor benefits from any reduction in costs for the execution of this Agreement or in accordance with the provisions of this Agreement, either Party shall, within 15 (fifteen) days from the date it becomes reasonably aware of such reduction in cost, notify the other Party with a copy to the Authority's Engineer of such reduction in cost due to Change in Law.

19.14.3 The Authority's Engineer shall, within 15 (fifteen) days from the date of receipt of the notice from the Contractor or the Authority, determine any addition or reduction to the Contract Price, as the case may be, due to the Change in Law.

19.15 Correction of Interim Payment Certificates

The Authority's Engineer may by an Interim Payment Certificate make any correction or modification in any previous Interim Payment Certificate issued by the Authority's Engineer.

19.16 Authority's claims

If the Authority considers itself to be entitled to any payment from the Contractor under any Clause of this Agreement, it shall give notice and particulars to the Contractor 20 (twenty) days before making the recovery from any amount due to the Contractor, and shall take into consideration the representation, if any, made by the Contractor in this behalf, before making such recovery.

19.17 DELETED

19.18 Liquidated Damages – The contractor shall pay a penalty at rate of 0.5% (half percent) of the total contract price applicable for every week of delay in completion date or part thereof subject to a maximum of 10% of the total contract value.

19.19 Opening of Separate Bank Account for the Project

The Contractor shall be registered with separate account with a nationalized or commercial Scheduled Bank for the purpose of receiving all the payments under the Contract and for utilization of payments received from the Authority for disbursement to sub-contractors, sub-

vendors, PRW's, suppliers etc. for this contract. The Contractor shall maintain separate books of account for all payments under this contract and the Authority shall have access to it at all times.

For tracking of utilization of funds received from the Authority, the Contractor shall submit a monthly statement by 7th of every month to the Authority / Authority's Engineer certifying the transactions pertaining to the above account along with the purpose of such transactions.

In case the Contractor wants to withdraw funds from the above bank account for any purpose other than the Contract, the contractor shall be required to submit an undertaking to the Authority / Authority's Engineer certifying that all due statutory payments, labour payments and payments to all his sub-contractors/ vendors have been disbursed by him corresponding to the total payment received under the contract.

19.20 Deductions of amount in relation with poor Safety Score

Sr.	Score	Description	Action
1	< 70%	Site is poorly managed from Safety perspectives	Needs definite improvement measures (deduction of 2% in the overall Bill) –subject to no limit.
2	> 70 to 80%	Just adequate management from safety perspectives	Definitely needs improvement (deduction of 1% from the overall bill)
3	> 80 to 90%	Good Management from Safety Aspects.	Scope of Further improvement (hold of 0.5% from the overall bill till the contractor achieves the higher rating)
4	> 90 to 100%	Excellent management from Safety aspects	Continue with Current Practices

19.21 Compliance of Non-Conformance

Amount withheld due to pending compliance of Non-Conformance (during the Billing Period)

The Non-Conformance shall be divided into two categories –

a) Minor Non- Conformance **–** Any localized defects which can be rectified easily like surface finish, minor bulging, minor welding defects, minor paint defects etc. if not closed then an amount of Rs. 50,000 per occurrence shall be withheld**.**

b) Major Non- Conformance – For major defects, an amount of Rs. 5,00,000 per occurrence shall be withheld.

19.22 Taxes and duties

a) The contract price is inclusive of all taxes (except GST), duties, cess and statutory levies payable under any law by the contractor in connection with execution of the contract. In case of change in rate of tax or any provision relating to levy of tax resulting in increase in burden of tax on the contractor, the contractor shall not be entitled to receive any compensation for

such increase in quantum of tax payable by the contractor. Similarly, no recovery shall be made from the contractor on account of decrease of rate of tax or any provision relating to levy of tax.

b) Notwithstanding anything contained in clause a) above, the contractor shall ensure payment of appropriate tax on the supplies made under the contract. The contractor shall take registration under the applicable enactment levying tax on supply of goods or services under the contract and issue invoice having all the particulars prescribed under the applicable provisions of the law, including. description of goods/services, rate and amount of tax paid or payable on the supplies made under the contract, so that Authority can avail credit of such tax, wherever applicable. The contractor shall comply with all applicable provision of Goods and Service Tax (GST) levied by Union Government and State Governments (CGST, UTGST, SGST and IGST). The contractor shall get himself registered and discharge his obligations for payment of taxes, filing of returns etc. under the appropriate provisions of law in respect of all the tax, duties, levies, cess, etc. Authority would have right to seek necessary evidence that the contractor is registered under the law and duly discharging its obligations under the tax law, enabling Authority to avail input tax credit.

c) In case any law requires Authority to pay tax on the contract price on reverse charge basis, the amount of tax deposited by Authority would be considered as paid to the contractor and, accordingly, the price payable to the contractor would stand reduced to that extent.

d) In case the contractor does not deposit the tax payable on execution of the contract, or has not provided the tax invoice to Authority showing the amount of tax, or has not uploaded the document in computerized tax network as per prevailing law, leading to non-availability of inputs credit of the tax to Authority, the amount equivalent to such tax shall be deducted from the contract price.

e) Stamp duty and registration charges, if any, payable on the executed contract document, shall be borne by the contractor.

f) Tax deduction at source, if any, shall be made by Authority as per law applicable from time to time from the amount payable to the contractor.

g) The Contractor would be liable to reimburse or make it good of any loss/ claim by Authority towards tax credit rejected/ disallowed by any of the tax authorities due to non-deposit of taxes or non-compliance of tax laws by the Contractor.

h) The Contractor will be under obligation for charging correct rate of tax as prescribed under the respective tax laws. Further the Contractor shall avail and pass on benefits of all exemptions/ concessions available under tax laws.

ARTICLE-20

20. Insurance

20.1 Insurance for Works

20.1.1 The Contractor shall effect and maintain at its own cost the insurances specified in Schedule- P and as per the requirements under the Applicable Laws.

20.1.2 Subject to the provisions of Clause 21.6, the Authority and the Contractor shall, in accordance with its obligations as provided for in this Agreement, be liable to bear the cost of any loss or damage that does not fall within the scope of this Article 20 or cannot be recovered from the insurers.

20.1.3 Subject to the exceptions specified in Clause 20.1.4 below, the Contractor shall, save and except as provided for in this Agreement, fully indemnify, hold harmless and defend the Authority from and against any and all losses, damages, costs, charges and/or claims with respect to:

(a) the death of or injury to any person; or

(b) the loss of or damage to any property (other than the Works);

That may arise out of or in consequence of any breach by the Contractor of this Agreement during the execution of the Works or the remedying of any Defects therein.

20.1.4 Notwithstanding anything stated above in Clause 20.1.3, the Authority shall fully indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims arising out of or with respect to

(a) the use or occupation of land or any part thereof by the Authority;

(b) the right of the Authority to execute the Works, or any part thereof, on, over, under, in or through any land;

(c) the damage to property which is the unavoidable result of the execution and completion of the Works, or the remedying of any Defects therein, in accordance with this Agreement; and

(d) the death of or injury to persons or loss of or damage to property resulting from any act or neglect of the Authority, its agents, servants or other contractors, not being employed by the Contractor.

Provided that, in the event of any injury or damage as a result of the contributory negligence of the Contractor, the Authority shall be liable to indemnify the Contractor from and against any and all losses, damages, costs, charges, proceedings and/or claims to the extent as may be proportionately determined to be the liability of the Authority, its servants or agents or other contractors not associated with the Contractor in such injury or damage.

20.1.5 Without prejudice to the obligations of the Parties as specified under Clauses 20.1.3 and 20.1.4, the Contractor shall maintain or effect such third party insurances as may be required under the Applicable Laws.

20.1.6 The Contractor shall provide to the Authority, within 30 days of the Letter of Award, evidence of professional liability insurance maintained by its Design Director and/or consultants to cover the risk of professional negligence in the design of Works. The professional liability coverage shall be for a sum of not less than 5% (five per cent) of the Contract Price and shall be maintained until the end of the Defects Liability Period.

20.1.7 Transit Insurances including marine, air and rail or any other kind of transportation in India or Outside India shall be covered by the Contractor for a value (Rs. 50 crore – for total value of goods moving at one point of time) such that nothing within the project scope is left uncovered.

20.1.8 Motor Vehicle lability Insurances. - Contractor shall take out Insurance to cover all risks to Owner for each of his vehicles plying on works of this contract and these insurances shall be valid for the total contract period. No extra payment will be made for this insurance. Owner shall not be liable for any damage or loss not made good by the Insurance Company, should such damage or loss result from unauthorized use of the vehicle. The provisions of the Motor Vehicle Act would apply.

20.1.9 Latent Defect Insurances for a period of 10 years after completion certificate for all Structure & electro- mechanical equipments or machineries which are the part of all utility services of the project Infrastructure equivalent to 0.25% (Zero Point Two five Percent) of the contract value.

20.2 Notice to the Authority

No later than 15 (fifteen) days after the date of this Agreement, the Contractor shall by notice furnish to the Authority, in reasonable detail, information in respect of the insurances that it proposes to effect and maintain in accordance with this Article 20. Within 15 (fifteen) days of receipt of such notice, the Authority may require the Contractor to effect and maintain such other insurances as may be necessary pursuant hereto, and in the event of any difference or disagreement relating to any such insurance, the Dispute Resolution Procedure shall apply.

20.3 Evidence of Insurance Cover

20.3.1 All insurances obtained by the Contractor in accordance with this Article 20 shall be maintained with insurers on terms consistent with Good Industry Practice. Within 10 (ten) days from the letter of Award, the Contractor shall furnish to the Authority notarised true copies of the certificate(s) of insurance, copies of insurance policies and premium payment receipts in respect of such insurance, and no such insurance shall be cancelled, modified, or allowed to expire or lapse until the expiration of at least 45 (forty-five) days after notice of such proposed cancellation, modification or nonrenewal has been delivered by the Contractor to the Authority. The Contractor shall act in accordance with the directions of the Authority. Provided that the Contractor shall produce to the Authority the insurance policies in force and the receipts for payment of the current premium.

20.3.2 The Contractor shall ensure the adequacy of the insurances at all times in accordance with the provisions of this Agreement.

20.4 Remedy for failure to insure

If the Contractor shall fail to effect and keep in force all insurances for which it is responsible pursuant hereto, the Authority shall have the option to either keep in force any such insurances, and pay such premium and recover the costs thereof from the Contractor, or in the event of computation of a Termination Payment, treat an amount equal to the Insurance Cover as deemed to have been received by the Contractor.

20.5 Waiver of subrogation

All insurance policies in respect of the insurance obtained by the Contractor pursuant to this Article 20 shall include a waiver of any and all rights of subrogation or recovery of the

insurers thereunder against, inter alia, the Authority, and its assigns, successors, undertakings and their subsidiaries, Affiliates, employees, insurers and underwriters, and of any right of the insurers to any set-off or counterclaim or any other deduction, whether by attachment or otherwise, in respect of any liability of any such person insured under any such policy or in any way connected with any loss, liability or obligation covered by such policies of insurance.

20.6 Contractor's waiver

The Contractor hereby further releases, assigns and waives any and all rights of subrogation or recovery against, inter alia, the Authority and its assigns, undertakings and their subsidiaries, Affiliates, employees, successors, insurers and underwriters, which the Contractor may otherwise have or acquire in or from or in any way connected with any loss, liability or obligation covered by policies of insurance maintained or required to be maintained by the Contractor pursuant to this Agreement (other than third party liability insurance policies) or because of deductible clauses in or inadequacy of limits of any such policies of insurance.

20.7 Cross liabilities

Any such insurance maintained or effected in pursuance of this Article 20 shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Authority as separately insured.

20.8 Accident or injury to workmen

Notwithstanding anything stated in this Agreement, it is hereby expressly agreed between the Parties that the Authority shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or Sub-contractor, save and except as for death or injury resulting from any act, omission or default of the Authority, its agents or servants. The Contractor shall indemnify and keep indemnified the Authority from and against all such claims, proceedings, damages, costs, charges, and expenses whatsoever in respect of the above save and except for those acts, omissions or defaults for which the Authority shall be liable.

20.9 Insurance against accident to workmen

The Contractor shall effect and maintain during the Agreement such insurances as may be required to insure the Contractor's personnel and any other persons employed by it on the Project Site from and against any liability incurred in pursuance of this Article 20. Provided that for the purposes of this Clause 20.9, the Contractor's personnel/any person employed by the Contractor shall include the Sub-contractor and its personnel. It is further provided that, in respect of any persons employed by any Sub-contractor, the Contractor's obligations to insure as aforesaid under this Clause 20.9 shall be discharged if the Sub-contractor shall have insured against any liability in respect of such persons in such manner that the Authority is indemnified under the policy. The Contractor shall require such Sub-contractor to produce before the Authority, when required, such policy of insurance and the receipt for payment of the current premium within 10 (ten) days of such demand being made by the Authority.

20.10 Application of insurance proceeds

The proceeds from all insurance claims, except for life and injury, shall be applied for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Works and the provisions of this Agreement in respect of construction of works shall apply *mutatis mutandis* to the works undertaken out of the proceeds

of insurance.

20.11 Compliance with policy conditions

Each Party hereby expressly agrees to fully indemnify the other Party from and against all losses and claims arising from its failure to comply with conditions imposed by the insurance policies affected in accordance with this Agreement.

The contractor shall at all times indemnify the Authority and Owner against all claims, damages or compensation under the provision of Payment of wages act-1936, Minimum Wages Act-1948, Authority's liability Act-1938, the workmen's compensation Act-1947, Industrial Disputes Act-1947 and Maternity Benefit Act-1961 or any modifications thereof or any other law in force or as consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the contractor or not, against all costs, charges and expenses of any suit, action or proceedings arising out of such incident or injury and against all sum or sums which may with the consent of the contractor be paid to compromise or compound any such claim. Without limiting his obligations and liabilities as above provided, the contractor shall insure against all claims, damages or Compensation payable under the Workmen's Compensation Act 1923 or any modification thereof or any other law relating thereto.

PART V - FORCE MAJEURE AND TERMINATION

ARTICLE-21

21. Force Majeure

21.1 Force Majeure

As used in this Agreement, the expression "Force Majeure" or "Force Majeure Event" shall mean occurrence in India of any or all of Non-Political Event, Indirect Political Event and Political Event, as defined in Clauses 21.2, 21.3 and 21.4 respectively, if it affects the performance by the Party claiming the benefit of Force Majeure (the **"Affected Party")** of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

21.2 Non-Political Event

A Non-Political Event shall mean one or more of the following acts or events:

(a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);

(b) strikes or boycotts (other than those involving the Contractor, Sub-contractors or their respective employees/representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project Works for a continuous period of 24 (twenty-four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event set forth in Clause 21.3;

(c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;

(d) any judgment or order of any court of competent jurisdiction or statutory authority made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Authority;

(e) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection; or

(f) any event or circumstances of a nature analogous to any of the foregoing.

21.3 Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

(a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;

(b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;

(c) any civil commotion, boycott or political agitation which prevents construction of the Project Works by the Contractor for an aggregate period exceeding 10 (ten) days in

an Accounting Year;

(d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;

(e) any Indirect Political Event that causes a Non-Political Event; or

(f) any event or circumstances of a nature analogous to any of the foregoing.

21.4 Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

(a) Change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of Clause 19.17;

(b) compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub-Contractors;

(c) unlawful or unauthorised or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, licence, permit, authorisation, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay, modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, licence, authorisation, no objection certificate, exemption, consent, approval or permit;

(d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or

(e) any event or circumstances of a nature analogous to any of the foregoing.

21.5 Duty to report Force Majeure Event

21.5.1 Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

(a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this Article 21 with evidence in support thereof;

(b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;

(c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and

(d) any other information relevant to the Affected Party's claim.

21.5.2 The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

21.5.3 For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing information as required by Clause 21.5.1, and such other information as the other Party may reasonably request the Affected Party to provide.

21.6 Effect of Force Majeure Event on the Agreement

21.6.1 Upon the occurrence of any Force Majeure after the Date of Letter of Award, the costs incurred and attributable to such event and directly relating to this Agreement (the **"Force Majeure costs")** shall be allocated and paid as follows:

(a) upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure costs and neither Party shall be required to pay to the other Party any costs thereof;

(b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Authority to the Contractor for the Force Majeure events; and

(c) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Authority to the Contractor.

For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.

21.6.2 Save and except as expressly provided in this Article 21, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereto.

21.6.3 Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day for day basis for such period as performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

21.7 Termination Notice for Force Majeure Event

21.7.1 If a Force Majeure Event subsists for a period of 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may in its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this Article 21, and upon issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days' time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

21.8 Termination Payment for Force Majeure Event

21.8.1 In the event of this Agreement being terminated on account of a Non-Political Event, the Termination Payment shall be an amount equal to the sum payable under Clause 23.5.

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

21.8.2 If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

(a) any sums due and payable under Clause 23.5; and

(b) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

Provided that in the event Termination occurs during the Maintenance Period, the Authority's Engineer shall only determine the value of Works associated with Maintenance.

21.8.3 If Termination is on account of a Political Event, the Authority shall make a Termination Payment to the Contractor in an amount that would be payable under Clause 23.6.2 as if it were an Authority Default.

21.9 Dispute resolution

In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

21.10 Excuse from performance of obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

(a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;

(b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to cure the same with due diligence; and

(c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume performance of its obligations hereunder.

ARTICLE -22

22. Suspension of Contractor's Rights

22.1 Suspension upon Contractor Default

Upon occurrence of a Contractor Default, the Authority shall be entitled, without prejudice to its other rights and remedies under this Agreement including its rights of Termination hereunder, to (i) suspend carrying out of the Works or any part thereof, and (ii) carry out such Works itself or authorise any other person to exercise or perform the same on its behalf during such suspension (the **"Suspension").** Suspension hereunder shall be effective forthwith upon issue of notice by the Authority to the Contractor and may extend up to a period not exceeding 90 (ninety) days from the date of issue of such notice.

22.2 Authority to act on behalf of Contractor

During the period of Suspension hereunder, all rights and liabilities vested in the Contractor in accordance with the provisions of this Agreement shall continue to vest therein and all things done or actions taken, including expenditure incurred by the Authority for discharging the obligations of the Contractor under and in accordance with this Agreement shall be deemed to have been done or taken for and on behalf of the Contractor and the Contractor undertakes to indemnify the Authority for all costs incurred during such period. The Contractor hereby licences and sub-licences respectively, the Authority or any other person authorised by it under Clause 22.1 to use during Suspension, all Intellectual Property belonging to or licenced to the Contractor with respect to the Project Works and its design, engineering, construction, and which is used or created by the Contractor in performing its obligations under the Agreement.

22.3 Revocation of Suspension

22.3.1 In the event that the Authority shall have rectified or removed the cause of Suspension within a period not exceeding 60 (sixty) days from the date of Suspension, it shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement. For the avoidance of doubt, the Parties expressly agree that the Authority may, in its discretion, revoke the Suspension at any time, whether or not the cause of Suspension has been rectified or removed hereunder.

22.3.2 Upon the Contractor having cured the Contractor Default within a period not exceeding 60 (sixty) days from the date of Suspension, the Authority shall revoke the Suspension forthwith and restore all rights of the Contractor under this Agreement.

22.4 Termination

22.4.1 At any time during the period of Suspension under this Article 22, the Contractor may by notice require the Authority to revoke the Suspension and issue a Termination Notice. The Authority shall, within 15 (fifteen) days of receipt of such notice, terminate this Agreement under and in accordance with Article 23.

22.4.2 Notwithstanding anything to the contrary contained in this Agreement, in the event that Suspension is not revoked within 90 (ninety) days from the date of Suspension hereunder, the Agreement shall, upon expiry of the aforesaid period, be deemed to have been terminated by mutual agreement of the Parties and all the provisions of this Agreement shall apply,

mutatis mutandis, to such Termination as if a Termination Notice had been issued by the Authority upon occurrence of a Contractor Default.

ARTICLE-23

23.0 Termination

23.1 Termination for Contractor Default

23.1.1 Save as otherwise provided in this Agreement, in the event that any of the defaults specified below shall have occurred, and the Contractor fails to cure the default within the Cure Period set forth below, or where no Cure Period is specified, then within a Cure Period of 60 (sixty) days, the Contractor shall be deemed to be in default of this Agreement (the **"Contractor Default"),** unless the default has occurred solely as a result of any breach of this Agreement by the Authority or due to Force Majeure. The defaults referred to herein shall include:

(a) the Contractor fails to provide, extend or replenish, as the case may be, the Performance Security in accordance with this Agreement;

(b) subsequent to the replenishment or furnishing of fresh Performance Security in accordance with Clause 7.3, the Contractor fails to cure, within a Cure Period of 30 (thirty) days, the Contractor Default for which the whole or part of the Performance Security was appropriated;

(c) the Contractor does not achieve the latest outstanding Project Milestone due in accordance with the provisions of Schedule-J, subject to any Time Extension, and continues to be in default for 45 (forty-five) days;

(d) the Contractor abandons or manifests intention to abandon the construction or Maintenance of the Project Works without the prior written consent of the Authority;

(e) the Contractor fails to proceed with the Works in accordance with the provisions of Clause 10.1 or stops Works for 30 (thirty) days without reflecting the same in the current programme and such stoppage has not been authorised by the Authority's Engineer;

(f) the Project Completion Date does not occur within the period specified in Schedule-J for the Scheduled Completion Date, or any extension thereof;

(g) failure to complete the Punch List items within the periods stipulated therefor in Clause 12.2.1;

(h) the Contractor fails to rectify any Defect, the non-rectification of which shall have a Material Adverse Effect on the Project, within the time specified in this Agreement or as directed by the Authority's Engineer;

(i) the Contractor subcontracts the Works or any part thereof in violation of this Agreement or assigns any part of the Works without the prior approval of the Authority;

(j) the Contractor creates any Encumbrance in breach of this Agreement;

(k) an execution levied on any of the assets of the Contractor has caused a Material Adverse Effect;

(1) the Contractor is adjudged bankrupt or insolvent, or if a trustee or receiver is appointed for the Contractor or for the whole or material part of its assets that has a material bearing on the Project;

(m) the Contractor has been, or is in the process of being liquidated, dissolved, wound-up, amalgamated or reconstituted in a manner that would cause, in the reasonable opinion of the Authority, a Material Adverse Effect;

(n) a resolution for winding up of the Contractor is passed, or any petition for winding up of the Contractor is admitted by a court of competent jurisdiction and a provisional liquidator or receiver is appointed and such order has not been set aside within 90 (ninety) days of the date thereof or the Contractor is ordered to be wound up by court except for the purpose of amalgamation or reconstruction; provided that, as part of such amalgamation or reconstruction, the entire property, assets and undertaking of the Contractor are transferred to the amalgamated or reconstructed entity and that the amalgamated or reconstructed entity has unconditionally assumed the obligations of the Contractor under this Agreement; and provided that:

(i) The amalgamated or reconstructed entity has the capability and experience necessary for the performance of its obligations under this Agreement; and

(ii) the amalgamated or reconstructed entity has the financial standing to perform its obligations under this Agreement and has a credit worthiness at least as good as that of the Contractor as at the Appointed Date;

(o) any representation or warranty of the Contractor herein contained which is, as of the date hereof, found to be materially false or the Contractor is at any time hereafter found to be in breach thereof;

(p) the Contractor submits to the Authority any statement, notice or other document, in written or electronic form, which has a material effect on the Authority's rights, obligations or interests and which is false in material particulars;

(q) the Contractor has failed to fulfil any obligation, for which failure Termination has been specified in this Agreement; or

(r) the Contractor commits a default in complying with any other provision of this Agreement if such a default causes a Material Adverse Effect on the Project or on the Authority.

23.1.2 Without prejudice to any other rights or remedies which the Authority may have under this Agreement, upon occurrence of a Contractor Default, the Authority shall be entitled to terminate this Agreement by issuing a Termination Notice to the Contractor; provided that before issuing the Termination Notice, the Authority shall by a notice inform the Contractor of its intention to issue such Termination Notice and grant 15 (fifteen) days to the Contractor to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

23.1.3 After termination of this Agreement for Contractor Default, the Authority may complete the Works and/or arrange for any other entities to do so. The Authority and these entities may then use any Materials, Plant and equipment, Contractor's documents and other design documents made by or on behalf of the Contractor.

23.2 Termination for Authority Default

23.2.1 In the event that any of the defaults specified below shall have occurred, and the Authority fails to cure such default within a Cure Period of 90 (ninety) days or such longer period as has been expressly provided in this Agreement, the Authority shall be deemed to be in default of this Agreement (the **"Authority Default")** unless the default has occurred as a result of any breach of this Agreement by the Contractor or due to Force Majeure. The defaults referred to herein shall include:

(a) the Authority commits a material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Contractor;

(b) the Authority has failed to make payment of any amount due and payable to the Contractor within the period specified in this Agreement;

(c) the Authority has failed to provide, within a period of 180 (one hundred and eighty) days from the date of Letter of Award, the environmental clearances required for construction of the Project Works;

(d) the Authority repudiates this Agreement or otherwise takes any action that amounts to or manifests an irrevocable intention not to be bound by this Agreement; or

(e) the Authority's Engineer fails to issue the relevant Interim Payment Certificate within 60 (sixty) days after receiving a statement and supporting documents.

23.2.2 Without prejudice to any other right or remedy which the Contractor may have under this Agreement, upon occurrence of an Authority Default, the Contractor shall be entitled to terminate this Agreement by issuing a Termination Notice to the Authority; provided that before issuing the Termination Notice, the Contractor shall by a notice inform the Authority of its intention to issue the Termination Notice and grant 15 (fifteen) days to the Authority to make a representation, and may after the expiry of such 15 (fifteen) days, whether or not it is in receipt of such representation, issue the Termination Notice.

23.3 Termination for Authority's convenience

Notwithstanding anything stated hereinabove, the Authority may terminate this Agreement for convenience. The termination shall take effect 30 (thirty) days from the date of notice hereunder.

23.4 Requirements after Termination

Upon Termination of this Agreement in accordance with the terms of this Article 23, the Contractor shall comply with and conform to the following:

(a) deliver to the Authority all Plant and Materials which shall have become the property of the Authority under this Article 23;

(b) deliver all relevant records, reports, Intellectual Property and other licences pertaining to the Works, other design documents and in case of Termination occurring after the Provisional Certificate has been issued, the "as built' Drawings for the Works;

(c) transfer and/or deliver all Applicable Permits to the extent permissible under Applicable Laws; and

(d) vacate the Site within 15 (fifteen) days.

23.5 Valuation of Unpaid Works

23.5.1 Within a period of 45 (forty-five) days after Termination under Clause 23.1, 23.2 or 23.3, as the case may be, has taken effect, the Authority's Engineer shall proceed in accordance with Clause 18.5 to determine as follows the valuation of unpaid Works (the **"Valuation of Unpaid Works"):**

(a) value of the completed stage of the Works, less payments already made;

(b) reasonable value of the partially completed stages of works as on the date of

Termination, only if such works conform with the Specifications and Standards; and

23.5.2 The Valuation of Unpaid Works shall be communicated to the Authority, with a copy to the Contractor, within a period of 30 (thirty) days from the date of Termination.

23.6 Termination Payment

23.6.1 Upon Termination on account of Contractor's Default under Clause 23.1, the Authority shall:

(a) encash and appropriate the Performance Security and Retention Money, or in the event the Contractor has failed to replenish or extend the Performance Security, claim the amount stipulated in Clause 7.1.1, as agreed pre-determined compensation to the Authority for any losses, delays and cost of completing the Works, if any;

(b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment and interest thereon; and

(c) pay to the Contractor, by way of Termination Payment, an amount equivalent to the Valuation of Unpaid Works after adjusting any other sums payable or recoverable, as the case may be, in accordance with the provisions of this Agreement.

23.6.2 Upon Termination on account of an Authority Default under Clause 23.2 or for Authority's convenience under Clause 23.3, the Authority shall:

(a) return the Performance Security and Retention Money forthwith;

(b) encash and appropriate the bank guarantee, if any, for and in respect of the outstanding Advance Payment; and

(c) Pay to the Contractor, by way of Termination Payment, an amount equal to:

(i) Valuation of Unpaid Works;

(ii) the reasonable cost, as determined by the Authority's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Authority for its use, only if such Plant and Materials are in conformity with the Specifications and Standards;

(iii) the reasonable cost of temporary works, as determined by the Authority's Engineer; and

(iv) 10% (ten per cent) of the cost of the Works that are not commenced or not completed, and shall adjust from the sum thereof (i) any other amounts payable or recoverable, as the case may be, in accordance with the provisions of this Agreement, and (ii) all taxes due to be deducted at source.

23.6.3 Termination Payment shall become due and payable to the Contractor within 30 (thirty) days of a demand being made by the Contractor to the Authority with the necessary particulars, and in the event of any delay, the Authority shall pay interest at the Base Rate plus 2% (two percent), calculated at quarterly rests, on the amount of Termination Payment remaining unpaid; provided that such delay shall not exceed 90 (ninety) days. For the avoidance of doubt, it is expressly agreed that Termination Payment shall constitute full discharge by the Authority of its payment obligations in respect thereof hereunder.

23.6.4 The Contractor expressly agrees that Termination Payment under this Article 23 shall constitute

a full and final settlement of all claims of the Contractor on account of Termination of this Agreement and that it shall not have any further right or claim under any law, treaty, convention, contract or otherwise.

23.7 Other rights and obligations of the Parties

Upon Termination for any reason whatsoever

(a) property and ownership in all Materials, Plant and Works and the Project Works shall, as between the Contractor and the Authority, vest in the Authority in whole; provided that the foregoing shall be without prejudice to Clause 23.6

(b) risk of loss or damage to any Materials, Plant or Works and the care and custody thereof shall pass from the Contractor to the Authority; and

(c) the Authority shall be entitled to restrain the Contractor and any person claiming through or under the Agreement from entering upon the Site or any part of the Project except for taking possession of materials, stores, implements, construction plants and equipment of the Contractor, which have not been vested in the Authority in accordance with the provisions of this Agreement.

23.8 Survival of rights

Notwithstanding anything to the contrary contained in this Agreement any Termination pursuant to the provisions of this Agreement shall be without prejudice to the accrued rights of either Party including its right to claim and recover money damages, insurance proceeds, Retention Moneys, and other rights and remedies, which it may have in law or Agreement. All rights and obligations of either Party under this Agreement, including Termination Payments, shall survive the Termination to the extent such survival is necessary for giving effect to such rights and obligations.

PART VI - OTHER PROVISIONS

ARTICLE-24

24. Assignment and Charges

24.1 Restrictions on assignment and charges

This Agreement shall not be assigned by the Contractor to any person, save and except with the prior consent in writing of the Authority, which consent the Authority shall be entitled to decline without assigning any reason.

24.2 Deleted

ARTICLE-25

25. Liability and Indemnity

25.1 General indemnity

25.1.1 The Contractor will indemnify, defend, save and hold harmless the Authority, Authority's Engineer and its officers, servants, agents, Government Instrumentalities and Government owned and/or controlled entities/enterprises, (the **"Authority Indemnified Persons")** against any and all suits, proceedings, actions, demands and third party claims for any loss, damage, cost and expense of whatever kind and nature, whether arising out of any breach by the Contractor of any of its obligations under this Agreement or from any negligence under the Agreement, including any errors or deficiencies in the design documents, or tort or on any other ground whatsoever, except to the extent that any such suits, proceedings, actions, demands and claims have arisen due to any negligent act or omission, or breach or default of this Agreement on the part of the Authority Indemnified Persons.

25.2 Indemnity by the Contractor

25.2.1 Without limiting the generality of Clause 25.1, the Contractor shall fully indemnify, hold harmless and defend the Authority and the Authority Indemnified Persons from and against any and all loss and/or damages arising out of or with respect to:

(a) failure of the Contractor to comply with Applicable Laws and Applicable Permits;

(b) payment of taxes required to be made by the Contractor in respect of the income or other taxes of the Sub-contractors, suppliers and representatives; or

(c) Non-payment of amounts due as a result of Materials or services furnished to the Contractor or any of its Sub-contractors which are payable by the Contractor or any of its Sub-contractors.

25.2.2 Without limiting the generality of the provisions of this Article 25, the Contractor shall fully indemnify, hold harmless and defend the Authority Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Authority Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Contractor or by the Sub-contractors in performing the Contractor's obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Contractor shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the revocation or suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Project Works, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Contractor shall promptly make every reasonable effort to secure for the Authority a licence, at no cost to the Authority, authorising continued use of the infringing work. If the Contractor is unable to secure such licence within a reasonable time, the Contractor shall, at its own expense, and without impairing the Specifications and

Standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process, or modify the same so that it becomes non-infringing.

25.3 Notice and contest of claims

In the event that either Party receives a claim or demand from a third party in respect of which it is entitled to the benefit of an indemnity under this Article 25 (the "Indemnified Party") it shall notify the other Party (the "Indemnifying Party") within 15 (fifteen) days of receipt of the claim or demand and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim or demand, it may conduct the proceedings in the name of the Indemnified Party, subject to the Indemnified Party being secured against any costs involved, to its reasonable satisfaction.

25.4 Defence of claims

25.4.1 The Indemnified Party shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against such Party in respect of, resulting from, related to or arising out of any matter for which it is entitled to be indemnified hereunder, and reasonable costs and expenses thereof shall be indemnified by the Indemnifying Party. If the Indemnifying Party acknowledges in writing its obligation to indemnify the Indemnified Party in respect of loss to the full extent provided by this Article 25, the Indemnifying Party shall be entitled, at its option, to assume and control the defence of such claim, action, suit or proceeding, liabilities, payments and obligations at its expense and through the counsel of its choice; provided it gives prompt notice of its intention to do so to the Indemnified Party and reimburses the Indemnified Party for the reasonable cost and expenses incurred by the Indemnified Party prior to the assumption by the Indemnifying Party of such defence. The Indemnifying Party shall not be entitled to settle or compromise any claim, demand, action, suit or proceeding without the prior written consent of the Indemnified Party, unless the Indemnifying Party provides such security to the Indemnified Party as shall be reasonably required by the Indemnified Party to secure the loss to be indemnified hereunder to the extent so compromised or settled.

25.4.2 If the Indemnifying Party has exercised its rights under Clause 25.3, the Indemnified Party shall not be entitled to settle or compromise any claim, action, suit or proceeding without the prior written consent of the Indemnifying Party (which consent shall not be unreasonably withheld or delayed).

25.4.3 If the Indemnifying Party exercises its rights under Clause 25.3, the Indemnified Party shall nevertheless have the right to employ its own counsel, and such counsel may participate in such action, but the fees and expenses of such counsel shall be at the expense of the Indemnified Party, when and as incurred, unless:

(a) the employment of counsel by such party has been authorised in writing by the Indemnifying Party; or

(b) the Indemnified Party shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Party in the conduct of the defence of such action; or

(c) the Indemnifying Party shall not, in fact, have employed independent counsel reasonably satisfactory to the Indemnified Party, to assume the defence of such action and shall have been so notified by the Indemnified Party; or

(d) the Indemnified Party shall have reasonably concluded and specifically notified the Indemnifying Party either:

(i) that there may be specific defences available to it which are different from or additional to those available to the Indemnifying Party; or

(ii) that such claim, action, suit or proceeding involves or could have a material adverse effect upon it beyond the scope of this Agreement:

Provided that if Sub-clauses (b), (c) or (d) of this Clause 25.4.3 shall be applicable, the counsel for the Indemnified Party shall have the right to direct the defence of such claim, demand, action, suit or proceeding on behalf of the Indemnified Party, and the reasonable fees and disbursements of such counsel shall constitute legal or other expenses hereunder.

25.5 No consequential claims

Notwithstanding anything to the contrary contained in this Article 25, the indemnities herein provided shall not include any claim or recovery in respect of any cost, expense, loss or damage of an indirect, incidental or consequential nature, including loss of profit, except as expressly provided in this Agreement.

25.6 Survival on Termination

The provisions of this Article 25 shall survive Termination.

ARTICLE-26

26. Dispute Resolution

26.1 Dispute Resolution

26.1.1 Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause 26.2.

26.1.2 The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

26.2 Conciliation

In the event of any Dispute between the Parties, either Party may call upon the Authority's Engineer, or such other person as the Parties may mutually agree upon (the **"Conciliator")** to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the DG, ASI of the Authority and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause 26.1.1 or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause 26.3.

26.3 Arbitration

26.3.1 Any Dispute which is not resolved amicably by conciliation, as provided in Clause 26.2, shall be finally decided by reference to arbitration by a Board of Arbitrators appointed in accordance with Clause 26.3.2. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration and Conciliation Act 1996. The venue of such arbitration shall be [Delhi], and the language of arbitration proceedings shall be English.

26.3.2 There shall be a Board of three arbitrators, of whom each Party shall select one, and the third arbitrator shall be appointed by the two arbitrators so selected and in the event of disagreement between the two arbitrators, the appointment shall be made in accordance with the Rules.

26.3.3 The arbitrators shall make a reasoned award (the "Award"). Any Award made in an arbitration held pursuant to this Article 26 shall be final and binding on the Parties as from the date it is made, and the Contractor and the Authority agree and undertake to carry out such Award without delay.

26.3.4 The Contractor and the Authority agree that an Award may be enforced against the Contractor and/or the Authority, as the case may be, and their respective assets wherever situated.

26.3.5 This Agreement and the rights and obligations of the Parties shall remain in full force and effect, pending the Award in any arbitration proceedings hereunder.

26.3.6 In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal to 75% (seventy-five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 100 % (one hundred cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

26.4 Adjudication by Regulatory Authority, Tribunal or Commission

In the event of constitution of a statutory regulatory authority, tribunal or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Authority, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause 26.3, be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly.

ARTICLE-27

27. Miscellaneous

27.1 Governing law and jurisdiction

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the courts at [Delhi] shall have exclusive jurisdiction over matters arising out of or relating to this Agreement.

27.2 Waiver of immunity

Each Party unconditionally and irrevocably:

(a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;

(b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Party with respect to its assets;

(c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and

(d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

27.3 Deleted

27.4 Waiver

27.4.1 Waiver, including partial or conditional waiver, by either Party of any default by the other Party in the observance and performance of any provision of or obligations under this Agreement: -

(a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

(b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and

(c) shall not affect the validity or enforceability of this Agreement in any manner.

27.4.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to the other Party shall be treated or deemed as waiver of

such breach or acceptance of any variation or the relinquishment of any such right hereunder.

27.5 Liability for review of Documents and Drawings

Except to the extent expressly provided in this Agreement:

(a) no review, comment or approval by the Authority or the Authority's Engineer of any Document or Drawing submitted by the Contractor nor any observation or inspection of the construction, or maintenance of the Project Works nor the failure to review, approve, comment, observe or inspect hereunder shall relieve or absolve the Contractor from its obligations, duties and liabilities under this Agreement, the Applicable Laws and Applicable Permits; and

(b) the Authority shall not be liable to the Contractor by reason of any review, comment, approval, observation or inspection referred to in Sub-clause (a) above.

27.6 Exclusion of implied warranties etc.

This Agreement expressly excludes any warranty, condition or other undertaking implied at law or by custom or otherwise arising out of any other agreement between the Parties or any representation by either Party not contained in a binding legal agreement executed by both Parties.

27.7 Survival

27.7.1 Termination shall:

(a) not relieve the Contractor or the Authority, as the case may be, of any obligations hereunder which expressly or by implication survive Termination hereof; and

(b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such Termination or arising out of such Termination.

27.7.2 All obligations surviving Termination shall only survive for a period of 3 (three) years following the date of such Termination.

27.8 Entire Agreement

This Agreement and the Schedules together constitute a complete and exclusive statement of the terms of the agreement between the Parties on the subject hereof, and no amendment or modification hereto shall be valid and effective unless such modification or amendment is agreed to in writing by the Parties and duly executed by persons especially empowered in this behalf by the respective Parties. All prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement are abrogated and withdrawn.

For the avoidance of doubt, the Parties hereto agree that any obligations of the Contractor arising from the Request for Qualification or Request for Proposals, as the case may be, shall be

deemed to form part of this Agreement and treated as such.

27.9 Severability

If for any reason whatever, any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to the Dispute Resolution Procedure set forth under this Agreement or otherwise.

27.10 No partnership

This Agreement shall not be interpreted or construed to create an association, joint venture or partnership between the Parties, or to impose any partnership obligation or liability upon either Party, and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

27.11 Third parties

This Agreement is intended solely for the benefit of the Parties, and their respective successors and permitted assigns, and nothing in this Agreement shall be construed to create any duty to, standard of care with reference to, or any liability to, any person not a Party to this Agreement.

27.12 Successors and assigns

This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns.

27.13 Notices

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by this Agreement shall be in writing and shall:

(a) in the case of the Contractor, be given by facsimile or e-mail and by letter delivered by hand to the address given and marked for attention of the person set out below or to such other person as the Contractor may from time to time designate by notice to the Authority; provided that notices or other communications to be given to an address outside Delhi may, if they are subsequently confirmed by sending a copy thereof by registered acknowledgement due, air mail or by courier, be sent by facsimile or e- mail to the person as the Contractor may from time to time designate by notice to the Authority;

(b) in the case of the Authority, be given by facsimile or e-mail and by letter delivered by hand and be addressed to the Director General, ASI with a copy delivered to the Authority Representative or such other person as the Authority may from time to time designate by notice to the Contractor; provided that if the Contractor does not have an office in

Delhi it may send such notice by facsimile or e-mail and by registered acknowledgement due, air mail or by courier; and

(c) any notice or communication by a Party to the other Party, given in accordance herewith, shall be deemed to have been delivered when in the normal course of post it ought to have been delivered and in all other cases, it shall be deemed to have been delivered on the actual date and time of delivery; provided that in the case of facsimile or e-mail, it shall be deemed to have been delivered on the working day following the date of its delivery.

27.14 Language

All notices required to be given by one Party to the other Party and all other communications, Documentation and proceedings which are in any way relevant to this Agreement shall be in writing and in English language.

27.15 Counterparts

This Agreement may be executed in two counterparts, each of which, when executed and delivered, shall constitute an original of this Agreement.

27.16 Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Authority.

27.17 Copyright and Intellectual Property rights

27.17.1 As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor. The Contractor shall be deemed (by signing this Agreement) to give to the Authority a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

(a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,

(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

(c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Contractor.

27.17.2 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a

third party by (or on behalf of) the Authority for purposes other than those permitted under this Clause 27.17.

27.17.3 As between the Parties, the Authority shall retain the copyright and other intellectual property rights in this Agreement and other documents made by (or on behalf of) the Authority. The Contractor may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without the Authority's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the contract.

27.18 Limitation of Liability

27.18.1 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with this Agreement, save and except as provided under Articles 23 and 25

27.18.2 The total liability of one Party to the other Party under and in accordance with the provisions of this Agreement, save and except as provided in Articles 23 and 25, shall not exceed the Contract Price. For the avoidance of doubt, this Clause shall not limit the liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party causing any losses or damages or bodily injury or death to the other Party's and its personnel, officers etc.

ARTICLE -28

28. Definitions

28.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

"Accounting Year" means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year;

"Advances" shall have the aggregate Advance Payment;

"Advance Payment" shall have the meaning set forth in Clause 19.2;

"Affected Party" shall have the meaning set forth in Clause 21.1;

"Affiliate" means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise);

"Agreement" means this Agreement, its Recitals, the Schedules hereto and any amendments thereto made in accordance with the provisions contained in this Agreement;

"Applicable Laws" means all laws, brought into force and effect by GOI or the State Government including rules, regulations and notifications made thereunder, and judgements, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement;

"Applicable Permits" means all clearances, licences, permits, authorisations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation and maintenance of the Project Works during the subsistence of this Agreement;

"Approval or Approved" means Approval in writing including subsequent written confirmation of previous verbal approval.

"Arbitration Act" means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof, as in force from time to time;

"Authority" shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals and as ASI/Engineer-in-charge/client/owner. **ASI** shall mean **ARCHAEOLOGICAL SURVEY OF INDIA** having its Head Quarters at Dharohar Bhawan, 24, Tilak Marg, New Delhi - or its Administrative officers or its engineer or other employees authorized to deal with any matter with which these persons are concerned on its behalf

"Authority Default" shall have the meaning set forth in Clause 23.2;

"Authority's Engineer" shall have the meaning set forth in Clause 18.1 and is PMC for the project. It means any firm appointed by Authority to perform all the requirements of design – management, construction and project management till the Testing, commissioning and handing over including the contract period up to defects liability.

"Authority Representative" means such person or persons as may be authorised in writing by the Authority to act on its behalf under this Agreement and shall include any person or persons having authority to exercise any rights or perform and fulfil any obligations of the Authority under this Agreement;

"Bank" means a bank incorporated in India and having a minimum net worth of Rs. 1,000 crores (Rupees one thousand crore) or any other bank acceptable to the Authority;

"Bank Rate" means the Repo rate of interest announced by the Reserve Bank of India for all its lending operations on the Base Date;

"Base Date" means the last date of that calendar month, which date precedes the Bid Due Date by at least 28 (twenty-eight) days;

"Battery Limit" shall mean the demarcated area within which the Project is to be located;

"Bid" means the documents in their entirety comprised in the bid submitted by the [selected bidder/Consortium] in response to the Request for Proposals in accordance with the provisions thereof;

"Bidder or Applicant or tenderer or Contractor" means the Person or Firm or Company or Consortium submitting a bid/Tender

"Bid Security" means the bid security provided by the bidder or Contractor to the Authority in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security;

"Change in Law" means the occurrence of any of the following after the Base Date:

(a) the enactment of any new Indian law;

(b) the repeal, modification or re-enactment of any existing Indian law;

(c) the commencement of any Indian law which has not entered into effect until the Base Date;

(d) a change in the interpretation or application of any Indian law by a judgement of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the Base Date; or

(e) any change in the rates of any of the Taxes or royalties that have a direct effect on the Project;

"Change of Scope" shall have the meaning set forth in Article 13;

"Change of Scope Notice" shall have the meaning set forth in Clause 13.2.1;

"Change of Scope Order" shall have the meaning set forth in Clause 13.2.4;

"Completion Certificate" shall have the meaning set forth in Clause 12.4;

"Consortium" means the consortium of entities which have formed a joint venture

"Construction" shall have the meaning set forth in Clause 1.2.1 (f);

"Construction Period" means the period commencing from the Date of Letter of Award and

ending on the date of the issuance of Completion Certificate;

"Contract Price" means the amount specified in Clause 19.1.1;

"Contractor" shall have the meaning attributed thereto in the array of Parties hereinabove as set forth in the Recitals;

"Contractor Default" shall have the meaning set forth in Clause 23.1;

"Contractor's Equipment" means all machinery, apparatus, appliances, other things of whatsoever nature required for purpose of the Contract, including without limitation, Contractor's Plant and Equipment, or Materials to or from the Site, but does not include Plant, or Materials intended to form or forming part of the Permanent Works.

"Cure Period" means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Party responsible for such breach or default and shall:

(a) commence from the date on which a notice is delivered by one Party to the other Party asking the latter to cure the breach or default specified in such notice;

(b) not relieve any Party from liability to pay Damages or compensation subject to terms of this Agreement; and

(c) not in any way be extended by any period of Suspension under this Agreement; provided that if the cure of any breach by the Contractor requires any reasonable action by the Contractor that must be approved by the Authority or the Authority's Engineer hereunder, the applicable Cure Period shall be extended by the period taken by the Authority or the Authority's Engineer to accord their approval;

This definition may be omitted if the Contractor is not a Consortium.

"Damages" shall have the meaning set forth in paragraph (w) of Clause 1.2.1;

"Defect" means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any defect or deficiency which is specified in Schedule-E;

"Designer" means the Contractor, or part of the group forming the contractor, person, firm or company or group of companies, or any replacement, carrying out the Design of Works or part thereof.

"Defects Liability Period" shall have the meaning set forth in Clause 17.1 is of Ten years after Completion.;

"Dispute" shall have the meaning set forth in Clause 26.1.1;

"Dispute Resolution Procedure" means the procedure for resolution of Disputes set forth in Article 26;

"Drawings" means all of the drawings, calculations and documents pertaining to the

Project Works as set forth in Schedule-I, and shall include 'as built' drawings of the Project Works;

"Document" or "Documentation" means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form;

"Emergency" means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Works, including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets;

"Encumbrances" means, in relation to the Project Works, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss payees or beneficiaries or any similar arrangement under any

insurance policy pertaining to the Project Works, where applicable herein but excluding utilities referred to in Clause 9.1;

"EPC" means engineering, procurement and construction;

"Extended Time" shall mean the extension of time granted beyond scheduled completion date in accordance with Clause 10.5.1;

"Final Payment Certificate" shall have the meaning set forth in Clause 19.15.1;

"Final Payment Statement" shall have the meaning set forth in Clause 19.13.1;

"Force Majeure" or **"Force Majeure Event"** shall have the meaning ascribed to it in Clause 21.1;

"GAD" or **"General Arrangement Drawings";**

"GOI" or "Government" means the Government of India;

"Good Industry Practice" means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Contractor in accordance with this Agreement, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner;

"Government Instrumentality" means any department, division or sub-division of the Government or the State Government and includes any commission, board, authority, agency or municipal and other local authority or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Works or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;

"IRC" means the Indian Roads Congress;

"Indemnified Party" means the Party entitled to the benefit of an indemnity pursuant to Article 25;

"Indemnifying Party" means the Party obligated to indemnify the other Party pursuant to Article 25;

"Indirect Political Event" shall have the meaning set forth in Clause 21.3;

"Insurance Cover" means the aggregate of the maximum sums insured under the insurances taken out by the Contractor pursuant to Article 20, and includes all insurances required to be taken out by the Contractor under Clauses 20.1 and 20.9 but not actually taken, and when used in the context of any act or event, it shall mean the aggregate of the maximum sums insured and payable or deemed to be insured and payable in relation to such act or event;

"Integrated Testing" in the contracts where applicable means the programme of tests performed by the Contractor at the direction of the Engineer following satisfactory completion of Contractor's tests on all of his equipments, sub-systems or system to verify and confirm the compatibility and compliant performance of his equipment/ sub-system/ system with the equipment/ sub-system/ system provided by others.

"Milestone Certificate" means the certificate to be issued by the Engineer in relation to the achievement or otherwise of Milestones.

"Intellectual Property" means all patents, trademarks, service marks, logos, get-up, trade names, internet domain names, rights in designs, blue prints, programmes and manuals, drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

"Interest" wherever applicable shall means simple interest at the Base Rate announced by State Bank of India as on last date of previous calendar month.

"Interim Payment Certificate" or **"IPC"** means the interim payment certificate issued by the Authority's Engineer for payment to the Contractor in respect of Contractor's claims for payment raised in accordance with the provisions of this Agreement;

"IS" means the Indian Standard of Bureau of India Standards

"Lead Member" shall, in the case of a consortium, mean the member of such consortium who shall have the authority to bind the contractor and each member of the Consortium; and shall be deemed to be the Contractor for the purposes of this Agreement;

"LOA" or means the **"Letter of Award"**;

"Material Adverse Effect" means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;

"Materials" are all the supplies used by the Contractor for incorporation in the Works or for the maintenance of the Project Works;

"Mechanical Completion" shall mean the installation of all equipment and facilities and the completion of all Works required to complete the Unit(s) in all respects, and thereafter the completion of all activities to be performed by the Contractor including Pre-commissioning and Start up activities, completion of all punch list items as provided by Authority/ Authority's Engineer and/or Statutory bodies Pollution Control Authorities etc.

"MORTH" means the Ministry of Road Transport and Highways or any substitute thereof dealing with Highways;

"Non-Political Event" shall have the meaning set forth in Clause 21.2;

"Operator" shall be appointed by the Authority during the design phase of EPC Contractor. Their main work shall start after the commissioning of the project for organizing events round the year in order to derive revenue for Authority out of such activities. They will be part of the design process. They will work during the construction period of 20 (twenty) months as per their scope defined in the EPC agreement.

"Parties" means the parties to this Agreement collectively and "Party" shall mean any of the parties to this Agreement individually;

"Performance Security" shall have the meaning set forth in Clause 7.1;

"Plant" means the machinery, equipment, and apparatus and the likes, intended to form or forming part of the Permanent Works, including the supply-only items (if any), which are to be supplied by the Contractor as specified in the Contract or which are finalized by the Authority during the currency of the contract/ Agreement;

"PMC" shall have the meaning set forth in Clause 4.1.1; Project Management Consultant

"Political Event" shall have the meaning set forth in Clause 21.4;

"Pre-commissioning" shall mean all activities required to be performed after final tests for all plant, equipment & machinery comprised within the Unit which is the subject matter of the Contract to bring the equipment covered from an inactive condition to a state ready for trial run and shall include but not be limited to checking of systems and vessels, flushing and steam blowing, air blowing of pipelines, system leak checking up to the specified pressure, purging the system using inert gas, checking of electrical equipment for proper earthing, installation of resistance, conducting operability tests on individual equipment, vessels & systems, integration of all control systems of the Unit or other installation(s) concerned and all other activities required to be performed in terms of the Contract before commissioning of the Unit.

"Programme" shall have the meaning set forth in Clause 10.1.3;

"Project" means the construction and maintenance of the Project Works in accordance with the provisions of this Agreement, and includes all works, services and equipment relating to or in respect of the Scope of the Project;

"Project Assets" means all physical and other assets relating to (a) tangible assets such as civil works and equipment including foundations, embankments, pavements, road surface, interchanges, bridges, culverts, road over-bridges, drainage works, traffic signals, sign boards, kilometre-stones, [toll plaza(s)], electrical systems, communication systems, rest areas, relief centres, maintenance depots and administrative offices; and (b) Project Facilities situated on the Site;

"Project Completion Date" means the date on which the Provisional Certificate is issued and in the event no Provisional Certificate is issued, the date on which the Completion Certificate is issued;

"Project Completion Schedule" means the progressive Project Milestones set forth in Schedule-J for completion of the Project Works on or before the Scheduled Completion Date;

"Project Facilities" means all the amenities and facilities situated on the Site, as described in Schedule-C;

"Project Works" means Detailed Design, Construction, Testing & Commissioning of National Maritime Heritage Complex (Phase-IA) at Lothal, Gujarat on EPC Basis, and its subsequent development and augmentation in accordance with this Agreement;

"Project Milestone" means the project milestone set forth in Schedule-J; **"Proof**

Consultant" shall have the meaning set forth in Clause 10.2.2; **"Provisional**

Certificate" shall have the meaning set forth in Clause 12.2; **"Punch List"** shall have the meaning set forth in Clause 12.2.1;

"Quality Assurance Plan" or **"QAP"** shall have the meaning set forth in Clause 11.2;

"Re.", "Rs." or **"Rupees"** or **"Indian Rupees"** means the lawful currency of the Republic of India;

"Request for Qualification cum Request for Proposals" or "RFQ cum RFP" shall have the meaning set forth in Recital 'C';

"Retention Money" shall have the meaning set forth in Clause 7.5.1;

"Project Site" means the constructive possession of the Site free from encroachments and encumbrances, together with all way leaves, easements, unrestricted access and other rights of way, howsoever described, necessary for construction and maintenance of the Project Works in accordance with this Agreement;

"Safety Consultant" shall have the meaning set forth in Clause 10.1.5;

"Scheduled Completion Date" shall be the date set forth in Clause 10.3.1; **"Scope of the Project"** shall have the meaning set forth in Clause 2.1; **"Section"** means a part of the Project Works;

"Site" shall have the meaning set forth in Clause 8.1;

"Specifications and **Standards"** means the specifications and standards relating to the quality, quantity, capacity and other requirements for the Project Works, as set forth in Schedule-D, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project Works submitted by the Contractor to, and expressly approved by, the Authority;

"Stage Payment Statement" shall have the meaning set forth in Clause 19.4;

"Structures" means an elevated , as the case may be;

"Sub-contractor" means any person or persons to whom a part of the Works or the Maintenance has been subcontracted by the Contractor and the permitted legal successors in title to such person, but not an assignee to such person;

"Suspension" shall have the meaning set forth in Article 22;

"Taxes" means any Indian taxes including GST, excise duties, customs duties, value added tax, sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project Works charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;

"Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required for the execution and completion of the Works, and the remedying of any defects.

"Termination" means the expiry or termination of this Agreement;

"Termination Notice" means the communication issued in accordance with this Agreement by one Party to the other Party terminating this Agreement;

"Termination Payment" means the amount payable by either Party to the other upon Termination in accordance with Article 23;

"Tests" means the tests set forth in Schedule-K to determine the completion of Works in accordance with the provisions of this Agreement;

"Time Extension" shall have the meaning set forth in Clause 10.5.1;

"User" means a person who uses or intends to use on the Project Works or any part thereof;

"Valuation of Unpaid works" shall have the meaning set forth in Clause 23.5.1;

"Variation" means any alteration and/ or modification to the Authority's Requirements, which is instructed by the Engineer or approved as a variation by the Engineer, in accordance with Article 13.

"Works" means the work including survey, investigation, design, both permanent and temporary, or services to be carried out, designed, constructed, manufactured, fabricated, delivered to Site, erected, installed, completed, tested, commissioned, (including Integrated Testing and Commissioning) and remedying of any defects, and/ or supplied in accordance with the Contract and include Plant, Goods and Materials and their accessories and other necessary items/activities to complete the project/work with all the required spares, tools etc.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

SIGNED, SEALED AND	SIGNED, SEALED AND
DELIVERED	DELIVERED
For and on behalf of	For and on behalf of
THE Authority by:	THE CONTRACTOR by:
(Signature)	(Signature)
(Name)	(Name)
(Designation)	(Designation)

In the presence of: 1.

{COUNTERSIGNED and accepted by:

Name and particulars of other members of the Consortium}

SCHEDULE A: ANNEXURE 1

Site of the Project

The project site is located at near Saragwala village, Lothal. Lothal falls in the Dholka Taluka of Ahmedabad district. It is in proximity to the National Highway No. 47 and State Highway No. 8, thus has a good road connectivity to important urban centers such as Ahmedabad, Bhavnagar and Rajkot. It also falls about six-kilometer South-East of the Lothal-Bhurkhi railway station on the Ahmedabad-Bhavnagar railway line. The archaeological site is surrounded by three villages – Saragwala, Uteliya and Gundi.

The coordinates of the land /site are as under:-

East -72°14'55", North - 22°31'32"

East-72°14'45", North- 22°31'28"

East- 72°14'43", North-22°31'27"

East-72°14'52", North-22°31'11"

East-72°15'02", North-22°31'03"

East-72°15'01", North-22°31'06"

East-72°15'04", North-22°31'07"

East-72°15'06", North-22°31'10"

East-72°15'06", North-22°31'16"

East-72°15'05", North-22°31'22"

East-72°15'02", North-22°31'28"

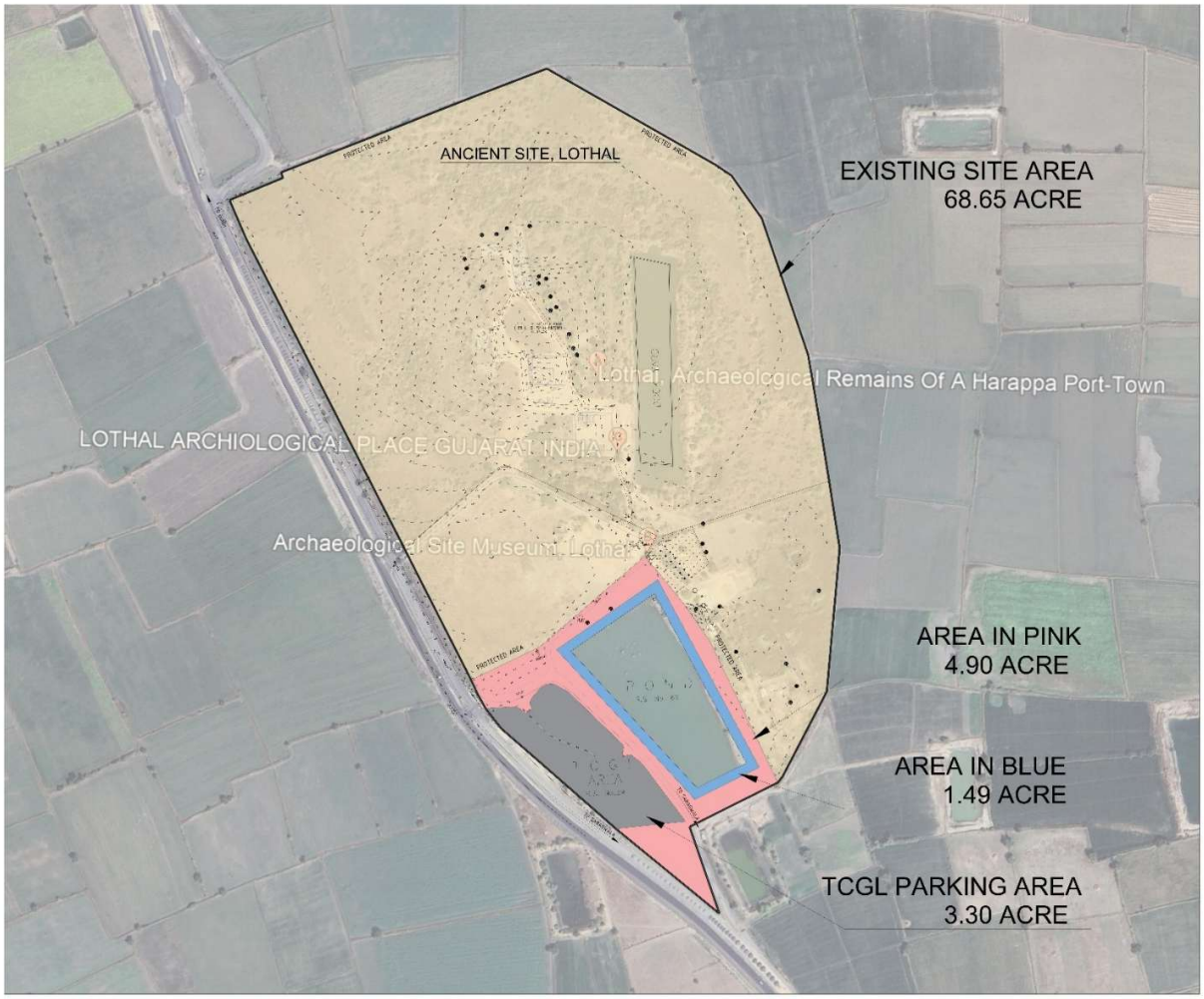
East-72°15'02", North-22°31'28"

Elevation – 31.79m
Permissible Top elevation as per approval from Airport Authority of India – NA

SCHEDULE A: ANNEXURE 2

Land details:-





While the **ASI-designated site area of 68.65 acres** forms the core site, the masterplan also considers the following additional areas, EPC contractor shall reconfirm the site extents with the Competent Authority of ASI:

- **Area marked in pink:** 4.90 acres
- **Area marked in blue:** 1.49 acres
- **TCGL parking area:** 3.30 acres

All design development, zoning, circulation, landscape planning, and infrastructure alignments are being carried out strictly within this **combined extent of 78.34 acres**.

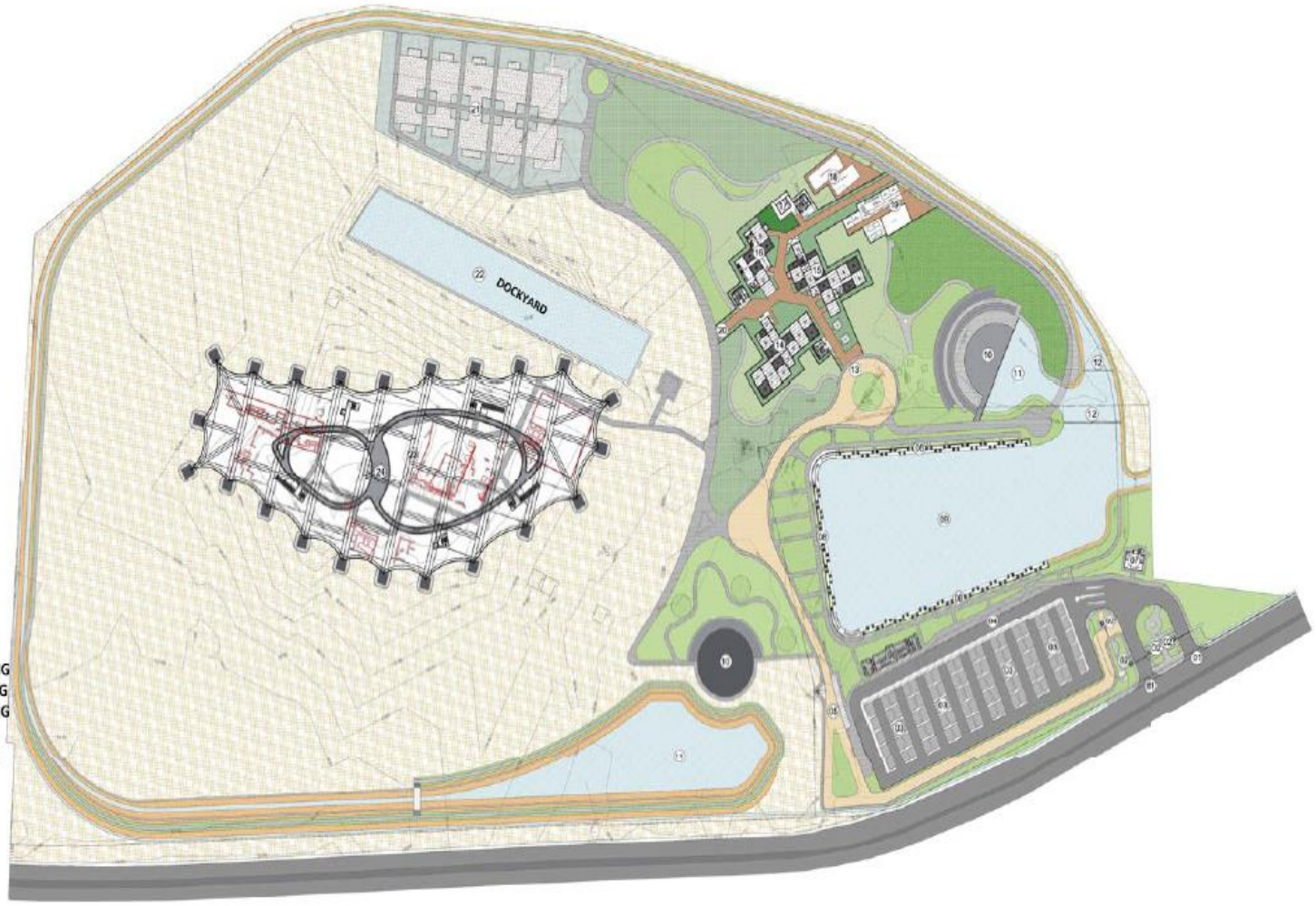
SCHEDULE A: ANNEXURE 3

Survey Plan:



SCHEDULE A: ANNEXURE 4

Proposed Master Plan



LEGEND
01. ENTRY / EXIT
02. SECURITY CABIN
03. CAR PARKING
04. BUS PARKING
05. GOLF CART PARKING
06. PUBLIC TOILET
07. DRIVER'S LOUNGE
08. STEPS AT POND PERIPHERY
09. POND
10. AMPHITHEATER
11. WETLAND BASIN
12. CHECK DAM
13. ORIENTATION CENTER DROP OFF
14. BLOCK 1 - EXHIBITION AND EXPERIENCE BUILDING
15. BLOCK 2 - KNOWLEDGE AND LEARNING BUILDING
16. BLOCK 3 - CULTURAL AND COMMUNITY BUILDING
17. BLOCK 4 - CAFE BUILDING
18. STP, UNDERGROUND WATER AND PUMP ROOM
19. SERVICE YARD
20. PATHWAY CONNECTING TO RUIN EXHIBIT
21. GARDEN (ACTIVITY AREA)
22. ANCIENT DOCKYARD
23. ANCIENT RUIN
24. GLASS BRIDGE


LEGENDS
01 DROP OFF
02 LANDSCAPING
03 PUBLIC TOILET
04 BLOCK 1 - EXHIBITION & EXPERIENCE BUILDING
05 BLOCK 2 - KNOWLEDGE AND LEARNING BUILDING
06 BLOCK 3 - CULTURAL AND COMMUNITY BUILDING
07 GRASS PAVER LANDSCAPE
08 CAFE BUILDING
09 PATHWAY CONNECTING TO POND
10 PATHWAY CONNECTING TO RUIN EXHIBIT
11 STP
12 UNDERGROUND WATER TANK AND PUMP ROOM
13 FUEL TANK
14 DG SET
15 TRANSFORMER
16 PANEL ROOM

SCHEDULE A: ANNEXURE 5

Environmental Clearance: NOT APPLICABLE

SCHEDULE B ANNEXURE 1

BROAD SCOPE OF WORK INCLUDING PROJECT BRIEF & PROJECT FACILITIES

BROAD SCOPE OF WORK INCLUDING PROJECT BRIEF & PROJECT FACILITIES

1.1 *ABOUT ARCHAEOLOGICAL SURVEY OF INDIA*

The Archaeological Survey of India (ASI) is an attached office of the Ministry of Culture, Government of India. Under the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act), ASI administers more than 3,650 ancient monuments, archaeological sites, and remains of national importance. These include temples, mosques, churches, tombs, cemeteries, palaces, forts, stepwells, rock-cut caves, ancient mounds, and other sites representing remains of ancient habitation.

ASI is inviting bids from prospective bidders for **Design and Construction of the Lothal Archaeological Site, Lothal, District Ahmedabad, Gujarat**, including the **Museum cum Orientation Centre at Lothal**, in accordance with the scope of work defined in this **Schedule-B**, read in conjunction with **Volume-1 (RFP-cum-RFQ Document), Drawings, Specifications, and Price Bid**, and **subject to the terms and conditions of the Draft Agreement**.

All planning, design, and execution activities under this scope shall be carried out under the overall supervision and control of the **Archaeological Survey of India (ASI)**, **in conjunction with the Principal Project Consultant / Design Anchor (AHC)**, as defined in the Draft Agreement.

1.2 *THE LOTHAL ARCHAEOLOGICAL SITE, LOTHAL, DISTRICT AHMEDABAD*

1.2.1 The Proposed Lothal Archaeological Site development Interpretation comprises ***of:***

a) Museum cum Orientation Center
- Cultural & Community Block
- Exhibition & Experience Block
- Knowledge & Learning Centre Block
- Cafe
- Public Toilet

b) Site Infrastructure comprising of:
i) Tensile Structure (Approx. 300m x157 Mt)
ii) Bridge & Access Cores including 3 sets of escalators (Built-up over ruins)
iii) Pond
iv) Wetland Basin / Water Canal
v) Gutter
vi) Pavement
vii) Stairs
viii) Amphitheatre 1 & 2
ix) Roads
x) Dockyard
xi) Activity Area

xii) Golf Cart Parking

xiii) Driver's Lounge

xiv) Bus Parking

xv) Car Parking

xvi) Toilet Block Ruins site surroundings

xvii) Landscape (Soft & Hard scape)

xviii) Café Block

1.2.2 ***Role of ASI***

The Archaeological Survey of India (ASI) shall act as the **Statutory Custodian Authority** of the protected archaeological site at Lothal under the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act)** and all amendments thereto.

ASI shall have the authority to **review, supervise, direct, regulate, and monitor** all works within the protected and regulated areas of the site, including but not limited to works affecting **archaeological remains, ruins, soil strata, visual corridors, landscape character, and the overall heritage setting** of the site.

All planning, architectural, engineering, conservation, construction methodology, and execution-related activities shall be undertaken **under the overall statutory supervision of ASI**, and **in conjunction with the Principal Project Consultant (PPC) / Design Anchor, AHC**, in accordance with the provisions of the Draft Agreement.

No excavation, construction activity, piling, foundation work, alteration of ground levels, or movement of heavy machinery shall be undertaken without **prior written approval of the Archaeological Survey of India (ASI), issued in conjunction with the Principal Project Consultant (PPC) / Design Anchor, AHC**.

Any instructions, directions, safeguards, or conditions issued by ASI **in consultation with the Principal Project Consultant (AHC)** in the interest of heritage conservation, archaeological protection, and statutory compliance shall be **final and binding** on the EPC Contractor. Compliance with such directions shall be deemed to be included within the Contractor's scope of work, obligations, cost, and time, and **no additional claims for cost or extension of time shall be admissible on this account**, except as provided under the Draft Agreement.

1.2.3 ***Location***

It is proposed to develop **Museum cum Orientation Centre along with associated site infrastructure** at the **Lothal Archaeological Site**, near **Saragwala village, Lothal**, District – Ahmedabad, Gujarat. The proposed development shall be conceived as a heritage-responsive intervention intended to **interpret, present, and enhance understanding of the archaeological significance of Lothal**, while ensuring protection, conservation, and contextual integration with the existing archaeological remains, in accordance with the provisions of the **Ancient Monuments and Archaeological Sites and Remains Act, 1958**, and approvals issued by the **Archaeological Survey of India (ASI)** in conjunction with the **Principal Project Consultant (AHC)**.

The Museum cum Orientation Centre shall provide curated spaces for interpretation, learning, and visitor engagement relating to the **archaeological, historical, cultural, urban, and technological aspects of the Lothal site**, based on interpretive narratives, layouts, and content frameworks approved by ASI in conjunction with the Principal Project Consultant (AHC).

Lothal is located in **Dholka Taluka of Ahmedabad District, Gujarat**, and enjoys proximity to **National Highway No. 47** and **State Highway No. 8**, providing road connectivity to key urban centres including **Ahmedabad, Bhavnagar, and Rajkot**. The site is situated approximately **six kilometres south-east of the Lothal–Bhurkhi railway station** on the Ahmedabad–Bhavnagar railway line.

The archaeological site is surrounded by the villages of **Saragwala, Uteliya, and Gundi**, where agriculture constitutes the primary occupation. The relationship between the site and the surrounding rural landscape forms an important contextual setting for the project and shall be respected in all planning and design decisions.

Lothal is one of the significant urban centres of the **ancient Indus Valley Civilization**, dating to approximately **2400 BC**. Archaeological excavations at the site have revealed substantial remains reflecting advanced urban planning, water management systems, and built structures of historical and archaeological importance. The proposed development at Lothal is intended to **respect the integrity of the archaeological site**, reinforce its historical value, and facilitate informed public engagement, without compromising the authenticity, scale, or cultural significance of the protected remain

1.2.4 ***Access to Project site:***

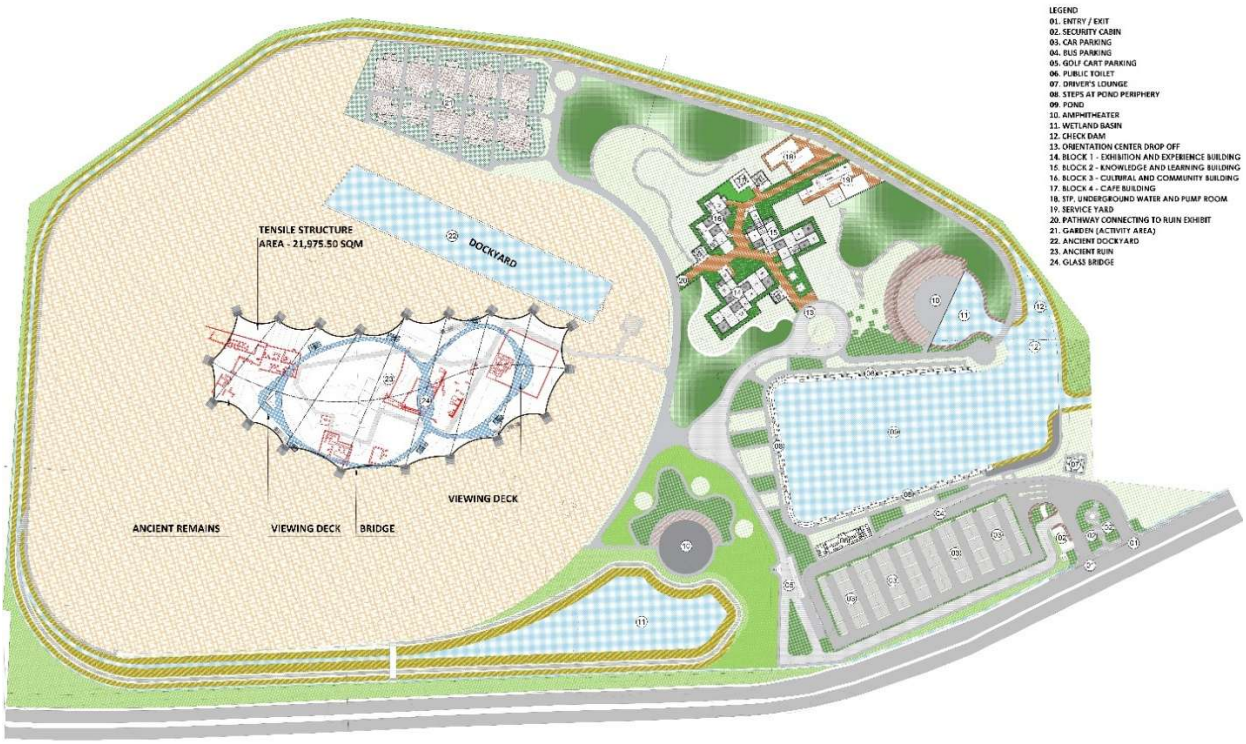
The project site is accessible from **NH-47 (Ahmedabad–Rajkot Highway)**, which connects to the site via **SH-1** towards Dhingada village and further through the **Dhingada–Gundi–Saragwala village road**. Adequate directional signage with good legibility exists along **NH-47, SH-1, and the village roads**, indicating directions and distances to the project site.

The **Saragwala–Gundi road**, an all-season paved road, connects to **SH-8 and SH-1** from Arnej and Dhingada respectively. These State Highways further connect to NH-47 at Bagodara. A **rammed earth road** exists between Saragwala and Uteliya villages, passing through the project site. These village roads collectively provide access to the site from the surrounding region.

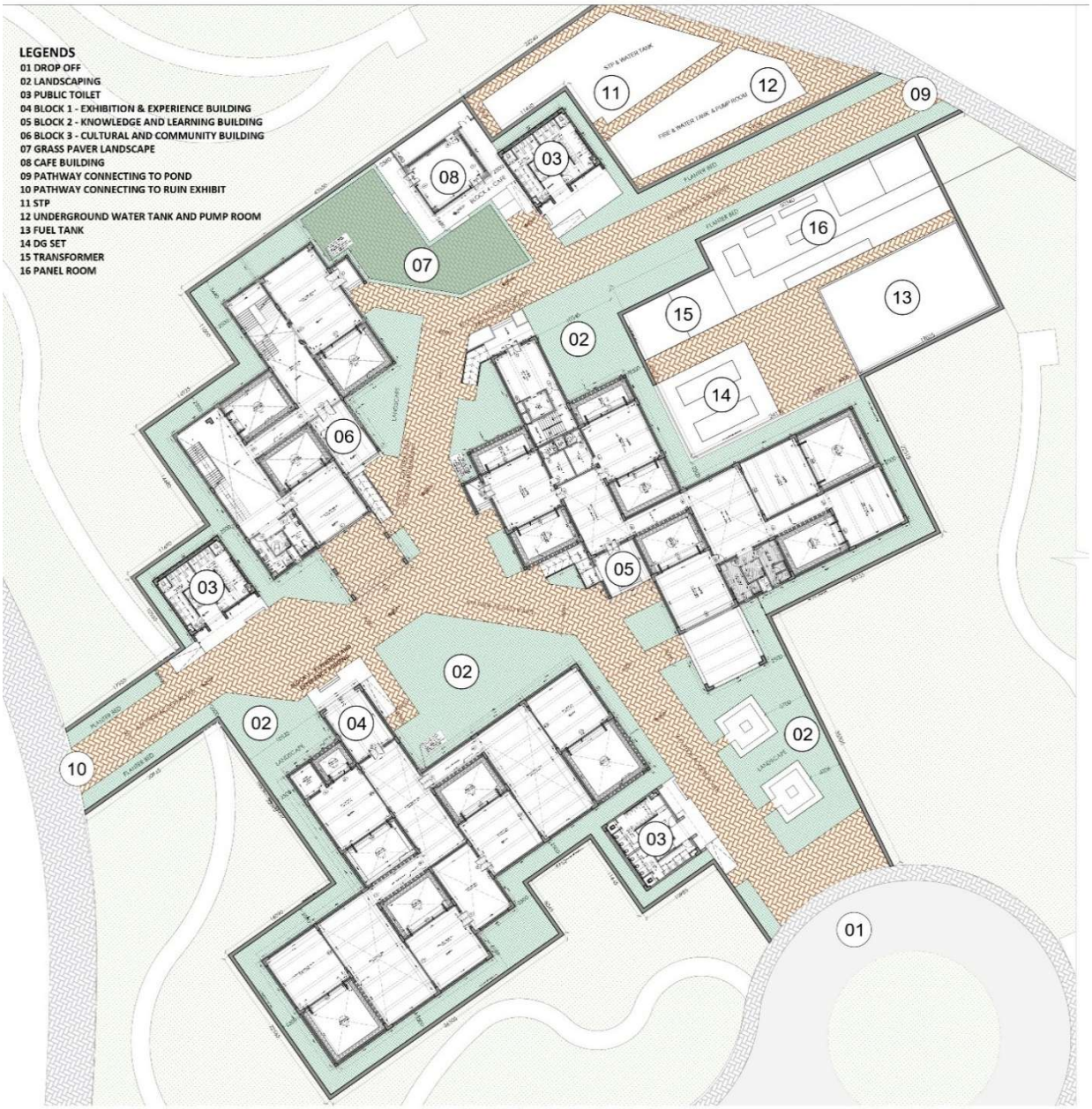
The overall connectivity of highways and village roads to the project site is illustrated in the relevant drawings, indicating **good road accessibility** to the project area.

1.2.5 ***Master Plan***

An **Indicative Master Plan Layout**, showing the principal components of the proposed development **Lothal Archaeological Site, Lothal, District – Ahmedabad, Gujarat** (hereinafter referred to as the "Project") shall be developed as a facility of appropriate scale with **world-class infrastructure**, comprising exhibition spaces, interpretive facilities, specialised event areas, visitor amenities, and logistics infrastructure, in accordance with the design intent, statutory requirements, and approvals issued by **ASI in conjunction with AHC**.


LEGEND
01. ENTRY / EXIT
02. SECURITY CABIN
03. CAR PARKING
04. BUS PARKING
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06. PUBLIC TOILET
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08. STEPS AT POND PERIPHERY
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19. SERVICE YARD
20. PATHWAY CONNECTING TO RUIN EXHIBIT
21. GARDEN (ACTIVITY AREA)
22. ANCIENT DOCKYARD
23. ANCIENT RUIN
24. GLASS BRIDGE
TENSILE STRUCTURE
AREA - 21,975.50 SQM
DOCKYARD
VIEWING DECK
ANCIENT REMAINS
VIEWING DECK
BRIDGE

MASTER PLAN


LEGENDS
01 DROP OFF
02 LANDSCAPING
03 PUBLIC TOILET
04 BLOCK 1 - EXHIBITION & EXPERIENCE BUILDING
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14 DG SET
15 TRANSFORMER
16 PANEL ROOM

LAYOUT PLAN

A. Area Summary for Master Plan:

The area summary for the full development of the masterplan is as shown below:

ASI Lothal Area Statement				
Sr. No.	**Area (SQ.M)**	**Area (SQ.M)**	**Nos.**	**Total Area**
	Site Area	**3,41,366**	**1**	**3,41,366**
1	Pond	16,449	1	16,449
2	Wetland Basin / Water canal	12,423	1	12,423
3	Gutter	3,256	1	3,256
6	Pavement	22,957	1	22,957
7	Stairs	1,425	1	1,425
8	Amphitheatre 1	2,010	1	2,010
9	Amphitheatre 2	1,801	1	1,801
10	Road	11,225	1	11,225
11	Dockyard	7,855	1	7,855
12	Activity area	4,872	1	4,872
13	Golf cart parking	581	1	581
14	Driver's lounge	150	1	150
15	Bus parking	896	1	896
16	Car Parking	3,200	1	3,200
17	Toilet	404	1	404
18	Ruins site surrounding	1,38,061	1	138060.98
19	Landscape	1,06,646	1	106645.5
20	Interpretation centre (Ground Coverage)	7,156	1	7,156
			TOTAL	**3,41,366**
Builtup over Ruins				
21	Bridge	2,479	1	2,479
22	Core	56	6	338
			TOTAL	**2,816**

Note: Areas have been rounded off

1.2.6 ***Scope of Work***

1.2.6.1 A brief scope of the Works for the Project is outlined below:

The Project comprises the development of the components as indicated in the **approved Master Plan** and with areas as tabulated under **Clause 1.2.5(A) – Area Summary**, to be executed on an **Engineering, Procurement and Construction (EPC) basis** within a total duration of **(3) months for design and (21) months for construction**, inclusive of design, approvals, construction, testing, and commissioning.

The Scope of Works shall include the execution of works **complete in all respects**, including but not limited to **civil works and RCC structures**, architectural envelope works, external finishes, all structural components, foundations, superstructure, internal and external MEPF and infrastructure provisions, fire protection systems (as applicable to structure), ICT and audiovisual infrastructure provisions, external development works, landscaping, site development, site lighting, and all allied works, in compliance with the requirements for **IGBC Campus Platinum rating** and **GRIHA 5-Star certification**, as applicable.

1.2.7 **EPC Scope in museum & exhibition design**

All interior works of exhibition and museum spaces are also included in the EPC scope at Provisional Sum, and executed through a separate tender. This includes, without limitation:

- **Interior finishes and fit-outs**
- **Exhibition and museum areas**
- **Museum content, artefacts, and displays**
- **Curation, theming, and interpretive installations**
- **Audio-visual content production and multimedia programming**
- All Low Side and associated building level services, along with interfacing with the high side space to accommodate the equipment

To clarify further that the exhibition design, exhibition detailing, museum content, and associated works should be included in the EPC cost. However, the installation, construction & fabrication in exhibition & museum spaces shall be executed through a separate tender/package, independent of the EPC contract, but as a Provisional Sum as per Price Bid.

Notwithstanding the above exclusions, the EPC Contractor shall be responsible for ensuring full coordination with the appointed Exhibition Design Consultant and the Principal Project Consultant / Design Anchor, Architect Hafeez Contractor (AHC), including but not limited to alignment of structural provisions, interfaces, services coordination, access requirements, load considerations, and construction sequencing.

- The EPC Contractor shall incorporate all such coordinated requirements into the works strictly in accordance with approvals and directions issued by AHC, and in compliance with approvals granted by the Archaeological Survey of India (ASI). Necessary land grading to be done by **EPC contractor.**

Final review, approval, and sign-off of all coordinated interface matters between the EPC works and the exhibition design shall rest solely with the Principal Project Consultant (AHC).

1.2.8 **Anchor Design and Design Control**

The **Master Plan, Concept Design, architectural language, spatial hierarchy, circulation strategy, material intent, experiential sequencing, and the Design Basis Report (DBR)** prepared by **Architect Hafeez Contractor (AHC)** shall collectively constitute the **Anchor Design** for the Project.

The EPC Contractor shall undertake all detailed design development, engineering, coordination, and construction **strictly in conformity with the Anchor Design**, and in accordance with the directions and approvals issued by **ASI in conjunction with the Principal Project Consultant / Design Anchor, AHC**, as per the Draft Agreement.

No deviation, modification, simplification, value engineering proposal, material substitution, or design alteration that affects **architectural intent, spatial quality, proportions, materiality, heritage sensitivity, or visual character** shall be permitted without prior written approval of **ASI in conjunction with AHC and the Authority**, as applicable.

Any unauthorised deviation from the Anchor Design shall be **rectified by the EPC Contractor at its own cost and risk**, without entitlement to any additional payment, compensation, or extension of time.

- Necessary land grading to be done by **EPC contractor.**

1.2.9 **Formation *Levels & Site Investigations***

The formation levels indicated in the Tender Documents are **indicative minimum levels only**.

The EPC Contractor shall be **solely responsible** for carrying out detailed topographical surveys, LiDar & GPR surveys as the site is archaeologically sensitive, geotechnical investigations, flood analysis, hydrological studies, and soil assessments, and for finalising the formation levels in consultation with the **Archaeological Survey of India (ASI)** and the Authority, **in conjunction with the Principal Project Consultant (AHC)**.

Necessary land grading to be done by **EPC contractor.**

The EPC Contractor shall ensure that the final formation levels do not adversely impact **archaeological remains, protected zones, site hydrology, or the heritage setting**.

No claim for **additional cost, variation, compensation, or extension of time** shall be admissible on account of the finalisation or revision of formation levels, except as expressly provided under the **Draft Agreement**.

Details of Formation Level

Element	**Level (m)**	**Filling (Approx.)**	**Consideration / Remarks**
Minimum Existing Ground Level (as per contour survey)	**≈ 12.00**	—	Minimum natural ground level observed within project site

Element	**Level (m)**	**Filling (Approx.)**	**Consideration / Remarks**
Existing Ground Levels (overall site)	≥ 12.00 (variable)	—	Existing levels vary across the site as per approved contour map
Uniform Formation Level for Roads, Pathways & Site Development Areas (Design Intervention Zones)	**13.71**	Variable (≈ 1.5–2.0 m, location-specific)	Adopted based on **1 in 100-year flood level with 1.0 m freeboard**
Plinth Level of Buildings (where construction is permitted)	**14.16**	—	Fixed at **+450 mm above finished road / pathway level (13.71 m)**
Archaeologically Sensitive / Excavated Areas	Existing levels to be retained	Nil	**No cutting, filling, grading, or compaction permitted**
Pedestrian Skywalk over Archaeological Excavations	Elevated structure (approx. +6.0 m above existing ground)	Nil	Designed to span without any ground intervention
Parking, Plazas, Services & Internal Circulation (with design intervention)	13.71	As required	To match uniform site formation level
Non-intervention / Buffer Areas	Existing levels	Nil	No earthwork or design intervention

Notes / Binding Clarifications

1. A **uniform formation level of 13.71 m** shall be adopted for **roads, pathways, plazas, parking, and site development works** in all areas where **design intervention is proposed**.
2. **All building plinths shall be set at 450 mm above the finished road/pathway level**, resulting in a **plinth level of 14.16 m**.
3. **Archaeologically sensitive and excavated areas shall remain completely untouched**, with zero earthwork, unless expressly permitted by the **Archaeological Survey of India (ASI)**.
4. Existing ground levels shall be considered **as per the approved contour survey**, with the **minimum observed level being approximately 12.00 m**.

5. Any deviation from the above levels shall require **prior written approval of ASI**, followed by design approval by **Architect Hafeez Contractor (AHC)**.
6. The EPC Contractor shall be deemed to have accounted for variable filling quantities and shall not be entitled to any additional cost or time on this account.
7. Necessary land grading to be done by **EPC contractor.**

1.2.10 **The *name of the work, its estimated cost with schedule time of completion is given below:***

Name of the Work	Estimated Project Cost (In Rs. cr.)	Completion Work (Months)
Detailed Design, Procurement, Construction, Testing & Commissioning of Museum cum Orientation Centre at Lothal, Gujarat on EPC Basis including Defects Liability Period of 10 (Ten) years for Structural, Steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years.	240 Cr. (excluding GST)	3 months design+21 months constructions

1.2.11 The selected bidder (the **"Contractor"**) shall be responsible for the design, engineering, procurement, construction, testing, commissioning, and completion of the Project strictly in accordance with the provisions of the Engineering, Procurement and Construction Agreement ("**EPC Agreement**") to be executed between the EPC Contractor and the Authority, in the form provided by the Authority as part of the Bidding Documents and as finalised under the Draft Agreement.

1.2.12 The Scope of Work shall broadly include detailed design, engineering, procurement, construction, testing and commissioning of the Museum cum Orientation Centre and associated site infrastructure at the Lothal Archaeological Site, Gujarat, on an EPC basis, together with the Defects Liability Period of ten (10) years, in accordance with the EPC Agreement for Structural, steel fabrication and Tensile Fabric Work along with MEPF equipment. Defects Liability Period for remaining works shall be 2 (two) years.

1.2.13 The estimated cost of the Project (the "Estimated Project Cost") has been specified in the clause 1.2.10 above. The assessment of actual costs will have to be made by the Bidders.

1.2.14 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor's work and obligations.

1.2.15 The statements and explanations contained in this RFQ-cum-RFP and Schedule-B are intended solely to facilitate a general understanding of the Project and shall not be construed as limiting, qualifying, or restricting the scope of work or obligations of the EPC Contractor under the EPC Agreement. In the event of any omission, ambiguity, inconsistency, or contradiction between the Bidding Documents and the EPC Agreement, the provisions of the EPC Agreement shall prevail, and no claim on such account shall be admissible.

1.2.16 Bids shall be submitted strictly in accordance with the terms and conditions of the RFQ-cum-RFP, as amended or clarified by the Authority from time to time, on or before the Bid Due Date specified under Clause 1.4.

1.2.17 Scope of Project & Design work covered in this proposal:

The scope of work in this proposal includes Detail Designing & Architectural work of Museum cum Orientation Centre and all other components as detailed. This includes:

The Scope of Work under this Project shall include **design development, Procurement, engineering, and construction of the Museum cum Orientation Centre and associated infrastructure**, including **RCC structure, architectural envelope, exhibition and museum spaces interiors (design included in the EPC scope and execution through a separate tender under Provisional Sum) and site works**, in accordance with the Anchor Design prepared by **Architect Hafeez Contractor (AHC)** and approvals issued by **ASI in conjunction with AHC**.

1.2.17.1 Design and Architectural planning

- The EPC Contractor shall be responsible for carrying out the **detailed design, engineering, coordination, and execution** of all Project components **strictly based on the Anchor Design, Master Plan, and Design Basis Report (DBR)** prepared by **Architect Hafeez Contractor (AHC)**, and in accordance with directions and approvals issued by the **Archaeological Survey of India (ASI) in conjunction with AHC**.
- The EPC Contractor shall engage **pre-qualified and competent design consultants** for architectural, structural, and engineering services as required for execution of the **RCC structure, architectural envelope, and site infrastructure**, strictly in conformity with the approved Anchor Design.
- The EPC Contractor's scope shall be **limited to the construction of the Museum cum Orientation Centre building shell**, including:
    - RCC foundations, substructure and superstructure
    - Architectural form, massing, circulation framework and external finishes
    - Roof structures, cores, bridges and structural interfaces
- **All interior works of any nature whatsoever are also inlcuded** from the EPC Contractor's scope. This includes, without limitation:
    - Interior finishes and fit-outs
    - Exhibition and gallery spaces
    - Museum displays, artefacts, replicas and theming
    - Graphics, infographics, historic data, translations
    - Multimedia systems, hardware, software and content

- Immersive zone in Orientation Centre
- All Low Side and associated building level services, this tender only provides the high side space to accommodate the equipment. Any updates in high side due to changes in exhibit design will have to be formally approved as per protocol etc.
- The **exhibition design, exhibition detailing, museum content, and associated works shall be executed through a separate tender/package**, independent of the EPC contract.
- Notwithstanding the above exclusions, the **EPC Contractor shall be responsible for ensuring full coordination** with the appointed Exhibition Design Consultant and the Principal Project Consultant / Design Anchor, **Architect Hafeez Contractor (AHC)**, including but not limited to alignment of structural provisions, interfaces, services coordination, access requirements, load considerations, and construction sequencing.
- The EPC Contractor shall incorporate all such coordinated requirements into the works **strictly in accordance with approvals and directions issued by AHC**, and in compliance with approvals granted by the **Archaeological Survey of India (ASI)**.
- **Final review, approval, and sign-off of all coordinated interface matters between the EPC works and the exhibition design shall rest solely with the Principal Project Consultant (AHC).**

- **Infrastructure and Site Development**

  The EPC Contractor shall be responsible for execution of **site development and infrastructure works**, including but not limited to:

  - Tensile Structure (Approx Dimensions – 300m x 157m). The EPC contractor to ensure that the tensile structure and fabric cover the complete excavation zone.
  - Ponds and water bodies
  - Bridge and core structures
  - Roads, pavements, pathways and site circulation
  - External electrical infrastructure
  - Water supply and sewerage infrastructure

1.2.17.2 ***Land filling and grading in accordance with approved formation levels*****Integrated Water Management Strategy: ASI Lothal Project**

1. Introduction

The ASI Lothal Project represents a unique engineering challenge: balancing the preservation of a Bronze Age heritage precinct with the infrastructure required for modern tourism. As an ASI-protected site, the primary objective is to establish a sustainable, self-reliant water cycle that mitigates the risks of siltation, structural erosion, and seasonal drying. This report outlines an integrated approach involving advanced surface runoff management, rainwater harvesting, and wastewater

recycling to maintain site integrity and operational efficiency.***Necessary land grading to be done by*** *EPC contractor.*

2. Site Information and Hydrological Context

Data collected from the Dholka station (the closest IMD rain gauge to Lothal) between 1992 and 2013 provides the hydrological foundation for this strategy.

Rainfall Profile: The site receives an average annual rainfall of 811 mm, with an average of 31.6 rainy days per year.

Peak Events: The historical 24-hour peak rainfall was recorded at 436 mm.

Environmental Constraints: The region experiences high evaporation losses, estimated at nearly 2 meters per year. This necessitates proactive water retention and top-up mechanisms to prevent the ancient dock and ponds from drying out post-monsoon.

3. Technical Specifications

Surface Runoff Management

To minimize silt formation within the dock, a dual-intervention strategy is proposed:

Grassed Swales: Sized to intercept upstream water flow and site runoff, diverting it to ponds or downstream overflow.

Sedimentation Infrastructure: A sedimentation trench around the dock collects runoff into a basin at the northern end. This basin acts as the primary water inlet for the dock, ensuring sediment is trapped before entry. This basin must be cleaned before the start of every monsoon.

Flood Prevention: Dependency on existing culverts is minimized to avoid man-made flooding; outlets will connect directly to downstream stormwater drains to prevent discharge into neighbouring farmland.

Roof Runoff and Canopy Drainage

Collection: At least 80% of roof runoff from the interpretation center and canopy structures will be collected.

Structural Protection: Given the proximity of the canopy to the dock, runoff is channelized to prevent intense, uncontrolled discharge (which can be 3–4 times more intense than bare ground) from damaging the ancient dock structure.

Storage: Runoff is directed to a 7,000 KL subsurface tank, ensuring nearly 93% of potable and misting demand is met.

Dock and Pond Maintenance

Dock Depth: The dock is 4 meters deep; a minimum water level of 0.75 meters must be maintained at all times to satisfy heritage requirements. The final maintained water levels must be finalized in coordination with the ASI.

Top-up Mechanisms: A dedicated Dock Top-up Tank will be fed by excess roof rainwater and dock overflow. This tank provides the 3–4 months of top-up water required to combat dry-season evaporation.

Lining: Seepage losses will be arrested by lining the dock.

Retention Ponds: Ponds sized at 40,000 KL (with a 5-meter depth to minimize evaporation) will meet 100% of the site's landscape and potable requirements.

4. Water Calculations

Occupancy and Demand

Calculations are based on the 2029 "Full Phase" projection:

Peak Occupancy: 12,364 daily visitors, 1,236 cafeteria users, and 100 full-time staff.

Daily Demand (KL/Day): * Treated Water: 63.3 KL.

Potable Water: 38.1 KL.

Drinking Water: 20.0 KL.

Resource Optimization

Wastewater: An STP with 85% efficiency will recycle all black and grey water for flushing, cooling towers, and landscaping.

Landscape Budget: To optimize consumption, the irrigated landscape is restricted to 27,000 sqm (a 50% reduction from the original proposal), designed to use less than 1.8 li/sqm/day.

Misting: Demand is calculated at 5 lts/sqm/hour for 440 sqm of walkway "cool spots".

5. Conclusion

The proposed water management framework for ASI Lothal transitions the site from a passive recipient of monsoonal runoff to a regulated, sustainable ecosystem. By integrating sedimentation controls, high-capacity subsurface storage, and aggressive wastewater recycling, the project reduces dependency on external fresh water while ensuring the permanent presence of water in the historic dockyard. This strategy ensures that Lothal remains a resilient cultural landmark, with all final water level parameters to be validated by the ASI to ensure archaeological safety. The water levels to be maintained as per DBR and documents and finalization shall be done in consultation with ASI.

1.2.17.3 Mock-ups for Architectural, Finishing & Visually Sensitive Elements

a) General

- The EPC Contractor shall prepare and execute life-size physical mock-ups of all materials, finishes, components and systems that have a direct architectural, visual or experiential implication, prior to commencement of final execution works.
- Mock-ups shall be treated as a mandatory design validation, workmanship approval and quality control requirement

b) Mandatory Life-Size Physical Mock-ups

- Life-size physical mock-ups shall be required for, but not limited to, the following:
- Exposed concrete elements, including shallow vaults, arches and curved structural forms

- Concrete surface finishes, textures, formwork patterns and jointing
- External façade materials, cladding systems and surface treatments
- Roofing materials, profiles and junction details
- Structural and architectural elements exposed to view
- Railings, balustrades, parapets and edge details
- Doors, windows, glazing systems and frame details
- Tensile / membrane structures, fabrics, edge conditions and support details
- Landscape hardscape elements, pavements and site furniture
- Architectural lighting fixtures and visible lighting effects
- Exposed Concrete & Shallow Vault Mock-ups
- Any other element identified by the Principal Project Consultant (AHC) or ASI as having architectural or visual significance
- Mock-ups shall be prepared at locations, sizes and extents approved by AHC and ASI .
- Approved mock-ups shall serve as the benchmark standard for all corresponding works.
- Any executed work not matching the approved mock-up shall be removed and redone at the EPC Contractor's cost.

c) Responsibility & Cost

- All mock-ups, including construction, revision, maintenance and dismantling, shall be at the sole cost and responsibility of the EPC Contractor.
- No additional cost or extension of time shall be admissible on account of mock-ups or approvals thereof.

1.2.17.4 Archaeological Coordination and Site Protection

Given the archaeological sensitivity of the Lothal site, **planning and coordination with ASI shall be mandatory and binding**.

The EPC Contractor shall ensure the following:

- **Equipment Planning:**
  All construction vehicles, machinery, piling rigs and equipment movement shall be planned strictly within **ASI-approved site extents** and load limitations.
- **Logistics and Movement Plan:**
  A detailed **Site Logistics and Movement Plan**, including construction methodology, access routes, equipment details and protection measures, shall be submitted for **prior written approval of ASI in conjunction with AHC**.
- **Definition of Site Extents:**
  Work boundaries, protected areas, existing ruins and potential archaeological zones shall be clearly identified and demarcated in coordination with ASI.
- **Approval Requirement:**
  No mobilisation, excavation, construction activity, or machinery movement shall

commence without written approval of the Logistics and Movement Plan by ASI in conjunction with the Principal Project Consultant (AHC).

- **The proposed locations of the pedestals of Tensile fabric main trusses and other similar structures are very close to the archaeological excavated structures and are required to be checked by the EPC Contractor by site survey using LiDAR / GPR survey, and the pedestals construction & its excavation should be carried out in a manner so as to not disturb the existing archaeological excavated structures. The approval of the same shall be obtained from the ASI prior to start of work. Necessary land grading to be done by EPC contractor.**

Notes

- All works related to **exhibits, theming, artefacts, museum content, multimedia systems, fabrication, installation or supervision** are also **included in the EPC scope** and shall be undertaken by the EPC Contractor under this Agreement. However, the execution of these interior & low side MEPF work shall be carried out through a separate tender prepared and floated by the EPC Contractor, the cost of the same is considered as Provisional Sum with EPC Contractor's coordination & supervision charges.
- Costs for development of **external infrastructure beyond the Project site**, including approach roads from highways, external water supply lines, and external electrical supply lines from the nearest source, are **not included** in the Project cost estimation unless expressly stated otherwise in the Draft Agreement.

1.2.17.5 Engagement of Pre-Qualified Architectural and Engineering Design

The EPC Contractor shall, at its own cost, engage qualified and experienced architectural and engineering design consultants, pre-qualified as part of this RFQ-cum-RFP process, with demonstrated experience in institutional, public, and heritage-sensitive projects.

The engagement of such consultants shall be limited to detailed design development, surveys, coordination, and construction documentation, and shall be carried out strictly in accordance with the approved Master Plan, approved architectural intent, Design Basis Report (DBR), specifications, tender conditions, and directions issued by the Principal Project Consultant, Architect Hafeez Contractor (AHC).

In this regard:

- The Architectural Consultant appointed by the EPC Contractor shall prepare detailed architectural drawings, documentation, and stage-wise design submissions, strictly in conformity with the approved Master Plan, Concept Design, and DBR prepared by AHC and approved by the Archaeological Survey of India (ASI).
- The EPC Contractor's Architectural Consultant shall function under the overall design control, review, and approval framework established by AHC, and shall ensure that the architectural intent, spatial hierarchy, built form, scale, proportions, material language, and heritage sensitivity are fully maintained.
- The EPC Contractor shall engage all necessary specialist and allied consultants, including Structural Consultant, MEP Consultant (limited to structural and services

coordination), Landscape Consultant, Lighting Consultant (external and architectural lighting only), and Infrastructure Consultants. All such consultants shall work in close coordination under the EPC Contractor's responsibility.

- The EPC Contractor and its appointed consultants shall carry out all surveys, investigations, and technical studies as specified in the tender documents and DBR, and shall prepare stage-wise detailed design submissions, including coordinated construction drawings and shop drawings, prior to commencement of execution.
- All drawings, design submissions, specifications, and coordinated documents prepared by the EPC Contractor and its consultants shall be submitted to AHC for review and approval. No construction activity shall commence without written approval from AHC.
- The EPC Contractor shall remain fully responsible for inter-disciplinary coordination, constructability, and compliance of the detailed designs with statutory requirements, ASI conditions, approved tender provisions, and execution constraints, while ensuring strict adherence to the approved architectural intent.
- Any revisions, rework, or additional detailing required to achieve compliance with the approved Master Plan, architectural intent, DBR, specifications, tender conditions, statutory provisions, or directions issued by AHC shall be carried out by the EPC Contractor at its own cost and responsibility, without any additional financial implication to the Authority and without entitlement to extension of time.

1.2.17.6 Architectural Objectives and Expectations

The following architectural objectives and expectations shall be achieved by the selected EPC Contractor through its design consultants for the Orientation / Interpretation Centre:

- ✓ The design shall strictly adhere to and preserve the intent of the approved Master Plan and approved architectural intent prepared by AHC.
- ✓ The architectural expression shall be contextual, respectful, and responsive to the archaeological and heritage significance of the Lothal site.
- ✓ The built form shall ensure clarity of circulation, structural integrity, durability, and long-term maintainability, while remaining sensitive to the surrounding landscape and protected zones.
- ✓ The architectural design shall establish the Orientation / Interpretation Centre and associated tensile structure as a landmark of national importance, without adversely impacting archaeological remains, viewsheds, or the heritage setting.
- ✓ The design shall facilitate future flexibility for non-structural interior fit-outs, which shall not form part of the EPC Contractor's scope.

1.2.17.7 *Exhibition & Museum Design*

- The engagement of Exhibition Design Consultants, and all works related to exhibition design, museum content, artefacts, displays, graphics, multimedia, curation, theming, interior fit-outs, and interpretive installations, shall be executed through a separate tender/package and are expressly excluded from the scope of the EPC Contractor under this Agreement.

- The exhibition design programme, gallery sequencing, interpretive content, and internal planning indicated in the tender drawings and documents are indicative in nature only, intended to convey overall spatial and experiential intent. The detailed exhibition design, interior detailing, services integration, and content development shall be undertaken by the appointed Exhibition Design Consultant.
- All works inside the Orientation / Interpretation Centre beyond the core-and-shell provision, including all interior architectural works and all building services requirements (low-side and associated high-side components) required for exhibition and interior functioning, shall be entirely under the scope of the EPC Contractor through Exhibition Design Consultant.
- The EPC Contractor's scope shall be limited to providing the completed core and shell of the Orientation / Interpretation Centre, including structural works, external envelope, base building services provisions, and completed toilet blocks including plumbing tanks, plumbing systems, finishes, and fixtures, in accordance with approved drawings and specifications.
- Electrical Systems:
    - The electrical plant and infrastructure have been planned based on load assumptions considered in the approved DBR for interior areas and shall form part of the EPC scope.
    - All low-side electrical works within the Orientation / Interpretation Centre, including internal distribution, wiring, fittings, fixtures, exhibition-related power, lighting, controls, and interior integration, shall be entirely executed by the Exhibition Design Consultant, in coordination with interior layouts.
- HVAC Systems:
    - The EPC Contractor shall provide space provisions for VRF outdoor units, power points for indoor and outdoor units, and condensate drain piping for indoor units, as part of base building works.
    - All remaining HVAC works, including the complete high-side and low-side VRF system, indoor and outdoor units, refrigerant piping, controls, accessories, testing, commissioning, and integration with internal design, shall be entirely designed, supplied, installed, and commissioned by the EPC Contractor designed through Exhibition Design Consultant, based on approved internal detail drawings.
- Notwithstanding the above exclusions, the EPC Contractor shall be responsible for ensuring effective coordination between its appointed consultants, Exhibition Design Consultant(s), and AHC, for all interface matters, including structural provisions, load assumptions, service interfaces, access requirements, construction sequencing, and dimensional coordination.
- The EPC Contractor and its consultants shall also be responsible for the design, detailing, or execution of exhibition or museum works; through a separate tender, they shall ensure that all EPC works are carried out in a manner that does not impede,

conflict with, or compromise the design, installation, operation, or future execution of the exhibition works.

- No changes, modifications, or alterations to the approved civil, structural, or architectural works forming part of the EPC scope shall be permitted on account of exhibition design development. All exhibition works shall be fully accommodated within the approved and executed architectural and structural framework.
- Any revisions, adjustments, or rework required in the EPC works to achieve coordination with the approved exhibition design, or due to non-compliance with the approved architectural intent, DBR, specifications, or directions issued by AHC, shall be carried out by the EPC Contractor at its own cost and responsibility, without any additional financial implication to the Authority and without entitlement to extension of time.

INTERFACING

Component / Scope Item	**EPC Contractor – Execution (Core & Shell)**	**Exhibition Design Consultant**	**EPC Contractor – Coordination Responsibility**	**Remarks / Final Approval**
Overall Architectural Intent & Design Basis	Execution in compliance	**Exhibition Design included in EPC, but execution of interior exhibition works through Separate Tender on PS cost**	Coordinate submissions, reviews, clarifications, and approvals between AHC, ASI, EPC sub-consultants, and Exhibition Design Consultant	Final approval by Architect Hafeez Contractor (AHC) and Archaeological Survey of India (ASI)
Structural System	✓	—	Coordinate design development, statutory compliance, and approvals including third-party vetting where required	Final approval by AHC and ASI
Structural Provisions for Exhibition Loads	✓ (as per DBR and approved assumptions)	Input	Coordinate exhibition load requirements, identify locations, engage and manage structural	Final approval by AHC and ASI

Component / Scope Item	EPC Contractor – Execution (Core & Shell)	Exhibition Design Consultant	EPC Contractor – Coordination Responsibility	Remarks / Final Approval
			vetting agency (if required), obtain vetting approvals, and incorporate approved provisions into EPC works	
External Architectural Envelope	✓	—	Coordinate façade interfaces with exhibition elements, penetrations, and fixings	Final approval by AHC and ASI
Core & Shell Completion	✓	—	Ensure readiness, access, tolerances, and handover sequencing for exhibition works	Final approval by AHC and ASI
Interior Architectural Works (Non-Structural)	—	✓	Coordinate interfaces, openings, supports, and service integration without modifying core works	Final approval by AHC and ASI
Exhibition Design & Programming	—	✓	Coordinate spatial requirements, constraints, and interface resolution	Final approval by AHC and ASI
Museum Content, Artefacts & Displays	—	✓	Coordinate fixing methodology, load paths, access, and safety interfaces	Final approval by AHC and ASI
Curation, Theming	—	✓	Coordinate fixing	Final approval by

Component / Scope Item	EPC Contractor – Execution (Core & Shell)	Exhibition Design Consultant	EPC Contractor – Coordination Responsibility	Remarks / Final Approval
& Interpretive Installations			details, access provisions, and maintenance considerations	AHC and ASI
Electrical – HT / LT Plant & Infrastructure	✓	—	Coordinate plant capacity and distribution with exhibition load requirements	Final approval by AHC and ASI
Electrical – Low Side (Internal)	—	✓	Coordinate power points, routing, segregation, and interface with base building systems	Final approval by AHC and ASI
Lighting (Interior & Exhibition)	—	✓	Coordinate ceiling interfaces, heat loads, access, and maintenance	Final approval by AHC and ASI
Plumbing – Toilet Blocks	✓	—	Coordinate layouts, connections, and commissioning	Final approval by AHC and ASI
Plumbing – Interior Exhibition Areas	—	✓	Coordinate connection points, drainage, and access	Final approval by AHC and ASI
HVAC – Space Provisions	✓	—	Coordinate VRF zoning, outdoor unit clearances, and routing provisions	Final approval by AHC and ASI
HVAC – Complete VRF System (High + Low Side)	—	✓	Coordinate refrigerant routing, supports, access, and system interfaces	Final approval by AHC and ASI

Component / Scope Item	**EPC Contractor – Execution (Core & Shell)**	**Exhibition Design Consultant**	**EPC Contractor – Coordination Responsibility**	**Remarks / Final Approval**
Fire Detection / Suppression (Interior Areas)	—	✓	Coordinate system integration, code compliance, and approvals	Final approval by AHC and ASI
ICT / AV / Security (Interior)	—	✓	Coordinate pathways, mounting locations, and access	Final approval by AHC and ASI
External Works & Site Infrastructure	✓	—	Coordinate exhibition access, services, and operational interfaces	Final approval by AHC and ASI
Overall EPC–Exhibition Coordination	✓	Coordination support	Lead coordination meetings, manage interfaces, resolve conflicts, and ensure timely approvals across all stakeholders	Final approval by AHC and ASI
Statutory & ASI Compliance	✓	Coordination support	Manage submissions, vetting, responses, and conditions of approval	Final approval by AHC and ASI
Design Revisions Due to Non-Compliance	✓ (Cost & Time)	—	Coordinate corrective actions and approvals	Subject to approval by AHC and ASI
Changes to Civil / Structural Works	✗	✗	Prevent, flag, and report any deviation proposals	Not permitted without written approval of AHC and ASI
Final Review & Approval of EPC	Submission	—	Coordinate final inspections, documentation,	Final approval by AHC and ASI

Component / Scope Item	EPC Contractor – Execution (Core & Shell)	Exhibition Design Consultant	EPC Contractor – Coordination Responsibility	Remarks / Final Approval
Works			and handover	

1.3 MUSEUM CUM ORIENTATION CENTRE DESIGN FOR REFERENCE OF BIDDERS:

- The **Orientation / Interpretation Centre design drawings, plans, visualisations, and area statements** provided with this tender are issued **solely for reference of bidders**, with the intent of communicating the **overall architectural vision, spatial philosophy, planning principles, and contextual response** envisaged for the project.
- These reference documents are **indicative in nature** and are not to be construed as final construction drawings. The **EPC Contractor shall be responsible for developing a fully coordinated, compliant, and constructible design**, based on this intent and in accordance with applicable statutory requirements, conditions of approval issued by the **Archaeological Survey of India (ASI)**, tender provisions, and approved design basis documents.
- The key design intent and spatial principles conveyed through the reference documents are summarised below:
- The architectural concept draws inspiration from the **urban form, spatial order, and material expression of an Indus Valley settlement**, reinterpreted in a contemporary manner while remaining contextually appropriate to the Lothal archaeological landscape.
- The Orientation Centre is conceived as a **low-rise clustered development**, organised as a composition of multiple building blocks arranged within a **grid-based planning system**, interspersed with courtyards, semi-open spaces, and water elements, reinforcing the idea of voids as active spatial elements.
- The building massing predominantly comprises **G+1 structures**, with articulated volumes and terraces to create a dynamic roofscape while maintaining a largely horizontal profile across the site.
- The functional programme is distributed across distinct blocks accommodating **orientation galleries, exhibition and experience zones, community and cultural spaces, learning and knowledge facilities, support areas, and administrative functions**, connected through shaded streets, bridges, and internal circulation spines.
- Multiple **courtyards and semi-open pause courts** are integrated within the layout to enhance microclimate, daylighting, visual relief, and intuitive wayfinding, evoking the experience of traversing an ancient settlement.
- Gallery and primary public spaces are designed to receive **controlled indirect natural light**, particularly from the north, through articulated roof forms inspired by wave-like geometries.
- A prominent **visitor watch tower** is incorporated within the complex, functioning as

a **viewing and orientation element**, offering elevated visual connections to the archaeological landscape and acting as a landmark within the otherwise low-rise and expansive site context.

- **The architectural vocabulary is characterised by a framed structural system articulated with brick tile cladding, brick jaali elements, and controlled openings, creating a robust, tactile, and contextually resonant architectural expression while maintaining structural efficiency and flexibility.**
- Internal circulation is conceived as a sequence of **shaded streets, colonnades, bridges, and framed vistas**, extending the experience of the surrounding ruins and integrating the built intervention with the broader archaeological precinct.
- The **area statements, block-wise distribution, and functional zoning** indicated in the reference drawings are broadly aligned with the ASI-approved area programme and site constraints and shall be adhered to during detailed design development unless modified through due statutory approvals.

1.4 EXHIBITION DESIGN CLARIFICATION:

The exhibition design programme, gallery sequencing, interpretive content, and thematic planning indicated in the reference drawings are **indicative in nature only** and are provided solely to convey the intended spatial and experiential framework. The detailed exhibition design, curation, content development, graphics, multimedia, interior detailing, and integration of exhibition-related services shall be undertaken by **Exhibition Design Consultant of the EPC Contractor, work executed through an independent tender/package, however, included in this tender as Provisional Sum amount**.

The **EPC Contractor shall provide the completed core-and-shell** of the Interpretation / Orientation Centre, including the approved structural system, external architectural envelope, base building services provisions, and completed toilet blocks, in accordance with the approved drawings and specifications.

All works within the Interpretation / Orientation Centre beyond the core-and-shell, including **interior architectural works and all building services required for exhibition and interior functioning (both low-side and associated high-side components)**, shall be **entirely under the scope of the Exhibition Design Consultant of the EPC Contractor**.

The role of the EPC Contractor in relation to exhibition works shall also be **coordination**, including coordination of interfaces, load assumptions, service provisions, access requirements, sequencing, and approvals, **without any modification to the approved civil, structural, or architectural works**.

Notwithstanding the above, **no changes, modifications, or alterations to the approved civil, structural, or architectural works forming part of the EPC scope shall be permitted on account of exhibition design development**. All exhibition works shall be fully accommodated within the **approved and executed architectural and structural framework** delivered under the EPC contract.

Note:

The EPC Contractor shall ensure that all designs are developed in compliance with statutory provisions and ASI requirements and shall coordinate all submissions and approvals. Any refinements, adjustments, or additional detailing required to achieve compliance, coordination, or constructability—**without altering the approved civil scope**—shall form part of the EPC Contractor's scope and responsibility.



View of the Museum cum Orientation Centre

1.5 TENSILE STRUCTURE DESIGN FOR REFERENCE OF BIDDERS

1.5.1 The Tensile Structure design drawings, plans, visualisations, reference sections, and indicative details issued with this tender are provided solely for the reference of bidders, with the intent of communicating the overall architectural form, spatial extent, scale, and protective function of the tensile structure proposed within the archaeologically sensitive ruins zone at Lothal.

These reference documents are **indicative in nature** and shall **not be construed as final construction or execution drawings**. The **EPC Contractor shall be solely responsible** for developing a **fully coordinated, engineered, vetted, and constructible tensile structure system**, in accordance with the design intent conveyed, the approved Design Basis Report (DBR), applicable statutory provisions, tender conditions, and approvals issued by the **Archaeological Survey of India (ASI)**.

Design Intent and Functional Role

- The Tensile Structure is envisaged as a **protective canopy system located directly over sensitive archaeological remains**, intended to provide **environmental protection**, controlled daylighting, and climatic moderation, while ensuring **no physical disturbance, additional loading, or visual dominance** over the archaeological fabric.
- The structure shall be conceived as a **lightweight, reversible, and non-intrusive system**, comprising **steel primary and secondary members, tensile membrane surfaces, anchoring systems, and carefully engineered foundations**, designed to minimise ground disturbance and comply fully with ASI conservation principles.

- The **architectural geometry, overall form, height, span logic, and visual character** of the tensile structure as indicated in the reference drawings shall be **maintained during detailed design development**, without dilution of intent.
- **Visitor movement shall be strictly restricted to the designated bridge and approved viewing decks only.**

  No visitor access, congregation, or circulation shall be permitted within the ruins area covered by the tensile structure, except as explicitly indicated in the approved drawings.

  (For clarity, the bridge is not a glass bridge.)

1.5.2 ***Scope of Works – EPC Contractor***

The EPC Contractor's scope for the Tensile Structure shall include, without limitation:

- Complete **structural analysis, detailed design, and engineering** of the tensile structure, including all load cases (dead, live, wind, seismic, temperature, rain, maintenance, and service loads).
- Design and execution of **foundations, anchoring systems, steel structures, membranes, fixings, and all temporary works**, including erection and dismantling methodology.
- Engagement and coordination of **specialist tensile structure designers, structural engineers, fabricators, and erection agencies** with proven experience in heritage-sensitive environments.
- Appointment and management of **third-party structural vetting agencies**, wherever required, including incorporation of vetting comments and submission of compliance certificates.

1.5.3 ***Services, Lighting, and AV – Scope Clarification (Tensile Structure)***

- **All services associated with the Tensile Structure**—including but not limited to **architectural and functional lighting, AV systems (if any), power supply, cabling, containment, earthing, controls, drainage, and associated high-side and low-side infrastructure**—shall be **entirely within the scope of the EPC Contractor**.
- The EPC Contractor shall be responsible for the **complete design development, coordination, supply, installation, testing, commissioning, and statutory compliance** of all such services integrated with the tensile structure.
- **No exhibition design elements, interpretive installations, museum content, or curated displays are currently envisaged** within the Tensile Structure zone.
- In the event that **ASI**, at a later stage, decides to introduce **interpretive or exhibition-related elements** within or in proximity to the Tensile Structure, such elements shall be executed through a **separately appointed Exhibition Design Consultant under an independent tender/package**.
- **No modifications to the approved tensile structure, foundations, anchoring**

systems, or EPC-installed services shall be permitted on account of any such future exhibition or interpretive requirements, unless expressly approved in writing by ASI in conjunction with **Architect Hafeez Contractor (AHC)**.

1.5.4 ***Archaeological Coordination and Site Protection (Mandatory and Binding)***

Given the **extreme archaeological sensitivity of the Lothal site**, all planning, mobilisation, design, and execution related to the Tensile Structure shall be **strictly governed by ASI requirements** and shall be mandatory and binding.

The EPC Contractor shall ensure the following:

- **Equipment Planning:**

  All construction vehicles, cranes, piling rigs, lifting equipment, temporary works, and machinery movement shall be planned and executed **strictly within ASI-approved load limits, access routes, and site constraints**.

- **Logistics and Movement Plan:**

  A detailed Site Logistics and Movement Plan, including construction methodology, erection sequencing, crane positioning, equipment specifications, access routes, protection measures, and emergency protocols, shall be prepared by the EPC Contractor and **submitted for prior written approval of ASI in conjunction with AHC**.

- **Definition of Site Extents:**

  All **work boundaries, protected archaeological zones, buffer areas, existing ruins, and no-go zones** shall be clearly identified, demarcated, and physically protected prior to commencement of any activity.

- **Approval Requirement:**

  No mobilisation, excavation, foundation works, erection activity, or machinery movement shall commence **without written approval** of the Site Logistics and Movement Plan by ASI in conjunction with AHC.

  Necessary land grading to be done by **EPC contractor.**

1.5.5 ***Coordination, Review, and Approval***

- The EPC Contractor shall act as the **single point of coordination** between:
  - Its appointed sub-consultants and specialist agencies,
  - **AHC**,
  - **ASI**,
  - Statutory authorities, and
  - Structural vetting agencies.
- All detailed design drawings, calculations, service layouts, fixing details, and erection methodologies shall be **submitted for review to AHC** and shall be implemented **only after final written approval of ASI**.

Note

The EPC Contractor shall ensure that the design, execution, and commissioning of the Tensile Structure are carried out in **full compliance with statutory requirements, ASI conservation principles, and the approved architectural intent**. Any refinements required to achieve compliance or constructability—**without altering the approved form, archaeological safeguards, or access restrictions**—shall form part of the EPC Contractor's scope and responsibility.

Final review and approval of all Tensile Structure–related designs, logistics plans, services, and execution methodologies shall rest with AHC and ASI.

Schedule – Responsibility Matrix for Tensile Structure (Ruins Zone)

(To be read in conjunction with Section 1.5)

Component / Scope Item	EPC Contractor – Execution Scope	EPC Contractor – Coordination Responsibility	Remarks / Final Approval
Overall Tensile Structure Design Intent	Develop detailed, engineered, and constructible tensile structure in line with reference intent	Coordinate submissions, reviews, and clarifications with all stakeholders	Final review & approval by **Architect Hafeez Contractor (AHC)** and **Archaeological Survey of India (ASI)**
Tensile Structural System (Primary & Secondary)	Complete responsibility for design and execution	Coordinate structural design checks and compliance	Final approval by AHC and ASI
Foundations & Anchoring within Ruins Zone	Design and execute with minimal disturbance methodology	Coordinate archaeological constraints and sequencing	Final approval by AHC and ASI
Structural Analysis & Load Calculations	Carry out full analysis (dead, live, wind, seismic, rain, temperature, maintenance)	Coordinate load assumptions and documentation	Final approval by AHC and ASI
Structural Vetting & Certifications	Engage, manage, and comply with vetting requirements	**Appoint and coordinate third-party vetting agency, address comments, obtain certifications**	Final approval by AHC and ASI
Tensile Membrane System	Design, supply, install, test, and commission	Coordinate detailing, fixings, and maintenance access	Final approval by AHC and ASI

Component / Scope Item	**EPC Contractor – Execution Scope**	**EPC Contractor – Coordination Responsibility**	**Remarks / Final Approval**
Steel Fabrication & Erection Methodology	Execute fabrication, erection, and dismantling	Coordinate erection sequencing, temporary works, and safety	Final approval by AHC and ASI
Visitor Access Control	Implement access restrictions strictly as approved	Ensure no access beyond designated bridge and viewing decks	Final approval by AHC and ASI
Bridge Interface with Tensile Structure	Execute structural and architectural interfaces	Coordinate geometry, tolerances, and load transfer	Final approval by AHC and ASI
Lighting Systems under Tensile	Full design, supply, installation, testing, and commissioning	Coordinate lighting layouts, fixing points, and maintenance access	Final approval by AHC and ASI
AV Systems under Tensile (if any)	Full scope including power and controls	Coordinate mounting locations, routing, and access	Final approval by AHC and ASI
Electrical Power & Controls (Tensile Zone)	High-side and low-side systems	Coordinate routing, capacities, and interfaces	Final approval by AHC and ASI
Drainage & Water Management (Tensile Zone)	Design and execution	Coordinate slopes, discharge points, and protection of ruins	Final approval by AHC and ASI
Exhibition / Interpretive Elements	Not envisaged at present	Coordinate only if ASI directs future inclusion	Only if directed by ASI
Future Exhibition Elements (If Directed by ASI)	No execution responsibility	Coordinate interfaces with separately appointed consultant	Approval by AHC and ASI
Site Logistics & Movement Plan	Prepare and implement	**Submit, revise, and obtain approvals**	Mandatory approval by AHC and ASI
Equipment Planning in Ruins Zone	Execute within approved limits	Coordinate equipment loads, access, and sequencing	Final approval by AHC and ASI
Protection of	Implement physical	Coordinate demarcation	Final approval by AHC and

Component / Scope Item	EPC Contractor – Execution Scope	EPC Contractor – Coordination Responsibility	Remarks / Final Approval
Archaeological Remains	protections	of no-go and buffer zones	ASI
Statutory & ASI Compliance	Full compliance responsibility	Manage submissions, responses, and approvals	Final approval by AHC and ASI
Design Revisions due to Non-Compliance	Rectify at EPC cost and time	Coordinate corrective actions and approvals	Approval by AHC and ASI
Changes to Approved Tensile Design	Not permitted without approval	Prevent, flag, and report deviations	Only with written approval of AHC and ASI
Final Completion & Handover	Complete works and documentation	Coordinate inspections and handover	Final approval by AHC and ASI

2 ***PROJECT SCHEDULE:***

The milestone wise project scheduling is tabled below:

2.1 ***PROJECT TIMELINE & MILESTONE PROGRAMME***

Total Duration: 24 Months

Design & Approvals: 3 Months | Construction & Handover: 21 Months

S. No.	Milestone	Start	Finish	Duration
1	Design Development, ASI & Statutory Approvals (All Components)	Month 0	Month 3	3 Months
2	Site Preparation, Archaeological Protection & External Infrastructure	Month 3	Month 14	11 Months
3	Interpretation Centre – Core & Shell Construction	Month 4	Month 18	14 Months
4	Museum cum Orientation Centre – Designing of Interior works including exhibition spaces, exhibits and MEPF (including Tendering process and award of work to exhibition contractor)	Month 10	Month 12	3 months
5	Museum cum Orientation Centre – construction and execution of Interior works including exhibition spaces, exhibits and MEPF	Month 13	Month 22	10 months
6	Tensile Structure over Archaeological	Month 9	Month 18	9 Months

S. No.	Milestone	Start	Finish	Duration
	Excavations			
7	Testing, Commissioning, GRIHA 5-Star Closure & Final Handover	Month 23	Month 24	2 Months

3 *BRIEF SCOPE OF WORK*

The Project shall be executed on a **Design–Build (EPC) basis** and completed within the stipulated contract period, inclusive of **design development, statutory and ASI approvals, procurement, construction, testing, commissioning, and final handover**.

The Scope of Work includes, but is not limited to, **Architecture, Civil & Structural Works, Interior & Exterior Finishes (as applicable), interior work exhibition spaces including exhibits, fabrication, erection etc., MEPF Services, Electrical, HVAC, Plumbing, Fire Protection, Lighting, ICT, Security & Public Safety Systems, Vertical & Horizontal Transportation Systems, Water Management, Sustainability Measures, Archaeological Coordination, External Development, and allied works**, all in strict compliance with the approved **Master Plan**, Design Basis Reports (DBRs), tender drawings, statutory requirements, and approvals issued by the **Archaeological Survey of India (ASI)**.

The Project shall be designed, executed, and documented to achieve a **GRIHA 5-Star rating**, in accordance with applicable GRIHA guidelines and the approved Sustainability DBRs.

3.1 Project Components (As per Approved Master Plan)

The Scope of Work includes execution and completion of the following components, as indicated in the approved Master Plan and tender drawings:

A. Cultural, Public & Institutional Components

- Orientation / Museum cum Orientation Centre
  *(to be delivered as a fully completed **core-and-shell** building only, as defined in the tender)*
- Tensile Structure over the archaeological ruins zone
  (fully completed, including structure, services, lighting, AV, and finishes)
- Knowledge, learning, community, and public-use buildings as indicated
  (fully finished and operational)

B. Archaeological Interpretation & Visitor Infrastructure

- Pedestrian bridges and designated viewing decks
- Watch tower / viewing elements
- Protective architectural interventions within the ruins zone
  (All fully finished, completed, and handed over by the EPC Contractor)

C. Site Development & Public Realm (Architectural)

- Land development over the project site as per Master Plan

- Entry plazas, forecourts, and arrival zones
- Internal streets, courts, shaded walkways, ramps, and steps
- Architectural water bodies and associated civil works
- Parking provisions (ECS, car parks, bus bays)
- Boundary walls, fencing, gates, and access control elements

(All hardscape, pathways, plazas, structures, and site features are included under Architectural Scope and shall be fully finished.)

D. Landscape (Plantation Only)

- Plantation works including trees, shrubs, groundcover, and lawns
- Soil preparation, irrigation systems, and maintenance during DLP

3.2 *Architectural Scope – Delivery Principle*

- The **Orientation / Interpretation Centre** shall be delivered as a **completed core-and-shell building**, including structural shell, external envelope, roofs, waterproofing, completed toilet blocks, and base building service provisions.
- **All other buildings, structures, site works, public realm elements, tensile structure, bridges, viewing decks, and ancillary facilities shall be fully finished, commissioned, and handed over** by the EPC Contractor.

3.3 *Exhibition, Multimedia & Content*

- All works related to **exhibition design, museum content, artefacts, displays, graphics, multimedia systems, audio content, video content, animation, scripting, post-production, immersive media, or interpretive installations** are **also included** from the EPC Contractor's scope on Provisional Sum and work executed through a separate tender prepared, floated and awarded by the EPC Contractor. For the execution and coordination of the above exhibition works a fixed coordination charges shall be given to EPC Contractor as per Price Bid in Volume-1.
- The EPC Contractor's responsibility shall be to provide **architectural and structural interface provisions**, if and where expressly directed by ASI.
- No claims for cost, variation, or extension of time shall be admissible on account of coordination with exhibition or multimedia agencies.

3.4 *MEPF, Electrical & HVAC Systems*

- The EPC Contractor shall be responsible for the **design, engineering, procurement, installation, testing, and commissioning of all MEPF systems**, strictly in accordance with the approved Master Plan, DBRs, and applicable codes.
- All MEPF systems shall be fully integrated with architectural and structural works, including exhibition-specific systems.
- Electrical, lighting, AV, ICT, and HVAC systems under the **Tensile Structure and all external/public areas** shall be entirely within EPC scope.

- Systems within Museum cum Orientation Centre interiors shall follow the **defined EPC vs exhibition split**.

3.5 *Vertical & Horizontal Transportation Systems*

Where applicable and indicated in the approved Master Plan and tender drawings, the EPC Contractor shall **design, supply, install, test, and commission** all vertical and horizontal transportation systems, including:

- Passenger and service lifts
- Escalators and travellators
- Accessible ramp systems and mobility aids

The EPC Contractor shall:

- Carry out traffic and usage analysis prior to system finalisation
- Ensure compliance with accessibility norms and statutory codes
- Integrate systems fully with architectural, structural, and MEP works
- Obtain all statutory approvals and complete testing and commissioning

All such systems shall be **fully operational at handover**, without any additional cost or extension of time to the Authority.

3.6 *Public Safety & Life Safety Systems*

The EPC Contractor shall provide a **comprehensive, fully integrated public safety and life safety framework**, including:

- Fire detection, alarm, and firefighting systems
- Emergency lighting and exit signage
- CCTV, access control, and intrusion alarm systems
- Public address and emergency communication systems
- Crowd safety, monitoring, and emergency response infrastructure
- Integration with building management and security systems, where required

All systems shall comply with applicable statutory requirements and shall be fully tested, commissioned, and operational prior to handover.

3.7 *Water Management (as per Sustainability DBRs)*

The EPC Contractor shall design and execute an **integrated water management system** for the Project, strictly in accordance with statutory norms, GRIHA requirements, and the approved Sustainability DBRs, including:

- Rainwater harvesting and recharge systems
- Surface and sub-surface stormwater drainage
- Flood mitigation measures based on site conditions
- On-site water storage, treatment, and distribution systems
- Sewage Treatment Plant (STP) of appropriate capacity

- Reuse of treated wastewater for permissible non-potable applications

Water-efficient fixtures and systems shall be adopted throughout the Project. Any reference to water self-sufficiency shall be construed as **design intent only**, and performance obligations shall be limited to contractual requirements.

3.8 *Sustainability (GRIHA 5-Star)*

The EPC Contractor shall ensure full compliance with **GRIHA 5-Star rating requirements**, including:

- Appointment of GRIHA facilitator and third-party commissioning agent
- Preparation and implementation of Environmental Management Plan (EMP)
- Documentation, audits, site compliance, and due diligence visits
- Submission of all required reports and evidence for certification

All sustainability-related works, documentation, and coordination shall be deemed included in the EPC scope.

3.9 *Archaeological Coordination & Site Protection*

Given the archaeological sensitivity of the site:

- All works shall be executed strictly as per ASI approvals
- Site logistics, movement plans, and construction methodology shall be approved prior to execution
- Protected zones, buffer areas, and no-go zones shall be clearly demarcated and safeguarded
- No work shall commence without written approval of ASI in conjunction with **Architect Hafeez Contractor (AHC)**

3.10 *General Obligations*

- The EPC Contractor shall act as the **single point of responsibility and coordination** across all disciplines, agencies, and authorities.
- Any rework arising from non-compliance, incorrect assumptions, or coordination failure shall be **entirely at the EPC Contractor's cost and time**.
- **Final approval of all works shall rest with AHC and ASI.**

4 *INTERFACE RESPONSIBILITY MATRIX*

A. GOVERNANCE, STATUTORY & HERITAGE INTERFACES

Sl. No.	Interface Description	EPC Contractor	AHC	ASI	Remarks / Final Authority
A1	Archaeological	Coordination,	Guidance	Lead	**Final approval:**

Sl. No.	Interface Description	EPC Contractor	AHC	ASI	Remarks / Final Authority
	permissions, protected zones & buffer areas	compliance & submissions	& review	authority & approval	**ASI**
A2	Construction methodology in ruins / sensitive zones	Preparation & submission	Guidance & review	Approval	Mandatory prior approval
A3	Site logistics & movement plan	Preparation & implementation	Guidance & review	Approval	No mobilisation without approval
A4	Materials, finishes & visual interfaces	Proposals, samples & mock-ups	Review	Approval	**Mock-ups mandatory**
A5	Foundation strategy in archaeological areas	Design coordination & execution	Review	Approval	Vetting mandatory
A6	Final architectural & design approval	Submission	Joint approval	Joint approval	**AHC + ASI final**

B. EPC INTERNAL DESIGN & DISCIPLINE INTERFACES

(All responsibility lies with EPC Contractor)

Sl. No.	Interface Description	EPC Contractor Responsibility	Remarks
B1	Architecture ↔ Structure	Complete coordination	No deviation
B2	Architecture ↔ MEPF	Complete coordination	EPC risk
B3	Structure ↔ MEPF	Load & opening coordination	EPC risk
B4	Sustainability ↔ All disciplines	Integration, documentation	GRIHA 5-Star
B5	Lighting ↔ Architecture	Integration, mock-ups	Mandatory
B6	AV / ICT ↔ Architecture	Integration	Exhibition AV included
B7	Exhibition Design	Through Exhibition Design Consultant appointed by EPC Contractor	No deviation of concept architectural & structural scheme

Sl. No.	Interface Description	EPC Contractor Responsibility	Remarks
B8	Execution of Exhibition interiors, exhibits, fabrication, erection, MEPF, AV, Acoustics etc. along with testing and commissioning	Through a separate tender	Coordination, interfacing, etc. all included in EPC Contractor's Scope.

C. TENSILE STRUCTURE INTERFACES (RUINS ZONE)

Note: Tensile Designer and Tensile Fabricator are **appointed by and fully under the EPC Contractor**.

Sl. No.	Interface Description	EPC Contractor	Tensile Designer	Tensile Fabricator	Approval Authority
C1	Tensile concept & geometry	Lead coordination & ownership	Design	Execution support	**AHC + ASI**
C2	Structural design & analysis	Lead responsibility	Technical input	—	**AHC + ASI**
C3	Independent structural vetting	Appointment & coordination	Technical support	Technical support	**ASI**
C4	Foundations in ruins zone	Lead design & execution	Input	Input	**ASI**
C5	Fabrication & erection methodology	Lead coordination	Technical input	Lead execution	**AHC + ASI**
C6	Lighting, AV & services on tensile	Lead integration	Input	Input	**AHC + ASI**
C7	Maintenance, access & safety strategy	Lead	Input	Input	**AHC + ASI**

Mandatory Requirement:

✓ Mock-ups shall be provided for **all visible tensile elements**, lighting integration, fabric finishes, connections, and interfaces.

D. EXHIBITION DESIGN & EXECUTION (SEPARATE PACKAGE) INTERFACES

Sl. No.	Interface Description	Exhibition Design Consultant through EPC Contractor	Approval Authority
D1	Structural load provisions	Work within the approved structural design and load capacities. Provide exhibition load inputs for verification and	**AHC + ASI**

Sl. No.	Interface Description	Exhibition Design Consultant through EPC Contractor	Approval Authority
		certification. No alteration to the structural system shall be permitted.	
D2	Service High side / Low side	Design and execute all exhibition-related low-side services. All high-side services shall be executed by the EPC Contractor. Any change or impact on high-side services arising from exhibition design requirements shall be taken up only through formal submission and approval as per established protocol.	**AHC + ASI**
D3	Openings, sleeves & inserts	All openings, sleeves, and inserts are pre-planned and integral to the approved architectural concept. Exhibition design shall strictly utilize these provisions without any modification to the building envelope, façade language, or architectural intent.	**AHC + ASI**
D4	Dimensional coordination	Coordinate all exhibition layouts, partitions, and black boxes within the frozen architectural geometry and approved spatial concept, without impacting the external architectural expression.	**AHC + ASI**
D5	Exhibition AV & multimedia	Full responsibility for design, coordination, supply, installation, testing, and commissioning of all exhibition AV, multimedia, and low-side systems.	**AHC + ASI**
D6	Civil / structural changes due to exhibition	**Not permitted.** Any requirement for controlled environments, including black boxes, shall be achieved entirely through internal exhibition design interventions only, with no impact on structure, building envelope, or external architectural language. (In exhibition and museum design, a black box refers to a self-contained, light-controlled enclosure built inside the main building space.)	**AHC + ASI**

E. INTERPRETATION / ORIENTATION CENTRE

Sl. No.	Interface Description	EPC Contractor Responsibility	Approval Authority
E1	Structural shell	Full responsibility	**AHC + ASI**
E2	External envelope & roofing	Fully finished	**AHC + ASI**
E3	Toilets & plumbing	Fully finished	**AHC**
E4	Electrical plant & infrastructure	Full responsibility	**AHC**

Sl. No.	Interface Description	EPC Contractor Responsibility	Approval Authority
E5	Interior finishes & services	Full responsibility	**AHC + ASI**
E6	HVAC provisions	Provide	**AHC**

F. PUBLIC SAFETY & LIFE SAFETY INTERFACES

Sl. No.	Interface Description	EPC Contractor	Approval Authority
F1	Fire detection & firefighting	Design, execution & commissioning	Fire Authority + AHC+ ASI
F2	Emergency lighting & exits	Full responsibility	**AHC + ASI**
F3	CCTV, access control & PA	Full responsibility	**AHC + ASI**
F4	Crowd safety & evacuation	Full responsibility	**AHC + ASI**

G. WATER MANAGEMENT & SUSTAINABILITY INTERFACES

Sl. No.	Interface Description	EPC Contractor	Approval Authority
G1	Rainwater harvesting	Design & execution	**AHC + ASI**
G2	STP & reuse systems	Design & execution	Statutory + AHC + ASI
G3	Flood mitigation	Design & execution	**AHC + ASI**
G4	GRIHA 5-Star documentation	Lead	GRIHA Council
G5	Commissioning & audits	Lead	Independent Agent

H. GOVERNMENT / THIRD-PARTY INTERFACES

Sl. No.	Interface Entity	EPC Contractor Responsibility
H1	Government of Gujarat Roads	Coordination & protection
H2	GETCO	Power interface
H3	UGVCL	Electrical interface
H4	PESO	Statutory compliance
H5	Authority's other contractors	Full coordination
H6	Adjacent infrastructure works	EPC risk, no claims

MANDATORY INTERFACE PRINCIPLES

- The **EPC Contractor is the single point of responsibility** for all interfaces.
- **AHC and ASI provide guidance, review, and final approval** — they do not assume execution responsibility.
- **Mock-ups are mandatory for all visual, architectural, tensile, lighting, and public-facing interfaces.**
- Any rework, delay, or cost arising from **interface mismanagement** shall be **entirely at the EPC Contractor's cost and time**.
- **Final approval for all designs and works shall rest jointly with AHC and ASI.**
- Necessary land grading to be done by **EPC contractor.**

* * * * *

SCHEDULE C

PROJECT FACILITIES

Project Facilities: The details related to project facilities have been incorporated in the scope of work comprehensively. (refer schedule B – Annexure -1 Scope of Works)

SCHEDULE D:
ARCHITECTURAL DESIGN INTENT & OTHER DBRs

1.1 ARCHITECTURAL DESIGN INTENT: REFER VOLUME-3
1.2 STRUCTURAL DBR: REFER VOLUME-3
1.3 MECHANICAL, ELECTRICAL, PLUMBING & FIRE-FIGHTING (MPEF): REFER VOLUME-3
1.4 OTHER DESCIPLINES DBR: REFER VOLUME-3

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Schedule F - Applicable Permits

(See Clause 3.1.7(a))

EPC CONTRACTOR TO OBTAIN ALL APPLICABLE PERMITS & APPROVALS REQUIRED UNDER LAW

Note 1: Official Fees paid to the Approving authority shall be the responsibility of the EPC Contractor and the same shall be reimbursed on actual basis by ASI on producing documentary proof / challans and receipt.

Note 2: The EPC Contractor shall be fully responsible for, and shall not be entitled to any extension of time or compensation for, delays in commencement of the Works caused by delays in obtaining statutory approvals."

Schedule G - Form of Bank Guarantee

(See Clause 7.1.1, 7.5.3 and 19.2)

Annexure-I

(See Clause 7.1.1)

Performance Security

…….
Authority……...……,
New Delhi

WHEREAS:

(A) ……..[name and address of contractor] (hereinafter called "the Contractor") and [name and address of the Authority], **("the Authority")** have entered into an agreement (the **"Agreement")** for "**Detailed Design, Procurement, Construction, Testing & Commissioning of Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis**", subject to and in accordance with the provisions of the Agreement.

(B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the Construction Period and Defects Liability Period (as defined in the Agreement) in a sum of Rs ..... Crore (Rupees .... Crore) (the "Guarantee Amount").

(C) We, ...through our branch at .....(the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during and under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the guarantee amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of […….of Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any difference between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained herein before, the liability of the Bank under this Guarantee is restricted to the Guarantee amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Performance Security shall cease to be in force and effect 90 (ninety) days after the end of the Defects Liability Period as set forth in Clauses 7.1

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the end **** month in the year ***** or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this..... day of.....20 .....at.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by: (Signature)

(Name)

(Designation) (Code

Number) (Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annexure-II

(Schedule-G) (See Clause 7.5.3)

Form for Guarantee for Withdrawal of Retention Money

……
Authority,
New Delhi

WHEREAS:

[Name and address of contractor] (hereinafter called "the Contractor") has executed an agreement (hereinafter called the "Agreement") with the [name and address of the Authority], (hereinafter called "the Authority") for the " **Detailed Design, Procurement, Construction, Testing & Commissioning of Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis**", subject to and in accordance with the provisions of the Agreement.

a. in accordance with the Clause 19.18 of the Agreement, whenever the amount of the retention money (hereinafter called "Retention Money") held by the Authority exceeds 1% (one per cent) of the Contract Price, the Contractor may, at its option, withdraw the Retention Money after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.

b. We,……..through our branch at……..(the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the amount of Rs…….(…….in words) (the **"Guarantee Amount").**

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of [……of Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any difference between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Retention Money and any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The guarantee shall cease to be in force and effect 90 (ninety) days after the end of the Defects Liability Period specified in Clauses 17.1 of the Agreement.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the end **** month in the year ***** or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this .....day of ..... 20 ..... at .....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by: (Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Annexure-II

(Schedule-G) (See Clause 19.2)

Form for Guarantee for Advance Payment

.....Authority,
New Delhi

WHEREAS:

(A) [name and address of contractor] (hereinafter called "the Contractor") has executed an agreement (hereinafter called the "Agreement") with the [name and address of the Authority], (hereinafter called "the Authority") for the **Detailed Design, Procurement, Construction, Testing & Commissioning of Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis**", subject to and in accordance with the provisions of the Agreement.

(B) in accordance with the Clause 19.2 of the Agreement the Authority shall make to the Contractor an interest bearing advance payment (hereinafter called "Advance Payment") equal to 10% (ten per cent) of the contract price for mobilization expenses and acquisition of equipment; and that the Advance Payment shall be made in three installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equal to the 110% amount of each installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement; and the amount of (first/second/third) installment of the Advance Payment is Rs. **** cr. (Rupees ***** crore) (the "Guarantee Amount").

(C) We, …….through our branch at……..(the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") for the Guarantee Amount. NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid installment of the Advance Payment under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the guarantee amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of […….of Authority], that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the installment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any difference between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The guarantee shall cease to be in force and effect 90 (ninety) days after the end of the one year from the date of payment of the installment of the Advance Payment, as set forth in Clause 19.2 of the Agreement.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the end **** month in the year ***** or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this..... day of.....20.....at..... SIGNED,

SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

NOTES:

(i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

Schedule H - Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. ****** (100%).

1.2 Proportions of the Contract Price for different entities / portions / stages of Construction of the Project shall be as specified below:

S/No.	Entity / Item / Stage of Payment	Weightage in percentage to the Contract Price	Remarks
	SUMMARY (Cost Centres)		
A.	**CULTURAL & COMMUNITY BLOCK**	**1.64%**	
B.	**EXHIBITION & EXPERIENCE BLOCK**	**2.46%**	
C.	**KNOWLEDGE & LEARNING CENTRE**	**1.48%**	
D.	**INFRASTRUCTURE WORK (WITH PTFE TENSILE FABRIC)**	**76.36%**	
E.1	**PROVISIONAL SUM (EXHIBITION GALLERIES INTERIOR)**	**11.87%**	
E.2	**EPC CONTRACTOR'S COORDINATION CHARGES (@10% ON E.1)**	**1.19%**	
	TESTING & COMMISSIONING	**2.00%**	
	CLEANING & HANDING OVER	**3.00%**	
	TOTAL (A+B+C+D+E.1+E.2)	**100.00%**	
	FURTHER BREAK-UP OF PERCENTAGES (		
A.	**CULTURAL & COMMUNITY BLOCK**	**1.64%**	**Total of A.**
A.1	Work up to Plinth	0.40%	
A.2	On completion of structure	0.65%	
A.3	On completion of finishes (excluding exhibition galleries interior and exhibits)	0.29%	
A.4	On completion of High side MEPF (excluding low side in exhibition galleries interior and exhibits)	0.30%	
B.	**EXHIBITION & EXPERIENCE BLOCK**	**2.46%**	**Total of B.**
B.1	Work up to Plinth	0.01%	
B.2	On completion of structure	1.60%	

S/No.	Entity / Item / Stage of Payment	Weightage in percentage to the Contract Price	Remarks
B.3	On completion of finishes (excluding exhibition galleries interior and exhibits)	0.45%	
B.4	On completion of High side MEPF (excluding low side in exhibition galleries interior and exhibits)	0.40%	
C.	**KNOWLEDGE & LEARNING CENTRE**	**1.48%**	**Total of C.**
C.1	Work up to Plinth	0.40%	
C.2	On completion of structure	0.55%	
C.3	On completion of finishes (excluding exhibition galleries interior and exhibits)	0.23%	
C.4	On completion of High side MEPF (excluding low side in exhibition galleries interior and exhibits)	0.30%	
D.	**INFRASTRUCTURE WORK (WITH PTFE TENSILE FABRIC)**	**76.36%**	**Total of D.**
D.1	Boundary wall	0.91%	
D.2	Suspended Walkway and Ramp	1.56%	
D.3	MS Staircase in Core	0.20%	
D.4	Main Truss (for Tensile Fabric)	27.62%	Total of D.4
D.4.1	Work in foundation (Piling, excavation)	5.48%	
D.4.2	Work up to plinth (Pile caps)	2.11%	
D.4.3	RCC work in pedestals	4.84%	
D.4.4	Structural steel fabrication & erection of main truss	12.32%	
D.4.5	Coating over steel member (Galvenizing)	2.17%	
D.4.6	Coating over steel member (priming + finished coat)	0.70%	
D.5	Facade	17.86%	Total of D.5
D.5.1	External tensile façade work	3.67%	
D.5.2	Tensile fabric and railing work (With OPT-I - PTFE fabric)	14.19%	
D.6	RCC UG water tanks	0.53%	
D.7	External sewrage	0.11%	
D.8	External Water supply lines	0.25%	
D.9	Storm water drains	1.49%	
D.10	Substation Equipment	0.38%	
D.11	DG sets	0.58%	
D.11	STP / ETP Plant	0.49%	
D.12	CCTV	0.77%	
D.13	Solar PV	0.88%	
D.14	Hydropnuematic Water Supply system	0.23%	
D.15	Driver face and Automatic Number plate recording system/Recognition System	0.05%	
D.16	Baggage Scanner	0.25%	

S/No.	Entity / Item / Stage of Payment	Weightage in percentage to the Contract Price	Remarks
D.17	Door Frame Metal Detector	0.10%	
D.18	Boom Barrior	0.03%	
D.19	External Fire Hydrant System	1.04%	
D.20	External Electrical System (CABLE / PANELS)	1.03%	
D.21	External IT System (CABLE , RACK , SWITCH, AP)	1.24%	
D.22	Water Treatment plant	0.05%	
D.23	RO plant for misting with 5000L SS316 Storage tank	0.05%	
D.24	HVLS Fans	0.19%	
D.25	Water Misting System	0.36%	
D.26	Toilet Blocks Ventilation	0.03%	
D.27	Modular Rain water harvesting tank	0.25%	
D.28	Landscaping work	10.96%	Total of D.28
D.28.1	Amphi seats area	1.31%	
D.28.2	Pond side pathway	0.26%	
D.28.3	Pathway	1.10%	
D.28.4	Garden pathways	0.22%	
D.28.5	Driveway area	0.73%	
D.28.6	Parking area	0.36%	
D.28.7	Museum plaza	0.49%	
D.28.8	Round about 50mm thick granite	0.53%	
D.28.9	VDF DRIVEWAY	0.49%	
D.28.10	Ground covers area	0.17%	
D.28.11	Ornamental green area	1.47%	
D.28.12	lawn area	0.04%	
D.28.13	Meadow green	0.98%	
D.28.14	Irrigation	0.58%	
D.28.15	MS and aluminium batten Pergola of over seating area at plaza	0.03%	
D.28.16	Waterbody area (Brick pitching)	0.23%	
D.28.17	FRP/GRC Sculpture	0.50%	
D.28.18	Waterbody area	0.42%	
D.28.19	Special sculpture	0.30%	
D.28.20	Sunken garden	0.08%	
D.28.21	Play equipment	0.10%	
D.28.22	Floating fountains	0.07%	
D.28.23	Watchman cabin	0.08%	
D.28.24	Gate	0.22%	
D.28.25	swale with coir pitching	0.20%	
D.29	Audio Visual for infrastructure	1.18%	Total of D.29
D.29.1	Landscape AV	0.41%	
D.29.2	Tensile Structure AV	0.77%	
D.30	Lighting	5.01%	Total of D.30
D.30.1	Interior Washrooms	0.06%	

S/No.	Entity / Item / Stage of Payment	Weightage in percentage to the Contract Price	Remarks
D.30.2	Orientation Centre Interior (Cove Lights Only)	0.08%	
D.30.3	Orientation Centre and Exhibition/Work Area- Exterior	0.28%	
D.30.4	Landscape	1.61%	
D.30.5	Tensile Structure	2.85%	
D.30.6	Lighting Management System (LMS) - Tensile Structure Only	0.04%	
D.30.7	DMX control System - Tensile Structure Only	0.09%	
D.31	Escalators	0.60%	
D.32	Signage	0.08%	
E.1	**PROVISIONAL SUM (EXHIBITION GALLERIES INTERIOR)**	**11.87%**	
E.2	**EPC CONTRACTOR'S COORDINATION CHARGES (@10% ON E.1)**	**1.19%**	
	TESTING & COMMISSIONING	**2.00%**	
	CLEANING & HANDING OVER	**3.00%**	
	TOTAL (A+B+C+D+E.1+E.2)	**100.00%**	

1. **The percentage breakup given above are broadly defined and further distribution/break-up shall be decided at site by the Authority.**

2. Each Cost Centre (A, B, C, etc.) is further divided into Sub cost centres (A.1, 2, 3, etc.) as per the requirements of Building units / Infrastructure / deliverables / portions etc. as may be the case for each Cost Centre.

3. Cost centres & sub cost centres are planned keeping in mind EPC Contractor's various Teams / Departments with relevant expertise who will implement them, so that relevant team member of the Contractor can monitor the milestones coming under their respective cost centres. Each sub cost centre is further divided into Milestones for payment to the EPC Contractor.

4. The EPC Contractor is allowed to further sub divide the Milestones specified above if there is sufficient justification to the approval of the Authority.

5. The "Project Milestone Payment Statement" shall be prepared by the EPC Contractor as per Clause No. 19.5 (Article 19: Payments) of the Volume-2, EPC Agreement.

Schedule I - Drawings

(See Clause 10.2)

1. Drawings

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

2. Additional Drawings

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I.

Annexure-1

(Schedule-I)

List of Drawings

Refer VOLUME-4 - Tender Drawings

Schedule J - Project Completion Schedule

(See Clause 10.3.2)

1. Project Completion Schedule

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule J for each of the Project Milestones and the **Scheduled Completion Date.** Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

The contractor shall submit with the bid all the activities w.r.t the proposed 4 (four) nos of milestones in the resource schedule and the same shall bear approval of the Authority after the award so that it becomes part of the Contract Agreement.

2.0 Project Milestone-I

2.1 Project Milestone-I shall occur on the date falling on the sixth (6th) month from date of Letter of Award.

2.2 Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the project components as submitted and approved by the Authority. EPC Contractor shall complete all the design & engineering of all the disciplines and got it approved to achieve this Milestone. Contractor shall submit get approved Stage Payment Statements for an amount not less than 15 (fifteen) percent of the Contract Price.

3.0 Project Milestone-II

3.1 Project Milestone-II shall occur on the date falling on the twelfth (12th) month from date of Letter of Award.

3.2 Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the project components and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than forty (40) percent of the Contract Price.

4.0 Project Milestone-III

4.1 Project Milestone-III shall occur on the date falling on the eighteenth (18th) month from date of Letter of Award.

4.2 Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the project components and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than sixty-five (65) percent of the Contract Price.

5.0 Project Milestone-IV

5.1 Project Milestone-IV shall occur on the date falling on the twenty-second (22th) month from the date of Letter of Award.

5.2 Prior to the occurrence of Project Milestone-IV, the Contractor shall have continued with construction of the project components and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount equal to Ninety (90) percent of the Contract Price.

6.0 Schedule Completion Date

6.1 The Scheduled Completion Date shall occur on the twentieth (24th) month from the date of Letter of Award.

6.2 On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

7.0 Extension of time

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.

Schedule K - Tests on Completion

(See Clause 12.1.2)

1. Schedule for Tests

1.1 The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.

1.2 The Contractor shall notify the Authority's Engineer of its readiness to subject the Project to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule K.

2. Tests

2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include:

2.2 Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project with Specifications and Standards.

2.3 Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project with the environmental requirements set forth in Applicable Laws and Applicable Permits.

2.4 Safety Audit: The Authority's Engineer shall carry out or cause to be carried out, a safety audit to determine conformity of the Project with the safety requirements and Good Industry Practice.

3. Agency for conducting Tests

All Tests set forth in this Schedule-K shall be conducted by the Authority's Engineer or such other agency or person as it may specify in consultation with the Authority.

4. Completion Certificate

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

Schedule L - Provisional Certificate

(See Clause 12.2 and 12.4)

1. I,…….(Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated …… (the **"Agreement"),** for "**Detailed Design, Procurement, Construction, Testing & Commissioning of Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis**" Contract through……. (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project……. with the provisions of the Agreement.

2. Construction Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the users of the Project…… or other their safety. The contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid punch list.

3. In view of the foregoing, I am satisfied that that Project……can be safely and reliably placed in service of the users thereof, and in terms of the Agreement, the Project ……is hereby provisionally declared fit for entry into operation on this the ……..day of……..20……

ACCEPTED, SIGNED, SEALED AND DELIVERED	SIGNED, SEALED AND DELIVERED
For and on behalf of	For and on behalf of
CONTRACTOR by	
Authority's Engineer by:	
(Signature)	(Signature)

COMPLETION CERTIFICATE

1. I, ……..(Name of the Authority's Engineer), acting as Authority's Engineer, under and in accordance with the Agreement dated …….(the **"Agreement"),** for "**Detailed Design, Procurement, Construction, Testing & Commissioning of Orientation Centre at Lothal, Gujarat for Archaeological Survey of India, on EPC Basis**" through……..(Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project……..with the provisions of the Agreement, and I am satisfied that the Project……..can be safely and reliably placed in service of the Users thereof.

2. It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Works have been completed, and the Project Works is hereby declared fit for entry into operation on this the……day of……. 20…….

SIGNED, SEALED AND DELIVERED

For and on behalf of

Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

ATTACHMENT–I: CONTRACTOR DEMOBILIZATION CHECKLIST – EIL CONTRACT CLOSING

(Refer Clause -

DATE_____

PROJECT
OWNER
NAME OF EPC CONTRACTOR
CONTRACT NO.

Activity Description	Signatures with Completion Date		
	Contractor	Authority's Engineer/ Consultant	Authority
Removal of temporary facilities – site office, temporary water / power etc.			
Clearance of site viz. debris construction material, tools & tackles, equipment, etc.			

ATTACHMENT-II: CHECKLIST FOR CONTRACT CLOSING

(Refer Clause -

DATE_____

PROJECT
OWNER
NAME OF EPC CONTRACTOR
CONTRACT NO.

Activity Description	Signatures with Completion Date		
	Contractor	Authority's Engineer/ Consultant	Authority
Final Completion Certificate Issued			
All deficiencies corrected			
Handing over of spares/ surplus materials w.r.t O&M			
As built drawings including drawing index			
O&M Manuals Received			
QC documents submission submitted			
Submission of Statutory / Govt. Bodies approval completed			
Final Documents submission Completed.			
No outstanding claims			
Back charges / recoveries accepted			
Validity of performance BG's Checked and found acceptable			

Schedule M - Payment Reduction for Non Compliance - DELETED

Schedule N

SELECTION OF AUTHORITY'S ENGINEER

1 Selection of Authority's Engineer

1.1 The provisions of the Model Request for Proposals for Selection of Technical Consultants, issued by the Ministry of Finance, Government of India vide OM 24(23)/PF-II/2008 dated 21, May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer. Provided, however, that no entity which is owned or controlled by the Authority shall be eligible for appointment as the Authority's Engineer hereunder.

1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule-N.

2 Terms of Reference

The Terms of Reference for the Authority's Engineer (the "**TOR**") shall substantially conform with Annex 1 to this Schedule N.

3 Appointment of Government entity as Authority's Engineer

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

Annex – I
(Schedule - N)

Terms of reference for Authority's Engineer

1 Scope

1.1 These Terms of Reference (the "**TOR**") for the Authority's Engineer are being specified pursuant to the EPC Agreement dated ..... (the "**Agreement**), which has been entered into between the (insert name and address of the Authority) (the "**Authority**") and ..... (the "**Contractor**") for the Project _____ _____ at _____ on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.

1.2 The TOR shall apply to construction of the Project.

2 Definitions and interpretation

2.1 The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

2.3 The rules of interpretation contained in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, *mutatis mutandis*, to this TOR.

3. General

3.1 The Authority's Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

3.2 The Authority's Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:

(a) any Time Extension;

(b) any additional cost to be paid by the Authority to the Contractor;

(c) the Termination Payment; or

(d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).

3.3 The Authority's Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority's Engineer within 10 (ten) days of the beginning of every month.

3.4 The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.

3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.

3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

4 Construction Period

4.1 During the Construction Period, the Authority's Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.5 & 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however, that in case of a Major Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

4.2 The Authority's Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.

4.3 The Authority's Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.

4.4 The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

4.5 The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption to the Project for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.

4.6 The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.

4.7 The Authority's Engineer shall inspect the Construction Works and the Project and shall submit a monthly Inspection Report bringing out the results of

inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

4.8 The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.

4.9 For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the DBR & Technical Specifications in Volume-3 along with BIS Codes or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.

4.10 The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.

4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/ rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.

4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.

4.13 The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.

4.14 In the event that the Contractor fails to achieve any of the Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.

4.15 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.

4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Project. After the Contractor has carried out remedial measures, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.

4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

4.18 The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

5 Determination of costs and time

5.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

5.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.

5.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

6. Payments

6.1 The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.3.4 (d).

6.2 Authority's Engineer shall -

(a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and

(b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.

7. Other duties and functions

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

8 Miscellaneous

8.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.

8.2 The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

8.3 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 6 (six) hard copies and in DVD/external hard disc format or in such other medium or manner as may be acceptable to the Authority, reflecting the Project as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.

8.4 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

8.5 The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

Schedule O - Forms of Payment Statements

(See Clauses 19.4,19.5.1 and 19.8.1)

1. Stage Payment Statement for Works

The Stage Payment Statement for Works shall state:

(a) The estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the last claim;
(b) Deleted
(c) The estimated amount of each Change of Scope Order executed subsequent to the last claim;
(d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (a);
(e) Total of (a), (b), (c) and (d) above;
(f) Deductions:
    (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
    (ii) Any amount towards deduction of taxes; and
    (iii) Total of (i) and (ii) above.
(g) Net claim: (e) - (f) (iii);
(h) The amounts received by the Contractor up to the last claim:
    (i) For the Works executed (excluding Change of Scope orders);
    (ii) For Change of Scope Orders, and
    (iii) Any deductions
    (iv) Taxes deducted

2. Contractor's claim for Damages

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

Schedule P - Insurance

(See Clause 20.1)

1. Insurance during Construction Period

1.1. The Contractor shall effect and maintain at its own cost, from the date of Letter of Award till the date of issue of the last Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) insurance of Works, Plant and Materials and an additional sum of **[15 (fifteen)] per cent** of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage or all risks including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

1.2 The insurance under paragraph 1.1 (a) and (b) above shall cover the Authority and the Contractor against all loss or damage from whatsoever cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

2. Insurance for Contractor's Defects Liability

The Contractor shall effect and maintain insurance cover for the works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and arises from a cause occurring prior to the issue of Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

3. Insurance against injury to persons and damage to property

3.1 The Contractor shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Paragraph 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this agreement and occurring before the issue of the Performance Certificate. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences.

The insurance cover shall be not less than: Rs. 10 Lakhs per event.

3.2 The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

(a) the Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and
(b) Damage which is and unavoidable result of the Contractor's obligations to execute the Works.

4. Insurance to be in joint names

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.

Schedule Q - 3D BIM Requirements

(See Clause 3.1.7 k)

1.1 Introduction

The BIM strategy for this project is to deliver intelligent 3D models and IFC data to be used throughout the lifecycle of the program – from conceptual design through operation and legacy. The reuse and sharing of data across disciplines and the site throughout the course of the program will streamline communications, improve design coordination, reduce risk, and improve quality of design. The intelligent 3D models will be used as collaborative tools to facilitate communications, design proofing, constructability reviews, and clash avoidance to reduce errors in the field. The models will be exported into relevant Program Management Delivery System (PMDS) tools of data for quantification and schedule sequencing. The objective of using BIM is to make the design, construction, and operations processes more efficient and eliminate as many uncertainties as possible.

1.2 Project Objective

- DMIC mandates the use of advanced computer based dynamic 3D-model driven approach for the detailed planning, design, engineering, construction and operation of the ECC. Dwarks to allow simulation, visualization and engineering analysis of all Buildings, utilities, civil works and geospatial infrastructures.

- This includes an aggregate dynamic 3D Building Information Model (BIM) for all infrastructural developments, including buildings, utilities etc. 3D infrastructure modelling tools shall be used to develop and produce project models and simulations as required for submittals.

- The 3D infrastructure Information Models are to be used throughout the design, construction and operational life-cycle of the asset, including but not limited to for system collision detections, materials quantification, construction sequencing and carbon impact analysis.

- 3D infrastructure models use shall be maximized for project reviews, decision support, design analysis, and quality assurance during all phases of this program.

2.1 General

2.2 Purpose

2.2.1 The purpose of the 3D Building Information Modelling (BIM) requirements describes the use of computer aided design (CAD) and building information modelling (BIM) for the work under the Contract.

2.2.2 These requirements shall be used as a reference for the Design & Build Contractor to develop specific Work Package BIM Execution Plan (BEP) that shall detail the specific CAD/BIM software used within the Work Package to control the specific BIM and CAD process. The outputs from this process will be CAD drawings and 3D models in a form of native files, non - graphical data such as COBIe spreadsheet referenced with the document and PDF'S that will be input to the Project Management Information System (PMIS) system for distribution.

i. BEPs establish the methodology for managing the production, distribution and quality of the design information generated by CAD, GIS and BIM systems, using a disciplined process for collaboration and a specified file and model naming policy.

2.2 Scope

2.2.1 This BIM requirements documents outlines the roles and responsibilities that are necessary for a successful collaborative 3D Building Information Modelling (BIM) approach

i. The PMIS and Common Data Environment (CDE) setup by the PMNC are mandated for the structure and the controlled sharing of the building information with known provenance and status in a multi-disciplinary environment.

ii. Contractor's BEPs are required to control the production and coordination of the design information within each Works Package

b. Standards and Specifications Reference for Design

2.3.1 In order to establish a consistent approach to collaboration, the Contractor shall refer with the Standards and Specifications for Drawing and Modelling as given below.

Sr.	Description	Code/Document No.
1	BS 1192:2007 Collaborative production of architectural, engineering and construction information.	BS 1192:2007
2	BS 7000-4:1996A Design management System.	BS 7000-4:1996A
3	PAS 1192-2:2013. Specification for information management for the capital/delivery phase of construction projects.	PAS 1192-2:2013
4	PAS 119232014 Specification for information management for the operational phase of assets using building information modelling.	PAS 1192-3:2014
5	BS 1192-4: 2014 Collaborative production of information.	BS 1192—4:2014
6	PAS 1192- 5: Specification for security-minded building information management, digital built environments and smart asset management.	PAS 1192-5
7	Classification : Uniclass 2 : classification system for structuring Information.	Uniclass 2

8	CAD Symbols (Singapore Standard Code of Practice for Construction Computer Aided Design (CAD).	CP 83

2.4 BIM Use

i. BIM uses that have been established as required thus far are:

BIM Uses	Description/Comments
Existing Conditions Modelling	This will require the gathering of existing conditions information from a range of sources, and validating the quality, accuracy and reliability of that information for use on the project. The physical extent of what is needed to be modelled is to be determined, based on location, physical/spatial/visual relationship and potential impact on the project. Areas or elements identified as posing risk to the project should be communicated clearly to inform future risk mitigation efforts. In the absence of anything better, a default standard will be used to achieve this.
Site Analysis	The site context should be understood thoroughly and acknowledged within the design, accounting for factors that may impact on Siting/position of proposed construction works, such as interfaces with existing structure or services, vistas, nearby land use, hydraulic analysis, geotech and topographic conditions, site access/egress issues, traffic flows, other infrastructure and so on.
Design Authoring	A process in which software is used to develop a Building Information Model based on criteria important to the communication of the building‘s design. Two types of software applications are core to the BIM-based design process: design authoring tools and audit and analysis tools. Authoring tools are used to create models while audit and analysis tools draw from or enhance the richness of information in a model. Most audit and analysis tools can be used for Design Reviews and Engineering Analysis BIM Uses. Design authoring tools are required in the first instance, and employ a powerful database of properties, quantities, means and methods, costs and schedules.

Design Visualization	The BIM can be used to generate rendered images, animated fly-through and read-only versions of the model as requested by the Client (with due notice) to support effective communication of the design intent of building. This is critical for stakeholder engagement at a number of levels and project stages.
Interference Detection	General coordination will take place during early design via visual inspection and design coordination workshops. In particular, coordination efforts will be applied to key pinch points, such as cores, risers, plenum spaces, and plant areas. Aggregation/intensity of interferences detected will further inform priority zones and element types. Late in the design process, and particularly for preconstruction planning (during early construction stage), interference severity criteria will be defined and interference rules configured that will support element-level coordination. Good interference rule definitions will be key to avoiding 'false positives' and ensuring efforts are spent on eliminating real issues.
Design Review	A process in which stakeholders interrogate and interact with a 3D model to validate various design criteria. These may include evaluating the ability to meet the program, previewing spatial or visual relationships in a virtual environment, layout, sightlines, lighting, security, ergonomics, acoustics, textures and colours, etc. This BIM use can be achieved with the BIM software, a computer and display, and someone to 'drive' the model.
Planning of Construction Scheduling and Sequencing	This focuses on planning or staging and sequencing of major works, predominantly for stakeholder communication and buy-in, in order demonstrate that the design is buildable. The contractor shall adhere to Authoritys preferred systems on the construction methodology to be employed, and would be responsible for modelling and communicating this as part of their work. Typically this is something that engineers are able to provide (as part of validating design approach), though for actual works by the contractor, the contractor will be responsible.
Record Modelling	This entails updating the project federated model to represent an as-built record of the as-constructed works. The basis for the model updates is currently sketches and other records provided by the contractor to the design team during construction. The precise level and method of field verification that is to occur is yet to be determined.

2.5 Definitions

2.5.1 The following terms are specific to the BIM requirements.

a) 3D Building Information Modelling and Management (BIM) - The managed approach to the collection and exploitation of information across the life cycle of a built environment asset. At its heart are computer generated 3D and 2D models containing all graphical and tabular information about the design, construction and operation of the asset.

b) BIM Execution Plan (BEP) - The BIM Execution Plan (BEP) is to be submitted to address the issues raised in Design stage BEP and then with more detail post-contract award to explain the contractor's methodology for delivering the project using BIM

c) BS1192 - Collaborative production of architectural, engineering and construction information. Code of practice

d) Project Management Information System (PMIS) - A Common data environment (CDE) - a single source of engineering information for the project. It is used to collect, manage and disseminate all relevant approved project documents.

e) ECM (Engineering Content Management) - Set of hardware/software and processes that control the engineering content of CAD models and drawings together with their versions within the constraints of the PMIS.

f) Geospatial System - Name or description of the system of spatial referencing by coordinates used for geographical information.

g) COBIE - Construction-Operations Building Information Exchange - a standard spreadsheet data format that controls the transition of as built data into operations and maintenance.

h) Uniclass - Unified classifications for the construction industry

i) Workspace - a predefined folder structure containing configuration and content relevant to the specific application.

j) Master Document Index (MDI) - a list of agreed model file and drawing deliverables produced by the Contractor against agreed milestones.

k) 2D/3D Model - A design model with entities having two/three—dimensional properties which are coordinated to the agreed geospatial reference system.

l) Model composite - a model file containing multiple references of 2D/3D models coordinated using a common geospatial reference system to form a complete model representation of the information

m) Model extraction - a 2D model file containing elements generated from an external 3D model, usually in the form of sections, elevations and plans. Can contain graphical or non-graphical content.

n) Model files (MD2/MD3) - Native CAD files that can be in the form of a 2D or 3D model.

o) Model rendition (MDR) - Output from a model file, model renditions provide static 'snap-shots' in a

form that enables the information to be viewed, printed and marked up.

p) Output file - a generated rendition of graphical or non— graphical information (a plan, section, elevation, schedule, table or other View of a project).

q) Model view - The view within CAD files which contains entities or reference files using real - world coordinates.

r) Originator - the author of models, drawing and documents.

s) Production drawing - an immutable electronic plot (PDF) produced from a drawing definition, having received all necessary reviews prior to issue.

t) Zone - A manageable spatial 2D or 3D subdivision of a model allowing more than one person to work on the model, floor plan or staircase etc. at a time. Each zone is a reference file and when all references are viewed in a 'model composite" the full model shall be represented.

u) Status - Defines the 'fitness' of information in a model, drawing or document.

v) WIP - Work In Progress: each individual company or discipline's own work. This is information that has not been issued or shared with other parties. Refer to B81192.

w) Shared - Information that has been reviewed and is available to other parties. Refer to BS 1192.

x) Published - Documents and other data output from Shared information. Typically this shall include contract drawings, reports and specifications but can also include information for data exchange between BIM software, such as Land XML, IFC files. Refer to BS 1192.

y) Component - an individual building element that can be reused. Examples include doors, stair cores, furniture or internal room layouts, facade panels, etc. Components are typically inserted and moved/rotated into the required position.

z) Assembly - A composition or collection of components and/or modelled elements arranged to define part or all of a building model, structure or site. An assembly typically contains information that can be referenced without repositioning.

aa) Container - an optional 'parent' repository which can be used to compile assemblies and components for specific purposes including export and publication.
A Container can exist for each individual profession/discipline or for multiple disciplines, for buildings or for a complete project.

bb) Layer/Level - Attribute given to entities within CAD files that enables their visibility to be controlled. Further values may be assigned to the attribute to control whether it can be edited or deleted

cc) IFC - Industry Foundation Class is a neutral and open specification file format. The data model facilitates interoperability between object based software platforms.

dd) Development and Transportation Industries

LandXML - LandXML is a specialized XML data file format containing civil engineering and survey measurement data commonly used in the Land

2.5.2 Responsibility

a) A structured BIM approach to the production of all required design and as built data and information for these Works under the Contract, modelled on BS 1192 Collaborative production of architectural, engineering and construction information; Code of practice including BIM quality checklist;

b) Evidence that an all discipline integration, coordination and resolution process has taken place in a collaborative 3D object orientated CDE, the outputs of which meet or better the Authority's Requirements;

c) A uniform and interoperable software/hardware platform across the entire Work Package, in that any software used shall be consistent with the principles of the sharing of multi-disciplinary object data in a CDE; That data shall include geometry and object attributes;

d) Compatibility between software and hardware platforms, including processes for any interfaces with other Work Packages, as to ensure seamless integration at all areas of overlap;

e) An Engineering Content Management System (ECM) which shall be configured to the CDE workflows consistent with those set out in BS 1192 and integrate with Authoritys PMIS

f) As-built drawings.

g) The data sets shall include all plot composition files and associated references, all models and associated references, all associated object and attribute data in mandated format; All renditions of the above (PDFs) all as listed in the Master Document Index (MDI);

h) A copy of the database from the ECM system and its files store;

i) All data in a structured (Level/Layer/Filename) format should be consistent.

j) AEC Uniclass.

k) All As—Built data in a structured (format) consistent with the Construction Operations Building Information Exchange (COBie) format;

l) Suitability trained personnel with the appropriate capabilities to execute the specific roles and responsibilities as outlined this BIM requirements , CAD and GIS manuals contains herein;

2.5.2 The Engineer's BIM Manager

a) Defines the Program BIM requirement;

b) Ensures the BIM process serves the engineering and business requirement during the design and build phase of the works;

c) Ensures that data schema declared for the program serves the engineering requirements of the design and build phase of the Works;

d) Ensures industry best practice is utilized for the BIM implementation and to facilitate the transition of design and as built data into operational data and information for Authority.

e) Ensures seamless integration with other adjoining/other relevant contract work packages.

2.5.3 The Contractor's BIM Manager

a) Produces a general BIM implementation plan for their Specific Works package, together with the Contractor's Design Coordination Manager, containing:

   i. Statements on how the work packages shall be zoned, the level of BIM resolution required in what zones, the number of specific discipline models that will be included what level of detail each of these models shall achieve for each stage for the design and build workflow.

   ii. Statements on the level of program integration and construction sequencing with the BIM model.

   iii. Statements on how the interface with other Works packages shall be achieved and managed.

b) Ensures the Contractors BIM systems are providing the tools, process is centered on the delivery of structured, coordinated and accurate information.

c) Ensure that all CAD, BIM data is compatible consistent and accurate and all BIM processes are compliant with BS 1192

d) Ensures the Contractors BIM processes serves the engineering and business requirement of managing multi-discipline collaborative workflows, CAD QA, Clash resolution, program linkage and construction sequencing.

e) Coordinates the project needs for IT solutions

f) Coordinates the agreed project BEPs and updates to the BEPS

g) Ensures compliance with those standards and methods.

h) Shall be responsible for resolution of all interdisciplinary/other contract work packages and interface resolution.

2.5.4 The Contractor's Information Manager

a) Provides the focal point for all file and document management issues in the project.

b) Ensures that all information is compliant with standards and that each model or file has been signed off 'fit for purpose.

2.5.5 Contractor's Lead Designer

a) Manages the design, including information development and approvals.

b) Confirms the design deliverables of the design team, establishes the zone strategy and ownership.

c) Signs and approves the documentation for detail design coordination on and prior to passing to 'shared'. Ref BS 1192 workflow.

2.5.6 Contractor's CAD Manager

a) Ensure that all CAD models and drawings are delivered to the Authority use agreed IT solutions, and are according to the agreed project requirements.

b) Ensure that all object attribute data is structured and is compliant with the project SMPs Ref B81192. This role should be responsible to the Contractor's BIM Manager.

c) Completion of a table of names assigned to the roles described above and submits it to the client as a reference document.

2.6 Engineering Content Management (ECM) System

2.6.1 The Contractor shall produce ECM system information sufficiently detailed to produce traditional drawings or documents as views of multi—authored data.

2.6.2 The Contractor shall develop and utilize a suitable ECM system that allows for a suitable permissions matrix, workflow, referencing, version control, process and information hierarchy that is consistent with the principles of the CDE for all models and drawings.

2.6.3 The Contractor shall provide access to the ECM system for the Engineer.

3.1 BIM Modelling

3.2 Model file production principles

3.2.1 All model files shall be created at 1:1 scale.

3.2.2 All design and construction information shall be modelled as a single discipline model and coordinated in 3D in the composite model, using object based software, allowing for 2D drawings to be extracted as required.

3.2.3 All single discipline models shall be shared throughout the CDE. Clash detection and resolution process shall be run in this composite area. All 3D model data together with all 2D drawing extractions shall be spatially coordinated with the Geospatial System.

3.2.4 Model file composition.

3.2.5 Model files shall be generated using seed files, as prescribed in the Contractor's Work Package BEP.

3.2.6 All graphical elements shall be placed in the model View.

3.2.7 Model files shall have a title box placed in the sheet View.

3.2.8 Modelling shall be done to appropriate LOD (Level of Detailing) and LOI (Level of Information) to facilitate various outputs required out of BIM implementation exercise. For example; for coordinated Shop drawings (LOD 450 – LOD 500) etc. Please refer AIA (American Institute of Architects) and BIM Forum: Level of Specification document, version - 2016 for further details.

3.3 Coordinates

3.3.1 A common coordinate system for all BIM data and adopt it consistently for all Models.

3.4 Data Segregation (Zoning)

3.4.1 Each structure/Utility/Infrastructure shall be created in one file.

3.4.2 The BIM software in use will have a major impact on how the model is to be broken down, but in all cases sub-division is required to maintain workable files using appropriate hardware.

3.5 Planning the Work & Data Segregation:

3.5.1 The supply chain shall agree, adopt and maintain a BIM Strategy focusing on the following project-specific processes as a minimum:

- Model Management
- Zones and Areas
- Naming Conventions
- Publishing processes

3.5.2 Site Information: Minimum site information will as a digital default shall include:

- Site Name
- Site Status
- Land Area (Ha)
- Site Grouping
- Address including Postcode
- GIA of proposed asset(s)
- Site Cross Reference

3.5.3 Floor Data: All floor layouts will include the following minimum digital data set as a default

- Site Code
- Block No
- Floor Level
- Floor Code
- Floor Description
- GIA (m2)

3.5.4 Room Data: All rooms will include the following minimum digital data set as a default:

- Site Code
- Block No
- Floor Level

- Room Number
- Zone Name
- Room Description
- Room Area (m2)
- Space Utilization
- Functional Suitability
- Quality Room Height (m)
- Volume

3.5.5 Asset data will be provided for the client CAFM and AMS Systems as attributes of objects in the model with the following criteria:

Attribute Field	3D Model Generated Code.
GUIDE	
Building Name/Description	
Asset Template Name	
Asset Template Code	
Local Name/Description	Enter with a relevant name for the asset as it could be identified on site (e. g. West AHU No 1). This is the name defined in the design process.
Quantity	In the case of individual assets created this will be one.
	In the case of "grouped" assets it will be the count of the assets. e.g. Fire Extinguishers; Fire Hose Reels; Lighting; Emergency Lighting; FCUs; Eye Bolts. These are multi selected when defined in the Models.
Manufacturer	The manufacturers name.
Model	The model or reference of the asset.
Serial NO'	The asset serial number, this typically is added to the model late in the procurement and installation process and lends itself to being carried out via export, data entry and re-import. Where not applicable state N/A.
Floor/Level	The Level of the building or building zone.
Position	Detailed description of location.
Non-graphical attributes in an agreed digital format for:	Operating instructions
	Maintenance instructions
	Fault finding instructions
	Commissioning instructions
	Working life expectancy of the asset including cost, remaining life etc. on sub elements e. g. windows, doors, sanitary ware etc.,
	Commissioning dates and data
	Health and safety file
	Regular statutory tests
	Specification and cleaning regime — finishes and fittings, furniture and equipment

	Building level life cycle information Warranty information on sub elements (installed date, start and end dates)
	Schedule of information on maintainable assets (site, building, floor, department and room levels) for PPM Scheduling
	Schedule of information on maintainable systems e.g. security, access control etc., (site, building, floor, department and room levels) for PPM Scheduling
	Fuel supply and storage arrangements (site and building level)
	Power consumption information
	Maintenance information on restricted access features e.g. high ledges, glazing etc.

3.5 Model outputs

3.5.1 Within the CDE the central premise is that only approved data is shared. Each discipline WIP area can only reference data from the shared area. i.e. approved data. When this data comes together in the composite model it can be fully coordinated and composite renditions can be produced, for example in 3D pdf format.

3.6 Model Reviews

3.6.1 The Contractor shall ensure that the level of complexity and granularity for each discipline CAD/BIM model is appropriate for the stage of Works. Appropriate and required Level of detailing (LOD) and Level of Information (LOI).

3.6.2 The Contractor shall ensure that all disciplines integrate and coordinate their outputs in terms of both spatial and functional provision. This shall be demonstrated through the extensive use of coordinated design review sessions which shall include for the coming together of all relevant discipline models into a common master model (model composite) where engineering assurance and coordination checks shall take place.

3.7 Level of detail/Model Progression for the RIM Models

Project Stage	Model Description\ Details
Detail Design	A more detailed version of the generalized building component or system with accurate dimensions, shape, location, orientation and quantity. Non- geometric information may be attached to the model elements. The Model Element is graphically represented within the Model as a design-specified system, object or assembly and associated components having accurate quantity, size, shape, location and orientation. Interfaces with other building elements and systems have been identified and coordinated; approximate allowances for spacing and clearances required for all specified supports; actual access/code clearance requirements modelled.
Final Design	Parameters required for procurement, including specification, materials and performance criteria are attached to the Model Element. Model elements are uniquely tagged.
Pre- construction	The Model Element is graphically represented within the Model as a design - specified system, object or assembly and associated components E. having accurate quantity, size, shape, location and orientation. Interfaces with other building elements and systems have been identified and , coordinated; approximate allowances for spacing and clearances required I' for all Specified supports; actual access/code clearance requirements modelled. Parameters required for procurement, including specification, materials and performance criteria are attached to the Model element. Model Elements are uniquely tagged.
Construction	The Model Element is graphically represented within the Model as a specific system, object or assembly having accurate size, shape, location, quantity, and orientation suitable for construction, fabrication and installation. Required non-graphic detailing, fabrication, assembly, and installation information is attached to the Model Element.
As- Built	The Model Element is a field verified representation with actual installed and accurate size, shape, location, quantity, and orientation. Non-graphic information as installed and required for operation and maintenance is attached to the Model Elements.

3.7.1

Analysis	Cost Estimation	Schedule	Coordination
The Model Element may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative Model Element.	The Model Element maybe used to develop cost estimates suitable for procurement based on the specific data provided.	The Model Element may be used to show ordered, time-scaled appearance of detailed elements and systems.	The Model Element may be used to be used for specific coordination with other model . elements in terms of its size , location and clearance to other model elements including general operational issues

3.8 Component Grade

3.8.1 In order to produce information to the required scale, as with 2D CAD files, additional detail shall be created in separate model files. Where a Component is being used for multiple instances of the same object, the component shall (at the Contractor's discretion) be created in three 'grades': low, medium and high resolution. Modelling in this way allows easier component management and simple 'swapping' of the grades should additional, or less detail be required. It also ensures the most efficient use of PC processing power at any particular stage. The Contractors Work Package BIM strategy document shall address the naming conventions for components, component grades, types, parameters, materials, etc. and the quality assurance and filing of such elements. It shall give guidance on using downloaded content.

3.9 Existing Infrastructure data sets

3.9.1 Authority shall share available existing data sets and models for contractor as reference.

3.9.2 Contractor shall be liable for validating the models before utilizing/enhancing them further.

3.9.3 The existing infrastructure and systems shall be modelled in sufficient detail as to provide integration with the Works under the Contract.

3.9.5 Unresolved areas of non-coordination in structure/services/finishes/clashes shall be clearly highlighted on the drawings and the model at all times. Provenance of all referenced data sets shall be explicitly declared on all relevant models and subsequent drawings.

3.9.6 Any discrepancies with the data shall be reported back to the Authority for their action.

3.10 4D&5D

3.10.1 The contractor shall take full advantage of the 3D object attributes available in the BIM environment to prove cost, constructional logic, fabrication and program as required by the Authority.

3.11 Coordination and integration - drawing packages

3.11.1 Within the BIM environment each of the disciplines shall reference other models in a timely manner for coordination purposes. The head of each discipline group shall decide the extent and nature of

supporting discipline data that shall be displayed in each of their own discipline drawing submissions. Clash detection software routine shall be run on the multi-discipline model and on combined master models and any clashes resolved. The reports of which will be submitted on request of the Engineer.

3.11.2 Specific drawing packages are required from each discipline. The drawings shall comprise of 2D extractions of the 3D design models from the CDE. These include, but not limited to the examples below.

A) Buildings

I. Architectural

II. Structural

III. Mechanical

IV. Electrical

V. Building Services

B) Combined Services Drawings (CSDs) on Structural/Civil/ Architectural backgrounds:

C) CSDs covering the main installations including closed circuit television (CCTV), power, fire systems, ventilation, lighting, and public address (PA), communications and signage. These shall be submitted in logical readable packages.

D) Plan and Profile drawing extractions of linear infrastructure

E) General Arrangement Drawings

3.11.3 All CAD drawings shall be comprised of 2D models extracted from the 3D master model. Any subsequent design scheme changes that are required to be fully coordinated shall be modelled in 3D and the drawing extraction re-run to produce revised plots.

3.11.4 All plot composition files shall be checked as prescribed by the workflow setup in the CDE before submission to the Engineer.

3.11.5 The contractor shall carry out transfer of digital model files in mutually agreed conditions with the Authority as per the protect management requirement.

3.12 Deliverables

3.12.1 The number and extent of the design & build submissions shall be detailed by the Contractor in the MDI, which shall form part of the Contractor's BEP.

3.12.2 All native design/analysis models shall be listed and submitted in MDI

3.12.3 All CAD drawings submission shall have the original plot composition files containing all extractions.

3.12.4 All CAD drawings submissions shall have a simplified standalone 2D vector plot composition file.

3.12.5 All CAD drawings submissions shall have a corresponding PDF.

3.12.6 All CAD drawings submission shall have their provenance shown on the plot, i.e. the references, extractions, model revision used to generate plot.

3.12.7 All database and file store data from the Contractor's ECM system and all flat 2D drawings should be cut from the models.

3.12.8 BIM Deliverables:

- Site Model
- Massing Model
- Civil and Infrastructure models
- Architectural Model
    - For regulatory submissions
    - For coordination and / or clash detection analysis
    - For Visualization
    - For cost estimation
- Schedule (material, time etc.) and phasing program (in BIM or spreadsheet)
- Construction and fabrication models
- Shop drawings
- As-built model (in native proprietary or open formats and IFC)
- Data for facility management
- Simulation Models
- Other additional value added BIM services

3.12.9 To support the development of a Project Information Model (PIM) and Asset Information Model (AIM) at handover the information exchange formats will include the following information from the same data set in a commonly accessible electronic formats:

- 2D portable format document drawings (.dwg and .pdf) cut from the native Model(s)
- The native Model(s)
- The model(s) in IFC format
- Program files .mpp
- Text files (.doc and .pdi) for specification and all other tender docs

3.13 Master Document Index (drawing and model register)

3.13.1 The Contractor shall provide a MDI at the start of the Works that shall list all the 'file identifiers' for models and drawings that are needed, along with their delivery dates and intermediate milestones. The following document properties (metadata) shall be included:

A. Company Code
B. Project Code
C. Design Stage
D. Discipline Code
E. Level
F. Location
G. Drawing Type

H. Revision

3.13.2 All CAD models and drawings shall be compiled in a MDI (spreadsheet) by the Contractor prior to commencement of work. It shall list out all models and drawings to be submitted at each of the design stages.

3.13.3 The CAD MDI shall be used as the basis of and be maintained by means of the drawing register.

3.13.4 The contractor shall follow the drawing and document numbering system as per the Document management system details that will be provided by Authority/ PMC to them.

4.0 Recommended Software Requirement

Discipline	Function	Software	Version	Operating System
Engineering/ Architectural Design Tools	3D BIM modelling for Buildings	Autodesk Revit	Latest	Windows 7 64 Bit recommended
Engineering/ Architectural Design Tools	Project review and coordination 4D construction/ 5D Schedule Simulation 3D BIM and GIS integration/coordination	Autodesk Navisworks Manage	Latest	
		Solibri	Latest	
		Autodesk Infraworks	Latest	
		Bentley Microstation	Latest	
Publishing	Publish read only single file containing graphical and non-graphical attribute information for multi discipline BIM models	i-model Plug-in's For Revit For Adobe (Reader)	Latest	
Viewers/ Review	3D/2D Models, drawings and Maps	Revizto	Latest	
		Adobe Acrobat reader	Latest	
	3D/2D Models, drawings	Autodesk DWG True View	Latest	
		Bentley View	Latest	
Project Collaboration	Project Management	Proliance	Latest	
	Project Execution	Bentley Project Wise	Latest	

Schedule R - Guideline for Health, Safety and Environment Plan

(See Clause 3.1.7 (l))

The Contractor shall prepare and submit a project specific Health, Safety and Environment plan based on the Guidelines for Health, Safety & Environment given below within 30 days of the date of Letter of Award.

1.0 Introduction

1.1 Purpose

The purpose of this Manual for Health, Safety & Environment is to establish uniform policies and procedures that will be used by Authority for implementation of technical and administrative tasks for construction contract in Orientation Centre at Lothal for Archaeological Survey of India. This manual is a guideline document for implementation of construction activities in the project. Construction Company working in the project is responsible for implementing the manual in their respective projects.

This manual is not intended to be a step-by-step procedure for each activity. It is a document that outlines general activities, procedures, and requirements for the entire project throughout the construction phase of project. These procedures must always be read and implemented in conjunction with the related Contract Conditions.

1.2 Scope

This Manual for Health, Safety & Environment is prepared to uniformly direct and control activities during the construction of the projects. The Contractors & Sub Contractors, their staff and Engineers working on the projects are required to know specification requirements for their contracted work as issued by the Authority. This manual is designed to cover most issues involved in a large construction project. The size, scope, and technical complexity of the contract shall determine the relevant procedures specified in the manual.

2.0 Safety, Health & Environment (SH&E) Management Plan

2.1 Objective

Objective of this document is to define the principal requirements of the Authority on Safety, Health and Environment (SH&E) associated with the contractor / sub-contractor and any other agency to be practiced during mobilization, unloading, transportation, assembly/erection/construction, testing and commissioning of systems and all other allied works towards the execution of this project. The objective of these guidelines is to ensure that adequate precautions are taken to avoid accidents, occupational health and harmful effects on the environment during any operation in the project.

2.2 Application of this document

This document applies to all aspects of the contractor's scope of work, including all aspects conducted by sub-contractors and all other agencies. There shall be no activity associated to the contract carried out in under the project, which is exempted from the purview of this document.

This document:

- Describes the SH&E interfaces between Authority and the Contractor.
- Details the processes by which the Contractor shall manage SH&E issues while carrying out the work under the contract.
- Describes by reference, the practices and procedures as given in the Project Safety, Health & Environment manual for best SH&E performance.

These requirements shall be read in conjunction with Schedule-R, OHSAS 18001-1999, Occupational Health and Safety Management System and ISO 14001: 2004 Environmental Management Systems. The contractor shall define key terms used in these requirements related to OHSAS 18001 and ISO 14001 standards in their Project SH&E Manual.

2.3 'SH&E' Targets and Goals

The SH&E targets, goals and aim for the Works are to achieve:

- Zero total recordable injuries.
- Zero reportable environmental incidents.
- All personnel inducted in accordance with the approved contractor SH&E plan.
- Total compliance of conducting inspections and audits as per approved SH&E plan.
- 100% incident recording and reporting.
- 100% adherence of usage of appropriate PPEs at work.
- Executing construction work with least disturbance to the environment, adjoining road users and traffic.

2.4 SH&E Compliance

2.4.1 Memorandum of Understanding (MOU)

A Memorandum of Understanding placed at ***Appendix No.: 1*** shall be signed before the award of contract by the contractor with regard to various provisions on Safety, Health and Environment to be practiced during the works carried out in the project.

2.4.2 Authority's SH&E Policy and Management Systems

The construction works shall be undertaken in accordance with Authority's SH&E Policy and Management Systems as amended from time to time provided in Project.

3.0 SH&E Manual

3.1.1 Indian statutory requirements

3.1.1 Primary statutory regulations

- Contractor shall develop thorough understanding about the required legal requirements and compliances on safety, health and environment in general and Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Central Rules 1998, Building and Other Construction Workers' Welfare Cess Act, 1996 and Central Rules, 1998 in particular, not only to satisfy the Inspectors' perspective but the use of legislation as the strong tool for effective SH&E management at construction worksites. Contractor is strongly advised to practice the principle of voluntary compliance.

- In order to facilitate the contractor for better understanding on the various provisions of the above Act and Rules, a tabulated information highlighting the Sections/Rules referring to the corresponding registration of contractors, maintenance of registers and records, hours of work and wages, welfare, medical facilities and safety requirements are given in the document. It is an indicative one and not a limiting list.

- In addition, the works shall be undertaken in accordance with all applicable legislation and Indian statutory requirements listed below and their latest amendment but not limiting to:

  i. Indian Electricity Act 2003 and Rules 1956.

  ii. Factories Act, 1948, Central Rules and Delhi NCR Factories Rules.

  iii. Motor Vehicles Act as amended in 1994 and The Central Motor Vehicles Rules, 1989, and – Delhi State Motor Vehicles Rules as amended from time to time.

  iv. The Petroleum Act, 1934 and Rules 1976.

  v. Gas Cylinder Rules, 2003.

  vi. Indian Explosives Act. 1884, along with the Explosives substance Act 1908 and the Explosives Rules 1983.

  vii. The (Indian) Boilers Act, 1923.

  viii. The Public Liability Insurance Act 1991 and Rules 1991.

  ix. Minimum Wages Act, 1948 and Rules 1950.

  x. Contract Labour Act (Regulation and Abolition), 1970 and Central Rules 1971.

  xi. Delhi Building and Other Construction Workers Act

  xii. Child Labour (Prohibitions & Regulations) Act, 1986 and Rules 1950.

xiii. Environment Protection Act, 1986 and Rules 1986.

xiv. Air (Prevention and control of Pollution) Act, 1981.

xv. Water (Prevention and Control of Pollution) Act, 1974.

xvi. The Noise Pollution (Regulation & Control) Rules, 2000.

xvii. Notification on Control of Noise from Diesel Generator (DG) sets, 2002.

xviii. Recycled Plastic Usage Rules, 1998.

xviii. Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989.

xix. The Hazardous Waste (Management & Handling) Rules, 1989.
xx. Hazardous Waste Management Rules 1989 (as amended in 1999).

xxi. Batteries (Management and Handling) Rules.

3.1.2 Workman Compensation Act, 1923 along with allied Rules

· The contractor shall ensure that all his employees / workmen are covered under 'Workmen Compensation Act' and shall pay compensation to his workmen as and when the eventuality for the same arises.

· Notwithstanding the above Act/Rules, there is nothing in those to exempt the contractor from the purview of any other Act or Rule in Republic of India for the safety of men and materials.

· If the requirements stated in this document are less stringent than or in conflict with the country's applicable legislation, the latter shall apply.

3.2 International Standards, Guidelines & ISO Certifications

The works should be undertaken in accordance with the applicable international guidelines, standards and specifications on SH&E and every contract shall aim to achieve international certifications listed below during the currency of the contract:

· OHSAS 18001-1999: Occupational Health and Safety Management System.

· ISO 14001-2004: Environmental Management Systems.

The process of certification shall start immediately after the award of the work and complete within reasonable minimum time. Towards this, the contractor shall undertake the required steps for obtaining the certification on Occupational Health and Safety Management System and Environment Management System.

In case of contractors along with the joint venture partners, who possess a valid certification of either ISO 14001 or OHSAS 18001 or both shall include the contract in their immediate following surveillance audit which normally takes place once in 6 months from the date of certification and conduct the audit. The required documentation shall be undertaken with the help of the ISO

consultant. If the same can be done in-house the same shall be demonstrated to the Authority. If any of the JV partners do not possess the ISO 14001 or OHSAS 18001 certification then the lead member of contract shall obtain a fresh certification.

In case of failure on the part of the contractor, the Authority at the cost of the contractor shall do the same.

4.0 Risk Assessment and Method Statements

Risk Assessment shall be conducted by the contractor for all works to decide on priorities and to set objectives for eliminating hazards and reducing risks.

4.1 The Risk Assessment Process

The following elements shall be considered during the assessment process, but not limited to:

i. hazard identification

ii. persons at risk

iii. evaluation of risk level

iv. risk controls (existing and additional)

v. record of risk assessment findings

vi. monitoring and review

4.1.1 Hazard Identification

A critical observation/study of the structure/process/site under consideration by the risk assessment team is an essential part of hazard identification as is consultation with the relevant section of the workforce. It is important that unsafe conditions are not confused with hazards, during hazard identification.

4.1.2 Person(s) at Risk

On a construction/erecting/fabrication area, the persons at risk could be site operatives, surveyors, transport drivers, other visitors and the general public. The risk assessment must include any additional controls required due to the vulnerability of any of these groups, perhaps caused by inexperience or disability.

4.1.3 Evaluation of Risk Level

The purpose of the risk assessment, therefore, is to reduce the remaining risk after taking into consideration of risks already addressed. This is called the residual risk.

The goal of risk assessment is to reduce all residual risks to as low a level as reasonably practicable. In a relatively complex workplace, this shall take time so that a system of ranking risk is required – the higher the risk level the sooner it must be addressed and controlled. For most situations, a

qualitative risk assessment shall be perfectly adequate. For all high risk activities a quantitative risk assessment shall be conducted to quantify the risk level in terms of the likelihood of an incident and its subsequent severity. Clearly the higher the likelihood and severity, the higher the risk will be. The likelihood depends on such factors as the control measures in place, the frequency the exposure to the hazard and the category of person exposed to the hazard. The severity will depend on the magnitude of the hazard (e.g. voltage, toxicity etc.).

4.1.4 Risk Control Measures

The next stage in the risk assessment is the control of the risk. Hierarchy of Risk Control

When assessing the adequacy of existing controls or introducing new controls, a hierarchy of risk controls should be considered. The principles are:

i. avoiding risks

ii. evaluating the risks which cannot be avoided

iii. combating the risks at source

iv. adapting the work to the individual, especially as regards the design of the workplace, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work – rate and to reducing their effects on health

v. adapting to technical progress

vi. replacing the dangerous by the non-dangerous or the less dangerous

vii. developing a coherent overall prevention policy which covers technology, organization of work, working conditions, social relationships and the influence of factors relating to the working environment

viii. giving collective protective measures priority over individual protective measures and

ix. giving appropriate instruction to employees.

· In addition to the above the following principles shall also to be employed:

i. eliminating

ii. substitution

iii. engineering controls (e.g. isolation, insulation and ventilation)

iv. reduced or limited time exposure

v. good housekeeping

vi. safe systems of work

a) Method Statement

b) Permit to work

i. training and information

ii. personal protective equipment

iii. welfare

iv. monitoring and supervision

v. reviews

Method Statement

· The method statement should take into account the conclusions of risk assessments made under the Management, Control of Substances Hazardous to Health and the Manual Handling Operations Regulations.

· As a mandatory rule, if potentially hazardous activities are to be undertaken then method statements should be prepared.

· Typical work which shall require method statements includes:

i. work at height

ii. work in deep excavation

iii. erection and dismantling of scaffolding, temporary support systems, form work and false work

iv. refurbishment work, which may affect the structural stability of such a structure

a) roof work

b) erection of structures

c) work on high voltage electrical equipment

d) entry into confined spaces

e) hot work

f) work involving highly flammable liquids

The extent and detail of a method statement shall depend upon the project components, size and / or complexity of the work, activity or task to be undertaken. A method statement should contain the following:

i. management arrangements, including identified persons with authority

ii. detailed sequence of work operations in a chronological order

iii. drawings and / or technical information

iv. Detailed information on plant, equipment, substances etc.

v. inspection and monitoring controls

vi. risk assessments

vii. emergency procedures and systems

viii. arrangements for delivery, stacking, storing and movement of logistics on site

ix. details of site features, layout and access, which may affect the method of working

x. Procedures for changing or departing from the method statement.

- The method statement is a dynamic document and must be adhered to and kept up to date.

4.1.5 Record of Risk Assessment Findings

All risk assessment statements are to be recorded and maintained. The record should be accessible to auditors and Authority's representative and a copy kept with the safety manual containing the safety policy and arrangements.

4.1.6 Monitoring and Review

Risk controls shall be reviewed periodically. Review and revision shall be necessary when conditions change as a result of the introduction of new machinery, processes or hazards. There could also be changes in the workforce, for example, the introduction of trainees. The risk assessment only needs to be revised if significant changes have taken place since the last assessment was done. An accident or incident or a series of minor ones provides a good reason for a review of the risk assessment. This is known as the post-accident risk assessment.

5.1 Contractor's SH&E Policy and Plan

The Contractor shall formulate a project specific SH&E policy and display it at conspicuous places at work sites in Hindi, English and a local language understood by the majority of construction workers. The general requirements for SH&E plan are:

The Contractor shall:

a) Create and maintain a safe and health work environment

b) Execute the works in a manner that complies with all the requirements of the Act and all the

associated regulations, and in so doing, minimize the risk of incidents occurring; and

c) Respond to the notices issued by the Authority's SH&E personnel

Within 4 weeks of the Letter of Award, the Contractor shall submit a detailed and comprehensive Contract specific SH&E Plan. The SH&E Plan shall include detailed policies, procedures and regulations which, when implemented, shall ensure compliance of the contract provisions. The SH&E Plan shall include the following but not be restricted to:

5.1 A statement of the Contractor's policy, organisation and arrangements for SH&E

a. The name(s) and experience of person(s) within the Contractor's proposed management who shall be responsible for coordinating and monitoring the Contractor's SH&E performance;

b. The number of SH&E staff who shall be employed on the Works, their responsibilities, authority and line of communication with the proposed Contractor's agent;

c. A statement of the Contractor's policy and procedures for identifying and estimating hazards, and the measures for addressing the same;

d. A list of SH&E hazards anticipated for this Contract and sufficient information to demonstrate the Contractor's proposals for achieving effective and efficient health and safety procedures;

e. A description of the SH&E training courses and emergency drills which shall be provided by the Contractor, with an outline of the syllabus to be followed;

f. Details of the safety equipment which shall be provided by the Contractor, including personal protective equipment;

g. A statement of the Contractor's policy and procedures for ensuring that Contractor's Equipment used on the Project Site are maintained in a safe condition and are operated in a safe manner;

h. A statement of the Contractor's policy and procedures for ensuring that sub-contractors comply with the Contractor's safety plan;

i. A statement of the Contractor's disciplinary procedures with respect to SH&E related matters, and

j. A statement of the Contractor's procedure for reporting and investigating accidents, dangerous occurrences or occupational illnesses

5.2 Supplements to the SH&E Plan

The Contractor shall, from time to time and as necessary, is required by the Authority to produce supplements to the SH&E Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety, industrial health and environment obligations, responsibilities, policies and procedures relating to work on Site. Any and all submissions of supplements to the SH&E Plan shall be made to the Authority in accordance with the agreed procedures.

5.3 Revision of SH&E Plan

If at any time the SH&E plan is, in the Authority's opinion, requires revision or modification to ensure the security of the Works and the safety of all workmen upon and visitors to the Site, the Authority may instruct the Contractor to revise the SH&E plan and the Contractor shall **within 7 days** submit the revised plan to the Authority for review and approval.

5.4 Omissions, Inconsistencies and Errors in the SH&E Plan

Any omissions, inconsistencies and errors in the SH&E Plan or the Authority's acceptance or rejection of the SH&E Plan and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to site safety, industrial health and environment and shall not excuse any failure by the contractor to adopt proper and recognized safety practices throughout the execution of the Work.

5.5 Adherence to SH&E Plan

The Contractor shall adhere to the SH&E Plan and shall ensure, as far as practically possible, that all sub-contractors of all tiers require that contracting parties each have a copy of the Site SH&E Plan and comply with its provisions.

5.6 Health and Safety in Contractor's Design Deliverables

When considering health and safety in designer's work, they shall be expected to do what is reasonable at the time the design is prepared. It may be possible for hazards, which cannot be addressed at the feasibility stage to be looked at during detailed design. In deciding what is reasonably practicable, the risk to health and safety produced by a feature of the design has to be weighed against the cost of excluding the feature. The overall design process does not need to be dominated by a concern to avoid all risks during the construction phase and maintenance. However, a judgment has to be made by weighing up one consideration against another so the cost is counted not just in financial terms, but also those of fitness for purpose, aesthetics, constructability or environmental impact. By applying these principles, it may be possible to make decisions at the design stage, which shall avoid or reduce risks during construction work. In many cases, the large number of design considerations shall allow a number of equally valid design solutions. What is important is the approach to the solutions of design problems. This should involve a proper exercise of judgment, which takes account of health and safety issues. The contractor shall appoint a Safety Consultant at the start of the contract and to implement the consultant's directions in respect of safety.

5.7 Hierarchy of Risk Control

Designers shall need, so far as reasonably practicable, to avoid or reduce risks by applying a series of steps known as the hierarchy of risk control or principles of prevention and protection. The steps to be adopted shall include the following:

- consider if the hazard can be prevented from arising so that the risk can be avoided (e.g., alter the design to avoid the risk);

- if this cannot be achieved, the risk should be combated at source (e.g., ensure the design details of items to be lifted include attachment points for lifting);

- failing this, priority should be given to measures to control the risk that shall protect all people;

- only as a last resort should measures to control risk by means of personal protection be assumed (e.g., use of safety harnesses).

In case of situations where the designers have carried out the design work and concluded that there are risks, which were not reasonably practicable to avoid, detailed information shall be given about the health and safety risks, which remain. This information needs to be included with the design to alert others to the risks, which they cannot reasonably be expected to know. This is essential for the parties who have to use the design information.

If the designers' basic design assumptions affect health or safety, or health and safety risks are not obvious from the standard design document, the designer shall provide additional information. The information shall include a broad indication of the assumptions about the precautions for dealing with the risks. The information shall need to be conveyed in a clear manner; it shall be included on drawings, in written specifications or outline method statements. The level of detail to be recorded shall be determined by the nature of the hazards involved and the associated level of risk.

5.8 Authority's approval

Every structure like scaffold, false work, etc. shall have its design calculations included in the method statements in addition to health and safety risks. Authoritys' designer or his approved proof check consultants as applicable as per the contract conditions shall approve all these designs.

Any non-standard structures like trestles made up of re-bars or structures which are very old, corroded, repaired for many times etc. for which no design calculations can be made accurately from any national standards, shall not be allowed to be used at sites even for short duration.

If any of the above mentioned clauses are not adhered penalty shall be imposed depending upon the gravity of the unsafe act and or condition.

6.0 Contractor SH&E Personnel and Responsibilities

6.1 Education and Experience

The Contractor shall appoint the required SH&E personnel as prescribed in General Instruction (enclosed at the end) based upon the statutory requirement and establishes the safety organisation based upon the contract value.

In order to effectively interact on labour welfare matters with the Authority and the statutory authorities enforcing the labour welfare legislations every contractor shall employ a duly qualified and experienced full time Labour Welfare Officer.

Conduct and competency

The conduct and functioning of the Contractor SH&E personnel shall be monitored by the Authority. Any default or deficiency shall attract penalty as per details given under penalty clause of this document.

The Contractor shall ensure that all personnel are competent to perform the job assigned to them. In

the event that the Contractor is unable to demonstrate the competency of any person whose activities can directly impact on the Works' SH&E performance, the Authority shall remove that person from the site without any procedural formalities.

6.2 Approval from Authority

The name, address, educational qualification, work experience and health condition of each personnel deployed for SH&E jobs shall be submitted to the Authority in the format prescribed for the purpose for comments and approval well before the start of the work. Only on approval by the Authority these personnel are authorised to work. In case any of the SH&E personnel leaves the contractor the same shall be intimated to the Authority. The contractor shall recruit new personnel and fill up the vacancy.

6.3 Responsibility of SH&E personnel

For all works carried out by the contractor and his sub-contractors, the responsibility of ensuring the required SH&E manpower lies with the main contractor only. The minimum required manpower indicated by the Authority includes the sub-contractors' work also. It shall be the responsibility of the main contractor to provide required SH&E manpower for all the works executed by all contractors. Necessary conditions shall be included in all sub-contract documents executed by the main contractor.
The Contractor shall appoint in writing one health and safety representative for every 50 employees working on the site.

6.4 Employment status of SH&E personnel

No Contractor shall engage SH&E manpower from any outsourcing agencies in which case the effectiveness would be lost. All SH&E manpower shall be on the payroll of the main contractor only and not on the payroll of any subcontractor or outsourcing manpower agencies etc. This condition does not apply to positions like traffic marshals who are engaged almost on a daily requirement basis.

6.5 Reporting of SH&E personnel

All SH&E personnel shall report directly to the Project Manager. The Authority shall monitor adherence to this procedure at all times. In case of non-adherence penalty shall be levied as indicated in the penalty clause.

6.6 Inadequate SH&E personnel

In case if the Contractor fail to provide the minimum required manpower as illustrated in General Instruction or fail to fill up vacancies created within 14 days, the same shall be provided by the Authority at Contractor's cost. Any administrative expenses involved providing the same like paper advertisement or manpower consultant charges, etc. shall also be at the cost of contractor.

6.7 Prohibition of performance of other duties

No SH&E personnel shall be required or permitted to do any work which is unconnected to, inconsistent with or detrimental to the performance of the SH&E duties for respective category mentioned in General Information.

The Contractor shall provide all SH&E personnel with such facilities, equipment and information that are necessary to enable him to dispatch his duties effectively.

The minimum Authority's requirements of such facilities / equipment to be provided for SH&E personnel are given in the General Instruction.

7.0 Contractor SH&E Committee

7.1 SH&E Committees

All employees should be able to participate in the making and monitoring of arrangements for safety, industrial health and environment at their place of work. The establishment of site SH&E committees in which Contractors employees and Contractor and sub-contractor management are represented can increase the involvement and commitment of employees. Safety committee shall also include minimum one person from Authority's Engineer. The Contractor shall ensure the formation and monitor the functioning of Contractor SH&E committees.

7.2 Terms of Reference

The Terms of Reference for the committee shall be as follows;

- To establish company safety policy and practices

i. To monitor the adequacy of the Contractor's site SH&E plan and ensure its implementation.

ii. To review SH&E training.

iii. To review the contractor's monthly SH&E report.

iv. To identify probable causes of accident and unsafe practices in building or other construction work and to suggest remedial measures.

v. To stimulate interest of Authority and building workers in safety by organizing safety week, safety competition, talks and film-shows on safety, preparing posters or taking similar other measures as and when required or as necessary.

vi. To go round the construction site with a view to check unsafe practices and detect unsafe conditions and to recommend remedial measures for their rectifications including first-aid medical and welfare facilities.

vii. Committee team members should perform a site inspection before every committee meetings and to monitor SH&E inspection reports.

viii. To bring to the notice of the Authority the hazards associated with use, handling and maintenance of the equipment used during the course of building and other construction work.

ix. To suggest measures for improving welfare amenities in the construction site and other miscellaneous aspect of safety, health and welfare in building or other construction work.

x. To look into the health hazards associated with handling different types of explosives, chemicals and other construction materials and to suggest remedial measures including personal protective equipment.

· To review the last safety committee meeting minutes and to take action against persons/sub-contractors for non-compliance if any.

Within 14 days of award of contract, the SH&E committee shall be constituted and notification regarding the same shall be communicated to the members and employees as per the format provided during the kick-off meeting.

Site SH&E Committee meeting shall be conducted at least once in a month with the minimum members listed below:

Chairman	Project Manager
Secretary	SH&E Manager (In-charge)
Members	I. Construction Manager
	II. In charge of plant and machinery
	III. In charge of site electrics
	IV. Authority's Engineer representative
	V. Authority

7.3 Minimum time between two monthly SH&E Committee meetings

A minimum period of 21 calendar days shall be maintained between any two SH&E monthly committee meetings.

7.4 Agenda

The Secretary shall circulate the agenda of the meeting at least seven working days in advance of the scheduled date of the meeting to all members.

The agenda should broadly cover the following:

· Confirmation of minutes.

· Chairman's review/overview of site SH&E performance / condition.

· Previous month SH&E statistics.

· Incident and Accident Investigation / dangerous occurrence / near miss report.

· Site SH&E inspection.

· Sub-contractors' SH&E issues.

- Safety presentation by Secretary.
- Report from Authority.
- Any other business.

7.5 Minutes of the meeting

The Minutes of the meeting shall be prepared as per the format provided at the time of the kick – off meeting. The MoM shall be sent to all members **within 3 working** days preferably by mail followed by hardcopy. Safety Committee meeting minutes shall also be displayed in the notice board for wider publicity to all concerned.

7.6 Disciplinary Action

The chairman shall inform the members of any outstanding issues in the meeting and in case of repeated offence/ non-compliance by some members or other co/sub-contractors and propose suitable disciplinary action including provisions of monitory penalty as per the relevant contract clauses, the Authority shall ensure that the same is implemented.

8.0 ID Card and First Day at Work, SH&E Orientation Training

The Contractor shall ensure that all personnel working at the site receive an induction SH&E training explaining the nature of the work, the hazards that may be encountered during the site work and the particular hazards attached to their own function within the operation.

All personnel shall be issued a photo identity card of size 85mm x 55mm duly signed by the safety officer or any authorized representative of the contractor before they are engaged for any work.

9.1 SH&E Training

The attitude of people at all levels of the contractor is critical for SH&E performance. The Contractor shall keep his workforce motivated and focused on practicing the SH&E norms at all times.

The Contractor shall organise quality SH&E training to engage Managers, supervisors and other personnel in behavioral change and improve safety performance.

The Contractor shall analyse the training requirements for all the employees and initiate a training program to demonstrate that all persons employed, including subcontractors, are suitably qualified, competent and fit. This shall include:

- Detailed Job descriptions for all personnel, to include their specific SH&E responsibilities.
- Specification of qualifications, competency and training requirements for all personnel.
- Assessment and recording of training needs for all personnel, including subcontractors' employees in the workforce, vendor representatives and site visitors.
- A system for assessing new hirers' e.g. prior training and experience.
- A means of confirming that the system is effective.

- A matrix and schedule of training requirements, covering general, task– specific and SH&E-related training, showing the training frequency and interval between refresher courses.

- Timely, competent delivery of training courses.

The Contractor shall arrange behavioral-based training programmes for all the executives to identify recognise and eliminate unsafe act and unsafe conditions.

The refresher-training programme to all employees shall be conducted once in six months.

The employees completing the training program successfully shall be provided with a Safety Sticker. It is mandatory for all the employees to have Safety Sticker on their safety helmets. Any employee, who fails to abide by this, shall not be allowed to work on construction site.

The SH&E manager shall monitor it on daily basis and maintain a register of employees violating this rule.

Toolbox talks shall be conducted by Contractors safety officers to all workmen every day before the start of every working day.

On-the spot practical skill development training on height safety including scaffold safety, crane safety, welding safety, electrical safety, and traffic safety for marshals shall also be conducted to all foremen/ workmen who were associated to the concerned jobs.

Daily Safety Oath as given in the Project SH&E manual shall be taken by every employee including workman.

All vehicle drivers shall be instructed for defensive driving by the Contractors safety manager. Contractor shall provide training if required.

In case of failure on the part of the contractor to provide all the above-mentioned training programs to all employees in time, the same shall be provided by the Authority through accredited agencies if required by formulating a common scheme to all contractors. It is mandatory for the contractors to participate in the common scheme. Any administrative expenses and training fee towards the same shall be at the cost of the contractor.

10.1 SH&E Inspection

The contractor shall evolve and administer a system of conducting SH&E inspections and other risk management analysis on a periodical basis.

The purpose of SH&E inspection is to identify any variation in construction activities and operations, machineries, plant and equipment and processes against the SH&E Plan and its supplementary procedures and programs.

Following SH&E inspections program shall be adopted.

- Planned General Inspection.

- Routine Inspection.
- Specific Inspection.
- Other Inspection.

10.1 Planned General Inspection

- Planned general inspections are performed at predetermined intervals and it usually involves the representation from both Contractor and the Authority.
- Inspections that shall be classified under this inspection program are:
  i. Monthly contractor's site safety committee Inspection.
  ii. Weekly safety inspection by construction supervisors (Contractor and Sub-contractors).
  iii. Daily safety inspection by contractor site SH&E team.

10.2 Routine Inspection

Routine inspections are often referring to the inspection of work site, equipment and temporary structures performed by site and equipment operators and temporary structure erectors.

Inspections that shall be classified under this inspection program are:

i. Daily Inspection of site, plant and equipment (before the start of day)
ii. Weekly Inspection of scaffold
iii. Monthly Inspection of electrical hand tools by competent electrical supervisor
iv. Quarterly Inspection of temporary electrical systems by competent electrical supervisor
v. Half-yearly inspection of lifting machinery, lifting appliances and equipment etc. by competent person.

- The list mentioned above is not exhaustive. Contractor may add additional categories. Contractors' Site SH&E Manager shall ensure that a system of routine inspections are carried out periodically to all plants, equipment, powered tools and any other temporary structures that shall pose a hazard to operators and workmen.

10.3 Specific Inspection

- Specific inspections are performed on activities without a predetermined date. Competent supervisors usually perform inspections for ensuring an activity whether it is executed in accordance to a general set of rules; method statement submitted or developed procedures.
- The following are examples that shall be commonly performed as required on the construction site:

i. Inspection performed before and after the entry of person into a confined space.

ii. Inspection performed before starting earthwork by heavy equipment.

iii. Inspection performed before and after a welding and gas cutting operation.

iv. Inspection of formwork before concreting by formwork erector.

v. Inspection of areas, material, scaffold, equipment and such immediately after any abnormal weathering experienced on site

· The list mentioned above is not exhaustive. The contractor shall ensure that a competent supervisor inspects all high-risk processes and activities.

10.4 Other Inspection

Other inspections include the following:

i. Mandatory Inspections by Labour Department of Government.

ii. Inspection by Authority

iii. Inspection by Contractor's Top Management

10.4.1 The contractor shall prepare all required safety inspection checklist for all activity operations and equipment. Checklists shall be prepared based on the Indian standards, rules and regulations and Authority's requirements. The formats shall be included in the contractor's Project SH&E manual.

10.4.2 All inspection records and reports shall be properly kept and filed for audit purpose. Inspection reports of Planned General Inspection and Routine Inspection shall be used for discussion during Safety Committee Meetings.

11.0 SH&E Audit

11.1 General

11.1.1 Purpose and scope of SH&E audit

The purpose and scope of SH&E audit is to assess potential risk, liabilities and the degree of compliance of construction Safety, Health & Environmental plan and its supplementary procedures and programs against applicable and current SH&E legislation regulations and requirements of the Authority. Project Manager holds the ultimate responsibility in ensuring implementation of SH&E audit program during the assembly/erection/construction work.

11.1.2 Types of Audits

The following two types of audits are to be conducted by contractor.

· Audit Rating Score (A R S)

· Electrical Safety Audit (E S A)

11.1.3 Audit Rating Score (A R S)

Audit Rating Score (ARS) shall be performed once in week. A team consisting of Project manager and Authority's representative based on the pre-designed score-rating format indicated as per Annexure III which shall conduct it. This SH&E Audit Rating Score (ARS) report over a period of six months shall enable the Authority to evaluate the general compliance by the Contractor with the Conditions of Contract, the Schedule-R and the Contractor's site specific SH&E Plan. Weekly, monthly, six Monthly Audits shall be conducted in accordance with Authority Guidelines. The Project Manager accompanied by the Authority's representatives shall carry out the Audit. The Contractor's senior manager and SH&E in-charge should also be invited to attend.

11.1.4 Timing

The Audit Rating Score (ARS) should be conducted at least 7 days prior to the scheduled date of Monthly SH&E Committee meeting of the particular month.

11.1.5 Evaluation

The numerical scoring has been weighed on a 1-10 scale. The audit team shall use their observations noted in evaluating the points to be awarded against each of the elements of the audited section. Wherever some topics and sub-topics are not applicable the score rating need not be given. The overall audit ratings shall be achieved by:

$$\text{Overall Audit rating} = \frac{\text{Actual Score Achieved}}{\text{Maximum Possible Score}} \times 100$$

The criteria of the required actions for the respective sections of the Audit shall be classified as given in Table 1 below:

Table 1: Audit Rating – Action to be taken

Sr.	Score	Description	Action
1	< 70%	Site is poorly managed from Safety perspectives	Needs definite improvement measures (deduction of 2% in the overall Bill)
2	> 70 to 80%	Just adequate management from safety perspectives	Definitely needs improvement (deduction of 1% from the overall bill)
3	> 80 to 90%	Good Management from Safety Aspects.	Scope of Further improvement (hold of .5% from the overall bill till the contractor achieves the higher rating)
4	> 90 to 100%	Excellent management from Safety aspects	Continue with Current Practices

11.1.6 Report

· A copy of each Audit Report shall be sent to Authority, Authority's Engineer and to all subcontractors, with whom it shall then be discussed in detail at the Monthly SH&E Committee Meeting in order to ensure that any corrective actions are agreed upon.

11.1.7 Targets of SH&E Audit

- The contents and coverage of the external audit shall include the following items but not limited to:

i. SH&E Organization Management.

ii. Communication and Motivation.

iii. Emergency preparedness.

iv. Education and Training.

v. Construction operational safety.

vi. Electrical system safety.

vii. Safety Appliances.

viii. Fire prevention and control.

ix. Housekeeping.

x. Maintenance and Machinery safety.

xi. First-aid and Medical Facilities.

xii. Environmental Management.

11.1.8 Audit Preparation

- Audit team members are required to gather information by observations through interviews and by checks of hardware and documentation.

- Audit team shall prepare checklist to cover all parts based on SH&E legislations rules and regulations.

- Audit team members shall verify the facts and findings leading to the identified gaps and weakness.

- Audit leader has overall responsibility for reaching a conclusion.

11.1.9 Reporting

- Audit report shall be prepared and sent to the Authority and Authority's Engineer within 5 working days of conducting the audit by the contractor.

11.1.10 Report contents

- Executive summary - based on the finalized checklists as written the findings to the Authority by the audit team members, the audit leader shall compile a concise and accurate summary of observations and findings.

- Introduction - this shall contain basic information regarding the facilities or organization audited, the specific audit dates (inclusion of those for preparation and post-audit activities).

- Principal positive findings - this shall contain the summary of positive aspects as observed by the auditors. It shall also contain highlights of those issue, which may warrant dissemination as best practice regarding methodology used or achievement.

- Audit Findings - All audit findings as detailed in the audit checklists shall be grouped together as priority 1 and 2 as detailed below in a separate listing.

  (a) Priority 1: Actions to rectify gaps or weakness should generally be implemented immediately, in no case beyond one-weeks' time, if risk potential is high or unacceptable.

  (b) Priority 2: Actions should be generally implemented or rectified with a maximum of 1 - 2 weeks, if not rectified would create a likelihood of minor injury or business loss.

11.1.11 Conformity Report & Action by Authority

- The auditor shall inspect the site after 7days of conducting initial audit for checking the adequacy of implementation of items maintained under priority 1 by the contractor and shall submit a conformity / non-conformity report to the Authority with a copy to the contractor.

- The auditor shall again inspect after 14 days of conducting initial audit for checking the adequacy of implementation of items mentioned under priority 2 by the contractor and shall submit a conformity / non-conformity report to the Authority with a copy to the contractor.

- In case of non-conformity of items mentioned by auditor, the Authority shall take necessary steps including stoppage of work and or imposing any penalty for getting the item implemented.

12.0 SH&E Communication

12.1 Safety Communication

The Contractor shall take every effort to communicate the Safety, Occupational health and Environment management measures through posters campaigns / billboards / banners / glow signs being displayed around the work site as part of the effort to raise safety awareness amongst to the work force. Posters should be in Hindi, English and Local language deemed appropriate. Posters / billboards / banners/ glow signs should be changed at least once in a month to maintain the impact. The contractor shall also observe important days as listed.

12.1.1 SH&E Submittals to the Authority

- The contractor's SH&E management should send the following reports to the Authority periodically:

  i. Daily Reporting of total no of workmen.

  ii. Monthly SH&E Report.

  iii. SH&E Committee Meeting Minutes.

  iv. SH&E Inspection Reports.

v. SH&E Audit Reports.

12.1.2 Daily Reporting of total no of workmen

The Contractor shall report to the Authority the total no. of workmen engaged by all including any subcontractor **within 2 hours** of starting of any shift in any day. This reporting shall be the primary duty of the Chief SH&E Manager of the contractor and reporting shall be through tele-fax / email. The onus of checking the receipt of the same by the Authority lies with the contractor. If the information is not received or received more than 2 hrs after starting of the shift, penalty shall be levied as per relevant clause.

12.2 Monthly SH&E Report

The Contractor shall prepare a monthly SH&E report consisting of the following and submit 3 copies **within 7th of next month** to the Authority as specified in the Project SH&E manual.

- Monthly man-hour details as specified in the Project SH&E manual.
- Monthly accident / incident details as specified in the Project SH&E manual.
- SH&E committee details.
- Details of SH&E training conducted in the month.
- SH&E Inspection.
- SH&E Communication activities under taken in the month indicating the number of posters displayed and balance availability in stock.
- Toolbox talks details.
- Housekeeping.
- Health and Welfare activities.
- SH&E Activities Planned for next month.

12.3 Accident Reporting and Investigation

12.3.1 Reporting to Authority

- All accidents and dangerous occurrences shall immediately be informed verbally to the Authority. This shall enable the Authority to reach to the scene of accident / dangerous occurrences to monitor/assist any rescue work and/or start conducting the investigation process so that the evidences are not lost.
- Reports of all accidents and dangerous occurrences shall also be sent within 24 hours as per format provided in the Project SH&E manual.

- No accident / dangerous occurrence should be exempted from reporting to the Authority.

- Any wilful delay in verbal and written reporting to the Authority shall be penalised as per relevant clause.

12.3.2 Reporting to Government organisations

In addition to the above verbal and written reporting to the Authority, notice of any accident to a worker at the building or construction site that:

- causes loss of life; or

- disables a worker from working for a period of 48 hours or more immediately following the accident;

- shall forthwith be sent by telegram, telephone, fax, or similar other means including special messenger within four hours in case of fatal accidents and 72 hours in case of other accidents, to:

  a) the Regional Labour Commissioner , wherein the contractor has registered the firm/work;

  b) the officer-in-charge of the nearest police station;

  c) the next of kin or other relative of the worker involved in the accident.

In case of an accident causing minor injury, first -aid shall be administered and the injured worker shall be immediately transferred to a hospital or other place for medical treatment.

12.3.3 Reporting of dangerous occurrences

The following classes of dangerous occurrences shall be reported to the Inspector having jurisdiction, whether or not any disablement or death caused to the worker, namely:

a) collapse or failure of lifting appliances, or hoist, or conveyors, or similar equipment for handling of construction material or breakage or failure of rope, chain or loose gears; or overturning of cranes used in construction work;

b) falling of objects from height;

c) collapse or subsidence of soil, pipe lines, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or means of access including formwork;

d) explosion of receiver or vessel used for storage of pressure greater than atmospheric pressure, of any gas or gases or any liquid or solid used as building material;

e) fire and explosion causing damage to any place on construction site where building workers are employed;

f) spillage or leakage of any hazardous substance and damage to their container;

g) collapse, toppling or collision of transport equipment;

h) leakage or release of harmful toxic gases at the construction site;

· In case of failure of lifting appliance, loose gear, hoist or building and other construction work, machinery and transport equipment at a construction site, such appliances, gear, hoist, machinery or equipment and the site of such occurrence shall, as far as practicable, be kept undisturbed until inspected by the Authority's representative;

· Every notice given for fatal accidents or dangerous occurrences shall be followed by a written report to the concerned Authorities.

12.4 Accident investigation

12.4.1 General

· Investigations should be conducted in an open and positive atmosphere that encourages the witnesses to talk freely. The primary objective is to ascertain the facts with a view to prevent future and possibly more serious occurrences.

· Accidents and Dangerous Occurrences which result in death, serious injury or serious damage must be investigated by the Contractor immediately to find out the cause of the accident/occurrence so that measures can be formulated to prevent any recurrence.

· Near misses and minor accidents should also be investigated by the Contractor as soon as possible as they are signals that there are inadequacies in the safety management system.

12.4.2 Procedure of incident investigation

· It is important after any accident or dangerous occurrence that information relating to the incident is gathered in an organised way. The following steps shall be followed;

a) take photographs and make sketches.

b) examine involved equipment, material and the environmental conditions.

c) interview the injured, eye-witnesses and other involved parties.

d) consult expert opinion where necessary.

e) identify the specific contractor or sub-contractor involved.

· Having gathered information, it is then necessary to make an analysis of incident

a) establish the chain of events leading to the accident or incident.

b) find out at what stage the accident took place.

c) consider all possible causes and the interaction of different factors that led up to the accident, and identify the most probable cause The cause of an accident should never be classified as carelessness. The specific act or omission that caused the accident must be identified.

- The next stage is to proceed with the follow-up action report on the findings and conclusions formulate preventive measures to avoid recurrence publicize the findings and the remedial actions taken.

12.5 Authoritys' independent incident investigation

In case of fatal / dangerous occurrence the Authority can also conduct independent investigation. Contractor and his staff shall extend necessary co-operation and testify about the accident.

The Contractor shall take every effort to preserve the scene of accident till the Authority completes the investigation.

All persons summoned by the Authority in connection to witness recording shall obey the instructions without delay. Any willful suppression of information by any person shall be removed from the site immediately and / or punishable as per relevant penalty clause.

13.1 Emergency Response Plan

The Contractor shall prepare an Emergency Response Plan for all work sites as a part of the Contractor SH&E Plan. The plan shall integrate the emergency response plans of the Contractor and all other subcontractors. The Emergency Response Plan shall detail the Contractor's protocols and procedures, including detailed communications arrangements, for dealing with all emergencies that could affect the Site. This include where applicable, injury, sickness, evacuation, fire, chemical spillage, severe weather and rescue.

The Contractor shall ensure that an Emergency Response Plan is prepared to deal with emergencies arising out of:

- Fire and explosion.
- Collapse of lifting appliances and transport equipment.
- Collapse of building, sheds or structure etc.
- Gas leakage or spillage of dangerous goods or chemicals.
- Bomb threatening, criminal or terrorist attack.
- Earthquake, storms and other natural calamities.

Arrangements shall be made for emergency medical treatment and evacuation of the victim in the event of an accident or dangerous incident occurring, the chain of command and the responsible persons of the contractor with their telephone numbers and addresses for quick communication shall be adequately publicized and conspicuously displayed in the workplace.

Contractors shall require to tie-up with the hospitals and fire stations for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.

Contractor shall conduct an onsite emergency mock drill once in every month for all his workers

and his subcontractor's workers.

It shall be the responsibility of the contractor to keep the Local Law & Order Authorities informed and seek urgent help, as the case may be, so as to mitigate the consequences of an emergency. Prompt communication to Authority, telephonically initially and followed by a written report, shall be made by the contractor.

14.0 Housekeeping

Housekeeping is the act of keeping the working environment cleared of all unnecessary waste, thereby providing a first-line of defence against accidents and injuries.

Contractor shall understand and accept that improper housekeeping is the primary hazard in any construction site and ensure that a high degree of housekeeping is always maintained. Indeed "Cleanliness is indeed next to Godliness"

Housekeeping is the responsibility of all site personnel, and line management commitment shall be demonstrated by the continued efforts of supervising staff towards this activity.

Adequate time shall be assigned to ensure that good housekeeping is maintained. This shall be carried out by team of housekeeping squad.

The contractor shall be responsible to provide segregated containers for disposal of debris at required places and regular cleaning of the same.

Full height fence, barriers, barricades etc. shall be erected around the site office establishments and construction worker housing in order to prevent the surrounding area from excavated soil, rubbish etc, which may cause inconvenience to and endanger the public. The barricade especially those exposed to public shall be aesthetically maintained by regular cleaning and painting as directed by the Authority. These shall be maintained in one line and level.

The structure dimension of the barricade, material and composition, its colour scheme, Authority's logo and other details shall be in accordance with specifications laid down in tender document.

All stairways, passageways and gangways shall be maintained without any blockages or obstructions. All emergency exits passageways, exits fire doors, break-glass alarm points, firefighting equipment, first aid stations, and other emergency stations shall be kept clean, unobstructed and in good working order.

Lumber with protruding nails shall be either bent or removed and properly stacked. Un-packed wooden strips shall be safely stored and disposed.

All surplus earth and debris are removed/disposed off from the working areas to officially designated dumpsites. Trucks carrying sand, earth and any pulverized materials etc. in order to avoid dust or odour impact shall be covered while moving. The tyres of the trucks leaving the site shall be cleaned with water, wherever the possibility of spillage on carriageways meant for regular road traffic exists.

No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.

Proper and safe stacking of material are of paramount importance at yards, stores and such locations where material would be unloaded for future use. The storage area shall be well laid out with easy access and material stored / stacked in an orderly and safe manner.

Flammable chemicals / compressed gas cylinders shall be safely stored.

Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas shall be removed to the identified location(s).

All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to the identified location(s). Empty cement bags, if any and other packaging material shall be properly stacked and removed. The Contractor shall ensure that all his sub-contractors maintain the site reasonably clean through provisions related to housekeeping.

15.0 Working at Height

15.1 Definitions

15.1.1 “access” and “egress” include ascent and descent.

15.1.2 “fragile surface” means a surface, which would be able to fail if any reasonably foreseeable loading were to be applied to it.

15.1.3 line” includes rope, chain or webbing.

15.1.4 “personal fall protection” means:

- a fall prevention, work restraint, work positioning, fall arrest or rescue system, other than a system in which the only safeguards are collective safeguards; or
- rope access and positioning techniques.

15.1.5"work at height" means:

- work in any place, including a place at or below ground level;
- obtaining access to or egress from such place while at work, except by a staircase in a permanent workplace;
- where, if protective measures were not taken, a person could fall a distance liable to cause personal injury.

15.1.6 "work equipment" means any machinery, appliance, apparatus, tool or installation for use at work (whether exclusively or not) and includes:

- a guard-rail, toe-board, barrier or similar collective means of protection;
- a working platform;

- a net, airbag or other collective safe guard for arresting falls;
- personal fall protection system;
- ladders.

15.1.7 "working platform"

- means any platform used as a place of work or as a means of access to or egress from a place of work;
- includes any scaffold, suspended scaffold, cradle, mobile platforms, trestle, gangway, gantry and stairway which is so used.

15.2 Organization and planning

The contractor shall ensure that work at height is:

- properly planned for any emergencies and rescue;
- appropriately supervised; and
- carried out in a manner, which is reasonably practicable safe.

The Contractor shall ensure that work at height is carried out only when the weather conditions do not jeopardize the health or safety of persons involved in the work.

15.3 Competence

- The Contractor shall ensure that no person engages in any activity, including organization, planning and supervision, in relation to work at height or work equipment for use in such work unless he is competent to do so or, if being trained, is being supervised by a competent person.

15.4 Avoidance of risks from work at height

The Contractor shall ensure that work is not carried out at height where it is reasonably practicable to carry out the work safely otherwise than at height.

15.4.1 Where work is carried out at height, the Contractor shall take suitable and sufficient measures as given below to prevent, so far as is reasonably practicable, any person falling a distance liable to cause personal injury. This ensuring that the work is carried out:

- from an existing place of work; or
- in the case of obtaining access or egress using an existing means complying to the requirements;
- where it is reasonably practicable to carry it out safely and under appropriate ergonomic conditions; and

- where it is not reasonably practicable for the work to be carried out, his providing sufficient work equipment for preventing, so far as is reasonably practicable, a fall occurring.

15.5 Selection of 'work equipment' for work at height

- The Contractor, in selecting work equipment for use in work at height, shall

  a) give collective protection measures priority over personal protection measures; and

  b) take account of

     i. the working conditions and the risks to the safety of persons at the place where the work equipment is to be used;

     ii. in the case of work equipment for access and egress, the distance to be negotiated;

     iii. the distance and consequences of a potential fall;

     iv. the duration and frequency of use;

     v. the need for easy and timely evacuation and rescue in an emergency; and

     vi. any additional risk posed by the use, installation or removal of that work equipment or by evacuation and rescue from it.

- The Contractor shall select work equipment for work at height which:

  a) has characteristics including dimensions which:

     i. are appropriate to the nature of the work to be performed including the foreseeable loadings; and

     ii. allow passage without risk at that height, as well as underneath.

  b) is in other respects the most suitable work equipment, having regard in particular to the purposes specified.

15.5 Fragile surfaces

15.6.1 The Contractor shall ensure that no person at work passes across or near, or working on, from or near, a fragile surface where it is reasonably practicable to carry out work safely and under appropriate ergonomic conditions without his doing so.

15.6.2 Where it is not reasonably practicable to carry out work safely and under appropriate ergonomic conditions without passing across or near, or working on, from or near, a fragile surface, every contractor shall:

ensure, so far as is reasonably practicable, that suitable and sufficient platforms, coverings, guard rails or similar means of support or protection are provided and used so that any foreseeable loading

is supported by such supports or borne by such protection;

where a risk of a person at work falling remains despite the measures taken under the preceding provisions of this regulation, take suitable and sufficient measures to minimise the distances and consequences of his fall.

15.6.3 Where any person at work may pass across or near, or work on, from or near, a fragile surface, contractor shall ensure that:

- prominent warning notices are so far as is reasonably practicable affixed at the approach to the place where the fragile surface is situated; or
- where that is not reasonably practicable, such persons are made aware of it by other means.

15.6.3 Falling objects

15.7.1 The Contractor shall, where necessary to prevent injury to any person, take suitable and sufficient steps to prevent, so far as is reasonably practicable, the fall of any material or object.

15.7.2 Contractor shall take suitable and sufficient steps to prevent any person being struck by any falling material or object which is liable to cause personal injury.

15.7.3 The Contractor shall ensure that no material or object is thrown or tipped from height in circumstances where it is liable to cause injury to any person.

15.7.4 The Contractor shall ensure that materials and objects are stored in such a way as to prevent risk to any person arising from the collapse, overturning or unintended movement of such materials or objects.

15.8 Danger areas

15.8.1 Without prejudice to the preceding requirements of these Regulations, every contractor shall ensure that:

15.8.2 where a workplace contains an area in which, owing to the nature of the work, there is a risk of any person at work

15.8.3 falling a distance; or

15.8.4 being struck by a falling object.

- which is liable to cause personal injury, the workplace is so far as is reasonably practicable equipped with devices preventing unauthorised persons from entering such area; and
- such area is clearly indicated.

15.9 Inspection of work equipment

15.9.1 The Contractor shall ensure that, where the safety of work equipment depends on how it is installed or assembled, it is not used after installation or assembly in any position unless it has been inspected in that position.

15.9.2 The Contractor shall ensure that work equipment exposed to conditions causing deterioration which is liable to result in unsafe situations is inspected

a) at suitable intervals; and

b) each time that exceptional circumstances which are liable to jeopardise the safety of the work equipment have occurred, to ensure that health and safety conditions are maintained and that any deterioration can be detected and remedied in good time.

15.9.3 The Contractor shall ensure that a working platform

a) used for construction work; and

b) from which a person could fall 2 metres or more, is not used in any position unless it has been inspected in that position or, in the case of a mobile working platform, inspected on the site, within the previous 7 days.

15.9.4 The Contractor shall ensure that the reports of all inspections are properly maintained and shown to the Authority as and when required.

15.9.5 In this clause "inspection"

a) means such visual or more rigorous inspection by a competent person as is appropriate for safety purposes;

b) includes any testing appropriate for those purposes.

15.10 Inspection of places of work at height

The contractor shall so far as is reasonably practicable ensure that the surface and every parapet, permanent rail or other such fall protection measure of every place of work at height are checked on each occasion before the place is used.

15.11 Duties of persons at work

15.11.1 Any workmen employed by the Contractor shall report to the supervisor about any defect relating to work at height which he knows is likely to endanger the safety of himself or another person.

15.11.2 Every workmen shall use any work equipment or safety device provided to him for work at height by the contractor, in accordance with

a) any training in the use of the work equipment or device concerned which have been received by him; and

b) the instructions respecting that use which have been provided to him by the contractor as per the requirements of the Authority.

15.12 Requirements for existing places of work

15.12.1 Requirements for existing places of work and means of access or egress at height

Every existing place of work or means of access or egress at height shall

i. be stable and of sufficient strength and rigidity for the purpose for which it is intended to be or is being used;

ii. where applicable, rest on a stable, sufficiently strong surface;

iii. be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work to be carried out there;

iv. possess suitable and sufficient means for preventing a fall;

v. possess a surface which has no gap

1. through which a person could fall;

2. through which any material or object could fall and injure a person; or

3. giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk.

vi. be so constructed and used, and maintained in such condition, as to prevent, so far as is reasonably practicable

1. the risk of slipping or tripping; or

2. any person being caught between it and any adjacent structure.

vii. where it has moving parts, be prevented by appropriate devices from moving inadvertently during work at height.

15.12.2 Requirements for guardrails, toe-boards, barriers and similar collective means of protection

· Unless the context otherwise requires, any reference in this section to means of protection is to a guardrail, toe-board, barrier or similar collective means of protection.

· Means of protection shall

a) be of sufficient dimensions, of sufficient strength and rigidity for the purposes for which they are being used, and otherwise suitable;

b) be so placed, secured and used as to ensure, so far as is reasonably practicable, that they do not become accidentally displaced; and

c) be so placed as to prevent, so far as is practicable, the fall of any person, or of any material or object, from any place of work.

· In relation to work at height involved in construction work

a) the top guard-rail or other similar means of protection shall be at least 950 millimeters above the edge from which any person is liable to fall;

b) toe-boards shall be suitable and sufficient to prevent the fall of any person, or any material or object, from any place of work; and

c) any intermediate guardrail or similar means of protection shall be positioned so that any gap between it and other means of protection does not exceed 470 millimeters. The positioning of the guardrail shall be maintained at all times

i. Any structure or part of a structure which supports means of protection or to which means of protection are attached shall be of sufficient strength and suitable for the purpose of such support or attachment.

15.12.3 Requirements for all Working Platforms

· Every working platforms requires a supporting structure for holding it

· Any surface upon which any supporting structure rests shall be stable, of sufficient strength and of suitable composition safely to support the supporting structure, the working platform and any loading intended to be placed on the working platform.

· Stability of supporting structure

i. Any supporting structure shall

a) be suitable and of sufficient strength and rigidity for the purpose for which it is being used;

b) in the case of a wheeled structure, be prevented by appropriate devices from moving inadvertently during work at height;

c) in other cases, be prevented from slipping by secure attachment to the bearing surface or to another structure, provision of an effective anti-slip device or by other means of equivalent effectiveness;

d) be stable while being erected, used and dismantled; and

e) when altered or modified, be so altered or modified as to ensure that it remains stable.

f) Have suitable base plates and properly footed thereby.

· Stability of working platforms

i. A working platform shall

a) be suitable and of sufficient strength and rigidity for the purpose or purposes for which it is intended to be used or is being used;

b) be so erected and used as to ensure that its components do not become accidentally displaced so as to endanger any person;

c) when altered or modified, be so altered or modified as to ensure that it remains stable; and

d) be dismantled in such a way as to prevent accidental displacement.

- Safety on working platforms

i. A working platform shall

a) be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work being carried out there;

b) possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap;

c) through which a person could fall;

d) through which any material or object could fall and injure a person; or

e) giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk; and

f) be so erected and used, and maintained in such condition, as to prevent, so far as is reasonably practicable

g) the risk of slipping or tripping; or any person being caught between the working platform and any adjacent structure.

- Loading

i. A working platform and any supporting structure shall not be loaded so as to give rise to a risk of collapse or to any deformation, which could affect its safe use.

- Additional requirements for scaffolding

i. Strength and stability calculations for scaffolding shall be carried out unless

a) a note of the calculations, covering the structural arrangements contemplated, is available; or

b) it is assembled in conformity with a generally recognised standard configuration.

- Depending on the complexity of the scaffolding selected, a competent person shall draw up an assembly, use and dismantling plan. This may be in the form of a standard plan, supplemented by items relating to specific details of the scaffolding in question.

- A copy of the plan, including any instructions it may contain, shall be kept available for the use of persons concerned in the assembly, use, dismantling or alteration of scaffolding until it has

been dismantled.

- The dimensions form and layout of scaffolding decks shall be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety.

- While a scaffold is not available for use, including during its assembly, dismantling or alteration, it shall be marked with general warning signs in accordance with and be suitably delineated by physical means preventing access to the danger zone.

- Scaffolding may be assembled, dismantled or significantly altered only under the supervision of a competent person and by persons who have received appropriate and specific training in the operations envisaged which addresses specific risks which the operations may entail and precautions to be taken, and more particularly in

  i. understanding of the plan for the assembly, dismantling or alteration of the scaffolding concerned;

  ii. safety during the assembly, dismantling or alteration of the scaffolding concerned;
  iii. measures to prevent the risk of persons, materials or objects falling;

  iv. safety measures in the event of changing weather conditions which could adversely affect the safety of the scaffolding concerned;

  v. permissible loadings;

  vi. any other risks which the assembly, dismantling or alteration of the scaffolding may entail.

15.13 Requirements for collective safeguards for arresting falls

- Collective safeguard are a safety net, airbag or other collective safeguard for arresting falls

- A safeguard shall be used only if

  i. a risk assessment has demonstrated that the work activity can so far as is reasonably practicable be performed safely while using it and without affecting its effectiveness;

  ii. the use of other, safer work equipment is not reasonably practicable; and

  iii. a sufficient number of available persons have received adequate training specific to the safeguard, including rescue procedures.

- A safeguard shall be suitable and of sufficient strength to arrest safely the fall of any person who is liable to fall.

- A safeguard shall

  i. in the case of a safeguard which is designed to be attached, be securely attached to all the required anchors, and the anchors and the means of attachment thereto shall be suitable and

of sufficient strength and stability for the purpose of safely supporting the foreseeable loading in arresting any fall and during any subsequent rescue;

ii. in the case of an airbag, landing mat or similar safeguard, be stable; and

iii. in the case of a safeguard, which distorts in arresting a fall, afford sufficient clearance.

· Suitable and sufficient steps shall be taken to ensure, so far as practicable, that in the event of a fall by any person the safeguard does not itself cause injury to that person.

15.14 Requirements for personal fall protection systems

· A personal fall protection system shall be used only if
i. a risk assessment has demonstrated that the work can so far as is reasonably practicable be performed safely while using that system; and the use of other safer work equipment is not reasonably practicable; and

ii. the user and a sufficient number of available persons have received adequate training specific to the operations envisaged, including rescue procedures.

· A personal fall protection system shall

i. be suitable and of sufficient strength for the purposes for which it is being used having regard to the work being carried out and any foreseeable loading;

ii. where necessary, fit the user;

iii. be correctly fitted;

iv. be designed to minimise injury to the user and, where necessary, be adjusted to prevent the user falling or slipping from it, should a fall occur; and

v. be so designed, installed and used as to prevent unplanned or uncontrolled movement of the user.

· A personal fall protection system designed for use with an anchor shall be securely attached to at least one anchor, and each anchor and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of supporting any foreseeable loading.

· Suitable and sufficient steps shall be taken to prevent any person falling or slipping from a personal fall protection system.

15.15 Requirements for Ladders

· Every Contractor shall ensure that a ladder is used for work at height only if a risk assessment has demonstrated that the use of more suitable work equipment is not justified because of the low risk and

i. The short duration of use; or

ii. Existing features on site, which he cannot alter.

- Only approved metal ladders shall be allowed. Bamboo ladders are prohibited.
- Any surface upon which a ladder rests shall be stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it.
- A ladder shall be so positioned as to ensure its stability during use
- A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented.
- A portable ladder shall be prevented from slipping during use by -

  i. securing the stiles at or near their upper or lower ends;
  ii. an effective anti-slip or other effective stability device; or

  iii. any other arrangement of equivalent effectiveness.

- A ladder used for access shall be long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold.
- No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.
- A mobile ladder shall be prevented from moving before it is stepped on.
- Where a ladder or run of ladders raises a vertical distance of 9 metres or more above its base, there shall, where reasonably practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.
- Every ladder shall be inspected atleast every day before using
- Every ladder shall be used in such a way that

  i. a secure handhold and secure support are always available to the user; and

  ii. the user can maintain a safe handhold when carrying a load unless, in the case of a step ladder, the maintenance of a handhold is not practicable when a load is carried, and a risk assessment has demonstrated that the use of a stepladder is justified because of the low risk; and the short duration of use.

16.0 Slipping, Tripping, Cutting and Falling Hazards

16.1 Sharp projections or any protruding nails or similar objects shall be suitably guarded or shall even be avoided to make the place safe to work.

16.2 Contractor shall not allow workmen to work or use platforms, scaffolds/passageways or any walkways, which has water, or oil or similar substances spilt and has a slipping hazard, unless it is cleaned off or covered or sanded or saw dusted or make it safe with any suitable material.

16.3 When workers are exposed to areas where fall into water is possible, the contractor shall provide suitable and adequate equipment for saving the workers from drowning and rescuing from such hazard. If the Authority considers, the contractor shall provide well-equipped boat or launch, manned with trained personnel at the work place.

16.4 Open side or opening where worker, equipment, vehicle or lifting appliance may fall at a building or outside shall be guarded suitably except in places of free access by reasons of nature of work.

16.5 Suitable safety net shall be provided at places of material / man falling is possible in accordance with national standards.

17.0 Lifting Appliances

17.1 General

Lifting appliances means a crane, hoist machinery, derrick, winch, jack, hoist drum, slewing machinery, pulley blocks, hooks or other equipment used for lifting materials, objects or building workers and lifting gears means ropes, chain slings, shackles, hooks, lifting lugs, wire ropes, lifting eyebolts and eye nuts and other accessories of a lifting appliance.

17.2 Size and Characteristics of Machine

No machine shall be selected to do any lifting on a specific job until its size and characteristics are considered against:

- the weights, dimensions and lift radii of the heaviest and largest loads
- the maximum lift height, the maximum lift radius and the weight of the loads that must be handled at each
- the number and frequency of lifts to be made
- how long the crane will be required on site
- whether loads will have to be walked or carried
- whether loads will have to be suspended for lengthy periods
- the site conditions, including the ground where the machine shall be set up, access roads and ramps it must travel, space for erection and any obstacles that might impede access or operation

17.3 Identification System of Tools

17.3.1 The Contractor shall also maintain a register containing a system of identification of all tools and tackles, its date of purchase, safe working load, competent person date of examination etc.

17.3.2 All alarms and signals like reverse horn, automatic safe load indicators (SLI), boom angle indicators, boom extension indicators, over lift boom alarm, swing alarm, hydraulic safety valves, mechanical radius indicators, load moment indicators etc. shall be periodically examined and maintained always in working condition.

17.4 Qualification of Operator

17.4.1 The Contractor shall not employ any person to drive or operate any equipment like excavator, dozer, roller, dumper, crane or any other equipment whether driven by mechanical power or otherwise or to give signals to work as an operator of a rigger or derricks unless he:

- is above twenty-one years of age and possesses a valid heavy transport vehicle driving licence as per Motor Vehicle Act and Rules.
- is absolutely competent and reliable
- possesses the knowledge of the inherent risks involved in the operation of such equipment by undergoing a formal training at any institution of national importance acceptable to Authority

17.4.2 The operator cab shall posse good and safe:

- Structure, windows and windshield wipers
- Drivers chair and foot rest
- Control handles
- Cab instrumentation
- Telecommunication
- Cab out fitting

17.5 General requirements of appliances

17.5.1 The sweep area (work area) of the construction machinery shall be always free from obstructions.

17.5.2 All hydraulic piping and fittings shall be maintained leak proof.

18.0 Construction Machinery

18.1 General

Construction machineries may include excavators, dumpers and dump trucks, lift trucks, telescopic handlers, piling rigs, vibro hammers, welding equipments, mobile elevating work platforms, cranes, tipper lorries, lorry loaders, tankers, trailers, hydraulic and mechanical breakers etc. All the machinery shall be insured as per the relevant clauses.

18.2 Safe worthiness certificate

18.2.1 Every construction equipment shall be in sound mechanical working condition and certified by either competent person under Factories Act or manufacturers' warranty in case of brand new equipment or authorized persons / firms approved by Authority before induction to any site.

18.2.2 Every such certificate shall have the date of purchase, main overhauling undertaken in the past, any accident to the equipment, visual examination details, critical components safety check, list of safety devises and its working condition, manufacturer's maintenance checklist, past projects wherein the equipment were used etc. as its minimum content.

18.3 Reverse Horns

All Vehicles shall be fitted with audible reverse alarms and maintained in good working condition. Reversing shall be done only when there is adequate rear view visibility or under the directions of a banks man.

18.4 General Operating Procedures

- Drivers entering site shall be instructed to follow the safe system of work adopted on site. These shall be verbal instructions or, preferably, written instructions showing the relevant site rules, the site layout, delivery areas, speed limits, etc.
- No passengers shall be carried, unless specific seating has been provided in accordance with the manufacturer's recommendations.
- Working on gradients beyond any equipment's capability shall not be allowed.
- Prevention of dumper and dump truck accidents should be managed by providing wheel stops at a sufficient distance from the edges of excavations, spoil heaps, pits, etc.
- If a tractor dozer is employed on clearing scrub or felling trees, it shall be provided with adequate driver protection.
- In case of hydraulic breakers, hydraulic rams and hoses shall be in good working condition.
- Operators shall wear seat belts while operating the equipment at all times

18.5 Penalty

If any of the above clauses are not adhered, penalty shall be imposed as per relevant clause depending upon the gravity of the unsafe act and or condition.

19.0 Machine and General Area Guarding

The contractor shall ensure at the construction site all equipment, motors, chains and friction gearing, flywheels, shafting, dangerous and moving parts of machinery are securely fenced or legged. The fencing of dangerous part of machinery is not removed while such machinery is in motion or in use.

20.0 Manual Lifting and Carrying of Excessive Weight

20.1 The contractor shall ensure at his construction site of a building or other construction work that no building worker lifts by hand or carries overhead or over his back or shoulders any material, article, tool or appliances exceeding in weight as said below unless aided by another building worker or device. Maximum permissible lifting capacity for individuals is given in Table 2 below.

Table 2: Maximum Permissible Lifting capacity for individuals

. Person	Maximum weight in kg.
Adult man	55
Adult woman	30

20.2 No building worker aided by other building worker shall lift or carry weight higher than or exceeding the sum of total of maximum limits set out for each building worker separately as mentioned in the table above.

21.0 Site Electricity

21.1 Competency of Electrical Personnel

21.1.1 The Contractor shall employ qualified and competent electrical personnel.

21.2 Assessment of Power

21.2.1 The Contractor shall assess the size and location of the electrical loads and the manner in which they vary with time during the currency of the contract.

21.2.2 The Contractor shall elaborate as to how the total supply is to be obtained / generated. The details of the source of electricity, earthing requirement, substation / panel boards, distribution system shall be prepared and necessary approval from Authority obtained before proceeding with the execution.

21.2.3 The Contractor shall take consideration, the requirements of the sub / petty contractors' electric power supply and arrive at the capacity of main source of power supply from nearby power substation or diesel generators as applicable.

21.3 Strength and capability of electrical equipment

No electrical equipment shall be put into use where its strength and capability may be exceeded in such a way as may give rise to danger.

21.4 Adverse or hazardous environments

21.4.1 Electrical equipment which may reasonably foreseeably be exposed to:

- mechanical damage;

- effects of the weather, natural hazards, temperature or pressure;
- effects of wet, dirty, dusty or corrosive conditions; or
- any flammable or explosive substance, including dusts, vapours or gases, shall be of such construction or as necessary protected as to prevent, so far as is reasonably practicable, danger arising from such exposure.

21.5 Electrical protection circuits

21.5.1 Precautions shall be taken, either by earthing or by other suitable means, to prevent danger arising when any conductor (other than a circuit conductor) which may reasonably foreseeable become charged as a result of either the use of a system, or a fault in a system, becomes so charged. A conductor shall be regarded as earthed when conductors of sufficient strength and current-carrying capability to discharge electrical energy to earth connect it to the general mass of earth.

21.5.2 If a circuit conductor is connected to earth or to any other reference point, nothing which might reasonably be expected to give rise to danger by breaking the electrical continuity or introducing high impedance shall be placed in that conductor unless suitable precautions are taken to prevent that danger.

21.5.3 Appropriate electrical protection shall be provided for all circuits, against over load, short circuit and earth fault current.

21.5.4 The contractor shall provide sufficient ELCBs (maintain sensitivity 30 mA) / RCCBs for all the equipment (including Potable equipment), electrical switchboards, distribution panels etc. to prevent electrical shocks to the workers.

21.5.5 All protection devices shall be capable of interrupting the circuit without damage to any equipment and circuits in case of any fault may occur.

21.5.6 Rating of fuses and circuit breakers used for the protection of circuits should be coordinate with equipment power ratings.

21.5.7 Protection against lightning shall be ensured to all equipment kept in open at sites.

21.6 Cables

21.6.1 Cables shall be selected after full consideration of the condition to which they shall be exposed and the duties for which they are required. Supply cable up to 3.3 kV shall be in accordance with BS 6346.

21.6.2 For supplies to mobile or transportable equipment where operating of the equipment subjects the cable to flexing, the cable shall conform to any of these codes BS 6007 / BS 6500 / BS 7375.

21.6.3 Flexible cords with a conductor cross sectional area smaller than 1.5 mm2 shall not be used and insulated flexible cable shall conform to BS 6500 and BS 7375.

21.6.4 Where low voltage cables are to be used, reference shall be made to BS 7375. The following standards shall also be referred to particularly for underground cables BS 6346 and BS 6708

21.6.5 Cables buried directly in the ground shall be of a type incorporating armour or metal sheath or both. Such cables shall be marked by cable covers or a suitable marking tape and be buried at a sufficient depth to avoid their being damaged by any disturbance of the ground. Cable routes shall be marked on the plans kept in the site electrical register.

21.6.6 Cabling passing under the walk way and across way for transport and mobile equipment shall be laid in ducts at a minimum depth of 0.6 meters.

21.6.7 Cables that need to cross open areas, or where span of 3m or more are involved, a catenary wire on poles or other supports shall be provided for convenient means of suspension. Minimum height shall be 6 m above ground.

21.6.8 Cables carrying a voltage to earth in excess of 65V other than supply for welding process shall have metal armour or sheath, which has been effectively earthed and monitored by the contractor. In case of flexible and trailing cables such earthed metal sheath and/or armour should be in addition to the earth core in the cable and shall not be used as the protective conductor.

21.6.9 Armoured cables having an over-sheath of polyvinyl chloride (PVC) or oil resisting and flame retardant compound shall be used whenever there is a risk of mechanical damage occurring.

21.6.10 Cut or damaged cables shall not be used and shall be replaced immediately.

21.7 Plugs, socket-outlets and couplers

21.7.1 The Contractor shall ensure plugs, socket-outlets, and couplers available in the construction site as "splash proof" type. The minimum degree of Ingress Protection should be of IP44 in accordance with BS EN 60529.

21.7.2 Only plugs and fittings of the weatherproof type shall be used and they should be colour coded in accordance with the internationally recognized standards for example as detailed as follows:

111 lts: Yellow.

240 lts: Blue.

415 lts: Red.

21.8 Connections

21.8.1 Every joint and connection in a system shall be mechanically and electrically suitable for use to prevent danger. Proper cable connectors as per national/international standards shall only be used to connect cables.

21.8.2 No loose connections or tapped joints shall be allowed anywhere in the work site, office area, stores and other areas. Penalty as per relevant clause shall be put in case of observation of any tapped joints.

21.9 Portable and hand held equipment

The contractor shall ensure the use of double insulated or all-insulated portable electrical hand equipment may be used without earthing (i.e. two core cables), but they shall still be used only on

110V because of the risk of damage to trailing leads.

21.10 Other equipment:

21.10.1 All equipment shall have the provision for major switch/cut-off switch in the equipment itself.

21.10.2 All non-current carrying metal parts of electrical equipment shall be earthed through insulated cable.

21.10.3 Isolate exposed high-voltage (over 415 Volts) equipment, such as transformer banks, open switches, and similar equipment with exposed energized parts and prevent unauthorised access.

21.11 Lighting

21.11.1 The Contractor shall provide sufficient site lighting, of the right type and at the right place for it to be properly effective. Lighting ought not to introduce the risk of electric shock. Therefore, 230V supplies should be used for those fittings, which are robustly installed, and well out of reach e.g. flood lighting or high-pressure discharge lamps.

21.11.2 The contractor shall ensure that luminaries should always be placed so that no person is required to work in their own shadow and so that the local light for one person is not a source of glare for the others. Strongly made clamps should be available for attaching luminaries to poles and other convenient supports.

21.11.3 Luminaries should be robust, resistant to corrosion and rain proof, especially at the point of the cable entry.

21.11.4 The correct type of lamp for each luminaire's should always be used and when lamps need to be replaced if shall be in accordance with the supply voltage.

21.11.5 Lamp holders not fitted with a lamp should be capped off.

22.1 Hand Tools and Power Tools

22.2 General

22.2.1 The Contractor is wholly responsible for the safe condition of tools and equipment used by his employees and that of his sub-contractors.

22.2.2 Use of short / damaged hand tools shall be prohibited and the contractor shall ensure all his hand tools used at his worksite are safe to work with or stored and shall also train his employees (including his sub-contractors) for proper use thereby.

22.2.3 All hand tools and power tools shall be duly inspected before use for safe operation.

22.2.4 All hand tools and power tools shall have sufficient grip and the design specification on par with national/international standards on anthropometrics.

22.2 Hand tools

22.2.1 Hand tools shall include saws, chisels, axes and hatches, hammers, hand planes, screw drivers, crow bars, and nail pullers.

22.2.2 The Contractor shall ensure that:

- For crosscutting of hardwood, saws with larger teeth points (no. of points per inch) shall be preferred to avoid the saw jumping out of the job.
- Mushroom headed chisels shall not be used in the worksite where the fragments of the head may cause injury.
- Unless hatchet has a striking face, it shall be used as a hammer.
- Only knives of retractable blades shall be used in the worksite.
- No screwdrivers shall be used for scraping, chiselling or punching holes.
- A pilot hole shall always be driven before driving a screw.
- Wherever necessary, usage of proper PPEs shall be used by his employees.

22.3 Power tools

22.3.1 Power tools include drills, planes, routers, saws, jackhammers, grinders, sprayers, chipping hammers, air nozzles and drills.

22.3.2 The Contractor shall ensure that:

Electric tools are properly grounded or / and double insulated.

GFCIs/ RCCBs shall be used with all portable electric tool operated especially outdoors or in wet condition.

Before making any adjustments or changing attachments, his workers shall disconnect the tool from the power source.

Tool is held firmly and the material is properly secured before turning on the tool.

All drills shall have suitable attachments respective of the operations and powerful for ease of operation.

When any work / operation need to be performed repeatedly or continuously, tools specifically designed for that work shall be used. The same is applicable to detachable tool bit also.

Size of the drill shall be determined by the maximum opening of the chuck n case of drill bit.

Attachments such as speed reducing screwdrivers and buffers shall be provided to prevent fatigue and undue muscle strain to his workers.

- Stock should be clamped or otherwise secured firmly to prevent it from moving.
- Workers shall never stand on the top of the ladder to drill holes in walls / ceilings, which can be

hazardous, instead standing on the fourth or fifth rung shall be recommended.

- Electric plane shall not be operated with loose clothing or long scarf or open jacket.
- Safety guards used on right angle head or vertical portable grinders must cover a minimum of 180 degree of the wheel and the spindle / wheel specifications shall be checked.
- All power tools / hand tools shall have guards at their nip points.
- Low profile safety chain shall be used in case of wood working machines and the saw shall run at high rpm when cutting and also correct chain tension shall be ensured to avoid "kickback".
- Leather aprons and gloves shall be used as an additional personal protection auxiliary to withstand kickback.
- Push sticks shall be provided and properly used to hold the job down on the table while the heels moves the stock forward and thus preventing kickbacks.
- Air pressure is set at a suitable level for air actuated tool or equipment being used. Before changing or adjusting pneumatic tools, air pressure shall be turned off.
- Only trained employees shall use explosive actuated tools and the tool shall also be unloaded when not in use.
- Usage of such explosive actuated tools shall be avoided in case of places where explosive/flammable vapours or gases may be present.
- Explosive actuated tools and their explosives shall be stored separately and be taken out and loaded only before the time of immediate use.
- Misfired cartridges of explosive actuated tools must be placed in a container of water and be removed safely from the project.
- No worker shall point any power operated / hand tool to any other person especially during loading / unloading.

22.4 Welding, Gouging and Cutting

22.4.1 Gas cylinders in use shall be kept upright on a custom-built stand or trolley fitted with a bracket to accommodate the hoses and equipment or otherwise secured. The metal cap shall be kept in place to protect the valve when the cylinder is not connected for use.

22.4.2 Hose clamp or clip shall be used to connect hoses firmly in both sides of cylinders and torches.

22.4.3 All gas cylinders shall be fixed with pressure regulator and dial gauges

22.4.4 Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch.

22.4.5 Domestic LPG cylinders shall not be used for Gas welding and Cutting purpose.

22.4.6 DCP or CO2 type Fire Extinguisher not less than 5 kg shall be fixed at or near to welding process zone in an easily accessible location. Fire Extinguisher should confirm to IS 2190: 1992.

22.4.7 Use firewatchers if there is a possibility of ignition unobserved by the operator (e.g. on the other side of bulkheads).

22.4.8 Oxygen cylinders and flammable gas cylinders shall be stored separately, at least 6.6 meters (20 feet) apart or separated by a fire proof, 1.6 meters (5 feet) high partition. Flammable substances shall not be stored within 50 feet of cylinder storage areas.

22.4.9 Transformer used for electrical arc welding shall be fixed with Ammeter and Voltmeter and also fixed with separate main power switch.

22.4.10 Welding grounds and returns should be securely attached to the work by cable lugs, by clamps in the case of stranded conductors, or by bolts for strip conductors. The ground cable shall not be attached to equipment or existing installations or apparatus.

22.4.11 Use a low voltage open circuit relay device if welding with alternating current in constricted or damp places.

22.4.12 Take precautions against the risk of increased fume hazards when welding with chrome containing fluxed consumables or high current metal inert gas (MIG) or tungsten inert gas (TIG) processes.

22.4.13 Avoid being in contact with water or wet floors when welding. Use duckboards or rubber protection.

22.4.14 All electrical installations shall meet the IS: 5571: 1997 and NFPA 70 for gas cylinder storage area and other hazardous areas.

22.4.15 The current for Electric arc welding shall not exceed 300 A on a hand welding operation.

25.0 Dangerous and Harmful Environment

No worker shall be allowed into any confined space or trench or excavation wherein there is given off any dust, fumes / vapours or other impurities which is likely to be injurious or offensive, explosive or poisonous or noxious or gaseous material or other harmful articles unless steps are carried out by the contractor and certified by the responsible person to be safe.

26.0 Fire Prevention, Protection and Fighting System

26.1 General

The Contractor shall ensure that construction site is provided with fire extinguishing equipment sufficient to extinguish any probable fire at construction site.

26.1.1 Recharging of fire extinguishers and their proper maintenance should be ensured and as a minimum should meet Indian National Standards

26.1.2 All drivers of vehicles, foreman, supervisors and managers shall be trained on operating the fire extinguishers and firefighting equipment.

26.1.3 All lifting appliances' driver cabin should be provided with a suitable portable fire extinguisher.

26.1.4 Combustible scrap and other construction debris should be disposed off site on a regular basis. The disposal shall be carried after getting approval from local authorities.

26.1.5 Every fire, including those extinguished by contractor personnel, shall be reported to the Authority representatives.

26.1.6 Emergency plans and Fire Evacuation plans shall be prepared and issued. Mock drills should be held at least once every 3 months, to ensure the effectiveness of the arrangements and as a part of the programme, the Telephone Number of the local fire brigade should be prominently displayed near each telephone on site.

27.0 Corrosive Substances

Corrosive substances including alkalis and acids shall be stored and used by a person dealing with such substances at a building / construction site in a manner that it does not endanger the building worker and suitable PPE shall be provided by the contractor to the worker during such handling and work. In case of spillage of such substances on building worker, the contractor shall take immediate remedial measures.

28.0 Traffic Management

28.1 General

The basic objective of the following guidelines is to lay down procedures to be adopted by contractor to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites. The guiding principles to be adopted for safety in construction zone are to:

- Warn the road user clearly and sufficiently in advance.
- Provide safe and clearly marked lanes for guiding road users.
- Provide safe and clearly marked buffer and work zones
- Provide adequate measures that control driver behaviour through construction zones.
- Provide additional support in the form of a flag man at all times, to assist the operator of the equipment or a heavy transport vehicle

28.2 Warning signs

Warning signs shall be displayed in the area wherever required such as deep excavation, work at height or any other area pointed out by Authority's Engineer / Authority. Materials hanging over / protruded from the chassis / body of any vehicle especially during material handling shall be indicated by red indicator (red light/flag) to indicate the caution to the road users.

28.3 Delineators

The delineators are the elements of a total system of traffic control and have two distinct purposes:

i. To delineate and guide the driver to and along a safe path

ii. As a taper to move traffic from one lane to another.

28.3.1 These channelizing devices such as cones, traffic cylinders, tapes and drums shall be placed in or adjacent to the roadway to control the flow of traffic. These should normally be retro-reflectors complying with IRC: 79 - Recommended Practice for Road Delineators.

28.3.2 Traffic cones and cylinders

- Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflectorized red and white band shall be used wherever required.

- Damaged cones shall be replaced immediately

28.3.3 Drums

- Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.

- Damaged drums shall be replaced immediately

28.3.4 The contractor shall ensure that all his construction vehicles plying on public roads (like dump trucks, trailers, etc.) have proper license to ply on public roads from the State Transport Authority. Drivers holding proper valid license as per the requirements of Motor Vehicles Act shall drive these vehicles.

28.3.5 The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution.

28.3.6 Tow away vehicle

The contractor shall make arrangements keeping toe away van / manpower to tow away any breakdown vehicle in the traffic flow without loosing any time at his cost.

29.0 Personal Protective Equipment (PPE)

29.1 The contractor shall provide required PPEs to workmen to protect against safety and or health hazards. Primarily PPEs are required for the following protection:

- Head Protection (Safety helmets)

- Foot Protection (Safety footwear, Gumboot, etc.)

- Body Protection (High visibility clothing (waistcoat/jacket), Apron, etc.)

- Personal fall protection (Full body harness, Rope-gap fall arrester, etc.)

- Eye Protection (Goggles, Welders glasses, etc.)
- Hand Protection (Gloves, Finger coats, etc.)
- Respiratory Protection. (Nose mask, SCBAs, etc.)
- Hearing Protection (Ear plugs, Ear muffs, etc.)

29.2 The PPEs and safety appliances provided by the contractor shall be of the standard as prescribed by Bureau of Indian Standards (BIS). If materials conforming to BIS standards are not available, the contractor as approved by the Authority shall procure PPE and safety appliances.

29.3 All construction workers should be provided with high visibility jackets with reflective tapes confirming to the requirement specified under BS EN 471: 1994 as most of viaduct /tunnelling and station works are executed either above or under right-of-way. The visibility of workmen at all times shall be increased so as to protect them from speeding vehicular traffic.

29.4 The Contractor shall provide safety helmet, safety shoe and high visibility clothing for all employees of Authority's Engineer & Contractor's workmen, traffic marshal and other employees who are engaged for any work under this contract as per the requirement.

29.5 Colour coding for helmets: Contractors shall follow the colour code for safety helmets as described in the Table 3 below:

Table 3: Safety Colour Code

Safety Helmet Colour Code (Every Helmet should have the LOGO* affixed / painted)	**Person to use**
White	Company staff
White	All Designers, Architect, Consultants, etc.
White	Main Contractors (Engineers / Supervisors)
Blue	All Sub-contractors (Engineers / Supervisors)
Red	Electricians (Both Contractor and Sub- contractor
Green .	Safety Professionals (Both Contractor and Sub-Contractor
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White (with "VISITOR" sticker)	Visitors

The contractor company's respective logo

- Logo shall have its outer dimension 2"X 2" and shall be conspicuous.
- Logo shall be either painted or affixed.

In addition to the above any other PPE required for any specific jobs like, welding and cutting, working at height etc. shall also be provided to all workmen and also ensure that all workmen use the PPEs properly while on the job.

29.6 The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work.

29.7 The contractor shall at all-time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the Authority during the inspections. Failing to do so shall invite appropriate penalty as per the provisions of the contract.

29.8 It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall always be kept at the security post.

30.0 Visitors to Site

30.1 No visitor is allowed to enter the site without the permission of the Authority. All authorised visitors should report at the site office. Contractor shall provide visitor's helmet (White helmet with visitor sticker) and other PPEs like Safety Shoe, reflective jacket, respiratory protection etc. as per requirement of the site.

30.2 All Visitors shall be accompanied at all times by a responsible member of the site personnel.

30.3 The Contractor shall be fully responsible for all visitors' safety and health within the site.

31.1 Occupational Health and Welfare

31.2 Medical Facilities

31.2.1 The contractor shall arrange a medical examination of all his employees including his sub-contractor employees employed as drivers, operators of lifting appliances and transport equipment before employing, after illness or injury, if it appears that the illness or injury might have affected his fitness and, thereafter, once in every two years up to the age of 40 and once in a year, thereafter.

31.2.2 The Contractor shall maintain the confidential records of medical examination or the physician authorized by the Authority.

31.2.3 No building or other construction worker is charged for the medical examination and the cost of such examination is borne by contractor employing such building worker.

31.2.4 If the contractor fails to get the medical examination conducted as mentioned above, the Authority shall have the right to get the same conducted by through an agency with intimation to the contractor and deduct the cost and overhead charges.

31.2.5 The Contractor shall make it mandatory for all the workmen groups to resort to stressing exercises every morning for twenty minutes before the start of work. The Contractor shall appoint competent person as a leader who will ensure daily exercising of all workmen.

31.3 Ambulance van and room

The Contractor shall ensure at a construction site of a building or other construction work that an ambulance van and room are provided at such construction site or an arrangement is made with a nearby hospital for providing such ambulance van for transportation of serious cases of accident or sickness of workers to hospital promptly and such ambulance van and room are maintained in good condition and is equipped with standard facilities.

31.4 First-aid boxes

31.4.1 The Contractor shall ensure one well maintained First-aid box for every 100 workers on the construction site. Every First-aid box shall be distinctly marked "First-aid" and be equipped with all items required for first aid treatment.

31.4.2 HIV/ AIDS prevention and control

The Contractor shall adopt the Policies on "HIV / AIDS Prevention and Control for Workmen Engaged.

31.5 Prevention of mosquito breeding

31.5.1 Measures shall be taken to prevent mosquito breeding at site. The measures to be taken shall include:

a. Empty cans, oil drums, packing and other receptacles, which may retain water shall be deposited at a central collection point and shall be removed from the site regularly.

b. Still waters shall be treated at least once every week with oil in order to prevent mosquito breeding.

c. Contractor's equipment and other items on the site, which may retain water, shall be stored, covered or treated in such a manner that water could not be retained.

d. Water storage tanks shall be provided.

31.5.2 Posters in Hindi, English & local language, which draw attention to the dangers of permitting mosquito breeding, shall be displayed prominently on the site.

31.5.3 The Contractor at periodic interval and upon the request of the Authority shall arrange to prevent mosquito breeding by fumigation / spraying of insecticides. Most effective insecticides shall include SOLFAC WP 10 or Baytex, The Ideal Larvicide etc.

31.6 Alcohol and drugs

31.6.1 The Contractor shall ensure at all times that no employee is working under the influence of alcohol / drugs which are punishable under Govt. regulations.

31.6.2 Smoking at public worksites by any employee is also prohibited as per Govt. regulations.

31.7 Noise

31.7.1 The Contractor shall, at his own expense, take all appropriate measures to ensure that work carried out by the Contractor and by his sub-Contractors, whether on or off the Site, shall not cause any unnecessary or excessive noise which may disturb the occupants of any nearby dwellings, schools, hospitals, or premises with similar sensitivity to noise.

31.7.2 The Contractor shall ensure that noise generated by work carried out by the Contractor and his sub-Contractors during daytime and night time shall not exceed the maximum permissible noise limits,

whether continuously or intermittently, as stipulated by MoEF conditions. In the event of a breach of this requirement, the Contractor shall immediately re-deploy or adjust the relevant equipment or take other appropriate measures to reduce the noise levels and thereafter maintain them at levels which do not exceed the said limits.

31.8 Occupational Noise

31.8.1 Protection against the effects of occupational noise exposure should be provided when the sound level exceeds the threshold values.

31.8.2 When employees are subjected to sound levels exceeding those listed in the Table, feasible administrative or engineering controls should be utilized as given in this document.

31.7.2 If such controls fail to reduce sound levels personal protective equipment shall be provided.

31.8 Vibration Level

31.8.1 In locations where the alignment is close to historical / heritage structures, the contractor shall prepare a monitoring scheme prior to construction at such locations. The scheme shall include:

31.8.2 Monitoring requirements for vibrations at regular intervals throughout the construction period.

31.8.3 Pre-construction structural integrity inspections of historic and sensitive structures in project activity.

31.8.4 Information dissemination about the construction method, probable effects, quality control measures and precautions to be used.

32.0 Environmental Management

32.1 Air Quality

32.1.1 The Contractor shall take all necessary precautions to minimise fugitive dust emissions from operations involving excavation, grading, and clearing of land and disposal of waste. He shall not allow emissions of fugitive dust from any transport, handling, construction or storage activity to remain visible in atmosphere beyond the property line of emission source for any prolonged period of time without notification to the Authority.

32.1.2 The Contractor shall use construction equipment designed and equipped to minimise or control air pollution. He shall maintain evidence of such design and equipment and make these available for

inspection by Authority.

32.1.3 If after commencement of construction activity, Authority believes that the Contractor's equipment or methods of working are causing unacceptable air pollution impacts then these shall be inspected and remedial proposals shall be drawn up by the Contractor, submitted for review to the Authority and implemented.

32.1.4 In developing these remedial measures, the Contractor shall inspect and review all dust sources that may be contributing to air pollution. Remedial measures include use of additional / alternative equipment by the Contractor or maintenance / modification of existing equipment of the Contractor.

32.1.5 The Contractor shall establish and maintain records of routine maintenance program for internal combustion engine powered vehicles and equipment used on this project. He shall keep records available for inspection by Authority.

32.1.6 The Contractor shall cover loads of dust generating materials like debris and soil being transported from construction sites. All trucks carrying loose material should be covered and loaded with sufficient free - board to avoid spills through the tailboard or sideboards.

32.1.7 The Contractor shall promptly transport all excavation disposal materials of whatever kind so as not to delay work on the project. Stockpiling of materials shall only be allowed at sites designated by the Authority. The Contractor shall place excavation materials in the dumping/disposal areas designated in the plans as given in the specifications.

32.1.8 The temporary dumping areas shall be maintained by the Contractor at all times until the excavated soil is re-utilised for backfilling or as directed by Authority. Dust control activities shall continue even during any work stoppage.

32.1.9 The Contractor shall water down construction sites as required to suppress dust, during handling of excavation soil or debris or during demolition. The Contractor shall make water sprinklers, water supply and water delivering equipment available at any time that it is required for dust control use. Dust screens shall be used, as feasible when additional dust control measures are needed especially where the work is near sensitive receptors.

32.1.10 The Contractor shall submit to the Authority an Air Monitoring and Control Plan (AMCP) as per contract specific Environment Management Plan to guide construction activity in so far as it relates to monitoring, controlling and mitigating air pollution.

32.2 Water Quality

32.2.1 The Contractor must comply with the requirements of the Central Ground Water Board for discharge of water arising from dewatering. Any water obtained from dewatering systems installed in the works must be either re-used for construction purposes and this water may subsequently be discharged to the drainage system or, if not re-used, recharged to the ground water at suitable aquifer levels. The Contractor shall not be permitted to directly discharge, to the drainage system, unused ground water obtaining from the excavation without obtaining approval of Authority or the Agency controlling the system.

32.2.2 The Contractor shall ensure that earth, bentonite, chemicals and concrete agitator washings etc. are

not deposited in the watercourses but are suitably collected and residue disposed off in a manner approved by local authorities.

32.2.3 All water and waste products (surface runoff and wastewater) arising on the site shall be collected and removed from the site via a suitable and properly designed temporary drainage system and disposed off at a location and in a manner that shall cause neither pollution nor nuisance.

32.2.4 The Contractor shall discharge wastewater arising out of site office, canteen or toilet facilities constructed by him into sewers through a wastewater drainage system to be constructed by the Contractor for proper discharge, after obtaining prior approval of Authority / Authority's authorized representative controlling the system.

32.2.5 The bentonite mixing, treatment and handling system shall be established by the contractor giving due regard to its environmental impacts. The disposal of redundant bentonite shall be carefully considered whether in bulk or liquid form. The disposal location shall be advised and agreed with the relevant authorities.

32.2.6 The Contractor shall take measures to prevent discharge of oil and grease during spillage from reaching drainage system or any water body. Oil removal /interceptors shall be provided to treat oil waste from workshop areas etc.

32.2.7 The Contractor shall apply to the appropriate authority for installing bore wells for water supply at site.

33.1 Solid Waste Management

During construction, two types of solid waste are expected to be generated – construction & demolition (C&D) waste and municipal waste generated from the labour colonies. - C & D Waste Management Rules, 2016.

The Contractor responsible for the construction activities shall be responsible for sound handling and management of the C&D and municipal waste at the construction site. It is suggested that the civil contractor adopts the concept of 3 Rs – Reduce, Reuse, Recycle. The contractor shall submit a C&D waste management plan which includes plans for waste reduction, C&D storage, collection and transportation and disposal.

The following management measures are suggested which shall be implemented by the civil contractor at construction sites:

33.2 Construction Waste Management

33.2.1 Storage at Construction Site

a. Dumping of C&D waste in non-designated sites shall be strictly prohibited.

b. All construction/demolition waste will be stored within the site itself. Metal mesh screen or GI screens will be provided so that the waste does not get scattered.

c. C&D waste shall be stored separately and not allowed to get mixed with other waste (e.g.,

municipal / biomedical / e-waste / hazardous etc.).

d. Civil contractors to ensure appropriate handling, storage, collection, re-use and clearing of the wasted construction material. The non-utilizable and utilizable C&D waste generated at site will be stored in a segregated manner at the construction site. Reusable items will be used during construction activities; levelling, making roads etc.

e. The civil contractors to ensure that appropriate numbers of skip containers or trolleys are provided on construction site, which can be removed with skip lifters as the case may be.
f. The storage bins/ designated area shall be in accordance with the quantum and nature of the C&D waste.

g. Rain protection (shed and at the floor) to be provided for the storage of construction materials.

h. Clearly label the containers, preferably with waterproof signage, detailing which material can be disposed of in each one.

i. In case of road construction, empty containers of paint, prime coat, tack coat (considered as hazardous waste) shall be stored at a designated place / or a skip and sent to an authorized hazardous waste handler. All the records of the sale of items to authorized hazardous waste vendors will be preserved 7 years after completion and final payment of the contract.

33.2.2 Collection/ transportation and Disposal of C&D waste

a. Collection of the un-utilizable C&D waste within the construction site will be done mechanically (JCBs, LHD (load, haul, dump) etc.) with minimum human intervention.

b. The skips will be emptied at regular intervals by the using hook loader trucks. The contractor will transport the waste to a designated area/ location/ facility as directed by Authority.

33.3 Municipal Waste Management

The contractor will be responsible for managing the municipal waste arising out of labour camps. This will primarily comprise of kitchen and general domestic waste (glass, paper, metal, inerts etc.) and sewage from toilets. The contractor will be responsible for segregated storage, collection, transportation, processing and disposal of such waste. Following measures shall be adopted by the contractor for appropriate waste handling:

a) Civil contractor shall provide colour-coded twin bins which will be placed outside each of the accommodation units provided to the labour, for disposal of wet kitchen waste and dry recyclables. Such bins will be distributed free of cost to the labours by the contractor.

b) The civil contractor shall install organic waste composter/ convertor (OWC) machine of required capacity to treat all the kitchen waste (wet organic waste).

c) The recyclables like paper, plastic, metal are to be stored separately and sold to a recycler.

d) The Contractor will also distribute a twin bin (120 X2 litre capacity) to the nearby dhabhas/ petty shops occurring within 500 metres radius of the construction site, where the labours visit often for food/ tea/ snacks/ cigarette/ bidi during the day. They would also be responsible for

Waste generated in these shops and their disposal as provisioned and on the basis of their own internal arrangement.

33.4 Definitions:

- "Construction and demolition waste" means the waste comprising of building materials, debris and rubble resulting from construction, re-modelling, repair and demolition of any civil structure;

- "Disposal" means the final and safe disposal of solid waste on land to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds;

- "Dry waste" means waste other than food waste and inert and includes recyclable waste, non-recyclable waste, combustible waste and sanitary waste;

- "Handling" includes all activities relating to sorting, segregation, material recovery, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes;

- "Bio-degradable waste" means any organic material that can be degraded by micro- organisms into simpler stable compounds;

- "Non - biodegradable waste" means any waste that cannot be degraded by micro-organisms into simpler stable compounds;

- "Recycling" means the process of transforming segregated solid waste into a new product or raw material for producing new products;

- "Segregation" means sorting and separate storage of various components of solid waste namely biodegradable wastes or wet waste, non-biodegradable wastes or dry waste including recyclable waste, combustible waste sanitary waste and non - recyclable waste, domestic hazardous wastes, e-waste and construction and demolition wastes;

- "Transportation" means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions;

34.1 Hazardous Waste Management

a) If encountered or generated as a result of Contractor's activity, then waste classified as hazardous under the "Hazardous Wastes (Management & Handling) Rules, 1989, amendments 2000, 2003" shall be disposed off in a manner in compliance with the procedure given in the rules under the aforesaid act.

b) Chemicals classified as hazardous chemicals under "Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 of Environment (Protection) Act, 1986 shall be disposed off in a manner in compliance with the procedure given in the rules under the aforesaid act.

c) The contractor shall identify the nature and quantity of hazardous waste generated as a result of his activities and shall file a 'Request for Authorisation' with Delhi State Pollution Control Board along with a map showing the location of storage area.

d) Outside the storage area, the contractor shall place a 'display board', which shall display quantity and nature of hazardous waste, on date. Hazardous Waste needs to be stored in a secure place.

e) It shall be the responsibility of the contractor to ensure that hazardous wastes are stored, based on the composition, in a manner suitable for handling, storage and transport. The labelling and packaging is required to be easily visible and be able to withstand physical conditions and climatic factors.

f) The contractor shall approach only Authorised Recyclers of Hazardous Waste for disposal of Hazardous Waste, under intimation to the Authority.

g) Submittal of all environment related documents and records pertaining to monitoring and trend analysis on key parameters such as but not limited to consumption/efficient use of resources such as energy, water, material such as cement, fly ash, iron and steel, recycle/reuse of waste etc that shall have demonstrated continual improvement in the implementation of Environmental management System. Failure to do so the Authority shall impose appropriate penalty as indicated under penalty clause.

35.0 Energy Management

35.1 The contractor shall use and maintain equipment so as to conserve energy and shall be able to produce demonstrable evidence of the same upon Authority's request.

35.2 Measures to conserve energy include but not limited to the following:

- Use of energy efficient motors and pumps
- Use of energy efficient lighting, which uses energy efficient luminaries
- Adequate and uniform illumination level at construction sites suitable for the task
- Proper size and length of cables and wires to match the rating of equipment
- Use of energy efficient air conditioners

35.3 The contractor shall design site offices maximum daylight and minimum heat gain. The rooms shall be well insulated to enhance the efficiency of air conditioners and the use of solar films on windows may be used where feasible.

36.1 Radiation

a) The use of radioactive substances and radiating apparatus shall comply with the Govt. regulatory requirements and all subsidiary legislation.

b) An operation involving ionising radiation shall only be carried out after having been reviewed

without objection by the Authority's representative and shall be carried out in accordance with a method statement.

c) Each area containing irradiated apparatus shall have warning notices and barriers, as required by the Regulations, conspicuously posted at or near the area.

d) Radioactive substances shall be stored, used or disposed shall be strictly in accordance with the Govt. Enactments.

e) The contractor shall ensure that all site personnel and members of the public are not exposed to radiation.

37.0 Charges to be recovered from Contractor for Unsafe Act or Condition

37.1 The Authority aims to build an image of one of the best safety conscious practice in the construction and operation. An unsafe act or conduct on the construction site may result into an illness, injury, property damage or worst, loss of life. The Contractor is expected to take safety very seriously and shall keep the construction site safe at all times. The Authority shall practice a zero tolerance towards unsafe behavior by any parties on the construction site. The Authority shall recover the cost of damages from the contractors for every reportable incident (fatality / injury).

37.2 Table 4 below indicates the Safety, Health and Environment violation (unsafe act / unsafe condition) and charges to be recovered from contractors.

Table 4: SH&E Violation Charges

Sr.	Topic	Unsafe Act/ Unsafe Condition	Deductible Amount
1	SH & E Plan	a) Not as per Authoritys' content and coverage. b) delay in Submission c) copies not provided to all required supervisors / engineers.	Rs. 50,000 per single violation, compounded to a maximum of Rs. 2,00,000/- at any single instance.
2	SH & E Organisation	a) Not complying with the minimum manpower requirements as per the bid documents. b) Not filling up the vacancies created due to SH&E personnel leaving the contractor within 14 days.	Both a) & b) Rs. 50,000 per month

3	SH & E Committee	a) Failed to formulate or conduct SH & E Committee meeting for any month. b) Failed to conduct Site inspection before conducting SH&E Committee meeting. c) Failed to send SH & E Committee meeting minutes or Agenda to the Authority in time.	a) Rs. 50,000/- for each violation Both b) & c) Rs. 25, 000/- for 1st violation and Rs. 50,000/- for subsequent violations.
4	SH & E Training	Not complying to the requirements as mentioned in conditions of Contract on SH & E and project SH & E manual with regard to: a) Induction training not given b) Supervisor / engineer/ manager training not conducted. c) Refresher training not conducted. d) Tool box talk not conducted.	a) to d) – Rs. 10,000/- for each violation.
Sr.	**Topic**	**Unsafe Act/ Unsafe Condition**	**Deductible Amount**
5	SH & E Inspection	Not complying to the requirements as mentioned in the Conditions of Contract on SH & E and project SH & E manual.	Rs. 50, 000/- for 1st violation and Rs. 1,00,000/- for every subsequent violations
6	SH & E awareness days	SH & E days not observed.	Rs. 10,000/- for each violation
7	Injury and Incidence reporting	a) Fatal Accidents b) injury Accident c) Abnormal delay in reporting accidents or willful suppression of information about any accidents/ dangerous occurrence.	a) Rs. 5,00,000/- for 1st fatality and Rs. 10,00,000/- for every subsequent fatality. b) Rs, 1,00,000/- for 1st grievously injured person and Rs. 2,00,000 for every subsequent grievously injured person (Grievous injury as defined in the Workmen Compensation Act). c) Rs. 25,000 for each violation

8	Housekeeping	a) Housekeeping of construction worker housing, site office establishments etc. b) Surroundings areas of drinking water tanks / taps not hygienically cleaned / maintained. c) Office, Stores, toilet/ urinals not properly cleaned and maintained. d) Required dustbins at appropriate places not provide / not cleaned. e) Openings unprotected f) Vehicles/ equipments parked/ placed on roads obstructing free flow of traffic.	Rs. 10,000 per single violation Compounded to a maximum of Rs. 50,000 at any next single instance.
9		a) Not using or anchoring Safety Belt. b) Not using Safety net. c) Absence of Life Line or Anchorage point to anchor safety belt	Rs. 10,000 per single violation Compounded to a maximum of Rs. 50,000 at any next single instance.
10		Not using proper PPE by any person at site.	Rs. 100/- per incident.

37.3 Without limiting to the unsafe acts and or conditions mentioned above, the Authority shall have the right to deduct charges for any other unsafe act and or condition depending upon the gravity of the situation on a case-to-case basis. The charges shall be in comparison with that of the similar offence.

38.0 Disciplinary Policy Procedures

All employees are expected to comply with jobsite rules and regulations, and to follow established operating procedures set forth by this company. Violations shall not be tolerated and Project Manager shall be held accountable for the conduct of their employees.

Project Managers are required to take action when a violation is observed. Immediate action to control or eliminate a hazard is required.

In the event a violation is observed, the following procedures have been established to place an employee on notice.

Notice* Action

* Within any consecutive 12 month period.

38.1 First Offense: A written warning addressed to the employee and a copy placed in the employee's file referencing the violation and warning, including date and time. If the issue is still not corrected within the 24 hours after the issuance of the penalty, the Authority reserves the right to cite the employee for second offense.

38.2 Second Offense: A written warning addressed to the employee with reference to the violation

including date and time of the occurrence. A copy of this warning shall be given to the employee, and another copy shall be placed in the employee's file. This warning shall be followed by a meeting with the employee, SH&E Manager, foreman and/or project manager to determine whether the employee shall be suspended without pay or terminated depending upon the nature of the violation. If the issue is not solved after the second citation, the Authority reserves the right to terminate the violator and/or Safety Office responsible for the correction.

38.3 Third Offense shall result in termination and permanent removal from the site. In addition to the termination, Authority or Authority's Engineer shall maintain proper documentation such that any Contractor/s do not employ the same employee for any of the project.

39.0 Stoppage of Work

39.1 The Authority shall have the right to stop the work at his sole discretion, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and / or property, and / or equipment. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury / accident.

39.2 The Contractor shall not proceed with the work until he has complied with each direction to the satisfaction of Authority

39.3 The Contractor shall not be entitled for any damages / compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the Facilities and shall not be the ground for waiver of levy of liquidated damages.

40.1 Awards

- The following categories shall be considered for awards by the Authority based on the performance of contractor:

  i. For every safe million man hour working without any reportable incidents

  ii. Zero fatality contract

  iii. 100% adherence to voluntary reporting of all accidents throughout the currency of contract

  iv. Safest project team of the year.

  v. Best SH&E team of the year.

  vi. Safest Contractor of the year.

- The Contractor shall also declare the awards at least on quarterly basis for the individual workmen as well as teams for the safe execution of project in order to provide the motivation to all the workmen groups / teams.

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41.0 Days to be observed for creating SH&E Awareness

1st Monday to Sunday of January	Road Safety Week (Subjected to confirmation from Ministry of Road Transport, Govt. of India every year.)
16th February	Kyoto Protocol Day
March	Red Cross Month
May 1 to 7	Emergency Preparedness Week
4th March	National Safety Day
7th April	World Health Day
14th April	Fire Safety Day
April 18 to 22	Earth Week
20th April	Earth Day
20th April	Noise Awareness Day
28th April	ILO World Day for Safety and Health at Work Day
5th June	World Environmental Day
12th June	World Day against Child Labours
9th July	Occupational Health Day
17th October	World Trauma Day
1st December	World AIDS Day

41.0 Minimum requirements of SH&E Communication Posters / Signages / Video

The contractor, as per the categories provisioned in Clause 42, shall prepare a SH&E Communication Plan as a part of site specific SH&E Plan and shall include the following minimum requirement of Posters / Signages / Video as applicable. In case readymade posters are available in any of the category from National Safety Council, Loss Prevention Association of India or any other safety related organisations they may procure the same and display it. In case the same is not available then the contractors' shall make necessary arrangements to get the posters designed and printed on their own.

All the above are to be detailed in the Site SH&E Plan and get an approval from the Authority before displaying the posters.

Formation of Site SH&E Committee

Contract No _____

Contractor Name _____

Contract Title _____

CIRCULAR

Committee

The following SH&E Committee is constituted with immediate effect:

Chairman:
Members:

1)

2)

3)

4)

5)

Secretary:

Periodicity

The committee shall meet at least once in a month on the day (specify date)

Agenda

Secretary shall circulate agenda of the meeting at least two days in advance of the schedule date of

the meeting.

Circulation

Minutes of the meeting shall be recorded in the standard format and circulated to the following under the signature of the secretary

1. Chairman
2. Members
3. COMPANY Representatives
4. Others concerned

MINUTES OF SAFETY MEETING

Contract No.:

Contractor Name

Contract Title

Meeting No. Date of Meeting

Location of meeting

MEMBERS PRESENT	INVITEES	MEMBERS ABSENT

Report sent to:

No of copies Department

Prepared By: Location: Date:

Annexure I: MOU between Authority & Contractor for safe execution of contract work

This Memorandum of Understanding is made and executed by and between Authority or their authorized representative(s), hereinafter referred to as "Authority" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the one party
AND

M/s _____

having its registered office at _____ hereinafter referred to as the "CONTRACTOR" (which expression shall wherever the context so requires or admits be deemed to mean and include its successors in business and assigns) of the other party

WITNESSETH THAT

WHEREAS the Authority gives highest importance to the occupational safety, health and environment during execution of work, seeks cooperation from the CONTRACTOR in this endeavour.

Thus, this Memorandum of Understanding is for promoting the safety, health and environment aspects required to be followed at workplace/site and shall be applicable to any site job to be done by the CONTRACTOR

AND

WHEREAS the CONTRACTOR has read all the terms and conditions of the Authority and whereas the CONTRACTOR has studied the following documents:

Tender Documents, including RFQ cum RFP, EPC Agreement , Schedules, Drawings.

Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996, Central Rules 1998, Building and Other Construction Workers Welfare Cess Act 1996 and Rules 1998 and

Indian Electricity Act 2003 and Rules 1956.

Corresponding International / Bureau of Indian Standard Codes.

The amendments to any of the above rules and any other rules & regulations or procedures, circulars, notices & advices laid down by the Authority from time to time.

Now it is hereby AGREED AND DECLARED by and between the Authority and the CONTRACTOR as follows:

Clause – I The CONTRACTOR shall abide by the terms and conditions stipulated in Schdule-S.

Clause - II The CONTRACTOR shall undertake full responsibility for safe execution of job at work place/site and safety of his personnel and adjoining road users during work.

Clause - III Without giving any prior notice, the Authority shall from time to time be entitled to add/or amend any or all terms and conditions with a view to improving safety and occupational health of personnel and safety of work, with immediate effect and the same shall be binding on the CONTRACTOR. The contractor agrees to implement all such amendments, which shall be laid down by the Authority.

Clause - IV Besides following the guidelines, safety rules and regulations, safety codes given in various safety procedures / documents mentioned above, the CONTRACTOR shall also prepare detailed method statement which includes job safety analysis wherever there are complicated and hazardous/high risk working involved and get it approved from Authority before execution of work.

Clause - V Any negligence or violation in implementing any of the provision of the conditions of contract on Schedule-S shall be viewed seriously and the contractor is liable to compensate the Authority for the loss of reputation. The cost of damage shall be fixed on case-to-case basis.

In witness thereof the Parties hereto by representatives duly authorised have executed this Memorandum of Understanding on_____day of_____20____.

Signed on	Signed on
For and on behalf of Authority	For and on behalf of (Contractor)
Signature: Signature:	
Name:	**Name:**
Title:	**Title:**

Annexure- II SAFETY, HEALTH & ENVIRONMENT SCORECARD – WEEKLY

	Issuer	Acronym	Sr. No	Rev.	Pg. No

REPORT SUMMARY (Period – From—to --- To)			
CLIENT :	**Project Name :**		
PMC:	**Location :**		
EPC CONTRACTOR :	**Date of observation**		
Report Number	**Distribution; All**		
Scorecard Details	**Percentage Score (1-10)**	**Wtd. score**	**Remarks**
Section 1: Jobsite General	**10%**		**Clause 15.1.3**
Section 2: Housekeeping and Sanitation	**5%**		
Section 3: Fire Prevention	**6%**		
Section 4: Electrical	**8%**		
Section 5: Personal Protective Equipment (PPE's)	**8%**		
Section 6: Hand Tools and Power Tools	**4%**		
Section 7: Ladders	**3%**		
Section 8: Scaffolds	**5%**		
Section 9: Motor Vehicle and Heavy Equipment Section 10: Hoist	**4%**		
Section 10: Hoist and Cranes	**5%**		
Section 11: Excavation	**4%**		
Section 12: Welding, Cutting & Other Hot Works	**7%**		
Section 13: Height Work	**9%**		
Section 14: Handling and Storage of Materials	**3%**		
Section 15: Barricades	**7%**		
Section 16: Emergency Planning	**8%**		
Section 17: Environmental cleanup	**4%**		
Consolidated Site Safety Score (all sections)	**100%**		
SCORE INTERPRETATION:			
9-10 : Excellent management from Safety aspects – Continue with Current Practices			
8-9 : Good Management from safety aspects –scope of Further improvements			
7-8 : Just adequate management from safety aspects – definitely needs improvement			
<7: Site is poorly managed from Safety perspective – Needs definite improvement measures.			
Prepared by SHE Team –EPC Contractor **Reviewed by :**			

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SHE SCORE (Period – From—to --- To)	
REPORT SUMMARY	
PROJECT LOCATION	
Date of Observation	
Observation carried out by	
Report Number	

	Description		Score (1-10)	Wtd score	Action Plan
Section 1: Jobsite General		**10%**			
1.1	Display of Posters and safety signs/warnings	1.0%			
1.2	First aid kit available and adequately stocked	1.0%			
1.3	Proper safety induction & job related safety training completed & recorded?	1.0%			
1.4	Emergency telephone numbers posted?	0.5%			
1.5	Overhead protection at tower periphery?	1.5%			
1.6	Unauthorized entry through other points restricted by hard barricading or sheeting	0.5%			
1.7	Adequate lighting in the access, egress and work area?	1.0%			
1.8	All accidents and injuries are being appropriately recorded in the accident reporting form?	0.5%			
1.9	Minutes of jobsite safety meetings recorded are kept for review?	1.00%			
1.10	The principal contractor has a written safety program that is site specific where necessary?	0.5%			
1.11	Pedestrian and traffic routes identified?	0.5%			
1.12	Tool-box talks conducted and documented?	0.5%			
1.13	Task related Work Permits in place?	0.5%			

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SHE SCORE (Period – From—to --- To)						
REPORT SUMMARY						
PROJECT LOCATION						
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Observation carried out by						
Report Number						
	Description		**Score (1-10)**	**Wtd score**	**Action Plan**	
	Weighted Score for Section 1					
Section 2: Housekeeping and Sanitation		**5%**				
2.1	Functional Male and Female Toilet provided with proper signage's?	1.00%				
2.2	Adequate supply of fresh drinking water at jobsites?	1.00%				
2.3	Personal garbage and lunch sacks are removed from the site or properly disposed of on a daily basis so as to not attract rodents, pests or insects?	0.50%				
2.4	Passageways and walkways clearly indicated and free from obstructions?	1.00%				
2.5	Emergency eye washer and body shower available?	0.25%				
2.6	Wall openings and floor holes /opening/shaft/voids are sign posted, covered, guarded & adequate safety nets provided at the jobsite?	1.00%				
2.7	Nails are removed from scrap lumber and other unused materials?	0.25%				
	Weighted Score for Section 2					
Section 3: Fire Prevention		**6%**				
3.1	Adequate number and type of fire extinguisher(s) available and labeled with periodic inspection record?	0.75%				
3.2	All workers know the location of the fire extinguisher and know how to operate it?	1.50%				
3.3	Firefighting equipment is accessible and maintained at all times in good condition?	1.00%				

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Report Number	

	Description		Score (1-10)	Wtd score	Action Plan
3.4	Smoking is prohibited in all areas except where designated	1.00%			
3.5	Flammable and combustible liquids are marked and properly stored appropriate containers?	1.75%			
	Weighted Score for Section 3				

Section 4: Electrical		**8%**			
4.1	All equipment is either grounded or double-insulated?	1.50%			
4.2	Electrical equipment connected with ELCB/RCCB and periodic testing done?	0.75%			
4.3	Fuses provided of appropriate rating?	1.00%			
4.4	All terminal boxes equipped with required covers?	0.75%			
4.5	Electrical dangers posted and barricaded?	1.50%			
4.6	Proper type of fire extinguisher(s) provided?	1.00%			
4.7	Cable dressing carrying out in a appropriate manner to prevent Trip/Fall hazard at the worksite?	0.75%			
4.8	Industrial Plugs being used of approved type for site use?	0.75%			
	Weighted Score for Section 4				
Section 5: Personal Protective Equipment (PPE's)		**8%**			

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SHE SCORE (Period – From—to --- To)					
REPORT SUMMARY					
PROJECT LOCATION					
Date of Observation					
Observation carried out by					
Report Number					
	Description		**Score (1-10)**	**Wtd score**	**Action Plan**
5.1	Hazard evaluation accomplished and certified?	1.00%			
5.2	Authority issued PPEs including hard hats, safety shoes, goggles, gloves, jackets, safety harness of national standards?	3.00%			
5.3	Is PPE being provided used by workers and staff?	2.00%			
5.4	Employees trained in the use of PPE?	2.00%			
	Weighted Score for Section 5				
Section 6: Hand Tools and Power Tools		**4%**			
6.1	Proper tools in working condition are used for the job?	1.00%			
6.2	All safety guards and devices are in place while the tools or machinery is in use?	1.00%			
6.3	Inspections and proper maintenance accomplished prior to use?	1.00%			
6.4	All power disconnected while power tools are not in use?	1.00%			
	Weighted Score for Section 6				
Section 7: Ladders		**3%**			
7.1	Sufficient numbers of ladders are available at site?	0.50%			
7.2	Ladders inspected and in good condition?	0.50%			
7.3	Ladders used properly for type of exposure?	0.40%			
7.4	Ladders secured to prevent slipping, sliding, or falling?	0.30%			
7.5	Proper maintenance and storage	0.45%			

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SHE SCORE (Period – From—to --- To)					
REPORT SUMMARY					
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Report Number					

	Description		Score (1-10)	Wtd score	Action Plan
7.6	Are aluminum ladders of sufficient strength for the task at contractor's cost? Are the records available?	0.15%			
7.7	Do side rails extend 36" above top of landing?	0.40%			
7.8	All ladders are free of grease, oil, paint, or other slipping hazards?	0.30%			
	Weighted Score for Section 7				
Section 8: Scaffolds		**5%**			
8.1	Erection properly supervised as per provisions of IS codes?	0.50%			
8.2	All structural members free from defects and meet safety factor?	0.50%			
8.3	Safe/unsafe tags/ Tickets clearly visible?	0.50%			
8.4	Are scaffolds erected on solid footing and all connections secure?	0.50%			
8.5	Are working areas free of dirt, debris, grease, etc.?	0.40%			
8.6	Are guard rails, intermediate rails, and toe boards in place?	0.30%			
8.7	Are workers protected from falling objects?	1.00%			
8.8	Is scaffold plumb and square, with cross-bracing and secured to structure?	0.50%			
8.9	The working surface of the scaffold is fully planked and rigidly clamped or tied with metal wire?	0.30%			
8.10	Proper access provided to reach working platform?	0.50%			
	Weighted Score for Section 8				

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SHE SCORE (Period – From—to --- To)						
REPORT SUMMARY						
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Observation carried out by						
Report Number						
	Description		**Score (1-10)**	**Wtd score**	**Action Plan**	
Section 9: Motor Vehicle and Heavy Equipment		**4%**				
9.1	Regular inspection and maintenance	1.00%				
9.2	Brakes, lights, warning devices operative?	0.75%				
9.3	Backup alarms working and audible?	0.50%				
9.4	Legally certified and experienced operators?	1.00%				
9.5	Unauthorized persons not to be carried on vehicles	0.75%				
	Weighted Score for Section 9					
Section 10: Hoist and Cranes		**5%**				
10.1	Employees kept clear from suspended loads?	0.50%				
10.2	Are daily inspections completed by operators?	0.70%				
10.3	Proper loading for capacity at lifting radius and SWL followed?	1.40%				
10.4	Equipment properly lubricated and maintained?	0.35%				
10.5	Passageways and walkways clear?	0.25%				
10.6	Signalmen where needed?	0.25%				
10.7	Alarms working and audible?	0.25%				
10.8	Legally certified and experienced operators?	1.00%				

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SHE SCORE (Period – From—to --- To)						
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Report Number						
	Description		**Score (1-10)**	**Wtd score**	**Action Plan**	
10.9	Slings color coded and dated for inspection?	0.30%				
	Weighted Score for Section 10					
Section 11: Excavation		**4%**				
11.1	The underground utilities have been located and marked?	0.50%				
11.2	Trenches 5' or more in depth are shored, or have sides sloped?	0.50%				
11.3	Operation supervised by competent person?	0.50%				
11.4	Ladders used in excavated areas are properly secured?	0.50%				
11.5	Are roads and sidewalks supported and protected?	1.00%				
11.6	Heavy loads kept at safe distance from excavated pit?	0.50%				
11.7	Are equipment ramps adequate?	0.50%				
	Weighted Score for Section 11					
Section 12: Welding, Cutting & Other Hot Works		**7%**				
12.1	Are operators trained and qualified?	0.60%				
12.2	Are oxygen and acetylene stored separately and properly?	0.60%				

12.3	Fire extinguisher located near operations?	0.60%			

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	Description		Score (1-10)	Wtd score	Action Plan
12.4	Fire blanket use or available?	0.40%			
12.5	Flashback arresters and NRV placed on hoses (O2 and fuel gas)? Bottle cages to be upright.	0.75%			
12.6	Gas lines and power cables protected and in good condition?	0.25%			
12.7	Area inspected for fire hazards?	0.80%			
12.8	Is job specific PPE being used?	1.00%			
12.9	"Hot work" permit completed and posted in areas requiring such permit?	1.50%			
12.10	Oxygen and acetylene kept in trolleys at work place and chained?	0.50%			
	Weighted Score for Section 12				
Section 13: Height Work		**9%**			
13.1	All persons working at elevation are trained and equipped with safety helmet, safety shoes and full body safety harness firmly anchored?	1.50%			
13.2	Is the area cordoned off using a safety tape and caution sign board?	1.00%			
13.3	Height work" permit completed and posted in areas requiring such permit?	1.75%			
13.4	Employees working down below other employees or hazards are protected (hard hats, canopies, toe board, etc.)?	0.75%			

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Report Number	

	Description		Score (1-10)	Wtd score	Action Plan
13.5	None of the persons working at elevation is suffering from ailments like low / high blood pressure, vertigo and epilepsy.	1.00%			
13.6	All persons working at elevation are instructed to immediately stop the work in case of high velocity winds / lightning / heavy rains / flammable or toxic fumes / gases observed during the operation?	1.00%			
13.7	Scaffolding / ladder used are in good condition and safe for use?	1.00%			
13.8	Contractor supervisor is present at the job site till the time the job is completed?	1.00%			
	Weighted Score for Section 13				
Section 14: Handling and Storage of Materials		**3%**			
14.1	Materials properly stored or stacked?	0.85%			
14.2	Are shelves, racks, and overhead storage load rated?	0.45%			
14.3	Passageways and walkways clearly indicated and free from obstructions?	0.35%			
14.4	Is PPE being used?	0.85%			
14.5	Sufficient employees to do the job and properly trained for doing the work?	0.25%			
14.6	Stacking heights appropriate for type of material being stored? Bund boards to be used where necessary	0.25%			
	Weighted Score for Section 14				
Section 15: Barricades		**7%**			

15.1	Excavated area and main holes barricaded?	1.50%			

	Issuer	Acronym	Sr. No	Rev.	Pg. No

SHE SCORE (Period – From—to --- To)	
REPORT SUMMARY	
PROJECT LOCATION	
Date of Observation	
Observation carried out by	
Report Number	

	Description		Score (1-10)	Wtd score	Action Plan
15.2	Roadways and sidewalks protected?	1.50%			
15.3	Barricades or covers installed (shafts, floor openings, wall openings, stairways, trenches, outriggers, etc.)?	4.00%			
	Weighted Score for Section 15				
Section 16: Emergency Planning		**8%**			
16.1	Proper emergency evacuation plan is available on the site and workers are aware of the same?	2%			
16.2	Mock drills conducted and appropriate records maintained	2%			
16.3	Emergency vehicle/ambulance stationed at site?	2%			
16.4	Proper escape routes signs are posted & are free of obstructions?	2%			
	Weighted Score for Section 16				
Section 17: Environmental cleanup		**4%**			
17.1	Proper dumping/recycling of concrete debris /waste oil?	2.00%			
17.2	Dust control measures adequate?	1.00%			
17.3	Noise control measures?	1.00%			
	Weighted Score for Section 17				
Consolidated Site Safety score (all section)		**10**			

Annexure-III - Labour Safety Rules & Provisions

1.0 Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than VA to 1 (1/4 horizontal and 1 vertical).

2.0 Scaffolding or staging more than 3.6m (12 feet) above the ground or floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3 feet) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3.0 Working platforms, gangways, and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more that 3.6m (12 feet) above ground level or floor level, they should be closely boarded, should have adequate width & should be suitable fastened as described in (2.0) above.

4.0 Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3 feet).

5.0 Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30 feet) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11.5") for ladder up to and including 3m (10 feet) in length. For longer ladders this width should be increased at least 1/4" for each additional 30 cm (1 ft.) of length. Uniform step spacing shall not exceed 30 cm (12"). Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of the work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceeding at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person or which may, with the consent of the Contractor, be paid to compensate any claim by any such person.

6.0 EXCAVATION AND TRENCHING

All trenches, 1.2mts.(four feet) or more in depth, shall at all times be supplied with at least one ladder for each 30m.(100 feet) in length or fraction thereof, ladder shall be extended from bottom of the trench to at least 90cm (3feet) above the surface of the ground. The side of the trenches, which are 1.5 m. (5feet) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger or sides to collapsing. The excavated materials shall not be placed within 1.5m (5 feet) of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

6.1 Demolition - Before any demolition work is commenced and also during the progress of the work following precautions shall be observed:

i. All roads and open areas adjacent to the work site shall either be closed or suitably

protected.

ii. No electric cable or apparatus which is likely to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

iii. All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be overloaded with debris or materials as to render it unsafe.

7.1 All necessary personal safety equipments as considered adequate by the Authority/ Authority's Engineer should be kept available for the use of persons employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate step to ensure proper use of equipment by those concerned. The following safety equipment shall be invariably provided.

7.2 Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

7.3 Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eye shall be provided with protective goggles.

7.4 Those engaged in welding works shall be provided with welders protective eye shields.

7.5 Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe interval.

7.6 When workers are employed for works in sewers and manholes, which are in active use, the Contractors shall ensure that the manhole covers are opened and ventilated at-least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident the public. In addition, the contractor shall ensure that the following safety measures are adhered to:

a. Entry for workers into the sewer line shall not be allowed except under supervision of the JE or any other higher officer.

b. At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manholes for working inside.

c. Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes color in the presence of such gases and gives indication of their presence.

d. Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

e. Safety belt with rope should be provided to the workers. While working inside the manholes such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

f. The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

g. No smoking or open flames shall be allowed near the blocked manhole being cleaned.

h. The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

i. Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Authority/ Authority's Engineer may decide the time up to which a worker may be allowed to work continuously inside the manhole.

j. Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

k. Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air-blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at-least 2 metres away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

I. The workers engaged for cleaning the manholes / sewers should be properly trained before allowing to work in the manhole.

m. The workers shall be provided with Gumboots or non-sparking shoes, bump helmets and gloves non sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

n. Workmen descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

o. If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him. or rushed to the nearest hospital for proper and through medical care before discharge, at the risk and cost of the Contractor.

p. The extent to which these precautions are to be taken depend on individual situation but the decision of the Authority/ Authority's Engineer regarding the steps to be taken in this regard in an individual case will be final.

7.7 The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form wherever men above the age of 18 are employed on the work of lead painting the following precautions should be taken.

7.7.1 No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

7.7.2 Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.

7.7.3 Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.

7.8.4 a) White lead, sulphate or lead work products containing those pigments shall not be used in painting operation except in the form of paste or of paints ready for use.

b) Measures shall be taken whenever required in order to prevent danger arising from the application of paint in the form of spray.

c) Measures shall be taken, whenever practicable to prevent danger arising out of dust caused by dry rubbing down and scrapping.

7.8.5 a) adequate facilities shall be provided to enable working painter to wash during and on cessation of work.

b) Suitable arrangements shall be made to prevent clothing put off during working hours being spoiled by painting materials. Else, the contractor shall hold a regular medical examination/ tests of all workers / staff so as to assure their health, safety and fitness for work.

7.8.5.1 a) Cases of lead poisoning and of suspected lead poisoning shall be notified and shall be subsequently verified by a medical man appointed by the competent authorities of DMICDC.

b)The DMICDC may require when necessary a medical examination of workers.

c) Instructions with regard to the special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

8.0 When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.

9.1 Use of hoisting machines and tackle including their attachment encourage and supports shall conform to the following standard of conditions.

9.2 a) these shall be of good mechanical construction, sound material and adequate strength and free from patent, defects and shall be kept in good working order, b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

9.3 Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffolding, winch or giving signals to operator.

9.4 In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this clause shall be loaded beyond the safe working load except for the purpose of testing.

9.5 In case of DMICDC machines, the safe working load shall be notified by the Authority/ Authority's Engineer. As regards Contractor's machines the Contractor shall notify the safe working load of the machine to the Authority/ Authority's Engineer whenever he brings any machinery to site of work and get verified by the Authority/ Authority's Engineer.

9.6 Motors gearing, transmission electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguard. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions

should be taken to reduce the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel, such as gloves sleeves and boots as may be

necessary be provided. The worker should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

9.7 All scaffold, ladders, and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

9.8 These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place of work spot. The person responsible for compliance of the safety codes shall be named therein by the contractor.

9.9 To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the Contractor shall be open to inspection by DMICDC Official or their representatives.

9.10 Notwithstanding the above Clauses from (i) to (xiv) there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

1.0 APPLICATION

These rules shall apply to all building and construction works in which 20 (twenty) or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the contractor work is in progress.

2.0 DEFINITION

Work place means a place where twenty or more workers are ordinarily employed or are proposed to be employed in connection with construction work on any day during the period during which the contract work is in progress.

3.0 FIRST-AID FACILITIES

3.1 At every work place first aid facilities shall be provided and maintained, so as to be easily accessible during working hours, First-Aid boxes at the rate of not less than one box per 150 contract labour or part thereof ordinarily employed.

3.2 The First-Aid boxes shall be distinctly marked with a red cross on white background and shall contain the following equipments:

3.2.1 For work places in which number of contract labour employed does not exceed 50, Each First-Aid box shall contain the following equipments:

i. Small sterilized dressings.
ii. Medium size sterilized dressings.
iii. Large size sterilized dressings.
iv. Large sterilized burn dressings.
v. 1 (30 ml) bottle containing a two percent alcoholic solution of iodine.
vi. 1 (30 ml) bottle containing salvolatile having the dose and mode of administration indicated on the label.
vii. 1 snakebite lancet.
viii. 1 (30 gms) bottle of potassium permanganate crystals.
ix. 1 pair of scissors.
x. 1 copy of the First-Aid leaf-let issued by the Director General, Factory Advise Service & Labour Institute, Government of India.
xi. 1 bottle containing 100 tablets (each of 5 grams) of aspirin.
xii. Ointment for burns.
xiii. A bottle of suitable surgical antiseptic solution.

3.2.2 For work places in which the number of contract labour exceed 50. Each First-Aid box shall contain the following equipments:

i) 12 small sterilized dressings.
ii) 6 medium size sterilized dressings.
iii) 6 large size sterilized dressings.

iv) 6 large size sterilized burn dressings.
v) 6 (15 gms) packet sterilized cotton wool.
vi) 1 (60 ml.) bottle containing a two percent iodine alcoholic solution.
vii) 1 (60 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
viii) 1 - roll of adhesive plaster.
ix) 1 snake - bite lancet.
x) 1 (30 gms.) Bottle of potassium permanganate crystals.
xi) 1 pair of scissors.
xii) 1 copy of the First-Aid leaf-let issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
xiii) A bottle containing 100 tablets (each of 5 grams) of aspirin.
xiv) Ointment for burns.
xv) A bottle of suitable surgical antiseptic solution.

3.3 Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

3.4 Nothing except the prescribed contents shall be kept in the First Aid box.

3.5 The First Aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

3.6 A person in charge of the First-Aid box shall be a person trained in First-Aid treatment in work places where the number of labour employed is 150 or more.

3.7 In work places where the number of labour employed is 500 or more and hospital facilities are not available within easy distance of the works, first-Aid Posts shall be established and run by a trained Compounder. The Compounder shall be on duty and shall be available at all hours when the workers are at work.

3.8 Where work places are situated in places, which are not towns of cities, a suitable motor transport shall be kept readily available to carry injured person or persons suddenly taken ill to the nearest hospital.

4.0 DRINKING WATER

4.1 In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

4.2 Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

4.3 Every water supply of storage shall be at a distance of not less than 50 feet from any latrines drain or other source of pollution, Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap-door which shall be dust and water-proof.

4.4 A reliable pump shall be fitted to each covered well, trap-door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5.0 WASHING FACILITIES

5.1 In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of labour employed herein.

5.2 Separate and adequate screening facilities shall be provided for the use of male and female workers.

5.3 Such facilities shall be conveniently accessible and shall be kept clean and hygienic condition.

6.0 LATRINES AND URINALS

6.1 Latrines shall be provided in every work place on the following scale, namely:

a) Where females are employed there shall be at least one latrine for every 25 females.

b) Where males are employed, there shall be at least one latrine for every 25 males.

Provided that where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females, as the case may be, upto the first 100, and one for every 50 thereafter.

6.2 Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

6.3 Construction of Latrines: The inside walls shall be constructed of masonry or some suitable heat resisting non-absorbent materials and shall be cement washed inside and outside at least once a year. Latrine shall not be a standard lower than bore-hole system.

6.4 (a)Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers "For Men only" or "For Women only" as the case may be.

(b)The notice shall also bear the figure of man or of a woman, as the case may be.

6.5 There shall be at least one urinal for male workers upto 50 and one for female workers upto 50 employed at a time. Provided that where the number of male or female workmen, as the case may be, exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females upto the first 500 and one for every 100 or part thereof, thereafter.

6.6 a) The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

b) Latrines and urinals other than those connected with a flush sewerage system shall comply with the requirements of the Public Health Authorities.

6.7 Water shall be provided by means of a tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

6.8 Disposal of Excreta

Unless otherwise arranged for by the local sanitary authority arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator.

Alternatively excreta may be disposed off by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm layer of waste or for refuse and then covering it with a layer of earth for fortnight (when it will turn into manure).

6.9 The Contractor shall, at his own expense, carry out all instruction issued to him by the Authority/ Authority's Engineer to effect proper disposal of night soil and other conservancy work in respect of the Contractor's workmen or employees on the site. The Contractor shall be responsible for payment of any charges which may be levied by Municipal or Cantonment Authority for execution of such work on his behalf.

7.0 PROVISION OF SHELTER DURING REST

At every place, there shall be provided, free of cost, four suitable sheds, two for males and the other two for rest separately for the use of man and women labour. The height of each shelter shall not be less than 3 meters from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sqm. per head.

Provided that the Authority/ Authority's Engineers may permit, subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8.0 CRECHES

8.1 A every work place, at which 20 or more women workers are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room shall be used as a play room for the children and the other as their bedrooms.

The rooms shall be constructed on standard not lower than the following:

i) Thatched roof
ii) Mud floor and walls.
iii) Planks spread over the mud floor and covered with matting

8.2 The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

8.3 The Contractor shall supply adequate number of toys and games in the playroom and sufficient number of cots and beddings in the bed-room

8.4 The Contractor shall provide one Ayaa to look after the children in the creche when the number of women workers does not exceed 50; and two when, the number of women workers exceed 50.

8.5 The use of the rooms/earmarked as creches shall be restricted to children, their attendant and mother of the children.

9.0 CANTEENS

9.1 In every work place where the work regarding the employment of contract labour is likely to

continue for six months and wherein contract labour numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the Contractor for the use of such labour.

9.2 The canteen shall be maintained by the Contractor in an efficient manner.

9.3 The canteen shall consist of at least a dining hall, kitchen, and storeroom, pantry and washing places separately for workers and utensils.

9.4 The canteen shall be sufficiently lighted at all times when any person has access to it.

9.5 The floor shall be made of smooth and impervious material and inside walls shall be lime washed or colour washed at least once in each year.

Provided that the inside walls of the kitchen shall be lime-washed every four months.

9.6 The premises of the canteen shall be maintained in a clean and sanitary condition.

9.7 Waste Water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

9.8 Suitable arrangements shall be made for the collection and disposal of garbage as per the municipal guidelines so that the labour camp and the site / work places are neat tidy to avoid any epidemic like Dengue, Chikungunya, Malaria, Cholera, Typhoid etc.

9.9 The dining hall shall accommodate at a time 30 persons of the labour working at time.

9.10 The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chair shall not be less than one square metre per dinner to be accommodated.

9.11 a) A portion of the dining hall, and service counter shall be partitioned off and reserved for women workers in proportion to their number.
b) Washing places for women shall be separate and screened to secure privacy.

9.12 Sufficient tables, stool, chairs or benches shall be available for the number of dinners to be accommodated.

9.13.1 a)There shall be provided and maintained sufficient utensils, crockery, furniture and any other equipment necessary for the efficient running of the canteen.

b) The furniture, utensils and other equipment shall be maintained in a clean and hygienic condition.

9.13.2 a) Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.

b) A service counter, if provided, shall have top of smooth and impervious material.

c) Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment.

9.14 The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the labour.

9.15 The charge for food stuffs, beverages and any other items served in the canteen shall be based on 'No profit' No loss' and shall be conspicuously displayed in the canteen.

9.16 In arriving at price of food stuffs, and other articles served in the canteen, the following items shall not be taken into consideration as expenditure, namely:

a) The rent of land building;
b) The depreciation and maintenance charges for the building and equipment provided for the canteen;
c) The cost of purchase, repair and replacement of equipment including furniture, crockery, cutlery and utensils;
d) The water charges and other charges incurred for lighting and ventilation;
e) The interest and amounts spent on the provision and maintenance and equipment provided for in the canteen;

9.17 The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10.0 ANTI MALARIAL / Dengue or any other Mosquito borne Diseases PRECAUTIONS

The Contractor shall at his own expense, conform to all anti-malarial instructions given to him by the Authority/ Authority's Engineer including the filling up of any borrows pits which may have been dug by him.

11.0 AMENDMENTS

DMICDC may from time to time, add to or amend these rules and issue such directions as it may consider necessary for the purpose of removing any difficulty which may arise in the administration hereof.

Annexure-IV- CONTRACTOR'S LABOUR REGULATIONS

1.0 SHORT TITLE

2.0 These regulations may be called the Contractor "Labour Regulations".

3.0 Definitions

"Workman" means any person employed by the Authority or its Contractor directly or indirectly through a sub-contractor, with or without the knowledge, of the Authority to do any skilled, semi-skilled, un-skilled, manual, supervisory, technical or clerical work for hire or reward, whether, the terms of employment are expressed or implied but does not include any person-

a) Who is employed mainly in a managerial or administrative; or	
b) Who being employed in a supervisory capacity draws wages exceeding c) Rupees Two thousand Five hundred per person or exercises either by the nature of the duties attached to the office or by reason of powers vested to him, functions mainly of managerial nature. Who is an out worker, that is to say, a person to whom any articles or materials are given out by or on behalf of the principal Authority to be made up cleaned, washed, altered, ornamental finished, repaired, adopted or otherwise processed for sale for the purpose of the trade or business of the principal Authority and the process is to be carried out either in the home of the out worker or in some other premises, not being premises under the control and management of the principal Authority.	

2.2 "Fair Wages" means wages whether for time or piece work fixed and notified

2.3 under the provisions of the minimum Wages Act from time to time.

2.4 "Contractor" shall include every person who undertake to produce a given result other than a mere supply of goods or articles of manufacture through labour or who supplies labour for any work and includes a sub-contractor.

"Wages" shall have the same meaning as defined in the Payment of Wages Act.

2.4.1 Normally working hours of an adult employee should not exceed 9 hours a day. The working day

shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

2.4.2 When an adult worker is made to work for more than 9 hours on any day or for more than 48 hours in any week he shall be paid overtime for the extra hours put in by him at double the ordinary rate of wages.

2.4.3.1 Every worker shall be given a weekly holiday on a Sunday, in accordance with the provisions of the Minimum Wages (Central) Rules 1960 as amended from time to time, irrespective of whether such worker is governed by the Minimum Wages Act or not.

2.4.3.2 Whether the Minimum Wages prescribed by the Government under the Minimum Wages Act are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

2.4.3.3 Where a contractor is permitted by the Authority/ Authority's Engineer to allow a worker to work on a normal weekly holiday, he shall grant a substitute holiday to him for the whole day on one of the five days immediately before or after the normal weekly holidays and pay wages to such worker for the work performed on the normal weekly holiday at overtime rate.

3.0 DISPLAY OF NOTICE REGARDING-WAGES, ETC.

The contractor shall before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain in a clean and legible condition in conspicuous places on the work, notices in English and in the local Indian languages spoken by the majority of the workers, giving the minimum rates of wages fixed under the Minimum Wages Act, the actual wages being paid, the hours of work for which such wages are earned, wage period, dates of payment of wages and other relevant information as per Appendix 'A'.

4.0 PAYMENT OF WAGES

4.1 The contractor shall fix wage periods in respect of which wages shall be payable.

4.2 No wage period shall exceed one month.

4.3 The wages of every person employed as labour in an establishment or by a contractor where less than one thousand, such persons are employed shall be paid before the expiry of the seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.

4.4 Where the employment of any worker is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.

4.5 All payments of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of the last working day.

4.6 Wages due to every worker shall be paid to him direct or to other person authorized by him in this behalf.

4.7 All wages shall be paid in current coin or currency or in both.

4.8 Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.

4.9 A notice showing the wage period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the contractor to the Authority/ Authority's Engineer under acknowledgment.

4.10 It shall be the duty of the contractor to ensure the disbursement of wages in the presence of the Engineer or any other authorized representatives of the Authority/ Authority's Engineer who will be required to be present at the place and time of disbursement of wages by the contractor to workmen.

4.11 The contractor shall obtain from the Engineer or any other authorized representative of the Authority/ Authority's Engineer as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage-cum-Muster Roll" as the case may be in the following form:

"Certified that the amount shown in column No. 14(net Amount paid) has been paid to the workmen concerned in my presence on .....at ".

5.0 FINES AND DEDUCTIONS, WHICH MAY BE MADE FROM WAGES

5.1 The wages of a worker shall be paid to him without any deduction of any kind except the following -

a)	Fines
b)	Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.
c)	Deduction for damage to or loss of goods expressly entrusted to the employed persons for custody, or from loss of money or any other deduction which he is required to account where such damage or loss is directly attributable to his neglect or default.
d)	Deduction for recovery of advances or for adjustment of over payment of wages, advances granted shall be entered in a register.
e)	Any other deduction, which the Central Government may from time to time allow.

5.2 No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved by the Chief Labour Commissioner.

NOTE: An approved list of Acts and Omissions for which fines can be imposed is enclosed at Appendix-I.

5.3 No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

5.4 The total amount of fine which may be imposed in any one wage period on a worker shall not exceed an amount equal to three paisa in a Rupee of the total wages, payable to him in respect of that wage period.

5.5 No fine imposed on any worker shall be recovered from him in installment, or after the expiry of sixty days from the date on which it was imposed.

5.6 Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

6.0 LABOUR RECORDS

6.1 The contractor shall maintain a "Register of persons employed" on work on contract in form XIII of the CL (R&A) Central Rules 1971.

6.2 The contractor shall maintain a "Muster Roll" register in respect of all workmen employed by him on the work under contract in from XVI of the CL (R&A) Rules 1971.

6.3 The contractor shall maintain a "Wage Register" in respect of all workmen employed by him on the work in form.

6.4 Register of accidents - The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:

a) Full particulars of the labourers who met with accident.

b) Rate of wages

c) Sex

d) Age

e) Nature of accident and cause of accident.

f) Time and date of accident.

g) Date and time when he/she admitted in Hospital

h) Date of discharge from the Hospital

i) Period of treatment and result of treatment

j) Percentage of loss of earning capacity and disability as assessed by Medical Officer.

k) Claim required to be paid under Workmen's Compensation Act.

I) Date of payment of compensation.

m) Amount paid with details of the person to whom the same was paid.

n) Authority by whom the compensation was assessed.

o) Remarks.

6.5 Register of Fines - The contractor shall maintain a "Register of Fines”

The contractor shall display in a good condition and in a conspicuous place of work the approved list of Acts and Omission for which fines can be imposed .

6.6 Register of Deductions - The contractor shall maintain a "Register of Deductions" for damage or loss in form.

6.7 Register of Advances - The contractor shall maintain a "Register of Advances"

6.8 Register of Overtime - The contractor shall maintain a "Register of Overtime"

7.0 ATTENDANCE CARD-CUM WAGE SLIP:

7.1 The contractor shall issue an attendance card-cum-wage slip to each workman employed.

7.2 The card shall be valid for each wage period.

7.3 The contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work.

7.4 The card shall remain in possession of the worker during the wage period under reference.

7.5 The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference.

7.6 The contractor shall obtain the signature or thump impression of the worker on the wage slip at the time of disbursement of wages and retain the card with himself.

8.0 EMPLOYMENT CARD

The contractor shall issue an Employment Card in form to each worker within three days of the employment of the worker

9.0 SERVICE CERTIFICATE

On termination of employment for any reason whatsoever the contractor shall issue to the workman whose services have been terminated, a service certificate.

10.0 PRESERVATION OF LABOUR RECORDS

All records required to be maintained under Regulations Nos. 6 and 7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Authority/ Authority's Engineer, Labour Officer.

11.0 POWER OF LABOUR OFFICERS TO MAKE INVESTIGATIONS INQUIRY

The Labour Officer or any other person authorized by DMICDC on its behalf shall have power to make inquires with a view to ascertaining and enforcing due and proper observance of the Fair Wage Clauses and the Provisions of Regulations. He shall investigate into any complaint regarding the default made by the contractor or sub-contractor in regard to such provision.

12.0 INSPECTION OF BOOK AND SLIPS

The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour officer or any

other person, authorized by the Central Government on his behalf.

13.0 SUBMISSION OF RETURNS

The contractor shall submit periodical returns as may be specified from time to time.

14.0 AMENDMENTS

The Authority may from to time, add or amend the regulations and on any question as to the application, interpretation or effect of these regulations the decision of the Zonal Chief concerned shall be final.

Annexure-V- UNDERTAKING FOR NON-ENGAGEMENT OF CHILD LABOUR –

Name of Work:

Bidding Doc. No.:

I/ We hereby declare that:

a) We are committed to elimination of child labour in all its forms.

b) ‘’Neither we nor any of our nominated sub-contractor(s) will engage Child Labour in any of our work(s) in terms of the provisions of The Child Labour (Prohibition and Regulation) Act, 1986 and other applicable laws.

c) We as well as our nominated sub-contractor(s) undertake to fully comply with provisions of The Child Labour (Prohibition and Regulation) Act, 1986 and other applicable labour laws, in case the work is awarded to us.

d) It is understood that if I/We, either before award or during execution of Contract, commit a transgression through a violation of Article b /c above or in any other form, such as to put my/our reliability or credibility in question, the Owner is entitled to disqualify us from the Tender process or terminate the Contract, if already executed or exclude me / us from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Owner. Such exclusion may be for a period of 1 year to 3 years as per the procedure prescribed in the guidelines for holiday listing of the Owner.

e) I/We accept and undertake to respect and uphold the Owner's absolute right to resort to and impose such exclusion.

Place: ..... Signature of Bidder:

Date

LIST OF MAKES

The name of make & product number is to clarify the intent and should be as per given approved make list, if not written in BOQ item or specifications. In order to maintain the quality and standard, Engineer and Architect's representative will review/ approve any other make or brand after considering the specifications & design requirements at a later stage on a proposal by the Contractor.

Material / Item	Approved Make
AAC Blocks	Xtralite from Ultratech, Aerocon from HIL, ECOREX, BILTECH
AAC block joining mortar	Fixoblock xtralite from Ultratech, Smartfix from Aerocon, MYK Arment, Ardex Endura, Weber by Saint Gobain
Adhesive for woodwork	Ardex Endura, Pidilite, Kerakoll, 3M
Admixtures	Fosroc, Sikka, BASF or equivalent
Anchor Fastener, Rebar, Chemical/ Mechanical fastener, Dry stone cladding clamp, Expandable fasteners	Hilti, Fischer, Fosroc
Cement OPC/ PPC	Ultratech, ACC, Ambuja, Siddhi, Sanghi cement
Cement – White	Birla, JK
Chemical Admixtures & Additives	BASF, Pidilite, Sika, Fosroc, Ecmas, Sunanda Chemicals, Mapei, Bal-Endura, MC Bauchemie, MYK laticrete
Ceramic Tiles	Kajaria, Nitco, Johnson, RAK, Restile
Coupler	Sandield India LTd, Spplicetekindia Ltd, Arise Reinforcement
Door Closer	Dorma, Hafele, Yale, Geze,KICH
Door Locks, Access Control Lock	Dorma, Geze, Hafele, Assa Abloy (Yale)
Door Hardware (other than Floor spring, Closer, Locks)	Dorma, Hafele, Assa Abloy (Yale), Geze
Frosted film / Graphic film	3M, Kumar, Garware or equivalent
Epoxy Grout/ Cementitious Grout for Flooring	Ardex Endura, MYK Arment, Kerakoll, Pidilite, Mapei
Expansion Joints	Kantaflex, 3R Solution, Miska
Fire Doors (Metal)	Shakti Hormann, Navair, iCLEAN – IHMS, Pacific
Fire Rated Hardware	Dorma, Hafele, Geze, Horman, Assa Abloy (Yale)
Fire Seal, Fire smoke Seal	3M, Hilti, Dorma, Sealz, Lorient, Kelargo, Raven
Fire rated Glass	Vetrotech Saint-Gobain, Pyroguard, Glaverbel, Schott – Pyran, Pyroswiss
Fire rated glass fixing gasket, tape	Karfani, 3M

Material / Item	Approved Make
Floor Springs	Dorma, GEZE, Hafele, Assa Abloy (Yale)
GI channels	Gypsteel, Anutone, Hillpoint Diamond Frames.
Laminates	Merino, Century, Greenlam, Neolaxe
Masking Tapes	3M, Sun Control, Wonder Polymer. Essentra
Metal Doors (Non-Fire rated)	Shakti Hormann, Naviar, Iclean doors, Ahlada Metaflex, Pacific
Mirrors	Saint Gobain, Modi Guard (Gujarat Guardian), Asahi, HNG, Pilkington
Mild Steel	Jindal, TATA, SAIL
Non shrink cementitious precision (anchoring) grout	Fosroc, Sika, Ardex Endura, BASF
PAINT - Cement Based	AkzoNobel (Dulux), Berger Paints, Asian, Nerolac
Paint - Acrylic, Synthetic Enamel, Acrylic emulsion- interior and exterior	Asian Paints, Akzo Nobel (Dulux), Berger, Nerolac, Jotun
Paint - Texture Paints (Interior, Exterior)	Asian, Jotun, AkzoNobel (Dulux), Berger, Nerolac, Renovo / Oikos / Colour Coats
Paint - Oil Bound Distemper & Dry Distemper	Asian Paints, AkzoNobel (Dulux), Berger
Paint - PU paint, epoxy paint and primer	Asian, Nippon, ICI, Berger, Jotun
Polish for wooden work	MRF, Asian
Polysulphide Sealant	Fosroc, Dow corning, Sika, MC-bauchemie
Silicone Sealant	Wacker, Dow Corning, GE momentive, MC-bauchemie, Pidilite, Laticrete
Stainless Steel	TATA, Jindal, Salem steel, SAIL
Structural Silicon sealant, Weather Silicone	Dow Corning, Momentive (GE)
Tiles/ Stone Adhesive	Pidilite, MYK Arment, Ardex Endura, Fosroc, Ultratech
TMT Steel	Tata Tiscon, Vizag, SAIL, ArcelorMittal or equivalent.
Vitrified Tiles	Kajaria, RAK, Restile, Johnson, Nitco
White cement-based putty	Birla, JK, Ecmas
Waterproofing	BASF, Fosroc, Sika, Pidilite
Wooden Flush door shutter	Greenply, Century, Kalpataru, Duradoor
Brick Work	Citadel / Tempio / Agrob Buchtal
Brick Jali	Citadel / Tempio / Agrob Buchtal
120 MINUTES FIRE RATED- TIMBER FRAME WITH TIMBER DOOR SHUTTERS	STAIRWAY STUDIO, Creative associate
Aluminium Doors / Windows SystemsSystems	Jindal Aluminium, Hindalco, Alumil India
Aluminium Curtain Wall / Façade Systems	Jindal Aluminium, Hindalco, Aludecor

Material / Item	Approved Make
Toughened / Laminated Architectural Glass	Saint-Gobain India, Asahi India Glass (AIS), Gujarat Guardian
Structural Glazing Systems	AIS Glass Solutions, Ozone Overseas
Glass Railings / Spider Fittings	Ozone Overseas, Q-railing India
Stone Flooring / Stone Cladding	Aro Granite Industries, Pokarna Granite, Classic Marble Company
Kota / Sandstone	Rajasthan Stone Exporters, Kota Stone Suppliers
False Ceiling Systems	Saint-Gobain Gyproc India, USG Boral India
Mineral Fibre Ceiling	Armstrong India, Gyproc India
Acoustic Panels / Acoustic Ceiling	Anutone Acoustics, Armstrong India
Expansion Joint Covers	Sanfield India, MICUA India
Pavers / Hardscape Blocks	UltraTech Pavers, KK Manhole & Covers, Vyara
WPC Decking / Outdoor Deck	Greenlam WPC, Ecoste India
Landscape Street Furniture	Godrej Interio Outdoor, Ecoste India
Solar Panels	Tata Power Solar, Adani Solar, Waaree Energies
Signage / Wayfinding Systems	Vista System India, Cosign India
Elevators / Lifts	Johnson Lifts, Kone India, Schindler India

LIST OF APPROVED MAKES & MANUFACTURERS

Mega-Span Tensile Fabric Canopy System
Harappa (Lothal) Archaeological Site – Gujarat

A. Fire-Performance / Architectural Tensile Membrane Manufacturers

Sr	Manufacturer	Country	Fabric Type	Remarks
1	Serge Ferrari/ Verseidag/F.I. T	France/Germany/Taiwan	PTFE/PVC/ STFE - Transparent	Stadium roofs, mega-span expertise
2	SaintGobain-SHEERFILL- Gobain	US	PTFE	Stadium roofs, mega-span expertise
3	CHUCKO	Japan	PTFE	Stadium roofs, mega-span expertise
4	Expafol	Italy	Clear PVC	High transparency options

B. Tensile Fabric Fabricators / Installers – India

Sr	Company Name	Location	Capabilities	Remarks
1	Western Outdoor Structures Pvt Ltd	India	Design, fabrication & erection	Landmark & Large-span experience
2	McCoy Architectural Systems	India	Design, fabrication & erection	Landmark & Large-span experience
3	Technospan Structures	India	Design, fabrication & erection	Landmark & Large-span experience
4	Skymax construction	India	Design, fabrication & erection	Landmark & Large-span experience

C. High-Tensile Cable & Rope Manufacturers

Sr	Manufacturer	Country	Cable Type	Typical Use
1	Bharat Wire Ropes (BWRL)	India	SS / Galvanised wire ropes	Primary & secondary façade cables
2	Usha Martin	India	SS / Galvanised ropes	Architectural & façade use
3	Asahi Ropes	India	Stainless steel ropes	Tensile façade systems
4	Amar Wire Ropes	India	Galvanised / SS ropes	Architectural tension systems
5	Kiswire	Global	High-tensile ropes	Mega-span applications

D. Turnbuckles, Shackles & Tensioning Hardware

Sr	Supplier / Make	Material	Application
1	Kinlong	SS 316 / 316L	Architectural cable systems
2	Karma Steels	SS / Alloy steel	Heavy-duty turnbuckles
3	Trinity International	SS 316	Shackles, U-bolts
4	Local SS Forging Units (Rajkot / Ahmedabad)	SS 316	Custom façade fittings

E. Stainless Steel Nuts, Bolts & Fasteners (Façade Use)

Sr	Manufacturer / Supplier	Grade	Application
1	Kundan Industries	SS 304 / 316	Structural façade fastening
2	Sundram Fasteners (SS range)	SS 304 / 316	High-strength bolts
3	Unbrako / TVS Fasteners	SS 316 / 316L	Anchors & fittings
4	Local Stainless Fastener Houses	SS 304 / 316	Custom fastening

F. Stainless Steel Fixtures & Custom Components

Sr	Supplier	Component Type	Notes
1	Kinlong India	Clamps, brackets	Architectural quality
2	Local SS Fabricators (Rajkot / Ahmedabad)	Saddles, cleats	Custom-made items
3	Sta-Lok / Norseman (Import)	Cable terminations	Critical joints

G. Welding Consumables (Façade & Cable Hardware Only)

Sr	Brand	Consumables	Application
1	ESAB India	SS electrodes, ER316L wires	Welding of façade SS fittings
2	Lincoln Electric	TIG / MIG SS wires	Precision façade hardware welding

3	Ador Welding	SS electrodes & wires	Local façade fabrication
4	Oerlikon	Stainless consumables	Cable anchorage components

H. Welding Machines & Equipment (Façade Works Only)

Sr	Brand	Machine Type	Use
1	Fronius	TIG / MIG machines	Precision SS façade welding
2	ESAB	Industrial TIG / MIG welders	Cable & fitting fabrication
3	Lincoln Electric	Welding machines	Workshop & controlled site use

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I. Sealants (Exterior / Fire-Rated / Movement Joints)

Sr	Brand	Product Type	Application
1	Sika	Sikaflex®, fire-rated sealants	Membrane interfaces
2	Dow	Neutral cure silicone	Weatherproof joints
3	Pidilite (Fevicol)	Feviseal	Exterior sealing
4	Soudal	Fire & movement sealants	Special façade joints

J. Sealers / Hydrophobic Coatings

Sr	Product Source	Type	Notes
1	Membrane Manufacturer	Factory-applied PVDF	Preferred solution
2	Approved aftermarket systems	Hydrophobic textile coating	Only with OEM approval

K. Other Façade & Tensile Consumables

Sr	Item	Typical Use
1	Swage sleeves / crimps	Cable terminations
2	SS washers & backing plates	Load distribution
3	Mastic tapes	Temporary sealing
4	Protective films & packaging	Transport & storage
5	Anti-corrosion sprays	Cable & fitting protection

L. Codes & Standards – Tensile Fabric & Façade Systems

Sr	Code / Standard	Scope

1	IS 875 (Part 1–5)	Dead, live, wind, seismic & special loads
2	IS 800	Steel structures – interface
3	IS 801 / IS 806	Light gauge / tubular steel
4	NBC 2016	Life safety & public assembly
5	IS 9527	Fire resistance guidance
6	ASCE/SEI 55	Tensile membrane structures
7	ASCE 7	Environmental loading
8	DIN EN ISO 1421	Tensile strength of coated fabrics
9	EN ISO 134-1	Fabric tensile testing
10	DIN 53363	Tear resistance
11	EN 13782	Temporary & tensile structures
12	DIN 53357	Coating adhesion
13	DIN / CEN Guidelines	Wind tunnel / aeroelastic testing
14	Manufacturer Manuals	Welding, prestress, warranty
15	ASI Conservation Guidelines	Heritage compliance

Types of Welding Used for Tensile Fabric

Welding Method	Principle	Typical Use
Hot Bar Welding	Hot bar sealing of PTFE	Primary method for PTFE Welding using FEP Tape
Hot Air Welding	Heated air softens coating	Secondary / repair / small seams
Hot Wedge Welding	Heated wedge between layers	Long linear seams (controlled factories)

Types of Welding Used for Tensile Fabric – Approved Makes

1. Hot Air Welding Machines

(Secondary welding, detailing, repairs – NOT primary structural seams)

Sr	Company / Make	Country	Remarks
1	**Leister Technologies**	Switzerland	Most commonly used on site & factory
2	**Herz GmbH**	Germany	Professional hot-air plastic welding
3	**Munsch Kunststoff-Schweißtechnik**	Germany	Industrial textile & plastic welding
4	**Weldy (Leister Group)**	Switzerland	Controlled hot-air welding for membranes

2. Hot Wedge Welding Machines

(Long straight seams, factory-controlled conditions)

Sr	Company / Make	Country	Remarks
1	**Miller Weldmaster**	USA	Automated wedge welders for large panels
2	**Leister Uniplan / Varimat Series**	Switzerland	Widely used for PVC membrane seams
3	**Forsstrom (Hybrid systems)**	Sweden	HF + wedge combination lines

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3. CNC / Automated Fabric Welding Tables

(Mega-span, high-precision tensile fabric fabrication)

Sr	Company / Make	Country	Typical Use
1	**Forsstrom CNC Welding Systems**	Sweden	Large architectural membranes
2	**Miller Weldmaster T-Series**	USA	Automated panel welding
3	**Zemat CNC RF Lines**	Poland	Industrial tensile membrane plants
4	**Stalam Automated RF Tables**	Italy	Heavy-duty PVC membrane welding

8. GENERAL CONDITIONS FOR APPROVED MAKES

- Equivalent makes **may be considered only with written approval** and **full test compliance during bidding stage only.**
- No temporary / tent-grade materials permitted
- All components to be **SS 316 / corrosion protected**
- Full traceability, test certificates & warranties mandatory

LIST OF APPROVED MATERIALS/BRANDS FOR ELECTRICAL WORKS

S.No.	Item Description	List of Approved Makes
1	11 KV H.T switchgear Vacuum circuit breaker & panel (office system house / channel partner for VCB manufacturer)	Simens / ABB / Schinder electric /LK (L & T) Swati Switchgear Ahmedabad Active Engineers Ahmedabad Marin Electrical Goa Advance Panel Delhi Trecolite Delhi Ambit Delhi Tenco System Indore
2	DRY type Transformer	ABB / VoltAmp Transformer Vadodara / Raychem RPG /TMC / KOTSON / Sudhir power
2	L.T.PANEL (TTA & NON TTA – SAME VENDOR)	System House - ABB / SIEMENS / SCHNEIDER / L & T / LEGRAND OR PANEL VENDOR - Swati Switchgear Ahmedabad Active Engineers Ahmedabad Marin Electrical Goa Advance Panel Delhi Trico lite Delhi Ambit Delhi Tenco System Indore Shiv Shakti engineers Ahmedabad
3	DG Sets (OEM)	Super nova /Sudhir Genset / Gemco/GOEL/STERLING /
4	Diesel Engine	Kilosker / parkins / cummins / catter piller /baudouin india
5	VFD (eqvlt. to IC seires of Danfoss)	Schneider /ABB / Danfoss / Siemens / Fuji /LK
6	Wall mounting panel / non compartmentalize panel / VFD panels / Small MCC panels	Rittal , En steel , Schndier or eqvlt. Make
7	APFC PANEL	Epcos / Schneider / Neptune Ducati/
8	BUS TRUNKING SYSTEM	L & T /SCHNEIDER /C & S/ LEGRAND//IIGM-EAE/Advance delhi /ENTRACO BKS
9	POWER CABLES	Havells / Polycab /AVOCAB/KEI/RAVIN/Gloster
10	CONTROL CABLES	Havells / Polycab /AVOCAB/KEI/RAVIN/Gloseter
11	surge Protection devise	Schneider / L&T / Legrand / ABB

S.No.	Item Description	List of Approved Makes
		/OBO
12	AIR CIRCUIT BREAKERS Ics=Icu=Ics(1sec) incomer	Schneider Master Pack NW range with Micro logic 6.0P releases and equ. of L&T U power with UW MTX 3.5EC releases / Siemens 3WA with ETU45B breaker./ABB / Legrand
13	Air Circuit Breakers – all out going breakers(1600 A OR LESS RATING	Schneider MVS with release 6.0G / LT U power with release SR 21 I / Siemens 3WT with release ETU37WT./ABB (FORMULA BREAKER NOT CONSIDRED)/Legrand
14	MCCB – Ics = Icu 100% – above 250Amps	Schneider NVX range with Microprocessor release / L & T D sine range(TM release) with RC 10 (MP releases) / Siemens 3VA series./ABB / Legrand
15	MCCB Ics = Icu 100% up till and including 200A	Schneider / Siemens VM / L&T / Legrand / ABB Adj. Thermal magnetic/
16	STARTERS / CONTRACTOR	Schneider / Siemens / L&T / Legrand / ABB
17	PUSH BUTTONS	Schneider / Siemens / L&T / Legrand / ABB
18	OVERLOAD RELAY/Electronic Motor Protection Relay	Schneider / Siemens / L&T / Legrand / ABB
19	MCB DB / MCB / RCCB	Legrand /Schneider Acti 9 / L&T AU series / Hager /ABB
20	H.T.CABLE	Havells / Polycab / KEI / Ravin
21	Inverter/UPS	APC / NUMERIC / EMERSON (VERTIVCO)/ETON/fujI
22	Switches / Plug / Backbox / Plates	Legrand (MYRIS), MK (Blenze),Schneider(Zencelo),Panasonic VISION
23	Cable Trays / Race Ways	Profab/Legrand/ Adity steel / OBO / Polycab /Ramdev steel
24	LIGHTNING PROTECTION	JEF/OBO/ CAP ELECTRIC /furse/DEHN/Axis
25	H.T.joints (Heat Shrinkable)	Raychem/3M
26	Power Socket (Thermo Plastic IP 65/66 /67) with enclosuer	Legrand / Schneider / Neptune / Mennekes
27	GI / AL Floor raceway and floor junction boxes	MK / Legrand / OBO
28	BATTERY Make	Panasonic / Quanta / Exide

S.No.	Item Description	List of Approved Makes
29	Thermo Plastic Junction Boxes / IP Thermo plastic Sockets & Rotary Switches / enclouser	Hensal/Neptune Ducati /Spelsberg/Schneider
30	Maintenance Free Earthing	JEF/OBO / CAP ELECTRIC/DEHN /Axis
31	PVC wall raceway	MK / Legrand / OBO
32	Rigid PVC FR Conduit & Accessories for conduit	Precision plastic industries, Polycab, AKG/NIHIR /Panasonic / BEC /
33	Flexible wires/cable FRLS/ZHFR	RR kable/ Panasonic / Avo Cab / Rajnighndha kolkata/Poly Cab/ Havell's
34	MS / GI conduits & Accessories	Jindal / BEC / AKG/super
35	Tele / TV wires – Cat 6 / RG11 / RG6 / shielded	Finolex / RR kable/Lap Cable / Poly Cab/Havell's
36	Cable Glands (Double / Single Compression type)	polycab / Comet, Standard Metal Industries/ HMI
37	Capacitors – APP type 525 volt / relay/ THYRISTOR MODULE	EPCOS / L&T / Schneider/ Neptune Ducati
38	ATS	ASCO 7000 Series/ Legrand / Socomech/ Ele measure
39	Synchronizing Relay	Wood Ward esay gen 3200/ Stuke/DEIF / Deep Sea
40	Ceiling Fans 5 star	Crompton–High Speed/Orient/Havell's / RR Kabel/ Panasonic
41	Aluminium Bus Bar	Banco / Hindalco
42	PIR SENSOR / TIME SWITCH	Legrand/ Schneider / Theben/ Grasslin/ M.K.INIDA
45	GI / AL Floor raceway and floor junction boxes	MK / Legrand / OBO
46	Single phase preventer	L&T / Siemens / ABB
47	Indicating Lamps	Siemens / L&T / Schneider
48	Time delay relay / limit switch	L&T / Siemens / BCH
49	Annunciator	Minilac / L&T / ABB
50	MICRO PROCESSOR RELAY (H.T.PANEL) AND OTHER RELAY	Siemens 7SJ12 / Micom P111 / ABB
51	Terminals	Elmex / Wago / CONNECT WELL
52	APFC RELAY with RS 485 port	Schneider/ EPCOS / L&T /Neptune Ducati
53	Thyristor Module – 690 volt	EPCOS / Neptune Ducati / L&T / Schneider /Subodhan
54	Solar Controller for DG & SEB Synchronization	DEIF –ASC4PV / Wood Ward / Stuke / Deep Sea or PLC
55	Solar PV Panel	Adani/ Waaree/ Panasonic/Havell's/ Tata Solar
56	Solar Online Invertor	ABB/ Havell's/Delta/ SMA
57	Steel modular support for cable tray / solar panels	Hilty / Profab / Indana /mupro /fisher /polycab

S.No.	Item Description	List of Approved Makes
58	Lighting fitting	Philips / Wipro / Panasonic / Jaguar / Lighting technology / K-LITE /Hvell's
59	Earthing Material	Adity steel / Ramdev steel /

	IT/AV APPROVED MAKE						
	Passive-CABLE CAT-6/ FIBER OPTIC ARM / UN ARM Data /Voice & WIFI	Comm scope (for out door long distance Systimax Only) / Molex / legrand /R & M					
	Network and Server Racks	APW-VERO PRESIDENT, NETRACK, PANDUIT, RITTAL, VALRACK					
	Network Switches	Cisco, EXTREME, HP, Ruckus/					
	Wireless System	Cisco, EXTREME, HP, Ruckus/					
	AV CABLES	Extron / Crestron / Liberty AV					
	Display	Newline / LG / Samsung					
	Video Soundbar USB conferencing device Audio Equipment	Bose / Poly / Cisco /JBL / QSC / Crestron / Extron/Kramer					
	Telephone instrument	Beetel/Matrix/ Avaya, Polycom, Alcatel, Grand stream					
	Projector	Optoma/Barco/Panasonic / Sony					
	Amlifier / speaker	Electro voice/Bosch/D&B Audio Technik					
	Firewall requirements has 2 nos of SR and 2 nos of SX Transceivers	Fortinet					
	IPBX System	Avaya/matrix / Neos Infinity/ Alcatel					
	Smart Board 56"	Panasonic/ Viewsonic/ Newsonic					

LIST OF APPROVED MATERIALS/BRANDS FOR PLUMBING WORKS

S.No.	Item Description	List of Approved Makes
D)	**PLUMBING SYSTEM**	
1	CP and Sanitary	Jaquar / Hindware / Kolhar or Equivalent
2	Hand dryer	Euronics / Oasis / Dolphy or Equivalent
3	SS Floor Grating	Chilly / camry/ Neer or Equivalent
4	Rain water parapet side wall drain and Podium drain	Neer / Marvelsanifit / Weimer / Syscraft
5	Precast Concrete Drain Channel / Slot Drain	MEA / ACO / Hydrotech
6	Hydropneumatic / Transfer / Circulation Pumps	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara
7	Dosing Pumps	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara
8	Sump Pump (For Sewage & Storm Drainage)	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara

S.No.	Item Description	List of Approved Makes
9	Centrifuge Feed Pump	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara
10	Rotary Gear Pump	PEC / Rotodel /Prominent
11	SS Clean Out Plugs	Chilly / Neer / camry
12	C.I / D.I Manhole Cover	NECO / RIF / Kapilansh
13	PVC Gully Trap	Astral / Ashirvad / Supreme
14	CI Gully Trap	Jain Spun Pipe/Pragati / Perfect/R.K/ Anand
15	SFRC Manhole Cover/Grating	K.K.Manhole/Jain spun pipe/Pragati
16	Precast Concrete Drain Channel	Arya/ Alcock / Fuji Silvertech
17	Automatic Flushing Cistern	Jaquar / Hindware / Kolhar
18	Heat Pump	Climaventa/ Bluebox / AO Smith / Kehems / Suntec /Trane/ Emerson / Benchmark
19	Hot water tank	Reflex / ELBI /AO Smith/ Bradford
20	Temperature Sensor	Danfoss / Forbes Marshall / Honeywell
21	Degasser and expansion tank	Please refer HVAC Make list
22	R.O Modules (Membrane)	DOW / Filmtech / Hydronautics / Toray
23	Pressure Sand Filter / Activated Carbon Filter Vessel	Pentair / Structural / Aventura
24	STP	ION EXCHANGE /Aquatics / Apurva Water Management / Shubham
25	Resin	Thermax / Ion Exchange/ Doshi IonExchange
26	Grease Separator	ACO / KESSEL
27	Bar Screen/Fine Screen	Fabricated
28	Belt Type Oil Skimmer	Wastech/Premier/Techno
29	Equalization Transfer Pump	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara
30	Air Blower	Everest/ Beta/ Kay
31	Diffuser	Wastech/OTT/EDI
32	Floating type decanter	ION EXCHANGE /Aquatics / Apurva Water Management / Shubham
33	Automation for SBR Technology	ION EXCHANGE /Aquatics / Apurva Water Management / Shubham
34	UV System	Alfa/ Sukrut / Concept / Creative
35	Membrane CIP System	ASIA LMI/Prominent/Hydrocon
36	RCC GRATING	Jain Spun / Pragati / Daya / KK / Fuji Silvertech
37	FRP Manhole Cover / Grating / Recess	HP / Tharmodrain / Everlast / Fibrocast
38	Coarse Bubble Diffusers	Rehau / Scogen / Maxair / EDI OF USA
39	Filter Press	Sachin / Pharmatech / PP Aquatech
40	Chlorinator	ASIA LMI / Prominent / Wastech / Safex

S.No.	Item Description	List of Approved Makes
41	Virgin Plastic Make up water tank	Sintex / Vectus / Finolex
42	Water treatment Plant (WTP) and RO Plant	ION EXCHANGE /Aquatics / Apurva Water Management / Shubham
43	Ultra Filtration System (Integrator)	ION EXCHANGE /Aquatics / Apurva Water Management / Shubham
44	Modular Manhole / Inspection chamber	Nilkamal / Supreme / Astral
45	Modular Rain water harvesting and Storgae tanks	ECO Drain / Life green Systems Ltd./ Vikas Indus / ACO
46	GRP /FRP Water tank	SOVISY SOLUTIONS / SINTEX / NEERCO
47	Water pool main drain (SS 304)	ASTRAL / CERTIKIN / HAYWARDS
48	Floor Inlet for Water pool	ASTRAL / CERTIKIN / HAYWARDS
49	Water pool filters (Bobbin Wound type)	ASTRAL / CERTIKIN / HAYWARDS
50	Pool filter Frontel Piping	ASTRAL / CERTIKIN / HAYWARDS
51	Pool filter Valve manifold System	ASTRAL / CERTIKIN / HAYWARDS
52	Sand media / Gravels (As per application)	INDEGENEOUS
53	Pool Circulation Pumps	ASTRAL / CERTIKIN / HAYWARDS
54	Floating Hose	ASTRAL / CERTIKIN / HAYWARDS
55	OZONATOR	ION EXCHANAGE/CERTIKIN/PROZONE / Arvind
56	VACCUM HEAD	ASTRAL / CERTIKIN / HAYWARDS
57	TELESCOPIC HANDLE	ASTRAL / CERTIKIN / HAYWARDS
58	FLOATING HOSE	ASTRAL / CERTIKIN / HAYWARDS
59	DEEP BAG NET	ASTRAL / CERTIKIN / HAYWARDS
60	CURVED BRUSH	ASTRAL / CERTIKIN / HAYWARDS
61	TROLLEY MOUNTED PUMP,3HP	ASTRAL / CERTIKIN / HAYWARDS
62	SS 304 FOUR STEP LADDERS	ASTRAL / CERTIKIN / HAYWARDS
63	SS 304 THREE STEP LADDERS	ASTRAL / CERTIKIN / HAYWARDS
64	PVC BALL VALVES (For Pool)	CEPEX / GEORGE FISCHER / ASTRAL / SUPREME
65	Pool System Intigrator	Apex / Crown puretech / Linc digital / Flow dynamic
66	Fountains System Intigrator	Classic fountains / Marval Fountains / Family Fountains
67	Fountain Nozzoles	Deep & Deep / Classic Fountains / Marval Fountains
68	Fountain Pumps	Kriloskar / Lubi / Crompton / Wilo / Xylem
69	Pond Water Cleaning System (Algea Removing System)	Profex Energy / Waboost / Implozone

S.No.	Item Description	List of Approved Makes
70	Drinking water fountains	WAE / OASIS / Elkay / Haws

LIST OF APPROVED MATERIALS/BRANDS FOR FIRE FIGHTING WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
E)	**FIRE FIGHTING SYSTEM**	
1	**Fire Fighting Pump & Motor**	
1.1	Pump Set	Armstrong / Grundfos / Wilo / Xylem / Kirloskar/ Ebara
1.2	Motor	ABB / Kirloskar / Siemens / Crompton
1.3	Diesel Engine	Greaves/ Cummins/ Kisrloskar/ Perkins/ Caterpiller
2	Hose Pipe	Newage/CRC / Monsher
3	Branch Pipe & Nozzle	Newage / Shah Bhogilal /Monsher
4	Hose Reel Drum	Newage / Shah Bhogilal /Monsher
5	PVC Hose	Duplon / Revlon/ Mytra
6	Sprinkler alarm valve	HD Fire / Viking/ Newage /Tyco/Victaulic
7	Spray Nozzle	HD Fire / Viking/ Newage/Tyco / Victaulic
8	Sprinkler	HD Fire / Viking/ Newage/Tyco / Victaulic
9	SS Ball Valve	L&T/ Leader / KSB / Zoloto/ Sant/ Lehry
10	Extinguishers	Minimax / Fire Age/ Cease Fire/Kanex/safex / Kalpex
11	S.S Flexible Pipes	New Age / Rapidrop / Tyco / Monsher /Victaulic
12	Auto Glow Signages	Prolite / Glowlite/ Autoglo
13	Water flow Switch, Water Flow Sensor	Systemsensor / Switzer / Potter / Filpro/Vector/03i
14	Test drain assembly with sight glass	Tyco / Viking/Victaulic/ Giocomini / Newage
15	Hydrant Valve	Newage / Shah Bhoglilal/ Monsher/ safegaurd
16	Kitchen Hood Suppression	Ansul / Amerex / Swastik Synergy
17	Gas Suppression	Tyco / Siemens/Swastik Synergy/ Ansul
18	Fire Tubing System	Supremex / Kanex / Swastik Synergy

LIST OF APPROVED MATERIALS/BRANDS FOR BMS, FIRE ALARM,PA,CCTV,ACCESS CONTROL & PHYSICAL SECURITY WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
G)	**LOW VOLTAGE / SECURITY / FIRE ALARM SYSTEMS**	
1	IoT Based BMS DDC Controller/Software	Schneider / Honeywell (Trend) / Siemens Desigo/ JCI Metasys/ UTC/ 03i Impact/ Azbil
2	IoT Based sensor Legacy BMS Sensors	Schneider / Honeywell (Trend) / Siemens Desigo/JCI Metasys/UTC/03i Impact/Mann + Hummel/ Cognito/ Azbil
3	Level Switch & Sensor	Filpro/Vector/03i
4	DDC Panel	Rittal / Schneider / ENsteel
5	IoT Gateway/Middleware	Schneider/Honeywell/Siemens/JCI/UTC/03i/Azbil
6	Server /work station for BMS/Access/CCTV	Dell/Hp/IBM
7	Access Control Controller	Honeywell Prowatch/UTC Lenel/Tyco Software House/Gallagher/HID/ Matrix/DDS/STID / Siemens
8	Access Control Software	Genetec, Axxonsoft, Milestone, ExacQ, Cognify
9	Access Control Blue tooth mobile Readers /Mobile Credentials	Honeywell Prowatch/UTC Lenel/Tyco Software House/Gallagher/HID/ Matrix/STID
10	Electromagentic Locks	Algatec / Bell / Faradays / Rutherford/Assaabloy
11	Access Mifare Cards	HID / Honeywell / Tyco/ UTC/STID
12	Push Button	Securico, Roma, ESSL
13	Emergency Break Glass Unit	AITEC, KAC, DAFIKAS
14	DFMD /HHMD	Ceia / Garret / Smiths
15	UVSS	Infinite / Kritikal / Gate Keeper / Commport
16	Printer	Epson / NEC / HP / Canon
17	Fire Alarm Control Panel/Evacuation System	Honeywell-Notifier / Edwards / Siemens Fire Finder/ Ravel/ Simplex/Hochiki/ Bosch/ Nohmi/ Schneider
18	Detectors (Smoke, Heat, Multi Criteria, LPG)	Honeywell-Notifier / Edwards / Siemens Fire Finder/ Ravel/ Simplex/Hochiki/ Bosch/ Nohmi/ Schneider
19	Fire Alarm Devices (Control Modules, Monitor Modules, Fault Isolators)	Honeywell-Notifier / Edwards / Siemens Fire Finder/ Ravel/ Simplex/Hochiki/ Bosch/ Nohmi/ Schneider
20	Manual Call Stations / Hooters/Strobes	Honeywell-Notifier / Edwards / Siemens Fire Finder/ Ravel/ Simplex/Hochiki/ Bosch/ Nohmi/ Schneider
21	Digital Amplifiers	Honeywell-Notifier / Edwards / Siemens Fire Finder/ Ravel/ Simplex/Hochiki/ Bosch/ Nohmi/ Schneider
22	Speakers, Gooseneck Microphone	Notifier / Edwards / Siemens Fire Finder / Bosch / Heinrich / Axis/Schneider
23	Cameras /Network Video Recorder	Bosch, Axis, Pelco, Hanwha, Tyco ,Panasonic
24	Enterprise Video Management Software (Unified or Standalone)	Genetec, Axxonsoft, Milestone, ExacQ, Cognify

25	Analytics & Foresnsic Sofware	Avigilon, Axxonsoft, Genetec, Milestone, ExacQ, Cognify, KiwiSecurity, AgentVI, Briefcam, VIISights, Icetena,
26	LED Monitors	Samsung/LG/Sony
27	Baggage Scanner	Krystalvision / Kritikal / Smiths / Rapiscan
28	Door Frame Metal Detector	Samarth / Smiths / Rapiscan / static / garrett
29	Boom Barrier	Magnetic Autocontrol / FAAC (Neptune) / Static / Somfy

LIST OF APPROVED MATERIALS/BRANDS FOR CONTROL MEASUREMENT INSTRUMENT WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
H)	**CONTROLS / MEASUREMENT INSTRUMENTS.**	
1	Thermometers	H.Guru / Teddington / Warry / Dwyer
2	Water Pressure Gauge	H.Guru / Teddington / Warry / Dwyer
3	Flare Nuts / Cu. Fittings	Castel / Kim
4	Proportionate Controller Thermostat / Humidistat	Johnson-Control/Honeywell/Sauter–Race / Siemens/ AZBIL
5	Immersion type temperature	Siemens/ Honeywell/ Schneider/ AZBIL
6	Differential Pressure Switch (blowers & Filters & Pump)	Siemens/ Honeywell/ Schneider/ AZBIL
7	Ambient Temperature& RH sensor	Siemens/ Honeywell/ Schneider
8	Actuators	Siemens/ Honeywell/ Schneider/ Belimo/L&T / Kitz /AIP/ AZBIL
9	CO & CO2 Sensor	Siemens/ Honeywell/ Greystone/ GE/ Schneider / Omicron
10	Water level Switch	Siemens/ Honeywell/ Kele/Sontay / Schneider / Filpro
11	Airflow Measuring Station	Siemens / Ultratek / Schneider / Baumer / Honeywell
12	Water Differential Pressure Sensor	Siemens/Honeywell / Schneider / Dwyer/Johnson Controls / Omicron
13	Duct Static Pressure Sensor	Siemens/Honeywell / Schneider / Dwyer/Johnson Controls / AZBIL / Omicron
14	Water Flow Meters	Forbes Marshall/ Kele/ Sontay/ ABB/ Schenitech / Schneider/ Kemstrup/ landisGyr / Omicron
15	PH / Chlorine / TDS Hardness Analyser	HACH / ABB / Kele / Forbes Marshall /Schenitech / Schneider
16	Pressure Switch / Pressure Control Switch	Danfoss / Indfoss / Potter / / Switzer / Thermax / Omicron
17	Temperature Sensor	Danfoss / Forbes Marshall / Honeywell/ Azbil / Omicron
18	Level Controller & Indicator (Water)	Auto Pump / Cirrus Engineering / Technika / Techtrol
19	Level Indicator (Oil)	Forbes Marshall / Scientific Devices / Cirrus Engineering
20	Ultrasonic Flow Meter	Krohnel/Hydrocon/E&H / Honeywell/ kenstop
21	Water Meter	Actaris / Capstan / Kaycee / Kranti/ Sant / Lehry
22	DO Meter	ABB /Hanna/ hach / Forbe Marshell
23	SS 304 Automatic control Valve (PHE By Pass Line)	Heli / Johnson Control / Sauter / Schneider

LIST OF APPROVED MATERIALS/BRANDS FOR HVAC, PLUMBING & FIRE FIGHTING VALVES WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
I)	**HVAC , PLUMBING & FIRE FIGHTING VALVES**	
1	Ball Valve	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
2	Butterfly valves	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
3	Balancing Valves	T & A / Advance / Danfoss / Oven Trap / Belimo
4	Ball Float Valve	Esseti / Prayag / Sant
5	Air Release / Vent Valve	Arco/Fouress/ Sant/ AIP / Zoloto / RB / L&T
6	Thermostatic valve	Oventrop / Danfoss / Sant
7	Solenoid Valve	Aira / Avcon / Danfoss / Sant
8	Check Valve – WaferType	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
9	Check Valve – Dual Plate	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
10	Pressure Reducing Valve	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
11	GM / Forged Brass Valves	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
12	Y & Pot Strainer	Leader/ Sant / CASTLE/ Zoloto / RB / L&T/NVR/ Lehry
13	Suction Guide with Strainer	Anergy / Flowcon / KD agencies/ Sant/ Lehry
14	Automatic Air Purging Valve	Oven trop / CIM / Rapid Control/ sant/ advance/ Lehry
15	Plug Valve	L&T / Sant / Honeywell
16	Foot Valve	Kirloskar/ Kalpana / Sant
17	Three Way Motorized Valve	Honeywell / Invensys/ Sauter / Schneider / Siemens/ AZBIL/ Belimo
18	Motorized Butterfly Valve	Siemens/ Honeywell/ Schneider/ Belimo/L & T / Kitz /AIP
19	Modulating Valve	Siemens/Honeywell/Belimo/ AZBIL
20	Mixing (3/2) Way Valves With actuator	Johnson Control / Sauter-Race / Honeywell / Siemens/ Schneider/ AZBIL/ Belimo

LIST OF APPROVED MATERIALS/BRANDS FOR HVAC WORKS

Item Description	List of Approved Makes
HVAC	
VARIABLE REFRIGERANT SYSTEM	Daikin/Bluestar/Mitsubishi Electric/Toshiba/Carrier/Hitachi /Mitsubishi heavy
Water Misting Pump	Annovi Reverberi Italy/classic fountains
2 Stage Air washer	HMX / Roots Cooling / DRI / ZECO / EDGETECH / CITIZEN / Degreeday / Humidin
DRY TYPE SCRUBBERS	Rydair / Trion / ZECO / Dusteck / Maico-Dynaire / Espaire/ CITIZEN / EDGETECH
Precision AC	Stulz / Schnieder / Vertive / Bluebox
Air Handling Unit	Zeco / Systemair / CITIZEN /EDGETECH
FACTORY FABRICATED DUCTS	Rolastar / ZECO / Alpha / Nutech / Daysun
GRILLE / DAMPER/ DIFFUSER	Dynacraft / Cosmos / Systemair / Caryaire / Sachin / Cynor / Fair Flow
AL. AEROFOIL VCD	Dynacraft / Cosmos / Systemair / Caryaire / Sachin / Cynor / Fair Flow
G. I. AEROFOIL VCD	Dynacraft / Cosmos / Systemair / Caryaire
PRE-FILTERS	Dyna / Klenzaids / Airtech / Frudenburg / Camfill / Spectrum / AAF / CITIZEN
G.I. SHEETS	Sail / Nippon / National / Jindal / Ispat / Tata / Essar
CENTRIFUGAL FAN	Nicotra / Kruger / Greenheck / Humidin / ELTA / Airflow / Maico-Dynair / Systemair
EXHAUST AIR UNITS (SINGLE SKIN)	Caryaire / CITIZEN / ZECO / Greenheck / Nicotra / Kruger / Humidin / ElTA / Airflow / Maico-Dynair / EDGETECH
HVLS FANS	JCB/ Eco Air/ Greenheck/Elta
Water misting system	Classic fountain /Eco air/ EcoSMRT
CUSHY FOOT MOUNTS	Dunlop / PolyBond / Resistoflex /

Item Description	List of Approved Makes
	Easy Flex
TUBE AXIAL FAN	Kruger / Nicotra / Greenheck / Systemair / Maico-Dynair / HUMIDIN / ELTA / Airflow
INLINE FANS	Systemair / Kruger / Nicotra / Greenheck / Humidin / ELTA / Air flow
COPPER TUBES & FITTINGS	Rajco / Mandev / Mehta / Mexflow
CEILING SUSPENDED FANS	Kruger / Systemair / Greenheck / Maico-Dynair / Humidin / ELTA / Air flow
VOLUME FLOW LIMITER	Adilade / TROX / Systemair / Cynor / Cosmos
Motorized FIRE DAMPERS	Airmaster / Cary air / COSMOS / Anergy / Greenheck / Ruskin / Systemair
Fusible link fire damper	Greenheck / Greenheck / Ruskin / Trox / Systemair
Non Chemical Water Treatment Scale Prevention System	Sevcon / Ion Exchange / Reflex / Cetenviro
Drain Pipe & Fittings	Astral / Ashirwad / Supreme / Finolex / prince
Louvers (Intake/exhaust)	Systemair / Caryaire / Fairflow / Cosmos / Cynor
Propeller Fans/Cassette & mixed flow Inline Fans	Kruger / Systemair / Airflow / ElTA / Maico-Dynair / Cromton / Havells
FLEXIBLE Duct (Insulated/ Non Insulated)	System air / Systemair / Aerolam / Aeroduct / Resistoflex / Kanwal / Dusteck
Fabric Duct	Prihoda / Prihoda / Ductsox / DukreeSox / Fabricair / Hitech Duct

LIST OF APPROVED MATERIALS/BRANDS FOR HVAC , PLUMBING & FIRE FIGHTING PIPES & FITTINGS WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
J)	**HVAC , PLUMBING & FIRE FIGHTING PIPES & FITTINGS**	
1	GI & MS Pipes	Tata / Jindal / Surya Prakash
2	GI & MS Pipe Fittings	Metalloyds / United Forging /VS /Goel/ Sant
3	DI Groove Fittings	SANT / National/ Victaulic/ NVR
4	PP Low Noise Pipes & Fittings	Astral / Huliot / BQ Germany / REHAU / Poloplast / Wavin AS+
5	CI Hubless Pipes & Fittings	Neco / Kapilansh / RIF
6	CPVC / UPVC Pipes & Fittings	Astral / Ashirvad / Ajay / Supreme / Finolex
7	SS 316 Pipes	J-PRESS / JINDAL / VIEGA / GEBERIT / MEHTA
8	SS 316 Pipe Fittings	J-PRESS / JINDAL / VIEGA / GEBERIT / Kan therm
9	Stoneware Pipe	Pragati / Kataria / Jain Spun / R.K.
10	HDPE Pipes	Supreme / JAIN / Finolex / Reliance
11	RCC Pipes	Jain Spun / Pragati / Daya Spun / KK
12	DWC / Foamcore Pipe	Astral / Supreme / Prince / Noble
13	SWR PVC Pipes	Astral / Ashirvad / Ajay / Supreme /Prince
14	PPR Pipes	Kan therm / KPT / Huliot / Prime / SHK

LIST OF APPROVED MATERIALS/BRANDS FOR INSULATION/ADHESIVE/ ACCESSORIES WORKS

MEPF APPROVED MAKE LIST		
S.No.	**Item Description**	**List of Approved Makes**
K)	**Insulation / Adhesives / Accessories**	
1	CLOSED CELL CROSS LINK POLYTHENE INSULATION	Paramount/ supreme (Malaysia)/ Aerofom/ Infoam (Inner)
2	EPDM RUBBER INSULATION	Armaflex/ ALP/ K-flex
3	Nitrile Rubber Insulation	Armaflex / Aeroflex / ALP/ Supreme
4	FLEXIBLE PIPE	Aeroflex / Dunlop / Resistoflex / Kanwal/ Inflex (inner)
5	Resin Bonded Slabs (underdeck Insulation)	Roxul Rockwol/ INROCK/Rockwool / Inner Eng
6	ADHESIVE FOR DUCT	SR998 /SR505 /Polygrip/ Pidilite/ Inner
7	STARBOND 30 – 36 SOLUTION	Paramount / Polytreat/ Pidilite
8	ADHESIVE FOR PIPE	Armaflex 520/Polygrip / Armaflex/ /Vedoflex / K-flex / ALP / Pidilite
9	ANCHOR FASTENER	Fischer / Hilti / Hira Walravan / Mupro
10	Anti Vibration Mounting & Flexible Connections	Cori / Dunlop / Easyflex / Flexionics / Resistoflex
11	Acoustic Insulation - Resin Bonded Mineral Wool Slab	Roxul / INROCK / Rockwool
12	Paint	Asian Paints / Berger / Nerolac
13	Welding electrodes	Advani / Maruti / Cosmos
14	Mechanical Seal	Burgmann / Sealol
15	Anti-Corrosive Bitumastic Paint	Asian Paints / Berger / Nerolac
16	Anti-Vibration Mounting & Flexible Connections	Cori / Dunlop / Easyflex / Flexionics / Resistoflex
17	C.I. S&S / Double flanged fittings	Kartar / National / Kesoram
18	Modular Supporting System	Hilti /Mupro / Fishcher/ 3M / Hira Walravan
19	Passive Fire Protection	Hilti / Promat/ 3M
20	Anti-Corrosive Tape for Pipe protection (As Per IS : 10221 -1982)	Pypkote / Marphalt/ Shalimar Tar Paint

Toilet Fixture list				MAKE		
S.NO.	**DESCRIPTION**	**PART OF SANITARY**	**REFERENCE IMAGES**	**HINDWARE**	**KOHLER**	**JAQUAR**
A	European Water closet	Wash Closet		HINDWARE-Q207240210	KOHLER-99992IN-0	JAQUAR-ARS-WHT-39953BIUFSM
		Health Faucet		HINDWARE-Q503195120	KOHLER-12927IN-CP	JAQUAR-ALD-CHR-565GD
		Angle Valve		HINDWARE-Q503191120	KOHLER-11568IN-7B-CP	JAQUAR-CQT-CHR-23053
		Concealed Flushing Cistern		HINDWARE (QUEO)-Q507450100	KOHLER-1225108-0	JAQUAR-JCS-WHT-2400FS
		Face Plate		HINDWARE (QUEO)-Q507455120	KOHLER-8857IN-M-CP	JAQUAR-JCP-CHR-352415
		2- Way Bib Cock		HINDWARE-Q163113220	KOHLER-16094IN-4-CP	JAQUAR-OPP-CHR-15041PMGD
B	Washbasin	Wash Basin		HINDWARE-Q407140210	KOHLER-2660IN-1-0	JAQUAR-FLS-WHT-5601
		Bottle Trap		HINDWARE-Q503195220	KOHLER-75823IN-CP	JAQUAR-ALD-CHR-769L300*190
		Waste Coupling		HINDWARE-Q503192320	KOHLER-45432IN-CP	JAQUAR-ALD-CHR-705
		Basin Faucet		HINDWARE-Q193112120	KOHLER-27486IN-4-CP	JAQUAR-KUP-CHR-35001PMGE

C	Urinal	Urinal		HINDWARE-Q357610110	KOHLER-20713IN-ER-0	JAQUAR-URS-WHT-13253N
		Automatic Flushing System		HINDWARE-Q257102510	KOHLER-24199IN-C01-CP	JAQUAR-SNR-STL-51087G
D	Grab Bars	Grab bar (90 degree Right)		Dolphy-DHGB0020	KOHLER-5165T-ST	JAQUAR-WAC-SAP-BAI090CS
		SAFETY GRAB BAR U SHAPE		Dolphy-DHGB0020	KOHLER-5164T-ST	EURONIC-73242900
		Grab Bar 692mm long		Dolphy-DHGB0017	KOHLER-11392T-S	JAQUAR-WAC-SAP-BR0600CS
E	Toilet Accessories	Toilet Paper Holder		DOLPHY-DTPR0018	EURONIC-73242900	JAQUAR-ACN-CHR-1153S
		Soap Dispenser		Dolphy-DSDR0117	EURONIC-73242900	JAQUAR-SDR-WHT-DJ0010F
		Hand Dryer		Dolphy-DAHD0032	EURONIC-85163300	Jaquar-HDR-SAP-M99ACS
F	Grating & Clean Out	SS Floor Grating		Chilly-CCT-SFC-127	NEER-NRG 7009 (SS)	Camry-CCR-SHCGH-101
		SS Floor Clean out		Neer - : NCO 8000	Chilly : CO-R-128-G	CAMRY - Sweep out - DX SO-S6

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
	LMS for Tensile Structure Only	
1	Supply, installation, testing and commissioning of a central control processor complete with in-built operating software and two configurable communication links, each link programmable for lighting dimming devices, motorised shading systems or remote power/dimmer panels. The processor shall operate on 220–240 V AC, single phase, 2-wire, 50 Hz supply with 10 A rating, through a suitable power supply, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
2	Supply, installation, testing and commissioning of low-voltage power supply unit, suitable for providing regulated DC power to power distribution units (PDUs) serving antenna / control interface devices of the lighting control system. The power supply shall be designed for continuous operation, fed from mains supply, with built-in protection against over-load, short-circuit and over-voltage, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
3	Supply, installation, testing and commissioning of a DALI-based lighting control ecosystem / dimming controller, capable of controlling two independent DALI communication links, each supporting up to 64 DALI2.0 control gear/ballasts. Each fixture should act as a group. The unit shall operate on mains / line voltage supply, complete in all respects, as per specifications	Lutron/ Helvar/ Raylogic
4	Supply, installation, testing and commissioning of composite control cable suitable for carrying power and communication signals for lighting/shading control systems, comprising 12 AWG (≈4.0 sq.mm) power/common conductors, 22 AWG (≈0.25 sq.mm) control/data conductors, 18 AWG (≈0.75 sq.mm) sense line conductor and 24 AWG (≈0.2 sq.mm) drain wire, with suitable insulation and shielding, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
5	Supply, installation, testing and commissioning of wired wall-mounted control keypad with ten programmable push buttons for scene selection, lighting/shade control and system functions. The keypad shall communicate over a low-voltage wired control network, include backlit or engraved buttons with status indication, and be suitable for flush mounting in standard wall boxes. The unit shall be compatible with the central control system, configurable via system software, and complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
6	Supply, installation, testing and commissioning of DALI control cable comprising 2 cores × 1.5 sq.mm copper conductors, with PVC/LSZH insulation and sheath, suitable for DALI lighting control and communication circuits, laid in conduit/tray as required, including termination, testing and making good, complete in all respects as per specifications	
	DMX for Tensile Structure Only	

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
7	Compact - Real-time control for up to 250"000 parameters per session in connection with processing units • 6 DMX outputs, 1 DMX input • 1 internal foldable monitor multi-touch screen • 1 external multi-touch screen can be connected • 29 rotary RGB backlit encoder • 5 dual encoders • 10 backlit motorized 60 mm faders • 40 separate playbacks • 16 assignable x-keys • 3 etherCON connectors, 5 USB connectors • 2 backlit motorized A/B faders 100 mm • Individually backlit and dimmable silent (clickless) keys Parameters 8"192 (HTP/LTP) Parameters Mode2 4"096 (HTP/LTP) Operating voltage/ Supply voltage AC 100 - 240 V; 50/60 Hz Power max. 250 VA Operating Temperature 0 °C up to 40 °C / 32 °F up to 104 °F Dimensions 661 x 429 x 160 mm / 26 x 17 x 7 in" (width x depth x height, folded)" " 661 x 563 x 325 (max. 410) mm / 26 x 23 x 13 (max. 17) in" (width x depth x height, unfolded) Net weight 16 kg / 36 lbs Connectors 1 x powerCON TRUE1" 3 x etherCON/RJ45" 6 x DMX512-A Out (5pin XLR female)" 1 x DMX512-A In (5pin XLR male)" 1 x MIDI In (5pin DIN female)" 1 x MIDI Out (5pin DIN female)" 1 x Linear Timecode (3pin XLR female)" 1 x Audio In (3pin XLR female)" 1 x GPI General Purpose Interface (D-SUB DE9 female) for remote control" 1 x DisplayPort 1.2 for external screens" 2 x S/PDIF In and Out" 3 x USB 2.0 (type A)" 2 x USB 3.0 (type A)" 1 x LED desk light (4pin XLR female)	MA Lighting/ Avolights/ Strand

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
8	Switch should be 1U and rack mountable in standard 19" rack. Switch should support internal field replaceable unit redundant power supply from day 1 along with redundant fans Switch should have minimum 2 GB RAM and 2 GB Flash. Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 48 Gbps of stacking thoughput with 8 switch in single stack. Switch shall have minimum 128 Gbps of switching fabric and 90 Mpps of forwarding rate Switch shall have minimum 16K MAC Addresses and 250 active VLAN. Should support minimum 11K IPv4 routes or more Switch shall have 1K or more multicast routes. Network Switch Switch should support atleast 16K flow entries Switch should support 128 or more STP Instances. Switch should have 6MB or more packet buffer. Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z. Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1 Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs. Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues. Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ . Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard. Swicth should also be IPv6 LOGO ready certified from Day 1 Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports from Day 1 Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type. During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic. Switch shall have 24 nos. 10/100/1000 Base-T ports and additional l 4 nos. of 10G SFP+ uplinks ports. Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment. Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements. Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification. All the routers, switch, access-points and NAC should be from the same OEM for seamless integration	Netgear/ Cisco/ Jupiter
9	2 Port Mode 2k PoE - Parameters 4/096 (HTP/LTP) Parameters Mode2 1/024 (HTP/LTP) Operating voltage/ Supply voltage AC 100 - 240 V; 50/60 Hz/ PoE (IEEE 802.3af; 48 V DC/max. 12 W)/ Power max. 15 VA Operating Temperature 0 °C up to 40 °C / 32 °F up to 104 °F Dimensions 207 x 184 x 43 mm / 9 x 8 x 2 in/ (width x depth x height) Net weight 2 kg / 5 lbs Connectors 1 x powerCON TRUE1/ 1 x etherCON/RJ45/ 2 x DMX512-A Out (5pin XLR female)/ 1 x USB 2.0 (type A)	MA Lighting/ Avolights/ Strand

Project Name:	**ASI, Lothal**
Client:	**Architect Hafeez Contractor**
Project Number:	**CC - 2025 - PR 084**
Venue:	**Lothal, Gujarat**
Date:	**30.12.2025**
Schedule:	**ASI Lothal - LMS/DMX Approved Make List**
Rev:	**0**
Status:	**Tender**

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	

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The Approved List of Items & Makes provided herein is strictly Line-Item Specific. The presence of an approved brand in one line item does not imply automatic approval for other line items where it is not explicitly mentioned; any migration of brands requires prior specific written approval from the ARCHITECT with appropriate justification. Furthermore, all quantities indicated are merely indicative for tendering purposes and are subject to variation (up or down) based on the detailed design developed and final As-Built quantities. No new items may be added to this BOQ.

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
	LMS for Tensile Structure Only	
1	Supply, installation, testing and commissioning of a central control processor complete with in-built operating software and two configurable communication links, each link programmable for lighting dimming devices, motorised shading systems or remote power/dimmer panels. The processor shall operate on 220–240 V AC, single phase, 2-wire, 50 Hz supply with 10 A rating, through a suitable power supply, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
2	Supply, installation, testing and commissioning of low-voltage power supply unit, suitable for providing regulated DC power to power distribution units (PDUs) serving antenna / control interface devices of the lighting control system. The power supply shall be designed for continuous operation, fed from mains supply, with built-in protection against over-load, short-circuit and over-voltage, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
3	Supply, installation, testing and commissioning of a DALI-based lighting control ecosystem / dimming controller, capable of controlling two independent DALI communication links, each supporting up to 64 DALI2.0 control gear/ballasts. Each fixture should act as a group. The unit shall operate on mains / line voltage supply, complete in all respects, as per specifications	Lutron/ Helvar/ Raylogic
4	Supply, installation, testing and commissioning of composite control cable suitable for carrying power and communication signals for lighting/shading control systems, comprising 12 AWG (≈4.0 sq.mm) power/common conductors, 22 AWG (≈0.25 sq.mm) control/data conductors, 18 AWG (≈0.75 sq.mm) sense line conductor and 24 AWG (≈0.2 sq.mm) drain wire, with suitable insulation and shielding, complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
5	Supply, installation, testing and commissioning of wired wall-mounted control keypad with ten programmable push buttons for scene selection, lighting/shade control and system functions. The keypad shall communicate over a low-voltage wired control network, include backlit or engraved buttons with status indication, and be suitable for flush mounting in standard wall boxes. The unit shall be compatible with the central control system, configurable via system software, and complete in all respects as per specifications	Lutron/ Helvar/ Raylogic
6	Supply, installation, testing and commissioning of DALI control cable comprising 2 cores × 1.5 sq.mm copper conductors, with PVC/LSZH insulation and sheath, suitable for DALI lighting control and communication circuits, laid in conduit/tray as required, including termination, testing and making good, complete in all respects as per specifications	
	DMX for Tensile Structure Only	

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
7	Compact - Real-time control for up to 250"000 parameters per session in connection with processing units • 6 DMX outputs, 1 DMX input • 1 internal foldable monitor multi-touch screen • 1 external multi-touch screen can be connected • 29 rotary RGB backlit encoder • 5 dual encoders • 10 backlit motorized 60 mm faders • 40 separate playbacks • 16 assignable x-keys • 3 etherCON connectors, 5 USB connectors • 2 backlit motorized A/B faders 100 mm • Individually backlit and dimmable silent (clickless) keys Parameters 8"192 (HTP/LTP) Parameters Mode2 4"096 (HTP/LTP) Operating voltage/ Supply voltage AC 100 - 240 V; 50/60 Hz Power max. 250 VA Operating Temperature 0 °C up to 40 °C / 32 °F up to 104 °F Dimensions 661 x 429 x 160 mm / 26 x 17 x 7 in" (width x depth x height, folded)" " 661 x 563 x 325 (max. 410) mm / 26 x 23 x 13 (max. 17) in" (width x depth x height, unfolded) Net weight 16 kg / 36 lbs Connectors 1 x powerCON TRUE1" 3 x etherCON/RJ45" 6 x DMX512-A Out (5pin XLR female)" 1 x DMX512-A In (5pin XLR male)" 1 x MIDI In (5pin DIN female)" 1 x MIDI Out (5pin DIN female)" 1 x Linear Timecode (3pin XLR female)" 1 x Audio In (3pin XLR female)" 1 x GPI General Purpose Interface (D-SUB DE9 female) for remote control" 1 x DisplayPort 1.2 for external screens" 2 x S/PDIF In and Out" 3 x USB 2.0 (type A)" 2 x USB 3.0 (type A)" 1 x LED desk light (4pin XLR female)	MA Lighting/ Avolights/ Strand

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - LMS/DMX Approved Make List
Rev: 0
Status: Tender

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	
8	Switch should be 1U and rack mountable in standard 19" rack. Switch should support internal field replaceable unit redundant power supply from day 1 along with redundant fans Switch should have minimum 2 GB RAM and 2 GB Flash. Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 48 Gbps of stacking thoughput with 8 switch in single stack. Switch shall have minimum 128 Gbps of switching fabric and 90 Mpps of forwarding rate Switch shall have minimum 16K MAC Addresses and 250 active VLAN. Should support minimum 11K IPv4 routes or more Switch shall have 1K or more multicast routes. Network Switch Switch should support atleast 16K flow entries Switch should support 128 or more STP Instances. Switch should have 6MB or more packet buffer. Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z. Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1 Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs. Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues. Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ . Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard. Swicth should also be IPv6 LOGO ready certified from Day 1 Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports from Day 1 Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type. During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic. Switch shall have 24 nos. 10/100/1000 Base-T ports and additional l 4 nos. of 10G SFP+ uplinks ports. Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment. Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements. Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification. All the routers, switch, access-points and NAC should be from the same OEM for seamless integration	Netgear/ Cisco/ Jupiter
9	2 Port Mode 2k PoE - Parameters 4/096 (HTP/LTP) Parameters Mode2 1/024 (HTP/LTP) Operating voltage/ Supply voltage AC 100 - 240 V; 50/60 Hz/ PoE (IEEE 802.3af; 48 V DC/max. 12 W)/ Power max. 15 VA Operating Temperature 0 °C up to 40 °C / 32 °F up to 104 °F Dimensions 207 x 184 x 43 mm / 9 x 8 x 2 in/ (width x depth x height) Net weight 2 kg / 5 lbs Connectors 1 x powerCON TRUE1/ 1 x etherCON/RJ45/ 2 x DMX512-A Out (5pin XLR female)/ 1 x USB 2.0 (type A)	MA Lighting/ Avolights/ Strand

Project Name:	**ASI, Lothal**
Client:	**Architect Hafeez Contractor**
Project Number:	**CC - 2025 - PR 084**
Venue:	**Lothal, Gujarat**
Date:	**30.12.2025**
Schedule:	**ASI Lothal - LMS/DMX Approved Make List**
Rev:	**0**
Status:	**Tender**

Sl.No	Description	Approved Make
	LMS & DMX for Tensile Structure Only	

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Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
Interior Light Fixtures (Washroom)				
1	CL-01	**Supply and installation of 10W/m LED surface mounted strip light with aluminium profile, mounting clips & accessories.** • System Wattage - **10W/m** • Delivered Lumen Output - **1000Lm/m** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **4000K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **Diffused** • Diffuser/Reflector - **Diffused** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Aluminium profile** • Fixture Finish - **To be confirmed** • Mounting Type - **Surface** • Size - **W-19.5mm to 25mm, H-21.9mm-25w mm, L-As per drawing**		COEMAR LIGHT,LED LINER,REGENT,ENDO, DELTA,LED FLEX,PHOS,Forma light ,ALW
1.1		**Driver for the above**		
2	RD-03	**Supply and installation of 10W LED recessed downlight.** • System Wattage - **10W** • Delivered Lumen Output - **1000Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **4000K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **60Deg** • Diffuser/Reflector - **To be confirmed** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • UGR **<19** • Housing Material - **Die-Cast Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Recessed** • Size - **Dia: 70-100mm, H: 80-120mm**		COEMAR LIGHT,LED LINER,REGENT,ENDO, DELTA,LED FLEX,PHOS,Forma light ,ALW

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
3	RD-05	**Supply and installation of 6W LED recessed adjustable downlight.** • System Wattage - **6W** • Delivered Lumen Output - **600Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **4000K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **23Deg** • Diffuser/Reflector - **To be confirmed** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • UGR **<19** • Housing Material - **Die-Cast Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Recessed** • Size - **Dia: 70-100mm,**		COEMAR LIGHT,LED LINER,REGENT,ENDO, DELTA,LED FLEX,PHOS,Forma light ,ALW
4	RD-06	**Supply and installation of 6W LED recessed downlight.** • System Wattage - **6W** • Delivered Lumen Output - **600Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **4000K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **23Deg** • Diffuser/Reflector - **To be confirmed** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **Die-Cast Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Recessed** • Size - **Dia: 70-100mm,**		COEMAR LIGHT,LED LINER,REGENT,ENDO, DELTA,LED FLEX,PHOS,Forma light ,ALW
Orientation Centre Interior Light Fixtures				

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
		Light Fixtures		
5	X-CL1	**Supply and installation of 15W/m LED surface mounted strip light with aluminium profile, mounting clips & accessories.** • System Wattage - **15W/m** • Delivered Lumen Output - **1500Lm/m** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **4000K** • Ingress Protection(IP) - **IP44** • Distribution/Beam Angle - **Diffused** • Diffuser/Reflector - **Diffused** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **Aluminium profile** • Fixture Finish - **To be confirmed** • Mounting Type - **Surface** • Size - W-19.5mm to 25mm, H-21.9mm-25w mm		COEMAR LIGHT,LED LINER,REGENT,ENDO, DELTA,LED FLEX,PHOS,Forma light ,ALW
5.1		**Driver for the above**		
		Orientation Centre and Exhibition/Work Area Exterior Light Fixtures		
6	X-FL3	**Supply and installation of 40W LED adjustable flood light.** • System Wattage - **40W** • Delivered Lumen Output - **4000Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetric oval Distribution** • Diffuser/Reflector - **High-efficiency polycarbonate lens, Clear toughened glass** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **To be confirmed** • Size - **LxWxH: To be confirmed**		**Unilamp,Regent, schreder,Ligman**

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
7	X-PL4	**Supply and installation of 54W LED 4mtr height round pole light.** • System Wattage - **54W** • Delivered Lumen Output - **7246Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Symmetrical Distribution (360Deg)** • Diffuser/Reflector/Lens - **Opal UV-stabilised polycarbonate diffuser** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Marine grade die-cast aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Floor** • Size - **Dia-160mm, Overall Height - 4000mm (Diffuser Height -1200mm, Pole Height - 2800mm)**		**Unilamp,Regent, schreder,Ligman**
8	X-GR1	**Supply and installation of 12W/m LED surface mounted adjustable linear wall grazer light with mounting clip and accessories.** • System Wattage - **12W/m** • Delivered Lumen Output - **1488Lm/m** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2400K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **20Degx45Deg** • Diffuser/Reflector - **Clear toughened glass, Highefficiency PMMA lens** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **To be confirmed** • Fixture Finish - **Aluminium Extrusion** • Mounting Type - **Surface mounted(Floor)** • Size -1000mm		**Unilamp,Regent, schreder,Ligman**
8.1		**Driver for the above**		

Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
9	X-CL2	**Supply and installation of 10W/m LED dot free flexible encapsulated strip light in extrusion with mounting clip and accessories.** • System Wattage - **10W/m** • Delivered Lumen Output - **1000Lm/m** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Diffused (120Deg)** • Diffuser/Reflector - **Diffused** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Opal silicone encapsulation** • Fixture Finish - **To be confirmed** • Mounting Type - **Wall mounted** • Size - • Bending Option - **Side Bend**		**Unilamp,Regent, schreder,Ligman**
9.1		**Driver for the above**		
Landscape Light Fixtures				
10	X-PL1	**Supply and installation of 45W LED 4.5mtr height single headed pole light.** • System Wattage - **45W** • Delivered Lumen Output - **4500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetric Distribution** • Diffuser/Reflector/Lens - **Clear toughened glass, High efficiency PMMA lens** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • Housing Material - **Marine grade die-cast aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Floor** • Size - **L-200mm, W-110mm, H-4500mm, Arm length-1000mm**		**Unilamp,Regent, schreder,Ligman,Keselec**

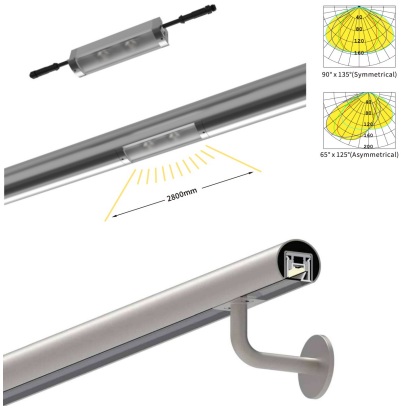
Project Name: ASI, Lothal
Client: Architect Hafeez Contractor
Project Number: CC - 2025 - PR 084
Venue: Lothal, Gujarat
Date: 30.12.2025
Schedule: ASI Lothal - Light Fixtures Approved Make List
Rev: 0
Status: Tender

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
11	X-PL2	**Supply and installation of 2x45W LED 4.5mtr height dual headed pole light.** • System Wattage - **2x45W** • Delivered Lumen Output - **2x4500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetric Distribution** • Optic - **T4 (Forward Throw)** • Diffuser/Reflector/Lens - **Clear toughened glass, High efficiency PMMA lens** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Marine grade die-cast aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Floor** • Size - **L: 200mm, W-110mm, H-4500mm, Arm length-2x1000mm**		**Unilamp,Regent, schreder,keselec,Ligman**
12	X-BL1	**Supply and installation of 20W LED single headed bollard Side Throw light distribution giving a spacing of approx 15 mtr rectangular Throw and 2 mtr Forward coverage.** • System Wattage - **20W** • Delivered Lumen Output - **1500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetric Distribution** • Optic - **T2 (Side Throw)** • Diffuser/Reflector/Lens - **Clear toughened glass, Highefficiency PMMA lens** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Marine grade die-cast aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Floor** • Size - **L, W- To be confirmed, H-1000mm**		**Unilamp,Regent, schreder,Ligman**

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Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
13	X-BL2	**Supply and installation of 20W LED half round shaped single headed wall mounted bollard.** • System Wattage - **20W** • Delivered Lumen Output - **1496Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetric Distribution** • Optic - **To be confirmed** • Diffuser/Reflector/Lens - **Clear toughened glass, Highefficiency PMMA lens** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **Marine grade die-cast aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Wall mounted** • Size - **L-295mm, W-152mm, H-63mm**		**Unilamp,Regent, schreder,Ligman**
14	X-RS1	**Supply and installation of 4W LED wall recessed step light.** • System Wattage - **4W** • Delivered Lumen Output - **400Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **Asymmetrical** • Diffuser/Reflector/Lens - **Clear Transparent Glass, Louvre** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • UGR **<19** • Housing Material - **Stainless Steel** • Fixture Finish - **To be confirmed** • Mounting Type - **Wall Recessed** • Size - **To be confirmed**		**Unilamp,Regent, schreder,Ligman**
Tensile Structure Light Fixtures				

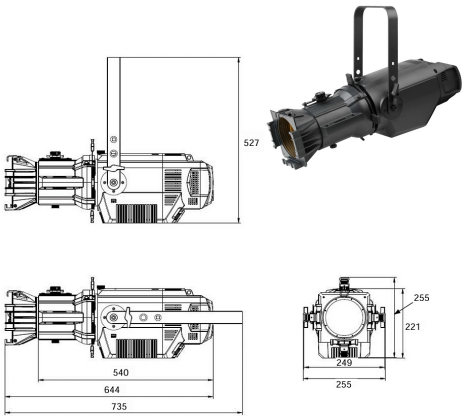
Project Name:	**ASI, Lothal**
Client:	**Architect Hafeez Contractor**
Project Number:	**CC - 2025 - PR 084**
Venue:	**Lothal, Gujarat**
Date:	**30.12.2025**
Schedule:	**ASI Lothal - Light Fixtures Approved Make List**
Rev:	**0**
Status:	**Tender**

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
15	**X-HL1**	**Supply and installation of 5W LED recessed mounted handrail light (To be fit into the handrail).** • System Wattage - **5W** • Delivered Lumen Output - **500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **Asymmetric Distribution** • Diffuser/Reflector - **65Degx125Deg** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • Housing Material - **High Grade SS material and High Precision Reflector** • Fixture Finish - **To be confirmed** • Mounting Type - **Recessed in the handrail** • Size - **L-118mmxW-30mmxH-28mm**		**Unilamp,Regent, schreder,Ligman**
16	**X-SD1**	**Supply and installation of 25W LED surface mounted cylinder downlight.** • System Wattage - **25W** • Delivered Lumen Output - **2500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **2700K** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **60Deg** • Diffuser/Reflector - **Silver Reflector** • Control Equipment - **Non Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **Die-Cast Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Surface mounted** • Size - **Dia: 135MM TO 160MM DIA, H: 180mm TO 220MM**		**Unilamp,Regent, schreder,Ligman**

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Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
17	X-FL1	**Supply and installation of 250W to 280W LED adjustable knuckle/Yoke truss mounted ANTI-GLARE flood light.** • System Wattage - **280W** • Delivered Lumen Output - **18000Lm to 20000 Lm** • Color Rendering Index(CRI) **>85+** • Corelated Color Temperature(CCT) - **3000K/4000K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **20X40 / 30X50 / 20X60** • Diffuser/Reflector - **High-efficiency polycarbonate lens, INTEGRATED ANTIGLARE LOUVRE & INTEGRATED ELLIPTICAL LENS - All behind the final external Glass Shield of Clear toughened glass** • Control Equipment - **DMX/DALI2 Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **6061 machined cnc Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Bracket truss mounted** • Size - **360mm dia to max 420mm dia**		**Unilamp,Regent, schreder,Ligman ,Qlite**
18	X-FL2	**Supply and installation of 250W to 280W LED adjustable knuckle/Yoke truss mounted ANTI-GLARE flood light.** • System Wattage - **280W** • Delivered Lumen Output - **18000Lm to 20000 Lm** • Color Rendering Index(CRI) **>85+** • Corelated Color Temperature(CCT) - **3000K/4000K** • Ingress Protection(IP) - **IP65** • Distribution/Beam Angle - **10/30/40/60 degree beams** • Diffuser/Reflector - **High-efficiency polycarbonate lens, INTEGRATED ANTIGLARE LOUVRE & INTEGRATED ELLIPTICAL LENS - All behind the final external Glass Shield of Clear toughened glass** • Control Equipment - **DMX/DALI2 Dimmable** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **6061 machined cnc Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Bracket truss mounted** • Size - **360mm dia to max 420mm dia**		**Unilamp,Regent, schreder,Ligman ,Qlite**

Project Name:	**ASI, Lothal**
Client:	**Architect Hafeez Contractor**
Project Number:	**CC - 2025 - PR 084**
Venue:	**Lothal, Gujarat**
Date:	**30.12.2025**
Schedule:	**ASI Lothal - Light Fixtures Approved Make List**
Rev:	**0**
Status:	**Tender**

Sl.No	Fixture Reference No.	Description	Reference Image	
Light Fixtures				
19	**Moving Head**	**Supply of 260W CMY LED moving head profile fixture with zoom optics.** • System Wattage - **260W** • Delivered Lumen Output - **9500Lm** • Color Rendering Index(CRI) **>80** • Corelated Color Temperature(CCT) - **CMY** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **Zoom optics (13Deg to 28Deg)** • Diffuser/Reflector - **Crisp optics with flat field** • Control Equipment - **DALI/DMX Control (21 Channels)** • Color Mixing: **CMY, independently variable 0-100%** • Dynamic Effects: **Strobe effect, pulse effects, instant open and blackout** • Lamp Type - **LED** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **High-impact flame-retardant thermoplastic** • Fixture Finish - **To be confirmed** • Mounting Type - **Bracket mounted** • Size - **LxWxH: 375mmx217mmx564mm**		**Martin/ Coemar/ Robert Juliard/Q lite**
20	**Ellipsoidal Light Fixture**	**Supply of 259W RGBLA LED adjustable bracket truss mounted spot light with zoom optics.** • System Wattage - **259W** • Delivered Lumen Output - **6900Lm** • Color Rendering Index(CRI) **>90** • Corelated Color Temperature(CCT) - **RGBLA (2000–10000K)** • Ingress Protection(IP) - **IP54** • Distribution/Beam Angle - **Zoom optics (15Deg to 30Deg)** • Diffuser/Reflector - **Ellipsoids feature optic** • Control Equipment - **DALI/DMX Control (17 Channel)** • Color Mixing: **RGBLA** • Dynamic Effects: **Variable speed and action, random strobe, instant open and blackout** • Lamp Type - **RGBAL Luxeon Rebel LEDs** • Life span of Luminaire - **L80>50000Hrs** • MacAdam / Standard Deviation of Color **≤ 3 SDCM** • R9 Value **>50** • UGR **<19** • Housing Material - **Die-Cast Aluminium** • Fixture Finish - **To be confirmed** • Mounting Type - **Bracket truss mounted** • Size - **LxWxH: 644mmx255mmx255mm (H: 527mm with bracket)**		**Martin/Q lite Coemar/ Robert Juliard**

IMPORTANT NOTE FOR ALL EPC CONTRACTORS/BIDDERS:
The Approved List of Items & Makes provided herein is strictly Line-Item Specific. The presence of an approved brand in one line item does not imply automatic approval for other line items where it is not explicitly mentioned; any migration of brands requires prior specific written approval from the ARCHITECT with appropriate justification. Furthermore, all quantities indicated are merely indicative for tendering purposes and are subject to variation (up or down) based on the detailed design developed and final As-Built quantities. No new items may be added to this BOQ.

Signature Not Verified
Digitally signed by PRAVIN KUMAR TRIPATHI
Date: 2026.03.11 15:57:42 IST
Location: eProcure-EPROC