



NEW DELHI MUNICIPAL COUNCIL

REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI

(BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001)
(DOMESTIC COMPETITIVE BIDDING)

BIDDING DOCUMENT FOR

PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE

VOLUME I OF II (COMMERCIAL)

Prepared & Issued by:



Cost of Bidding document Rs. 5,000/- (Non-refundable)

Sl. No.....

MASTER INDEX

NAME OF WORK : PAINTING WORKS FOR FACADE OF INNER & OUTER
CIRCLE BLOCKS OF CONNAUGHT PLACE

NAME OF PROJECT : REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI

BIDDING DOCUMENT NO. : KNM/1038-000-CQ-TN-7033/1001

(COMMERCIAL SECTION)

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ISSUE LETTER OF BIDDING DOCUMENT

**NAME OF WORK : PAINTING WORKS FOR FACADE OF INNER & OUTER
CIRCLE BLOCKS OF CONNAUGHT PLACE FOR
REDEVELOPMENT OF CONNAUGHT PLACE, NEW
DELHI**

BIDDING DOCUMENT NO. : KNM/1038-000-CQ-TN-7033/1001

1.0 One set of Bidding Document comprising of following PARTS in the form of Compact Disc (CD) is issued to the Bidder mentioned at Sl. No. 2.0 below:

PART- I : **COMMERCIAL SECTION & SCHEDULE OF
RATES**

PART- II : **TECHNICAL SECTION**

2.0 Name of Bidder :

Address of Bidder :
.....
.....

3.0 The fee for this set of Bidding Document (non-refundable) is Rs. 5,000/- (Rupees Five Thousand Only) in the form of Crossed Demand Draft / Pay order in favour of "Engineers India Limited" payable at New Delhi. The fee for Bidding Document is received in form of Demand Draft / Pay order vide DD / Pay order No. _____ Dated _____ issued by _____ (Name of Bank).

4.0 The Bidding Document is not transferable in any other name.

ASST.GENERAL MANAGER (C & P)
ENGINEERS INDIA LTD., NEW DELHI



**DOMESTIC NOTICE FOR INVITATION FOR BIDS (IFB) FOR
REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI**

(BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001)

Engineers India Limited on behalf of New Delhi Municipal Council (NDMC) invites sealed bids from eligible bidders for following work:

Name of Work	Sale Period of Bidding Document	Bid Due Date / Time
Painting Works for Facade of Inner & Outer Circle Blocks of Connaught Place	05.09.2013 to 12.09.2013 [1400 Hrs. (IST) to 1600 Hrs. (IST)]	13.09.2013 Upto 1200 Hrs. (IST)

Contact Person: AGM (C & P), Engineers India Limited, El Annexe, 4th Floor, 2-B, Bhikaiji Cama Place, R.K. Puram, New Delhi-110066, Fax: 011-26191714 / 26167664, Tel: 011-26763718 / 26762110, Email : kn.mahapatra@eil.co.in / lalit.sharma@eil.co.in.

For Detailed IFB and Bidding Document, visit EIL's website: <http://tenders.eil.co.in> or Govt. website: <http://eprocure.gov.in/cppp> or NDMC's website: www.ndmc.gov.in

AGM(C&P), EIL, NEW DELHI



**DOMESTIC NOTICE FOR INVITATION FOR BIDS (IFB) FOR
PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT
PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI
(BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001)**

(DOMESTIC COMPETITIVE BIDDING)

1.0 INTRODUCTION

- 1.1 New Delhi Municipal Council (NDMC) has taken up the works of Redevelopment of Connaught Place (CP), New Delhi which includes restoration of Architectural / Heritage character of CP, construction of Parking, Walkways, Street Scaping and providing other modern amenities for public convenience and has appointed Engineers India Limited (EIL) to provide consultancy service for the implementation of this work.
- 1.2 EIL on behalf of NDMC invites sealed bids for Painting Works for Facade of Inner & Outer Circle Blocks of Connaught Place under single stage two part system (Part-I: Techno-commercial Part & Part-II: Price Part) from competent agencies with sound technical and financial capabilities and meeting the Bidder's Qualification Criteria as stated under para 4.0 below.

2.0 BRIEF SCOPE OF WORK AND TIME SCHEDULE

- 2.1 Brief scope of work includes painting works of plastered surface, ceiling, windows etc. of Inner & Outer Circle Blocks of Connaught Place, New Delhi as detailed in various sections of the Bidding Document. The scope of work has been divided into Section-A and Section-B.

Section-A: Painting work for facade of A, B, C Inner Circle blocks & G, H, K Outer Circle blocks of Connaught Place

Section-B: Painting work for facade of D, E, F Inner Circle blocks & L, M, N block outer circle blocks of Connaught Place

2.2 TIME SCHEDULE

Time schedule for completion of works for either Section or for both the Sections together shall be 45 (Forty Five) days from the date of issue of Letter of Acceptance.

3.0 SALIENT FEATURES OF BIDDING DOCUMENT

S. No.	Salient Feature		Details
a)	Bidding Document No.	:	KNM/1038-000-CQ-TN-7033/1001
b)	Bidding Document on Sale	:	From 05.09.2013 to 12.09.2013

S. No.	Salient Feature		Details
c)	Cost of Bidding Document (Non-refundable)	:	Rs. 5,000/- (Rupees Five Thousand only) in the form of Crossed Demand Draft/Pay Order in favour of "Engineers India Limited" payable at New Delhi. Bidders submitting their bid on the basis of downloaded document need not to pay cost of Bidding Document.
d)	Earnest Money Deposit (EMD)	:	For Section-A: Rs. 1,83,110.00 (Rupees One Lakh Eighty Three Thousand One Hundred Ten Only). For Section-B: Rs. 1,83,110.00 (Rupees One Lakh Eighty Three Thousand One Hundred Ten Only). For Section A+B: Rs. 3,66,220.00 (Rupees Three Lakh Sixty Six Thousand Two Hundred Twenty Only).
e)	Last Date and time for receipt of Bids	:	1200 Hrs. (IST) on 13.09.2013
f)	Bid to be submitted at	:	Dak Receipt Section, Engineers India Limited, El-Annexe Building, 2-B, Bhikaiji Cama Place, R.K. Puram, New Delhi-110066.
g)	Opening of Techno-Commercial (Unpriced Bid)	:	1400 Hrs. (IST) on 13.09.2013 In presence of authorised representative(s) of attending Bidder(s).

If any of the days mentioned above happens to be EIL holiday, the next working day shall be implied.

4.0 **BIDDER's QUALIFICATION CRITERIA (BQC)**

Bidder shall fulfil the following qualification criteria:

4.1 **Experience Criteria**

- 4.1.1 For Section A / Section B: Bidder should have successfully completed following contract(s) of Civil and/or Structural work, including painting works (interior/exterior) during the last seven years ending on the last date of submission of bid. The value of painting work in any one of these contracts should be Rs. 5 Lakh (Rupees Five Lakh Only).

Three contracts each of value not less than Rs. 27.50 Lakh (Rupees Twenty Seven Lakh Fifty Thousand Only) or two contracts each of value not less than Rs. 36.60 Lakh (Rupees Thirty Six Lakh Sixty Thousand Only) or one contract of value not less than Rs.68.70 Lakh (Rupees Sixty Eight Lakh Seventy Thousand Only)

- 4.1.2 For Section A + Section B: Bidder should have successfully completed following contract(s) of Civil and/or Structural work, including painting works (interior/exterior) during the last seven years ending on the last date of submission of bid. The value of

painting work in any one of these contracts should be Rs. 10 Lakh (Rupees Ten Lakh Only).

Three contracts each of value not less than Rs. 54.90 Lakh (Rupees Fifty Four Lakh Ninety Thousand Only) or two contracts each of value not less than Rs. 73.20 Lakh (Rupees Seventy Three Lakh Twenty Thousand Only) or one contract of value not less than Rs. 137.30 Lakh (Rupees One Hundred Thirty Seven Lakh and Thirty Thousand Only).

4.2 Financial Criteria

4.2.1 Annual Turnover

The minimum Annual Turnover of the Bidder as per the audited annual financial results shall be as given below:

Section-A: Rs. 91.60 Lakh (Rupees Ninety One Lakh Sixty Thousand only) in at least one of the immediate preceding three financial years as on due date of submission of bid.

Section-B: Rs. 91.60 Lakh (Rupees Ninety One Lakh Sixty Thousand only) in at least one of the immediate preceding three financial years as on due date of submission of bid.

Section-A+Section-B: Rs. 183.20 Lakh (Rupees One Hundred Eighty Three Lakh Twenty Thousand Only) in at least one of the immediate preceding three financial years as on due date of submission of bid.

4.2.2 Net Worth

Net worth of the Bidder as per the immediate preceding audited annual financial results should be positive. However, this criterion shall not be applicable for Indian Central Public Sector Undertakings / Enterprises.

5.0 General

5.1 Bidder should not be in the holiday / negative list of EIL / NDMC.

5.2 Bidder should not be under liquidation, court receivership or similar proceedings.

5.3 Joint Venture (JV) / Consortium Bids shall not be accepted.

5.4 The total scope of work covered under this Bidding document has been divided into two Sections i.e. Section-A & Section-B. Bidder may quote for one Section or for both the Sections. However, EIL reserves the right to award different sections to different Bidders or both the Sections to one Bidder based on qualification criteria and overall minimum cost to Owner in line with evaluation criteria mentioned in the Bidding Document.

5.5 Experience of only the bidding entity shall be considered except as specified in the Notice for Invitation for Bids. A job executed by a Bidder for its own plant/projects shall not be considered as experience for the purpose of meeting requirement of experience criteria of the tender. However, jobs executed for Subsidiary / Fellow Subsidiary / Holding company will be considered as experience for the purpose of meeting experience criteria subject to submission of tax paid invoice(s) duly certified by Statutory Auditor of the Bidder towards payments of statutory tax in support of the job executed for Subsidiary / Fellow Subsidiary / Holding company. Such Bidders shall submit these documents in addition to the documents specified in the Bidding Documents to meet 'Experience Criteria'.

5.6 In case of composite works (i.e. works comprising of more than one discipline) which included the qualifying work stated above, then the value of such qualifying work out of

total value of completed composite work, shall be considered for the purpose of evaluation.

- 5.7 If work order/ completion certificate does not indicate all activities as defined under clause 4.1 above i.e. experience criteria then Bidder should either submit a certificate to this effect from the Client correlating the work order/ completion certificate number or furnish the detailed Schedule of Rates (SOR) pertaining to the work order/AFC drawings approved by Client to verify that all the salient works had been undertaken while executing the contract.
- 5.8 Bidder shall furnish documentary evidence i.e. copies of work orders including Schedule of Rates (SOR), completion certificate, complete annual audited financial year statements including balance sheets, profit & loss accounts statement and all other schedules, self certification of being not under liquidation, court receivership or similar proceedings, in the first instance itself, in support of their fulfilling the Bidder's Qualification Criteria. EIL reserve the right to complete the evaluation based on the details furnished without seeking any additional information.
- 5.9 All documents furnished by the Bidder in support of meeting the BQC including the valid Certificate for registration as MSE, if any, shall be signed and stamped by the bid signatory and shall be :
- either
duly certified by the Statutory Auditor of the Bidder or a practicing Chartered Accountant (not being an employee or a Director or not having any interest in the Bidder's company/ firm) where audited accounts are not mandatory as per law.
 - or
duly notarized by any Notary Public in the Bidder's country. In case of notarization, Bidder shall also submit an Affidavit in the enclosed format signed by the authorized signatory of the Bidder.

Bidders submitting documentation against Bidder's Qualification Criteria are required to submit the same in a separate booklet along with their offer. This booklet shall be titled as "Documentation against Bidder's Qualification Criteria" with proper index.

- 5.10 Submission of authentic documents is the prime responsibility of the Bidder. Wherever EIL / NDMC has concern or apprehension regarding the authenticity/ correctness of any document, EIL / NDMC reserves a right of getting the document cross verified from the document issuing authority.
- 5.11 In case, audited balance sheets and profit and loss account of immediate preceding financial year is not available for bid closing date upto 30th September, the Bidder has an option to submit the audited balance sheets and profit & loss account of the three previous years immediately prior to the last financial year. However, for bid closing date after 30th September, Bidder has to compulsorily submit the audited balance sheets and profit & loss account for the immediate three preceding financial years, for evaluation and his qualification with respect to financial criteria.
- 5.12 EIL/NDMC reserve the right to assess Bidder's capability and capacity to execute the work using in-house information by taking into account other aspects such as concurrent commitments and past performance.
- 5.13 Bids must be accompanied with the Bid Security / Earnest Money Deposit (EMD) as mentioned above. EMD shall be submitted in the form of crossed Demand Draft/Pay Order in favour of "EIL-CP Project", payable at New Delhi or in the form of Bank Guarantee (BG) in the name of "Engineers India Limited". BG shall be valid for a period of

5 (Five) months from the due date of opening of Techno-commercial Bids and shall be submitted from any Indian Scheduled bank or from any Indian Branch of an International bank in the format included in Bidding Document. Bid without the requisite EMD as mentioned above shall be rejected. Any interest on EMD shall not be paid.

- 5.14 Bidding Document (non-transferable) is available on sale in the form of CDs and may be purchased on any working day (Monday to Friday) between 1400 Hrs. (IST) and 1600 Hrs. (IST) during the sale period, from the Sale Counter, Engineers India Limited, E1 Annexe Building, 2B, Bhikaiji Cama Place, R.K. Puram, New Delhi-110066, on written request and upon payment of requisite Cost of Bidding Document (non refundable) as indicated above. Request for sending Bidding Document by post, courier or any other mode shall not be entertained.
- 5.15 The complete Bidding Document is also available on the website of EIL <http://tenders.eil.co.in>, on Govt. website: <http://eprocure.gov.in/cppp> and on NDMC's website: www.ndmc.gov.in Bidders submitting their bid on the basis of downloaded document need not to pay cost of Bidding Document.
- 5.16 Micro or Small Enterprise registered with District Industries Centers or Khadi and Village industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicraft and Handloom or any other body specified by Ministry of Micro, Small and Medium Enterprises are exempted from submitting EMD and paying cost of Bidding Document subject to submission of valid certificate of MSE.
- 5.17 Indian Central Public Sector Undertakings / Enterprises shall also be exempted from submitting EMD and paying cost of Bidding Document subject to submission of required declaration in this regard.
- 5.18 Corrigenda/Addenda, if any, shall also be available on the above mentioned web sites. No extension in the bid due date / time shall be considered on account of delay in receipt of any document by mail.
- 5.19 Bidder shall purchase or download the Bidding Document in his own name and submit the bid directly. The Bidding Document is non-transferable. Bids submitted by Bidder who have not purchased the Bidding Document either directly or through their authorized agent or have not downloaded the Bidding Document shall not be considered.
- 5.20 Bidder may note that Bid shall be submitted on the basis of "ZERO DEVIATION" and shall be in full compliance to the requirements of Bidding Document, failing which bid shall be considered as non-responsive and shall be liable for rejection.
- 5.21 Bids not received by the due date and time shall be rejected and representative(s) of such Bidder(s) shall not be allowed to attend the bid opening.
- 5.22 Techno-commercial part of the Bids shall be opened at 1400 Hrs. (IST) on the due date for submission of bids, in the presence of authorized representatives of Bidders. Time and date of opening of Price Bids shall be notified to the qualified and acceptable Bidders at a later date.
- 5.23 EIL/NDMC shall not be responsible for any expense incurred by Bidders in connection with the preparation and delivery of their bids, site visit, participating in the discussion and other expenses incurred during bidding process.
- 5.24 Bids sent through Telex/ Telegraphic/ Fax/ E-mail/Computer floppy/CD/DVD/Pen Drive shall not be accepted. EIL/ NDMC takes no responsibility for delay, loss or non- receipt of bid sent by Post/Courier.

- 5.25 Purchase Preference to Central Public Sector Undertakings shall be allowed as per existing Government Policy.
- 5.26 EIL / NDMC reserve the right to reject any or all bids received at its discretion and to annul the bidding process at any time without assigning any reason whatsoever.
- 5.27 Canvassing in any form by the Bidder or by any other agency on their behalf may lead to disqualification of their bid.
- 5.28 In case any Bidder is found to be involved in cartel formation, his bid will not be considered for evaluation / placement of order. Such Bidder will also be debarred from bidding in future.
- 5.29 For detailed specifications, terms and conditions and other details, refer Bidding Document.
- 5.30 Clarification, if any, can be obtained from AGM (C&P) through Ph. 011-26763718 / 2110
Telefax: 011-26191714 / 26167664; Email: kn.mahapatra@eil.co.in/
lalit.sharma@eil.co.in.

ASSISTANT GENERAL MANAGER (C&P)
ENGINEERS INDIA LIMITED, NEW DELHI

(To be typed on Bidder's Letter Head)

ACKNOWLEDGEMENT CUM CONSENT LETTER

To

ENGINEERS INDIA LIMITED
EI-ANNEXE, 4TH FLOOR,
2B, BHIKAJI CAMA PLACE,
R.K. PURAM, NEW DELHI - 110 066

FAX: 011- 26191714/26167664

ATTN : Mr. K.N. MAHAPATRA, AGM (C&P)

**SUBJECT: PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF
CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW
DELHI**

(BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001)

Dear Sir,

We hereby acknowledge receipt of a complete set of Bidding Document along with enclosures for subject works as per the Master Index for our use in preparing the Bid.

We undertake that the contents of the above Bidding Document shall be kept confidential and further that the drawings, specifications and documents shall not be transferred and that the said documents are to be used only for the purpose for which they are intended.

A) We intend to bid as requested for the subject works and furnish following details with respect to our quoting office:

(i)	POSTAL ADDRESS	:	_____

(ii)	TELEPHONE NUMBER	:	_____
(iii)	TELEFAX NUMBER	:	_____
(iv)	CONTACT PERSON	:	_____
(v)	E-MAIL ADDRESS	:	_____

B) Contact person at Delhi, if any :

- (i) POSTAL ADDRESS : _____

- (ii) TELEPHONE NUMBER : _____
- (iii) TELEFAX NUMBER : _____
- (iv) CONTACT PERSON : _____
- (v) E-MAIL ADDRESS : _____

C) We are unable to bid for the reasons given below and we are returning back the entire set of Bidding Documents.

Reasons for non-submission of Bid :

AGENCY'S NAME : _____

SIGNATURE : _____

NAME : _____

DESIGNATION : _____

DATE : _____

NOTE : Bidder is requested to furnish the details mentioned at (A) and (B) or (C) immediately after receipt of Bidding Document.

(SIGNATURE OF BIDDER)

(to be typed on bidder's letter head)
COVERING LETTER FOR SUBMISSION OF OFFERS

From :

Our Ref: ----- dated -----

To
AGM (C&P)
Engineers India Ltd.
4th Floor, El Annexe Building
Bhikaiji Cama Place, R.K. Puram
New Delhi – 110066

**SUBJECT : PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI
(BIDDING DOCUMENT NO. . KNM/1038-000-CQ-TN-7033/1001)**

ATTN: MR. K.N.MAHAPATRA, AGM (C&P)

Dear Sir,

Please find herewith our offer in line with requirement of EIL Bidding Document. We confirm that :

1. We confirm that we have purchased / downloaded the Bidding Document in our own name.
2. Earnest Money Deposit is submitted in the form of BG /Demand Draft/ Pay Order as follows:

EMD Amount	No. & date	Drawn on Bank
Section-A: Rs. 1,83,110.00		
Section-B: Rs. 1,83,110.00		
Section A+B: Rs. 3,66,220.00		

3. Offer is in complete compliance with technical as well as commercial requirements of bidding document and there is no technical or commercial deviation in the offer.
4. We understand that any technical or commercial deviation in the offer shall render our offer liable for rejection.
5. Our offer shall remain valid for a period of 3 **Months** from the date of opening of tender and EMD shall be valid for 2 **months beyond the validity period.**

We declare that the statement made and the information provided in our offer is true and correct in all respect. In case, it is found that the information/ documents provided by us are incorrect/ false, our application shall be rejected by EIL without any reference to us.

Thanking you,

Very Truly Yours,

(Signature of Authorised person)
Full Name :
Designation:
Company Seal :

**PROFORMA FOR LETTER OF AUTHORITY FOR ATTENDING UNPRICED / PRICED BID
OPENING**

(TO BE SUBMITTED IN BIDDER'S OWN LETTER HEAD)

To
ASST. GENERALMANAGER (C & P),
ENGINEERS INDIA LIMITED,
EI-ANNEXE, 4th FLOOR,
2-B, BHIKAIJI CAMA PLACE,
R.K. PURAM, NEW DELHI - 110066

Date :

ATTN : K.N.MAHAPATRA , AGM (C & P)

Bidding Document No.: **KNM/1038-000-CQ-TN-7033/1001**

Subject : **PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT
PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI**

Dear Sir,

We _____ hereby authorize following representative(s) to
attend Un-priced / Price bid opening against your Bidding Document No.....

1. Name & Designation _____ Signature _____

We confirm that we shall be bound by all commitments made by aforementioned authorised
representatives.

Yours faithfully,

Signature

Name & Designation

For and on behalf of

NOTES:

- A. This letter of authority should be on the letterhead of the bidder and should be signed by a person competent and having the power of attorney to bind the bidder.
- B. Not more than one person is permitted to attend techno –commercial un-priced and price bid opening.
- C. Bidder's authorized executive is required to carry a copy of this authority letter while attending the un-priced bid opening and price bid opening and submit the same to EIL.

INSTRUCTIONS TO BIDDER

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A GENERAL

1.0 Introduction

- 1.1 New Delhi Municipal Council (NDMC) herein after referred to as “Owner” have entrusted Engineers India Limited (EIL) the job of Redevelopment of Connaught Place, New Delhi (herein after referred to as PROJECT) and will act as Project Manager and Engineer-in-charge on behalf of the Owner.

2.0 Definitions

- 2.1 With respect to this document, the following definitions shall apply:
- i) “Instructions to Bidders” shall mean the documents describing the manner in which Bidder shall prepare and submit his bid.
 - ii) “Notice Inviting Bid” (NIB) shall mean EIL’s request to Bidder for a Bid/ Tender together with the Bidding Document.
 - iii) “Tender” or “Bid” shall mean Bidder’s offer to perform the Work, in accordance with Bidding Document.
 - iv) “Tender Document” or “Bidding Document” shall mean the documents issued to the bidder including any subsequent addenda to enable bidder submit his Bid.
 - v) “Bidder” or “Tenderer” shall mean the person or company who receives the Tender Document or Bidding Document and submits Tender or Bid to EIL.
- 2.2 It shall be bidder's responsibility to have thorough understanding of the reference documents, site conditions and specifications included in the Bidding Document.

3.0 BRIEF SCOPE OF WORK

The scope of work is given in Technical Part of Bidding Document

4.0 ELIGIBLE BIDDERS:

- 4.1 Bidder shall, as part of their bid, submit a written Power of Attorney authorizing the signatory of the Bid to commit the bidder.
- 4.2 The invitation of bid is open to any bidder meeting the BQC.
- 4.3 Bidder should not be under liquidation, court receivership or similar proceedings.
- 4.4 The bidder shall not be on Holiday / negative list of EIL/NDMC as on the due date of submission of bid. If the documents were issued inadvertently / downloaded from website, offers submitted by such bidders shall not be considered for opening / evaluation / award.
- 4.5 If the bidder is placed on holiday / negative list of EIL/NDMC after opening of unpriced bids but before opening of price bids, further evaluation shall be stopped and the corresponding price bid will not be opened.

5.0 COST OF BIDDING

- 5.1 The Bidder shall bear all costs associated with the preparation and delivery of its bid, including costs and expenses related to visits to the site and the Owner will in

no case be responsible or liable for these costs regardless of the outcome of the bidding process.

6.0 ACKNOWLEDGEMENT & CONFIRMATION

- 6.1 Within 4 (Four) days of receipt of Bidding Document, Bidder shall acknowledge the receipt and confirm his intention to bid for the tendered work as per proforma "Acknowledgement-Cum-Consent Letter" enclosed in Bidding Document. Bidder also must intimate their intention of not quoting if they are not submitting Bid, within 4 days of receipt of the Bidding Document.

7.0 DELETED

8.0 SITE VISIT

- 8.1 Bidder is advised to visit and examine the site, its surroundings and familiarise himself with the existing facilities and environment, and collect all other information which he may require for preparing and submitting the bid and entering into the Contract. Claims and objections due to ignorance of existing conditions or inadequacy of information will not be considered after submission of the Bid and during implementation.
- 8.2 Any loss to the property / life of the visitor due to visitor's negligence shall be the visitor's responsibility. Visitor shall keep Owner / EIL indemnified from any legal consequences arising there from.
- 8.3 Bidder may contact the following person at site for site visit purpose :
- Sh. Parbhjeet, Sr. Engineer (Infrastructure)
EIL Site Office,
Palika Parking, Connaught Place,
New Delhi - 110001
(M) : 0995818588

B BIDDING DOCUMENT, CLARIFICATIONS AND AMENDMENT

9.0 BIDDING DOCUMENT

- 9.1 The Bidding Document can be purchased in the form of Compact Disc (CD) or downloaded from the designated website(s) of EIL.

The Bidding Document shall consist of the following and should be read in conjunction with any amendment issued subsequently:

- i) Invitation for Bids (IFB).
- ii) Instructions to Bidders and its attachments.
- iii) General Conditions of Contract (GCC).
- iv) Special Conditions of Contract (SCC) and its attachments.
- v) Schedule of Rates (SOR) / Schedule of Prices (SOP).
- vi) Technical Specifications / Standards, Drawings, if any

Bidder shall submit the Master Index of the Bidding Document duly signed and stamped in token of having received, read and complied to all parts of Bidding Document. The Bidding Document shall be read in conjunction with any Amendment.

- 9.2 The Bidder is expected to examine the Bidding Document, including all instructions, forms, terms, specifications and drawings in the Bidding Document. Failure to furnish all information required as per the Bidding Document or submission of a bid not substantially responsive to the Bidding Document in every

respect may result in the rejection of the Bid.

- 9.3 Bidding documents once issued are non-transferable in other name and shall at all times remain the exclusive property of the OWNER with a licence to the Bidder to use the Bidding Documents for the limited purpose of submitting the bid.
- 9.4 Bidder shall treat the Bidding Document and contents thereof as confidential. If at any time, during the bid preparation stage, Bidder decides to decline to Bid, all documents must be immediately returned to EIL.

10.0 CLARIFICATION OF BIDDING DOCUMENT

- 10.1 Although the details presented in this Bidding document consisting of Conditions of Contract, Scope of Work, Technical Specifications and Drawings have been compiled with all reasonable care, it is the Bidder's responsibility to ensure that the information provided is adequate and clearly understood and it includes all documents as per the Index.
- 10.2 Bidder shall examine the Bidding document thoroughly in all respect and if any conflict, discrepancy, error or omission is observed, Bidder may request information/ clarification/query of the Bidding Document in writing as per **FORM-H to ITB** by hand or through E-mail/Fax/ EIL's mailing address indicated in the Instructions to Bidder so as to reach office of EIL not later than ten days prior to opening of Techno-Commercial Bids or two days before pre-bid meeting whichever is earlier. EIL will respond in writing to any request for any information or clarification or query of the Bidding Document received up to that date. EIL's response (including an explanation of the query) will be sent in writing to all Bidders (without disclosing source of such query) who have been issued the Bidding Document.
- 10.3 Any failure by Bidder to comply with the aforesaid requirement shall not excuse the Bidder, after subsequent award of contract, from performing the work in accordance with the agreement.
- 10.4 Bidders are requested to resolve all their clarifications/queries to the Bidding Document before due date of submission of bid and submit their bid in total compliance to Bidding Document without any deviation /stipulation /clarification /assumption. Accordingly, bidder must submit format for "Compliance to bid requirement" as per **FORM- D to ITB** duly filled in along with Unpriced part of bid.
- 10.5 The responses to Bidder's queries/ clarifications raised will be furnished as expeditiously as possible to all who have been issued the Bidding Documents. Any modification of the Bidding Document, which may become necessary as a result of the bidders query, shall be sent to all bidders who have submitted acknowledgement cum consent letter through the issue of an Addendum/ Amendment.
- 10.6 The bidder (s) or his designated representative, who have downloaded the bid document and have confirmed their intention to bid may be invited to attend a **pre-bid meeting** as per the details given in the IFB.

The purpose of meeting will be to clarify issues and to answer queries on any matter that may be raised at that stage.

11.0 AMENDMENT OF BIDDING DOCUMENT

- 11.1 EIL may, for any reason whether at his own initiative or in response to the clarification requested by the prospective bidder(s), issue amendment in the form of Addendum during the bidding period or subsequent to receiving the bids. Any Addendum thus issued shall become part of Bidding Document and Bidder shall submit a copy of the Addendum duly signed and stamped in token of his acceptance. Addendum may be issued to only those bidders, who have been

issued the Bidding Document or submitted acknowledgement cum consent letter as per the Performa enclosed in the Bidding Document.

- 11.2 In case Addendum is issued during the bidding period, Bidder shall consider its impact in his bid. In case Addendum is issued subsequent to receipt of bids, Bidder shall follow the instructions issued along with Addendum with regard to submission of impact on quoted price / revised price, if any.

12.0 CONFIDENTIALITY OF BIDDING DOCUMENT

- 12.1 The Bidding Document is and shall remain the exclusive property of the Owner / EIL without any right to Bidder to use them for any purpose except for the purpose of Bidding.
- 12.2 On no account will any bidder to whom Bidding Documents is issued, part with possession thereof or copy or take copies or tracings of any drawing, plan etc. It should be understood that the information therein is confidential, and that the Bidding Documents are therefore being issued to bidders in the strictest confidence.

C PREPARATION OF BID

13.0 JOINT VENTURES/CONSORTIUM

Joint ventures (JV) / Consortium Bids shall not be accepted.

14.0 LANGUAGE OF BID

The Bid prepared by the Bidder, all correspondence and documents relating to the bid exchanged by the Bidder and the Owner / EIL shall be written in the English language. Any printed literature/certificate/any other document furnished by the Bidder may be in another language, provided they are accompanied by an accurate translation of the relevant passages in the English language, in which case, for purpose of interpretation of the Bid the English translation shall prevail.

In the event of submission of any document/ certificate by the Bidder in a language other than English, the English translation of the same duly authenticated by Chamber of Commerce of bidder's country shall be submitted by the bidder.

15.0 COMPLIANCE TO BID REQUIREMENT

15.1 ZERO DEVIATION:

- 15.1.1 Bidder to note that this is a ZERO deviation Bidding Document. Owner will appreciate submission of offer based on the terms and conditions in the enclosed GCC, SCC, ITB, Scope of Work, and Technical Specification etc. to avoid wastage of time and money in seeking clarifications on technical / commercial aspect of the offer.
- 15.1.2 Accordingly, Bidder must submit format for "Compliance to Bid requirement" as per **Form-D** duly filled in along with Unpriced part of Bid.
- 15.1.3 Notwithstanding to the above, bids with the following deviation(s) to the bid conditions may be summarily rejected without any post bid reference to the bidder:
- (a) Time Schedule
 - (b) Schedule of Prices / Schedule of Rates
 - (c) Defect Liability Period
 - (d) Arbitration
 - (e) Scope of Work

- (f) Scope of Supply
- (g) Security Deposit
- (h) Suspension of work
- (i) Termination of Contract
- (j) Force Majeure
- (k) Bid Security/EMD
- (l) Bid Validity
- (m) Bank Guarantees
- (n) Liquidated Damages / Price Reduction Schedule

15.1.4 Any other condition specifically mentioned in the tender documents elsewhere that non-compliance of the clause lead to rejection of the bid.

15.1.5 In case Bidder stipulate deviations, Owner have the right to reject such bid at its absolute discretion without giving any opportunity for such Bidder to make good such deficiency.

16.0 DOCUMENTS COMPRISING BID

16.1 The Bid should be prepared by the Bidder and shall be submitted in Two Parts with three separate sealed envelopes as per the following details.

- i) PART – I (Envelope-1): Bid Security (Earnest Money Deposit)
(Envelope-2): Techno-Commercial / Unpriced Bid
- ii) PART - II (Envelope-3) - Price Bid

16.2 PART- I (Envelope-1)– BID SECURITY

This Part shall contain Bid Security as per provision of Clause no.20.0 of ITB in a separate sealed envelope super scribed with Bidding document no., Bid due date, Bidder's name & address and "**Bid Security – Envelope No. 1**".

16.3 PART – I (Envelope-2) -TECHNO-COMMERCIAL/ UNPRICED BID

This Part shall contain Technical and Unpriced Commercial bid in one original and three copies and shall comprise hard copies of the attachments specifying attachment number arranged in the order as per following in a separate sealed envelope super scribed with Bidding document no., Bid due date, Bidder's name & address and "**Techno-Commercial/ Unpriced Bid – Envelope No. 2**".

- i) Covering letter of Bid on bidder's letter head as per the proforma given in the Bidding document.
- ii) Master Index and copies of all technical and commercial amendments/addendums issued, duly signed and stamped on each page as a token of having received and read all parts of the bidding document and having accepted and considered the same in preparing their bid.
- iii) Power of Attorney in favour of signatory (ies) of the bid.
- iv) Details of experience meeting the BQC by the Bidder as per Form-A to ITB.
- v) Details of Annual Turnover as per Form-B to ITB along with copies of complete audited Annual Financial Year Statements including audit report, balance sheets, Profit & Loss account statement with all schedules for immediate preceding 3 years.
- vi) All the documents submitted for meeting the Bidder's Qualification Criteria shall either be notarised by any Notary Public or shall be duly

certified by the Statutory Auditor of the Bidder or a practicing Chartered Accountant, as the case may be, in original in line with the requirement of IFB. In case of notarisation, Bidder shall also submit an Affidavit in the format enclosed as Form-C to ITB duly signed by the authorized signatory of the Bidder.

Bidders submitting documentation against Bidder's Qualification Criteria are required to submit the same in a separate booklet. This Booklet shall be titled as "Documentation against Bidder Qualification Criteria (Technical & Commercial)" with proper index.

- vii) Compliance to Bid requirement as per Form-D to ITB.
- viii) Details of present commitments as per FORM-E, which include all work under execution, in hard copy and soft copy (file in Excel format) indicating the percentage progress as on date of sale of bid document (date of hoisting the document on web site in case of e-tender).
- ix) Check List of submission of bid as per Form-F to ITB.
- x) Commercial Questionnaire as per Form-G to ITB.
- xi) Bidders queries as per Form-H to ITB.
- xii) Declaration by Bidder as per Form-I to ITB.
- xiii) Details of P.F. Registration Number as per Form-J to ITB.
- xiv) Bidders General Information as per Form-K to ITB.
- xv) Bidder's declaration that they are not under any liquidation, court receiver ship or similar proceedings.
- xvi) Organization details
 - In case of a proprietorship firm, the name and address of proprietor, and certified copy of 'Certificate of Registration of firm'.
 - In case Bidder is a partnership firm, certified copy of the partnership deed.
 - In case of company (whether private or public), certified copy of the 'Certificate of Incorporation' together with certified Memorandum/ Articles of Association.
- xvii) As a token of confirmation that the prices are quoted as per the requisite format, Unpriced copy of Schedule of Rates (FORM SP-1) with the prices being replaced by the word "Quoted" duly signed and stamped shall be submitted. Also, unpriced copy of Statement for details of Service Tax (Form SP-2) indicating the % and the prices being replaced by the word "Quoted" duly signed and stamped shall be submitted.
- xviii) Internet Based Reverse Auctioning may be adopted for which bidder shall have Class III B digital signature issued by C.A. (Certifying Authority) in India, in the name of signatory of the bid on behalf of his Company. Therefore, bidders shall ensure possession of the same and furnish the information regarding the same in their bid.
- xix) Any other information required in the Bidding Documents or considered relevant by the bidder.

16.4 PART - II - PRICE BID

This Part shall contain the Price Bid for the Section(s) quoted by the Bidder in one original plus one copy in separate sealed envelope (Separate envelope for each Section) clearly superscribing "Price Bid for Section....." and all the envelopes shall be sealed in an outer envelope clearly superscribing Bidding document no., Bid due date, Bidder's name & address and "**Price Bid for Section.....**"- **Envelope No. 3**". Envelope for each Section shall contain the following:

Hard Copy of Schedule of Rates (Form SP-1) and Statement for Details of Service Tax (Form SP-2) of each Section, as per the format enclosed in the bidding document, duly filled with prices and completed in all respects and shall be signed & stamped on each page.

There shall not be any overwriting in Price Part of the Bid.

Deviations to terms and conditions, presumptions etc. shall not be stipulated in Price Part of bid and price bids shall also not contain any stapled slips. In case of any conditions stipulated in price bids or the price bid containing any stapled slips, the bids of such bidders shall be summarily rejected and shall not be considered for further evaluation. Evaluation shall be carried out excluding such bidder(s).

In case of any discrepancy in the prices in Original or Copy, Original Price bid shall prevail.

17.0 **BID PRICES**

- 17.1 Unless stated otherwise in the Bidding Documents, the Contract shall be for the total works as described in Bidding Document including Schedule of Rates based on the prices submitted by the Bidder.
- 17.2 Rates/Amounts must be filled in format for 'Schedule of Rates' after taking print out of 'Schedule of Rates' enclosed with the Bidding Document. If quoted in separate typed sheets and any variation in item description, unit & quantity are noticed; the bid is liable to be rejected. In any case, Bidder shall be presumed to have quoted against the tendered description of work and the same shall be binding on the Bidder.
- 17.3 Bidder shall quote for all the items of Schedule of Rates after careful analysis of cost involved for the performance of the complete item considering all parts of the Bidding Document. In case any activity though specifically not covered in description of item under 'Schedule of Rates' but is required to complete the work as per Scope of Work, Scope of Supply, Specifications, Standards, Drawings, General Conditions of Contract, Special Condition of Contract or any other part of Bidding Document, the prices quoted shall deemed to be inclusive of cost incurred for such activity.
- 17.4 The quoted Price shall be deemed to be inclusive of all taxes and duties **except** Service Tax as per the provisions stated in the Special Conditions of Contract (SCC).
- 17.5 It is for the bidder to assess and ascertain the rates of applicable Taxes & Duties for the tendered work. It is clearly understood that EIL/Owner will not have any additional liability towards payment of applicable Taxes & Duties as a result of Bidder's wrong assessment / interpretation of applicable taxes & duties.
- 17.6 The prices quoted shall be based on the conditions specified in General Conditions of Contract (GCC), Special Conditions of Contract (SCC), Scope of Work, Scope of Supply, Technical Specifications and other contents of Bidding Document.
- 17.7 Prices quoted by the bidder, shall remain firm and fixed and valid until completion

of the Contract and will not be subject to variation on any account except as per the provisions indicated in the Special Conditions of Contract.

17.8 Alternative bids shall not be considered.

18.0 CURRENCIES OF BID & PAYMENT

18.1 The Bidder shall quote in Indian Rupees and shall be paid in Indian Rupees only.

19.0 BID VALIDITY

19.1 Bid submitted by Bidder shall remain valid for a minimum period of 03 (Three) months from the due date of opening of Bid Security (Part-I-Envelope-1) and Techno-Commercial (Part-1-Envelope-2) Bids. Bidders shall not be entitled during the said period of Three months, without the consent in writing of the Owner, to revoke or cancel their Bid or to vary the Bid given or any term thereof. In case of Bidders revoking or cancelling their Bid or varying any terms in regard thereof without the consent of Owner in writing, Owner shall forfeit EMD paid by them along with their bids.

19.2 Owner / EIL may solicit the bidders consent to an extension of the period of validity of bid. The request and the responses there to shall be made in writing. If the Bidder agrees to the extension request, the validity of Bank Guarantee towards EMD shall also be suitably extended. However, bidders agreeing to the request for extension of validity of bid will not be permitted to modify the bid.

20.0 BID SECURITY / EARNEST MONEY DEPOSIT (EMD)

20.1 The Bid must be accompanied by Earnest Money (interest free) for the amount indicated in NIB in the form of crossed Demand Draft/Pay Order in favour of "EIL-CP Project", payable at New Delhi or in the form of Bank Guarantee (BG) in the name of "Engineers India Limited". BG shall be valid for a period of 5 (Five) months from the due date of opening of Techno-commercial Bids and shall be submitted from any Indian Scheduled bank or from any Indian Branch of an International bank in the format included in Bidding Document. Bid without the requisite EMD as mentioned above shall be rejected. Any interest on EMD shall not be paid. Bank guarantee shall be revalidated for extended period as required by EIL in writing.

20.2 Bid securities of unsuccessful bidders will be returned upon award of Contract. However, EMD of the successful Bidder will be returned upon the Bidder's executing the Contract, and furnishing Security Deposit.

20.3 The EMD may be forfeited:

- i) If a Bidder withdraws its bid during the period of Bid Validity or does any breach of tendering terms and conditions, or
- ii) If a bidder, on his own modifies his bid during the period of bid validity, or
- iii) In case of a successful Bidder, if the Bidder fails, within the specified period:
 - a. To sign the Contract And
 - b. To furnish the Security Deposit / Contract Performance Bank Guarantee.

21.0 ARRANGEMENT OF BID

21.1 The Bidder shall prepare Bid Security, one Original and three copies of the Techno-Commercial Bid and One Original plus One copy of Price Bid, clearly marking each one as "BID SECURITY (PART-I-Envelope-1) ": "ORIGINAL – TECHNO-COMMERCIAL BID (PART-I-Envelope-2)", "ORIGINAL - PRICE BID

(PART-II-Envelope-3)", "COPY NO.1 – TECHNO-COMMERCIAL BID (PART-II)", etc. as appropriate. In the event of discrepancy between the original and any copy, the original shall prevail.

- 21.2 The original and all copies of the bid shall be typed or written in indelible ink (in case of copies, Photostats are also acceptable) and shall be signed by person(s) duly authorised to sign on behalf of the bidder. All pages of bid shall be stamped and initialled by person(s) signing the bid.

22.0 CHECK LIST FOR SUBMISSION OF BID

- 22.1 To assist Bidder in ensuring the completeness of bid, a checklist for submission of various documents/details in un-priced commercial part of bid', as per **FORM-F to ITB** has been enclosed.
- 22.2 Bidder is required to fill the checklist and submit along with the bid for ready reference.

D BID SUBMISSION

23.0 ONE BID PER BIDDER

- 23.1 A bidder shall submit only one bid in the same bidding process. A Bidder who submits or participates in more than one bid will cause all the proposals in which the bidder has participated to be disqualified.

24.0 SEALING AND MARKING OF BID

- 24.1 The Bidder shall seal Bid Security, one Original and three copies of the Techno-Commercial Bid and one Original plus one copy of Price Bid, clearly marking each one as "BID SECURITY (PART-I-Envelope-1) ": "ORIGINAL – TECHNO-COMMERCIAL BID (PART-I-Envelope-2)", "ORIGINAL - PRICE BID (PART-II-Envelope-3)", "COPY NO.1 – TECHNO-COMMERCIAL BID (PART-II)", etc. as appropriate.
- 24.2 The Bidder shall seal the original and each copy of the bid in an inner and outer envelope, duly marking the envelopes "Original" and "copy".
- 24.3 The inner and outer envelopes shall be addressed to the EIL at the following address:
- AGM(C&P)
Engineers India Limited
Dak Receipt Section
Engineers India Annexe,
2-B, Bhikaiji Cama Place, R.K. Puram
New Delhi-110066. (INDIA)
Attn: AGM (C & P).

and bear the name of works "(the project name)", the Bidding Document No., and the words "DO NOT OPEN BEFORE (date and time of opening of bids as indicated in Notice/Letter Inviting Tenders)".

- 24.4 In addition to above, the outer envelope shall indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "Late".
- 24.5 If the outer envelope is not sealed & marked as above, EIL will assume no responsibility for the misplacement or premature opening of the bid.

25.0 DEADLINE FOR SUBMISSION OF BIDS

- 25.1 Bids must be submitted by the time and date mentioned in the Notice Inviting Tender at the address stated therein.

- 25.2 EIL/NDMC may, in exceptional circumstances and at its discretion, on giving reasonable notice by e-mail/fax or any written communication to all prospective bidders who have downloaded the bid document extend the deadline for submission of bids, in which case all rights and obligations of the Owner and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

26.0 LATE /UNSOLICITED BIDS

- 26.1 Any bid received by the EIL after the deadline for submission of bids will be declared "Late" and rejected and representative of such Bidders shall not be allowed to attend the Bid opening. Unopened bids shall be returned to the Bidder.
- 26.2 Unsolicited bids or bids submitted at address other than one specifically stipulated in the bid document shall not be considered for opening/evaluation.
- 26.3 Bids received by way of Fax or Telex or Telegram or email or in open condition shall not be considered.

27.0 MODIFICATION AND WITHDRAWAL OF BIDS

- 27.1 The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received by the EIL prior to the deadline prescribed for submission of bids.
- 27.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and despatched in accordance with the provisions of procedure for submission of bids. A withdrawal notice may also be sent by e-mail or fax but must be followed by signed confirmation copy. No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder.
- 27.3 No bid shall be modified after the deadline for submission of bids.

E BID OPENING AND EVALUATION

28.0 OPENING OF TECHNO-COMMERCIAL BIDS

- 28.1 The Bid Security (Part-I-Envelope-1) and Techno-Commercial part of the Bid (Part-I-Envelope-2) shall be opened in the presence of attending representatives of Bidder. The attending representative(s) of the Bidder may have to produce authorisation letter from their competent authority, otherwise they will not be allowed to attend the Bid opening. Number of representative will be restricted to maximum one person. The Bidder's representative who is present shall sign a Bid opening statement evidencing their attendance.
- 28.2 The Bidder's names, modifications and Bid withdrawals, and the presence or absence of the requisite EMD, and such other details as the EIL/NDMC at its discretion, may consider appropriate, will only be announced, and recorded at the time of opening.

29.0 EVALUATION OF TECHNO-COMMERCIAL BIDS

- 29.1 Prior to detailed evaluation of bids, the Owner will determine whether each bid (i) is accompanied by required EMD; (ii) totally comply to the requirement of Bidding Document.
- 29.2 The Owner will examine the bids to determine whether they are complete and whether the documents have been properly signed, and whether the bids are generally in order.
- 29.3 Prior to the detailed evaluation, the Owner will determine whether each bid is of acceptable quality, is generally complete and is responsive to the Bidding

documents. A substantially responsive Bid is one which conforms to the terms, conditions and specification of the Bidding Documents without material deviation. A material deviation is one which affects in any substantial way the scope, quality or performance of the works, or which limits in any substantial way, inconsistent with the Bidding Documents, the OWNER's rights or the Bidder's obligations as envisaged in the Bidding Documents, and the rectification of which deviation or reservation would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

- 29.4 Prior to detailed Bid evaluation, the OWNER will determine the qualification of bidder with respect to the qualification criteria as stated in the Invitation for Bids and substantial responsiveness of each Bid with respect to the Bidding Documents. The Owner will carry out a detailed evaluation of the bids previously determined to be responsive in order to determine whether the technical aspects are in accordance with the requirements set forth in the Bidding Documents on the basis of details/documents submitted by the bidder in the bid at 1st instance. In order to reach such a determination, the Owner will examine and compare the technical aspects of the bids on the basis of the information supplied by the bidders, taking into account the following factors:

- (a) Overall completeness and compliance with the Technical Specifications; quality, function and operation of any process control concept included in the bid. The bid that does not meet minimum acceptable standard of completeness/ specifications defined in the bid document, consistency and detail may be rejected as non-responsive.
- (b) Any other relevant factor, if any that EIL/NDMC deems necessary or prudent to be taken into consideration.

- 29.5 No stipulation, deviation, terms & conditions, presumption, basis etc. shall be stipulated in the bid. Any conditions, if stipulated, shall be treated as null and void and may render the bid liable for rejection.

- 29.6 EIL/NDMC, if necessary, will obtain clarifications on the Bid by requesting for such information / clarifications from any or all Bidders, either in writing or through personal contact, All responses shall be in writing, and no change in the price or substance of the bid shall be permitted unless specifically sought by EIL/NDMC.

- 29.7 Bidders shall however note that no revision in quoted Rates shall be allowed, in case bidder still stipulate the deviations which are not accepted by the Owner and are required to be withdrawn by the bidder in favour of stipulations of the bidding documents.

- 29.8 EIL/NDMC reserve the right to assess Bidder's capability and capacity to execute the work using in-house information including taking into account other aspects such as concurrent commitments, past performance etc.

29.9 **UNSOLICITED POST TENDER MODIFICATIONS**

Bidders are advised to quote strictly as per terms and conditions of the bidding document and not to stipulate any deviations/exceptions. Once quoted, the bidder shall not make any subsequent price changes, whether resulting or arising out of any technical / commercial clarifications sought on any deviations or exceptions mentioned in the bid. Similarly, no revision in quoted price shall be allowed should the deviations stipulated by him are not accepted by Owner and are required to be withdrawn by him in favour of stipulation of the Bidding Document. Any proposed price changes is likely to render the bid liable for rejection.

In case of unsolicited price increase, such offer(s) of the Bidders shall be rejected. In case of unsolicited price decrease, the Bidder(s)'s offer shall be compared as

- per originally quoted prices and if the Bidder happens to be the recommended Bidder, the decrease in prices shall be taken into account for ordering.
- 29.10 **COMPLETE SCOPE OF WORK**
The complete scope of work has been defined in the Bidding Document. Only those bidders who take complete responsibility for the complete scope of work as contained in the Bidding Document shall be considered as acceptable.
- 30.0 OPENING OF PRICE BID**
- 30.1 Priced commercial part of only those bidders who meets the qualification criteria and whose bids is determined to be technically and commercially acceptable to EIL/NDMC shall be opened. Bidders selected for opening of their price bids shall be informed about the date of price bid opening. Bidders may depute their authorised representative to attend the opening. During price bid opening, only total price as quoted by the bidders shall be read out.
- 31.0 ARITHMETIC CORRECTIONS**
- During evaluation of price, if some discrepancies are found between the rate/ amount given in words and figures, the total amount shall be corrected as per the following procedure, which shall be binding upon the Bidder.
- 31.1 When the rate quoted by the Bidder in figures and words tallies but the amount is incorrect, the rate quoted by the Bidder shall be taken as correct and amount reworked.
- 31.2 When there is difference between the rate in figures and words, the rate that corresponds to the amount worked out by the Bidder, shall be taken as correct.
- 31.3 When it is not possible to ascertain the correct rate in the manner prescribed above, the rate quoted in words shall be adopted and amount reworked.
- 31.4 If the bidder does not accept the correction of errors, his bid will be rejected and the bid security will be forfeited.
- 32.0 EVALUATION OF PRICE BIDS**
- 32.1 Based on the qualification criteria, the price bids for the sections for which the bidder is qualified, shall be opened and considered for evaluation.
- 32.2 The prices quoted by the Bidders shall be checked for arithmetic correction, if any, based on rate and amount filled by the Bidder in the SOR formats. If some discrepancies are found between the rate/ amount, the total amount shall be corrected as per the provisions of Clause at Sl. No. 31.0 above.
- 32.3 The price bids of the Bidders shall be rejected if they do not quote rates for certain items and EIL estimate for such items is more than 10% of their total quoted price for the subject work. In case a Bidder does not quote for any items of Schedule of Rates/Prices and the EIL estimate for such items is less than 10% of their total quoted price, then for the purpose of comparison, the unquoted items shall be loaded by price impact calculated on the basis of highest of the rates quoted by other bidders. If such Bidder happens to be the selected Bidder, the lowest of the rates quoted by other bidders for the unquoted items shall be considered for award.
- 32.4 Service tax amount quoted by the bidder in Form SP-2 shall be considered for evaluation and shall be added to the total quoted price to get the evaluated price.
- 32.5 Work for individual sections shall be awarded as per the following:

- (i) All combinations of the evaluated prices for both the sections of various bidders shall be prepared.
- (ii) The overall lowest combination, resulting in least cost to Owner, among all combinations worked out under para (i) above, will be considered for award keeping in view the section(s) for which an individual bidder is qualified for.

Thus, if a bidder happens to be lowest (L1) bidder for both the sections but meets BQC for only one section, then the section shall be awarded in a way to result in least cost to owner.

However, if a bidder has quoted for both the parts, but qualified for only one part, then price bids of both the parts shall be opened, but qwork shall be awarded as mentioned above.

- 32.6 Optional items, if any, shall not be considered for the purpose of arriving at the total cost. However, in case the rates quoted by the selected Bidder for optional items are considered high, the same shall be negotiated.
- 32.7 Any uncalled for lump sum / percentage or adhoc reduction / increase in prices, offered by the Bidders after submission of price Bid, shall not be considered. However, if reduction is from the recommended Bidder, such reduction shall be taken into account for arriving at the contract value.
- 32.8 Purchase Preference to Central Public Sector Undertakings shall be allowed as per existing Government Policy.
- 32.9 Internet Based Reverse Auctioning may be adopted, in which case bidders shall be intimated accordingly. The terms & conditions applicable for reverse auctioning shall be as per Appendix – A to the ITB.

In case of Reverse Auction, the final lowest evaluated price submitted by the bidder during Reverse Auction shall be compared w.r.t. the evaluated price worked out based on the price quoted by the said bidder in their bid and the percentage reduction in the evaluated price shall be considered as a uniform discount applicable on all the Items of the Schedule of Rates and the amount of Service Tax as per Form SP-2.

33.0 CONTACTING THE OWNER

- 33.1 Bidders are advised not to contact EIL/NDMC on any matter relating to its bid from the time of Bid opening to the time Contract is awarded, unless requested to in writing. Any effort by a Bidder to influence EIL/NDMC in any of the decision in respect of Bid evaluations or Award of Contract will result in the rejection of Bid.

34.0 AWARD OF CONTRACT

- 34.1 OWNER'S RIGHT TO ACCEPT OR REJECT ANY BID

The Owner reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or Bidders or without any obligation to inform the affected Bidder or Bidders of the grounds or the reasons for the Owner's action.

35.0 NOTIFICATION OF AWARD

- 35.1 The Owner will notify the successful Bidder in writing by Letter of Acceptance that their bid has been accepted. The Letter of Acceptance will constitute the formation of a Contract until the Contract agreement has been signed.

36.0 CONTRACT AGREEMENT

- 36.1 The Contractor shall execute a formal contract, as per the proforma enclosed in the Bidding Document, with the OWNER/EIL within specified period from the date of award on a non-judicial stamp paper of appropriate value (Rs. 100/-). The cost of non-judicial stamp paper shall be borne by the Contractor
- 36.2 Contract documents for agreement shall be prepared after the acceptance of bid. Until the final contract documents are prepared and executed this bid document together with the annexed documents, modifications, deletions agreed upon by the Owner/EIL and bidders acceptance there of shall constitute a binding contract between the successful Bidder and the Owner/EIL based on terms contained in the aforesaid documents and the finally submitted and accepted prices.
- 36.3 The Contract document shall consist of the following:
- i) Original Bidding Document along with its enclosures issued.
 - ii) Amendment/Corrigendum to original Bidding Document issued, if any.
 - iii) Letter of Acceptance .
 - iv) Detailed letter of Award/Acceptance along with enclosures attached therewith.

37.0 CLARIFICATION REQUESTS FROM BIDDERS

A bidder may seek clarifications regarding the bidding document provisions, bidding process and / or rejection of his bid. Owner / EIL shall respond to such requests within a reasonable time.

Terms and conditions for Reverse Auction

- 1 Owner / Purchaser reserves the right to go in for reverse auction among the technically and commercially acceptable bidders. The decision to conduct reverse auction or not, will be conveyed to short listed bidders prior to opening of price bid. In view of this, the bidders must quote most competitive prices in the first instance itself.
- 2 Once the decision to conduct Reverse Auction is conveyed to the bidders, it will be mandatory for the bidders to participate in Reverse Auction, failing which, the bidder shall be liable for punitive action including but not limited to rejection of offer, encashment of bid security, wherever applicable, etc. For this purpose, even log-in to the system shall be construed as participation.

3 Schedule for Reverse Auction

The Reverse Auction shall be scheduled for a duration of two hours. If a bidder places a Bid in the last 5 minutes of scheduled closing time of the Auction, the Auction time shall get extended automatically for another 5 minutes from the time of the last Bid placed. In case, there is no Bid in the last 5 minutes of closing of the Auction, the Auction shall be closed automatically without any extension.

The above provision shall apply to the bids in extended time also.

4 Auction process

- Each Bidder shall be assigned a Unique User Name & Password. The Bidders are requested to change the Password and edit the information in the Registration Page after the receipt of initial Password. All bids using the Login ID given to the bidder will be deemed to have been submitted by the bidders. During the auction, bidders will be referred by proxy names as B₁, B₂, B₃, etc. and identity will not be disclosed.
- The Reverse Auction shall be conducted based on the lowest evaluated price out of all the techno-commercially acceptable bidders, based on the prices submitted along with the bid, as the opening price. The Bidder shall be able to bid lower than the opening price in multiples of the decrement, but a Bidder must always bid lower than the Lowest Bid.
- Only one bidder shall be at a particular position / rank, which means only one L1.

- The Bidder shall be able to view the following on his screen along with the necessary fields:
 - i) Opening Price.
 - ii) Leading Bid in the Auction, i.e., the lowest bid.
 - iii) Bid placed by him.

At no point of time will any bidder see the names of other bidders, or the prices of bidders other than the lowest bid.
- A bidder can continue to revise his bid till the auction ends. However, the Bidder cannot quote / Bid equal to the Leading / Lowest Bid. He must always quote lower than the Leading / Lowest Bid.
- The evaluation criteria is based on Price alone. The Bidder who quotes the lowest evaluated Price is determined as the lowest bidder.
- However, if Reverse Auction does not lead to any bid, EIL shall reserve the right to award the job based on the lowest prices quoted in sealed envelope.
- Apart from the participating bidders, the Reverse Auction shall be visible, while in progress to authorized officials of Owner / Purchaser, who are monitoring the process.

5 Bid Price

The price shall be based on the scope, technical specifications and commercial terms & conditions and other part of Bidding document agreed upto the date of reverse auction.

The Opening Price and the Bid Decrement shall be displayed on the auction site at the start of the auction. However, the bidders shall be able to view the auction details, generally, 15 to 30 minutes before the start of actual auction.

6 Bid Decrement

Shall be 0.1% of the Opening Price. The bidder to lower the bid in multiples of the bid decrement.

7 Bidding Currency

Bidding will be conducted in Indian Rupees (INR).

8 Bid Validity

The Bid Price submitted in the reverse auction shall be firm and valid for acceptance for a period of 15 days from the date of reverse auction and shall not be subject to any change whatsoever.

9 Bids once placed, binding on the Bidder

The bid of the bidder will be taken to be an offer to sell. Bids once submitted by the bidder cannot be cancelled. The bidder is bound to sell the material/services at the price that they bid. Should any bidder back out and not accept the order as per the rates quoted, Owner / Purchaser reserves the right to take action as considered appropriate, including encashment of bid security and placement on Holiday / Negative list etc.

10 Lowest bid of a Bidder

During the process of reverse auction, the bidder may submit several bids. In case the bidder submits such multiple bids, the lowest bid will be considered as the bidder's final offer to sell.

11 Submission of final prices by successful bidder

Successful bidder shall be required to submit the final prices, quoted during the Reverse Auction in an appropriate format within two days of the completion of Auction to EIL, duly signed and stamped as token of acceptance without any new condition. However, in case the reverse auction is for a package, within 2 working days after completion of the online event of Reverse Auction, the successful bidder would submit their cost break down as per the price format for the final price arrived at after reverse auction.

12 General

- The bidders may quote from their own offices/ place of their choice. Internet connectivity shall have to be ensured by each agency on its own. In extreme case of failure of internet connectivity, (due to unforeseen circumstances other than power failure), communication shall have to be sent by fax/E-mail/ phone immediately. Owner / Purchaser shall extend the bidding time, in such a case, appropriately (generally by half an hour) but not more than once per bidder.
- The Bidder, himself or any of his representatives, shall not involve in Price manipulation of any kind directly or indirectly by communicating with other bidder.

- The Bidder shall not divulge either his Bids or any other exclusive details of Owner / Purchaser to any other party.
- Bidders agree to non-disclosure of trade information regarding the purchase, identity of EIL, bid process, bid technology, bid documentation and bid details.
- Owner / Purchaser can decide to extend, reschedule or cancel any Auction. No bidder can claim any kind of compensation on account of the same.
- Owner / Purchaser shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
- Owner / Purchaser shall not be responsible for any direct / indirect / consequential losses / damages, on account of systems problems, inability to use the system, loss of electronic information etc.
- Owner / Purchaser shall be at liberty to cancel the reverse auction process / tender at any time, before ordering, without assigning any reason.
- Owner / Purchaser's decision on award of Contract shall be final and binding on all the Bidders.

PROPOSAL FORMS

FORMAT FOR DETAILS OF SIMILAR GOODS/WORK/SERVICES SUPPLIED/ DONE DURING PAST SEVEN YEARS

S. No	Description of the Goods/works/ Services	FOA / LOA/PO/ WO No. and date	Full Postal Address & phone nos. of Client. <i>Name, designation and address of Engineer/ Officer-in-Charge (for cases other than purchase)</i>	Value of Contract/ Order (Specify Currency Amount)	Date of Commencement of Work/ Services or supply of goods	Scheduled Completion Time (Months) Delivery Schedule	Date of Actual Completion/ Supply	Reasons for delay in execution, if any
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PI refer instruction								

Place:

Date:

[Signature of Authorized Signatory of Bidder]

Name:

Designation:

Seal:

Instructions:

- 1) Bidders are expected to provide details of the work **meeting the Bidder Qualification criteria** which shall be considered for qualification purpose.
- 2) Copies of Letter of awards/ Order/ Work Orders and completion certificate for all the works mentioned above shall be furnished.
- 3) The said documents, as mentioned at Sl.no.2 above, shall be notarised by any Notary Public along with an affidavit from the bidder in the prescribed format or duly certified by the Statutory Auditor of the bidder or a practicing Chartered Accountant (not being an employee or a Director or not having any interest in the bidder's company/ firm) where audited accounts are not mandatory as per law.
- 4) It may be noted that in the absence of above certificates, the details would be considered inadequate and could lead to the bid being considered ineligible for further evaluation.

**FORMAT FOR
FINANCIAL CAPABILITY OF THE BIDDER**

A. ANNUAL TURNOVER OF LAST 3 YEARS:

Year	Amount (Currency)
Year 1:	
Year 2:	
Year 3:	

B. NET WORTH FOR LAST AUDITED FINANCIAL YEAR:

[Signature of Authorized Signatory]

Name:

Designation:

Seal:

AFFIDAVIT

AFFIDAVIT OF, S/o D/o, resident of EMPLOYED
AS WITH HAVING OFFICE AT PIN
.....

I, the above named deponent do hereby solemnly affirm and state as under :-

1. That I am the authorized representative and signatory of M/s
2. That the document (s) submitted, as mentioned hereunder, by M/s alongwith the Bid Document submitted under covering letter no. dated towards Tender No. for (Project) has / have been submitted under my knowledge.

Sr. No.	Document Reference no. & date	Document subject	Issuing Authority

3. That the document(s) submitted, as mentioned above, by M/s alongwith the Bid Document for meeting the Bid Qualification Criteria thereunder, vide covering letter no. dated, towards Tender No. for are authentic, genuine, copies of their originals and have been issued by the issuing authority mentioned above and no part of the document(s) is false, forged or fabricated.
4. That no part of this affidavit is false and that this affidavit and the above declaration in respect of genuineness of the documents has been made having full knowledge of (i) the provisions of the Indian Penal Code in respect of offences including, but not limited to those pertaining to criminal breach of trust, cheating and fraud and (ii) provisions of bidding conditions which entitle the Owner / EIL to initiate action in the event of such declaration turning out to be a misrepresentation or false representation.
5. I depose accordingly.

DEPONENT**VERIFICATION**

I, the deponent above named do hereby verify that the factual contents of this affidavit are true and correct. No part of it is false and nothing material has been concealed there from.

Verified at on this day of20....

DEPONENT

COMPLIANCE TO BID REQUIREMENT

We M/s _____ hereby agree to fully comply with, abide by and accept without variation, deviation or reservation all technical, commercial and other conditions whatsoever of the Bidding Documents and Addendum to the Bidding Documents, if any, for subject work issued by Engineers India Limited.

We hereby further confirm that any terms and conditions if mentioned in our bid (Un-priced as well as Priced Part), shall not be recognised and shall be treated as null and void.

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

PRESENT COMMITMENTS AS ON
(Specify the Date)

SR. NO.	FULL POSTAL ADDRESS OF CLIENT & NAME OF OFFICER- IN- CHARGE	DESCRIPTION OF THE WORK	VALUE OF CONTRACT (IN RUPEES)	DATE OF COMMEN- CEMENT OF WORK	SCHEDULED COMPLETION PERIOD	%AGE COMPLETION AS ON DATE	EXPECTED DATE OF COMPLETION	REMARKS

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

CHECK LIST FOR SUBMISSION OF BID

Bidder is requested to fill this check list and ensure that all details/documents have been furnished as called for in the Bidding Document along with duly filled in, signed & stamped check list **with each copy of the "Unpriced bid (Part – I)"**.

Please tick the box and ensure compliance:

(A) UNDER SECTION –I

(A.1) Bid Forwarding Letter

Submitted

☐

(A-2) EMD/ BID BOND / BID SECURITY

Bidder to confirm that EMD/ Bid Bond/ Bid Security has been submitted by them as per Tender Proforma.

Submitted

☐

(1) BY BANK GUARANTEE

BG No. _____ Dt. _____ From
Bank _____ Branch _____
For Rs. _____
Valid till _____

(2) BY DEMAND DRAFT

DD No. _____ Dt. _____
Drawn on _____
For Rs. _____

Original to be scanned and uploaded.

(3) Certificate of MSE

Submitted

☐

(A.3) Power of Attorney in Favour of the bid signatory.

Submitted

☐**(B) UNDER SECTION -2**

(B.1) Past Experience details as per FORM-A

Submitted

☐

(B.2) Financial Details as per FORM-B

Submitted

☐

(B.3) Audited Financial year Statements including Balance Sheet, profit and loss account and all other schedules submitted for the last three years.

YES ☐

NO ☐

(B.4) Partnership Deed in case of partnership firm and Article of Association in case of limited company. In case of a proprietorship firm, the name and address of proprietor, and certified copy of 'Certificate of Registration of firm'

Submitted

☐

(B.5) Declaration regarding PF as per FORM-J.

Submitted

☐

(B.6) Present Commitments as per FORM-E.

Submitted

☐

C) UNDER SECTION - 3

(C.1) Compliance to Bid Requirement as per FORM-D.

Submitted

☐

(C.2) Reply to commercial questionnaire as per FORM-G with Bidder's reply/ confirmation for each Sl. No.

Submitted

☐

(C.3) Reply to Technical questionnaire (if enclosed in technical part) with Bidder's Reply/ Confirmation for each Sl. No.

Submitted

☐

(C.4) Declaration by Bidder as per FORM-I.

Submitted

☐

(C.5) Unpriced copy of Price Bid and Price Bid duly signed & stamped.

Submitted

☐

(D) UNDER SECTION – 4

(D.1) Technical Details/ Documents specified in Technical part.

Submitted

☐

Not Applicable

☐

(E) CONFIRM THE FOLLOWING

(E.1) All pages of the bid have been page numbered in sequential manner.

YES

☐

(E.2) Master Index of Bidding Document, Compliance Letter for Addendum/ Amendment, if any, has been submitted along with offer, duly signed and stamped on each page.

YES

☐

(E.3) The bid has been submitted in requisite number of copies as specified in Instructions to Bidders

YES

☐

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

COMMERCIAL QUESTIONNAIRE

Bidder's reply/ confirmation as furnished in the Commercial Questionnaire (CQ) shall supersede the stipulations mentioned elsewhere in their bid.

SL. NO.	EIL'S QUERY	BIDDER'S REPLY/ CONFIRMATION
1.0	Confirm that your Bid is valid for 03 (Three) months from the date of opening of Unpriced Part of Bid.	
2.0	Confirm that Earnest Money Deposit (EMD) as per bid stipulations have been furnished along with bid.	
3.0	Confirm your compliance to total Scope of Work mentioned in the Bidding Document.	
4.0	Confirm that the following documents are submitted with Part-I:	
a)	All documents as per CHECK LIST.	
b)	Master Index as issued is submitted in unpriced part duly signed and stamped on each page.	
c)	Compliance letter for Addendum / Amendments as a token of acceptance (Applicable, if issued).	
5.0	Confirm your compliance to critical stipulations of Bidding Document as mentioned in ITB/IFB	
6.0	Confirm that price has been submitted in a separately sealed envelope superscribing "PRICE PART" in 2 Copies (One original & One Photo copy).	
7.0	Schedule of Rates/Price	
a)	Confirm that Price Bid as per Price schedule Format enclosed with Bidding document has been dully filled in for each item and submitted.	
b)	Confirm that the quoted price is for complete scope of work, supply of all material, labour, consumables etc. as applicable as per the Scope of Work.	
c)	Confirm that correction fluid is not used in the price part. (In case any corrections are required, the original writings shall be neatly cut/penned through and re-written nearby. No overwriting or erasure of original writings by use of 'white fluid' or otherwise is permitted. In case any erasure using 'white correcting fluid' is found, the tender may be liable to be rejected. All corrections/cuttings/alterations shall be signed in full by the bidder with date. Numerical figures shall be written both in figures as well in words.)	

SL. NO.	EIL'S QUERY	BIDDER'S REPLY/ CONFIRMATION
8.0	Confirm that you have studied complete Bidding Document including Technical and commercial part and your Bid is in accordance with the requirements of the Bidding Document.	
9.0	Confirm your acceptance for 'Scope of Supply' mentioned in the Bidding Document and confirm that all materials shall be supplied as per Standards and Specification.	
10.0	Confirm your acceptance for Time Schedule as mentioned in Bidding Document.	
11.0	Confirm that your quoted price includes all taxes, duties as applicable for this Work except service tax in accordance with the provision of GCC and SCC.	
12.0	Confirm that your quoted price includes all types of insurance as per the provisions of GCC and SCC.	
13.0	Confirm that all costs resulting from safe execution of Work, such as safety induction, use of protective clothing, safety glasses and helmet, safety precaution taken during monsoon, or any other safety measures to be undertaken by the Contractor for execution of work are included in the quoted rates.	
14.0	Confirm that adequate numbers of construction equipments, tools, tackles etc. shall be deployed to complete the work as per the time schedule.	
15.0	Confirm that you shall deploy adequate project/site organisation with qualified supervisory personnel having requisite experience including personnel responsible for safety, planning, stores, QA/QC etc.	
16.0	Confirm that while submitting your price, you have taken consideration of scope of supplies, scope of work and technical requirement mentioned in Bidding Document.	
17.0	Confirm that you have your own QA/QC programme for executing this work. In case of award of work, you will submit all QA/QC documents as given in the SCC.	
18.0	Confirm that Bidder is not involved in any Litigation/ Arbitration with OWNER / EIL. In case of Litigation / Arbitration, if any, please furnish information about the same.	
19.0	Confirm that Bidder is not under Liquidation, court receivership or similar proceedings.	
20.0	Confirm the following:	
a)	The planning schedule, S-curves etc, submitted by the bidder with his Bid, are indicative and shall not be basis for extra compensation in case actual needs are higher.	
b)	Detailed planning schedule developed by Contractor after	

SL. NO.	EIL'S QUERY	BIDDER'S REPLY/ CONFIRMATION
	contract award may be subject to fluctuations depending upon actual progress of the project and available work front.	
c)	Co-ordination and making available by Contractor of all staff, manpower, construction equipment, tools, cranes, etc. and materials as required for a timely completion of all WORK as per Owner / EIL's construction and priority schedule and in accordance with the available work front are included in the quoted rates.	
21.0	Confirm that the Bidder has not been banned OR delisted by any Government or Quasi Government agencies or Public Sector Units.	

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

BIDDER'S QUERIES

SL. NO.	BIDDING DOCUMENT			SUBJECT	BIDDER'S QUERY	OWNER'S REPLY
	PART / VOL.	PAGE NO.	CLAUSE NO.			

NOTE :

1. Bidder's Queries may be sent by fax to fax numbers 011-26191714, 26167664 and also by e-mail to, kn.mahapatra@eil.co.in / lalit.sharma@eil.co.in
2. Technical & Commercial queries, if any, must be submitted separately in editable format as per this format.

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

DECLARATION BY THE BIDDER

We _____ (Name of the Bidder) hereby confirm that we have gone through and understood the Bidding Document (which is in two parts) in Part-I (Commercial Section including Schedule of Rates) and Part-II (Technical Section) and that our Bid has been prepared accordingly in compliance with the requirement stipulated in the said documents.

We are submitting Master Index of Bidding Document as part of our Bid duly signed and stamped on each page in token of our acceptance. We undertake that Part-I and Part-II of the Bidding Document shall be deemed to form part of our bid and in the event of award of work to us, the same shall be considered for constitution of Contract Agreement. Further, we shall sign and stamp each page of this Part-I and Part-II as a token of Acceptance and as a part of the Contract in the event of award of Contract to us.

We further confirm that we have quoted our prices in Schedule of Rates and submitted in Price Bid in separate envelope. We confirm that rate quoted by us includes price for all works/activities/supply etc. as mentioned in Item Description of the respective SOR Item(s) in Schedule of Rates.

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

NOTE : This declaration should be signed by the Bidder's representative who is signing the Bid.

DETAILS OF P.F. REGISTRATION

Bidder to furnish details of Provident Fund Registration :

PF REGISTRATION NO. :

DISTRICT & STATE :

We hereby confirm that the above PF Account is under operation presently and shall be used for all PF related activities for the labour engaged by us in the present work (if awarded to us).

SIGNATURE OF BIDDER : _____
NAME OF BIDDER : _____
COMPANY SEAL : _____

BIDDER'S GENERAL INFORMATION

To
Engineers India Limited,
1, Bhikaiji Cama Place,
R.K. Puram, New Delhi -110066
India

1-1 Bidder Name: _____

1-2 Number of Years in Operation: _____

1-3 Address of Registered Office: _____

City _____ District _____

State _____ PIN/ZIP _____

1-4 Operation Address
if different from above: _____

City _____ District _____

State _____ PIN/ZIP _____

1-5 Telephone Number: _____

(Country Code) (Area Code) (Telephone Number)

1-6 E-mail address: _____

1-7 Website: _____

1-8 Fax Number: _____

(Country Code) (Area Code) (Telephone Number)

1-9 ISO Certification, if any {If yes, please furnish details}

1-10 Banker's Name : _____

1-11 Branch : _____

1-12 Branch Code : _____

1-13 Bank account number : _____

1-14 Excise Registration number : _____

1-15 Excise Range : _____

1-16 Excise Division : _____

1-17 Excise Collectorate : _____

1-18 Service Tax Registration No. _____

1-19 Local ST No. : _____

1-20 CST No. : _____

1-21 PAN No. : _____

1-22 Whether SSI Registered Or not : _____

(SIGNATURE OF BIDDER WITH SEAL)

GENERAL CONDITIONS OF CONTRACT



Preface

The General Conditions of Contract shall be read in conjunction with respective provisions specified in Special Conditions of Contract, Specifications, Drawing and any other Part of the Contract. In case of irreconcilable conflicts the provisions under clause no 2.1 herein of General Conditions of Contract shall prevail.



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1 DEFINITIONS AND INTERPRETATION

1.1 Definitions

In the Contract, capitalised words and expression defined by way of inclusion in “parenthesis”, shall have the meaning so ascribed thereto. Further, in the Contract, unless repugnant to the context thereof, the following words and expressions used in these General Conditions of Contract and elsewhere in the Contract, shall have the meanings assigned to them hereunder:

“**Affected Party**” shall have the meaning ascribed to it in Clause 27.2.

“**Agreed Variations**” shall mean the statement of agreed variations annexed to the detailed Letter of Acceptance and any document signed by EIL and the Contractor as an amendment of contract.

“**Applicable Laws**” means all laws in force and effect, including Tax laws but excluding direct Tax laws (which includes income tax, corporate tax, profession tax and wealth tax), as of the Base Date and which may be promulgated or brought into force and effect hereinafter including any revisions, amendments or re-enactments including without limitation regulations, rules and notifications made thereunder and judgments, decrees, injunctions, writs, orders and notifications issued by any court or Authority, as may be in force and effect during the subsistence of the Contract and applicable to either Party, their obligations or this Contract from time to time.

“**Appendix**” means formats/enclosures attached to the General Conditions of Contract.

“**Approval**” and its grammatical variations shall mean approved or confirmed in writing by Engineer-in-Charge.

“**Arbitration Act**” means the (Indian) Arbitration and Conciliation Act, 1996.

“**Authority**” means the Government of India, any state government or any local authority or any department, instrumentality or agency thereof or any corporation (to the extent acting in a legislative, judicial or administrative capacity and not as a contracting party with EIL or the Contractor) or commission under the direct or indirect control of such central, state or local government or any political sub-division thereof or any court, tribunal or judicial body within India.

“**Base Date**” means the date 7 (seven) days prior to the last date for submission of the Bid/revised Bid, if any.

“**Background Information**” means all and any materials, data, documents, drawings, plans, surveys, reports or other information relating in any way to the Site or the Facility, whether or not made available by EIL and/or its agents to the Contractor.

“**Bid**” means the Contractor’s signed offer for the Works and all other documents submitted along with the Bid.

“**Bidding Documents**” mean the Notice Inviting Bids/ Letter Inviting Bids, the instruction to bidders (including annexures), form of bid (including appendices), the Contract Agreement, the General Conditions of Contract, the Special Conditions of Contract, the Specifications and all

other reports, surveys, drawings and documents including amendments, if any, provided to the Contractor by EIL.

“Billing Schedule” means the schedule submitted by the Contractor in accordance with Clause 23.3.1, in terms of which EIL shall be required to make progressive payments to the Contractor.

“Bill of Quantities” means the bill of quantities as per the provisions of the Contract.

“Business Day” means a day other than a Sunday or a public holiday on which banks are open for business in New Delhi and any other place mentioned in the Contract.

“Change in Law” means the occurrence of any of the following after the Base Date:

- (a) The enactment of any new law in India;
- (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 date of signing of the Contract;
- (d) Change in the interpretation or application of any Indian law by Government Authority via issuance of circulars/ clarifications or by a court which has become final conclusive and binding;
- (e) Increase/ Decrease in the rate of Taxes in force after the Base Date;
- (f) Change in the basis of computation of Taxes in force after the Base Date,

in such a manner that it has a material effect (positive or negative) on the Contract.

Notwithstanding anything mentioned above, Change in Law will not include any change in direct tax laws (which includes income tax, corporate tax, profession tax and wealth tax) for which the Contractor is the responsible party

“Clause” means a clause of this Contract.

“Code-1 Approval” means final approval of drawings/documents incorporating all comments of EIL (including any consultant appointed by EIL).

“Code-2 Approval” means tentative approval of the drawings/documents by EIL (including any consultant appointed by EIL) with comments to be incorporated by Contractor, with the intent that subject to incorporation of and/or rectification in accordance with such comments, construction/manufacture can proceed based on commented drawings/documents pending their re-submission and grant of Code-1 Approval.

“Code-3 Approval” means that on review of the drawings/documents by EIL (including any consultant appointed by EIL) the same have not been found in accordance with the applicable codes, standards, design basis and contractual stipulations and must therefore be re-submitted for review and approval after appropriate correction and/or re-preparation.

“**Commissioning**” shall have the meaning assigned to it in Clause 16.

“**Completion**” shall mean the successful provision of all materials and inputs and the successful completion and conclusion of all activities and tests (including the Tests on Completion) required to complete the Works in accordance with the Contract, but shall not include the obligation to rectify defects during the Defect Liability Period.

“**Completion Certificate**” shall have the meaning assigned to it in Clause 17.3.

“**Confidential Information**” means the Contract and everything contained therein, all documentation, data, particulars of the Works and technical or commercial information made by (or on behalf of) EIL or obtained directly or indirectly from EIL by the Contractor or which is generated or obtained by the Contractor or any Subcontractor in relation to the Works or any information or data that the Contractor receives or has access to as a result of the Contract, other than information:

- (a) which is generally available in the public domain other than by any unauthorised actions or fault of the Contractor; or
- (b) that is in the possession of the Contractor with a right to disclose.

“**Contract**” means the agreement between EIL and the Contractor for execution of the Works and includes the Contract Agreement, the General Conditions of Contract, the Special Conditions of Contract, the other Bidding Documents, the Specifications, the Price Schedule, and such further documents which are listed in the Contract Agreement and/or these General Conditions of Contract and includes any amendment thereto made in accordance with the provisions hereof.

“**Contract Agreement**” means the agreement entered into between EIL and the Contractor along with the Price Schedule and other annexures and includes any amendments thereto made in accordance with the provisions thereof.

“**Contract Performance Bank Guarantee**” means a duly executed, irrevocable, unconditional on demand bank guarantee that is to be procured and maintained by the Contractor in accordance with Clause 9.4.2, to secure the due and proper performance of the Contract.

“**Contract Validity Period**” means the period commencing from the Effective Date up to the end of the Extended Defects Liability Period.

“**Contract Price**” means the total price payable to the Contractor for performing the Works based on the rates and breakdown of prices provided by the Contractor in the Price Schedule, subject to such additions thereto and deductions there from as may be made under the Contract and as adjusted by the actual quantities, if applicable, of the items mentioned in the Price Schedule utilized in the execution of the Works.

“**Contract Spares**” shall have the meaning assigned to it in Clause 9.23.

“**Contractor's Documents**” means the documents to be prepared by the Contractor under the Contract including, without limitation, such technical documents specified in the Specifications and such data, designs, information, calculations, specifications, schedules, plans, test plans,

programs, the Drawings and Designs, the Billing Schedule, Test Records, As-Built-Drawings and all other information and documents including eye readable or computer readable data relating to the execution of the Works or otherwise for the performance of the Contract.

“Contractor's Equipment” means all machinery, apparatus, equipment, material, vehicles, plant and all other things of whatsoever nature required for the execution and Completion of the Works and remedying of any defects, but does not include Plant, Goods and Materials and any other thing intended to form or forming a part of the Permanent Works.

“Contractor's Event of Default” shall have the meaning assigned to it in Clause 32.2.

“Contractor's Insurance” has the meaning assigned to it in Clause 33.2.

“Contractor's Personnel” means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor, and any other personnel assisting the Contractor in the execution of the Works.

“Contractor's Representative” means the person nominated by the Contractor to act on its behalf for the purposes of the Contract and notified as such in writing to EIL.

“Cost” means all expenditure reasonably and properly incurred by the Contractor, whether on or off the Site and includes overhead, profit and similar charges.

“Defect” means any defect, imperfection or other fault in the Facility or any part thereof arising from or in connection with the execution of the Works or any defect, imperfection or other shortcoming in the Contractor's Documents, or a breach of the Contract or the neglect or failure of the Contractor to comply with any of its obligations, express or implied, under the Contract and the term **‘Defective’** shall be construed accordingly.

“Defect Liability Period” means the period specified in Clause 18.1 for notifying defects in the Works, calculated from the date of Completion as specified in the Completion Certificate for the Works or part of the Works.

“Dispute” shall have the meaning assigned to it in Clause 35.2.

“Design Data” means all specifications, sketches, plans, graphs, details, dimensions, models and calculations provided by EIL as a part of the Bidding Documents and verified by the Contractor.

“Drawings and Designs” means the drawings and designs provided by Engineer-in-Charge or prepared by the Contractor on the basis of the Design Data and submitted to and Approved by the Engineer-in-Charge in accordance with Clause 9.13 & 10.5, in accordance with which the Contractor shall proceed with the execution of the Works.

“Effective Date” means date of issuance of Fax of Acceptance/Letter of Award of Work.

“EIL” means Engineers India Limited, a company incorporated under the Companies Act, 1956 with its registered office at 1, Bhikaiji Cama Place, R.K Puram, New Delhi-110066 (INDIA).

“**EIL's Insurance**” shall have the meaning assigned to it in Clause 33.1.

“**EIL's Personnel**” means all staff and employees of EIL.

“**Engineer-in-Charge**” means the Person designated by EIL to act as the Engineer-in-Charge for the purposes of this Contract and notified in writing to the Contractor.

“**Extended Defect Liability Period**” shall have the meaning assigned to it in Clause 18.7.

“**Facility**” means the facility to be construed under and in accordance with this Contract and as described in greater detail in the Specifications.

“**Final Completion**” shall mean the successful completion and discharge of all obligations of the Contractor under the Contract, including the obligation to rectify Defects, if any, during the Defects Liability Period and the Extended Defects Liability Period, if any.

“**Final Completion Certificate**” means the certificate issued by EIL to the Contractor under Clause 19.

“**Final Bill**” has the meaning assigned to it in Clause 23.5.1.

“**Force Majeure**” has the meaning assigned to it in Clause 27.2.

“**Format-I**” has the meaning assigned to it in Clause 15.4.

“**Format-III**” has the meaning assigned to it in Clause 15.5.

“**Format-IV**” has the meaning assigned to it in Clause 15.10.3.

“**Format-V**” shall have the meaning assigned to it in Clause 16.1.3.

“**Free Issue Materials**” means any equipment, machinery, apparatus, accessories, auxiliaries, spare parts, tools and tackles and articles and things provided by EIL to the Contractor for incorporation in the Permanent Work and which shall be bailed to the Contractor upon their delivery at Site in accordance with Clause 9.29.

“**General Conditions of Contract**” means these general conditions of contract.

“**Goods and Materials**” means things of all kinds (other than Plant) intended to form or forming a part of the Permanent Work, including materials (if any) to be supplied by the Contractor under the Contract.

“**Good Industry Practice**” means the exercise of that degree of skill, diligence, prudence and foresight in compliance by the Contractor with the undertakings and obligations under the Contract, which would be expected from a skilled and experienced professional person engaged in works that are of the type, nature and scope similar to the Works.

“**Guaranteed Performance Levels**” means the guaranteed levels of performance set out in the Contract that are needed to be met by the Plant, Goods and Materials, the Works and the Facility on conduct of the Tests on Completion.

“Intellectual Property” means copyright, registered and unregistered trademarks and service marks, registered and unregistered designs, circuit layouts, all rights conferred under statute, common law or equity in relation to inventions (including patents), proprietary information and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

“INR” or “Rupees” means the legal currency of the Republic of India.

“Key Date” means a date identified for the completion of a Stage set out in the Works Completion Schedule, relating to execution of the Works, unless revised in accordance with the terms of the Contract.

“Key Personnel” shall have the meaning assigned to it in Clause 12.2.

“Letter of Award/ Fax of Acceptance” means the Letter of Award / Fax of Acceptance issued by EIL to the Contractor, awarding the Works to the Contractor.

“Mechanical Completion” shall have the meaning assigned to it under Clause 15.1.

“Mobilisation” means the organisation of sufficient and adequate resources, including labour, materials and equipment (including Contractor's Equipment and Goods and Materials) by the Contractor for execution of the Works.

“Mobilization Advance” means the amount specified in the Payment Schedule that is paid by way of advance by EIL to the Contractor pursuant to Clause 23.

“Mobilization Advance Guarantee” means a duly executed, irrevocable, unconditional on demand bank guarantee that is to be procured and maintained by the Contractor as security for the **Mobilization Advance** received by the Contractor.

“Monthly Progress Reports” means the monthly progress reports submitted by the Contractor in accordance with the scope of Works / Contract.

“Operation and Maintenance Manuals” means the operation and maintenance manual submitted by the Contractor in accordance with Clause 10.7.

“Payment Milestones” means the milestones listed in the Payment Schedule.

“Payment Schedule” means the document containing the terms of payment of the Contract Price to the Contractor as annexed to the Contract Agreement.

“Performance Compensation” means the compensation to be paid by the Contractor to EIL as compensation for failure of the Facility and the Works to meet the Guaranteed Performance Levels under Clause 20.1.

“Performance Tests” means the tests described in the Specifications which are to be carried out by the Contractor in accordance with the Contract in order to demonstrate compliance with the Guaranteed Performance Levels.

“Performance Guarantee Test Run” means the continuous operation of the Facility for a period, in accordance with the Contract, on full load during the Trial Operations.

“Permanent Works” means the permanent works to be executed by the Contractor (including all permanent structures and all work intended to form a continuing function after Completion of the Works) in accordance with the Contract.

“Person” or **“person”** means an individual, partnership, limited partnership, corporation, trust, joint stock company, unincorporated association, joint venture or Authority.

“Plant” means any and all permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided for incorporation or intended to be incorporated (whether later incorporated in the Facility or otherwise, including Contract Spares) in the Facility whether or not supplied from outside India or from within India, but does not include consumables, Contractor's Equipment and Goods and Materials.

“Pre-Commissioning” shall have the meaning assigned to it in Clause 14.

“Price Schedule” or **“Schedule of Rates”** shall mean the price schedule annexed to the Contract Agreement.

“Project” means the development, design, procurement, engineering and construction, erection, commissioning, testing, operation and maintenance of the Facility as applicable.

“Punch List” shall have the meaning assigned to it in Clause 15.6.

“Punch-list Items” means items of works of a minor or snagging nature which do not affect the operations of the Facility which remain incomplete on the date of issuance of Format-III.

“Quality Assurance Plan/Project Quality Plan” means the Approved quality assurance plan and manual developed by Contractor in accordance with Clause 9.19.

“Related Dispute” shall have the meaning assigned to it in Clause 35.2.6.

“Review Period” means the period of 14 (fourteen) days unless specified elsewhere in the Contract, within which the Engineer-in- Charge or his authorized engineer must complete his review of the Contractor's Documents, as calculated from the date of submission of the relevant Contractor's Document.

“Running Bill” means the fully supported invoice delivered to EIL by the Contractor at the times set out in the Payment Schedule, containing all the requisite information and complying with all the requirements set out at Clause 23.3.2.

“Safety Code” means the safety code set out at Appendix 3 (Safety Code).

“Secured Advance” means the amount specified in the Payment Schedule that is paid by EIL to the Contractor pursuant to Clause 23.2

“Site” means the land, location, right of way and/or places provided by EIL where the Works are to be executed and to which Plant and Goods and Materials are to be delivered and any

other place as may be specifically designated in the Contract as forming part of the Site or designated as such by the Engineer-in-Charge.

“Special Conditions of Contract” means the special conditions of contract setting out specific deviations from the General Conditions of Contract and other relevant provisions and data, which are to be read in conjunction with the General Conditions of Contract.

“Specifications” means all general and technical specifications and directions attached to and forming a part of the Bidding Documents which describe the purpose, scope, design and technical criteria of the Works including, the method and manner of performing the Works, the quality and quantity of the Works to be performed and the materials to be supplied under the Contract and includes all modifications or amendments made thereto by EIL.

“Stage” means the level of progress of the Works identified as such in Works Completion Schedule.

“Subcontract” means any contract awarded to a Subcontractor.

“Subcontractor” means any person named in the Contract as a subcontractor or an original manufacturer, supplier of any Goods and Materials, Plant, labour or services for the Works or any person to whom a part of the Works has been subcontracted by the Contractor with the prior Approval of Engineer-in-Charge, as the case may be, and the permitted legal successors in title to such person, but not any assignee of such person.

“Submissions Schedule” has the meaning assigned to it in Clause 9.13.1.

“Suspension Order” shall have the meaning assigned to it in Clause 26.1.

“Taxes” means all taxes, duties, imposts, levies and charges pursuant to any law (whether currently in force or coming into force on or after the date of base date as defined above), including income tax, capital gains tax, Value Added Tax (“VAT”), Central Sales Tax (“CST”), works contract tax (WCT), customs duty, service tax, excise duty, fees, cess, octroi, entry tax, fringe benefit tax and any interest, surcharge, penalty or fine in connection therewith.

“Temporary Works” means all temporary and ancillary works including enabling works and maintenance works connected with the Works and required for the execution and completion of the Permanent Works.

“Tests on Completion” mean the tests which are specified in the Contract and designated as such and any includes any other tests that have to be carried out before the Works, or any part thereof is taken over by EIL.

“Time for Completion” means the period specified in the Contract Agreement or the Special Conditions of Contract for Completion of the Works, calculated from the Effective Date.

“Time for Mobilisation” means the period specified in Clause 9.3.2 for completion of Mobilisation, as calculated from the Effective Date.

“Trial Operation” means the integrated operation of the Facility in automatic control system for a continuous period specified in the Contract or the Specifications.

“**Variation**” means any alteration and/or modification to the Specifications, which is instructed by the Engineer-in-Charge or as suggested by the Contractor and Approved as a variation by the Engineer-in-Charge in accordance with Clause 24.

“**Variation Order**” shall have the meaning assigned to it in Clause 24.1.

“**Week**” means a period of any consecutive seven days.

“**Working Day**” means a day other than a Sunday or a public holiday on which EIL is open for business.

“**Works**” means:

- (a) all work and services required in connection with the turnkey design, engineering, procurement, permitting, fabrication, manufacture, construction, construction management, coordination of Subcontractors work, inspection, expediting, transportation, shipment, delivery, import, erection, installation, commissioning, start-up, testing and completion of the Facility, completion of all Performance Tests, in accordance with this Contract;
- (b) the provision of all Plant, Goods and Materials, Contract Spares, machinery, tools, labor, utilities, chemicals, lubricants consumables, transportation, administration, oversight, incidentals and other services and items related to the foregoing in accordance with this Contract;
- (c) the correction of defects in the Facility; and
- (d) the performance of all other obligations and services that are described in, or necessarily implied by, this Contract.

“**Works Completion Schedule**” means the schedule for the performance of the Works and fulfilment of the Parties' obligations as annexed to the Contract Agreement/Special Conditions of Contract, as may be revised in accordance with the terms of the Contract.

“**Works Programme**” means the program showing the sequence, method and timing of the design, procurement, construction, erection, installation, testing, commissioning of the Works (and related activities in the form and content prescribed by the Specifications, or any amended or varied version thereof, as submitted by the Contractor and for which the Engineer-in-Charge has issued a notice of no objection.

1.2 Interpretation

In the Contract, except where the context requires otherwise:

- (a) References to any statute or statutory provision or order or regulation made thereunder shall include that statute, provision, order or regulation as amended, modified, re-enacted or replaced from time to time whether before or after the date hereof.
- (b) References to persons shall include corporate bodies, unincorporated associations, partnerships and any organisation or entity having legal capacity.

- (c) Headings of General Conditions of Contract or of the Specification or of any other Bidding Document are solely for the purpose of giving general guidance for convenience in reading and segregating the general subject matter of various clauses and are not a summary of contents thereof and shall not form part of the operative provisions of the Contract and shall not govern the meaning or importation of the clauses thereunder.
- (d) References to Clauses or Schedules are, unless the context otherwise requires, references to recitals, clauses of, or, schedules to these General Conditions of Contract.
- (e) Unless the context otherwise requires, reference to one gender includes a reference to the other, words importing the singular include the plural and *vice versa*.
- (f) References to the words “include” or “including” shall be construed as being suffixed by the term “without limitation”.
- (g) Reference to an agreement, deed, instrument or other document include the same as amended, novated, supplemented, varied or replaced from time to time.
- (h) Words indicating the singular also include the plural and words indicating the plural also include the singular.
- (i) Provisions of the Contract including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing.
- (j) The expression “writing” or “written” shall include communications by telex, e-mail, telegram, facsimile (fax) and letter.
- (k) If any provision in Clause 1.1 is a substantive provision conferring a right or imposing an obligation on any Party, effect shall be given to it as if it were a substantive provision in the body of the Contract.
- (l) The Schedules shall form an integral part of the Contract and shall be in full force and effect as though they were expressly set out in the body of the Contract.
- (m) Where the day on or by which any thing is to be done is not a Business Day or a Working Day, as the case may be, that thing must be done on or by the immediately occurring next Business Day or Working Day, as the case may be.
- (n) The rule of construction, if any, that a contract should be interpreted against the party responsible for the drafting and the preparation thereof, shall not apply to the Contract.
- (o) No verbal agreement, assurance, representation or understanding given by any employee or officer of EIL or so understood by the Contractor, whether given or understood before or after the execution of the Contract, shall bind EIL or alter the Contract documents unless specifically given in writing and signed by the Engineer-in-Charge/ EIL and the Contractor’s authorised representative as an agreed variation and amendment of the relative term(s) in the Contract.

- (p) Subject to Clause 2 below, All documents forming part of the Contract are to be read together as a whole and are to be taken as mutually explanatory.

2 CONTRACT

- 2.1 The documents forming the Contract are to be taken as mutually explanatory of one another. If there is an ambiguity or discrepancy in the documents, the Engineer-in-Charge shall issue necessary clarifications or instructions to the Contractor, and the order of precedence of the documents shall be as follows:

- (a) Contract Agreement
- (b) Detailed Letter of Acceptance along with its enclosures
- (c) Letter of Award / Fax of Acceptance
- (d) Job Specifications
- (e) Drawings
- (f) Technical Specifications
- (g) Special Conditions of Contract
- (h) Instruction to Bidders
- (i) General Conditions of Contract
- (j) Other Documents

3 COMMUNICATION

- 3.1 No verbal agreement, assurance, representation or understanding given by any employee or officer of EIL or so understood by the Contractor, whether given or understood before or after the execution of the Contract shall bind EIL or alter the Contract unless specifically given in writing.
- 3.2 Any consent, approval, authorization, certificate, report, information, notice or request from or by any Party or the Engineer-in-Charge shall be effective and valid only when made in writing under the hand of a duly authorized representative of such Party or the Engineer-in-Charge, as the case may be, and delivered by hand against receipt, sent by the recognized courier, registered mail or transmitted by facsimile transmission, e-mail to the address for the recipient's communication as stated in Clause 3.3 below. In case any notice is delivered by registered mail and/or courier, it shall be deemed to be duly served within forty eight (48) hours after posting and a notice or demand sent by facsimile, e-mail shall be deemed to have been served at the time of its transmission and in proving service of the same, it will be sufficient to prove, in the case of a letter, that such letter was sent by registered airmail, addressed and placed in the post and in the case of a facsimile transmission, e-mail that such facsimile/ e-mail was duly transmitted to a current facsimile number/ e-mail of the addressee at the address referred above.
- 3.3 Any contractual notice, instruction, decision, order, report, certificate or other communication that is to be exchanged between the Parties shall be served by sending the same by e-mail or facsimile transmission, with a confirmation copy by courier or registered post to the following addresses:

If to EIL:

Address: [■]
Attention: [■]
e-mail: [■]
Fax: [■]

If to the Contractor:

Address: [■]
Attention: [■]
e-mail: [■]
Fax: [■]

If to the Engineer-in-Charge

Address: [■]
Attention: [■]
e-mail: [■]
Fax: [■]

- 3.4 Any change in the address for communication shall be duly notified by EIL and/or the Contractor to the other Party in accordance with the provisions of this Clause 3.

4 STAMP DUTY

Stamp duties, registration fees (if any) and any related charges payable under the Applicable Laws in relation to the Contract shall be borne by the Contractor.

5 CONFIDENTIALITY AND CONFIDENTIAL INFORMATION

- 5.1 Both Parties shall treat the details of the Contract 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 prior consent of EIL.
- 5.2 The Contractor shall treat the Confidential Information as private and confidential, save in so far as may be necessary for the fulfilment of its obligations under the Contract, and shall not use, copy, publish, disclose or otherwise deal with, nor cause nor permit its Subcontractors or any persons for whom it is contractually or otherwise responsible for, to use, copy, publish, disclose or otherwise deal with the Confidential Information, without prior consent in writing of EIL. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract the same shall be referred to the decision of EIL, whose award shall be final.

Without limiting the generality of the foregoing paragraph:

- (a) the Contractor shall take all practicable steps to ensure that no photographs, drawings or other image of the Site or of the Works or any part thereof or any property of EIL or any physical or virtual model thereof, are taken or made, except as may be expressly

directed or Approved beforehand in writing by EIL;

- (b) the Contractor shall not in regard to anything concerning the Works publish any information, drawing or photograph and shall not give interviews to or comment to the press or to any person associated with the news media or take part in radio or television schedules except with the express prior written consent of EIL and subject to such conditions as it may prescribe;
- (c) the Contractor shall not use any part of the Site for the purpose of any advertisement, except by way of notice boards approved (as to location, number and content) by EIL; and
- (d) the Contractor shall use its reasonable endeavours to procure that its servants and agents comply with this sub-Clause.

5.3 The Contractor shall procure that each and every Subcontractor shall contain confidentiality undertakings on the part of the Subcontractor in substantially similar terms to those entered into by the Contractor, and shall use all reasonable endeavours to enforce them.

5.4 In the event that the Contractor is lawfully required or requested by order of any competent Authority to disclose any Confidential Information, then the Contractor shall, to the extent permitted by the Applicable Laws, prior to disclosure immediately notify EIL so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the Contractor may disclose to the competent Authority that portion of the Confidential Information which it is legally required to disclose and shall use all reasonable endeavours to obtain assurances that confidential treatment will be accorded to any Confidential Information so disclosed.

5.5 The Contractor agrees that, upon request at any time by EIL, the Contractor shall promptly, but in any event within 5 (five) days of receipt of written notification from EIL:

- (a) return all Confidential Information that is in tangible form (including, without limitation, Confidential Information contained in software or on computer disc) furnished to the Contractor, together with all copies or extracts thereof; and
- (b) destroy all analysis, compilations, studies or other documents which have been prepared upon or reflect in any way the Confidential Information.

5.6 The provisions of this Clause 5 shall survive the expiration or termination of the Contract.

6 COMPLIANCE WITH APPLICABLE LAWS

6.1. The Contractor shall, in performing the Contract, comply with all Applicable Laws.

6.2. Without prejudice to the foregoing, the Contractor shall be responsible for bearing all registration and statutory inspection fees payable under any Applicable Laws in respect of the Works executed or completed pursuant to the Contract. If the Contractor defaults in complying with the Applicable Laws, the Contractor shall, at its own risk and Cost, bear any and all additional fees, fines, penalties or charges. However, EIL shall make reasonable efforts to assist

the Contractor in rectifying any such default under Applicable Laws upon the Contractor's specific request, including any specific request to issue letters to the relevant Authorities on behalf of the Contractor.

- 6.3. The Contractor shall not be absolved from any of its obligations under Applicable Laws or the Contract or claim any additional amount from EIL or seek any extension of the Time for Completion due to its ignorance of any Applicable Law. This Clause 6.3 shall not however restrict the right of the Contractor to claim increase in cost due to Change in Law in accordance with the provisions of Clause 25.

7 BACKGROUND INFORMATION

- 7.1. Should there be any doubt or ambiguity in the interpretation of the Contract or contradiction in the various documents that comprise the Contract or should there be any discernable error or omission in any document comprising the Contract, the Contractor shall, prior to commencing the Work likely to be affected by such ambiguity, error or omission, apply in writing to the Engineer-in-Charge for resolving the ambiguity or rectifying the error, as the case may be. If the Contractor fails to apply to the Engineer-in-Charge prior to commencing the relevant Work, the Contractor shall perform such Work at its own risk and if the Work are at variance with the requirements of the Contract, then such Work shall be deemed to Defective Work and the provisions of Clause 9.16 shall apply.
- 7.2. The decision of the Engineer-in-Charge on any application under Clause 7.1 shall be in writing and shall be final and binding on the Contractor and shall form part of the Contract.
- 7.3. The Parties agree that any ambiguity, discrepancy, inconsistency, divergence, impracticality or omission as aforesaid shall not vitiate the Contract.
- 7.4. As soon as possible following a request from the Engineer-in-Charge to do so, the Contractor shall provide such reasonable information as the Engineer-in-Charge may request to assist it in resolving the ambiguity or rectifying the error, including if so requested, the Contractor's proposals for overcoming the ambiguity, discrepancy, inconsistency, divergence, impracticality or omission (as the case may be) but the Engineer-in-Charge shall not be obliged to adopt or instruct the same.
- 7.5. The Contractor is required to make all necessary inquiries and fully acquaint himself with all Background Information, and the Contractor acknowledges that any failure to acquaint itself with the Background Information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing its obligations under the Contract and EIL shall have no responsibility to the Contractor (whether in contract, tort, for breach of statutory duty or howsoever other arising) for or in relation to such Background Information whether as to its accuracy, adequacy, sufficiency or completeness.

8 GENERAL OBLIGATIONS OF EIL

8.1 Access to and Possession of the Site

- 8.1.1 EIL shall provide access the Site to the Contractor for the execution of the Works. In the event of delay in transfer of the Site by EIL to the Contractor, for reasons not attributable to the Contractor, the Contractor shall only be entitled to a reasonable extension of the Time for

Completion pursuant to Clause 14. The Contractor shall take all necessary precautions to ensure that no damage is caused to any building or establishment within the Site. The Contractor shall be liable for any loss suffered by EIL on account of damage to the Site or any building or establishment within the Site. The Contractor shall ensure that day to day activities of EIL are not hampered because of Works executed by the Contractor. The Contractor shall ensure that until the issuance of the Completion Certificate (EIL shall start operations from COD upon completion of the Trial Operations), in accordance with Clause 17 by EIL, EIL's Personnel, their representatives and assignees shall have the right to visit the Site at any time and inspect or audit the Contractor's books and records relating to the execution and completion of the Works.

- 8.1.2 Without prejudice to Clause 8.1.1 above, the Contractor agrees that the Site will be handed over to the Contractor in stages with a view that the Contractor shall plan the Works in a manner so as to achieve Completion in a sequential manner, without affecting the Time for Completion and without starting all the Works at the same time. To this end, within 28 (twenty eight) Working Days from the Effective Date, the Contractor shall finalize, in agreement with the Engineer-in-Charge, sequential requirement of the Site, taking into account the other works concurrently being undertaken by EIL at or about the Site or on the performance of which depends the Contractor's performance of the Works.

8.2 Permits, Licenses or Approvals

Without prejudice to the obligations of the Contractor, contained in the Contract, if requested by the Contractor, EIL shall use its reasonable endeavours to assist the Contractor in obtaining in a timely and expeditious manner all permits, approvals and/or licenses necessary for the execution of the Contract from all local, state or national government authorities or public service undertakings, in India that such authorities or undertakings require the Contractor or Subcontractors or the personnel of the Contractor or Subcontractors, may require, as the case may be, pursuant to Applicable Law in India.

8.3 EIL's Personnel

Without prejudice to the obligations of the Contractor under the Contract, EIL shall be responsible for ensuring that EIL's Personnel:

- (a) co-operate with the Contractor's and the Contractor's Personnel; and
- (b) take actions similar to those which the Contractor is required to take under Clause 9.16, on the Site, in respect of any other works undertaken by EIL at the Site..

8.4 Engineer-in-Charge

EIL shall appoint the Engineer-in-Charge to act on behalf of EIL in connection with the Contract. The Engineer-in-Charge shall have the powers and duties specified in the Contract. The Engineer-in-Charge shall have no authority to amend the Contract or to relieve either Party of any of its duties, obligations or responsibilities under the Contract, unless expressly authorised by EIL by way of a notice to the Contractor.

9 GENERAL OBLIGATIONS OF CONTRACTOR

9.1 General Obligations

- 9.1.1 The Contractor shall execute the Works, as described in greater details in the Specifications, in accordance with the Contract, the Specifications, the Safety Code and Applicable Laws. The Works shall be fit for the purposes for which they are intended, as defined in the Contract. The Works shall include any work which is necessary to satisfy the Specifications, or as implied by the Contract, or arises from any obligation of the Contractor, and all works not mentioned in the Contract but which are necessary for stability, completion or the safe, reliable and efficient operation of the Facility.
- 9.1.2 The Contractor agrees and acknowledges that at any time after acceptance of the Bid, EIL shall have the right to add, amend or delete any item of the Works in the overall interest of the Project. Further, EIL shall have the right to split the scope of Works under this Contract between two or more contractors without assigning any reasons thereof.
- 9.1.3 The Contractor shall execute the Works in accordance with the Works Completion Schedule and shall complete each Stage within the relevant Key Date and the entire Works within the Time for Completion and for this purpose the Contractor shall provide such necessary resources, Goods and Materials, Plant and Contractor's Personnel having the requisite experience for the purposes stated in the Contract.
- 9.1.4 The Contractor agrees and acknowledges that it shall perform all of its obligations and responsibilities under the Contract at its own risk, Cost and expense. EIL shall have no obligation or responsibility whatsoever with respect to the Completion of the Works or the fulfillment of other obligations of the Contractor under the Contract, except as expressly provided in the Contract.
- 9.1.5 The Contractor shall provide all superintendence, Goods and Materials and Contractor's Equipment and all other things, whether of a temporary or permanent nature, required for the execution of the Works.
- 9.1.6 Wherever applicable, the Contractor shall submit within 56(fifty six) days from the Effective Date, a detailed Bill of Quantities, specifying the materials which, on a preliminary determination made by the Contractor, will be required for incorporation in the Permanent Work. Each item entered in the Bill of Quantities shall be priced, to the extent possible, in conformity with the details given the Bid. EIL shall review or cause to be reviewed the adequacy, sufficiency, validity and/or suitability of the materials listed in the Bill of Quantities and of the prices indicated in the Bill of Quantities in this regard. Such review shall be performed in conjunction with design, engineering and other technical reviews to be done by EIL and all provisions applicable to review of critical drawings and designs shall be applicable to the review of the Bill of Quantities. However, no such review or Approval of the priced Bill of Quantities by EIL shall absolve the Contractor of its obligation to supply all Goods and Materials required to be incorporated in the Permanent Work, within the price quoted for such Goods and Materials in the Price Schedule.
- 9.1.7 The Contractor shall supply all materials, works, labour and other services, which although not specifically mentioned in the Contract:

- (a) can be reasonably inferred from and is necessary for the execution of the Works, in accordance with Good Industry Practice, including where the Contract describes any portion of the Works in general terms but not in complete detail; or
- (b) that are necessary in order for the Contractor to cause the Facility to satisfy the Guaranteed Performance Levels and the warranties set forth in the Contract or as otherwise necessary in order to meet the purposes for which the Facility is being developed,

as if such superintendence, materials, works, labour and other services were expressly mentioned in the Contract. The performance of such obligations by the Contractor shall not be construed as a Variation and the Contractor shall not be entitled to any revision of the Contract Price or extension of the Time for Completion.

- 9.1.8 The Contractor shall take full responsibility for the methods of construction, adequacy, stability and safety of the operations carried out at the Site relating the execution of the Works, all Contractor's Documents, Goods and Materials, Contractor's Equipment, irrespective of any Approval or consent by the Engineer-in-Charge.
- 9.1.9 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 Engineer-in-Charge, the Drawings and Designs, the Specifications and Good Industry Practice, such that the Facility when complete shall be capable of meeting the Guaranteed Performance Levels.
- 9.1.10 The Contractor shall use proven and reliable technologies, configurations and architecture and exercise strict professional standards of skill, care and diligence, adhered to by experienced and competent contractors specializing in performing services of the same type and magnitude.
- 9.1.11 Within 30 (thirty) days of the Effective Date, the Contractor shall, to the extent necessary, register itself and the Contract, at its own Cost, with Reserve Bank of India, Income Tax Authorities, Sales Tax Authorities, Excise Authorities and other relevant statutory Authorities and provide copies of all documents related to such registrations to EIL for record.
- 9.1.12 Notwithstanding anything contained herein, the Contractor shall obtain and maintain all permits, licenses and approvals required for the execution of the Works as per Applicable Laws.
- 9.1.13 (a) If there is any doubt or ambiguity in the interpretation of the Contract or error, omission or contradiction therein or any of them, the Contractor shall prior to commencing the relative work, apply in writing to the Engineer-in-Charge for his decision in resolution of the doubt, ambiguity, contradiction or correction of the error or omission, as the case may be. Should the Contractor fail to apply to the Engineer-in-Charge for his decision, as aforesaid, prior to commencing the relative Work, the Contractor shall perform the said work at his own risks, and the provisions of Clause 9.1.13 (b) hereof shall apply to any such Work performed by the Contractor.
- (b) In the event of the Contractor having already performed or executed any Work at variance with the decision of the Engineer-in-Charge as aforesaid, then, notwithstanding payment in respect of such Work having made to the Contractor, such Work shall be deemed to be Defective Work and the relevant provisions hereof and

associated Clauses thereunder shall apply thereto.

- 9.1.14 The Contractor is deemed to have satisfied itself as to the correctness and sufficiency of the Specifications and other terms of the Contract relating to its risks, liabilities and obligations set out in or implied by the Contract and all matters and things necessary for the proper execution of the Works.
- 9.1.15 The Contractor shall take all steps to cause minimum disturbance of vehicular traffic and other movement of the public, on or in the vicinity of the Site.
- 9.1.16 Without prejudice to the provisions of the Contract and notwithstanding any testing or certification pursuant to this Contract, EIL shall at any time during the subsistence of this Contract, have the right (but not the obligation) to reject any part of the Works, the Plant, the Goods and Materials, or the Contractor's Equipment, which is found not to be in compliance with the requirements of this Contract including, the Specifications.
- 9.1.17 In such a situation, EIL may instruct the Contractor to:
- (a) remove from the Site and replace the rejected Plant, Goods and Materials or Contractor's Equipment or re-instate the Works; or
 - (b) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise,
- in accordance with the requirements of this Contract, the cost of which shall be to the sole account of the Contractor. The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is of the nature specified under paragraph (b).
- 9.1.18 If the Contractor fails to proceed with the repair or replacement of the rejected item of the Works or the Contractor's Equipment within reasonable time, EIL may, by contract with third Persons or otherwise, repair or replace such part of the Works and/or terminate this Contract pursuant to Clause 32.2 and the Contractor shall be liable to reimburse EIL upon demand for all costs and damages incurred by EIL relating to such repair or replacement by a third party.
- 9.1.19 If EIL requires the Works, Goods and Materials, Contractor's Equipment or workmanship to be retested after such remedy of the Defect therein or replacement, the tests required to be conducted under this Contract and as instructed by EIL shall be repeated under the same terms and conditions. If the rejection and retesting cause EIL to incur additional costs, the Contractor shall pay these costs to EIL.
- 9.1.20 The Contractor shall provide, comply with and require and ensure that its Subcontractors also provide and comply with such documentation/information or any other support as may be requested by EIL from time to time as may reasonably be deemed fit by EIL for meeting its obligation under any Applicable Laws for the time being in force or in relation to the said Works, as also matters including but not limited to exemptions, concessions etc as may be availed, sought to be availed by EIL.

- 9.1.21 The Contractor shall furnish to EIL, promptly upon request, such information concerning the Contractor, its Subcontractors and their respective employees or the Works as EIL may be required to furnish to any competent Authority for the procurement of any licences, permits or approvals mentioned in Clause 8.2.
- 9.1.22 To the extent possible, the information regarding existing structures/ overhead lines, existing pipelines and utilities are already indicated on alignment sheets forming part of the Background Information. However, the Contractor may encounter other structures/ pipelines/ optical fiber cables etc. that may not be appearing on alignment sheets, for which, the Contractor is required to collect information on his own before commencing the Work. The Contractor shall execute the Works in such a manner that the said structures, utilities, pipelines etc. are not disturbed or damaged, and shall indemnify and keep indemnified EIL from and against any destruction thereof or damages thereto.

9.2 Contractor's Representative

- 9.2.1 The Contractor shall, within 30 (thirty) days of the Effective Date, appoint the Contractor's Representative with the prior written Approval of EIL (and such Approval shall not be unreasonably withheld) and vest in him the authority to act on behalf of the Contractor for all purposes of the Contract. If the consent is withheld or subsequently revoked, or if the appointed person fails to act as the Contractor's Representative, the Contractor shall submit the name and particulars of another suitable person for such appointment.
- 9.2.2 The Contractor shall not, without the prior consent of EIL, revoke the appointment of the Contractor's Representative or appoint a replacement.
- 9.2.3 The Contractor's Representative shall coordinate all matters relating to the Contract with EIL, receive all instructions from Engineer-in-Charge and shall devote substantially all of his time to the performance of the Contractor's obligations under the Contract.

9.3 Mobilisation

- 9.3.1 The Contractor shall be responsible for Mobilisation including, setting up of offices at the Site with infrastructure facilities such as power, water, communication, conveyance etc., procuring an adequate strength of skilled, semi-skilled and unskilled workers, who, with such infrastructure facilities shall be in a position to commence and execute the Works. The Contractor shall carry out the Mobilisation in accordance with the agreed quality standards and Applicable Laws.
- 9.3.2 The Contractor shall complete Mobilisation in accordance with the terms of the Contract within the Time for Mobilisation, which is 21 days from the Effective Date.

9.4 Security

9.4.1 Mobilization Advance Guarantee

- (a) The Contractor shall furnish the Mobilization Advance Guarantee for a sum equal to 10% (ten percent) of 110% (one hundred and ten percent) of the Contract Price, to cover the Mobilization Advance to be received by the Contractor under the Contract from and Indian nationalized / scheduled bank / Indian branch of an international bank acceptable

to EIL, in the form set out at Appendix 2 (Form of Mobilization Advance Guarantee). The Mobilization Advance Guarantee shall have a claim period of 90 (ninety) days beyond validity.

- (b) The mobilization advance guarantee shall remain valid until the earlier of the following:
 - i) Upto the date when the mobilization advance has been fully recovered; or
 - ii) Upto the date of Final Completion;
- (c) If the Mobilization Advance Guarantee is or becomes invalid for any reason (other than its expiry), the Contractor shall immediately notify the Engineer-in-Charge and obtain within 7 (seven) days a replacement Mobilization Advance Guarantee in the form appearing in Appendix 2 (Form of Mobilization Advance Guarantee).
- (d) EIL shall have an unqualified option under the Mobilization Advance Guarantee to draw on the guarantee and claim the amount there under in the event of the inadequate adjustment of the Mobilization Advance in accordance with Clause 23.1.3.
- (e) The provision, maintenance or renewal, as the case may be, of the Mobilization Advance Guarantee by the Contractor in accordance with the terms of the Contract shall be a condition precedent to any payment by EIL to the Contractor.
- (f) If the Contractor fails to provide, maintain or renew the Mobilization Advance Guarantee in accordance with the Contract, then EIL may, without prejudice to any other rights and remedies to which it may be entitled, by written notice forthwith terminate the Contract.
- (g) The Contractor agrees and acknowledges that EIL shall be entitled to assign the Mobilization Advance Guarantee in favour of any party to whom this Contract may be assigned by EIL.
- (h) EIL shall endeavour to release the Mobilization Advance Guarantee to the Contractor, within 30 days after total recovery of the Mobilization Advance, including any interest/charges, as applicable, on request of Contractor.

9.4.2 Contract Performance Bank Guarantee

- (a) Within fifteen (15) days of the Effective Date, the Contractor shall furnish to EIL, the Contract Performance Bank Guarantee from any Indian Nationalized / Scheduled Bank / Indian branch of an International Bank acceptable to EIL for an amount equivalent to 10% (ten percent) of the awarded Contract Price in types and proportions of currencies in which the Contract Price is payable in accordance with the Contract. The Contractor shall procure the Contract Performance Bank Guarantee in the form set out in Appendix 1 (Form of Contract Performance Bank Guarantee). The Contractor shall maintain the Contract Performance Bank Guarantee at its own expense, and shall ensure it shall remain valid for a period of not less than 3 (three) months after the expiry of the Extended Defects Liability Period. The Contract Performance Bank Guarantee shall be extended by such period as EIL may require if the Completion is delayed beyond the Time for Completion and/or the Final Completion is delayed beyond the scheduled date of Final Completion and any extension thereof as per directions of the Engineer-in-Charge. In the event that the Contract Price is increased during the Contract Validity Period for any reason whatsoever, the value of the Contract Performance Bank Guarantee

shall be increased proportionately by the Contractor within 7 (seven) Business Days to ensure that it remains an amount which is equivalent to 10% of the revised Contract Price, as determined by the Engineer-in-Charge.

- (b) EIL shall have an unqualified option under the Contract Performance Bank Guarantee to draw on the security and claim the amount there under in the event of the Contractor's failure to honor any of its obligations, responsibilities or commitments under the Contract or in respect of any amount due from the Contractor to EIL. Provided however that, nothing stated under this Clause shall make it incumbent upon EIL to utilize the Contract Performance Bank Guarantee in preference to any other remedy which EIL may have, nor shall it be construed as confining the claims of EIL against the Contractor to the value of the Contract Performance Bank Guarantee.
- (c) If the Contract Performance Bank Guarantee is or becomes invalid for any reason (other than its expiry), the Contractor shall immediately notify the Engineer-in-Charge and obtain within 7 (seven) days a replacement Contract Performance Bank Guarantee in the form appearing in Schedule 1 (Form of Contract Performance Bank Guarantee).
- (d) Without prejudice to the obligation of the Contractor under sub-clause (a) above, not later than 30 (thirty) Business Days before the expiry of the Contract Performance Bank Guarantee, the Contractor shall, upon request of the Engineer-in-Charge obtain extension of the validity of such Contract Performance Bank Guarantee for the period stated in such request by the Engineer-in-Charge and provide a copy of such renewed security. If the Contractor fails to extend the Contract Performance Bank Guarantee, EIL shall be entitled to receive the un-drawn amount there under pending the completion of the Works, provided that the amount so received shall be treated as a cash retention and to the extent that there are no outstanding claims thereto, shall be released upon submission of a new Contract Performance Bank Guarantee acceptable to EIL.
- (e) The Contract Performance Bank Guarantee shall be returned to the Contractor after 3 (three) months from the expiry of Extended Defect Liability Period.
- (f) If the Contractor fails to provide, maintain or renew the Contract Performance Bank Guarantee in accordance with the Contract, then EIL may, without prejudice to any other rights and remedies to which it may be entitled, by written notice terminate the Contract forthwith.
- (g) The Contractor agrees and acknowledges that EIL shall be entitled to assign the Contract Performance Bank Guarantee in favour of any party to whom this Contract may be assigned.

9.5 Site Data

- 9.5.1 EIL has made available to the Contractor all the relevant data in EIL's possession on hydrological and subsurface conditions relating to the Site. The accuracy or reliability of the data/studies/reports and of any other information supplied at any time by Engineer-in-Charge is not warranted and the Contractor shall be solely responsible for the consequences of its interpretation of all such data/studies/reports. The Contractor shall conduct further investigations considered necessary by it at its own Cost and any error or discrepancies, if found in the data made available by EIL at any stage shall not constitute ground for extension of the Time for Completion or any monetary claim.

- 9.5.2 The Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the execution of the Works.
- 9.5.3 The Contractor shall be deemed to have inspected and examined the Site, its surroundings, the studies/reports/data mentioned in Clause 9.5.1 above and other available information with respect to the viability of its design and the execution of Works and satisfied itself by careful examination before submitting its Bid, as to all the relevant matters including:
- (a) The form and nature of the Site, including the surface strata, sub-soil, sub-surface conditions, local conditions;
 - (b) The hydrological and climatic conditions;
 - (c) The extent, nature and magnitude of the Work, availability of the Plant and Goods and Materials necessary for the execution of the Works and remedying any defects;
 - (d) Applicable Laws;
 - (e) The Contractor's requirement for access, accommodation, facilities, personnel, supply of power and water, availability of labour, transport and other services;
 - (f) The risk of injury or damage to property adjacent to the Site and to the occupiers of such property or any other risk;
 - (g) The state of traffic both of passengers and vehicles on, along and adjacent to the Site at all times of the day, during various seasons, festivals, etc.; and
 - (h) The suitability of any building, structure, foundation or means of access to the Site to be provided by EIL for reception, movement, commissioning and maintenance of the Works within the time or times indicated in the Works Programme.
- 9.5.4 The Contractor now hereby agrees that the Contractor shall not be relieved from any risks or obligations imposed on or undertaken by it in relation to the Works on the grounds of any misunderstanding or misapprehension in respect of the matters referred to in paragraphs (a) to (h) above or on the ground that it did not or could not reasonably have been expected to foresee any such matter stated above which may, in fact, affect or have affected the Completion of the Works and remedying of any Defects therein or the meeting of its obligations in respect of the Works under the Contract.
- 9.5.5 The Site shall be handed over to the Contractor free from any encroachment and the Contractor shall satisfy itself to such effect prior to taking over the Site for the execution of the Works. It is clarified for the avoidance of doubt that after handing over of the possession of the Site or part of the Site, it shall be the sole obligation of the Contractor to ensure that the Site or part of the Site handed over remains free from any encroachment or squatters and the Contractor shall take all necessary steps at its Cost and expense to give effect to its obligations under this Clause.

9.6 Access Routes

- 9.6.1 The Contractor shall be deemed to have satisfied itself as to the suitability and availability of the access routes to the Site. The Contractor shall be responsible for the maintenance of such access routes. The contractor shall construct, if necessary, at his own cost and initiative, temporary access road to site from main public feeder roads. The Contractor shall provide at its own Cost, signs or directions which it may consider necessary or as instructed by the Engineer-in-Charge for the guidance of its employees, labourers, representatives and others. Upon the request of the Contractor and at the risk and Cost of the Contractor, EIL may assist the Contractor to obtain any permission, concessions and related easement right that may be required from the relevant authorities for the use of such routes, signs and directions.
- 9.6.2 EIL shall not be responsible for any claims which may arise from the use or otherwise of any access route. EIL does not guarantee the suitability or availability of any particular access route, and shall not be liable to any claim for any non-suitability or non-availability for continuous use during the execution of the Works of any such route.
- 9.6.3 All transport operations for the execution of the Works shall be carried out as stipulated in the Specifications. The Contractor shall indemnify EIL in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters.
- 9.6.4 The Contractor shall take all reasonable measures to ensure that the transportation of the Contractor's Personnel, Goods and Materials or Contractor's Equipment do not interfere with local traffic in the vicinity of the Site.

9.7 Rights of Way and Facilities

EIL shall provide a non-exclusive right of way for access to the Site. The Contractor shall bear all Costs and charges for special or temporary rights of way which it may require including those for access to the Site. The Contractor shall also obtain, at its risk and Cost, any additional facility outside the Site which it may require for the purpose of the execution of Works. EIL reserves the right to make use of these service roads/rights of way for itself working in the area, as and when necessary without any payment to the Contractor.

9.8 Sufficiency of Contract Price

- 9.8.1 The Contractor in fixing the rates/prices specified in the Price Schedule shall be deemed to have independently obtained all information necessary for the purpose of preparing the Bid and executing the Works and to have satisfied itself as to the correctness and sufficiency of the Bid and the Contract Price. Any error in description of the quantity or quality of the Works or omission of any item of work shall not vitiate the Contract or release the Contractor from its obligation to perform the Works at the prices specified in the Price Schedule and the Contractor shall be deemed to have known the scope, nature and magnitude of the Works and the materials, equipment and labour required for executing the Works.
- 9.8.2 Unless otherwise stated in the Contract, the Contract Price and the rates and prices stated in Contract shall, except as otherwise provided for in the Contract, cover all its obligations under and in relation to the Contract, including the obligation to supply Contract Spares; and all matters and all things necessary for the proper execution of the Works. The Contract Price shall not be adjusted save as expressly provided in the Contract, and includes any and all direct,

indirect and ancillary charges and costs of whatsoever nature, all profit, all licenses, royalty and other fees, the cost of all spare parts required for the execution of the Works. The Contractor acknowledges and agrees that the Contractor shall be liable to arrange and obtain any and all licenses on Intellectual Property rights required to execute the Works and to perform the Contract, and that any fees associated with such licenses shall be included within the Contract Price and shall be the sole responsibility of the Contractor.

9.9 Works Programme

- 9.9.1 The Contractor shall submit a detailed Works Programme to the Engineer-in-Charge not later than 30 (thirty) days from the Effective Date. The Contractor shall also submit a revised Works Programme whenever the Engineer-in-Charge finds that the previous Works Programme is inconsistent with actual progress as provided in the Specifications/ scope of Work.
- 9.9.2 No alteration to the Works Programme, or to such arrangements and methods specified therein, shall be made without obtaining prior written consent of the Engineer-in-Charge. If the progress of the Works does not conform to the Works Programme, the Engineer-in-Charge may instruct the Contractor to revise the Works Programme, showing the modifications necessary to achieve Completion within the Time for Completion. The Contractor shall then follow the revised Works Programme at its own Cost.
- 9.9.3 The consent by the Engineer-in-Charge to the Works Programme shall not relieve the Contractor of any of its responsibilities or obligations under the Contract. If the Works Programme indicate that a Key Date has not, or shall not be met, it shall not, by itself entitle the Contractor to an extension of time in relation to such Key Date.

9.10 Progress Reports

- 9.10.1 The Contractor shall submit to the Engineer-in-Charge, by the end of each month, Monthly Progress Report which shall, amongst other things, highlight actual or potential departures from the Works Programme and state the measures which the Contractor proposes to take in order to make good or reduce any delay.
- 9.10.2 The Contractor shall continue to submit the Monthly Progress Report until the end of the Extended Defects Liability Period. Each Monthly Progress Report shall include:
- (a) An executive summary;
 - (b) Charts showing the status of the Works;
 - (c) For the execution of each main part of the Works, the extent of progress (percentage of the whole), the actual or expected dates of commencement, anticipated completion date of the Stage, inspections and Tests on Completion to be carried out by the Contractor;
 - (d) Records of manpower and Contractor's Equipment on the Site;
 - (e) Copies of quality assurance documents or reference thereto, test results and certificates;
 - (f) Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects;

- (g) Comparisons of actual progress against the planned progress, variance analysis and reasons for the variance and steps taken to mitigate the same, with details of any aspects which may jeopardize the Completion of the Works in accordance with the Contract, and the measures being (or to be) adopted to overcome such aspects;
- (h) Inspection reports of regulatory authorities; and
- (i) Status and details of Licenses/registrations/approvals/permits obtained/ required to be obtained under Applicable Laws.

9.10.3 The Contractor shall also submit to the Engineer-in-Charge such other reports as may reasonably be required by it or any relevant authority or public body.

9.10.4 The Contractor hereby acknowledges and accepts that any programme, Monthly Progress Report, schedule, plan, daily report or any other information to be submitted by it in accordance with this Clause shall not constitute the notices which it is required to give under any provision of the Contract.

9.11 Packing and Forwarding

9.11.1 Imported Supplies

- (a) The Contractor shall, wherever applicable, after proper painting, pack and crate all materials for shipment in a manner suitable for export, in accordance with internationally accepted export practices and in such manner so as to protect the supplies from damage and deterioration in transit by road, rail and/or sea and during storage at Site. Without prejudice to any other liabilities or obligations of the Contractor, the Contractor shall be responsible for all damage to the supplies due to improper packing.
- (b) The Contractor shall notify EIL and the Engineer-in-Charge of the date of each shipment from the port of loading as well as the expected day of arrival of such shipment at the designated port of arrival.
- (c) The Contractor's notification shall give complete shipping details with regard to the weight, size and content of each package, along with any other information which EIL may require.
- (d) The following documents shall be sent to EIL within [3 (three)] days from the date of dispatch of the shipment to EIL or any other person designated by EIL:
 - (i) Invoices (2 copies) or any other document of title evidencing sale in transit
 - (ii) Packing list (2 copies)
 - (iii) Test certificate (4 copies)
 - (iv) Insurance certificate (2 copies)
 - (v) Third party inspection certificate as per Quality Assurance Plan Approved by EIL/Engineer-in-Charge (2 copies).

9.11.2 Domestic Supplies

- (a) The Contractor shall, wherever applicable, after proper painting, pack and crate all materials for in such manner so as to protect the supplies from damage and deterioration in transit by road and/or rail and during storage at Site. Without prejudice to any other liabilities or obligations of the Contractor, the Contractor shall be responsible for all damage to the supplies due to improper packing.
- (b) The Contractor shall notify EIL and the Engineer-in-Charge of the date of each shipment from the works, factory or warehouse and expected date of arrival at the Site.
- (c) The Contractor's notification shall give complete shipping details with regard to the weight, size and content of each package, along with any other information which EIL may require.
- (d) The following documents shall be sent to EIL within [3 (three)] days from the date of dispatch of the shipment to EIL or any other person designated by EIL:
 - (i) Invoices (2 copies) or any other document of title evidencing sale in transit
 - (ii) Packing list (2 copies)
 - (iii) Test certificate (4 copies)
 - (iv) Insurance certificate (2 copies)
 - (v) Third party inspection certificate as per approved Project Quality Plan/Quality Assurance Plan Approved by EIL/Engineer-in-Charge (2 copies).

9.12 Contractor's Equipment

9.12.1 All Contractor's Equipment and Temporary Works provided by the Contractor or any Subcontractor shall, when brought on to the Site, be deemed to be exclusively intended for execution of the Works and not be removed without the consent, in writing, of the Engineer-in-Charge. Such consent shall not be unreasonably withheld or delayed by the Engineer-in-Charge.

9.12.2 (a) Upon Completion of the Works, the Contractor shall remove from Site, the entire Contractor's Equipment, Temporary Works and surplus materials as defined in sub-clause 9.12.2(b) below, as per the directions of the Engineer-in-Charge.

(b) Surplus materials

Surplus civil construction materials comprising sand, cement, bricks, stones, aggregates and the products of dismantling the Temporary Works erected by the Contractor shall vest in and belong to the Contractor upon Completion of the Works and/or earlier termination of the Contract for any cause. The Contractor shall have the right, subject to the other terms & conditions of the Contract, to remove the surplus civil construction material from the Site, subject to satisfactory proof of supply. No other surplus material will be allowed to be removed from the Site and shall be deemed to be the property of EIL and the same shall be transported properly to EIL's store or as directed by EIL. The Contract Price quoted by the Contractor shall be deemed to include the cost of all surplus materials which are deemed to be the property of EIL.

- 9.12.3 EIL shall not at any time be liable for the loss or damage to any of the Contractor's Equipment, Temporary Works or materials brought on Site by the Contractor for execution of the Works.
- 9.12.4 The Contractor shall be responsible for obtaining physical clearance from the customs, if any required for constructional plant, materials and other things required for the execution of the Works.
- 9.12.5 The Contractor shall, upon written request by the Engineer-in-Charge, produce to the Engineer-in-Charge, all documents evidencing title to or the contractual arrangement giving the right to the Contractor to use the Contractor's Equipment. In the event of failure to comply with such request within 15 (fifteen) days, then without prejudice to any other rights, EIL shall be entitled to withhold the payments due to the Contractor under the Contract.
- 9.12.6 The Contractor shall be responsible for maintaining the Contractor's Equipment at the Site in a safe and reliable working condition.
- 9.12.7 The Contractor shall be liable for loss of or damage to any of the Contractor's Equipment or to any Persons, as a result of handling, storage or use of the Contractor's Equipment which may occur at any time during the execution of the Works or the remedying of Defects therein.
- 9.12.8 Notwithstanding anything contained to the contrary in any or all of the Clauses of this Contract, where any goods, materials or equipment for the execution of the Contract are procured with the assistance of any Authority either by issue from the Authority stocks or purchased under orders, permits or licenses issued by the Authority, the Contractor shall use such goods, materials or equipment economically and solely for the purpose of the Contract and shall not dispose of them without the prior written permission of EIL.

9.13 Contractor's Documents

- 9.13.1 The Contractor shall submit to EIL a detailed list of the Contractor's Documents to be submitted as well as a schedule for submissions of the Contractor's Documents (taking into account the requirement for Approval by EIL, the Engineer-in-Charge or any third party consultant appointed by EIL) within 3 (three) months from the Effective Date, which shall be subject to Approval by EIL.

EIL shall, within 21 (twenty one) Working Days of the date of submission of such schedule, either Approve the same or reasonably require amendments to such schedule by a written notice to the Contractor. Where EIL requires amendments to be made to the submission schedule, the Contractor shall make such changes and submit a fresh schedule for submissions. If EIL does not notify its refusal to Approve such schedule within 30 (thirty) Working Days of the receipt of such schedule, then it shall be deemed to be Approved by EIL. The latest revision of the Approved schedule for the submission of Contractor's Documents shall be the “**Submissions Schedule**” and shall form a Contract Document.

The Contractor shall comply with the Submissions Schedule for the purposes of submissions of the Contractor's Documents and shall, in any event, ensure the submission of the Contractor's Documents in relation to any element of the Works simultaneously with the performance of that element of the Works. Failure by the Contractor to do so shall entitle EIL to reject that element of the Works and the consequences thereof shall be borne by the Contractor at its own Cost.

- 9.13.2 The Contractor's Documents shall be prepared in sufficient detail and shall satisfy all regulatory approvals. The Engineer-in-Charge shall have the right to inspect/review the preparation of the Contractor's Documents, wherever they are being prepared.
- 9.13.3 Each of the Contractor's Documents shall, when considered ready for use, be submitted to the Engineer-in-Charge for his review. Unless otherwise stated in the Specifications or elsewhere in the Contract, each review by the Engineer-in-Charge shall not exceed the Review Period.
- 9.13.4 If the Engineer-in-Charge during the Review Period, gives notice to the Contractor that a Contractor's Document fails (to the extent stated) to comply with the Specifications, it shall be rectified, resubmitted and reviewed (and if specified, Approved) by the Engineer-in-Charge, at the Contractor's Cost within such time as the Engineer-in-Charge may specify to the Contractor.
- 9.13.5 Design, procurement, construction, manufacture and/or installation of any part of the Works shall not commence prior to the expiry of the Review Period for Contractor's Documents which are relevant for the execution of such part of the Works.
- 9.13.6 If the Contractor wishes to modify any Contractor's Document which has previously been submitted for such pre-construction review, the Contractor shall immediately notify the Engineer-in-Charge, and based on the Engineer-in-Charge's Approval, shall subsequently submit revised Contractor's Documents to the Engineer-in-Charge in accordance with the procedure set out in Clause 9.13.1.
- 9.13.7 If the Engineer-in-Charge instructs that further Contractor's Documents are required to be submitted by the Contractor which is necessary for carrying out the Works, the Contractor shall promptly and at Contractor's Cost prepare such documents.
- 9.13.8 If any errors, omissions, ambiguities, inconsistencies, inadequacies and other defects are found in the Contractor's Documents at any time, then such errors, omissions, ambiguities, inadequacies or other defects shall be rectified by the Contractor at its own Cost and any Approval or consent or review by the Engineer-in-Charge, of the Contractor's Documents shall not relieve the Contractor from any obligations or responsibility under the Contract.
- 9.13.9 Notwithstanding anything contained in this Contract in relation to the Contractor's Documents, the Contractor shall be fully responsible for the adequacy of the Contractor's Documents for the execution of the Works, any failure of the Contractor to comply with the Contract, or otherwise, for any ambiguity, inconsistency, deficiency, lack of fitness for purpose, errors and/ or omissions in such Contractor's Documents.
- 9.13.10 The Contractor's Documents shall be in the custody and care of the Contractor during the Contract. Unless otherwise stated in the Specifications, the Contractor shall provide 6 (six) copies of the Contractor's Documents along with a soft copy of the Contractor's Documents for the use of the Engineer-in-Charge and his assistants.
- 9.13.11 The Contractor shall keep on the Site, 1 (one) complete set of all relevant documents, including the Contract and all documents related to Variations, other communications given or issued from time to time under the Contract and all the Contractor's Documents Approved by the Engineer-in-Charge. EIL, the Engineer-in-Charge shall have the right to access these documents at all reasonable times.

9.13.12 If a Party becomes aware of an error or Defect of a technical nature in the Drawings and Designs or in the Contractor's Documents or any other document which was prepared for use in executing the Works, such Party shall promptly give notice to the other Party of such error or Defect.

9.13.13 As-Built-Drawings: The Contractor shall prepare, and keep up to date, a complete set of "as-built records" of the execution of the Works, showing the exact "as-built" locations, sizes and details of the Works as executed, with cross references to relevant specifications and data sheets in accordance with Clause 10.5.

9.13.14 Test-Reports: After the Performance Tests have been conducted in respect of the Facility, the Contractor shall furnish the test reports to the Engineer-in-Charge for evaluation in accordance with Clause 16.2.

9.14 Subcontractors

9.14.1 The Contractor shall not subcontract the whole of the Works and unless otherwise specifically stated:

- (a) The Contractor shall not be required to obtain consent for purchases of Goods and Materials which are in accordance with the Approved vendor list/ Approved makes specified in the Contract or for provisions of labour or for the subcontracts for which the Subcontractors are named in the Contract Agreement/ Contract;
- (b) The prior consent of Engineer-in-Charge shall be obtained for subcontracting any part of the Works other than as specified under Clause 9.14.1(a) provided that the execution of the Works (or any part thereof) by petty contractors or on piece work basis under the supervision of the Contractor (or its representative) shall not be deemed to be Subcontracting under the Contract; and
- (c) Not less than [30 (thirty)] days before the intended date of each Subcontractor commencing work, the Contractor shall notify the Engineer-in-Charge of such intention.

9.14.2 The Contractor shall be responsible for observance by all Subcontractors of any Applicable Laws and all the provisions of the Contract. The Contractor shall be entirely responsible for the acts or defaults of any Subcontractor, its representatives or employees, as if they were the acts, omissions or defaults of the Contractor, its representatives or employees and nothing contained in Clause 9.14.1(a) shall constitute a waiver of the Contractor's obligations under the Contract. The Contractor shall provide to the Engineer-in-Charge, certified true copies of all the executed Subcontracts containing complete terms and conditions, and annexures other than the price. The Contractor shall make timely payments to the Subcontractors and resolve all matters and differences with any Subcontractor speedily, without affecting the execution of the Works in any manner.

9.14.3 The terms and conditions of any Subcontract shall impose on the Subcontractor such terms and conditions of the Contract as are applicable and appropriate to the part of the Works to be executed by the Subcontractor, to enable the Contractor to comply with its obligations under the Contract.

- 9.14.4 Notwithstanding any consent to the selection of the Subcontractor given by the Engineer-in-Charge, the Engineer-in-Charge shall have full power to order the Contractor to terminate any Subcontractor and substitute such Subcontractor with any other sub-contractor and the Contractor shall be bound to follow such order, provided that such order is provided in writing by Engineer-in-Charge, clearly specifying the reasons for such termination.
- 9.14.5 EIL shall, under no circumstances be liable to any Subcontractor and the Contractor shall indemnify and keep indemnified EIL against all liabilities, costs, claims and demands of whatsoever nature by any Subcontractors.
- 9.14.6 The Contractor shall be solely responsible for the payments to be made to the Subcontractors in accordance with their respective Subcontracts and ensure proper and uninterrupted execution of the Works. EIL shall not interfere in the day to day management of the Subcontract between the Contractor and its Subcontractor, but if any complaint is received by EIL (or Engineer-in-Charge) from any Subcontractor regarding non-payment or delay in payment by the Contractor to such Subcontractor, then EIL may, by a written notice, require the Contractor to resolve such complaint within a reasonable period (to be specified in the notice) and provide the details of the steps taken by the Contractor to resolve the complaint, to EIL. If the issue is not satisfactorily resolved and the details provided by the Contractor are not considered satisfactory, EIL may, at its sole discretion, make direct payment to the Subcontractor as per its claim and recover such payments from any payment due to the Contractor under the Contract.

9.15 Setting Out

9.15.1 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 Engineer-in-Charge 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 protecting and preserving all bench marks, sight rails, pegs and other things used in setting out the Works.

9.15.2 The Contractor shall first review, validate and undertake its own due diligence of EIL's alignment survey reports and fix the alignment of the Works, pier locations, maintaining vertical and horizontal clearances keeping in view the important Site references and obligatory locations, in consultation with the Engineer-in-Charge. The Contractor shall establish, at suitable points and at its own Cost, additional reference lines and benchmarks as may be necessary for the proper execution of the Works while ensuring, at all times, that the reference lines, points and benchmarks fixed by the Engineer-in-Charge are not disturbed and/ or damaged and the Contractor shall be liable to make good any damage thereto. The verification/ inspection of any setting out or of any line or level by the Engineer-in-Charge shall not in any way relieve the Contractor of its responsibility for the accuracy or correctness thereof and the Contractor shall carefully protect and preserve all benchmarks, sight-rails, pegs and other things used in setting out the works.

- 9.15.3 If at any time during the execution of the Works, an error appears in the positions, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Engineer-in-Charge, shall, at Contractor's Cost, rectify such error to the satisfaction of the Engineer-in-Charge.

9.16 Safety of Works

- 9.16.1 The Contractor shall throughout the execution of the Works:

- (a) Take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Contractor's Equipment, Temporary Works, operations on the Site and methods of manufacture, construction and transportation;
- (b) Have full regard for the safety of all persons on or in the vicinity of the Site (including persons to whom access to the Site has been allowed by the Contractor), comply with the Safety Code, all relevant safety regulations, including provision of safety gear. Insofar as the Contractor is in occupation or otherwise is using areas of the Site, the Contractor shall keep the Site and the Works (so far as the same are not completed and occupied by EIL) in an orderly state appropriate for the avoidance of injury or accident to all persons on and in the vicinity of the Site and shall keep EIL indemnified against all costs, charges, losses and damages that may be suffered by EIL in any manner whatsoever as a result of any injury or accident to any person on or in the vicinity of the Site in connection with the execution of the Works;
- (c) Provide and maintain all lights, guards, fences and warning signs and watchmen when and where necessary or as required by the Engineer-in-Charge or by any Applicable Laws or by any relevant Authority for the protection of the Works and for the safety and convenience of the public and all Persons on or in the vicinity of the Site;
- (d) Where any part of the Works would otherwise be carried out in darkness, ensure that all parts of the Site where such part of the Works is being carried out are so lighted as to ensure the safety of all Persons on or in the vicinity of the Site and of such part of the Works;
- (e) The Contractor shall ensure that its employees and the employees of the Subcontractors wear identification badges (cards), uniforms, helmets, safety shoes, gum boots and other safety/protection wear as directed by the Engineer-in-Charge, and to be provided by the Contractor.

- 9.16.2 The Contractor shall submit a detailed and comprehensive contract specific Site safety plan and system safety assurance plan in accordance with the Specifications.

- 9.16.3 The Engineer-in-Charge's consent or rejection of the safety plans and/or supplements thereto shall be without prejudice to the Contractor's obligations with respect to safety measures required to be undertaken or implemented in accordance with the Safety Code and shall not excuse any failure by the Contractor to adopt proper and recognized safety practices throughout the execution of the Works.

- 9.16.4 The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer-in-Charge or any other third party safety audit agency to carry out inspections to verify that the safety plans are being properly and fully implemented.
- 9.16.5 The Works, including materials to be used for execution of the Works shall be protected from exposure to and damage due to water.
- 9.16.6 The execution of the Works shall not be carried out in weather conditions that may adversely affect the execution of the Works or damage the Works (or any part thereof) unless proper protection is provided, to the satisfaction of the Engineer-in-Charge.
- 9.16.7 During the execution of the Works, storm restraint systems shall be provided by the Contractor where necessary to the satisfaction of the Engineer-in-Charge.
- 9.16.8 The Contractor shall ensure that the Execution of the Works is carried out in such manner that there is no damage to or interference with:
- (a) watercourses and drainage systems on and in the vicinity of the Site;
 - (b) utility services on and in the vicinity of the Site;
 - (c) structures (including foundations), roads, street fixtures, etc. on and in the vicinity of the Site;
 - (d) public or private, vehicular or pedestrian access routes and roads on and in the vicinity of the Site; and
 - (e) monuments, graves or burial grounds other than to the extent that is necessary for them to be removed or diverted for the execution of the Works. Heritage structures shall not be damaged or disfigured on any account. The Contractor shall inform the Engineer-in-Charge, as soon as practicable, of the structures or roads which are not stated in the Contract to be removed or diverted but which the Contractor considers necessary to be removed or diverted. The Contractor shall not remove or divert any such structure or roads until the consent of the Engineer-in-Charge to such removal or diversion has been obtained.

9.17 Security of the Site

The Contractor shall be wholly responsible for security of the Site and the Works. Unless otherwise stated in the Contract:

- (a) The Contractor shall be responsible for keeping unauthorized persons off the Site; and
- (b) Authorized persons shall be limited to the employees, workmen or consultant or representative of the Contractor and its Subcontractor or persons authorized by the Engineer-in-Charge.

9.18 Contractor's Operations on Site and Clearance of Site

- 9.18.1 The Contractor shall confine his operations to the Site, and to any additional areas which may

be obtained by the Contractor and agreed by EIL as working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to restrain them from encroaching on adjacent land.

- 9.18.2 At all times during the execution of the Works, the Contractor shall keep the Site clean, safe, in a workmanlike condition and free from all unnecessary obstruction, and shall safely store or dispose of any Contractor's Equipment or surplus materials. 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 Engineer-in-Charge, unless required to be maintained at the Site as per the express instructions of Engineer-in-Charge.
- 9.18.3 Upon Completion of the Works, the Contractor shall leave the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Liability Period, such Goods and Materials or Contractor's Equipment as are required for the Contractor to fulfil its obligations under the Contract.
- 9.18.4 The Contractor shall not sell or otherwise dispose of or remove except for the purpose of performing the Works, the sand, clay, ballast, earth, rock or other substances or materials obtained from any excavation made for the purposes of the Works or any building or produce that was on the Site at the time of handing over of the Site to the Contractor and all such substances, materials, buildings and produce shall be the property of EIL, provided that the Contractor may use such substances, materials, buildings for the performing the Works with the prior permission of the Engineer-in-Charge at the rates determined by the Engineer-in-Charge.

9.19 Quality Management System

- 9.19.1 Unless otherwise agreed with EIL, the Contractor's proposed quality system shall fully satisfy all the elements of ISO 9001 – 2000 "Quality Management Systems Requirement". As evidence of compliance with ISO 9001 – 2000 "Quality Management Systems Requirement", the Contractor shall be required to submit either the current certificate of quality system registration with ISO 9001 or a recent compliance audit recommending registration from a Registrar acceptable to EIL. The quality management system developed by the Contractor shall provide for the planned and systematic control of all quality related activities for execution of the Works. Implementation of the quality management system shall be in accordance with the standard specification for quality management system provided with the Bidding Documents.
- 9.19.2 As a part of the quality management system to be developed and implemented by the Contractor, the Contractor shall prepare and submit the Project Quality Plan/ Quality Assurance Plan for the Engineer-in-Charge's review, comments (if any) and approval within 21 (twenty one) days after the Effective Date. The Engineer-in-Charge shall review the Project Quality Plan/Quality Assurance Plan and provide any comments to the Contractor within 21 (twenty one) Working Days after its receipt of such draft. Within 14 (fourteen) days after its receipt of the Engineer-in-Charge's comments, the Contractor shall implement such comments re-submit the Project Quality Plan/Quality Assurance Plan to the Engineer-in-Charge for Approval. This procedure shall be repeated until the Project Quality Plan/ Quality Assurance Plan is approved by the Engineer-in-Charge. Any compliance by the Contractor with the Engineer-in-Charge's comments shall neither constitute a Variation nor entitle the Contractor to any extension of the Time for Completion or increase in the Contract Price. No proposed change to the Project Quality Plan/ Quality Assurance Plan shall be effective unless the Engineer-in-Charge approves

of such proposed change. Notwithstanding any comments provided by the Engineer-in-Charge, the Contractor shall remain fully responsible for the Project Quality Plan/ Quality Assurance Plan, including rectifying all defects therein.

- 9.19.3 The Contractor shall follow and comply with the Approved Project Quality Plan/ Quality Assurance Plan and shall not amend it without the prior written consent of the Engineer-in-Charge. EIL may, at any time during performance of the Works, conduct a compliance audit with respect to the Project Quality Plan/ Quality Assurance Plan. If such audit demonstrates non-compliance with any aspect of the Quality Assurance Plan, EIL may notify the Contractor of such non-compliance and the Contractor shall promptly undertake appropriate remedial action, at Contractor's sole risk, Cost and expense.

9.20 Fossils

- 9.20.1 All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall, as between the Contractor and EIL, be deemed to be the absolute property of EIL. The Contractor shall take reasonable precautions to prevent the Contractor's Personnel or any other person from retaining or damaging any such article or thing and shall, immediately upon discovery thereof and before removal, acquaint EIL with such discovery and carry out EIL's instructions for dealing with the same.

- 9.20.2 If, by reason of complying with EIL's instructions under Clause 9.20.1, the Contractor incurs any costs and/or any delay, then EIL shall, after following the procedure set forth at Clause 24, treat the same as a Variation.

9.21 Land, Power, Water and Other Facilities

The Contractor shall be responsible to provide within the scope of Work all facilities necessary for performance of the Works including (but not limited to) water (including water for hydrostatic testing, if any), power, transportation, handling and construction equipment, vehicles, vessels and any additional land at or about the Site required for the Contractor's field office(s), camps, godowns, workshops and residential accommodation for the Contractor's staff, quarry rights, borrow areas and access roads, to or about the Site and the Contractor's offices, camps, godown, workshops, accommodations, and Temporary Works and facilities whatsoever required for execution and Completion of the Works.

9.21.1 Water

- 9.21.1.1 Subject to availability, EIL may endeavour to provide water to the Contractor, at the cost specified in the Bidding Documents, for construction purposes at one point at the Site which is convenient to EIL. In such case, the Contractor shall, at its own Cost, provide for water meters approved by EIL/the Engineer-in-Charge for measurement of the quantity of water supplied to the Contractor for determination of payment due thereon to EIL. Such meters shall be in custody of EIL. The Contractor shall also provide at its own Cost and initiative other pipe net works etc. from source of supply to the Site and such distribution pipe network shall have prior approval of the Engineer-in-Charge so as not to interfere with the layout and progress of the other construction works.

- 9.21.1.2 In the event of failure or defect of meters, water charges will be calculated on the consumption determined by the Engineer-in-Charge (whose decision shall be final both as regards the existence of a defect or failure and as regards to the water consumed). The amount due to EIL in respect of the water supplied shall, without prejudice to any other mode of recovery available to EIL, be deductible from the Running Bills/Final Bill of the Contractor and/or any monies due or becoming due to the Contractor from time to time.
- 9.21.1.3 EIL may without notice or specifying any cause suspend or discontinue water supply to the Contractor and such suspension or discontinuation shall not entitle the Contractor to any compensation or damages or constitute a basis or ground for extension of the Time for Completion.
- 9.21.1.4 The Contractor shall forthwith on Completion of the Work or earlier determination of the Contract or during the execution of the Works, if so required by the Engineer-in Charge, on grounds of hindrance or obstruction caused thereby or other cause whatsoever at its own Cost and initiative remove or re-route, as the case may be, any installation, pipes and/or other equipment put up or erected by the Contractor for the transportation and/or distribution of water, and fill any trenches, ditches or other excavations done by the Contractor for the purpose thereof and restore the Site to the same condition in which it was prior to the installation.
- 9.21.2 **Power**
- 9.21.2.1 Subject to availability of power supply, EIL may, at its discretion provide for supply of power to the Contractor for execution of the Work from EIL's convenient & nearest substation, from which source the Contractor shall at his own Cost and initiative make arrangements for temporary distribution of power to Contractor's Works at the Site.
- 9.21.2.2 All arrangements for the distribution of power from source aforesaid and the work relative thereto shall be made, performed and/or installed in conformity with Indian Electricity Act and other Applicable Laws governing the supply and transmission, distribution of electricity and shall be subject to prior approval by the Engineer-in-Charge.
- 9.21.2.3 The Contractor shall, at his own Costs and initiative on Completion or prior determination of the Contract or otherwise during execution of the Work, if required by the Engineer-in-Charge because of hindrance caused thereby or for any other cause, forthwith remove or re-route the distribution lines, installations and/or works or part(s) thereof, as the case may be required to be removed or re-routed.
- 9.21.2.4 EIL shall recover from the Contractor for the power consumed by the Contractor from EIL's source(s) of supply the cost thereof to EIL as determined by EIL in this behalf from time to time. The amount due to EIL in respect of such power supplied shall, without prejudice to any other mode of recovery available to EIL, be deductible from the Running Bill/Final Bill(s) of the Contractor and/or any monies due or becoming due to the Contractor from time to time.
- 9.21.2.5 The Contractor shall provide at his own Cost suitable electric meters approved by the Engineer-in- Charge for measurement of the power units supplied to the Contractor for determination of the payment due thereon to EIL. Such meters shall be under the custody and control of EIL.

- 9.21.2.6 In the event of failure or defect of meter(s), power charges shall be calculated on the consumption determined by the Engineer-in-Charge (whose decision shall be final both as regards the existence of a defect or failure and as regards the power consumed).
- 9.21.2.7 EIL may at any time without notice and without specifying any cause, suspend or discontinue power supply as aforesaid to the Contractor, and such suspension or discontinuance shall not entitle the Contractor to any compensation or damages or constitute a basis for extension of Time for Completion.
- 9.21.2.8 Power supplied by EIL to the Contractor shall be entirely at the risks of Contractor as to the continuity and regularity of supply, maintenance of voltage and adequacy of load and frequency without any warranty by or liability to EIL in respect thereof and without entitlement to the Contractor to claim compensation from EIL on grounds of discontinuance, fluctuation of voltage or inadequacy of load or frequency or any other cause whatsoever.

9.21.3 Land

9.21.3.1 Land for Contractor's Field Office, Godown and Workshop

EIL may, at his own discretion and convenience and for the duration of the execution of the Works make available near the Site, land for construction of Contractor's temporary field office, godowns, workshops and assembly yard required for the execution of the Contract. The Contractor shall at his own Cost construct all these temporary buildings and provide suitable water supply and sanitary arrangement and get the same approved by the Engineer-in-Charge. On Completion of the Works undertaken by the Contractor, it shall remove all Temporary Works erected by it and have the Site cleaned as directed by Engineer-in-Charge.

If the Contractor shall fail to comply with these requirements, the Engineer-in-Charge may at the Cost of the Contractor remove such surplus, and rubbish materials and dispose off the same as he deems fit and get the Site cleared as aforesaid; and Contractor shall forthwith pay the amount of all expense so incurred and shall have no claim in respect of any such surplus materials disposed off as aforesaid. The Engineer-in- Charge reserves the right to ask the Contractor any time during the pendency of the Contract to vacate the land by giving 7 days notice on security reasons or on national interest or otherwise. Rent may be charged by EIL for the land so provided to and occupied by the Contractor, which may be deducted from the Running Bills/Final Bill of the Contractor or from any other amount due or that becomes due to the Contractor.

The Contractor shall put up temporary structures as required by it for their office, fabrication shop and construction stores only in the area allocated to them on the Site by EIL or his authorised representative. In addition, for uninterrupted fabrication work, the Contractor shall put up temporary covered structures at its Cost within area allocated to it within the Site by EIL or its authorised representative. No tea stalls/canteens should be put up or allowed to be put up by any Contractor on the allotted land or complex area without written permission of EIL

No unauthorised buildings, constructions or structures should be put up by the Contractor anywhere on the Site.

No person except for authorised watchman shall be allowed to stay on the Site, including on any area allotted to the Contractor pursuant to this Clause 9.21.3 after completion of the day's work without prior written permission from the Engineer-in-Charge.

9.21.3.2 Land for Residential Accommodation

No Land shall be made available for residential accommodation for staff and labour of Contractor.

9.22 Access for the Engineer-in-Charge

The Contractor shall allow the Engineer-in-Charge or its assistant or any other person authorized by the Engineer-in-Charge, access to the Site at all times, and to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where Goods and Materials or Plant are being manufactured, fabricated, constructed and/or assembled for incorporation in the Facility, during usual working hours and beyond usual working hours, upon prior intimation. The Contractor shall ensure that the Subcontracts, if any, shall contain provisions entitling the Engineer-in-Charge or any person authorized by him to have such access.

9.23 Contract Spares

The Contractor shall procure and supply:

- (a) all spare parts required during pre-commissioning and commissioning of the Facility and associated systems;
- (b) all mandatory spares required for the Facility and specified in the Bidding Documents;
- (c) all operation and maintenance spares, required during the Defects Liability Period

(collectively the “**Contract Spares**”).

The Contract Price shall include the cost of procuring and supplying the Contract Spares, unless otherwise specified in the Contract.

9.24 Avoidance of Damage

9.24.1 While transporting any Plant, Goods and Material, Contractor's Equipment or any other equipment, the Contractor shall comply with Applicable Laws and take all steps necessary to ensure that roads, viaducts and bridges on any route leading to the Site, including access and link roads to the Site as well as any third party properties, are not damaged.

9.24.2 In case the transportation of any Plant, Goods and Material, Contractor's Equipment or other equipment by the Contractor is likely to cause damage to any road, viaduct or bridge on any route leading to the Site, including access and link roads to the Site and any third party property, it shall inform the concerned Authorities before transporting such Plant, Goods and

Material, Contractor's Equipment or other equipment and obtain all necessary approvals and permits from the relevant Authorities as may be required, or give its proposal for strengthening such roads, viaducts or bridges. Any Cost incurred in this regard shall be borne by the Contractor.

- 9.24.3 The Contractor shall indemnify and keep EIL indemnified against all losses, damages and claims incurred by EIL due to any damage caused to any bridge or road or any other structure or street furniture leading to the Site, arising from the transportation of any Plant, Goods and Material, Contractor's Equipment or other equipment.

9.25 Quality Control

- 9.25.1 All Goods and Materials to be supplied under the Contract shall be constructed, and all Works shall be executed by the Contractor, in the manner set out in the Contract. Where the manner of manufacture, construction and the execution is not set out in the Contract, the Works shall be executed in a proper, workman like and careful manner, with properly equipped facilities and non-hazardous materials, and in accordance with recognized and internationally accepted industrial standards and Good Industry Practice. The successful execution of the Works is the sole responsibility of the Contractor.
- 9.25.2 EIL shall be entitled at all times, at the risk of the Contractor, to inspect and/or test by itself or through an independent person(s) or agency(ies) appointed by Engineer-in-Charge and/or to direct the Contractor to inspect and/or test or to get inspected and/or tested, all materials, items and components, whatsoever supplied or proposed for supply for incorporation in the works, inclusive during the course of manufacture or fabrication by the Contractor and/or at the Contractor's or his sub-vendors' works or otherwise, of such material, item or component. The inspection and/or tests shall be conducted at the expense of the Contractor and may be directed by Engineer-in-charge to be conducted by authorized representatives of Engineer-in-charge or third party inspection agency(ies) appointed by EIL. EIL may also require that all the inspections and tests conducted by the Contractor at his works or his sub-vendors' works be carried out in the presence of authorized representatives of Engineer-in-charge/ third party inspection agency(ies) appointed by EIL. The Contractor shall provide Engineer-in-charge and/or their representatives/Agents every facility of assistance necessary for carrying out or witnessing, as the case may be the Test(s) / Inspection(s).
- 9.25.3 The Contractor shall be responsible for procurement, transport, receiving, unloading and safe keeping of all Goods and Materials and other things at the Site required for the successful execution of the Works.
- 9.25.4 The Contractor shall provide all documents and other information necessary for testing of the Goods and Materials and such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as are necessary to carry out such tests efficiently.
- 9.25.5 The Contractor shall agree with the Engineer-in-Charge, the time and place for the testing of any Goods and Materials and other parts of the Works as specified in the Contract.
- 9.25.6 If the Engineer-in-Charge does not attend at the time and place agreed, or if the Contractor and the Engineer-in-Charge agree that the Engineer-in-Charge shall not attend, the Contractor may proceed with the tests, unless the Engineer-in-Charge instructs the Contractor otherwise, such tests shall be deemed to have been made in Engineer-in-Charge's presence.

- 9.25.7 The Contractor shall promptly forward to the Engineer-in-Charge duly certified reports of the tests. If the Engineer-in-Charge has not attended the tests, he shall accept the readings as accurate, except where there is a manifest error.
- 9.25.8 If, as a result of inspection, examination or testing, any Goods and Materials is found to be defective or otherwise not in accordance with the Contract, the Engineer-in-Charge may reject the same within 15 (fifteen) Working Days of such inspection, examination or testing by giving notice to the Contractor with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item after rectification complies with the Contract.
- 9.25.9 If the Engineer-in-Charge requires such Goods and Materials to be retested, the tests shall be repeated under the same terms and conditions. If such rejection and retesting causes EIL to incur additional costs, such costs shall be recoverable from the Contractor by EIL, and may be deducted by EIL from any monies payable to the Contractor under the Contract.
- 9.25.10 The Contractor shall not be released from any of its liabilities or obligations under the Contract by reason of any such inspection or testing or witnessing of testing, or by the submission of reports of inspection or testing to the Engineer-in-Charge.
- 9.25.11 Subject to Clause 11.5, each item of the Goods and Materials shall become the property of EIL upon the earlier of: (i) delivery of such item to the Site; or (ii) payment for such item, either in part or full, by EIL. The Contractor shall however continue to bear the risk and responsibility in respect of such items which continue to remain in its possession until the date of issuance of the Completion Certificate.
- 9.26 Covering up of Works**
- 9.26.1 No Works or part of the Works shall be covered up or put out of view, without the prior Approval of the Engineer-in-Charge or his assistant.
- 9.26.2 The Contractor shall provide full opportunity to the Engineer-in-Charge to examine part of the Works which is to be covered up and to examine foundations before the Permanent Works are executed at such place. The Contractor shall also give due notice to the Engineer-in-Charge, whenever any such work or foundation is ready for examination and the Engineer-in-Charge shall without unreasonable delay, examine and/or measure such work.
- 9.26.3 The Contractor shall uncover any part or parts of the Works, or make openings in or through the same, as the Engineer-in-Charge may from time to time direct, and shall reinstate and make good such part or parts, to the satisfaction of the Engineer-in-Charge. If any such part or parts have been covered up, or put out of view and the Works are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same, shall be borne by EIL, but if the Works are found to be defective, costs shall be borne by the Contractor.
- 9.26.4 In case after completion of a part of the Works, such part of the Works is not fully consistent with the Specifications and in the view of the Engineer-in-Charge cannot be changed or removed, then such part of the Works in its present condition (provided it has no implication on safety and operation) shall be accepted only after suitable reduction (as reasonably determined by the Engineer-in-Charge) has been made from the Contract Price.

9.27 Samples

The Contractor shall submit at its own Cost the following samples and relevant information to the Engineer-in-Charge for pre-construction and/or pre-manufacture review:

- (a) Manufacturer's standard samples of Goods and Materials;
- (b) Samples (if any) specified in the Specifications.

Each sample shall be labelled as to its origin and intended use in the Works.

9.28 Records

The Contractor shall from time to time maintain at the Site (in addition to any other records or registers required to be maintained by the Contractor under any Applicable Law) such records and registers with respect to the Works as the Engineer-in-Charge or EIL may require the Contractor to keep and/or maintain from time to time. The failure to maintain or submit any record or register required pursuant to this Clause 9.28 shall disentitle the Contractor from submitting any Running Bill pursuant to Clause 23.3 and shall constitute a breach of this Contract.

The review or acceptance of any record or register maintained by the Contractor pursuant to this Clause 9.28 shall be without prejudice to the rights and remedies of EIL and obligations and liabilities of the Contractor under this Contract and shall not otherwise operate as an estoppel against EIL by reason only of the fact that no notice of or objection to any information contained in any such record or register was taken.

9.29 Free Issue Materials

9.29.1 If EIL has undertaken in the Bidding Documents to procure and supply Free Issue Materials, the supply of Free Issue Materials to the Contractor shall be on the following terms and conditions:

- (a) Deliveries shall be either from the storage of EIL or from the factory/storage of a supplier designated by EIL or from nearest suitable railhead or other point(s) of collection as may be determined by EIL taking into account the source(s) of supply of the Free Issue Materials.
- (b) It shall be the responsibility of the Contractor at his own risks and Costs to take delivery of the Free Issue Materials from the stores, factory, railhead or other collection point, as the case may be, and to arrange for its loading, transportation to the Site and unloading at the Site or other place of storage. The Contractor shall in taking delivery ensure compliance with any conditions for delivery applicable to deliveries from EIL's or supplier's factory/stores or railways or other transporters concerned, and shall be exclusively responsible to pay and bear any demurrage or penalty or other charges payable by virtue of any failure or delay by the Contractor in lifting the supplies and/or any failure by the Contractor to observe the conditions of supply as aforesaid, and shall keep EIL indemnified from and against all consequences thereof.

- (c) The Contractor shall inspect the Free Issue Materials supplied to it at the time of taking delivery thereof and satisfy itself of the quality, quantity and condition thereof prior to taking delivery and EIL shall not be liable for any claims or complaints whatsoever in respect of quality, quantity or conditions of the Free Issue Materials once the Contractor has taken delivery thereof.
- (d) The Contractor shall on receiving and opening the packing cases or other packaging of Free Issue Materials on behalf of EIL, verify and tally the actual contents with the packing list and bring any discrepancies to the notice of the Engineer-in-Charge. The Contractor shall also sort out and segregate and hand over to EIL's stores, the instruction manuals, operation and maintenance manuals, special maintenance tools, erection spares, commissioning spares, and maintenance spares and other extras, if received with the main equipment. The erection spares may be got issued from EIL's stores if required, after getting authorization from the Engineer-in-Charge. The commissioning spares may be got issued from EIL's stores, if commissioning is included in the Contractor's scope.
- (e) The Free Issue Materials supplied or procured by EIL shall be utilized by the Contractor only for incorporation in the Permanent Works and even so shall not unless specifically authorized by EIL in this behalf) be utilized for manufacturing any item(s) which can be obtained in finished form from standard manufactures.
- (f) The Contractor shall furnish to the Engineer-in-Charge sufficiently in advance a detailed statement showing his requirement of the types and quantities of Free Issue Materials agreed to be supplied by EIL, indication of the time when relative types and quantities thereof shall be required by it for the Works so as to enable EIL to verify the quantities of Free Issue Materials specified by the Contractor and to enable EIL to make arrangements for the supply thereof.
- (g) EIL shall not be responsible for any delay in the supply of any Free Issue Materials supplied or procured or agreed to be supplied or procured by EIL, and no such delay or failure shall anyway render EIL liable for any claim for damages or compensation by the Contractor notwithstanding that an increase in the time of performance of the contract be involved by virtue of such delay and notwithstanding any labour, machinery or equipment brought upon the Site by the Contractor for the performance of the Work being rendered idle by such delay or failure, provided that if such delay shall in the opinion of the Contractor, necessitate an extension of Time For Completion, the provisions of clause 14 hereof relating to extension of time and associated provisions thereof shall apply.
- (h) The Contractor shall maintain a day to day account of all Free Issue Materials supplied to it by EIL indicating the daily receipt(s), consumption and balance(s) in hand of each Free Issue Material and category thereof. Such account shall be maintained in such form (if any) as shall be prescribed by the Engineer-in-Charge and shall be supported by all documents necessary to verify the correctness of the entries in the account. Such account shall be maintained at the Contractor's office at the Site, and shall be open for inspection and verification (by verification of documents in support of the entry as also by physical verification of the stocks) at all times by the Engineer-in-Charge without notice and for this purpose the Engineer-in-Charge shall be permitted and enabled without obstruction to enter into any godown or other place or premises where the Free

Issue Materials or any part thereof shall be stored and to inspect the same and to take by himself and/or through his representative(s) an inventory thereof.

- (i) All Free Issue Materials supplied by EIL shall be taken delivery of, held, stored and utilized by the Contractor as trustee of EIL, and delivery of Free Issue Materials to the Contractor shall constitute an entrustment thereof by EIL to the Contractor, with the intent that any utilization, application or disposal thereof by the Contractor otherwise than for incorporation in the Permanent Works in terms hereof shall constitute a breach of trust by the Contractor.
- (j) The Contractor shall hold and store any Free Issue Materials supplied by EIL only at such place and/or premises as may be approved by the Engineer-in-Charge, provided that no such approval shall absolve the Contractor in whole or part of his full liabilities in respect of such Free Issue Material, and the Contractor shall be and remain responsible at all times at his own risk and cost to ensure that the Free Issue Materials supplied by EIL is/are retained at all times in premises that are air and water tight and otherwise suitable for the storage of the concerned Free Issue Materials so as to prevent damage or deterioration for any cause whatsoever or theft or other loss, and shall arrange such watch and ward therefore as shall be necessary to ensure the safety thereof.
- (k) The Engineer-in-Charge may at his discretion require that all premises in which any Free Issue Materials supplied by EIL are stored, shall be double locked with the keys to one lock retained by Engineer-in-Charge or his representative and the other with the Contractor with the intent that all issues of EIL supplied Free Issue Materials shall be with concurrence of the Engineer-in-Charge or his representative, as the case may be, provided that any such double-locking and/or concurrence as aforesaid shall be an additional precaution and shall not anyway absolve the Contractor of his full liabilities or responsibilities in respect of such Free Issue Materials.
- (l) The Free Issue Materials supplied by EIL shall be insured by EIL against normal risks during transit, storage and erection. The Contractor shall, however, be responsible forthwith to make and pursue on behalf of EIL any and all claims under the policy(ies) and to fulfill all formalities required to obtain payment thereunder and/or to assist EIL in making or pursuing any such claim(s) and/or in obtaining payment thereunder.
- (m) Wherever the Contractor is required to take out any material supplied by EIL to a location outside the Plant premises, the Contractor shall be required to take out at his own Cost and initiative and keep in force at all times during the pendency of the Works, policy(ies) of insurance against the risks of fire, lightning, earthquake, riot, strike and theft and against any other damage or loss, for the full value (on reinstatement value basis) of the Free Issue Materials lying in the Contractor's custody and/or storage pending utilization/ incorporation in the Permanent Work and during incorporation in the Permanent Work. The insurance shall be kept valid till the Completion of the Works and till the Free Issue Materials is duly accounted for to the satisfaction of EIL.
- (n) Such insurance policy(ies) shall be in the joint names of EIL and the Contractor with exclusive right of EIL to receive all money(ies) due in respect of such policy(ies), and with right in EIL (but without obligation to do so) to take out and/or pay the premium for any such policy(ies) and deduct the premium and any other costs and expenses in this behalf from the money(ies) for the time being due to the Contractor.

- (o) Notwithstanding anything stated above, it shall be the responsibility of the Contractor to lodge with insurers and follow up claim(s), if any, under any policy(ies) of insurance aforesaid, and nothing herein provided shall absolve the Contractor from his full liabilities under the provisions of this clause and associated provisions hereof.
- (p) Where the Free Issue Materials are being stored within the battery area under the security and gate-pass control of EIL and are covered by the Overall Storage-cum-insurance Policy taken by EIL for the Works, EIL may, at his sole discretion, permit the Contractor to furnish an Indemnity Bond in the proforma prescribed by EIL, for the entire value of EIL supplied Free Issue Materials and for the entire duration during which the Free Issue Materials shall be lying in the storage and custody of the Contractor.
- (q) No such Insurance(s), as aforesaid, shall absolve the Contractor from his full liabilities hereunder, with the intent that the same shall be held merely by way of additional security and not by way of substitution of liability. The Contractor shall at all times be exclusively responsible for any and all loss(es), damage(s), deterioration, misuse, theft or other application or disposal of the Free Issue Materials, supplied by EIL or any of them contrary to the provisions hereof and shall keep EIL indemnified from and against the same and shall forthwith at his own Cost and expense replace any such Free Issue Materials lost, damaged, deteriorated, misused, stolen, applied and/or disposed as aforesaid, with other equipment or material of equivalent quality and quantity to the extent that the same is not covered by any insurance as above, and if covered, payment under the relative policy(ies) is for any reason not available to EIL.
- (r) The Contractor shall use the Free Issue Materials supplied by EIL for incorporation in the Permanent Works, carefully and judiciously with no wastage or the minimum possible wastage, wherever some wastage is inevitable or unavoidable, in any case within the wastage limit, if any, specified by EIL in respect of any such Free Issue Materials. For any excess wastage or scrap, due to misuse or injudicious, careless or wrong use of the Free Issue Materials, or in case of loss, damage or deterioration of the Free Issue Materials during storage with the Contractor, as to all of which the decision of the Engineer-in-charge shall be final and binding on the Contractor, the Contractor shall be bound to replace the Free Issue Materials with materials of equivalent quantity and grade, acceptable to EIL within the time limit specified by EIL, and where this is not possible, practicable or advisable, in the opinion of EIL, which shall be final and binding on the Contractor, EIL shall be compensated by the Contractor for the loss caused, for the replacement costs, which shall be worked out by EIL based on the assessed landed cost plus the costs of procurement at 15% (fifteen percent) of the assessed landed costs for EIL. This amount shall forthwith be remitted by the Contractor within a week of demand made by EIL, failing which EIL shall be entitled to recover/adjust the amount demanded from any money(ies) due from EIL to the Contractor and / or from any security or any other deposits of the Contractor lying with EIL, under this and/or any other contract, without any further notice to the Contractor. The decisions of EIL in respect of the actions contemplated in this clause shall be final and binding on the Contractor.

- (s) Notwithstanding anything herein provided and notwithstanding the transfer of all risks in respect of such Free Issue Materials to the Contractor, the ownership in respect of all the Free Issue Materials shall at all times be and remain with EIL.
- (t) The excess equipment and material and the scrap material generated from the Work, in so far as the Free Issue Materials are concerned, shall be returned to EIL's Stores. On Completion of the Work, the Contractor shall duly render accounts for the materials and equipment issued by EIL, to the satisfaction of EIL. Any shortages, losses and/or damages shall be to the Contractor's account and all the conditions stipulated under sub-clause (r) above shall apply in this case also.

9.30 EIL may do part of the Works

Upon failure of the Contractor to comply with any instructions given in accordance with the Contract, EIL shall have the right to deploy additional labour force, tools, equipment and materials for such part of the Works as EIL may designate and/or engage another contractor to carry out the Works. In such cases, EIL shall deduct from the amount which might otherwise become due to the Contractor the cost of deploying additional labour or materials of the cost of engaging another contractor to complete the Works along with an additional 10% of such cost to cover all other expenses and departmental charges incurred by EIL in this regard. Should the total amount thus calculated exceed the amount due to the Contractor, the difference shall be recovered from the Contractor as a debt due.

10 DESIGN, PLANS AND MANUALS

10.1 Design Data

- 10.1.1. EIL shall prepare or cause to be prepared the Design Data required by the Contractor for preparing the Drawings and Designs and for the execution of the Works. The Design Data shall be supplied to the Contractor prior to commencement of the Works.
- 10.1.2. The Design Data and all other information forming a part of the Bidding Documents have been provided by EIL in good faith with a view to assist the Contractor in preparing the Drawings and Designs and executing the Works. EIL assumes no responsibility for the accuracy or adequacy of the Design Data and the Contractor is expected to undertake a complete and independent survey of all factors relevant to the performance of the Works and to verify the Design Data. The Contractor shall proceed with the use of the Design Data only after satisfying itself of its sufficiency and appropriateness for use.
- 10.1.3. The Design Data shall be in the custody and care of EIL. Unless otherwise stated in the Contract, 2 (two) copies of the Design Data shall be supplied to the Contractor, who may make or request further copies at the Cost of the Contractor.

10.2 Contractor's General Obligations

- 10.2.1 The Contractor shall design and provide all necessary specifications for the Works, strictly in accordance with the Specifications and the Design Data. Any design detail, plan, drawing, specifications, notes, annotations and information required shall be provided in sufficient detail, size and scale and within such time as may be required to ensure effective execution of the Works and/or as otherwise required by the Specifications.

- 10.2.2 All Drawings and Designs, assumptions, calculations, schedules, patterns, models and other relevant information provided by the Contractor or as may be required under the Specifications or as may be required by the Contractor for the execution of the Works, or as the Engineer-in-Charge may require for a full appreciation of any design, methods of construction and installations proposed by the Contractor, shall be submitted to the Engineer-in-Charge for acceptance in accordance with Clause 9.13 prior to implementation. Any acceptance by the Engineer-in-Charge shall not however relieve the Contractor of any of his responsibilities for the accuracy, suitability, adequacy, performance and practicality of any such Design and Drawings, assumptions, calculations, schedules, patterns, etc. and any subsequent amendment thereof. The cost of all necessary remedial works in relation to any Works required as a result of any inaccuracy, inadequacy or impracticality in the Contractor's proposals and any subsequent amendments at any time during and after the execution of the Works, shall be the entire responsibility of and shall be borne by the Contractor.
- 10.2.3 The Engineer-in-Charge shall have full power and authority to require the Contractor to amend or modify any Drawings and Designs (including related calculations, design documents or other affected particulars) if he finds any shortcomings thereto and the Contractor shall without delay, correct such shortcomings at its own Cost and submit all revised Drawings and Designs, calculations, design documents or other affected particulars to the Engineer-in-Charge for his Approval in accordance with the provisions of Clause 9.13. Such instructions shall not however in any way relieve the Contractor of any of its responsibilities for the accuracy, suitability, adequacy, performance and practicality of the amended or modified Drawings and Designs.
- 10.2.4 EIL shall have no liability whatsoever for the cost of orders placed or of manufacturing, construction or installation commenced by the Contractor, other than orders placed or of manufacturing, construction or installation commenced following the acceptance of the Engineer-in-Charge as provided under Clause 10.2.2.
- 10.2.5 The Contractor confirms that the Contractor possesses the experience and capability necessary for the design in relation to the Works. The Contractor undertakes that the Contractor (and its employees) shall be available to attend discussions with the Engineer-in-Charge to enable the Engineer-in-Charge to seek Approval of EIL at all reasonable times during the Contract Validity Period.

10.3 Contractor's warranty of Design

- 10.3.1 The Contractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the Drawings and Designs.
- 10.3.2 The Contractor warrants that the Drawings and Designs meet the Specifications and are fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the Specifications of the Design Data or any part thereof, the Drawings and Designs shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at Contractor's own Cost.
- 10.3.3 The Contractor warrants that the Works have been and/or shall continue to be executed in accordance with the standards specified in the Specifications and utilising proven up to date technology, systems, procedures, high quality goods, materials and equipments and high standards of workmanship and fabrication, in accordance with Good Industry Practice.

- 10.3.4 The Contractor warrants that the execution of the Works have taken or shall have taken full account of the effects of the transportation of material and equipment, and other logistics movement, Site constraints, traffic constraints, climatic conditions, intended construction and manufacturing methods, Temporary Works and Contractor's Equipment.
- 10.3.5 The Contractor shall indemnify EIL against any damage, expense, liability, loss or claim, which EIL might incur, sustain or be subject to, arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause 10.3.
- 10.3.6 No claim for additional payment or extension of the Time for Completion shall be entertained and/or the Contractor shall not be relieved from any obligation/liability under the Contract, for any delay, suspension, impediment to or adverse effect upon the progress of the Works due to any mistake, inaccuracy, discrepancy or omission in the Design Data provided by EIL, the Drawings and Designs or any failure by the Contractor to prepare any Drawings and Designs or submit the same to the Engineer-in-Charge in due time and the Contractor shall promptly make good any such Defect at its own Cost.
- 10.3.7 For each part of the Work, and except to the extent that the Parties otherwise agree:
- (a) execution of such part of the Work shall not commence prior to the expiry of the Review Periods for all the Drawings and Design which are relevant to its design and execution;
 - (b) execution of such part of the Work shall be in accordance with the relevant Drawings and Designs, as Approved by the Engineer-in-Charge. Where any Work or part of the Work executed by the Contractor is not in conformity with the Approved Drawings and Designs, the Engineer-in-Charge shall be entitled to require the Contractor to repair, rectify, dismantle and/or reconstruct such Work or part of the Work, as the case may be and all costs and expenses for such rectification, repair, dismantling and/or reconstruction of such Work or part of the Work shall be borne by the Contractor;
 - (c) if the Contractor wishes to modify any Drawings and Designs which has previously been submitted for review, the Contractor shall immediately give notice to the Engineer-in-Charge. Thereafter, the Contractor shall submit the revised documents to the Engineer-in-Charge in accordance with the above procedure.

10.4 Technical Standards and Regulations

The Contractor's Documents (including Drawing and Designs) shall, in addition to complying with the Specifications, comply with the technical standards, building construction, safety and environmental regulations and other standards specified under or defined by Applicable Laws.

10.5 As-Built Drawing and Documents

- 10.5.1 The Contractor shall prepare, and keep up to date, a complete set of "as-built records" of the execution of the Works, showing the exact "as-built" locations, sizes and details of the Works as executed, with cross references to relevant specifications and data sheets. These records shall be kept on the Site and shall be used exclusively for the purposes of this Contract. One original copy, 6 (six) hard copies of such "as built" records, together with a soft copy of such "as built" records shall be submitted to the Engineer-in-Charge prior to the commencement of the Tests on Completion.

- 10.5.2 In addition, the Contractor shall prepare and submit to the Engineer-in-Charge “as-built drawings” of the Works, showing all Works as executed by the Contractor. The drawings shall be prepared as the Works proceed, and shall be submitted to the Engineer-in-Charge for his review and inspection. The Contractor shall obtain the consent of the Engineer-in-Charge as to their size, the referencing system, and other pertinent details.
- 10.5.3 Prior to the issue of the Completion Certificate, the Contractor shall submit to the Engineer-in-Charge one soft copy, one full-size original copy and six (6) printed copies of the relevant “as-built drawings”, and any further Contractor's Documents specified in the Specifications. The Works shall not be considered to be completed and the Completion Certificate shall not be issued under Clause 0 until the documents referred above have been submitted to the Engineer-in-Charge in accordance with this Clause 10.5.3.

10.6 Alteration in Specifications, Plans, Drawings and Designs, Extra- Works

- 10.6.1 The Engineer-in-Charge shall have the power, by written notice to the Contractor, at any time prior to or during the execution of the Works, to alter, amend or modify any Specification. To the extent that such alteration, amendment or modification requires any corresponding amendment to the Drawings and Designs or any other Contractor's Document, the Contractor shall make such amendments to the Drawings and Designs or, as the case may be, the relevant Contractor's Document.
- 10.6.2 Contractor shall be bound to carry out such altered/extra/new items of work in accordance with any instruction which may be given to it by the Engineer-In-Charge.
- 10.6.3 Subject to Clause 24.10.2, if any alteration, amendment or modification of the Specifications pursuant to Clause 10.6.1 shall, in the opinion of the Contractor and/or EIL, result in an increase, reduction or change in the Works that are covered in the Price Schedule, which would render the Contract Price unreasonable, EIL and the Contractor shall negotiate a suitable increase or, as the case may be, reduction in the Contract Price. If EIL and the Contractor fail to agree on a revised Contract Price, the Engineer-in-Charge shall, as an interim measure, decide on an appropriate adjustment to the Contract Price and pending a final decision on the quantum of increase or, as the case may be, reduction in the Contract Price under Clause 35, the Contractor shall be bound to execute the Works on the basis of the revised Contract Price determined by the Engineer-in-Charge.

For the avoidance of doubt, it hereby clarified that if the rate(s) of any additional, altered or substituted item of Work are specified in the Price Schedule, the Contractor shall be bound to carry on the additional, altered or substituted items of Work at the same rate(s) as are specified in the Price Schedule.

- 10.6.4 If any alteration, amendment or modification of the Specifications pursuant to Clause 10.6.1 shall, in the opinion of the Contractor and/or EIL, necessitate any additional, altered or substituted items of Work that are not covered in the Price Schedule, the remuneration for such additional, altered or substituted items of Work that are not covered in the Price Schedule shall be determined by the Engineer-in-Charge in the following manner:

- (a) If it is possible to derive the rate(s) for such additional altered or substituted items of Work from any of the items of Work covered in the Price Schedule, the rate(s) for such

additional altered or substituted items of Work shall be the rate(s) arrived at on the basis of such derivation. The opinion of the Engineer-in-Charge as to whether the rate(s) for the additional altered or substituted items of Work can be derived from the rate(s) of items already covered in the Price Schedule shall be final and binding on the Contractor.

- (b) If, in the opinion of the Engineer-in-Charge, it is not possible to derive the rate(s) for the additional altered or substituted items of Work from any of the items of the Work covered in the Price Schedule, then the rate(s) for such items of Work shall be determined by taking:
- (i) the issue rate(s) of materials supplied by EIL, if applicable;
 - (ii) materials supplied by the Contractor and incorporated in the Permanent Works at the rate(s), if any, specified in the Price Schedule;
 - (iii) labour cost at rate(s) for labour, if any, specified in the Price Schedule;
 - (iv) if the additional altered or substituted items of Work involve the use of any material or labour not covered in the Price Schedule, for the purpose of determining the rates under sub-paragraph (ii) and/or (iii) above, the prevailing market rate(s) shall be taken into account for determining the rate(s) of such materials and/or labour and an additional 15% (fifteen percent) shall be added to the market rate(s) to cover the Contractor's, supervisions, overheads and profits.
 - (v) the opinion of the Engineer-in-Charge as to the quantity or quality of materials and/or labour involved in executing the additional altered or substituted items of Work or as to whether the additional altered or substituted items of Work involve the use of materials and/or labour that are not covered in the Price Schedule and if not, as to the market rate(s) that shall be applicable shall be final and binding on the Contractor.

10.7 Operations and Maintenance Manuals

- 10.7.1 The Contractor shall prepare and submit to the Engineer-in-Charge, the Operation and Maintenance Manuals in accordance with the Specifications and in sufficient detail for EIL to operate, maintain, dismantle, reassemble, adjust and repair the Facility. The Contractor shall not be entitled to receive the Completion Certificate unless the Operation and Maintenance Manuals have been submitted to the Engineer-in-Charge and received his consent.
- 10.7.2 The Operation and Maintenance Manuals submitted by the Contractor shall, if required, be updated by the Contractor during the Defect Liability Period and re-submitted for review by the Engineer-in-Charge in accordance with Clause 9.13.

11 TRANSFER OF TITLE AND RISK

- 11.1. Subject to Clause 11.5 below, the title of domestic supply of Goods and Material and Plant shall pass to EIL in the manner set out below:
- 11.1.1 In the event the Contractor is the manufacturer of the domestic Goods and Material and Plant (including the mandatory spares etc), the title to such domestic Goods and Material and Plant

shall be transferred to EIL ex factory, ex works or ex warehouse basis i.e. upon the dispatch of such goods by the Contractor from its premises.

11.1.2 In the event the Contractor is not the manufacturer of the domestic Goods and Material and Plant (including the mandatory spares etc), and instead procures the same from a Subcontractor/ vendor / original manufacturer, then the title shall be transferred in the following manner:

- (a) If pursuant to the above arrangement between EIL and the Contractor and between the Contractor and its Subcontractor/ vendor, the goods move from outside the state where the Site is located to the Site, the title shall be transferred by the Contractor to EIL during the transport of such goods from the Subcontractor/ vendor/ original manufacturer's premises, as the case may be, to the Site, by endorsement of documents of title by the Contractor in favour of EIL.
- (b) If pursuant to the above arrangement between EIL and the Contractor and between the Contractor and its sub-contractor/ vendor, the goods move within the state where the Site is located, then the title shall be transferred to EIL upon the dispatch of the goods by the Contractor or its Subcontractor/ vendor / original manufacturer, as the case may be, from its premises.

Notwithstanding the transfer of title of the domestic Goods and Material and Plant (including the mandatory spares etc), the responsibility for care and custody thereof together with the risk of loss or damage thereto shall remain with the Contractor until the issuance of Completion Certificate by EIL. However, the risk for any defect or shortcoming in such Goods and Materials and Plant shall continue to remain with the Contractor until issuance of the Final Completion Certificate.

11.2. Subject to Clause 11.5 and 11.6 below, the title of Goods and Material and Plant imported by the Contractor or its Subcontractor for supply to EIL for the execution of Works shall be transferred by the Contractor in favour of EIL by effecting appropriate sales through endorsement of the Bill of Lading or such other documents of title in relation to such imported Goods and Material and Plant before the same cross the customs frontiers of India on high sea sale basis or FOB (free on board basis) at the port of loading of the Goods and Material and Plant, as may be agreed between the Parties.

The Contractor and its Subcontractor/ vendor shall accordingly execute such documents as may be necessary for effecting the transfer of title in favour of EIL in a manner indicated herein above, such that the Contractor has proper title over the imported Goods and Material and Plant before it transfers the title over such imported Goods and Material and Plant in favour of EIL.

Notwithstanding the passing of title as mentioned hereinabove such passing of title to EIL shall not in any way absolve, diminish, or dilute the responsibilities and obligations of the Contractor under the Contract.

Notwithstanding the transfer of title as above, the Contractor shall continue to be responsible for the risk to, quality and performance of such imported Goods and Material and Plant and for their compliance with the performance guarantees and the technical specifications until the issuance of the Completion Certificate by EIL. However, the risk for any defect or shortcoming in such Goods and Materials and Plant shall continue to remain with the Contractor till issuance of the Final Completion Certificate.

The Contractor warrants that all imported Goods and Material and Plant supplied by the Contractor shall be free of any encumbrance or lien.

- 11.3. The title of the Contractor's Equipment used by the Contractor or its Subcontractor in connection with the Contract shall remain with the Contractor or its Subcontractor, as the case may be.
- 11.4. Notwithstanding anything to the contrary contained in the foregoing provisions of this Clause 11, the title of all Consumables, shall only be deemed to be transferred by the Contractor to EIL, upon Final Completion, subject to the provisions of Clause 9.12.2.

For the purposes of the foregoing, "**Consumables**" shall mean and include all raw material and consumables, comprised in the Goods and Materials and Plant, including, without limitation, such as sand, bricks, stones, tiles, cement, reinforcement steel, structural steel, and civil construction materials, subject to CENVAT credit for such items, not being available under Applicable Laws in India.

- 11.5. Further, the Contractor shall ensure that all Goods and Material and Plant procured by the Contractor from the Subcontractors/ vendor / original manufacturer, or otherwise supplied by the Contractor are consigned by the Subcontractor/ vendor / original manufacturer or the Contractor (as applicable) directly to the Site, unless otherwise agreed between the Parties.
- 11.6 Notwithstanding anything to the contrary contained in Clause 11.1 and 11.2 above, but subject to Clause 11.4:
- (i) title in respect of any Goods and Materials and/ or Plant, which are consigned, in breach of the foregoing provisions of this Clause 11.5, to any location other than the Site, shall only be deemed to be transferred to EIL, in accordance with the provisions of Clause 11.1 or 11.2 above, where the said Goods and Material and/ or Plant are duly consigned to the Site; and
 - (ii) notwithstanding transfer of title in accordance with Clause 11.1 above, Contractor shall retain care, custody, and control of all such Goods and Materials and/or Plant and exercise due care thereof until Completion. Further, such transfer of title shall in no way affect EIL's rights under any other provision of this Contract
 - (iii) Contractor shall, in order to protect EIL's interest in all Goods and Materials and/or Plant to which title has passed to EIL but which remains in the possession of the Contractor or any another party, take or cause to be taken all steps necessary under the Applicable Laws to protect EIL's title and to protect EIL against claims by other parties with respect thereto. Contractor shall fully indemnify EIL in this regard. Further, to the extent reasonably required, Contractor shall cause such Goods and Materials and/or Plant to be suitably marked with an identifying mark or symbol indicating that such Goods and Materials and/or Plant are the property of EIL.

12 CONTRACTOR'S PERSONNEL

- 12.1. The Contractor shall make arrangements for the engagement of staff and labour for the execution of the Works at its own Cost. The Contractor shall, if required by the Engineer-in-Charge, deliver to the Engineer-in-Charge or his assistant, a report in detail, in such form and at

such intervals as the Engineer-in-Charge may prescribe, showing the number of personnel employed in different categories by the Contractor on the Site.

- 12.2. The Contractor shall designate and propose suitable, adequately skilled and qualified persons as key personnel (“**Key Personnel**”), whose identities and resumes will be submitted by the Contractor to EIL within 30 (thirty) days of the Effective Date, to supervise the execution of the Works and to liaise with EIL, his authorized Engineer or any competent Authority, as appropriate.

Should the Contractor intend to make any change in Key Personnel appointed pursuant to this Clause 12.2, it shall immediately notify the Engineer-in-Charge of such intended change and seek Approval for replacement of such Key Personnel.

- 12.3. The Contractor shall ensure that the Contractor's Personnel shall be sufficient and competent in number, suitably qualified and experienced for the purpose of execution of the Works at the Site and that it shall provide such numbers of Contractor's Personnel at the Site until Completion has been achieved and that the selection of the Contractor's Personnel shall maximise productivity and prevent slow-downs, work stoppages or other disruptive concerted actions of the Contractor's Personnel.

- 12.4. Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works. Superintendence shall be given by a sufficient number of persons with adequate knowledge of the language for communications and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

- 12.5. If and whenever any of the Contractor's or Sub-Contractors agents, sub-agents, assigns, consultants or employees shall in the opinion of the Engineer-in-Charge (whose opinion in this behalf shall be final) or his authorized person be guilty of misconduct or be incompetent or not qualified for, or negligent in, the performance of his/their duties, or if in the opinion of the Engineer-in-Charge (which shall be final) it is undesirable for any reason (which need not be disclosed to the Contractor) for such person(s) to be employed in the Works, the Contractor, if so directed by the Engineer-in-Charge or his authorized person shall forthwith remove or cause to be removed such person(s) from employment thereon, and any person(s) so removed shall not be re-employed in the Works except with the prior permission in writing of the Site. Should the Contractor be requested to repatriate any person removed from the Works; the Contractor shall do so forthwith at its own Cost. Any person(s) so removed from the Works shall be immediately replaced at the expense of Contractor by a qualified and competent substitute.

- 12.6. The Contractor shall make itself aware of all labour regulations and their impact on the cost and build up the same in the Contract Price. Subject to Clause 25, during the Contract Validity Period no extra amount in this regard shall be payable to the Contractor, for any reason whatsoever.

- 12.7. In the event of default being made in the payment of any money in respect of wages of any person employed by the Contractor or any of its Subcontractor of any tier in and for carrying out of the Contract and if a claim thereof is filed in the office of the labour Authorities and proof thereof is furnished to the satisfaction of the labour Authorities, EIL may, failing payment

of the said money by the Contractor or the Subcontractor, as the case may be, make payment of such claim on behalf of the Contractor, to the said labour Authorities and any sums so paid shall be recoverable by EIL from the Contractor. If the Contractor fails to pay any amount required to be paid to EIL as aforesaid, within 7 (seven) days of its demand, EIL shall be entitled to recover the amount from any moneys due or accruing to the Contractor under the Contract.

- 12.8. The establishment of the Contractor and its sub-contractors shall be duly registered under the Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and the Employees' State Insurance Act, 1948 and the Contractor shall duly and timely pay and ensure payment by its subcontractors of contributions and its/their employees to the Authorities prescribed under the said Acts and any schemes framed thereunder in respect of all labour employed by it for the execution of the contract. Copies of challans/receipt of such payments along with the list showing persons employed together with emoluments paid for the purpose of provident fund deductions shall be submitted to EIL before the end of every calendar months. In case the relevant provident fund Authority's receipt/challans referred to above are not furnished, EIL shall deduct 5% (five percent) of the payable amount from the Running Bill and retain the deducted amount as a security for the contribution to provident fund. Such retained amounts shall be released to the Contractor only on production of challan/receipts of the relevant provident fund Authority for the period covered by the related deduction.
- 12.9. The Contractor and Subcontractor(s) shall obtain from the Authority(ies) designated in this regard under any Applicable Law, including but not limited to the Factories Act, 1948 and Contract Labour (Regulation & Abolition Act, 1970 (in so far as applicable) any and all such licence(s), consent(s), registration(s) and/or other authorization(s) as shall from time to time be or become necessary for or relative to the execution of the Works or any part or portion thereof or the storage or supply of any material(s) or otherwise in connection with the performance of the Contract and shall at all times observe and ensure due observance by the Subcontractors, servants and agents of all terms and conditions of the said license(s), consent(s), regulation(s) and other authorization(s) and laws, rules and regulations applicable thereto.
- 12.10. Without prejudice to the responsibility of the Contractor to comply with the Applicable Laws under the Contract, the Contractor shall, in relation to the execution of the Works, comply and shall ensure that the Subcontractors comply with all labour laws, including but not limited to the Factories Act, 1948, the Workmen's Compensation Act, 1923, the Payment of Wages Act, 1936, the Minimum Wages Act, 1948, the Industrial Disputes Act, 1947, the Employees' State Insurance Act 1948, the Weekly Holidays Act, 1942, the Employees State Insurance Act, 1948, the Employees Provident Funds Scheme, 1952, the Employees Provident Funds and Miscellaneous Provisions Act, 1952, the Maternity Benefit Act, 1962, the Contract Labour (Regulation and Abolition) Act, 1970, the Equal Remuneration Act, 1976, the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979, the Labour Laws (Exemption from Furnishing Returns and Maintaining Registers by Certain Establishments) Act, 1988, the Children (Pledging of Labour) Act, 1933, the Child Labour Prohibition and Regulation Act, 1951, the provisions of the Income Tax Act, 1961, Environment Protection Act, 1986, Maritime Act, 2008, Wild life (Protection) Act, 1972 and any other Applicable Law relating to the employment of workmen, employees or labour or any subsequent modification or re-enactment thereof.
- 12.11. Without prejudice to the generality of the scope of Clause 12.8 above, the Contractor shall comply with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued there

under from time to time. Any failure to comply with the Apprentices Act, 1961 shall amount to a breach of the Contract and EIL may, at his discretion, terminate the Contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation of the Apprentices Act, 1961 by him.

- 12.12. (a) In order to govern welfare and working conditions of labourers engaged in construction activities, the Building and other Construction Workers' (Regulation of Employment and Conditions of Service Act, 1996, hereinafter referred to as the "**RE & CS**") came into force. The RE&CS Act is applicable in respect of building and other construction work. Wherever applicable, the Contractor shall strictly comply with the provisions pertaining to RE&CS Act. The Contractor must be registered with the concerned authorities under the RE&CS Act, or in case of non-registration the Contractor should obtain registration within one month of the award of the Contract.
- (b) The Contractor shall comply with the Building and Other Construction Workers' Welfare Cess Act, 1996, the Building and other Construction Workers' Rules, 1998 and the Building and Other Construction Workers Welfare Cess Rules, 1998.

Cess as per the prevailing rate, shall be deducted at source from bills of the Contractor by the Engineer-in-Charge of the contract and remitted to the "Secretary, Building and Other Construction Workers Welfare Board" of the concerned State. The Contractor shall be responsible to submit final assessment return of the cess amount to the assessing officer after adjusting the cess deducted at source.

- 12.13. The Contractor shall and shall cause its Subcontractors to comply with the following:

- (a) the provision and maintenance of such temporary accommodation, canteen facilities and other amenities as may be reasonably necessary for all of the Contractor's Personnel employed at the Site, including fencing, first aid, water supply (both for drinking and other purposes), electricity supply, sanitation, fire prevention and fire-fighting equipment, a creche where 10 or more women workers may keep their children below the age of 6 years, any other facility/utility as may be required under the Contract as well as under the applicable statutory provisions and other general requirements in connection with such accommodation or amenities, provided that the Contractor's Personnel shall not maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works;
- (b) due regard shall be given to all recognised festivals, days of rest and religious or other customs prevalent in the location where the Site is situated, in all dealings with the Contractor's Personnel;
- (c) no work shall be carried out on the Site outside the normal working hours, unless, permitted by EIL or if the work is unavoidable or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately intimate EIL/Engineer-in-Charge;
- (d) all reasonable precautions shall at all times be taken to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel and to preserve peace at the Site and to ensure the protection of all persons (including the Contractor's Personnel) and property at or in the neighbourhood of the Site, against any such

disruption. If EIL is required to maintain special police force/security personnel in consequence of unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, all costs and damages incurred by EIL in this regard shall be borne by the Contractor; and

- (e) the Contractor shall not employ, for the purposes of Works, any Person below the age as is statutorily forbidden.

12.14. The Contractor shall keep EIL indemnified from and against all personal and third party claims whatsoever (inclusive of all costs incurred between attorney and client) arising out of any act, omission or inter-omission on part of any Sub-Contractor or agent, sub-agent, consultant or employee of the Contractor or any Sub-Contractor, whether committed, omitted or arising within or without the scope of the Contract, Sub-Contract, agency or employment, as the case may be.

12.15. If, the Contractor directly or through petty contractors or Subcontractors supplies any labour to be used wholly or partly under the direct orders and control of the Engineer-in-Charge or EIL, whether in connection with any work being executed by the Contractor or otherwise for the purposes of EIL, such labour shall, for the purpose of this Clause, be deemed to be persons employed by the Contractor.

12.16. The Parties hereto agree that the employment of the personnel and/or workmen by the Contractor, Subcontractor in relation to the execution of the Works shall not constitute any EIL-employee relationship between EIL and such personnel and/or workmen as employed by the Contractor and the Subcontractor in relation to the execution of the Works.

12.17. (a) The Contractor shall ensure that local labour, skilled and/or unskilled, to the extent available shall be employed in this work. In case of non - availability of suitable labour in any category out of the above persons, labour from outside may be employed.

- (b) The Contractor shall not recruit personnel of any category from among those who are already employed by the other agencies working at Site.

12.18. All foreign nationals coming to India for execution of the Contract will have to apply for employment visa only and that grant of employment visa would be subject to strict adherence of following norms:

- (a) Employment visa is granted only for the skilled and qualified professionals or to a person who is being engaged or appointed by a company, organization, industry or undertaking etc. in India on contract or employment basis at a senior level or at a skilled position such as technical expert, senior executive or in managerial position etc.
- (b) Request for employment visa for jobs for which large number of qualified Indians are available, is not considered.
- (c) Under no circumstances an employment visa is granted for routine, ordinary secretarial/ clerical jobs.

The Contractor must check the latest visa rules from Indian Embassy/ High Commission in their country in case foreign nationals are required to be deputed to India during execution of the Contract.

13 TIME FOR COMPLETION AND PRICE REDUCTION DUE TO DELAY IN COMPLETION

13.1 Time for Completion

Time is the essence of the Contract. The Parties agree and acknowledge that it is of paramount importance that the Works are executed strictly in accordance with the Works Completion Schedule, as may be revised from time to time and completed in accordance with the Specifications, within the Time for Completion.

13.2 Price Reduction due to delay in completion

- 13.2.1 If the Contractor fails to complete the Works within the Time for Completion, and/or if completion of any specific work(s) in respect of which a separate progress schedule has been established is not achieved by the date of completion thereof specified in the Works Completion Schedule (each of the said date(s) is hereinafter referred to as the “starting date for discount calculation) other than due to an event of Force Majeure or any reason solely attributable to EIL, then the Contract Price shall be reduced by 1 % (one percent) per week of delay or part thereof subject to a maximum deduction of 10% (ten percent) of the Contract Price. After any adjustments made to the Contract Price pursuant to this Clause 13.2.1, if any amount is due to EIL from the Contractor, then such amount will either be set-off against any amount due or that becomes due to the Contractor or be recovered by invoking the Contract Performance Bank Guarantee.

The decision of the Engineer-in-Charge in regard to applicability of price reduction shall be final and binding on the Contractor.

- 13.2.2 The reduction of Contract Price shall not relieve the Contractor from its obligations to complete the Works and the Facilities, or from any of its other duties, obligations or responsibilities under the Contract. The Contractor shall use and continue to use its best endeavour to avoid or reduce further delay to the Works, or the issue of the Completion Certificate.
- 13.2.3 It is specifically acknowledged that the provisions of Clause 13.2 constitute purely a provision for price adjustment and/or fixation and are not to be understood or construed as a provision for liquidated damages or penalty under Section 74 of the Indian Contract Act, 1872 or otherwise.
- 13.2.4 Application of price reduction under this Clause 13.2 above shall be without prejudice to any other right of EIL, including the right of termination under Clause 32.2 and associated clauses thereunder.

14 EXTENSION OF TIME

- 14.1. Without prejudice to, and subject Clause 14.3 below, to the extent that any of the following events cause the Contractor to suffer a delay in the critical path progress of the Works, which in turn prevents the Contractor from completing the Works within the Time for Completion, the Contractor may apply for an extension of the Time for Completion of the Works:

- (a) Occurrence of a Force Majeure event;

- (b) There is delay in handing over the possession of the Site (save and except sequential handing over of Site as per provisions of Clause 8.1.2) to the Contractor not caused due to default of the Contractor;
 - (c) Instruction of the Engineer-in-Charge to suspend the Works and the Contractor not being in default;
 - (d) Any order of Court restraining the performance of the Contract in full or in any part thereof, unless such order is attributable to any default, breach or non-compliance by the Contractor;
 - (e) Under Clause 24.7 due to EIL's Variation;
 - (f) Delay in Approval of the Contractor's Document in terms of Clause 9.13;
 - (g) Under Clause 9.29 due to EIL's failure to supply the Free Issue Materials, as agreed by Engineer-in-Charge;
 - (h) Under Clause 25 due to Change in Law;
 - (i) Under Clause 17.6 due to taking of possession of the Works or any part thereof by the Engineer-in-Charge prior to Completion.
- 14.2. Except as specified in Clause 14.1 above, the Contractor shall not be entitled to any extension of the Time for Completion for any reason whatsoever. Provided, notwithstanding anything contained in Clause 14.1 or otherwise, the Contractor shall not be entitled to any extension of time:
- (a) where the instructions or acts of Engineer-in-Charge are necessitated by or intended to cure any default of or breach of the terms of the Contract committed by the Contractor;
 - (b) where any delay is due to:
 - (i) The failure of its Subcontractor, to commence or to carry out the part of the Works in due time; or
 - (ii) Non-availability, or shortage of Contractor's Equipment, labour, utility services, Plant and Goods and Materials; or
 - (iii) Inclement weather conditions or the occurrence of an event of Force Majeure.
- 14.3. The Contractor shall, as soon as reasonable practicable and in any event within 7 (seven) days, after the Contractor knew or ought reasonably to have known of its occurrence of any of the events specified in Clause 14.1, provide to EIL, in writing, the full particulars of such event and the probable material adverse effect that such event is likely to have on the performance of its obligations under the Contract.
- 14.4. Any notice issued pursuant to Clause 14.3 shall include full particulars of:
- (a) The nature and extent of each such event which is the subject of any claim for relief

under Clause 14.3 with evidence in support thereof;

- (b) The estimated duration and the effect or probable effect which such event is having or shall have on the Contractor's performance of its obligations under the Contract;
- (c) The measures which the Contractor is taking or proposes to take, to alleviate the impact of such event; and
- (d) Any other information relevant to the Contractor's claim.

The Engineer-in-Charge shall not consider any claim for relief from the Contractor, if the Contractor fails to comply with the provisions of Clause 14.3 and this Clause 14.4.

14.5. The Parties agree and acknowledge that:

- (a) the Contractor shall constantly use its reasonable endeavours to prevent and/or minimise delay in the progress of the Works, howsoever caused, and to prevent delay in the performance of Works beyond the Works Completion Schedule and the Contractor shall not be entitled to an extension of the Works Completion Schedule in respect of any cause of delay nor for any period of delay which by the exercise of reasonable endeavours could be avoided or reduced (to the extent that such delay could have been reduced). The onus of proving that the Contractor has exercised all reasonable endeavours, and that despite such endeavours, the delay could not be avoided or reduced, shall in all cases rest with the Contractor;
- (b) the Contractor shall not under any circumstances be entitled to an extension of the Works Completion Schedule where the delay or likely delay is, or would be, attributable to the default, breach, negligence, improper conduct or lack of endeavour of the Contractor or any persons for whom it is contractually or otherwise responsible for and further the Contractor shall not be entitled to an extension of the Time for Completion where delay arises as a consequence of the termination of a Sub-contractor's employment by the Contractor;
- (c) if there are two or more concurrent causes of delay and only one of those concurrent causes is a delay which would entitle the Contractor to an extension of the Works Completion Schedule, the Contractor would not be entitled to an extension of the Works Completion Schedule for the period of that concurrence;
- (d) it is a further condition precedent to the Contractor's entitlement to an extension of the Works Completion Schedule that the critical path progress of the Works is affected in a manner which might reasonably be expected to result in a delay to the Contractor in the performance of the Works as per the Works Completion Schedule; and
- (e) no relief shall be granted to the Contractor to the extent that any failure or delay in the performance of the Works by the Contractor, would nevertheless have been experienced by the Contractor, had an event of Force Majeure or other relevant event(s) specified in Clause 14.1 entitling the Contractor to otherwise claim an extension of time, not occurred.

- 14.6. If the delay in the completion of the Works or a portion thereof, for which an earlier completion period is stipulated, is due to the Contractor's failure or fault, and the Engineer-in-Charge is of the view that the remaining Works can be completed by the Contractor in a reasonable and acceptable short time, then EIL may allow the Contractor an extension of the Time for Completion at its discretion with or without a reduction in the Contract Price, as it may decide.
- 14.7. The extension of time shall be the sole remedy of the Contractor for any cause or event of delay mentioned in Clause 14.1 or elsewhere in the Contract and other than as provided in the Contract, the Contractor shall not be entitled to claim any damages or compensation in addition to or in lieu of such extension of time.
- 14.8. Notwithstanding anything to the contrary contained in the Contract, to the extent that this Contract is entered into by EIL pursuant to a contract awarded to EIL for the development of the Facility (the "**Main Contract**"), the extension of time and/or Cost awarded to the Contractor under this Contract shall be proportionate to the extension of time and/or cost awarded to EIL under the Main Contract and in no event shall such the extension of time and/or Cost awarded under this Contract exceed the extension of time and/or cost awarded to EIL under the Main Contract.

15 MECHANICAL COMPLETION AND PRE-COMMISSIONING

- 15.1. For the purposes of this Contract, "**Mechanical Completion**" shall mean the completion of the following activities in relation to the Facility:
- (ii) the construction of the Facility has been completed, checklist generated & punched with minor exceptions, Flushing, chemical cleaning including all other Pre-commissioning activities, MRT (Mechanical Run Test for Machine) & final boxup excluding system dry out and catalyst loading;
 - (iii) all Plant, equipment and machinery are installed and aligned;
 - (iv) all piping and instrumentation work and loop testing is complete;
 - (v) all electrical work is complete, electrical systems are energized and motor no load runs are complete;
 - (vi) all hydrostatic/pneumatic testing is completed;
 - (vii) safety valves and pressure relief valves are set and checked;
 - (viii) speed and direction of rotation of all prime movers are checked; and
 - (ix) DCS system (if applicable) is complete.
- 15.2. As soon as the conditions mentioned in Clause 15.1 have been satisfied in the opinion of the Contractor, the Contractor shall notify EIL in writing that the Facility is mechanically complete.
- 15.3. The Contractor shall divide the Facility into systems/subsystems as per the process/pre-commissioning requirement mentioned in the Specifications.
- 15.4. The Contractor shall issue a certificate in the format set out at Appendix V ("**Format-I**") for each system for inspection and verification by the Engineer-in-Charge that construction has been completed in accordance with the Specifications.
- 15.5. Except for any deviation or modification agreed between EIL, the Engineer-in-Charge and the Contractor, if the Engineer-in-Charge is not satisfied that the relevant system/subsystem has

achieved Mechanical Completion, it may endorse Format-I accordingly, stating in what way the system/subsystem has not achieved Mechanical Completion in accordance with the Contract. The Contractor shall then expeditiously complete or rectify the list of outstanding items in accordance with the Engineer-in-Charge's suggestions and issue a certificate in the format set out at Appendix VI ("**Format-III**"), with agreed Punch-list Items to be attended to later.

- 15.6. The Contractor shall prepare and submit to the Engineer-in-Charge along with each Format-III, a preliminary, but as definitive as possible a list containing all the outstanding Punch-list Items and procedures that require completion or rectification before the taking over of the Facility by EIL (the "**Punch List**").
- 15.7. Upon the submission of the Punch List by the Contractor pursuant to Clause 15.6, the Engineer-in-Charge shall either approve such list or require such additions to and/or amendments of such list as it may reasonably consider necessary.
- 15.8. When Format-IV for all systems/sub-systems comprising the Facility is issued, the Facility will be deemed to have achieved Mechanical Completion.
- 15.9. The Contractor shall thereafter be responsible for ensuring that:
- (a) the Punch-list Items are completed before the Facility is taken over by EIL unless otherwise agreed between the Parties; and
 - (b) any pre-commissioning and commissioning procedures needed before the Facility is put into use are safely carried out.

15.10 Pre-Commissioning

15.10.1 For the purposes of this Contract, "**Pre-Commissioning**" shall mean performance of those activities, which are required to be performed after acceptance of system on liquidation of all the punch point to make the Facility ready for commissioning and includes the completion of the following activities in relation to the Facility:

- (a) system checking as per Specifications;
- (b) Site modifications, if necessary;
- (c) internal inspection of Plant and equipment;
- (d) flushing/steam blowing;
- (e) air blowing of pipelines including gasket blowing;
- (f) purging of systems using inert gas;
- (g) leak test both for low/high pressure systems;
- (h) calibration of instruments;
- (i) checking of the electrical equipment for proper earthing;
- (j) conducting operability test on individual equipment/system;
- (k) charging of lubes and other chemicals;
- (l) Integration of all control systems of the unit with the control system of the Plant
- (m) Chemical Cleaning/De greasing where ever applicable
- (n) any other pre-commissioning activities mentioned in the Specifications.

15.10.2 Contractor will start Pre-Commissioning activities after acceptance of Format -III for all systems/subsystems comprising the Facility by EIL/Engineer-in-Charge. The Contractor shall

also be responsible for any fabrication and supply of temporary facilities such as temporary bypasses, spools, blinds, jump-overs, vents, strainers, screens etc. which will be required to carry out Pre-Commissioning activities.

15.10.3 The Contractor shall issue a 'ready for commissioning' certificate for the Facility to the Engineer-in-Charge for its Approval, in the format set out at Appendix VII ("**Format-IV**"). If the Engineer-in-Charge is not satisfied that the Facility is ready for commissioning, it may endorse Format-IV accordingly, stating in what way the Facility is not ready for commissioning in accordance with the Specifications. The Contractor shall then expeditiously complete or rectify the list of outstanding items in accordance with the Engineer-in-Charge's suggestions and once all such outstanding items are completed to the satisfaction of the Engineer-in-Charge, the Engineer-in-Charge shall declare the Facility to be ready for commissioning.

16 TESTS ON COMPLETION

16.1 Commissioning, Trial Operation and Performance Guarantee Test Run

For the purpose of this Contract, '**Commissioning**' shall mean the successfully putting in to service the Plant, equipment, vessels, tanks, pipelines, machines, systems, sub systems, controls, monitoring, shutdown comprising the Facility in accordance with the procedures set out in the relevant operating manuals and/or as per the requirement of the process licensor and /or detailed engineering contractor/EIL and relevant statutory agencies after successful testing, pre commissioning and the trial runs and the documentation as per EIL format system.

16.1.1 As soon as:

- (a) all parts of the Facility has been demonstrated to have achieved Mechanical Completion pursuant to Clause 15 and the Contractor has issued Format-III relating to all systems/subsystems comprising the Facility in accordance with the provisions of Clause 15.5;
- (b) the Contractor has completed all Pre-Commissioning activities and has issued Format-IV;
- (c) Facility is ready for the conduct of the Trial Operation and Performance Tests in relation thereto; and
- (d) all the services and facilities which are necessary for the conduct of the Trial Operation and/or Performance Tests are available,

the Contractor shall notify EIL and the Engineer-in-Charge that it is ready to commence Trial Operation. Such notification must be sent by the Contractor to EIL and the Engineer-in-Charge within 7 (seven) days of the issuance of Format-IV under Clause 15.10.3. Unless otherwise agreed the Trial Operation shall commence on such day as the Contractor shall notify to EIL and the Engineer-in-Charge (which shall not be more than 10 (ten) days after EIL's/Engineer-in-Charge's receipt of the above-mentioned notice from the Contractor) and shall be conducted in accordance with the Contractor's Documents relating to the same as Approved by the Engineer-in-Charge pursuant to Clause 9.13.

- 16.1.2 The Trial Operation of the Facility shall be carried out for 14 (fourteen) days in accordance with the Contractor's Documents. During the Trial Operation the Parties shall arrange for the conduct of Performance Guarantee Test Run (PGTR). The PGTR shall be conducted only after the Facility has been on stable operation, with all controls and safety systems in normal operation, for a period of not less than 72 hours. The load at which the Facility is operated during the PGTR shall be determined by the Engineer-in-Charge at its discretion.
- 16.1.3 Upon successful completion of the PGTR, to the satisfaction of the Engineer-in-Charge, the Engineer-in-Charge shall direct EIL to issue a certificate to the Contractor in the format set out at Appendix VIII ("**Format-V**").
- 16.1.4 The Contractor shall at its own Cost arrange for all tools, equipments, gadgets, facilities or other things as may be deemed necessary by the Engineer-in-Charge for carrying out the Tests on Completion.

16.2 Performance Tests

- 16.2.1 The Performance Tests shall be conducted within 30 (thirty) days (or as directed by Engineer-in-Charge) of the successful completion of the Trial Operation of the Facility or before the expiry of such other period as may be agreed between EIL and the Contractor, to ascertain whether the Facility is capable of meeting the Guaranteed Performance Levels and is ready for continuous, safe and stable commercial operation. The Contractor will give EIL and the Engineer-in-Charge at least 7 (seven) days advance written notice of the expected date of such Performance Tests. In the event that there is a delay in carrying out the Performance Tests, the Contractor shall notify EIL and the Engineer-in-Charge of such delay. If the Engineer-in-Charge fails to attend at any time or place duly appointed for conducting any Performance Tests, the Contractor shall be entitled to proceed in its absence and the relevant Performance Tests shall be deemed to have been made in the presence of the Engineer-in-Charge. The Contractor shall forward to EIL and the Engineer-in-Charge duly certified copies of the results of each Performance Test.
- 16.2.2 After the Performance Tests have been conducted in respect of the Facility, the Contractor shall furnish the test reports to the Engineer-in-Charge for evaluation. Within 7 (seven) Working Days of receipt of the test reports, the Engineer-in-Charge shall, after evaluating the test reports, decide whether the Facility complies with the Guaranteed Performance Levels.
- 16.2.3 Upon such evaluation, if the Engineer-in-Charge is of the opinion that the Facility has not achieved 100% (hundred percent) of the Guaranteed Performance Levels, then:
- (a) the Contractor shall at its own risk, Cost and expense be responsible for the repair or replacement of the Works for the Facility if required by EIL/Engineer-in-Charge in accordance with the provisions of this Contract, within 3 (three) months of the conduct of such Performance Tests; and
 - (b) the Contractor shall be required to re-conduct the Performance Tests within such reasonable period of time as may be required by Engineer-in-Charge.

The period for repairing or replacing the Works or for re-conducting the Performance Tests shall not amount to an extension of the Works Completion Schedule or be deemed to entitle the Contractor to an increase in the Contract Price. The re-conduct of the Performance Tests shall

not prejudice any rights or remedies of EIL in respect of defective Works under the Contract and shall not be construed as a waiver thereof.

16.2.4 If, despite the repetition of the Performance Tests in accordance with Clause 16.2.3 above, the results of the Performance Tests indicate that 100% (hundred percent) of the Guaranteed Performance Levels have not been satisfied, then the following consequences shall follow:

- (a) Where the Facility and the Works achieves more than 90% (ninety percent) of the Guaranteed Performance Levels, EIL shall be entitled to levy the Performance Compensation in accordance with Clause 20 and EIL may further require the Contractor to make additional repairs or remedy the Works within 3 (three) months of the completion of the repeated Performance Tests, at the Contractor's Cost; or
- (b) Where the Facility achieves less than or equal to 90% (ninety percent) of the Guaranteed Performance Levels, EIL shall have the right (but not an obligation) to reject the Works by giving notice thereof within 15 (fifteen) Working Days of the receipt of the results of the Performance Tests.

In the event that EIL does not exercise its right to reject the Works in accordance with paragraph (b) above, then the consequences at paragraph (a) above shall also apply to such defective Works. EIL shall be entitled to enforce the Performance Guarantee for recovering the sums due from the Contractor under Clause 16.2.4 (a).

16.2.5 Upon the issuance of a notice by EIL under Clause 16.2.4(b), a Contractor Event of Default shall be deemed to have occurred and this Contract shall stand terminated forthwith. The provisions of Clause 32 shall apply upon such termination.

16.2.6 The acceptance and use by EIL of the Works, or any part thereof, for Trial Operation shall not absolve the Contractor from the fulfilment of other obligations under the Contract.

17 COMPLETION

17.1 Where the Contract is a lump-sum turnkey contract

When the Contractor has:

- (a) successfully completed Trial Operation and PGTR, as demonstrated by issuance of Format-V by EIL;
- (b) successfully completed the Performance Tests;
- (c) completed all Punch-list Items;
- (d) submitted the Contract Performance Bank Guarantee in accordance with Clause 9.4.2;
- (e) provided to EIL such certification by the Contractor or other written evidence, as EIL may reasonably require, to demonstrate that the Contractor has complied with all relevant Applicable Laws and has obtained all relevant clearances in connection with the Works which it is the Contractor's responsibility to comply with or to obtain; and

- (f) provided to EIL all such documentation and information such as manuals, systems descriptions, computer programs, access codes etc. that are necessary to enable EIL to properly test and use any part of the Works in accordance with Good Industry Practice and in compliance with the laws and regulations relating to environment, safety etc. and in order to attain the Guaranteed Performance Levels by EIL,

the Contractor shall so notify EIL in writing.

17.2 Where the Contract is an item rate contract

When the Contractor has successfully completed the total Works as per the scope of Works defined in the Contract and the Specifications and the Facility is ready for commercial operations, the Contractor shall so notify EIL in writing.

17.3 EIL shall, subject to provisions of Clause 17.1, Clause 17.2 and Clause 17.4, within 30 (thirty) Working Days of receipt of a notification from the Contractor pursuant to Clause 17 or, as the case may be Clause 17.2, along with all the documents mentioned in Clause 17.4 (b) below:

- (a) inspect the Works and if it is satisfied that the Works are complete in all respects in accordance with the Specifications and free of all Defects, issue a completion certificate to the Contractor ("**Completion Certificate**") and the Works shall be taken over by EIL on the date of issue of the Completion Certificate; or
- (b) if the Engineer-in-Charge is not satisfied that the Works are complete in all respects in accordance with the Specifications or discovers any Defects in the Works, notify the Contractor of the reasons why it considers that the notice given pursuant to Clause 17 or Clause 17.2 was improperly or prematurely issued and notify the Contractor of:
 - (i) any items of work which are in EIL's or the Engineer-in-Charge's reasonable opinion required to render the Facility ready for being taken over; or
 - (ii) any Defects in the Facility which are required to be rectified and following completion such items or, as the case may be, rectification of such Defects, the Contractor shall submit a fresh notice to EIL to which the provisions of this Clause 0 shall apply mutatis mutandis.

17.4 Notwithstanding anything contained in Clause 17.3, EIL shall not issue the Completion Certificate until:

- (a) the Contractor has cleared the Site of all scaffolding, wiring, pipes, surplus materials, Contractor's labour, equipment and machinery, demolished, dismantled and removed all the Contractor's Site offices and quarters and other Temporary Works, structures and constructions and other items and things whatsoever brought upon or erected at the Site and not incorporated in the Permanent Works, removed all rubbish from the Site, cleared and leveled the Site to the satisfaction of the Engineer-in-Charge and put EIL in undisputed custody and possession of the Site, free & clear of all encumbrances and encroachments; and

(b) the Contractor has submitted the following documents to EIL:

- (i) the technical documents according to which the Work was carried out;
- (ii) complete set of “as-built” drawings showing therein corrections and modifications (if any) made during the course of execution of the Works, signed by the Engineer-in-Charge;
- (iii) Statement of final levels as set for various works, signed by the Engineer-in-Charge;
- (iv) Records of the final test as maintained jointly and signed by the representative of the Contractor and the Engineer-in-Charge or Format-III (if Commissioning is not within the Contractor's scope of Work) and Format -V (if Performance Tests are not within the Contractor's scope of Work) and Performance Test certificate issued by the Engineer-in-Charge upon successful completion of the Performance Tests (if Performance Tests are within the Contractor's scope of Work).;
- (v) Item-wise list of surplus materials including the quantity & estimated value of each surplus item (out of the Free Issue Materials or materials brought on the Site by the Contractor) returned to EIL's or otherwise disposed of, duly signed by the Engineer-in-Charge;
- (vi) Materials-at-site accounting for the Free Issue Materials supplied to the Contractor under the Contract, signed by the Engineer-in-Charge;
- (vii) Discharge in respect of EIL supplied equipment and machinery, signed by the Engineer-in-Charge; and
- (viii) Declaration by the Contractor that it has duly cleared any and all of the dues payable by it to its labourers, employees, piece rate workers (PRWs), and other personnel, Subcontractors, suppliers, vendors, income Tax, sales tax, octroi, entry tax, service tax, excise, customs duty, provident fund, employees state insurance (ESI) and royalties, or other amounts payable under any Applicable Law (if any).

17.5 Upon the issuance of the Completion Certificate, EIL shall take over the possession, care, custody and control thereof from the Contractor.

17.6 Notwithstanding anything to the contrary contained in the Contract, the Engineer-in-Charge shall have the right to take possession of or use any completed or partially completed Work or part of the Works. Such possession or use shall not be deemed to be an acceptance of any Works. If such prior possession or use by the Engineer-in-Charge delays the progress of Work, equitable adjustment in the Time for Completion shall be made in accordance with Clause 14.

18 DEFECT LIABILITY PERIOD

18.1. The Defect Liability Period shall be a period of 12 (twelve) months from the date of Completion mentioned in the Completion Certificate.

18.2. The Contractor warrants that during the duration of the Defect Liability Period, the Works shall be free of all Defects.

18.3. If, during the Defect Liability Period, any Defects are discovered in the Works or any part thereof; or the Works or any part thereof fails to meet the Guaranteed Performance Levels, EIL will notify the Contractor of such Defects or failure. Upon receipt of such notice, the Contractor

shall promptly repair or replace such Work (including any necessary uncovering, covering and recovering) in accordance with the Contract, Good Industry Practices and Applicable Laws. At EIL's option and Contractor's expense, EIL shall have the right to provide labour in connection with such repair or replacement to the extent that such labor can be provided by EIL's then-current permanent employees working at during normal working hours. The Contractor shall provide for all additional labor required for such repair or replacement and shall bear all Costs and expenses associated with repairing or replacing any Work, including costs incurred by EIL in relation to providing labor, employees and personnel for any such repairs or replacement. Upon completion of any repair or replacement work, the Contractor shall, at its own expense, and with EIL's coordination and Approval, perform such tests as necessary to demonstrate that pursuant to cure of Defects under this Clause 18.3, the Works meet the Guaranteed Performance Levels.

- 18.4. If the Contractor fails to rectify any Defects in the Work during the Defect Liability Period, EIL (at its sole discretion) may:
- (a) Carry out the work itself or by others, in a reasonable manner at the risk and Cost of the Contractor; In addition to the costs, EIL shall be entitled to claim 15% (fifteen percent) of such costs towards the genuine pre-estimated damages suffered by EIL; or
 - (b) If the Defect or damage is such that EIL has been deprived of substantially the whole of the benefit of the Works or part of the Works, terminate the Contract in respect of such parts of the Works as cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, EIL shall then be entitled to recover all sums paid for such parts of the Works together with the cost of dismantling the same, clearing the Site and returning Goods and Materials to the Contractor and the provisions of Clause 32 shall not apply.
- 18.5. If the Defect or damage is such that it cannot be remedied expeditiously on the Site and if EIL gives consent, the Contractor may, remove from the Site for the purpose of repair any part of the Works, which is defective or damaged. The consent may require the Contractor to increase the amount of Contract Performance Bank Guarantee by the full replacement cost of items which are to be replaced or to provide other appropriate security acceptable to EIL.
- 18.6. If the repair or remedy of any Defect or damage is such that it may affect the performance of the Works, EIL may, within 30 (thirty) Working Days after such repair or remedy, require that certain tests be repeated as may be necessary to demonstrate compliance with the Guaranteed Performance Levels.
- 18.7. If any part of the Works has been replaced, renewed or repaired during the Defect Liability Period, the Defect Liability Period in respect of such part shall start again for a period of 12 (twelve) months from the date on which such replacement, renewal or repair has been completed to the satisfaction of the Engineer-in-Charge (**"Extended Defect Liability Period"**).

19 FINAL COMPLETION CERTIFICATE

Upon the expiry of the Defect Liability Period (or Extended Defect Liability Period, as applicable), but subject to there being no outstanding obligation of the Contractor to rectify the defects notified during such period, EIL shall issue the Final Completion Certificate to the Contractor (**"Final Completion Certificate"**). The Contract shall not be considered to have

been completed until the Final Completion Certificate has been signed by EIL and delivered to the Contractor, stating the date on which the Contractor has completed its obligations under the Contract. Only the Final Completion Certificate shall be deemed to constitute Approval of the Works by EIL.

20 COMPENSATION

20.1. If the Works and the Facility, or any part thereof, fails to meet the Guaranteed Performance Levels, then the Contractor shall pay to EIL Performance Compensation at the rates specified in the Contract ("**Performance Compensation**"). The liability of the Contractor towards Performance Compensation under this Clause 20.1 shall not exceed a sum that is greater than 10% (ten percent) of the Contract Price. The Parties acknowledge that the Performance Compensation are a genuine pre-estimate of and reasonable compensation for the losses and damages that will be suffered by EIL in the event that the Works, or any part thereof, fail to meet the Guaranteed Performance Levels and the Contractor irrevocably undertakes that it will not, whether by legal proceedings or otherwise, contend that the amount of the Performance Compensation are not reasonable.

20.2. EIL may:

- (a) deduct and retain the amount of the Performance Compensation becoming due under Clause 20.1 from any sums due or which become due to the Contractor; or
- (b) invoke the Contract Performance Bank Guarantee submitted by the Contractor to EIL; or
- (c) require the Contractor to pay such amount to EIL within 28 (twenty eight) days from the date receipt of a written notice for such payment from EIL,

notwithstanding any Dispute between the Parties as to the amount due or the liability to make payment of the same.

20.3. The payment of the Performance Compensation does not in any way relieve the Contractor from any of its obligations to perform the Works or from any other obligations and liabilities of the Contractor under the Contract.

20.4. The Contractor agrees that the payment of Performance Compensation shall not affect the right of EIL to recover damages resulting from the breach of any other terms of this Contract, seek specific performance, or terminate the Contract pursuant to any other provisions hereof.

21 CONTRACT PRICE

21.1. In consideration of the full and complete discharge of the Contractor's obligations under the Contract, EIL shall pay to the Contractor the Contract Price at the time and in the manner set forth in the Payment Schedule, subject to such deductions and adjustments as may be permissible under the Contract.

21.2 For Lump-Sum Contract

The Contract Price is a fixed lump-sum price inclusive of all Taxes and shall not be subject to

any escalation, variation or alteration whatsoever throughout the Contract Validity Period, except as provided in the Contract or the Bidding Document; and includes any and all direct, indirect and ancillary costs, including profits, license, royalty and other fees, cost of all Goods and Materials, Plant and Contractor's Equipment and all other charges arising out of or in connection with the execution of the Works. The Contractor acknowledges and agrees that the lump-sum price and the rates set out in the Price Schedule and the Contract Price shall hold good till the completion of the Works and shall not be adjusted for any fluctuation in the market costs of labour or materials.

21.3 For Item Rate Contract

21.3.1 The Contract Price shall be deemed to include and cover the following:

- (a) all costs, expenses, outgoings and liabilities of every nature and description and all risks whatsoever to be taken or which may occur in relation to the acquisition, loading, unloading, transporting, storing, fabricating any Plant, equipment or system or the execution, completion, testing, commissioning and/or handing over of the Facility to EIL;
- (b) cost of all construction, Plant, Goods and Materials and all other items, materials and things required for incorporation in the Permanent Works or otherwise in execution of the Works, including cost of procuring Contractor's Equipment, supply of water and power, construction of Temporary Works/ Facilities, temporary roads, cost of labour, spares, fuel, stores and supplies to be provided or arranged in connection with the execution of the Works;
- (c) cost of all Drawings and Designs, Contractor's Documents, plans, models, studies and other documents required to be prepared and furnished by the Contractor under the Contract;
- (d) cost of mobilisation including, mobilisation of vehicles, machinery, equipment, tools, consumables and other items, goods and personnel necessary to commence the execution of the Works;
- (e) cost of all Taxes, other than to the extent provided in Clause 22.0 below;
- (f) cost of all rents, royalties, licenses, permits, permissions and other fees, duties, penalties, levies and damages payable on the performance of the Works including, the excavation, removal or transportation of any material or acquisition or use of any right of way or other rights, permits or privileges in connection with the performance of the Works;
- (g) cost of all insurance(s) (including insurance premium) required to be obtained and maintained by the Contractor in terms of the Contract;
- (h) cost of all inspections, tests and cost of items, instruments and/or tools required to conduct such inspections or tests;
- (i) cost of all escalations including, Taxes, labour costs, cost of materials and other inputs;

- (j) cost of supervision, establishment overheads and financing;
- (k) cost of all Contractor's indemnities under the Contract; and
- (l) cost of all deductions, discounts, adjustments and withholdings whatsoever under or in connection with the Contract.

22 TAXES AND DUTIES

- 22.1. All the Taxes and levies payable in India whether under Central, State or Local laws applicable in India as well as those leviable outside India, shall form part of the Contract Price. The Contractor shall bear all the Taxes, duties, levies on the supply of Goods and Material and Plant (including customs duties payable on imported Goods and Materials and Plant) and on performance of the services, under Central, State or Local laws applicable in India as well as those leviable outside India.
- 22.2. In respect of Goods and Material and Plant to be supplied by the Contractor from within India the Ex-factory value of such Goods and Material and Plant and all the indirect Taxes leviable on the transaction between 'EIL and Contractor' shall be separately indicated in the Price Schedules (as indicated in the Price Schedule) along with the rate of Tax so applied in computing such indirect Taxes.
- 22.3. The Contract Price comprises the base price of the Goods and Material, Plant and services and the Taxes thereon and therefore the Contractor is mandatorily required to indicate the Taxes in the format prescribed under Price Schedules.
- 22.4. The customs duty shall be to the account of the Contractor and the Contractor shall be responsible for the timely payment of the custom duties to the relevant Government Authorities. EIL shall assist in provision of all necessary documents required by the Contractor to clear the Goods and Material and Plant on availing the benefit of any concessional rate of customs duty available.

The Contractor shall be responsible for, and shall exercise due diligence in properly classifying the Goods and Material and Plant, undertaking the payment of customs duties, and/ or otherwise complying with all Applicable Laws with respect to any import of the Goods and Material and Plant. In case EIL is exposed to any penal action (interest and/ or penalties) by the customs Authorities for incorrect declaration and/ or valuation of the Goods and Material and Plant by the Contractor, or otherwise on account of any breach of Applicable Laws in the course of the import of the Goods and Material and Plant, the Contractor shall indemnify and hold harmless, EIL for any and all costs, expenses or losses suffered or incurred by EIL in this regard.

- 22.5. EIL shall issue in accordance with relevant legislation, the requisite sales tax declaration forms (including but not limited to Form C for materials other than raw materials/consumables as defined elsewhere in the contract) to the Contractor in order to get the benefit of any concession in the rate of VAT/ CST, as the case may be. The Contractor shall provide relevant statutory declaration forms to EIL in accordance with relevant legislation, within the period specified under the relevant sales tax legislation.

- 22.6. Unless otherwise provided for in the Contract, the Contractor shall be solely liable for payment of the following amounts:
- (a) all Taxes imposed and assessments made in relation to the Contractor's Equipment and the Works (including any Taxes applicable to the Works performed by the Subcontractors) which are payable in India;
 - (b) all contributions payable under Applicable Laws, awards or pursuant to any contract with an industrial or trade union or other association of employees; or otherwise with respect to or ascertained by reference to the wages, salaries or other compensation paid to the employees of the Contractor or any Subcontractor in respect of the Works, including Taxes or contributions for workers' compensation, unemployment or sickness benefit, old age benefit, welfare funds, pensions and disability insurance;
 - (c) all harbour dues, pilotage fees, port fees, wharf fees, unloading costs incurred in India in respect of any imported Contractor's Equipment;
 - (d) all direct Taxes, including income tax, profession tax and wealth tax for which the Contractor is the responsible party.
- 22.7. The Contractor and its Subcontractor/ vendor/ original manufacturer shall issue proper invoice, as stipulated under the customs, excise, VAT/CST, service tax and other Applicable Laws, and other necessary documents as may be relevant from time to time to enable EIL or any person designated by EIL to avail the credit of such Taxes, wherever applicable, paid by the Contractor or any Subcontractor/ vendor/ original manufacturer within the time period specified under the applicable legislation in this regard.
- If EIL is not able to avail the credit (as indicated in the Price Schedule, unless otherwise mentioned in this Contract), partially or entirely because the Contractor or any Subcontractor/ vendor/ original manufacturer issued a defective invoice or failed to produce the requisite documents, then the Contractor shall immediately indemnify EIL for such loss of Tax credit which would be otherwise available to EIL. EIL, in such case, may, in its sole discretion, decide to recover such loss by way of deduction from payment due to the Contractor or invoking the Contract Performance Bank Guarantee.
- 22.8. The benefit of any Tax exemption, concessions, rebate or any other incentives available when the Contractor or its Subcontractors/ vendor are performing their obligations under the Contract, shall be passed on to EIL.
- 22.9. Contractor agrees for withholding from wages and salaries of its agents, servants or employees all sums, required to be withheld by the laws of the Republic of India or any other agency having jurisdiction over the area where Contractor is conducting operations, and to pay the same promptly and directly when due to the proper authority. Contractor further agrees to comply with all accounting and reporting requirements of any Nation having jurisdiction over the subject matter hereof and to confirm to such laws and regulations and to pay the cost of such compliance. If requested by EIL/PMC, Contractor will furnish EIL/PMC the evidence of payment of applicable Taxes, in the country (ies) of the Contractor's and his sub-Contractor(s) and expatriate employees.

EIL shall issue a Tax deduction or withholding certificate to the Contractor evidencing the Tax deducted or withheld and deposited by EIL on payments made to the Contractor to enable the Contractor to claim the credit of the Tax deducted or withheld by EIL.

- 22.10. The Contractor shall be solely responsible for all procedural compliances related to the payment of Taxes under the Contract and it shall protect, indemnify and hold harmless EIL, from any and all cost, penalty, claims or liability:
- (a) to pay any Taxes assessed or levied by any competent Authority on the Contractor or its Subcontractors/ vendor / original manufacturer or on EIL for or on account of any act or omission on the part of the Contractor or its Subcontractors/ vendor/ original manufacturer; or
 - (b) on account of the Contractor's or its Sub-contractor's/ vendor's failure to file Tax returns as required by Applicable Laws or comply with reporting or filing requirements under Applicable Laws relating to Taxes; or
 - (c) arising directly or indirectly from or incurred by reason of any misrepresentation by or on behalf of the Contractor or its Subcontractors to any competent Authority in respect of Taxes; or
 - (d) arising from any proceedings initiated against EIL by any competent Authority in respect of any non-compliance, non-payment, short-payment of Taxes.
- 22.11. In case the Contractor is a foreign entity, it is mandatory to furnish the Contractor's Permanent Account Number (PAN), as per the Indian Income Tax requirements, failing which the Contractor shall be responsible for any additional Tax deduction at source as per the provisions of the Indian Income Tax Act/Rules. The PAN shall be furnished before release of any payment or within one month of award of work, whichever is earlier.

22.12 Taxes, Duties and Levies in Foreign Countries

The Contractor shall accept full and exclusive liability at his own Cost for the payment of any and all Taxes, duties, cesses and levies howsoever designated, as are payable to any government, local or statutory authority in any country other than India as are now in force or as are hereafter imposed, increased or modified and as are payable by Contractor, his agents, Sub-Contractors and its/their respective employees for or in relation to this performance of this contract. The Contractor shall be deemed to have been fully informed with respect to all such liabilities and considered and included the same in its bid and the quoted price shall not be varied in any way on this account.

23 TERMS OF PAYMENT

23.1 Mobilization Advance

- 23.1.1 Contractor may ((if specified by it in its Bid and accepted by EIL) be provided a recoverable interest bearing Mobilization Advance up to a maximum of 10% (ten percent) of the awarded Contract Price towards Mobilisation and execution of the Works. Mobilization advance shall carry an interest rate as defined in the Contract.

23.1.2 Mobilisation Advance shall be paid to the Contractor in two instalments subject to the fulfilment of the following conditions:

(a) First Instalment

5% (five percent) of awarded Contract Price shall be payable as the first instalment of Mobilization Advance, within 15 (fifteen) Business Days, after fulfilling the following formalities by the Contractor:

- (i) Signing of the Contract Agreement by the Contractor;
- (ii) Submission of the Contract Performance Bank Guarantee in accordance with Clause 9.4.2; and
- (iii) Submission of the Mobilization Advance Guarantee in accordance with Clause 9.4.1. The Contractor may submit 2 (two) separate Mobilization Advance Guarantees, one against each instalment of the Mobilisation Advance (5% each instalment).

(b) Second Instalment

Balance 5% (five percent) Mobilisation Advance shall be payable to the Contractor after the Contractor has constructed a site office, storage shed, fabrication yard, etc. and has physically mobilised construction equipments and is ready to start the Works to the entire satisfaction of the Engineer-in-Charge and commencement of work at Site. Where the Contractor elects to submit 2 (two) separate Mobilization Advance Guarantees, one against each instalment of the Mobilization Advance, the second instalment of the Mobilization Advance will be released by EIL only upon receipt of the second Mobilization Advance Guarantee.

23.1.3 Recovery of Mobilisation Advance

The Mobilisation Advance together with the interest accrued, thereon, shall be recovered from each Running Bill @ 12% (twelve percent) of gross amount of each Running Bill in such a manner that the total Mobilization Advance and interest accrued thereon is recovered by the time approximately 85% (eighty five percent) of the Contract Price is paid to the Contractor. Balance amount, if any, shall be deducted in full from the pre-final Bill. Mobilization advance Bank Guarantee will be reduced accordingly on quarterly basis against the request of the Contractor.

23.1.4 If the Mobilization Advance has not been fully adjusted against the Running Bills within 30 (thirty) days of the expiration of the Time for Completion or pre-final bill whichever is earlier or immediately prior to termination under Clause 32, the whole of the balance of the Mobilization Advance then outstanding shall immediately become due and payable by the Contractor to EIL and EIL shall be entitled to call upon the Mobilization Advance Guarantee.

23.2 Secured Advance

23.2.1 EIL may provide a Secured Advance to the Contractor for non-perishable, non-fragile and non-combustible Goods and Materials brought on the Site for execution of the Works, in the following manner:

- (a) in the case of steel, 75% of the value of the Goods and Materials on receipt

of the Goods and Materials at the Site or 75% of the quoted value of corresponding SOR item in which the Goods and Materials are to be incorporated, whichever is lower, and Approval of the Goods and Materials by EIL/Engineer-in-Charge. **For cement, the Secured Advance will be released only when the Contractor has established proper storage and handling facility at the Site;**

- (b) in the case of non-perishable Goods and Materials other than steel, 75% of the landed cost on receipt of the Goods and Materials at the Site or 75% of the quoted value of corresponding SOR item in which the Goods and Materials are to be incorporated, whichever is lower, and Approval of the Goods and Materials by EIL/Engineer-in-Charge (as per the list for Category B Items provided in SCC in the Bidding Document),

against submission of the following documents:

- (a) vendor's/manufacturer's invoice with proof of full payment, indicating quantity, unit rate and amount of the procured Goods and Materials, with the lot/batch numbers, as applicable;
- (b) in the case of imported Goods and Materials, copy of bill of lading, proof of payment of customs duty;
- (c) original factory test and inspection certificate with the lot/batch numbers, wherever applicable;
- (d) inspection release note signed by EIL/Engineer-in-Charge;
- (e) an indemnity bond in the format set out at Appendix IV;
- (f) copy of IMIR (Incoming Material Inspection Report) document duly authenticated;
- (g) copy of insurance policy for full value of the Goods and Materials for which the Secured Advance is being provided (in respect of specific goods and materials mentioned elsewhere in the contract), including landed cost at the Site, during storage and erection against all risk insurance, obtained in the joint names of EIL and the Contractor with EIL as the first beneficiary.

23.2.2 The Secured Advance shall not be payable for items not mentioned in the Specifications or Contract or for such items payment on the supply of which is covered in the payment schedule.

23.2.3 The Secured Advance will be recovered from the Running Bills proportionate to the extent that the Goods and Materials in respect of which the Secured Advance was provided are incorporated in the Permanent Work. The balance amount if any will be recovered completely on the earlier of:

- (a) 90% of the Contract Price being paid to the Contractor; and
- (b) Submission of the Final Bill.

23.2.4 No interest shall be levied on the Secured Advance, provided that the Goods and Materials for which the Secured Advance is provided are incorporated in the Permanent Work within the agreed Works Completion Schedule. If there is any inordinate and inexcusable delay in incorporation of the Goods and Materials for which the Secured Advance is provided in the Permanent Work, EIL may levy interest at the rate as defined in the contract on the value of the

unutilised Goods and Materials from the date on which such Goods and Materials were scheduled to be incorporated in the Permanent Work as per the Works Completion Schedule till the date on which the Goods and Materials are incorporated in the Permanent Work.

23.3 Progressive Payments/On Account Payment

23.3.1 (a) Where the Contract is a lump-sum Contract,

The Contractor shall submit to EIL, within 30 (thirty) days of the Effective Date, the Billing Schedule, which shall be taken into account by EIL when releasing payment of Running Bills.

Within 30 (thirty) Working Days of the receipt of such Billing Schedule, the Parties shall mutually agree upon the same. In the event that the Parties are not able to reach an agreement, EIL's decision regarding the Billing Schedule shall be final and binding on the Parties. Such Billing Schedule shall be deemed to be a Contractor's Document and shall form the basis of progressive payments of the Contract Price as stated in the payment terms, in accordance with this Clause 23.3.

(b) Where the Contract is an item rate contract:

- (i) The Contractor may raise Running Bills, as specified below, every alternate month and if an ad hoc payment is made by EIL in respect of the intervening month, for the amount certified by the Engineer-in-Charge on the basis of a summary assessment made by the Engineer-in-Charge of the value of the Works performed by the Contractor during the intervening month, such ad hoc payment(s) shall be deducted from the amount(s) certified by the Engineer-in-Charge as payable on the next Running Bill raised by the Contractor.
- (ii) Where a lump sum rate is stipulated in the Schedule of Rate(s) or otherwise in respect of any particular Work or part thereof and the Works are not, at any intervening stage, capable of measurement, the Running Bill to be prepared by the Contractor shall be prepared on the basis of a value assessment of the percentage of the particular Work or part thereof completed by the Contractor for which the lump-sum rate is stipulated in the Schedule of Rates, as certified by the Engineer-in-Charge.

23.3.2 (a) Within 7 (seven) days after completion of a Payment Milestone (in case of a lump-sum contract)/ individual item of Work (in case of an item rate contract), the Contractor must submit to EIL's Representative a Running Bill. Each Running Bill must set out:

- (i) the estimated value of the Works executed by the Contractor and the Contractor's Documents produced until the date of the Running Bill (including Variations);
- (ii) any amounts to be deducted on a pro rata basis towards the adjustment of the Mobilization Advance in accordance with Clause 23.1 above;
- (iii) any interim ad-hoc payments made by EIL in accordance with Clause 23.3.1(b)(i) above;

- (iv) any other additions or deductions which may have become due under the Contract or otherwise, including those under Dispute; and
 - (v) the deduction of amounts certified in all previous Running Bills and paid by EIL to the Contractor in accordance with Clause 23.
- (b) Each Running Bill must contain the Contractor's certification with supporting documentation:
 - (i) that each obligation, item of cost or expense mentioned in that Running Bill has been properly incurred and is a proper charge and that all physical progress is as represented;
 - (ii) that it has reviewed all financial and budget data contained in the Running Bill and the same is true and complete;
 - (iii) that the quality of all completed Works is in accordance with the Specifications;
 - (iv) that each obligation, item of cost or expense has not been the basis of any previous payment (unless the amount of the payment was subsequently reimbursed to EIL); and
 - (v) that all the requisite original statutory declarations or forms or documents, challans, required for availing of any Tax concessions or rebate or refund or credits or set-off or discounts as prescribed under any of the Applicable Laws for the time being in force in India have been submitted.
- (c) Within 30 (thirty) Business Days after receipt of a Running Bill submitted in full compliance with Clause 23.3.2 and not more than once a month, EIL shall endeavour to pay the amount requested or pay a lesser amount as it or the Engineer-in-Charge determines is properly due, in each case less any amounts retained, withheld or set off in accordance with the terms of the Contract subject to EIL's right under Clause 23.7 to set off against amounts due from the Contractor. If less than the full amount of the Running Bill is paid, EIL shall state in writing the reasons for paying the lesser amount. Notwithstanding anything contained in this Clause 23.3.2 (c), EIL may, at its sole discretion, release 75% of the amount of a Running Bill, as certified by the Engineer-in-Charge, within 7 (seven) Business Days from the receipt of the Running Bill.

23.4 Payments Withheld

EIL may withhold from any payment due to the Contractor amounts EIL deems reasonably necessary or appropriate because of any one or more of the following reasons:

- (a) Defects and deficiencies in any Works, whether or not payment has been made in relation to that part of the Works;

- (b) failure by the Contractor to provide certificates of insurance or insurance policies in accordance with the terms of the Contract;
- (c) reasonable evidence that completion of the Works will not occur within the Time for Completion;
- (d) failure, in any material respect, to perform the Works or any of the Contractor's other obligations under the Contract;
- (e) any overpayments made by EIL in a previous payment;
- (f) any payment required to be withheld under any Applicable Laws;
- (g) a dispute exists as to the accuracy or completeness of any Running Bill (but only with respect to the amount then in dispute);
- (h) amount of Taxes which EIL may have to pay if conditions of Clause 22 are not fulfilled; and
- (i) any amount expected to be paid by EIL to any person, on behalf of the Contractor or its affiliates under any agreement or any Applicable Laws for the time being in force or any court order or any other reason or purpose.
- (j) Any amount otherwise specified under the Contract, as being deductible from the payments to be made by EIL to the Contractor.

23.5 Final Payments

23.5.1 Within 15 (fifteen) days after receipt of the Completion Certificate, the Contractor must submit a payment claim and endorse it as the “**Final Bill**”. The Contractor must include in that claim:

- (a) statements for the Contract Price, summarising and reconciling all previous payments made by EIL and adjustments in the Contract Price; and
- (b) any further sums which the Contractor considers to be due to it under the Contract.

23.5.2 Except as provided in Clause 23.5.4, within 90 (ninety) Business Days after the receipt of the Final Bill complete in all respects in accordance with the Contract, EIL must pay to the Contractor the amount mentioned in the Final Bill and certified by the Engineer-in-Charge, less any disputed amounts, subject to EIL's right under Clause 23.7 to set off against amounts due from the Contractor. If the amount that the Contractor owes to EIL under Clause 23.7 is greater than the amount mentioned in the Final Bill and certified by the Engineer-in-Charge, then the Contractor must pay the excess amount which is a debt due and payable to EIL within 90 (ninety) days after EIL's receipt of the Final Bill.

23.5.3 After the expiry of the 15 (fifteen) days period referred to in Clause 23.5.1, a claim which the Contractor was entitled to make, but has not made in the Final Bill, is barred and the Contractor waives any right to bring such a claim.

- 23.5.4 The amount certified in the Final Bill will not become due under Clause 23.5.2 until the Contractor submits to EIL:
- (a) a certificate of release certifying that the Contractor waives all rights to bring any claims which the Contractor is entitled to make, but which are not included in the Final Bill;
 - (b) if requested by EIL, other data establishing payment or satisfaction, including receipts, releases, and waivers as may be required by EIL;
 - (c) a confirmation from the Contractor that there has been no Change of Law that it has not notified EIL which may result in a reduction in the Contract Price; and
 - (d) any and all outstanding documentation required to be given to EIL by the Contractor.
- 23.6. No interim payment by EIL constitutes acceptance by EIL of the Works or any part thereof, or releases the Contractor from any of its obligations or liabilities under the Contract.
- 23.7. Payment of the amount mentioned in the Final Bill by EIL shall not mean release of the Contractor from all of its liabilities under the Contract. The Contractor shall be liable to fulfill and discharge all his liabilities and responsibilities under the Contract until the end of the Contract Validity Period and release of the Contract Performance Bank Guarantee.
- 23.8. Without limiting Clause 23.4 and 23.5, EIL may at any time deduct from any moneys which are or may be payable to the Contractor (including security), any sums which may be or are payable by EIL pursuant to the Contract. Nothing in this Clause 23.8 affects the right of EIL to recover from the Contractor, the whole of the debt or any balance that remains owing after any deduction.
- 23.9. If the Contractor fails to pay a Subcontractor on time such sum as is properly due under the agreement between the Contractor and such Subcontractor, then EIL may, on behalf of the Contractor, make the payment direct to the Subcontractor and the amount so paid will be a debt due and payable from the Contractor to EIL.

23.10 Mode of Payment

- 23.10.1 Subject to the other provisions of the Contract, if the execution of the Works shall necessitate the importation into India of materials, plant or equipment or if the Works or any part thereof are to be executed by labour from outside India, a portion of the payments to be made under the Contract shall be made in the appropriate foreign currencies as requested in the Bid and accepted by EIL.
- 23.10.2 All payments required to be made by EIL to the Contractor shall be made by wire transfer to an account or accounts to be designated by the Contractor, which is maintained by the Contractor:
- (a) for payments in Indian currency, with a bank or banks in India; and
 - (b) for payments in foreign currency, with a bank or banks in the country in which the payment is to be received.
- EIL's liability to make payment shall be deemed to have been discharged when the amount due is deposited in the accounts or accounts designated by the Contractor for this purpose and subject to all acts necessary to initiate the relevant wire transfer being completed within the time stipulated for making payment of the amount due, any delay within the international or

domestic banking system in the transfer of such amount to the Contractor's account or accounts shall not give rise to a claim that EIL is in breach of its payment obligations under the Contract.

23.11 Measurement

23.11.1 All measurements under this Contract shall be in the metric system and except where expressly indicated to the contrary in the Contract, all measurements shall be taken in accordance with the procedure set out in the Contract notwithstanding any provision(s) in the relative standard method of measurement or any other general or local custom to the contrary.

23.11.2 All measurements shall be taken jointly by the Engineer-in-Charge or his representative on the one hand and the Contractor or the Contractor's Representative on the other hand and the Contractor shall be bound to present the Contractor's Representative for measurement(s) whenever so required by the Engineer-in-Charge and the Contractor's Representative shall remain present throughout the time required for joint measurements.

23.11.3 If the Contractor absents itself for any reason whatsoever on the date appointed for joint measurements, the measurements shall be taken by the Engineer-in-Charge or its representative in the absence of the Contractor and such measurements signed by the Engineer-in-Charge or its representative shall be final and binding upon the Contractor.

23.11.4 Measurements shall be signed and dated on each page by the Contractor or the Contractor's Representative and the Engineer-in-Charge or his representative. If the Contractor objects to any of the measurements recorded, including the mode of measurement, such objection shall be noted in the measurement book against the item objected to and such note shall be signed by the Contractor's Representative and the Engineer-in-Charge or its representative. In the absence of any noted objections, the Contractor shall be deemed to have accepted the relative measurements as entered in the measurement book and shall be barred from making or recording any objection in respect of the measurements recorded in the measurement book.

23.11.5 All measurement(s) relative to which any objection(s) have been noted in the measurement book shall be submitted to the Engineer-in-Charge for its decision and the decision of the Engineer-in-Charge shall be final and binding on the Contractor.

23.11.6 In case of discrepancy between measurement of work specified in the special conditions of contract, Standard Specification/ Job Specification, Schedule of Rates etc., precedence shall be given in following order:

- a) Measurement of works as specified in Special Conditions of Contract.
- b) Measurement of works as mentioned in Standard Specification/ Job Specification.
- c) Measurement of works in accordance with item description of relevant item mentioned in Schedule of Rates.

In case the clarity is not available through (a), (b) & (c) above, then it shall be as prescribed by the Bureau of Indian Standards ("BIS") and if it does not so prescribed by BIS, then measurement of works shall be as decided by Engineer-in-Charge, which shall final and binding upon the Contractor.

23.11.7 Wherever the unit of items has been indicated as lumpsum, the payment shall be made on lumpsum basis on completion & no mode of measurement shall be applicable.

24 VARIATION

- 24.1. EIL may at any time during the performance of the Works instruct the Contractor, by issuing a written notice, to carry out a Variation (“**Variation Order**”); and the Contractor must perform and be bound by a Variation. EIL shall not propose a Variation which:
- (a) will have a material adverse effect upon the Contractor's ability to cause the Works to meet the Guaranteed Performance Levels upon completion of the Facility;
 - (b) is not technically feasible, such feasibility being determined in accordance with Good Industry Practice.
- 24.2. The Contractor may propose to EIL any Variation which the Contractor considers necessary or desirable to improve the quality, efficiency, reliability, operability, maintainability or safety of the Facility. EIL may, in its absolute discretion, Approve or reject any Variation proposed by the Contractor. Any Approval must be notified to the Contractor.
- 24.3. Notwithstanding anything contained in Clauses 24.1 and 24.2, a Variation made necessary due to any act, omission or default of the Contractor in the performance of its obligations under the Contract will not result in any payment to the Contractor or an increase in the Contract Price.
- 24.4. No Variation shall invalidate the Contract. The Contractor agrees that a Variation may involve the omission of any part or parts of the Works and the Contractor agrees that EIL may engage others to perform that part or parts of the Works which have been omitted. The Contractor further acknowledges that any omission or omissions will not constitute a basis to allege that EIL has repudiated the Contract no matter the extent or timing of the omission or omissions.
- 24.5. Within 15 (fifteen) days of receipt of the direction referred to in Clause 24.1, the Contractor must prepare and submit to the Engineer-in-Charge a statement setting out:
- (a) detailed particulars of the Variation;
 - (b) the work required or no longer required;
 - (c) an estimate of the increase or decrease in the Contract Price;
 - (d) any requisite adjustment to Works Completion Schedule; and
 - (e) any proposed modifications to the Contract and/or any effect such Variation would have on the Works and/or on any other provisions of the Contract.
- 24.6. EIL may accept the offer given under Clause 24.5 or request the Contractor to submit revised estimates. If EIL accepts any offer it shall issue an instruction identifying the offer that is being accepted and requesting the Contractor to proceed with the Variation.
- 24.7. If agreement of an estimate is not reached under Clause 24.6, EIL may issue an instruction to the Contractor to proceed with the Variation and:
- (a) the Variation will be valued under Clause 24.8(b);
 - (b) the Contractor's right to an extension of the Time for Completion will be determined under Clause 14.

24.8. The valuation of the Variation shall be calculated as follows:

- (a) by agreement by making reference to the cost of similar or analogous work being executed by the Contractor under the Contract; or
- (b) failing agreement under Clause 24.8(a), the Engineer-in-Charge will determine the valuation.

Clause 35 shall apply to this Clause 24.8.

24.9. If a Variation results in a reduction of the time required to complete the Works, the Engineer-in-Charge may determine a reasonable reduction and notify the Contractor of the revised Time for Completion and other dates as set out in the Works Completion Schedule.

24.10 Quantity of Works

24.10.1 The quantities set out in the Price Schedule are estimated quantities for the execution of the Works and such quantities shall not be taken as the actual and correct quantities required for the execution of the Works. The Contractor shall be paid only for the actual quantities of Works executed by it on the basis of the rates set out in the Price Schedule and in accordance with the Payment Schedule and other relevant provisions of the Contract.¹

24.10.2 Notwithstanding anything to the contrary in Clause 21 and this Clause 24.10, variations in the quantities of the items set out in the Price Schedule shall be paid for by EIL in the following manner:²

- (a) There shall be no variation in the rates of the items specified in the Price Schedule as a result of any increase in the total Contract Price up to 25% (twenty five percent);
- (b) If the increase in the total Contract Price is likely to be more than the limit specified in Clause 24.10.2 (a) above, the rates for the additional quantities shall be mutually agreed between EIL and the Contractor, duly accounting for savings, if any, that may be available to the Contractor in case of increased quantities.

24.10.3 The Contractor shall be bound to notify the Engineer-in-Charge at least 15 (fifteen) Working Days before the necessity arises for the variation in the quantities of item(s) set out in the Price Schedule, in excess of the limits of variation specified above. If the Engineer-in-Charge and the Contractor are unable to agree on the revised rates on account of variation in quantities of item(s) in excess of the limits mentioned above, the revised rates of such varied quantities of item(s) shall be determined in accordance with Clause 35, pending which the Contractor shall be bound to perform the Works in relation to such varied quantities in accordance with the Contract.

24.10.4 There shall be no variation in the rates of the items specified in the Price Schedule, unless specifically, mentioned else where in the Bidding Document as a result of any decrease in the total Contract Price and the Contractor shall not be entitled for any compensation in this regard.

¹ This Clause is not applicable if the Contract is a lump-sum price contract

² This Clause is not applicable if the Contract is a lump-sum price contract

- 24.10.5 Except as provided in Clause 24.10.2 above, the quantities of the Works stated in the Price Schedule are indicative and as such (in case of item rate tender) do not form part of the Contract and EIL shall neither be liable for any increase or decrease in the actual quantities of the Works performed, nor shall such increase or decrease in the actual quantities of the Works performed form the basis of any alteration of the rates quoted in the Price Schedule or for any claim for additional compensation, damages or loss of profits. Notwithstanding the quantities mentioned in the Price Schedule and the Contract Price mentioned in the Letter of Award, the Contractor shall only be entitled to payment in respect of actual quantities of the Works performed by it.
- 24.10.6 The quantities of the Works and the gross value of the Works actually performed by the Contractor as valued on finalisation of all dues to the Contractor is the sole liability of EIL towards the Contractor and the Contractor shall not be entitled to any compensation in addition to such amounts.

25 CHANGE IN LAW

- 25.1. In the event that the Contractor reasonably considers that there is a Change in law as a result of which the Contractor suffers an increase in Cost or reduction in net financial burden payable with respect to execution of the Works, the Contractor shall give notice to the Engineer-in-Charge as soon as is reasonably practicable with:
- (a) details of the Change in Law;
 - (b) any other information which the Engineer-in-Charge reasonably requires (including the Contractor's estimate of any increase or decrease in the Contract Price incurred by it as a consequence of a Change of Law, any Variation for making the Works compliant with the Change in Law and/or changes to the Works Programme that will be incurred in complying with that Change of Law).
- 25.2. If the Change of Law requires a Variation or the Contractor is beneficially affected by a Change of Law, the Engineer-in-Charge must within 14 (fourteen) Working Days of receiving the Contractor's notification under Clause 25.1 provide a direction to either:
- (a) proceed with the Variation as proposed by the Contractor or as deemed appropriate by EIL; or
 - (b) vary the Works on a different basis as directed by EIL; or
 - (c) not proceed with the Works in which event the Contractor will be relieved of its obligations to comply with the subject of the Change in Law.
- 25.3. If the Engineer-in-Charge provides a direction under Clauses 25.2(a) and 25.2(b), such direction will be treated as a Variation to which the provisions of Clause 24 will apply.
- 25.4. To the extent that a Change of Law causes the Contractor to incur more Cost or less Cost than it would otherwise have incurred, the difference shall be compensated by EIL or the benefit of lower Costs shall be passed on to EIL by the Contractor, as the case maybe. The Contractor shall produce sufficient proof and estimate of increase in Costs for EIL's consideration.

26 SUSPENSION

- 26.1. The Engineer-in-Charge may at any time by issuing a written order (“**Suspension Order**”) to the Contractor (with a copy to EIL) suspend the execution of part or all of the Works including: (a) delivery of Contractor's Equipment which is ready for delivery to the Site; or (b) the erection of the Plant or part thereof which has been delivered to the Site; or (c) testing and commissioning of the Works.
- 26.2. The Suspension Order may be issued by the Engineer-in-Charge under the following circumstances:
- (a) Due to Contractor's default under the following circumstances:
 - (i) any act, default, omission or breach by the Contractor or for some default or breach by the Contractor reasonably anticipated by the Engineer-in-Charge; or
 - (ii) for the proper execution of the Works; or
 - (iii) existence of any emergency on the Site or at any place where the Works (or any part thereof) are being executed leading to unsafe conditions; or
 - (iv) as a consequence of any action by a statutory authority; or
 - (v) failure to furnish Contract Performance Bank Guarantee or Mobilization Advance Guarantee or renewal of such guarantees.
 - (b) For any other reason which the Engineer-in-Charge thinks reasonable.
- 26.3. Upon issuance of any Suspension Order under Clause 26.1, the Contractor shall protect, store and secure such part or whole of the Works or any Plant or Contractor's Equipment to which the Suspension Order relates to, against any deterioration, loss or damage and shall not remove any goods or equipment (including any Goods and Materials and Plant) from the Site without the prior written consent of the Engineer-in-Charge, during the entire suspension period. The Contractor shall take all steps to minimize cost and losses to EIL due to suspension and shall meet the Engineer-in-Charge on a regular basis.
- 26.4. On issuance of the Suspension Order due to events specified in Clause 26.2(a), the Contractor shall within 10 (ten) days undertake all necessary steps (including such steps as instructed by the Engineer-in-Charge) to remedy the circumstances leading to Suspension Order and immediately inform the Engineer-in-Charge on completion of such actions. Within 7 (seven) Working Days of receipt of such intimation from the Contractor, if the Engineer-in-Charge is satisfied that his instructions above have been fulfilled and complied with, issue a letter instructing the Contractor to resume the Works or such part of the Works that are subject of a Suspension Order. If the Engineer-in-Charge is of the view that such instructions have not been complied, the Engineer-in-Charge shall identify by means of further written notice the additional action required to be taken by the Contractor before any instruction to resume can be given.
- 26.5. The Engineer-in-Charge may at any time instruct the Contractor to resume the Works or such part of the Works that are subject of a Suspension Order, in which case the Contractor shall do

so as soon as is reasonably practicable and in any event within 5 (five) days of receiving such instructions. The Contractor shall, after notice to the Engineer-in-Charge, and together with the Engineer-in-Charge, examine the Works, Plant, Goods and Materials affected by the Suspension Order. The Contractor shall make good any deterioration or Defect in or loss of/ to the Works, Plant, Goods and Materials, which has occurred during the suspension.

- 26.6. The Contractor shall under no circumstances be entitled to any extension of the Time for Completion or claim for any monetary compensation where Suspension Order has been issued by the Engineer-in-Charge under Clause 26.2(a).
- 26.7. Notwithstanding anything contained in the Contract, the Contractor shall not be entitled to any Costs for preserving the Works during the period of suspension caused due to any Force Majeure event.

27 FORCE MAJEURE

- 27.1. Neither Party is responsible for any failure to perform its obligations under the Contract, if it is prevented or delayed in performing those obligations by an event of Force Majeure.
- 27.2. An event of Force Majeure is an event or circumstance which is beyond the control and without the fault or negligence of the party affected (“**Affected Party**”) and which by the exercise of reasonable diligence the Affected Party was unable to prevent and which is not caused or contributed by the Affected Party, provided that event or circumstance is limited to the following:
- (a) act of terrorism;
 - (b) riot, war, invasion, act of foreign enemies, hostilities (whether war be declared or not), civil war, rebellion, revolution, insurrection of military or usurped power;
 - (c) ionising radiation or contamination, radio activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio active toxic explosive or other hazardous properties of any explosive assembly or nuclear component;
 - (d) epidemics, earthquakes, flood, fire, hurricanes, typhoons or other physical natural disaster, but excluding weather conditions regardless of severity; and
 - (e) freight embargoes, strikes at national or state-wide level or industrial disputes at a national or state-wide level in any country where Works are performed, and which affect an essential portion of the Works but excluding any industrial dispute which is specific to the performance of the Works or the Contract.

For the avoidance of doubt, inclement weather, third party breach, delay in supply of materials (other than due to a nationwide transporters’ strike) or commercial hardship shall not constitute a Force Majeure event.

- 27.3. Where there is an event of Force Majeure, the Affected Party must notify the other Party in writing as soon as possible and in any event within [10(ten)] days of becoming aware of or the date it ought to have become aware of the occurrence of an event of Force Majeure giving full particulars of the event of Force Majeure and the reasons for the event of Force Majeure preventing the Affected Party from, or delaying the Affected Party in performing its obligations under the Contract. The Affected Party must use its reasonable efforts to mitigate the effect of the event of Force Majeure upon its performance of its obligations under the Contract and

notify the other party of the measures being taken to mitigate the effect(s) of the event of Force Majeure.

- 27.4. Upon completion of the event of Force Majeure the Affected Party must as soon as reasonably practicable recommends the performance of its obligations under the Contract. Where the Affected Party is the Contractor, the Contractor must provide an amended Works Programme rescheduling the Works to minimise the effects of the prevention or delay caused by the event of Force Majeure.
- 27.5. An event of Force Majeure does not relieve a party from liability for an obligation which arose before the occurrence of that event, nor does that event affect the obligation to pay money in a timely manner which matured prior to the occurrence of that event.
- 27.6. The Contractor has no entitlement and EIL has no liability for:
- (a) any costs, losses, expenses, damages or the payment of any part of the Contract Price during an event of Force Majeure; and
 - (b) any delay costs in any way incurred by the Contractor due to an event of Force Majeure.
- 27.7. If an event of Force Majeure occurs and its effect continues for a period of 180 (one hundred eighty days or more in a continuous period of 365 (three hundred sixty five) days after notice has been given under this Clause 27, either Party may terminate the Contract by issuing a written notice of 30 (thirty) days to the other Party.
- 27.8. In the event that the Parties are unable to agree in good faith about the existence or occurrence of a Force Majeure event, such dispute shall be finally settled in accordance with the dispute resolution mechanism provided herein; provided however that the burden of proof as to the occurrence or existence of such Force Majeure event shall be upon the Party claiming relief on account of such Force Majeure event.

28 INTELLECTUAL PROPERTY

- 28.1. The Contractor (with full title guarantee) hereby grants to EIL a royalty-free, irrevocable, non-exclusive licence to use, modify and reproduce the Contractor's Documents and any Intellectual Property contained in the Facility, the Works and the Contractor's Documents for any purpose whatsoever connected with the Facility; and the licence hereby granted shall carry the right to grant sub-licences and shall be transferable to third parties. This licence does not include a licence to reproduce the Intellectual Property contained in the Works and the Contractor's Documents for any other project undertaken by EIL or any third person.
- 28.2. EIL shall grant or shall grant to the Contractor a royalty-free, exclusive licence to use the Background Information and any Intellectual Property contained in the Background Information for the sole purpose of the performance of the Contractor's obligations under this Contract. The Contractor shall have no right to create any copies of, reproduce or to disclose the Background Information to any third Persons without the prior written consent of EIL, except in favour of the Contractor's Personnel and its Subcontractors (provided that the Contractor's Personnel and its Subcontractors shall be bound by the terms of the license granted under this Clause 28.2).

28.3. The Contractor warrants and represents that:

- (a) it has all rights and licences necessary to grant, assign and transfer to EIL licences to the Contractor's Documents and any Intellectual Property contained in the Works and the Contractor's Documents in accordance with this Contract;
- (b) it has no title or ownership to the Background Information and shall make no claim against or create any encumbrance over the Background Information or any Intellectual Property therein;
- (c) no infringement of any Intellectual Property of any kind of any third Person will result from the performance of this Contract; and
- (d) it has paid all royalty on any and all Intellectual Property licensed by it

28.4. The Contractor acknowledges that the Contractor is the author of the Contractor's Documents referred to in Clause 28.1 and the Contractor waives any moral rights which the Contractor might otherwise possess and the Contractor shall obtain a waiver of all rights that any of its employees, agents or Subcontractors may have pursuant to Applicable Laws in relation to the Contractor's Documents.

28.5. The Contractor shall, if so requested by EIL, at any time, execute such documents and perform such acts as may be required fully and effectively to assure to EIL the rights referred to in this Clause 28.

28.6. If, consequent to an infringement of Intellectual Property, the Contractor is prevented from performing the Works, or EIL is prevented from using the Works or the Contractor's Documents, the Contractor shall at its own expense and at its option:

- (a) procure for EIL the right to continue using the Works and the Contractor's Documents or any portion thereof;
- (b) re-perform the Works or part thereof, or replace the Contractor's Documents or part thereof with a non-infringing plant and equipment or part thereof; or
- (c) modify the Contractor's Documents or part thereof so it becomes non-infringing.

28.7. The Contractor shall indemnify EIL, the Engineer-in-Charge and their officers, employees, agents from and against all claims, liability, loss, damage costs and expenses (including but not limited to legal costs) arising out of any claim that any Intellectual Property contained in the Works or the Contractor's Documents or any use of such Intellectual Property by or on behalf of EIL infringes the Intellectual Property of a third party.

28.8. The Contractor shall pay all royalties and license fees, if any, for materials, apparatus, methods, processes, systems, software or other Intellectual Property rights purchased or used by Contractor or any Subcontractor for execution of the Works. The Contractor represents and warrants that except for amounts included in the Contract Price, no royalties or other payments are due or payable by EIL or any other Person in respect of the Intellectual Property used by the Contractor or any Subcontractor in relation to the Works.

29 REPRESENTATIONS AND WARRANTIES

29.1 General Representations and Warranties

The Contractor makes the following representations and warranties to EIL each of which is true and correct during the term of the Contract:

- (a) it has been incorporated as a company under the laws of India and is validly existing under those laws;
- (b) it has power to enter into the Contract and comply with its obligations under it;
- (c) the Contract and the transactions under it do not contravene its constituent documents or any Applicable Law or obligation by which it is bound or to which any of its assets are subject or cause a limitation of powers or the powers or its directors to be exceeded;
- (d) it has in full force and effect the authorisations necessary for it to enter into the Contract and the transactions under it;
- (e) its obligations under the Contract are valid and binding and are enforceable against it in accordance with the terms of the Contract;
- (f) it is not in breach of any Applicable Law or obligation affecting it or its assets in a way which may result in a material adverse effect on the business or financial condition of the Contractor;
- (g) there is no pending or threatened proceeding affecting the Contractor or any of its assets that would affect the validity or enforceability of the Contract, the ability of the Contractor to fulfil its commitments under the Contract in any material respect, or that could result in any material adverse change in the business or financial condition of the Contractor;
- (h) there are no reasonable grounds to suspect that it is unable to pay its debts as and when they become due and payable;
- (i) it has the necessary skills and experience to perform the Works in accordance with the Contract;
- (j) it owns or has the right to use or provide to EIL all Intellectual Property necessary to perform its obligations under the Contract; and
- (k) it will perform its obligations under the Contract and conduct its business with a high level of integrity which is reasonably expected of an international contractor of similar size and profile, conducting a similar line of business, and will not engage in any corrupt or fraudulent practices.

29.2 Warranties related to Works

Without prejudice to any other warranties expressed elsewhere in the Contract, and despite any inclusion of EIL's documents in the Contract (including in the Specifications) or any Approval

given or withheld by EIL under the Contract, the Contractor warrants:

- (a) the Works will be performed with all the skill and care to be expected of appropriately qualified and experienced contractors with experience in performing works and services of a similar size, type, nature and complexity to the Works and in accordance with Good Industry Practice;
- (b) the Works will be performed in accordance with, all the requirements in the Contract and the Specifications, by properly qualified and accredited personnel, for the Contract Price and by the Time for Completion;
- (c) the Works will be performed with the highest regard for safety and protection of the environment and so that the Facility is capable of being operated and utilised in accordance with all Applicable Laws and the Contract;
- (d) the Works will be fit for their intended purpose as described in, or reasonably inferable from, the Contract;
- (e) the Works utilise proven technology, being a technology that has operated commercially at other coal fired power stations of similar net output capacity and which, as of the date of the Contract, is capable of being insured on a reasonable commercial basis; and
- (f) the Works will comply with all Applicable Laws.

30 INDEMNITY

- 30.1. The Contractor shall indemnify and hold harmless EIL, the Engineer-in-Charge, their advisors, representatives and employees from and against all actions, suits, proceedings, claims, damages, losses, expenses and demands of every nature and description, by reasons of any breach of the provisions of the Contract by the Contractor or any act or omissions of the Contractor, its representative or its employees, agents, and sub-contractors in the execution of the Works, including any professional services provided by the Contractor.
- 30.2. These indemnification obligations shall include but not be limited to claims, damages, losses, damage proceedings, charges and expenses which are attributable to:
- (a) Sickness, disease or death of, or injury to any person;
 - (b) Loss of, or damage to, or destruction of any property;
 - (c) Loss, damage or costs arising from the carriage of Goods and Materials and/or ownership or chartering of marine vessels by the Contractor, or Subcontractor of any tier.

The Contractor shall also indemnify and hold harmless EIL from and against all claims and proceedings on account of infringements of patents rights, design, trademark, etc., as detailed out in Clause 28.

- 30.3. All sums payable by way of compensation under these conditions shall be considered reasonable compensation payable to EIL with reference to the actual loss or damage sustained by EIL. The decision of the Engineer-in-Charge as to compensation claimed shall be final and binding.
- 30.4. Notwithstanding anything in the Contract to the contrary, no liabilities owed by the Contractor to EIL that is covered by insurance obtained by the Contractor or EIL pursuant to Clause 33 is included in the Contractor's aggregate liability for the purpose of determining the limit of the Contractor's liability under the Contract.
- 30.5. Neither Party shall be liable to the other Party for any kind of indirect or consequential loss or damage including, loss of use, loss of profit, loss of production or business interruption which is connected with any claim arising under the Contract.

30.6 Contractor's Care of the Works

The Contractor shall take full risk and responsibility for the care of the Works, or any part thereof, including full risk and responsibility for the care of the Works being constructed/ installed, or stored off-Site for inclusion in the Works, until the date of issue of the Completion Certificate, when risk and responsibility shall pass to EIL.

31 LIMITATION OF LIABILITY

- 31.1 The aggregate total liability of the Contractor to EIL under the Contract shall not exceed the total Contract Price, except that this Clause 31 shall not limit the liability of the Contractor for following:
- (a) In the event of breach of any Applicable Law;
 - (b) In the event of fraud, willful misconduct or illegal or unlawful acts, or gross negligence of the Contractor or any person acting on behalf of the Contractor; or
 - (c) In the event of acts or omissions of the Contractor which are contrary to the most elementary rules of diligence which a conscientious Contractor would have followed in similar circumstances; or
 - (d) In the event of any claim or loss or damage arising out of infringement of Intellectual Property; or
 - (e) For any damage to any third party, including death or injury of any third party caused by the Contractor or any person or firm acting on behalf of the Contractor in executing the Works.
- 31.2 Neither Party shall be liable to the other Party for any kind of indirect or consequential loss or damage including, loss of use, loss of profit, loss of production or business interruption which is connected with any claim arising under the Contract.

32 TERMINATION

32.1 Termination for Convenience

EIL shall, in addition to any other right enabling it to terminate the Contract, have the right to terminate the Contract at any time by giving prior written notice of at least 14 (fourteen) days to the Contractor. Such termination shall be without prejudice to the rights of the Parties that have accrued on or before the date of termination of the Contract.

32.2 Termination Due to Contractor's Default

The Contract may be terminated by EIL, at its sole and absolute discretion, upon the occurrence of any of the following events/acts committed by the Contractor (each a “**Contractor's Event of Default**”) by issuing a notice to the Contractor, stating the intention of EIL to terminate the Contract:

- (a) fails to complete Mobilisation within the Time for Mobilisation under Clause 9.3;
- (b) commits a material breach of its obligations under the Contract;
- (c) abandons or repudiates the Contract or suspends the execution of the Works during the subsistence of any Dispute under the Contract;
- (d) fails to adhere to the Specifications and/or Variations in terms of the Contract;
- (e) the Contract Price is reduced to the maximum extent specified in Clause 13.2, yet the delay in respect of which the reduction was made continues to subsist;
- (f) a petition for the winding up of the Contractor has been admitted and a liquidator or provisional liquidator has been appointed or an order of bankruptcy or an order for the winding up or dissolution of the Contractor has been made by a Court of competent jurisdiction, except voluntary change in partnership/ constitution of Contractor's organisation (if a partnership/ Company) or liquidation for the purpose of amalgamation or reconstruction subject to EIL's acceptance to continue the Contract with the re-constituted firm/ company.
- (g) Contractor fails to replace or remedy Defective Work pursuant to Clause 9.1.18;
- (h) Contractor's liability for compensation under Clause 20 reaches 10 % (ten percent) of the Contract Price and the Defect for which the compensation are/were charged continues to exist;
- (i) gives any warranty or makes any representation under the Contract which is found to be false or misleading;
- (j) fails to furnish or renew the Contract Performance Bank Guarantee;
- (k) fails to obtain and maintain insurance in accordance with its obligations under the Contract; or

- (l) commits any default under any Applicable Law.

32.3. If the Contractor fails to remedy or rectify the default stated in the notice issued by EIL under Clause 32.2 within 30 (thirty) days of receipt of such notice, EIL shall be entitled to terminate the Contract by issuing a termination notice and expel the Contractor from the Site (but without thereby releasing the Contractor from any of its obligations or liabilities under the Contract, or affecting the rights and powers conferred on EIL under the Contract up to the date of termination). However, in case of events specified in Clause 32.2 (c) and (f), EIL shall be entitled to immediately terminate the Contract without giving any notice to the Contractor.

32.4 Procedure on Termination

32.4.1 Upon termination of the Contract under Clause 32.3:

- (a) EIL may complete the Works and/or arrange for other entities to do so at the risk and Cost of the Contractor. EIL and its entities may then use the access roads, the Contractor's Documents and all other facilities made by or on behalf of the Contractor;
- (b) Call upon the whole or such portion of the Contract Performance Bank Guarantee amount as EIL may consider fit;
- (c) Recover from the Contractor the cost of carrying out the balance Works in excess of the sum which the Contractor would have been paid according to the Final Bill, if the Works had been carried out and completed by the Contractor under the terms of the Contract. The amount to be recovered may be deducted by EIL from any amount due to the Contractor under the Contract. Any amount outstanding to EIL under this Clause 32.4.1(c) shall be recovered from the Contractor as a debt due;
- (d) Enter upon the Site and expel the Contractor. EIL may, to the exclusion of any right of the Contractor, take over and use, without payment to the Contractor, any Contractor's Equipment, materials, goods, machinery or other items which are on the Site in connection with the Works for any reasonable period as EIL considers necessary for the performance and completion of the Works.

32.4.2 Upon termination of the Contract under Clause 32.3, the Contractor must either immediately or upon any date as is specified in the notice of termination:

- (a) cease all further work, except for any work EIL may specify in the notice of termination;
- (b) terminate all Subcontracts, except those to be assigned or novated to EIL in accordance with paragraph (d) below;
- (c) deliver to EIL the parts of the Works performed by the Contractor up to the date of termination;
- (d) to the extent legally possible assign or novate to EIL all right, title and benefit of the Contractor to the Works as at the date of termination, and, as may be required by EIL, in any subcontracts between the Contractor and its Subcontractors;

- (e) subject to Clause 32.4.1(d), remove all Contractor's Equipment, surplus materials (as per Clause 9.12.2 (b), scaffolding from the Site, dismantle and remove its Site offices and quarters and other Temporary Works and structures and repatriate the Contractor's Personnel from the Site, remove from the Site any wreckage, rubbish and debris of any kind, and leave the whole of the Site in a clean and safe condition; and
- (f) deliver to EIL all documents prepared by the Contractor in connection with the Works as at the date of termination.

Should the Contractor fail to comply with the provisions of sub-Clause (e) above, EIL shall have the right, at the sole risk and Cost of the Contractor, to clear the Site of all rubbish, scaffolding, surplus materials, Contractor's Equipment, machinery, dismantle and remove the Contractor's Site offices and other Temporary Works and store, sell, dispose of and/or otherwise deal with any of the above and the Contractor shall forthwith on demand pay EIL the costs and expense incurred by EIL in this regard with an additional amount equivalent to 15% (fifteen percent) of such costs and expenses to cover EIL's overheads. EIL shall have the right to recover such amounts from: (i) the proceeds of any sale or disposal of the Contractor's Equipment, machinery, surplus materials, Temporary Works or other items removed from the Site; and (ii) any amounts due to the Contractor under the Contract.

Nothing contained in this Clause or otherwise in the Contract shall constitute EIL as a trustee or bailee for or in respect of any of the Contractor's Equipment, surplus materials, machinery or other items or things removed, cleared, demolished or dismantled as mentioned above and EIL shall not be bound by any duty of care in respect thereof.

32.4.3 Notwithstanding anything contained in Clause 32.4.2 above, upon termination of the Contract, EIL may require the Contractor to:

- (a) complete or take to an intermediary stage of completion any item of the Works already commenced by the Contractor; and
- (b) take such steps as are considered necessary by the Engineer-in-Charge for properly protecting and securing the Works already completed by the Contractor.

32.5 Payment on Termination

32.5.1 If the Contract is terminated under Clause 27.7 or 32.1, the Contractor is entitled to be paid:

- (a) the Contract Price attributable to the Works performed as at the date of termination, or in the case of a termination under Clause 27.7, the commencement of the relevant event of Force Majeure; and
- (b) the costs, if any, necessarily incurred in performing the work (if any) specified in the notice of termination issued by EIL under Clause 31 or as instructed by EIL pursuant to Clause 32.4.3; and
- (c) if the Contract is terminated in accordance with Clause 31, additionally (but without duplication):
 - (i) the costs reasonably incurred by the Contractor in terminating any subcontracts

as a result of the termination of the Contract; and

- (ii) the costs reasonably incurred by the Contractor in the repatriation of the Contractor's and the Subcontractor's employees,

less the aggregate of all previous payments allocated to the Works. Any sums due to EIL from the Contractor accruing prior to the date of termination or the commencement of the relevant event of Force Majeure (as the case may be) will be deducted from the amount to be paid to the Contractor under the Contract. If, as a result of any such deductions, there is a negative amount payable to the Contractor, then the Contractor must pay an amount equal to that negative sum to EIL within 15 (fifteen) days of EIL raising an invoice for that amount.

The Contractor agrees and acknowledges that payment of termination compensation in terms of this Clause 32.5.1 shall be the sole and exclusive liability of EIL and the sole and exclusive remedy of Contractor, with respect to a termination of the Contract under Clause 32.1 or Clause 27.7.

32.5.2 If the Contract is terminated under Clause 32.3, EIL will not be bound to make any further payment to the Contractor until the full and final cost of completion of the Works by EIL or other contractors and all damage, loss or expense suffered or incurred by EIL as a result of the termination of the Contract have been ascertained.

32.5.3 Upon all cost, damages, loss and/or expense being ascertained under Clause 32.5.2, the Engineer-in-Charge must issue a certificate stating the total amount of the cost of completing the Works and any damage, loss or expense suffered or incurred by EIL as a result of the termination of the Contract.

32.5.4 If the Contract Price attributable to the Works performed as at the date of termination less the aggregate of: (a) all previous payments allocated to the Works which have been paid to the Contractor; and (b) the amount stated in the certificate under Clause 32.5.3,

- (a) is a positive amount payable to the Contractor, then EIL must pay such amount to the Contractor within 15(fifteen) Business Days of the issuance of the certificate pursuant to Clause 32.5.3; or
- (b) is a negative amount payable to the Contractor, then an amount equal to that negative sum will be a debt due and payable to EIL by the Contractor and the Contractor must pay such amount to EIL within 15 (fifteen) days of EIL raising an invoice for that amount.

33 INSURANCE

33.1. EIL shall at its own Cost, take out and maintain in effect, or cause to be taken out and maintained in effect, during the execution of the Works, a comprehensive Erection All Risks Policy ("**EIL's Insurance**").

33.2. Without prejudice to Clause 33.1, the Contractor shall be required to take out and maintain at all times during the subsistence of this Contract, adequate insurance coverage in respect of:

- (a) any damages or compensation against claims, demands, proceeding, costs, charges and expenses, whatsoever in respect or in relation thereto, payable under Applicable Laws in respect or any consequence of any accident or injury to any Contractor's Personnel during or pursuant to their employment by the Contractor or by the Contractor's Subcontractors, save and except an accident or injury resulting from any act or fault of EIL;
 - (b) all Contractor's Equipment brought on to the Site by the Contractor or its Subcontractors for use in connection with the Works, to the extent of their full value against all loss or damage from whatever cause arising; and
 - (c) third party liability for physical loss of or damage to any third party property or injury to or death of any third party which may arise out of or in connection with the execution of the Works at the Site by the Contractor or EIL, (collectively "**Contractor's Insurance**").
- 33.3. EIL's Insurance and the Contractor's Insurance shall each be composite policies in the joint names of the Parties, for their respective rights and interests. The terms of EIL's Insurance and the Contractor's Insurance shall entitle the respective Parties to maintain the policies in force after termination of the Contract.
- 33.4. Either Party shall, at the request of the other Party, produce within 7 (seven) days of request, such evidence as the other may reasonably require and as is obtainable from insurers that EIL's Insurance or the Contractor's Insurance (as relevant) have been effected, which evidence may include sight of the insurance policies and confirmation of the payment of all premiums to keep the policies in force.
- If either Party fails upon request to produce to the other satisfactory evidence in accordance with this Clause 33.4 that there is in force any of EIL's Insurance or the Contractor's Insurance (as relevant), the other Party may effect and keep in force any such insurance and the Party failing to evidence insurance shall pay to the other all reasonable costs incurred by the other for such purpose.
- 33.5. Each Party shall ensure that it and its personnel, Subcontractors, servants and agents at all times:
- (a) Comply with the terms and conditions of EIL's Insurance or the Contractor's Insurance, as relevant;
 - (b) Comply with the procedures for claims notification and administration there under; and
 - (c) Do nothing nor omit to do anything which might entitle any insurer to refuse to pay any claim under, or which might otherwise prejudice any of EIL's Insurance or the Contractor's Insurance.
- 33.6. EIL's Insurance as well as the Contractor's Insurance, shall wherever possible, provide for 30 (thirty) days written notice of any cancellation, non-renewal or material modification of any such policy to be given by the insurers to the insured persons. Further, EIL's Insurance and the Contractor's Insurance shall contain a clause to the effect that the insurers have agreed to waive all rights of subrogation against the persons assured (including all beneficiaries thereof).

- 33.7. Regardless of the extent of settlement of claims for insurance proceeds under EIL's Insurance or under the Contractor's Insurance or the time taken for settlement of such claims, the Contractor shall promptly make good any loss or damage for which it is responsible under the terms of this Contract. The Contractor shall be reimbursed to the extent that any insurance proceeds are received and payable to the Contractor.

34 GOVERNING LAW AND JURISDICTION

- 34.1 The Contract shall be governed by and construed in accordance with the laws of India and the courts at Delhi shall have exclusive jurisdiction over all Disputes arising under or in connection with the Contract.

35 CLAIMS AND DISPUTE RESOLUTION

35.1 Claims

- 35.1.1. If the Contractor intends to claim any additional payment on the occurrence of any event which entitles the Contractor to claim such additional payment, the Contractor shall give notice to the Engineer-in-Charge as soon as possible and in any event within 10 (ten) days of the Contractor becoming aware of such event.
- 35.1.2. The Contractor shall keep such contemporary records as may be necessary to substantiate any claim. Without admitting EIL's liability, the Engineer-in-Charge may on receipt of a notice pursuant to Clause 35.1.1 above, inspect such records and may instruct the Contractor to produce and maintain further records. The Contractor shall permit the Engineer-in-Charge to inspect all such records and shall (if instructed) submit copies to the Engineer-in-Charge.
- 35.1.3. Within 30 (thirty) days of issuing a notice pursuant to Clause 35.1.1, the Contractor shall send to the Engineer-in-Charge an account, giving detailed particulars of the amount and basis of the claim.
- 35.1.4. If the Contractor fails to comply with this Clause 33, the Contractor shall not be entitled to claim any additional payment.
- 35.1.5. Notwithstanding anything to the contrary in this Contract, EIL shall not be liable for any claim arising out of or in connection with the Contract or the execution of the Works, unless the Contractor shall have given notice of such claim within 60 (sixty) days from the date of issuance of the Completion Certificate.
- 35.1.6. The Contractor shall be entitled to additional costs as the Engineer-in-Charge considers due, after taking Approval from EIL. If the particulars supplied are insufficient to substantiate the whole of the claim, the Contractor shall be entitled to payment for such part of the claim as has been substantiated by the Engineer-in-Charge and agreed to by EIL.

35.2 Dispute Resolution

- 35.2.1. If any disagreement arises out of or in connection with the validity, application or interpretation of the Contract (the "**Dispute**"), the Parties shall endeavour in good faith to resolve the Dispute

through negotiation within 7 (seven) days of a written notice setting out the nature of such Dispute.

- 35.2.2. In the event that any Dispute is unable to be resolved between the Parties pursuant to Clause 35.2.1 within 21 (twenty-one) days of receipt of the notice under Clause 35.2.1, then such Dispute shall be referred to arbitration.
- 35.2.3. The arbitration will be conducted as per the Arbitration Act. The arbitral tribunal shall comprise of a sole arbitrator whom shall be appointed by EIL. The place of arbitration for any Disputes and Related Disputes shall be Delhi (save and except where otherwise specified under the Main Contract for the Related Dispute, in which event the place of arbitration shall be the place of arbitration for such Related Dispute). The language to be used in the arbitral proceedings shall be English. The arbitral award shall be final and binding upon both the Parties.
- 35.2.4. Responsibility of payment for all costs of arbitration, excepting counsel fees, shall be as per the arbitration award.
- 35.2.5. While any Dispute under this Contract is pending; and except where this Contract has been terminated in accordance with the terms of this Contract, the Parties shall continue to perform all of their respective obligations under this Contract without prejudice to the final determination in accordance with the provisions under this Clause 35.
- 35.2.6. Where, in EIL's absolute discretion, it is beneficial for the completion of the Facility for any Dispute between EIL and the Contractor, in respect of which an arbitration notice has been given, to be resolved in the same arbitration proceedings as a dispute between EIL and any other party or parties engaged in relation to the completion of the Facility (the “**Related Dispute**”) then:
- (a) if a notice to concur in the appointment of an arbitrator has been served in the Related Dispute, the Contractor hereby agrees that, at EIL's sole option, the Dispute between EIL and the Contractor shall be referred to the arbitrator appointed or to be appointed in respect of the Related Dispute and be determined at the same time as such Related Dispute;
 - (b) where an arbitrator has already been appointed in connection with the Related Dispute, the Contractor hereby agrees that, at EIL's sole option, the Dispute between EIL and the Contractor shall be referred to and be determined by the arbitrator so appointed contemporaneously with the Related Dispute.

35.3 Settlement of dispute between Govt. Dept./ Public Sector Undertaking

- 35.3.1 If the Contractor is a PSU or Enterprise or is a Govt. Department, any disputes or differences between the Contractor and EIL hereto arising out of any notified claim of the Contractor in terms hereof and/or arising out of any amount claimed by EIL (whether or not the amount claimed by EIL or any part thereof shall have been deducted from the final bill of the Contractor or any amount paid by EIL to the Contractor in respect of the work), then in suppression of the provisions of clause no 35.2 of the General Conditions of Contract, the following provisions shall apply, namely; such disputes or differences shall be resolved amicably by mutual consultation or through the good offices or empowered agencies of the Government. If such resolution is not possible, then the unresolved disputes or differences

shall be referred to arbitration of an arbitrator to be nominated by the Secretary, Department of legal affairs (Law Secretary) in terms of the Office Memorandum No. **DPE/4(10)/2001-PMA-GL-I dated 22nd January, 2004** issued by the Cabinet Secretariat (Department of Cabinet Affairs) as modified from time to time. The Arbitration Act shall not be applicable to the arbitrator under this clause. The award of the arbitrator shall be binding upon parties to the dispute, provided, however any party aggrieved by such award may make a further reference for setting aside or revision of the award to Law Secretary whose decision shall bind the parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the arbitrator.

- 35.3.2 Notwithstanding the existence of any dispute or arbitration in terms hereof or otherwise, the Contractor shall continue and be bound to continue and perform the Works to completion in all respects according to the Contract (unless the Contract or Works be determined by EIL) and the Contractor shall remain liable and bound in all respects under the Contract.

36 MISCELLANEOUS

36.1 Personal Acts and Liabilities

- (a) No director, officer or other employee of EIL shall in any manner be personally bound or liable to the Contractor for acts, commissions or obligations of EIL under the Contract or otherwise or be personally answerable to the Contractor for any default or omission in the performance of any act(s), deed(s) or things to be observed and/or performed by EIL under the Contract.
- (b) The Contractor shall not be entitled to any increase in the rate(s) mentioned in the Price Schedule or to any other payment by reason of any representation, explanation or assurance given or alleged to have been given by the Engineer-in-Charge or any employee, representative, consultant or agent of EIL.
- (c) No director, officer or other employee of EIL shall be personally liable to the Contractor for any representation, explanation, statement or assurance given or alleged to have been given by him to the Contractor in connection with the Contract.
- (d) The Contractor shall not, under any circumstances, pay or advance to any officer(s), servant(s) or agent(s) of EIL any money on any account without the prior Approval of EIL and any payment without such Approval shall be entirely at the risk of the Contractor and EIL shall have no liability in this regard.
- (e) Any money paid to any director, attorney, agent, officer or employee of the Contractor and any receipt, settlement, acknowledgement of liability or other arrangement, agreement or document whatsoever signed by any such director, attorney, agent, officer or employee of the Contractor or erstwhile director, attorney, agent, officer or employee (without notice of his cessation of interest) or by any person held to be a director, attorney, agent, officer or employee of the Contractor authorised to act on behalf of the Contractor shall, as between the Contractor and EIL, be binding upon the Contractor and shall constitute a full release and discharge to EIL and/or a valid settlement, acknowledgement of obligation of the Contractor, as the case may be.

- (f) Any money paid to or dealing had with any partner or member of the Contractor (if a firm or consortium) and any receipt, settlement, acknowledgement of liability or other arrangement, agreement or document whatsoever signed by any one of the partners of the firm or members of the consortium or erstwhile partner of the firm or member of the consortium (without notice of the cessation of his interest) or with any person held to be a partner of the firm or member of the consortium shall be binding on the Contractor and shall constitute a full release and discharge to EIL and/or a valid settlement, acknowledgement of obligation of the Contractor, as the case may be, provided that EIL shall always have the right to call upon all or any of the partners/members of the Contractor's firm/consortium to sign any receipt, settlement, acknowledgement or other document and all or any of the partners of the firm or members of the consortium shall, when called upon to do so by EIL, immediately sign the receipt, settlement, acknowledgement or other document required to be so signed.

36.2 Assignment

The Contractor shall not assign, novate or charge the whole or any part of the Contract or create any encumbrance over the Facility, without the prior written consent of EIL. In the event of an assignment or novation by the Contractor, any stamp duty and all costs and expenses payable in respect of such documents, required to be signed by EIL, shall be to the account of the Contractor. EIL shall be entitled to assign and/or transfer its rights and obligations under the Contract to any party, without requirement of any further consent of the Contractor.

36.3 Partnership

Nothing contained or implied in Contract shall constitute or be deemed to constitute a partnership or agency between the Parties and none of the Parties shall have any authority to bind, commit or make any representations on behalf of the other Party.

36.4 Severability

If any provision of the Contract shall be determined to be invalid, illegal or unenforceable under Applicable Laws, all other provisions of the Contract shall continue in full force and effect unless such invalidity or unenforceability adversely affects the underlying intent of the Contract or unless the invalid or unenforceable provision comprises an integral part of, or is inseparable from the remainder of the Contract. In such circumstances the Parties shall negotiate in good faith with a view to agreeing upon one or more provisions which may be substituted for such invalid, illegal or unenforceable provisions, as nearly as is practicable. Provided failure to agree upon any such provisions shall not be subject to dispute resolution under this Contract or otherwise.

36.5 Entire Agreement

The Contract contains all covenants stipulations and provisions agreed by the Parties, and constitutes the entire Contract between the Parties hereto and supersedes any oral or written representations, understandings, proposals, or communications heretofore entered into by or on account of the Parties and may not be changed, modified, or amended except in writing and signed by the Parties hereto.

36.6 Reservation of Rights

No forbearance, indulgence, relaxation or inaction by EIL at any time to require performance of any of the provisions of the Contract shall in any way affect, diminish or prejudice the right of EIL to require performance of that provision, and no delay in exercising or omission to exercise any right, power or remedy accruing to EIL upon any default or otherwise under the Contract shall impair any such right, power or remedy or shall be construed to be a waiver thereof or any acquiescence in such default, nor shall the action or inaction of EIL in respect of any default or any acquiescence by it in any default, affect or impair any right, power or remedy of EIL in respect of any other default.

36.7 Abnormally High Rates (AHR items)

In item rate contract where the quoted rates for the items exceed 50% (fifty percent) of the EIL's estimated rates, such items will be considered as Abnormally High Rates Items (AHR) and payment of AHR items beyond the contracted quantities shall be made at the lower of the following rates:

- (a) Rates as per the Schedule of Rates, quoted by the Contractor.
- (b) Rate of the item, derived as follows:
 - (i) Based on rates of machine and labour as available from the Contract (which includes Contractor's supervision, profit, overheads and other expenses).
 - (ii) In case rates are not available in the Contract, rates will be calculated based on prevailing market rates of machine/equipments, material and labour plus 15% (fifteen percent) to cover Contractor's supervision profit, overhead & other expenses.

36.8 Corrupt and Fraudulent Practices

36.8.1 Bidders are required to furnish the complete and correct information/ documents required for evaluation of their bids. If the information/ documents forming basis of evaluation is found to be false/ fake/ forged, the same shall be considered adequate ground for rejection of the bids and forfeiture of earnest money deposit.

36.8.2 EIL requires that the Contractor observes the highest standard of ethics during the execution of Contract. In pursuance of this policy, EIL defines, for the purposes of this provision, the terms set forth below as follows:

- (a) "Corrupt Practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of public official in contract execution; and
- (b) "Fraudulent Practice" means a misrepresentation of facts in order to influence the execution of a Contract to the detriment of EIL, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive EIL of the benefits of free and open competition.
- (c) "False/Fake" means to make or construct falsely. "Faked alibi" is a made, manufactured, or false alibi. Something that is not what is purports to be; counterfeit, an imposter.
- (d) "Forgery" means the false making or the material altering of a document with the intent to defraud. A signature of a person that is made without the person's consent and without the person otherwise authorizing it. A person is guilty of forgery if, with the

purpose to defraud or injure anyone or with knowledge that he is facilitating a fraud or injury to be perpetrated by anyone, the actor (i) alters any writing of another without his authority (ii) makes, completes, authenticates, executes, issues or transfers any writing, so that it purports to be the act of another who did not authorize that act or to have been executed at a time or place or in a numbered sequence other than was in fact the case, or to, be a copy of an original when no such original exists. Utters any writing which he knows to be false in a manner specified in (i) & (ii) above.

36.8.3 EIL may terminate the Contract if it discovers subsequently that the Contractor had engaged in Corrupt Practices, or Fraudulent Practices in competing for the Contract.

36.8.4 The Contractor is required to execute the “Integrity Pact” attached in the Bid Document as a condition precedent to execution of the Contract.

36.8.5 In case, the information/ document furnished by the Contractor forming basis of evaluation of its Bid is found to be false / fake/ forged after the award of the Contract, EIL shall have the right to terminate the Contract and get the remaining Works executed by a third party at the risk & Cost of the Contractor and without any prejudice to other rights available to EIL under the Contract such as forfeiture of the Contract Performance Bank Guarantee, withholding of payment etc.

36.8.6 In case, this issue of submission of false/fake documents comes to the notice after execution of the Works, EIL shall have full right to forfeit any amount due to the Contractor along with forfeiture of the Contract Performance Bank Guarantee furnished by the Contractor.

36.8.7 Further, any Contractor which is found guilty of any Corrupt or Fraudulent Practice or submission of false/fake /forged documents, shall be put on the negative/ holiday list of EIL debaring them from future business with EIL.

36.9 Integrity Pact

The Integrity Pact forming a part of the Bidding Document, duly signed by the authorized person(s) of EIL and the Contractor, will form part of the Contract. If the Contract has been terminated according to provisions of the Integrity Pact, or, if EIL is entitled to terminate the Contract according to provisions of Integrity Pact, EIL shall be entitled to demand and recover from Contractor an amount specified in the Integrity Pact, which amount may be recovered by forfeiting the Contract Performance Bank Guarantee.

36.10 Liability of Government of India

- (a) It is expressly understood that Govt. of India is not a party to this Contract and has no liability, obligations or rights hereunder. It is expressly understood that EIL is an independent legal entity with power and authority to enter into the Contract solely on its behalf under the Applicable Laws and general principles of contract law.
- (b) The Contractor expressly agrees and acknowledges and understands that EIL is not an agent, representative or delegatee of Government of India.

36.11 Computerized Contractor's Billing System

Contractor should follow the following billing system:

- (a) The Running Bills will be prepared by the Contractor on their personal computers as per the standard formats and codification scheme proposed by EIL. The Contractor will be provided with data entry software to capture the relevant billing data for subsequent processing. The Contractor will submit these data to EIL in an electronic media along with the hard copy of the bill, necessary enclosures and documents. The Contractor will also ensure the correctness and consistency of data so entered with the hard copy of the bill submitted for payment.
- (b) EIL will utilize this data for processing and verification of the Running Bills of the Contractor.

36.12 Terms applicable to Consortium Contractors

Where the Contractor is a consortium, the lead member of the consortium shall represent the Contractor in all dealings with EIL and shall do all acts, deeds, matters and things required to be done by the Contractor under the Contract, including (but not limited to) exchange of correspondence, raising invoices, drawings, documents and receiving payments.

- (a) All dealings had with and/or all acts, deeds, matters and things and things done by or payments made to and invoices/documents drawn and/or negotiated by the lead member shall be binding upon the Contractor and each member of the consortium, and in so far as EIL shall require a discharge in respect of any dealing had or act, deed, matter or thing done or payment made as aforesaid, the same shall constitute a valid discharge to EIL.
- (b) Each and every member of the consortium shall be jointly and separately liable to EIL for and in respect of all liabilities obligations of the Contractor under the Contract.

The constitution of the Consortium or the relative distribution of the Work(s) and/or activities amongst the consortium members as approved by EIL shall not be altered or assigned, as the case may be except with the prior written consent of EIL and any contrary alteration or re-assignment shall be deemed to be an unauthorized assignment of the Contract with attendant liabilities including termination of the Contract.

36.13 Government Controlled Materials

In respect of all Government controlled or other scarce/imported materials in respect of which licenses, release orders, permits or authorizations have been granted in the name of EIL, the Contractor shall be deemed to be acting on behalf of EIL and as agent of EIL in respect of deliveries taken by the Contractor against any licences, release orders, permits, or authorizations issued in the name of EIL for Government controlled materials. The ownership in such materials shall (without prejudice to the responsibility/liability of the Contractor in respect thereof as set out in the various conditions hereof) vest in EIL from the point of time when it would have ordinarily vested in EIL on a direct delivery to EIL.

36.14 Distinction Between Foundation and Superstructure

To distinguish between work in foundations and superstructures, the following criteria shall apply:

- (b) For all equipment pedestals, pipe racks, other foundation and R.C.C. Structures, work done upto 300 mm level above finished grade level will be taken as work in foundations and work above this level will be treated as work in superstructures and payments would be made accordingly.
- (c) For buildings only, all works up to plinth level corresponding to finished floor level shall be treated as 'work in foundation' and all works above the finished floor level shall be treated as "work in superstructure".
- (d) Irrespective of what has been stated above, all pavements, R.C.C. retaining wall, all pipe sleepers and any similar item would be taken as work done in foundations irrespective of locations, nomenclature and levels given anywhere.
- (e) Where not specifically pointed out all works in cellars/ sumps, tank pads, cable trenches, or such similar item would be taken as work in foundation.

36.15 Excavation by Blasting

The Contractor shall obtain licence from the relevant Authorities for undertaking blasting work as well as for obtaining and storing the explosive as per Explosive Rules 2008 (as made under the Explosives Act, 1884), as amended from time to time. The Contractor shall purchase the explosives, fuses, detonators etc. only from a licensed dealer and shall be responsible for the safe custody and proper accounting of the explosive materials. The Engineer-in-Charge and his authorized representative shall have access to check the Contractor's store of explosives and its accounts. In case where the explosives are required to be transported and stored at Site, relevant clauses of the Explosives Rules 2008 as amended subsequently shall apply. The Contractor shall be responsible for any accident to workman, public or property, due to blasting operations.

36.16 Import Licence

Contractor shall arrange for the import of all materials required for permanent incorporation in the Works as well as construction equipment as per the guidelines laid down by the Government of India. EIL shall not provide import licence.

36.17 Retired Government or Company Directors

No Director of EIL is allowed to tender for a contract to be awarded by EIL for a period of 2 (two) years after his retirement from the employment of EIL, without the previous permission of EIL. The Contract if awarded is liable to be cancelled if the Contractor is found at any time to be such a person and has not obtained the permission of the EIL before submission of the tender. Any tender by a person aforesaid shall carry a disclosure thereof on the tender, and shall be accompanied by a copy of the document by which the requisite consent is given. Such disqualifications shall apply to every partner of a partnership firm.

36.18 Other Contractors

The Contractor agrees and acknowledges that that access to the Site and access routes thereto, has been granted to the Contractor on a non-exclusive basis, and that EIL, may at its sole discretion, grant access thereto, to other Persons (“**Other Contractors**”) to undertake thereon, any works other than those contemplated under the Contract. Further, the Contractor shall at all times undertake its works in such manner, as to not cause minimal disturbance to the Other Contractors, in the performance of the works allocated to such Other Contractors.³

36.19 Survival

The termination of the Contract shall not relieve the Contractor or EIL of any obligations hereunder which expressly or by implication survives termination. Further, except as otherwise provided in any provision of the Contract expressly limiting the liability of either Party, the termination of the Contract shall 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 omission of such Party prior to the effectiveness of such termination or arising out of such termination.



Appendix 1**FORM OF CONTRACT PERFORMANCE BANK GUARANTEE**

[ON APPROPRIATE STAMP PAPER]

Beneficiary: Engineers India Limited

Bank Guarantee No. [.....●]

THIS DEED OF GUARANTEE is executed on this [.....insert day] day of [.....insert month and year] at [.....insert place] by [.....**INSERT NAME OF BANK**] having its head/registered office at [.....insert address], (hereinafter referred to as the "**Guarantor**", which expression shall unless it is repugnant to the subject or context thereof include successors and assigns)

IN FAVOUR OF:

ENGINEERS INDIA LIMITED, a public limited company incorporated under the Indian Companies Act, 1956, having its registered office at [.....■], (hereinafter referred to as the "**EIL**", which expression shall unless it is repugnant to the subject or context thereof include successors and assigns).

WHEREAS

- A. EIL has entered into a Engineering, Procurement and Construction Contract dated [.....■] (the "**Contract**") with [.....insert name of Contractor], a company incorporated under the Indian Companies Act, 1956 and having its registered office at [.....■] (the "**Contractor**", which expression shall, unless it be repugnant to the context or meaning thereof, include its successors-in-title and permitted assigns), for the Project.
- B. In terms of the Contract, the Contractor is required to furnish to EIL, an unconditional, irrevocable, on demand bank guarantee for an amount equal to 10% of the Contract Price as security for due and punctual performance/discharge of the Contractor's obligations under the Contract for the Contract Validity Period.
- C. At the request of EIL and for sufficient consideration, the Guarantor has agreed to provide an unconditional, irrevocable and on-demand bank guarantee, for the due and punctual performance/discharge by the Contractor of its obligations under the Contract during the Contract Validity Period.

NOW THEREFORE THIS DEED WITNESSETH AS FOLLOWS:

- Capitalised terms used herein but not defined shall have the meaning ascribed to them in the Contract.
- The Guarantor hereby irrevocably and unconditionally guarantees and secures (as primary obligor and not merely as guarantor) to EIL the payment in full of all amounts at any time that

may be due, owing or payable to EIL from the Contractor for the failure of the Contractor to duly and punctually perform all of its obligations under the Contract (the "**Guarantee**"), without any demur, reservation, protest or recourse, immediately on receipt of a demand from EIL.

The Guarantee is given in consideration for consideration received from the Contractor (the receipt and sufficiency of which is hereby acknowledged).

The Guarantor agrees that the value of the Guarantee shall at all times be maintained at the amount of Rs. [.....insert amount] (the "**Guaranteed Amount**").

The Guarantor further agrees that this Guarantee does not limit the number of claims that may be made by EIL against the Guarantor. Upon a payment being made under this Guarantee, the amount of the Guarantee shall automatically be replenished to the full Guaranteed Amount.

Any payment made hereunder shall be made free and clear of and without deduction for, or on account of, any present or future Taxes, deductions or withholdings of any nature whatsoever and by whomsoever imposed, and where any withholding on a payment is required by any Applicable Law, the Guarantor shall comply with such withholding obligations and shall pay such additional amount in respect of such payment such that EIL receives the full amount due hereunder as if no such withholding had occurred.

3. The Guarantor shall, pay to EIL sums not exceeding the Guaranteed Amount, within 5 (five) Business Days of receipt of a written demand from EIL stating that the Contractor has failed to meet its performance obligations under the Contract. The Guarantor shall not be required to go into the veracity of any breach or failure on the part of the Contractor or validity of demand so made by EIL and shall pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute whatsoever raised by the Contractor or any other Person. The Guarantor's obligations hereunder shall subsist until all such demands are duly met and discharged in accordance with the provisions hereof.
4. The obligations of the Guarantor herein are absolute and unconditional, irrespective of the value, genuineness, validity, regularity or enforceability of the Contract or the insolvency, bankruptcy, reorganization, dissolution or liquidation of the Contractor or any change in ownership of the Contractor or any purported assignment by the Contractor or any other circumstance whatsoever which might otherwise constitute a discharge or defence of a guarantor or a surety.

Further, this Guarantee is in no way conditional upon any requirement that EIL first attempt to procure the Guaranteed Amount from the Contractor, or any other Person, or resort to any other means of obtaining payment of the Guaranteed Amount, prior to make any recourse to this Guarantee.

5. In order to give effect to this Guarantee, EIL shall be entitled to treat the Guarantor as the principal debtor. The obligations of the Guarantor under this Guarantee shall not be affected by any act, omission, matter or thing which, but for this provision, would reduce, release or prejudice the Guarantor from any of the Guaranteed Amount or prejudice or diminish the Guaranteed Amount in whole or in part, including (whether or not known to it, or EIL):

- (a) any time or waiver granted to, or composition with, the Contractor or any other Person;

- (b) any incapacity or lack of powers, EIL or legal personality of or dissolutions, or insolvency, or bankruptcy, or change in the status of the Contractor or any other Person;
 - (c) any variation of the Contract so that references to the Contract in this Guarantee shall include each variation;
 - (d) any unenforceability, illegality or invalidity of any obligation of any Person under the Contract or any unenforceability, illegality or invalidity of the obligations of the Guarantor under this Guarantee or the unenforceability, illegality or invalidity of the obligations of any Person under any other document or guarantee, to the extent that each obligation under this Guarantee shall remain in full force as a separate, continuing and primary obligation, and its obligations be construed accordingly, as if there were no unenforceability, illegality or invalidity;
 - (e) the partial or entire release of any Guarantor or other Person primarily or secondarily liable or responsible for the performance, payment or observance of any of the Contractor's obligations during the Construction Period; or by any extension, waiver, or amendment whatsoever which may release a guarantor or Guarantor (other than performance or indefeasible payment of a Guaranteed Amount); or
 - (f) any part performance of the Contract by the Contractor or by any failure by EIL to timely pay or perform any of its obligations under the Contract.
6. If, and to the extent that, for any reason the Contractor enters or threatens to enter into any proceedings in bankruptcy or reorganization or otherwise, or if, for any other reason whatsoever, the performance or payment by the Contractor of the Guaranteed Amount becomes or may reasonably be expected to become impossible, then the Guaranteed Amount shall be promptly paid by the Guarantor to EIL on demand.
7. So long as any sum remains owing by the Contractor to EIL, the Guarantor shall not exercise any right of subrogation or any other rights of a guarantor or enforce any guarantee or other right or claim against the Contractor (whether in respect of its liability under this Guarantee or otherwise) or claim in the insolvency or liquidation of the Contractor or any such other Person in competition with EIL. If the Guarantor receives any payment or benefit in breach of this Clause 7, it shall hold the same upon trust for EIL.
8. This Guarantee shall remain in full force and effect from the date hereof until the end of the Contract Validity Period i.e., up to midnight of {..... *insert date* } plus additional 90 days to enable claims to be made i.e., up to midnight of {..... *insert date* }, unless discharged/ released earlier by EIL in accordance with the provisions of the Contract. No claim made after such date shall be valid against the Guarantor.
- Notwithstanding the foregoing, this Guarantee shall continue in effect until the sums payable under this Guarantee have been indefeasibly paid in full and the Guarantor receives written notice thereof from EIL (such notice to be issued promptly upon such occurrence).
9. The Guarantor represents and warrants to EIL that:
- (a) it has the power to execute, deliver and perform the terms and provisions of this Guarantee and has taken all necessary action to authorize the execution, delivery and

performance by it of this Guarantee;

- (b) the Guarantor has duly executed and delivered this Guarantee, and this Guarantee constitutes its legal, valid and binding obligation enforceable in accordance with its terms except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general equitable principles;
 - (c) neither the execution, delivery or performance by the Guarantor of this Guarantee, nor compliance by it with the terms and provisions hereof will: (i) contravene any material provision of any law, statute, rule or regulations or any order, writ, injunction or decree of any court or governmental instrumentality; (ii) conflict or be inconsistent with or result in any breach of any of the material terms, covenants, conditions or provisions of, or constitute a default under any agreement, contract or instrument to which the Guarantor is a party of by which it or any of its property or assets is bound; or (iii) violate any provision of the Guarantor's constituent documents; and
 - (d) no order, consent, approval, license, authorization or validation of, or filing, recording or registration with (except as have been obtained or made prior to the date hereof), or exemption by, any governmental or public body or EIL, or any subdivision thereof, is required to authorize, or is required in connection with: (i) the execution, delivery and performance of this Guarantee; or (ii) the legality, validity, binding effect or enforceability of this Guarantee.
10. This Guarantee is a continuing one and all liabilities to which it applies or may apply under the terms hereof shall be conclusively presumed to have been created in reliance hereon. No failure or delay on the part of EIL in exercising any right, power or privilege hereunder and no course of dealing between EIL and the Guarantor, or the Contractor, shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, power or privilege.
11. The rights, powers and remedies expressly provided in this Guarantee are cumulative and not exclusive of any rights, powers or remedies which EIL would otherwise have. No notice to or demand on the Guarantor in any case shall entitle the Guarantor to any other further notice or demand in similar or other circumstances or constitute a waiver of the rights of EIL to any other or further action in any circumstances without notice or demand.
12. If any one or more of the provisions contained in this Guarantee are or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby, and the Guarantor shall enter into good faith negotiations with EIL to replace the invalid, illegal or unenforceable provision.
13. The Guarantor hereby agrees to execute and deliver all such instruments and take all such actions as may be necessary to make effective fully the purposes of this Guarantee.
14. This Guarantee may be executed in one or more duplicate counterparts, and when executed and delivered by the Guarantor and EIL shall constitute a single binding agreement.
15. Any notice, request or other communication to be given or made under this Guarantee shall be

in writing addressed to the Guarantor at the location set opposite its signature hereto and in the manner as set out in respect of notices under the Contract.

16. This Guarantee shall be governed by, and construed in accordance with, the laws of India. The Guarantor irrevocably agrees that any legal action, suit or proceeding arising out of or relating to this Guarantee may be brought in the courts in Delhi.
17. EIL may assign or transfer all or any part of its interest herein to any other person with prior notification to the Guarantor. The Guarantor may not assign or transfer any of its rights or obligations under this Guarantee.

IN WITNESS WHEREOF the Guarantor has set its hands hereunto on the day, month and year first hereinabove written.

Signed and delivered by [.....*insert name of Bank*] Bank by hand

Name:

Designation:



Appendix 2
FORM OF MOBILIZATION ADVANCE GUARANTEE

[ON APPROPRIATE STAMP PAPER]

Beneficiary: Engineers India Limited

Bank Guarantee No. [.....●]

THIS DEED OF GUARANTEE is executed on this [.....insert day] day of [.....insert month and year] at [.....insert place] by [.....**INSERT NAME OF BANK**] having its head/registered office at [.....insert address], (hereinafter referred to as the "**Guarantor**", which expression shall unless it is repugnant to the subject or context thereof include successors and assigns)

IN FAVOUR OF

Engineers India Limited, a company incorporated under the (Indian) Companies Act, 1956, with its registered office at [.....■] (hereinafter referred to as the "**EIL**", which expression shall unless repugnant to the context thereof, be deemed to include its successors-in-interest and permitted assigns).

WHEREAS

- A. [.....■] with its registered office at [.....■] (hereinafter referred to as the "**Contractor**", which expression shall unless repugnant to the context thereof, be deemed to include its successors-in-interest and permitted assigns) has been awarded a contract by EIL for [the engineering, procurement, construction, testing and commissioning] of the Facility ("**Contract**").
- B. In terms of Clause 9.4.1 of the Contract, Contractor is required to furnish a Mobilization Advance Guarantee to EIL in the form of an unconditional, irrevocable, on demand bank guarantee for securing the Mobilization Advance made to Contractor in accordance with the Contract ("**Mobilization Advance Guarantee**") for INR [.....insert amount] or US\$ [.....insert amount] ("**Guaranteed Amount**").
- C. At the request of the Contractor and for sufficient consideration, the Guarantor has agreed to issue this guarantee in favour of EIL.

NOW THEREFORE THIS DEED WITNESSETH AS FOLLOWS:

1. Capitalised terms used herein but not defined shall have the meaning ascribed to them in the Contract.
2. The Guarantor shall upon a written demand from EIL informing the Guarantor that the Mobilization Advance made to the Contractor has not been adequately adjusted, pay to EIL, within 5 (five) days of receipt of such written demand from EIL, without further proof or conditions and without contest, recourse, demur or protest and without any enquiry to EIL or the Contractor, forthwith and in full amount, without any deductions or set off or counter

claims whatsoever, the sum claimed by EIL in such demand not exceeding an amount equivalent to the Guaranteed Amount. The Guarantor will pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute raised by the Contractor or any other person.

The Guarantor agrees that this Mobilization Advance Guarantee does not limit the number of claims that may be made by EIL against the Guarantor provided that such claims taken together shall not exceed the Guaranteed Amount.

Any payment made hereunder shall be made free and clear of and without deduction for, or on account of, any present or future Taxes, deductions or withholdings of any nature whatsoever and by whomsoever imposed, and where any withholding on a payment is required by any Applicable Law, the Guarantor shall comply with such withholding obligations and shall pay such additional amount in respect of such payment such that EIL receives the full amount due hereunder as if no such withholding had occurred.

3. This Mobilization Advance Guarantee shall be a continuing guarantee during its currency and shall remain in force and effect until the earlier of: (i) date when the Mobilization Advance has been fully recovered; and (ii) [.....insert date], upon which the obligations of the Guarantor under this Mobilization Advance Guarantee shall stand discharged.

4. The obligations of the Guarantor herein are absolute and unconditional, irrespective of the value, genuineness, validity, regularity or enforceability of the Contract or the insolvency, bankruptcy, reorganisation, dissolution or liquidation of the Contractor or any change in ownership of the Contractor or any purported assignment by the Contractor or any other circumstance whatsoever which might otherwise constitute a discharge or defence of a guarantor or a surety.

Further, this Mobilization Advance Guarantee is in no way conditional upon any requirement that EIL first attempts to procure the Guaranteed Amount from the Contractor or any other person, or resort to any other means of obtaining payment of the Guaranteed Amount, prior to making recourse to this Guarantee.

5. The Guarantor shall not be required to go into the veracity of any breach or failure on the part of the Contractor or validity of demand so made by EIL and shall pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute whatsoever raised by the Contractor or any other Person. The Guarantor's obligations hereunder shall subsist until all such demands are duly met and discharged in accordance with the provisions hereof.
6. The Guarantor hereby agrees that its liability under this Mobilization Advance Guarantee shall not be discharged by virtue of any agreement between the Contractor and EIL, whether with or without the Guarantor's knowledge, or by reason of EIL showing any indulgence or forbearance to the Contractor.
7. The Guarantor's obligations under this Mobilization Advance Guarantee for the Guaranteed Amount is primary, independent and absolute and not by way of surety only.
8. The obligations of the Guarantor under this Mobilization Advance Guarantee shall not be affected by any act, omission, matter or thing which, but for this provision, would prejudice or

diminish the Guaranteed Amount in whole or in part, including (whether or not known to it or EIL):

- (a) any time or waiver granted to, or composition with, the Contractor or any other person;
- (b) any incapacity or lack of powers, authority or legal personality of or dissolutions, or insolvency or bankruptcy, or change in the status of the Contractor or any other Person;
- (c) any variation of the Contract so that references to the Contract in this Mobilization Advance Guarantee shall include each variation;
- (d) any unenforceability, illegality or invalidity of any obligation of any person under the Contract or any unenforceability, illegality or invalidity of the obligations of the Guarantor under this Mobilization Advance Guarantee or the unenforceability, illegality or invalidity of the obligations of any person under any other document or guarantee, to the extent that each obligation under this Mobilization Advance Guarantee shall remain in full force as a separate, continuing and primary obligation, and its obligations be construed accordingly, as if there were no unenforceability, illegality or invalidity;
- (e) any extension, waiver, or amendment whatsoever which may release a guarantor or the Guarantor (other than performance or indefeasible payment of a Guaranteed Amount); or
- (f) any part performance of the Contract by the Contractor or by any failure by EIL to timely pay or perform any of its obligations under the Contract.

9. So long as any sum remains owing by the Contractor to EIL, the Guarantor shall not exercise any right of subrogation or any other rights of a guarantor or enforce any guarantee or other right or claim against the Contractor (whether in respect of its liability under this Mobilization Advance Guarantee or otherwise) or claim in the insolvency or liquidation of the Contractor or any such other person in competition with EIL. If the Guarantor receives any payment or benefit in breach of this Clause, it shall hold the same in trust for EIL.

10. The Guarantor represents, warrants and undertakes to EIL that:

- (a) it has the power to execute, deliver and perform the terms and provisions of this Mobilization Advance Guarantee and has taken all necessary action(s) to authorize the execution, delivery and performance by it of this Mobilization Advance Guarantee;
- (b) the Guarantor has duly executed and delivered this Mobilization Advance Guarantee, and this Mobilization Advance Guarantee constitutes its legal, valid and binding obligation enforceable in accordance with its terms except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general equitable principles;
- (c) neither the execution, delivery or performance by the Guarantor of this Mobilization Advance Guarantee, nor compliance by it with the terms and provisions hereof will: (i) contravene any material provision of any law, statute, rule or regulations or any order, writ, injunction or decree of any court or governmental instrumentality; (ii) conflict or be inconsistent with or result in any breach of any of the material terms, covenants, conditions or provisions of, or constitute a default under any agreement, contract or instrument to which the Guarantor is a party or by which it or any of its property or assets is bound; or (iii) violate any provision of the Guarantor's constituent documents;

- (d) no order, consent, approval, license, authorization or validation of, or filing, recording or registration with (except as have been obtained or made prior to the date hereof), or exemption by, any governmental or public body or authority, or any subdivision thereof, is required to authorize, or is required in connection with: (i) the execution, delivery and performance of this Mobilization Advance Guarantee; or (ii) the legality, validity, binding effect or enforceability of this Mobilization Advance Guarantee; and
 - (e) this Mobilization Advance Guarantee will be enforceable when presented for payment to a Scheduled Bank (as defined by the Reserve Bank of India Act, 1934) in [.....*Insert name of place*].
11. This Mobilization Advance Guarantee is a continuing one and all liabilities to which it applies or may apply under the terms hereof shall be conclusively presumed to have been created in reliance hereon. No failure or delay on the part of EIL in exercising any right, power or privilege hereunder and no course of dealing between EIL and the Guarantor, or the Contractor, shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, power or privilege.
12. If any one or more of the provisions contained in this Mobilization Advance Guarantee are or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby, and the Guarantor shall enter into good faith negotiations with EIL to replace the invalid, illegal or unenforceable provision.
13. The Guarantor hereby agrees to execute and deliver all such instruments and take all such actions as may be necessary to make effective fully the purposes of this Mobilization Advance Guarantee.
14. This Mobilization Advance Guarantee may be executed in one or more duplicate counterparts, and when executed and delivered by the Guarantor and EIL shall constitute a single binding agreement.
15. Any demand, notice, request or other communication to be given or made under this Mobilization Advance Guarantee shall be deemed to have been duly given or served:
- (i) Upon EIL, at [.....*insert address*] marked for the attention of [.....*insert name*];
 - (ii) Upon a Scheduled Bank (as defined by the Reserve Bank of India Act, 1934), at [.....*insert*], India.
16. The Guarantor:
- (a) acknowledges that the Lenders will review this Mobilization Advance Guarantee and may require changes thereto as a condition of granting financing and/or providing political risk insurance; and
 - (b) shall consider any such requirements in good faith.

17. This Mobilization Advance Guarantee shall be governed by, and construed in accordance with, the laws of India. The Guarantor irrevocably agrees that any legal action, suit or proceeding arising out of or relating to this Mobilization Advance Guarantee may be brought in the courts in Delhi.
18. EIL may assign or transfer all or any part of its interest herein together with the Contract to any other person with prior intimation to the Guarantor. The Guarantor may not assign or transfer any of its rights or obligations under this Mobilization Advance Guarantee.

IN WITNESS WHEREOF the Guarantor has set its hands hereunto on the day, month and year first hereinabove written.

Signed and delivered by [.....*insert name of*
Guarantor] Guarantor by hand

Name:

Designation:



Appendix 3
SAFETY CODE
[To be inserted]

1. GENERAL

- 1.1 The CONTRACTOR shall adhere to safe construction practices and guard against hazardous and unsafe working conditions and shall comply with EIL's safety rules as set forth herein.
- 1.2 In addition, the CONTRACTOR shall adhere to and be bound by the "Safety Practices during Construction" (OISD-GDN-192 and OISD-207) formulated by the Oil Industry Safety Directorate from time to time. A copy of the existing "Safety Practices During Construction" as presently formulated by the Oil Industry Safety Directorate is annexed hereto as Appendix III
- 1.3 In the event of any irreconcilable conflict between the "Safety Practices during Construction" prescribed by the Oil Industry Safety Directorate and the Safety provisions set out herein, the "Safety Practices during Construction" established by the Oil Industry Safety Directorate shall prevail to the extent of the irreconcilable conflict.
- 1.4 In this Section any reference to the Facility shall wherever applicable include any existing plant, unit or installation in or adjacent to which the Site or any part thereof is located.

2. FIRST AID AND INDUSTRIAL INJURIES

- 2.1 The Contractor shall maintain first aid facilities for its employees and those of its sub-contractors.
- 2.2 The Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Names of those providing these services shall be furnished to the Engineer-in-Charge prior to start of construction, and their telephone numbers shall be prominently posted in Contractor's field office.
- 2.3 All critical industrial injuries shall be reported promptly to the Engineer-in-Charge, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to EIL.

3. GENERAL RULES

Carrying/Striking of matches, lighters within the Site, smoking within the Site, tank, farm, or dock limits are strictly prohibited. Violators of the "No Smoking" rules shall be discharged immediately. Within the operation area, no hot work shall be permitted without valid gas safety/fire permits. The Contractor shall be held liable and responsible for all lapses of his subcontractors/employees in this regard.

4. CONTRACTOR'S BARRICADES

- 4.1 The CONTRACTOR shall erect and maintain barricades required in connection with his operation to guard or protect:
- (i) Excavation
 - (ii) Hoisting areas
 - (iii) Areas adjudged hazardous by the Contractor's or EIL's inspectors.
 - (iv) EIL's existing property liable to damage by Contractor's operations, in the opinion of Engineer-in-Charge.
 - (v) Railroad unloading spots.
- 4.2 The Contractor's employees and those of its sub-contractors shall become acquainted with EIL's barricading practices and shall respect the provisions thereof.
- 4.3 Barricades and hazardous areas adjacent to but not located in normal routes of travel shall be marked by red flasher lanterns at nights.

5. SCAFFOLDING

- 5.1 Suitable scaffolding shall 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 person shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal 4 vertical).
- 5.2 Scaffolding or staging more than 12' (twelve feet) above the ground floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise rewinded at least 3' high above the floor or platform of scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings 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.
- 5.3 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 than 12' above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in Clause 5.2 above.
- 5.4 Every opening in the floor of a building or in a working platform shall be provided with suitable fencing or railing whose minimum height shall be 3 feet to prevent the fall of persons or materials by providing.
- 5.5 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 30' in length while the width between the side rails in rung ladder shall in no case be less than 11.5" for ladder up to and including 10' in length. For longer ladders this width would be increased by at least ¼" for each additional foot of length. Uniform step spacing shall not exceed 12". Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any site of work shall be so stacked or placed as to cause danger or inconvenience to any person or public. The Contractor shall also provide all necessary fencing and lights to protect the workers

and staff from accidents, and shall be bound to bear the expenses of defense of every suit, action or other proceedings, that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay damages and costs which may be awarded in any such suit or action or proceedings to such person, or which may with the consent of the Contractor be paid to compromise any claim by any person.

6. EXCAVATION AND TRENCHING

- 6.1 All trenches 4' (Four feet) or more in depth, shall at all times be supplied with at least one ladder for each 100' length or fraction thereof.
- 6.2 The Ladder shall be extended from bottom of the trench to at least 3' 3" above the surface of the ground. The site of the trenches which is 5' (Five feet) or more in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides to collapse. Cutting shall be done from top to bottom. Under no circumstances shall undermining or undercutting be done.

7. DEMOLITION

- 7.1 Before any demolition work is commenced and also during the process of such works all roads and open areas adjacent to the Site shall either be closed or suitably protected.
- 7.2 No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
- 7.3 All practical steps shall be taken to prevent danger to persons employed, from risk of fire or explosion or flooding. No floor or other part of the building shall be so overloaded with debris or material as to render it unsafe.

8. SAFETY EQUIPMENT

- 8.1 All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be made available for the use to the persons employed on the Site and maintained in a condition suitable for immediate use, and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.
- 8.2 Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- 8.3 Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
- 8.4 Those engaged in welding and cutting works shall be provided with protective face and eye-shields, and gloves, etc.
- 8.5 Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- 8.6 When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are 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.

8.7 The Contractor shall not employ men below the age of 18 years and women on the work of painting or products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken:

- (a) No paint containing lead product shall be used except in the form of paste or readymade paint.
- (b) Suitable face masks shall be supplied for use by the workers when paint is applied in the form of spray or if a surface having lead paint dry rubbed and scrapped.
- (c) Overalls shall be supplied by the Contractor to workmen and adequate facilities shall be provided to enable the working painters to wash during and on cessation of Work.

9. RISKY PLACES

When the work is done near any place where there is a risk of drowning, all necessary safety equipments shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

10. HOISTING EQUIPMENT

Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions:

- (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defect and shall be kept in good condition and 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.
- (c) 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 to give signals to the operator.
- (d) In case of every hoisting machine and of every chain, ring, hook, shackle, swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.
- (e) Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
- (f) In case of departmental machines, the safe working load shall be notified by the Engineer-in-Charge. As regards Contractor's machines, the Contractor shall notify the safe working load of the machine to the Engineer-in-Charge, whenever he brings any machinery to Site of work and get it verified by the Engineer-in-Charge concerned.

11. ELECTRICAL EQUIPMENT

Motor, Gearing, Transmission, wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum, the risk of accidental descent of the load. Adequate precautions shall be taken to reduce to 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 and boots as may be necessary shall be provided. The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.

12. MAINTENANCE OF SAFETY DEVICES

All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions 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 the place of work.

13. DISPLAY OF SAFETY INSTRUCTIONS

These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at the Site. The person responsible for compliance of the safety code shall be named therein by the CONTRACTOR.

14. ENFORCEMENT OF SAFETY REGULATIONS

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 the Welfare Officer, Engineer-in-Charge or Safety Engineer of EIL or their representatives.

15. NO EXEMPTION

- 15.1 Notwithstanding anything provided in this Appendix 3, the Contractor shall be bound by the provisions of any other Act or rules in force in the Republic of India, with a view that the provisions hereof shall be in addition thereto and not in lieu thereof.
- 15.2 The works throughout including any temporary works shall be carried on in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpaths at the Site or in the vicinity thereof or with any existing works whether the property of EIL or of a third party.
- 15.3 The Contractor shall also arrange to obtain valid gate passes for his men and equipment from the concerned Authorities.
- 15.4 No man/material/equipment not covered by valid passes shall be permitted within the Site no material/equipment shall be permitted to be taken out of the Site, unless authorized by the concerned Authorities. The Contractor shall be held fully responsible for any or all delays/ losses/ damages that may result consequent on any lapse(s) that may occur on the part of his subcontractors/employees in this regard.

16. ENTRY PASSES

- 16.1 The CONTRACTOR has to apply for photo Entry Passes for his workers and staff and the workers and staff of his Sub-Contractors in a prescribed proforma provided by EIL. The Application shall be accompanied by a Statement and Declaration in the form prescribed by EIL signed by the employees for whom the Entry Passes are sought and confirmed by the employer. The photo Entry Passes shall be issued by EIL for a maximum period of 3 (three) months, which will be extendable upon the Contractor's application. As a special case, Temporary Passes may be issued for a maximum period of 7 (seven) days.
- 16.2 Unutilized/expired Entry Passes/Identity Cards shall have to be immediately surrendered to EIL.
- 16.3 In case of the loss of an Entry Pass/Identity Card, the Contractor shall immediately lodge an FIR with the local police station and inform the Engineer-in-Charge of the loss and shall pay a charge of Rs.150/- against Entry Pass/Identity Card lost. The Contractor is required to keep an account and track of all Entry Passes issued and surrendered.

Gate Passes/Identity Cards issued by the Security Section should always be displayed by the Contractor's or Sub-contractor's employees while working inside the Plant.

17. GATE PASSES

- 17.1 To bring materials, equipment, tools and tackle and other things inside the Site for construction Work, the Contractor has to produce proper documents of title or authority relative thereto for inspection by EIL's personnel at the gate. These shall be checked thoroughly by EIL's personnel at the Gate and recorded in their Register before permitting the same to be brought inside within the Site. It is the Contractor's responsibility to see that the entry is duly recorded in the Register with proper Entry Number, date and signature of EIL's authorized representative and that the supporting challans/documents are stamped and signed by EIL's personnel at the gate at the time of entry.

Those materials which need repairing/ replacement as per Site condition will be allowed to move beyond EIL's battery limit only after exchange of good equivalent material.

18. WORK PERMIT

- 18.1 In order to keep EIL informed of the various jobs being undertaken within the Site and to enable EIL to regulate the same to ensure the observance of safety regulations relative thereto, when Work is to be carried out in hazardous areas, a Hot Work Permit is to be obtained by the Contractor from EIL before start of Work on jobs which are capable of generating a flame, spark or heat e.g., gas cutting, grinding, welding, use of any electrical, diesel, petrol or battery operated prime mover, machine, tool or equipment or generator set, mixer machine, drilling machine, pump, crane, fork lift or hand truck or trailer or chipping or breaking of rocks or concrete or hacksaw cutting and drilling. Similarly the Contractor shall obtain a Cold Work Permit from EIL for jobs which do not come under the category of hot work and in respect of which there is no risk of fire, e.g., transportation, backfilling of ordinary soil by manual process, pile testing, hydro-testing, shuttering, fixing of reinforcement, hand mixed concreting, plastering and brickwork.
- 18.2 Depending on the nature of the Work and the equipments and tools involved, the Contractor

shall apply for Cold/Hot Permit in a prescribed format at least 7(seven) days before the Work is planned to start. No Work Permit shall be issued by EIL unless proper arrangement is made by the Contractor to ensure safe performance of the Work inside the Site limit. Job-wise and area-wise permits shall be issued to the Contractor and for Work against each permit the Contractor shall post at Site at least one Construction Supervisor and one Safety Supervisor of required level to ensure the due observance of all safety requirements.

19. VEHICLE PERMIT

Permits are to be obtained separately for entry/use of vehicles/trailers and other mobile equipment inside the Site limits. All the Contractor's vehicles should have a valid 'PUC Certificate'. The following requirements are to be met to obtain vehicle permit:

- (i) Vehicle/Equipment shall be in good condition and fitted with spark arrestor.
- (ii) Vehicles should carry, wherever applicable, valid Road Tax Certificate and Fitness Certificate from the competent authority and insurance policy.
- (iii) Valid operating/driving license of driver/operator.

20. VALIDITY OF THE PERMIT

- (i) Any Hot or Cold Work Permit issued is valid only for 24 hours.
- (ii) Thereafter the validity of the Permit must be renewed for each shift (morning & evening) by the shift in-charge/ shift representative of EIL.
- (iii) The permit may be renewed for a maximum period of one month from the date of issue and if extension is required, the Contractor has to apply for a fresh permit.
- (iv) A permit is not valid for Work on holidays unless special permission of EIL is obtained for the purpose.

21. SPECIAL SAFETY REGULATIONS

21.1 REGARDING WORK PERMIT

- (a) The Work shall be carried out inside the Site to conform to the EIL's safety section and in accordance with any instructions of the Engineer-in-Charge issued from time to time. Sometimes working hours may be drastically reduced or increased to satisfy safety requirements and the Contractor shall meet these requirements without any time and cost implications. No claim for idling of machinery, plant, manpower or equipment shall be entertained for reason of delay in the issue of a Work Permit and it shall be the exclusive responsibility of the Contractor to apply for, pursue and obtain the requisite Work Permit(s) well in advance of the relative requirement(s).
- (b) The Contractor shall abide by all safety regulations of the Plant and ensure that safety equipment for specific jobs as stipulated in the Factories Act Safety Handbook is issued to all employees during the execution of Work, failing which all the works at Site shall be suspended.

- (c) HSE specifications, OISD and other requirements shall be followed in totality.

21.2 REGARDING HOT WORK

- (a) When doing hot work inside the plant, the Contractor must ensure that the fire hose is

hooked up with the fire water system and extended to the Site. In addition, at least one fire extinguisher must be kept near the working spot. The area around and below the place of hot work must be adequately protected from sparks and hot metals by a booth made of asbestos cloth/sheet and by wetting with water. In addition, depending on the location and hazard of the work, the Contractor shall at its own Cost arrange sufficient number of additional fire hoses and such fire fighting equipment of approved quality as may be required to carry out hot job inside the plant.

- (b) Welding & electrical cables should be of approved quality and no jointing or loose connection shall be permitted.
- (c) At the end of the working day the Contractor must inform the electrical section to switch off power at sub-station end.
- (d) The Contractor must provide cotton clothes, safety shoes, safety helmet, safety belt, and hand gloves of approved quality to his workers to meet the safety requirement of various jobs to be carried out inside the Plant.

21.3 REGARDING USE OF VEHICLE

- (a) Vehicle must not ply on any road within the Site at a speed exceeding 20 KM/hr.
- (b) Mobile cranes, loaded trucks and trailers must not exceed the speed limit of 15 KM/hr inside the plant.
- (c) No crane is allowed to move inside the plant with load.
- (d) No vehicle is allowed to be parked inside the plant.
- (e) Limited number of vehicles will be permitted inside the battery area due to security reasons.

22. DEDUCTIONS FROM CONTRACT PRICE

- 22.1 In addition to price reduction and deductions as provided for, EIL shall be entitled to deduct from any payment due to the Contractor, any amount claimed by EIL under the Contract and any costs, damages or expenses for which the Contractor is liable under the Contract.
- 22.2 In addition to price reduction and deductions as provided for in the Contract, EIL shall be entitled to deduct from any payment due to the Contractor, for violations of safety provisions, as per details given below:
 - (i) Violation of applicable safety, health and environment related norm, a price reduction of INR5000/- per occasion
 - (ii) Violation as above resulting in (a) Any physical injury - a price reduction of 0.5% of the Contract Price (maximum of INR 2,00,000) per injury in addition to INR 5,000/-; or (b) Fatal accident - a price reduction of 1% of the Contract Price (maximum of INR 10,00,000) per fatality in addition to INR 5,000/-

23. SPECIAL CONTRIBUTIONS

With a view to ensure the formulation and enforcement of a safety code by the Contractor, it is

stipulated that in the event of any act, omission or accident at the Site which results in the death of a person, the Contractor shall contribute a sum of INR 5,00,000/- (Rupees five lakh only), or which results in the permanent disablement of a person, the Contractor shall contribute a sum of INR 3,00,000/- (Rupees three lakh only) in addition to any other sum(s) required to be paid by the Contractor under any law or other contract, to a welfare fund to be established by EIL for, inter alia, such contributions, and until such fund is established, to a charity nominated by EIL.



APPENDIX IV**INDEMNITY BOND****(TO BE NOTORISED AND ON STAMP PAPER OF APPROPRIATE VALUE)**

To

Engineers India Limited
(Address as applicable)

Dear Sirs,

WHEREAS EIL and address
(hereinafter called "the Indemnified" which expression shall include its successors and assigns) has awarded to M/s..... a Partnership Firm/ Sole Proprietor Business/ a company having its Registered Office at (hereinafter called "the Indemnifier", which expression shall include its successors and assigns) a contract for conditions set out, inter-alia, in "the Indemnified" Purchase Order No. dated..... (hereinafter referred to as "the said Contract") to "the Indemnifier".

AND WHEREAS "the Indemnified" has agreed to supply to "the Indemnifier" raw material/ components to the value of INR..... (Rupees..... only) for incorporation in fabrication by "the Indemnifier" in terms of "the said contract", the components/ raw material to be supplied by "the Indemnified" to "the Indemnifier" for the said fabrication, (hereinafter, or the sake of brevity, referred to as "the said material") and pending fabrication and delivery at job-site of the completed fabricated work(s) incorporating "the said material" and accounting for "the said material" shall be under the sole custody and charge of "the Indemnifier" and shall be kept, stored, altered, worked upon and/ or fabricated at the sole risk and expenses of "the Indemnifier".

As a Pre-condition to the supply of "the said material" by "the Indemnified" to "the Indemnifier", the Indemnified" has required "the Indemnifier" to furnish to "the Indemnified" security in the manner and upon terms and conditions hereinafter indicated:

NOW THEREFORE, in consideration of the premises aforesaid "the Indemnifier" Shri....., Shri..... all Directors/ Partners/ Sole proprietor of "the Indemnifier" in consideration of aforesaid "contract" hereby irrevocably and unconditionally and jointly and severally undertake to indemnify and always keep "the Indemnified" from and against all loss, damage and destruction (inclusive but not limited to any or all loss or damage or destruction to or of "the said material" or any item or part thereof) by theft, fire, flood, storm, tempest, lightning, explosion, storage, chemical or physical action or reaction, bending, wrapping, exposure, rusting, faulty workmanship, faulty fabrication or faulty method of technique of fabrication, riot, civil commotion or other act of omission or commission whatsoever within or beyond the control of "the Indemnifier", misuse and misappropriation by "the Indemnifier's" servants and/or agents whatsoever to, of or in "the said material" or any part or item thereof between the date that the same or relative part or item thereof was supplied to "the Indemnifier" up to and until the return to "the Indemnified" on due dates of "the said material" or relative part or item thereof or completed fabricated work(s) incorporating the said material AND jointly and severally undertake to pay to "the indemnified" forthwith on first demand in writing without protest or demur the value of "the said

material” or item part thereof lost, damaged, destroyed, misused and/or misappropriated, as the case may be, inclusive of “the Indemnified” ’s cost and expenses (inclusive but not limited to handling, transportation, cartage, insurance, freight, packing and inspection costs and/ or expenses) as specified in the said demand.

AND “the Indemnifier” hereby agree with “the Indemnified” that :

1. This Indemnity shall remain valid and irrevocable until the settlement of all claims of “the Indemnified” arising hereunder.
2. This Indemnity shall be in addition to any other Indemnity, Guarantee or Security whatsoever that “the Indemnified” may now or any time anywise have in relation to “the Indemnifier” ’s obligations/ liabilities under and/ or in connection with the said contract inclusive of “the said material” and “the Indemnified” shall have full authority to take recourse to or enforce this security in preference to the other security (ies) at its sole discretion, and no failure on the part of “the Indemnified” in enforcing or requiring enforcement of any other security shall have the effect of releasing “the Indemnifier” from its full liability hereunder:
3. “The Indemnified” shall be at liberty without reference to “the Indemnifier” and without affecting the full liability of “the Indemnifier” hereunder to take any other such security in respect of “the Indemnifier’s” obligations and/or liabilities under or in connection with the “said contract” inclusive of “the said material” and to vary the terms vis-a-vis “the Indemnifier” of “the said contract” or to grant time and/or indulgence to “the Indemnifier” or to reduce or to increase or otherwise vary the prices or the total contract value or the quantity, quality, description or value of the said material or to release or to forbear from endorsement of all or any of the obligations of “the Indemnifier” under the said contract (inclusive of anything in respect of “the said material”) and/or to remedies of “the Indemnified” under any other security (ies) now or hereinafter held by “the Indemnified” and no such dealing(s), variations(s), reduction(s), increase (s) or other indulgence (s) or arrangement(s) with “the Indemnifier” or release “the Indemnifier” from their full liability to “the Indemnified” hereunder or of anywise prejudicing rights of “the Indemnified” against “the Indemnifier” and “the Indemnifier” hereby waive all rights, if any, at any time, inconsistent with the terms of this Indemnity.
4. This Indemnity shall not be determined or affected by the liquidation or winding up, dissolution, or change of constitution or bankruptcy or insolvency of “the Indemnifier” and the obligations of “the Indemnifier” in terms hereof shall not be anywise affected or suspended by reason of any dispute or disputes having been raised by “the Indemnifier” (whether now pending before any Arbitrator, Officer, Tribunal or Court) or any denial of liability by “the Indemnifier” or any other order or communication whatsoever by “the Indemnifier” or any other order or communication whatsoever by “the Indemnifier” stopping or preventing or purporting to stop or prevent any payment by “the Indemnifier” to “the Indemnified” in terms hereof.
5. The mere statement made by or on behalf of “the Indemnified” in any notice or demand or other writing addressed to “the Indemnifier” as to any of “the said material” or item or part thereof supplied to “the Indemnifier” having been lost, damaged, destroyed, misused or misappropriated while in the custody of “the Indemnifier” before or after completion of the completed fabricated work(s) incorporating “the said material” and delivery at job site thereof shall as between “the Indemnifier” and “the Indemnified” be conclusive of the factum of “the said material” or item or part thereof having been supplied to “the Indemnifier” and/or the loss, damage, destruction, misuse or misappropriation thereof, as the case may be, while in the custody of “the Indemnifier” and/or

prior to the completion of the completed fabricated work(s) and delivery to job site thereof without necessity on the part of “the Indemnified” to produce any documentary proof or other evidence whatsoever in support of this.

6. The amount stated in any notice of demand addressed by “the Indemnified” to “the Indemnifier” as the value of any of “the said material”, lost, damaged, destroyed or misused or misappropriated, inclusive relative to the cost and expenses incurred by “the Indemnified” in connection therewith shall as between “the Indemnifier” and “the Indemnified” be conclusive of the value of such “said material” and the said costs and expenses as also of the amount liable to be paid by “the Indemnifier” to “the Indemnified” in terms and for the purpose of, without necessity for “the Indemnified” to produce any voucher, bill or other documentation or evidence whatsoever in support thereof.

In witness whereof “the Indemnifier” have hereunto set and subscribed his hand this day and year first hereinabove written in the presence of witnesses.

Yours faithfully,

1.

2.

3.

WITNESSES:

1.

2.



APPENDIX V**PART A****FORMAT-I****INTIMATION REGARDING SYSTEM COMPLETION**

PROJECT: _____ CUSTOMER: _____

UNIT: _____

Following system/sub-system has been mechanically completed in all respects with exceptions noted below. The system/sub-system can be taken up for checking and preparation of checklist.

SYSTEM NO.**SYSTEM DESCRIPTION:****EXCEPTIONS:**

SIGNATURE

DATE

CONTRACTOR'S CONSTRUCTION:

CO-ORDINATOR

The system is ready/ not ready for Check listing

EIL/PMC



PART B**FORMAT-II****CHECKLIST**

PROJECT: _____ CUSTOMER: _____ UNIT: _____
SYSTEM/SUB-SYSTEM _____

CHECKLIST TYPE**PRELIMINARY/FINAL****SL.NO.****CHECKLIST ITEMS****REMARKS**

PMC/EIL:

SIGNATURE

DATE



APPENDIX VI
FORMAT-III
READY FOR PRE-COMMISSIONING CERTIFICATE

PROJECT: _____ CUSTOMER: _____ UNIT: _____
SYSTEM/SUB-SYSTEM _____

This is to certify that the following Plant/system/sub-system as detailed below is completely installed and all the Checklist points are carried out except for minor details s given in the attached list.

DESCRIPTION ON PLANT/SECTION/SUB-SECTION

SIGNATURE

CONTRACTOR'S CONTRACTION
CO-ORDINATOR:

DATE

CONTRACTOR'S COMMISSIONING
CO-ORDINATOR:

The system is ready/ not ready for Check listing
PMC/EIL:



APPENDIX VII
FORMAT-IV
READY FOR COMMISSIONING CERTIFICATE

PROJECT: _____ CUSTOMER: _____ UNIT: _____
SYSTEM/SUB-SYSTEM _____

This is to certify that all the necessary pre-commissioning activities for the system/sub-system as detailed below have been completed and the system/sub-system is ready for commissioning except for the minor details as given below which will not effect the commissioning trial runs.

DESCRIPTION	ON	PLANT/SECTION/SUB-SECTION

SIGNATURE

DATE

CONTRACTOR'S COMMISSIONING:
CO-ORDINATOR

SIGNATURE

DATE

PMC/EIL:



**APPENDIX VIII
FORMAT-V****COMPLETION OF COMMISSIONING CERTIFICATE**

PROJECT: _____ CUSTOMER: _____ UNIT: _____
SYSTEM/SUB-SYSTEM _____

This is to certify that the system/sub-system as detailed below has been successfully commissioned and is under operational control of Client's Production department. The minor items, which will not effect the normal operation of the system/sub-system, are given in the attached list.

DESCRIPTION	ON	PLANT/SECTION/SUB-SECTION

SIGNATURE

DATE

CONTRACTOR'S COMMISSIONING:
CO-ORDINATOR

SIGNATURE

DATE
PMC/EIL:



PROFORMA OF BANK GUARANTEE

EARNEST MONEY DEPOSIT / BID SECURITY

(To be submitted on non-judicial stamp paper of appropriate value to be purchased in the name of the issuing Bank)

To

M/s Engineers India Ltd.
Engineers India Bhavan,
1, Bhikaiji Cama Place,
R.K.Puram, New Delhi - 110066

BG No. : _____

Date of Issue : _____

Date of Expiry : _____
(5 Months as per provision)

Date of Claim : _____

Bank Name : _____

Dear Sirs,

1. In consideration of **Engineers India Limited** established under the Company's Act, 1956 having its registered office at 1, Bhikaiji Cama Place, New Delhi-110 066, India (hereinafter referred to as the "**Company**" which expression shall unless repugnant to the context or meaning thereof, include all its Successors, Administrators, Executors and permitted Assignees), has floated/issued a Tender/ Bidding Document for

(Name of work)

[Bidding Document No.:

through press notification/ on limited basis, (hereinafter referred to as the "**Tender**" which expression shall include all the amendments thereto) and M/s _____ (**Name of Bidder**) having its Head/Registered Office at

(herein after referred to as the "**Bidder**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) have submitted a Bid in response to the Tender enquiry and the Bidder having agreed to furnish as a condition precedent for participation in the said Tender an unconditional and irrevocable **Bank Guarantee** [hereinafter shall be referred to as this "**Guarantee**"] of **value** _____ [in fig. as per currency indicated in

Notice/Letter Inviting Bid] [in words _____] for the due performance of the Bidder's obligations as contained in the Instructions to Bidder [ITB] and other terms and conditions contained in the Tender document supplied by the Company which amount is liable to be forfeited on the happening of any of the contingencies mentioned in the said Tender document.

2. We _____ (Name of Bank) established /registered under the laws of _____ (Name of the Country and Act/Laws) having its registered office at _____ (hereinafter referred to as the "Bank" which expression shall unless repugnant to the context or meaning thereof include all its successors, administrators, executors and permitted assignees) do hereby guarantee on behalf of the Bidder and undertake to pay immediately on demand signed by the Company's duly authorized officer, to the Company any money or all money up to the extent of the value of this Guarantee at the time but in any case not exceeding _____ (in Fig. with Currency) _____ (in words with Currency) in aggregate at any time without any demur, reservation, recourse, contest and/or without any reference to the Bidder. Any such demand made by the Company on the Bank shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

3. The Bank confirms that this Guarantee has been issued in accordance with the appropriate laws in India [the country of issue].

4. The Bank also agrees that this Guarantee herein contained shall be irrevocable and shall continue to be enforceable in accordance with the Indian Laws and subject to exclusive jurisdiction of Indian Courts as per condition stipulated in Tender Document.

5. The Bank also agrees that the Company at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Bidder and without any reference to the Bidder and notwithstanding any security or other Guarantee that the Company may have in relation to the Bidder's liabilities.

6. The Bank further agrees that this Guarantee herein contained shall remain in full force up to and including two months after the expiry of the Period of Bid validity i.e. upto _____ [5 Months] that is taken as the obligations of the Bidder as per Tender document and it shall continue to be enforceable until all the dues of the Company, if any, under or by virtue of this Guarantee have been fully paid and its claim satisfied or discharged.

7. The Bank further agrees that this Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the Bidder during the period this Guarantee is in force but shall be in all respects and for all purposes be binding and operative until payment of all money due to the Company in respect of such liability or liabilities is paid or no claim is lodged by the Company to the Bank within the claim period after the Guarantee expires.

8. The Bank further agrees that this Guarantee shall not be affected by any change in the Bank's Constitution. The Bank also undertakes not to revoke this Guarantee during its currency.

9. The Bank further agrees that to fulfill the Bidder's liability during the bidding process, if requested by the Bidder in writing, the Bank shall issue Amendment to this Guarantee, as and when required, incorporating the extended date of validity and/or other amendment.

10. Notwithstanding anything contained herein above:

a. the Bank's liability under this Guarantee is limited to - _____ (in Fig with currency) _____ (in words with currency) in aggregate;

b. This Guarantee shall remain in full force up to and including **60 (sixty)** days after the expiry of the Period of Bid validity i.e. up to _____ [Date] and any extension(s) thereof on written

instruction from the Bidder on whose behalf this Guarantee has been given, in which case it shall remain in full force up to and including **60 (Sixty)** days after the extended date; and

c. The Bank shall be released and discharged from all its liabilities and obligations under this Guarantee unless a written claim or demand is issued to the Bank on or before _____ <Date> or within the **60 (Sixty) days** of the date of expiry of the extended date and the Company's right under this Guarantee will cease.

11. The Bank further agrees that all claims under this Guarantee is payable to the Company in favour of the above said account number at New Delhi

12. The Bank has the power to issue this Guarantee under its Memorandum and Articles of Association and the undersigned is authorized to sign this Guarantee on behalf of the Bank and to bind the Bank thereby.

IN WITNESS whereof, the Bank _____ has executed this Guarantee at _____ (Place) on _____ (Date)

Signed and Sealed by Constituted Attorney
(Signature of a person authorized to sign on behalf of the Bank)

Name:

Designation:

Bank Name:

In presence of witness:

1. Signature _____
Name & Designation:

2. Signature _____
Name & Designation:

[Note: The Bank shall issue the confirmation letter of providing this Guarantee on behalf of the Contractor directly to the beneficiary at the above mentioned address]

PROFORMA OF AGREEMENT

CONTRACT AGREEMENT FOR THE WORK OF _____
DATED _____ 20 _____ (Two Thousand _____) Between M/s
_____ under the Indian Companies Act, and having its registered
office at _____ in the town of
_____ hereinafter
called the "CONTRACTOR" (which term shall unless excluded by or repugnant to the
subject or context include its successors and permitted assignees) **as** one part and
Engineers India Limited, hereinafter called EIL (which term shall, unless excluded or
repugnant to the subject or context including its successors and assignees) **as** other
part.

WHEREAS :

- A. EIL being desirous of having provided and executed certain works mentioned, enumerated or referred to in the tender documents including Notice Inviting Tender, General Tender Notice, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, Plans, Time Schedule of Completion of Jobs, Agreed Variations, other documents etc. has called for Tender.
- B. The Contractor has inspected the site and surroundings of the works specified in the tender documents and has satisfied himself by careful examination before submitting his tender as to the nature of the surface strata, soil, sub-soil and ground, the form and nature of site and local conditions, the quantities, nature and magnitude of the work, the availability of labour and materials necessary for the execution of work. The means of access to site, the supply of power and water thereto and the accommodation he may require and has made local and independent enquiries and obtained complete information as to the matters and things referred to, or implied in the tender documents or having any connection therewith, and has considered the nature and extent of all probable and possible situations, delays, hindrances or interferences to or with the execution and completion of the work to be carried out under the Contract, and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and ancillary thereof affecting the execution and completion of the work and which might have influenced him in making his tender.
- C. The tender documents including the notice/ letter inviting tender, general conditions of CONTRACT, special conditions of CONTRACT, schedule of rates, general obligations, specifications, drawings, plans, time schedule of completion of jobs, letter of acceptance of tender and any statement of agreed variations, with its enclosures copies of which are hereto annexed form part of this CONTRACT though separately set out herein and are included in the expression "CONTRACT" wherever herein used.

AND WHEREAS :

EIL accepted the Tender of the Contractor for the provision and the execution of the said work at the rates stated in the Schedule of Quantities of works and finally approved by EIL (hereinafter called the "Schedule of Rates") upon the terms and subject to the conditions of contract:

Now this Agreement witnesses and it is hereby agreed and declared as follows:

1. In consideration of the payment to be made to the Contractor for the work to be executed by him, the contractor hereby covenant with EIL that the Contractor shall and will duly provide, execute and complete the said works referred to in the above documents mentioned and constituting the contract and shall do and perform all other acts and things in the Contract mentioned or described or which are to be implied there-from or may be reasonably necessary for the completion of the said works at the times and in the manner and subject to the terms and conditions or stipulations mentioned in the Contract.
2. In consideration of the due provision, execution and completion of the said works EIL does hereby agree with the Contractor that EIL will pay to the Contractor the respective amounts for the work actually done by him and approved by EIL at the Schedule of Rates and such other sum payable to the Contractor under provision of the Contract; such payment to be made at such time and in such manner as provided for in the Contract.
3. In consideration of the due provision, execution and completion of the said works, the contractor does hereby agree to pay such sums as may be due to EIL for the service rendered by EIL to the contractor, such as power supply, water supply and others as set-forth in the said contract and such other sums as may become payable to EIL towards the controlled items of consumables materials or towards loss, damage to the equipment, materials, construction plant and machinery of EIL, such payments to be made at such time and in such manner as is provided in the Contract. It is specifically and distinctly understood and agreed between EIL and the contractor that the Contractor shall have no right, title or interest in the site made available by EIL for execution of the works or in the building structures or works executed on the said site by the contractor or in the goods, articles, materials, etc. brought on the said site (unless the same specifically belongs to the Contractor) and the contractor shall not have or deemed to have any lien whatsoever charge for unpaid bills nor will be entitled to assume or retain possession or control of the site or structures and EIL shall have an absolute and unfettered right to take full possession of the site and to remove the Contractor, his servants, agents and materials belonging to the Contractor and lying on the site.

The Contractor shall be allowed to enter upon the site for execution of the works only as a licensee simplicitor and shall not have any claim, right, title or interest in the site or the structure erected thereon and EIL shall be entitled to terminate such license at any time without assigning any reason.

The materials including sand, gravel, stone, loose, earth, rock, etc. dug up or excavated from the site shall, unless otherwise expressly agreed under this contract, exclusively belong to the EIL and the contractor shall have no right to claim over the same and such excavations and materials should be disposed of on account of EIL according to the instructions in writing issued from time to time by the Engineer-in-Charge.

IN WITNESS whereof the parties have executed these presents in duplicate the day and the year first above written.

SIGNED AND DELIVERED
FOR AND ON BEHALF OF
*CONTRACTOR

SIGNED AND DELIVERED FOR
AND ON BEHALF OF
ENGINEERS INDIA LTD.

DATE : _____

DATE : _____

PLACE : _____

PLACE : _____

In the presence of Two Witnesses

1. _____

1. _____

* In the case of partnership to be signed by all partners or by one partner holding a General Power of Attorney.

SPECIAL CONDITIONS OF CONTRACT

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1.0 **GENERAL**

- 1.1 Special Conditions of Contract shall be read in Conjunction with the General Conditions of Contract, specification of work, Drawings and any other documents forming part of this Contract wherever the context so requires.
- 1.2 Notwithstanding the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the Contract so far as it may be practicable to do so.
- 1.3 Where any portion of the General Condition of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy, or variations, prevail.
- 1.4 "EIL" means Engineers India Limited, a company incorporated in India and having its registered office at 1, Bhikaiji Cama Place, New Delhi – 66. EIL is the Engineer-in-Charge for the project.
- 1.5 Wherever it is stated in this Bidding Document that a supply is to be made or a work is to be carried out, it shall be understood that the same shall be made/ carried out by the CONTRACTOR at his own cost, unless a different intention is specifically and expressly stated herein or otherwise explicit from the context. Contract Price shall be deemed to have included such cost.
- 1.6 The materials, design and workmanship shall satisfy the applicable relevant Indian Standards & technical specifications, the job specifications/standards contained herein and codes referred. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any Standard/ Specifications/ Codes of practice for detailed specifications covering any part of the work covered in this bidding document, the instructions/ directions of EIL will be binding upon the CONTRACTOR.
- 1.7 In case of an irreconcilable conflict between Indian or other applicable standards, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings or Schedule of Rates and any other portion of Bidding Document the following shall prevail to the extent of such irreconcilable conflict in order of precedence.
- i) Letter of Acceptance along with enclosures.
 - ii) Letter of Acceptance.
 - iii) Schedule of Rates as enclosures to Letter of Acceptance.
 - iv) Special Conditions of Contract
 - v) Job / Particular Specifications.
 - vi) Scope of Work.
 - vii) Drawings
 - viii) Technical / Material Specifications.
 - ix) General Conditions of Contract.
 - ix) Indian Standards
 - x) Other applicable Standards
- 1.8 The Articles contained in Instructions to Bidder shall supplement to the Special Conditions of Contract, General Conditions of Contract. Where any portion of Special Conditions of Contract and General Conditions of Contract is repugnant or at variance with any provisions of Instructions to Bidder then in that case Instructions to Bidder shall be deemed to over-ride the provision(s) of Special Conditions of Contract, and General Conditions of Contract only to the extent that such repugnancies of variations in Instructions to Bidder are not possible of being reconciled with the provisions of Special Conditions of Contract, General Conditions of Contract.
- 1.9 It will be the Contractor's responsibility to bring to the notice of Engineer-in-Charge any irreconcilable conflict in the contract documents, before starting the work (s) or making the supply with reference, which the conflict exists.
- 1.10 In the absence of any Specifications covering any material, design of work (s) the same shall be performed / supplies / executed in accordance with Standard Engineering Practice as per the instructions / directions of the Engineer-in-Charge, which will be binding on the

Contractor.

2.0 **SCOPE OF WORK & SCOPE OF SUPPLY**

2.1 Scope of work and supply shall be as specified in Technical Section of the Bidding Document.

3.0 **SUPPLY OF WATER, POWER & OTHER UTILITIES**

3.1 General Conditions of Contract is modified to the following extent :

3.1.1 No Water and Electricity shall be provided to the Contractor by the Owner. The Contractor shall make his own arrangement for procurement, consumption, maintenance etc. and deposit all charges fee etc. in connection with to the Municipal Authorities.

3.1.2 Contractor shall make his own arrangement for water, required for construction. If, however, piped water is supplied by the Owner, the contractor shall pay for the water based on the reading of water consumption which will be measured through Meter at the specified rate. The contractor shall make his own arrangement for water connection and laying of further pipelines from the source of supply of the Owner. It should be clearly understood that the Employer does not guarantee supply of water, and if supplied, to maintain un-interrupted supply of water and it will be incumbent on the part of the contractor to make alternative arrangement for water at his own cost in the event of any temporary break-down in the water mains so that the progress of work is not held up for want of water. No claim as damages or refund of water charges will be entertained on account of such break-downs. However, if the contractor is permitted to make his own arrangement to draw water from a well, hand pump, or natural river or pond of the Employer, no charges will be made for the water drawn from the same, but the contractor will make good any damage done to the installations and ensure that the quality of water used in the work is conforming to BIS codes and provide for any treatment at his own cost.

3.1.3 Contractor shall arrange power required for construction from Concerned supply Authorities for the Project site on behalf of the Owner (EIL shall make power available to the contractor, only if surplus power is available, on chargeable basis. Contractor shall make his own arrangement in case power is not provided by EIL). All associated activities for obtaining necessary approvals and sanctions for construction power shall be coordinated by the contractor and the cost of the arrangement/development of infrastructure and sanction shall be deemed to be included in the quoted rates under various item of work of the "Schedule of Quantities". The contractor shall also be required to provide the power to other contractors, engaged for the project on chargeable basis. The renewal of the construction power connection at regular intervals shall also be in the scope of the contractor. All installations / fixtures & fittings / cabling for construction power shall be in the scope of the contractor without any additional cost to the Owner.

3.1.4 The Contractor shall keep acoustic DG sets of adequate capacity at different locations to keep the work in progress during electricity failure at his cost.

3.1.5 OWNER shall provide space for Contractor field office, fabrication yard and storage yard etc. only at site as per availability of land. No land shall be provided for accommodation purposes to the Contractor.

3.1.6 The CONTRACTOR shall remove all temporary buildings/ facilities etc. immediately after completion of works in all respect.

4.0 **TIME OF COMPLETION**

4.1 The work shall be executed strictly as per time Schedule mentioned in the **Appendix – V** to SCC. The period of completion given includes the time required for mobilization as well as testing, rectifications, if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-Charge and handing over to EIL.

4.2 The Engineer-in-Charge and Contractor will prepare a joint programme of execution of work. This programme will take into account the time of completion mentioned above.

4.3 Monthly/ weekly construction programme will be drawn up by Engineer-in-Charge jointly with the Contractor based on availability of work fronts and the joint construction programmes as 4.2 above. The Contractor shall strictly adhere to this Targets/ Programme.

4.4 Contractor shall give every day report on category wise labour and equipment deployed along with the progress of work done on previous day in the proforma prescribed by the

Engineer-in-Charge.

5.0 **WORKS CONTRACT**

5.1 The entire work covered under this contract shall be treated as "Works Contract".

6.0 **TAXES, DUTIES AND LEVIES**

6.1 All taxes and duties including Works Contract tax, Excise duty, VAT, Sales tax, Custom duty, Octroi, entry tax, Education cess and other levies payable by the Contractor under the Contract, or for any other cause, shall be included in the prices as per Schedule of Rates except Service tax.

6.2 Bidders shall consider the rate of Service Tax (including cess) applicable presently @ 12.36% on actual value of services.

6.3 After award of work, Service Tax shall be paid by OWNER to the CONTRACTOR @ 12.36%, as per Form SP-2, against invoices issued in accordance with the provisions of the Service Tax Rules which state that the each invoice shall be serially numbered and shall contain the following details-

- (i) the name, address and service tax registration of the person;
- (ii) the name, address of the person receiving the taxable service;
- (iii) the description, classification and value of taxable service provided or to be provided;
- (iv) the service tax payable there on.

6.4 The Service Tax amount indicated by the Bidder in Form SP-2 shall include both, namely, (i) the amount of Service Tax payable by the bidder and reimbursable by Owner (ii) the amount of Service Tax, if any, directly payable by EIL / Owner , as applicable to recipient of service, as per the reverse charge rule of Service Tax.

The Service Tax, if any, to be payable by the Owner under reverse charge rule shall not be reimbursed to the Contractor but shall be directly submitted to the Service Tax Authorities by Owner. If the same has already been reimbursed / paid to the Contractor for whatsoever reason, the said amount, as submitted by the Owner to Service Tax Authorities, shall be deducted / recovered / adjusted from the payment due to the Contractor.

6.5 It is for the Bidder to assess and ascertain the rate of above taxes & duties applicable on quoted items. It is clearly understood that Owner will not have any additional liability towards payment of above taxes & duties which are based on Bidder's wrong assessment / interpretation of applicability of said taxes & duties.

6.6 C-FORM will not be issued by OWNER to the Contractor.

6.7 Owner shall make from Contractor's bills such tax deductions as are required as per rules and regulations in force from time to time.

6.8 No variations, Statutory or otherwise shall be payable by OWNER to the CONTRACTOR on taxes and duties except Service Tax. Statutory variations in Service Tax during the Contractual completion period and AMC period will be on Owner's account against documentary evidence. If there is delay beyond contractual completion period for reasons attributable to Contractor, any increase in Service Tax will be borne by the Contractor whereas any decrease shall be passed on to Owner.

7.0 **INCOME TAX & CORPORATE TAX**

7.1 Income Tax deductions shall be made from all payments made to the Contractor as per the rules and regulations in force in accordance with the Income Tax Act prevailing from time to time.

7.2 Corporate Tax Liability if any shall be to Contractor's account.

8.0 **VAT ON WORKS CONTRACT / WORKS CONTRACT TAX**

8.1 Contractor shall pay VAT/Sales tax on all the purchases made by him for fulfilling his obligations under this contract and this should be included in the price quoted by him. VAT on

works Contract/ Works Contract Tax, as applicable, shall be deducted from the Contractors bill as per the prevailing rate. Any variations to the same including statutory variations to the same shall be to Contractor's account.

9.0 **CONSTRUCTION WORKERS CESS**

- 9.1 A cess @ 1% of the cost of construction / work incurred by an employer for the purpose of Building and other Construction workers (Regulation of Employment and conditions of service) Act 1996 shall be deducted at source from the Bills of the Contractor/ firms.

10.0 **FIRM PRICE**

- 10.1 The contracted prices shall be firm and fixed except as per the provisions stated in the Bidding document till the completion of the works in all respects and no escalation in prices on any other account shall be admissible to the Contractor.

11.0 **MOBILISATION ADVANCE**

- 11.1 No mobilization advance will be paid by Owner/EIL.

12.0 **STATUTORY APPROVALS**

- 12.1 The approval from any authority required as per statutory rules and regulations of Central/State Government/Local Bodies shall be the contractor's responsibility unless otherwise specified in the Bidding Document. The application on behalf of the Owner for submission to relevant authorities along with copies of required certificates complete in all respects shall be prepared and submitted by the Contractor well ahead of time so that the actual construction/ commissioning of the work is not delayed for want of the approval/inspection by concerned authorities.
- 12.2 The Contractor shall arrange the inspection of the works by the authorities and necessary co-ordination and liaison work in this respect shall be the responsibility of the contractor. However statutory fees paid, if any, for all inspections and approvals to such authorities shall be reimbursed at actual by the Owner to the contractor on production of documentary evidence.
- 12.3 Any change/ addition required to be made to meet the requirements of the statutory authorities shall be carried out by the contractor without additional cost to Owner. The inspection and acceptance of the work by statutory authorities shall however, not absolve the contractor from any of his responsibilities under this contract.

13.0 **TESTS AND INSPECTION**

- 13.1 The Contractor shall carry out the various tests as enumerated in the technical specifications of this bidding document and the technical documents that will be furnished to him during the performance of the work.
- 13.2 All the tests either on the field or at outside laboratories concerning the execution of the work and supply of materials by the Contractor shall be carried out by Contractor at his own cost.
- 13.3 The work is subject to inspection at all times by the Engineer-in-Charge. The contractor shall carry out all instructions given during inspection and shall ensure that the work is being carried out according to the technical specifications of this bid document, the technical documents and the relevant codes of practice will be furnished to him during the performance of the work.
- 13.4 The Contractor shall provide for purposes of inspection access ladders, lighting and necessary instruments at his own cost.
- 13.5 Any work not conforming to execution drawings, specifications or codes shall be rejected forthwith and the Contractor shall carryout the rectifications at his own cost.
- 13.6 All results of inspection and tests will be recorded in the inspection reports, proforma of which will be approved by the Engineer-in-Charge. These reports shall form part of the completion documents.
- 13.7 For materials supplied by Owner, Contractor shall carryout the tests, if required by the Engineer-in- Charge, and the Owner shall reimburse the cost of such tests at actual to the Contractor on production of documentary evidence.

-
- 13.8 Statutory fees paid to IBR authorities and for repeat tests and inspection due to failures, repairs etc. such reasons attributable to the Contractor shall be borne by the Contractor.
- 13.9 Inspection and acceptance of work shall not relieve the Contractor from any of his responsibilities under this Contract.
- 14.0 **INSPECTION OF SUPPLY ITEMS / MATERIALS**
- 14.1 All inspection and tests on bought out items/ materials shall be made as per the specifications forming part of this contract. Various stages of inspection and testing shall be identified after receipt of Quality Assurance Programme from the Contractor/Manufacturer.
- 14.2 Inspection calls shall be given for associations of Owner's representative as per mutually agreed programme in prescribed proforma with 15 days margin, giving details of equipment and attaching relevant test certificates and internal inspection report of the Contractor. All drawings, General arrangement and other contract drawings, specifications, catalogues etc. pertaining to equipment offered for inspection shall be got approved from Owner and copies shall be made available to Owner before hand for undertaking inspection.
- 14.3 The Contractor shall ensure full and free access to the inspection engineer of Owner at the Contractor's or their sub-contractor's premises at any time during contract period to facilitate him to carry out inspection and testing assignments.
- 14.4 The Contractor/sub-contractor shall provide all instruments, tools, necessary testing and other inspection facilities to inspection engineer of Owner free of cost for carrying out inspection.
- 14.5 Where facilities for testing do not exist in the Contractor's/sub-contractor's laboratories, samples and test pieces shall be drawn by the Contractor/Sub-Contractor in presence of Inspection Engineer of Owner and duly sealed by the later and sent for testing in Government approved Test House or any other testing laboratories approved by the Inspection Engineer at the Contractor's cost.
- 15.0 **FINAL INSPECTION**
- 15.1 After completion of all tests as per specification the whole work will be subject to a final inspection to ensure that job has been completed as per requirement. If any defects noticed in the work attributable to Contractor, the Contractor at his own cost shall attend these, as and when the owner brings them to his notice. The Owner shall have the right to have these defects rectified at the risk and cost of the contractor if he fails to attend to these defects immediately.
- 16.0 **SITE CLEANING**
- 16.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the Contractor shall also comply with the following :
- 16.1.1 The contractor shall clear the site of work simultaneously as the work proceeds on daily basis failing which the same shall be got cleared by the Owner at the risk and cost of contractor by giving him one day notice.
- 16.1.2 If the work involves dismantling of any existing structure in whole or part, care shall be taken to limit the dismantling up to the exact point and/or lines as directed by the Engineer-in-Charge and any damage caused to the existing structure beyond the said line or point shall be repaired and restored to the original condition at the Contractor's cost and risks to the satisfaction of the Engineer-in-Charge, whose decision shall be final and binding upon the Contractor.
- 16.1.3 The Contractor shall be the custodian of the dismantled materials till the Owner takes charge thereof.
- 16.1.4 The Contractor shall dispose off the unserviceable materials, debris etc. to any area as decided by the Engineer-in-Charge.
- 16.1.5 The Contractor shall sort out, clear and stack the serviceable materials obtained from the dismantling/renewal at places as directed by the Engineer-in-Charge.
- 16.1.6 No extra payment shall be paid on this account.
-

17.0 **CONSTRUCTION EQUIPMENT AND ORGANIZATION**

17.1 **CONSTRUCTION EQUIPMENT**

17.1.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the Contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and time schedule, progressively deploy **construction equipments and tools & tackles** and when required augment the same as decided by the Engineer-in-Charge depending on the exigencies of the work so as to complete all works within the contracted time schedule and without any additional cost to Owner. No construction equipment shall be supplied by the Owner.

17.2 **SITE ORGANISATION**

17.2.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and subject to the provisions in the contract document and without prejudice to Contractor's liabilities and responsibilities to provide adequate qualified skilled, semi skilled and unskilled personnel on the work, contractor shall deploy **supervisory personnel** and augment the same as decided by the Engineer-in-Charge depending upon the site requirement & the exigencies of work so as to complete all works within the contracted time schedule and without any additional cost to OWNER.

18.0 **MEASUREMENT OF WORKS**

18.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the provisions of **Appendix-I** to SCC shall also apply.

19.0 **TERMS OF PAYMENT**

19.1 Basis and terms of payment for making "On Account Payment" shall be as set out in **Appendix-II** to SCC. All payments will be made through EFT.

19.2 **UNCONDITIONAL NO CLAIM CERTIFICATE**

Unconditional no claim certificate shall be furnished by the CONTRACTOR along with final bill with the intent the final bill prepared by the CONTRACTOR shall reflect any and all claims whatsoever of the CONTRACTOR against the OWNER arising out of or in contract or work performed by the CONTRACTOR.

20.0 **ROUNDING OFF**

20.1 All payments to and recoveries from the bill of CONTRACTOR shall be rounded off to the nearest Rupee. Wherever the amount to be paid/ recovered consists of a fraction of a Rupee (Paise), the amount shall be rounded off to the next higher rupee if the fraction consists of 50 (fifty) paise or more and if the fraction of a Rupee is less than 50 (fifty) paise, the same shall be ignored.

21.0 **QUALITY ASSURANCE/ QUALITY CONTROL**

21.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the Contractor shall adhere to the quality management system as per EIL Specification given in the Bidding Document as **Appendix-III**.

21.2 In case contractor fails to follow the instructions of Engineer-in-charge with respect to above clauses, next payment due to him shall not be released unless until he complies with the instructions to the full satisfaction of Engineer-in-charge.

22.0 **HEALTH SAFETY AND ENVIRONMENT (HSE) MANAGEMENT**

22.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the CONTRACTOR, during entire duration of the Contract, shall adhere to HSE requirement as given in the bidding document attached as **Appendix-IV** herewith.

22.2 The CONTRACTOR shall establish document and maintain an effective Health, Safety and Environment (HSE) management system.

22.3 In case CONTRACTOR fails to follow the instructions of Engineer-in-charge with respect to above clauses, next payment due to him shall not be released till CONTRACTOR complies

with the instructions to the full satisfaction of Engineer-in-charge.

- 22.4 The CONTRACTOR shall be required to take a suitable Insurance Policy with a view to cover themselves against the above penalties and submit a copy of the said policy to the Engineer-in-Charge before possession of site is given to them.

23.0 **GENERAL ENVIRONMENT REQUIREMENT**

- 23.1 The CONTRACTOR has to ensure efficient use of natural resources like water, fuel oil and lubricants. The CONTRACTOR should ensure proper awareness to workers to maintain a green and clean environment inside/ outside the site. The CONTRACTOR must collect and dispose of all the waste and scrap materials at the designated place only, as directed by EIL.

24.0 **FUEL REQUIREMENT OF WORKERS**

- 24.1 The CONTRACTOR shall be responsible to arrange for the fuel requirement of his workers and staff without resorting to cutting of trees and shrubs. Cutting of trees and shrubs is strictly prohibited for this purpose.

25.0 **PROTECTION OF EXISTING FACILITIES**

- 25.1 CONTRACTOR shall obtain full details of all existing and planned underground services from EIL and shall follow these closely at all times during the performance of work. CONTRACTOR shall be responsible for location and protection of all underground lines, structures, power cables, OFC cables etc. at his own cost.

- 25.2 Despite all precautions, should any damage to any structure / utility etc. occur, the CONTRACTOR shall contact EIL and CONTRACTOR shall forthwith carry out repair at his expenses under the direction and to the satisfaction of Engineer- in-Charge. If the same is not attended by the contractor within the said time period, will be get done at panel rates through other agency at Contractor's risk and cost.

- 25.3 CONTRACTOR shall take all precautions to ensure that no damage is caused to the existing pipelines, cables etc. during construction.

26.0 **COORDINATION WITH OTHER AGENCIES**

- 26.1 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 coordination with other agencies will be Contractor's responsibility. In case of any dispute, the decision of Engineer-in-Charge shall be final and binding on the Contractor.

27.0 **ROYALTY**

- 27.1 Contractor's quoted rate should include the royalty on different applicable items as per the prevailing Government rates. In case, owner is able to obtain the exemption of Royalty from the State Government, the Contractor shall pass on the same to owner for all the items involving Royalty. Any increase in prevailing rate of Royalty shall be borne by the Contractor at no extra cost to the owner.

28.0 **MAKE OF MATERIALS**

- 28.1 The materials required to be supplied by the Contractor under this contract shall be procured only from EIL approved vendors. Where the makes of materials are not indicated in the Bidding document Contractor shall furnish the details of makes and shall obtain prior approval of Engineer-in-Charge of vendors / sub-vendors before placing order.

29.0 **RESPONSIBILITY OF CONTRACTOR**

- 29.1 In addition to the provisions of relevant clause of General Conditions of Contract (GCC) and associated provisions thereof, the Contractor shall also comply with the following :

- 29.1.1 It shall be entirely the Contractor's responsibility to provide, operate and maintain all necessary construction equipments, scaffoldings and safety gadgets, cranes and other lifting tackles, tools and appliances to perform the work in a workman like and efficient manner and complete all the jobs as per time schedules.

- 29.1.2 Preparing approaches and working areas for the movement and operation of the cranes, levelling the areas for assembly and erection shall also be the responsibility of the Contractor. The Contractor shall acquaint himself with access availability, facilities such as railway siding, local labour etc. to provide suitable allowances in his quotation. The Contractor may have to build temporary access roads to aid his own work, which shall also be taken care while quoting for the work.
- 29.1.3 The procurement and supply in sequence and at the appropriate time of all materials and consumables shall be entirely the Contractor's responsibility and his rates for execution of work will be inclusive of supply of all these items.
- 30.0 **MECHANISED CONSTRUCTION**
- 30.1 Contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and time schedule adopt as far as practicable, mechanised construction techniques for major site activities. Contractor agrees that he will deploy the required numbers and types of the plant & machinery applicable for different activities in consultation with the Engineer-in-charge during execution of works.
- 30.2 Contractor further agrees that Contract price is inclusive of all the associated costs, which he may incur for actual mobilization, required in respect of use of mechanised construction techniques and that the Owner in this regard shall entertain no claim whatsoever.
- 31.0 **TEST CERTIFICATES**
- 31.1 Bidder shall be required to submit recent test certificates for the material being used in works from the recognised laboratories. These certificates should indicate all properties of the materials as required in relevant IS Standards or International Standards.
- 31.2 Contractor shall also submit the test certificate with every batch of material supplied which will be approved by Engineer-in-Charge. No secured advance will be given for the materials not having test certificate. In case any test is to be carried out, the same shall be got done in the approved laboratory at the cost of contractor.
- 32.0 **ADDITIONAL WORKS/ EXTRA WORKS**
- 32.1 Owner reserves their right to execute any additional works/ extra works, during the execution of work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor. In the event of such decisions taken by Owner Contractor is required to extend necessary cooperation, and act as per the instructions of Engineer-in-Charge. No extra time/cost compensation will be made by Owner.
- 33.0 **PRICE VARIATION**
- No price variation on any account shall be applicable.
- 34.0 **SECURED ADVANCE**
- 34.1 No secured advance will be paid by Owner/EIL.
- 35.0 **INSURANCE**
- 35.1 General Conditions of Contract (GCC) is modified to the extent that EIL shall not obtain any insurance for the execution of the subject works. Without prejudice to Clause 33.2 of GCC, before commencing the execution of work, the Contractor shall also obtain "a Comprehensive Erection All Risks Policy" for the total contract value at his own cost & expense in the joint names of Owner & Contractor (Owner shall be the first beneficiary). The Contractor shall keep the Insurance Policy as mentioned above valid till the Completion of work.
- 36.0 **SAMPLES OF MATERIALS**
- 36.1 The contractor shall submit to the Engineer-in-Charge samples of all materials/ to be used in the work for approval before bringing bulk supplies and before commencing the work. These approved samples shall be preserved and retained in the custody of the Engineer-in-Charge as standard of materials till the completion of the work. The cost of such samples shall be

borne by the contractor and nothing shall be payable on this account.

- 36.2 Sub-standard Material/ Work: In case any material/ work is found sub-standard the same shall be rejected by the Engineer-in-Charge and the same shall be removed from the site of work within 48 hours, failing which the same shall be got removed by the Engineer-in-Charge at the risk and cost of the contractor without giving any further notice and time.
- 36.3 Testing of Materials: Even ISI marked materials may be subjected to quality test at the discretion of the Engineer-in-Charge besides testing of other materials as per the specifications described for the item/ material. Whenever ISI marked materials are brought to the site of work the contractor shall, if required by the Engineer-in-Charge, furnish manufacturer test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfy the provisions of IS Codes relevant to the material and/ or the work done.
- 36.4 The contractor shall arrange carrying out of all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge. The cost of tests shall be borne by the contractor. In addition contractor shall establish a laboratory at site of work at his own cost. The laboratory shall be equipped with all necessary equipment as per requirement of specification or as per direction of Engineer-in-Charge. Establishing the laboratory at site shall not absolve the contractor from fulfilling the criteria of getting the test done in independent Lab. The decision of the Engineer-in-Charge of allowing any test in the site laboratory or any other laboratory shall be final.
- 36.5 Before execution of finishing items like plaster, flooring & painting etc, the contractor shall make samples for finishing items and get the approval well in advance from the Engineer-in-Charge.
- 37.0 **FREE ISSUE MATERIALS**
- 37.1 General Conditions of Contract (GCC) is modified to the extent that no free issue material will be supplied by Owner against the subject works.
- 38.0 **PERMISSIONS**
- 38.1 Permissions for road cutting, temporary power connection and water connection if any may be obtained from EIL by the contractor.
- 39.0 **WORK ON SUNDAYS AND HOLIDAYS**
- 39.1 No work shall be carried out on Sundays and authorized holidays without the prior approval of the Engineer-in-Charge in writing. The period allowed for completion of work includes Sundays and authorized holidays.
- 40.0 **LIGHTING ARRANGEMENT AT SITE**
- 40.1 The contractor shall provide uninterrupted lighting of the work place and surrounding areas during the night hours. No additional payment shall be made on this account and the cost in this regard is deemed to be included in the quoted rates.
- 41.0 **OTHER MODIFICATIONS TO GENERAL CONDITIONS OF CONTRACT (GCC)**
- 41.1 Clause 15 "Mechanical Completion and Pre-Commissioning" and 16 "Tests on Completion" of GCC are valid to the extent applicable for the scope of work under the subject contract.
- 41.2 "Performance Levels" in the sub-clause 18.3 & 18.6 and "Compensation" in Clause 20 of GCC are valid to the extent applicable for the scope of work under the subject contract.
- 42.0 **SECURITY DEPOSIT / CONTRACT PERFORMANCE BAK GUARANTEE (CPBG)**
- 42.1 The Contractor shall within 15 days of issue of LOA, deposit with the EIL an interest free Security Deposit (SD) for an amount equivalent to 10% of the contract value in the form of Bank draft/ Pay Order/ Bank Guarantee (BG). If the Security Deposit is submitted in the form of Bank Guarantee, the bank guarantee towards security deposit shall be from a Scheduled

Bank and kept valid up to Contract Period plus Defect Liability period plus three months for claim period. It shall be submitted as per the format included in the Bidding document.

- 42.2 Alternatively, Contractor shall have the option of converting the EMD into initial Security deposit. In such a case, Contractor shall, within 15 days of issue of LOA, furnish a letter exercising the option of converting EMD in to Initial Security deposit. The Bank Guarantee furnished towards EMD shall appropriately be amended including extension up to Defect Liability period plus three months for claim period so that the same can be treated as initial security deposit.
- 42.3 In addition to the above initial security deposit, from each RA bills a differential amount in percentage (equal to 10% of estimated contract value minus EMD amount) shall be deducted towards security deposit. Thus, RA bill payments shall be released to the Contractor after deduction of the security deposit. Non-refundable interest shall be charged at a rate two percent more than the SBI's PLR rate, from the date the BG towards security deposit becomes due and shall be chargeable on the reducing balance left after apportioning the SD amount accumulated from each running bill, till complete SD amount is recovered from the bills.
- 42.4 However, contractor shall have the option to submit a BG towards SD valid up to Defect Liability period plus three months for claim period, for an amount equivalent to 10% of contract value at any time during the pendency of the contract. Pursuant to this, the amount so far retained in lieu of security deposit along with BG towards initial security deposit shall be released immediately. The interest so charged shall not be refunded.
- 42.5 In case contractor do not opt for submission of BG towards security deposit till completion of works, the amount retained on account of SD along with BG towards initial security deposit, shall be released only after expiry of defect liability period and settlement of all dues in all respects, to the satisfaction of the Engineer-in-Charge and submission of 'No dues Certificate' & 'No claim Certificate' by the Contractor. EIL reserves the right to deduct any amount due to EIL from the Security Deposit at the time of expiry of Contract/ Termination of Contract.
- 42.6 The Bank guarantee towards SD (or the Initial Security deposit, as the case may be) shall be extended by such period as EIL may require if the Completion is delayed/ extended beyond the schedule time for completion as per direction of the Engineer-in-Charge. In the event, if Contract Price is increased during the Contract Validity Period for any reason whatsoever, the value of the Bank Guarantee towards SD shall be increased proportionately by the Contractor within 7 (Seven) Days to ensure that it remains valid for an amount which is equivalent to 10% of the revised Contract Price, as determined by the engineer-in-Charge else amount equivalent to the 10% of such differential between estimated contract price and executed contract price shall be withheld/ deducted from the RA bills on account of increase in SD.
- 42.7 If the Contractor fails to provide, maintain or renew the Security Deposit in accordance with the Contract, then EIL may, without prejudice to any other rights and remedies, to which it may be entitled, by giving written notice, terminate the Contract forthwith.
- 42.8 In case Contractor does not furnish Bank guarantee towards security deposit as per clause 41.1 or does not exercise the option of converting EMD towards Initial security deposit as per clause 41.2 above, then the EMD submitted by the contractor shall be liable to be forfeited.
- 42.9 In case Contractor, after confirming that he will exercise the option of converting EMD into initial security deposit, does not submit the amended bank guarantee, payment shall not be released unless the amended BG is submitted, unless full amount of security deposit along with accrued interest thereon is recovered from the running bill.
- 42.10 Contract agreement shall be signed on receipt of SD from the contractor or a letter from him exercising the option of converting EMD into initial security deposit.

MEASUREMENT OF WORK

[APPENDIX – I TO SCC]

MEASUREMENT OF WORK

1.0 GENERAL

- 1.1 The mode of measurement shall be as mentioned in relevant standard specification incorporated in the Bidding Document. Any other mode of measurements not covered in above specifications shall be followed in accordance with relevant BIS codes /Schedule of Rates/ Specifications etc. and/or as decided by Engineer-in-Charge.
- 1.2 Payment will be made on the basis of joint measurements taken by Contractor and certified by Engineer-in-Charge. Measurement shall be based on "Approved for Construction" drawings, to the extent that the work conforms to the drawings and details are adequate.
- 1.3 Wherever work is executed based on instructions of Engineer-in-Charge or details are not adequate in the drawings, physical measurements shall be taken by Contractor in the presence of Engineer-in-Charge.
- 1.4 Measurements of weights shall be in metric tonnes corrected to the nearest Kilogram. Linear measurements shall be in meters corrected to the nearest centimeters.
- 1.5 The weights mentioned in the drawing or shipping list shall be the basis for payment. If mountings for panels etc. are packed separately, their erection weights shall include all mountings.
- 1.6 No other payment either for temporary works connected with this Contract or for any other item such as weld, packing plates etc. shall be made. Such items shall be deemed to have been included for in the rates quoted.
- 1.7 Measurements will be made for various items under schedule of rates on the following basis as indicated in the unit column
- | | |
|-------------|-----------|
| i) Weights | MT or Kg |
| ii) Length | M (Metre) |
| iii) Number | No. |
| iv) Volume | Cu.M |
| v) Area | Sq.M |
- 1.8 Wherever the unit of items has been indicated as lumpsum, the payment shall be made on lumpsum basis on completion & no mode of measurement shall be applicable.

NOTE:

All other mode of measurements not covered in above clauses shall be measured in accordance with relevant BIS codes/ Schedule of Rates/ Specifications etc. and/ or as decided by Engineer-in-Charge. The above measurement of works shall not be applicable for lumpsum items of SOR.

TERMS OF PAYMENT
[APPENDIX - II TO SPECIAL CONDITIONS OF CONTRACT]

1 TERMS OF PAYMENT

The basis and terms of payment for various items of Schedule of Rates, without prejudice to any other mode of recovery available to OWNER/EIL, shall be as follows:-

- 95% on completion of final painting.
- 05% on completion of all works in all respects and issuance of completion certificate.

2 RUNNING ACCOUNT BILL

The Contractor shall submit the R.A. Bill(s) in approved proforma to the Engineer-in-charge of the work giving abstract and detailed measurement for the various items executed during a month, before the expiry of first week of the succeeding months. The above progressive payment is subject to deduction towards income tax and other recoveries as applicable as per terms and conditions of contract.

3 FINAL BILL

The final bill shall be submitted by the Contractor within the time frame specified in the General Conditions of the Contract. No further claims shall be made by the Contractor after submission of the final bill. The Contractor shall submit the final bill complete in all respect with no claim and no dues by Contractor, no objection certificate from labour officer and other completion documents.

NOTES-

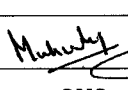
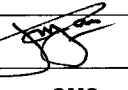
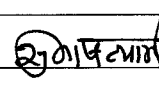
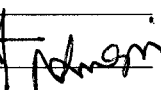
- 1.0 Payments shall be made after necessary deductions on account of income tax, mobilisation advance and other deductions as per the provisions of the Contract and as required under the law.
- 2.0 Payment shall be made within 30 days of receipt of bill after due verification / certification.
- 3.0 Other terms of payment, if any, may be mutually discussed and agreed upon in consultation with EIL after Award of Work.
- 4.0 All payments shall be made through EFT.

SPECIFICATION FOR QUALITY MANAGEMENT SYSTEM REQUIREMENTS FROM BIDDERS

[APPENDIX - III TO SPECIAL CONDITIONS OF CONTRACT]

बोलीकर्ता से गुणवत्ता प्रबंधन प्रणाली अपेक्षाओं हेतु विनिर्देश

SPECIFICATION FOR QUALITY MANAGEMENT SYSTEM REQUIREMENTS FROM BIDDERS

0	04.06.09	Issued as Standard Specification	 QMS Standards Committee	 QMS Standards Committee	 SCT	 ND
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standard Bureau Chairman
						Approved by

Abbreviations:

MR	-	Material Requisition
PR	-	Purchase Requisition
PO	-	Purchase Order
QA	-	Quality Assurance
QMS	-	Quality Management System
ISO	-	International Organization for Standardization
CV	-	Curriculum Vitae

QMS Standards Committee

Convenor: Mr. S.C. Tyagi

Members: Mr. Chandra Kant (Insp.)
Mr. R.K. Trivedi (Engg.)
Mr. R.K. Sabharwal (C&P)
Mr. M.P. Jain (Projects)
Mr. Ravindra Kumar (Const.)
Mr. Mukesh Meena (CQA)

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Attachment

Format for Concession/Deviation Permit : Format No.5-0000-0180-F1

1.0 SCOPE

This specification establishes the Quality Management System requirements to be met by BIDDER for following purpose:

- QMS requirements to be met by suppliers/contractors after award of work/during contract execution.

2.0 DEFINITIONS

2.1 Bidder

For the purpose of this specification, the word "BIDDER" means the person(s), firm, company or organization who is under the process of being contracted by EIL / Owner for delivery of some products (including service). The word is considered synonymous to supplier, contractor or vendor.

2.2 Project Quality Plan

Document tailored from Standard Quality Management System Manual of BIDDER, specifying how the quality requirements of the project will be met.

2.3 Owner

Owner means the owner of the project for which services / products are being purchased and includes their representatives, successors and assignees.

3.0 REFERENCE DOCUMENTS

6-78-0002	Specification for Documentation Requirements from Contractors
6-78-0003	Specification for Documentation Requirements from Suppliers

4.0 QUALITY MANAGEMENT SYSTEM – GENERAL

Unless otherwise agreed with EIL / Owner, the BIDDER proposed quality system shall fully satisfy all relevant requirements of ISO 9001 "Quality Management Systems – Requirements." Evidence of compliance shall be current certificate of quality system registration to ISO 9001 or a recent compliance audit recommending registration from a registrar. The quality system shall provide the planned and systematic control of all quality related activities for execution of contract. Implementation of the system shall be in accordance with BIDDER'S Quality Manual and PROJECT specific Quality Plan.

5.0 QUALITY SYSTEM REQUIREMENTS

- 5.1 BIDDER shall ensure that the responsible authority for execution of the order / contract has communicated the PO / contract requirements including any identified or intended statutory and regulatory requirements to all concerned in their organization and sub-contractor's organization who are contributing to the execution of the PO/ contract.
- 5.2 BIDDER shall establish a documented Quality Policy and Quality Objectives to achieve the specified and intended requirement of PO / contract.

- 5.3** BIDDER shall identify and communicate the responsibilities and authorities of the personnel contributing to the execution of the PO / contract.
- 5.4** BIDDER shall deploy competent and trained personnel for various activities for fulfillment of PO / contract. BIDDER shall arrange adequate infrastructure and work environment to ensure that the specification and quality of the deliverable are maintained.
- 5.5** BIDDER shall do the quality planning for all activities involved in delivery of order. The quality planning shall cover as minimum the following:
- Resources
 - Product / deliverable characteristics to be controlled.
 - Process characteristics to ensure the identified product characteristics are realized
 - Identification of any measurement requirements, acceptance criteria
 - Records to be generated
 - Need for any documented procedure
- The quality planning shall result into the quality assurance plan, inspection and test plans (ITPs) and job procedures for the project activities in the scope of bidder. These documents shall be submitted to EIL/Owner for review/approval, before commencement of work.
- 5.6** Requirements for sub-contracting / purchasing of services specified in contract / tender shall be adhered to. Wherever requirements are not specified, the sub-contractor shall establish and maintain a system for purchasing / sub-contracting to ensure that purchased product / service conforms to specified requirements. Criteria for selection of sub-contractor, evaluation, re-evaluation, maintenance of purchasing data and verification of purchased product (sub-contractor services), constitute important components of this requirement.
- 5.7** BIDDER shall plan and carry production and service provision under controlled conditions. Controlled conditions shall include, as applicable
- a) the availability of information that describes the characteristics of the product
 - b) the availability of work instructions
 - c) the use of suitable equipment
 - d) the availability and use of monitoring and measuring devices
 - e) the implementation of monitoring and measurement
 - f) the implementation of release, delivery and post delivery activities
- 5.8** BIDDER shall validate any processes for production and service provision where resulting output cannot be verified by subsequent monitoring and measurement. This includes any process where deficiencies become apparent only after the product is in use or service has been delivered.
- 5.9** BIDDER shall establish a system for identification and traceability of product / deliverable throughout product realization. Product status with respect to inspection and testing requirements shall be identified.
- 5.10** BIDDER shall identify, verify, protect and safeguard EIL / Owner property (material / document) provided for use or incorporation into the product. If any Owner / EIL property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to the EIL / Owner.

- 5.11** BIDDER shall preserve the conformity of product / deliverable during internal processing and delivery to the intended destination. Requirements mentioned in the tender shall be adhered to.
- 5.12** BIDDER shall establish system to ensure that inspection and testing activities are carried out in a manner that is consistent with the inspection and testing requirements. Where necessary, measuring equipments shall be calibrated at specified frequency, against national or international measurement standards; where no such standard exists, the basis used for calibration shall be recorded. The measuring equipments shall be adjusted or re-adjusted as necessary, identified to enable the calibration status to be determined. The measuring equipments shall be protected from damage during handling, maintenance and storage.
- 5.13** BIDDER shall ensure effective monitoring, using suitable methods, of the processes involved in production and other related processes for delivery of the scope of contract.
- 5.14** BIDDER shall monitor and measure the characteristics of the product/deliverable to verify that product requirement has been met. The inspection (stage as well as final) by BIDDER and EIL / Owner personnel shall be carried out strictly as per the ITPs forming part of the contract. Product release or service delivery shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by relevant authority and where applicable by Owner / EIL.
- 5.15** BIDDER shall establish and maintain a documented procedure to ensure that the product which does not conform to requirements is identified and controlled to prevent its unintended use or delivery
- 5.16** All non-conformities (NCs) / deficiencies found by the BIDDER'S inspection / surveillance staff shall be duly recorded, including their disposal action shall be recorded and resolved suitably. Effective corrective and preventive action shall be implemented by the BIDDER so that similar NCs including deficiencies do not recur.
- 5.17** All deficiencies noticed and reported by EIL / Owner shall be analyzed by the BIDDER and appropriate corrective and preventive actions shall be implemented. BIDDER shall intimate EIL / Owner of all such corrective and preventive action implemented by him.
- 5.18** BIDDER should follow the standards, specifications and approved drawings. Concessions/Deviations shall be allowed only in case of unavoidable circumstances. In such situations Concession/deviation request must be made by the BIDDER in attached Format No. 5-0000-0180-F1.
- 5.19** BIDDER shall have documented procedure for control of documents.
- 5.20** All project records shall be carefully kept, maintained and protected for any damage or loss until the project completion, then handed over to EIL / Owner as per contract requirement (Refer Specification Nos. 6-78-0002 - Specification for Documentation Requirements from Contractors and 6-78-0003 - Specification for Documentation Requirements from Suppliers), or disposed as per relevant project procedure.
- 5.21** BIDDER shall prepare and submit for review and approval, Project Quality Plan / Quality Assurance Plan for contracted scope / job. The BIDDER'S Quality Plan shall address all of the applicable elements of ISO 9001, identify responsible parties within BIDDER'S organization, for the implementation / control of each area, reference the applicable procedures used to control / assure each area, and verify the documents produced for each area. The Project Quality Plan shall necessarily define control or make reference to the relevant procedures, for design and engineering, purchase, documentation, record control, bid evaluation, inspection, production/manufacturing, preservation, packaging and storage,

quality control at construction site, pre-commissioning, commissioning and handing over (as applicable) in line with contract requirement and scope of work.

6.0 AUDITS

BIDDER shall plan and carry out the QMS audit for the job. Quality audit programme shall cover design, procurement, construction management and commissioning as applicable including activities carried out by sub-vendors and sub-contractors. This shall be additional to the certification body surveillance audits carried out under BIDDER'S own ISO 9001 certification scheme.

The audit programmes and audit reports shall be submitted to EIL / Owner as per specified documentation requirements. EIL or Owner's representative reserves the right to attend, as a witness, any audit conducted during the execution of the WORKS.

In addition to above EIL, Owner and third party appointed by EIL/Owner may also perform Quality and Technical compliance audits. BIDDER shall provide assistance and access to their systems and sub-contractor / vendor systems as required for this purpose. Any deficiencies noted shall be immediately rectified by BIDDER.

7.0 DOCUMENTATION REQUIREMENTS

BIDDER shall submit following QMS documents immediately after award of work (Within one week) for record / review by EIL / Owner.

- Organization chart (for complete organization structure and for the project)
- Project Quality Plan/Quality Assurance Plan
- Job specific Inspection Test Plans
- Job Procedures
- Inspection/Test Formats

In addition to above QMS documents, following documentation shall be maintained by the BIDDER for submission to EIL / Owner on demand at any point of time during execution of the project.

- Quality Manual
- CVs of the personnel in BIDDER'S QA Organogram
- Certificate of approval for compliance to ISO: 9001 standard
- Procedure for Control of Non-conforming Product
- Procedure for Control of Documents
- Sample audit report of the QMS internal and external audits conducted during last one year
- Customer satisfaction reports from at least 2 customers, during the last one year
- Project audit report
- Corrective action report on the project audits
- Technical audit reports for the project

Documents as specified above are minimum requirements. BIDDER shall submit any other document/data required for completion of the job as per EIL/Owner instructions.

CONCESSION/DEVIATION PERMIT

(USE ONLY THIS PAGE FOR COMMUNICATION WITH VENDOR/CONTRACTOR)

TO BE FILLED BY ORIGINATOR	Project _____		Originator Ref. _____	
	Job No. _____		Order/Contract No. _____	
	Equipment Title _____		Item No. _____	
	Originator: Vendor/Contractor _____			
	Caution : Originator to note that any delay in processing of concession/deviation permit shall be to originator's account and shall not be used as a reason for extension in delivery			
	Requirement as per specification		Description of Concession/Deviation sought	
	Why the Concession/Deviation is required? Supporting evidence/calculations enclosed/not enclosed			
Contractual implications if Concession/Deviation is granted:				
* Time impact		More/Less/No change		
* Cost impact		More/Less/No change		
* Performance Warranty/Guarantee		Affected/Not affected		
Under present constraints requested Concession/deviation is most optimum for the project and does not involve any hazard, and shall meet the stipulated performance requirements.				
Date: _____				
Signature Vendor /Contractor (with seal)				

Decision on Concession/Deviation including decision, on time and cost implications

(To be filled by the Inspection engineer [at RPO/HO] or RCM, responsible for conveying the decision to the originator, after resolution)

Date:

Signature _____

Location :

Name _____

Opinion from EIL site supervisor/inspection engineer
(Specify whether post-facto approval required for regularization)

Date : _____

Name : _____
RPO/Site Name _____

Original forward to : _____
(Target division/department/group)

Copy to : _____
(Project Manager)

Date : _____

Name : _____

Disposal by target division/department

Whether any vendor/contractor made 'Technically not Acceptable' during bid evaluation, on the aspect of which this concession/deviation is sought-----YES/NO

Date : _____

Name : _____

Final decision of Project Manager along with overall review
(Client's decision required/not required)

Date : _____

Name : _____

Client's decision, if required

Date : _____

Signature : _____
Name : _____

**STANDARD SPECIFICATION
FOR
HEALTH, SAFETY & ENVIRONMENT
(HSE) MANAGEMENT
AT CONSTRUCTION SITES**

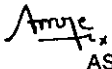
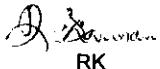


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**SAFETY MEASURES FOR
ELECTRICAL INSTALLATIONS
DURING CONSTRUCTION**

[APPENDIX - IV TO SPECIAL CONDITIONS OF CONTRACT]

निर्माण स्थल पर स्वास्थ्य, सुरक्षा एवं पर्यावरण प्रबंधन मानक विनिर्देशन

STANDARD SPECIFICATION FOR HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT AT CONSTRUCTION SITES

4	13/02/2008	REVISED & UPDATED				
3	17/07/2007	REVISED & UPDATED	AS	MPJ	VNP	VC
2	11/08/2005	REVISED & UPDATED	MPJ	MPJ	VNP	VJN
1	29/05/2003	REVISED & UPDATED	AS	MPJ	HOD(C)	SKG
0	19/07/2002	ISSUED AS STANDARD SPECIFICATION	AB	MPJ	HOD(C)	GRR
Rev. No	Date	Purpose	Prepared by	Checked by	Standards Committee Convenor	Standards Bureau Chairman
Approved by						

Abbreviations:

AERB	:	Atomic Energy Regulatory Board
ANSI	:	American National Standards Institute
BARC	:	Bhabha Atomic Research Centre
BS	:	British Standard
EIL	:	Engineers India Limited
ELCB	:	Earth Leakage Circuit Breaker
EPC	:	Engineering, Procurement and Construction
EPCC	:	Engineering, Procurement, Construction and Commissioning
ESI	:	Employee State Insurance
GCC	:	General Conditions of Contract
GM	:	General Manager
GTAW	:	Gas Tungsten Arc Welding
HOD	:	Head of Department
HSE	:	Health, Safety & Environment
HV	:	High Voltage
IS	:	Indian Standard
IE	:	Indian Electricity
LPG	:	Liquefied Petroleum Gas
LSTK	:	Lump Sum Turn Key
MV	:	Medium Voltage
PPE	:	Personal Protective Equipment
RCM	:	Resident Construction Manager or Site-in-Charge, as applicable
ROW	:	Right of Way
SCC	:	Special Conditions of Contract
SLI	:	Safe Load Indicator
TBM	:	Tool Box Meeting

Construction Standards Committee

Convenor : Sh. S.C. Barman, HOD (Construction)

Members : Sh. A.K. Mittal, DGM (Projects)
Sh. M.P. Jain, AGM (Projects)
Sh. R. Kannan, AGM (Construction)
Sh. Rakesh Nanda, AGM (Piping)

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1.0 SCOPE

This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied by Contractors including their sub-contractors during construction.

This specification is not intended to replace the necessary professional judgement needed to design & implement an effective HSE system for construction activities and the contractor is expected to exceed requirements given in this specification.

Requirements stipulated in this specification shall supplement the requirements of HSE Management given in relevant Act(s)/legislations, General Conditions of Contract (GCC), Special Conditions of Contract (SCC) and Job (Technical) Specifications. Where different documents stipulate different requirements, the most stringent shall apply.

2.0 REFERENCES

The document should be read in conjunction with following:

- General Conditions of Contract (GCC)
- Special Conditions of Contract (SCC)
- Building and other construction workers (regulation of employment and condition of service) Act, 1996
- Job (Technical) specifications
- Relevant International/ National Codes (refer Appendix-A for standards/codes on HSE)
- Statutory requirements

3.0 REQUIREMENTS OF HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT SYSTEM TO BE COMPLIED BY BIDDERS

3.1 MANAGEMENT RESPONSIBILITY

3.1.1 HSE Policy & Objectives

The Contractor should have a documented HSE policy & objectives to demonstrate commitment of their organization to ensure health, safety and environment aspects in their line of operations.

3.1.2 Management System

The HSE management system of the Contractor shall cover the HSE requirements including but not limited to what is specified under clause 1.0 and 2.0 above.

3.1.3 Indemnification

Contractor shall indemnify & hold harmless, Owner/EIL & their representatives, free from any and all liabilities arising out of non-fulfillment of HSE requirements.

3.1.4 Deployment & qualifications of safety personnel

Contractor shall designate/ deploy all the categories of HSE personnel at site as indicated below:

- a) Safety Steward

One for every 500 workers or part thereof. He/She shall possess minimum one year of experience in construction work environment.

b) **Safety Supervisor**

One for every 1000 workers or part thereof. He/She shall possess minimum two years of work experience in construction work environment.

c) **Safety Officer**

One for every 1000 workers or part thereof. He/She shall possess a recognized Degree in any branch of engineering or technology or architecture and had a post qualification construction experience of minimum two years or possess a recognized Diploma in any branch of engineering or technology and had a post qualification construction experience of minimum five years.

In addition, he/she shall also possess a recognized degree or diploma in industrial safety and preferably have adequate knowledge of the language spoken by majority of the workers at the construction site.

In case the statutory requirements i.e. Centre or State Acts and/ or Rules as applicable like the Building and Other Construction Workers -Regulation of Employment and Conditions of Service- Act or Rules wherever notified, the Factories Act or Rules wherever notified, etc. are more stringent than above, the same shall be followed.

The Contractor shall ensure physical presence of safety personnel at each work location where Hot work permit is required. No work shall be started at site until above safety personnel are physically present at site. The contractor shall submit a safety organogram clearly indicating the lines of responsibility and reporting system and elaborate the responsibilities of safety personnel in the HSE Manual/Programme. The contractor shall furnish Bio-Data/ Resume/ Curriculum Vitae of the safety personnel as above, at least 1 month before the mobilization, for EIL/Owner's approval.

3.1.5 Implementation & Monitoring

Contractor shall be fully responsible for planning, reporting, implementing and monitoring all HSE requirements and compliance of all laws & statutory requirements. The Contractor shall also ensure that the HSE requirements are clearly understood & faithfully implemented at all levels at site.

3.1.6 Awareness

The contractor shall brief the visitors about the HSE precautions which are required to be taken before proceeding to site and make necessary arrangements to issue appropriate PPEs like hard hats & safety shoes to his visitors.

The Contractor shall promote and develop consciousness about Health, Safety and Environment among all personnel working for the Contractor. Regular awareness programmes and fabrication shop/work site meetings atleast on monthly basis shall be arranged on HSE activities to cover hazards involved in various operations during construction. During the awareness programme, steps shall be taken by the contractor to motivate & encourage the workmen & supervisory staff by issuing/ awarding them with the tokens/ gifts/ mementos/ monetary incentives.

A verbal warning shall be given to the worker during the first HSE violation. A written warning shall be issued on the second violation and thereafter for the third violation; the services of the worker shall be terminated. For all these violations, penalties shall be imposed separately on the contractor. A record of warnings for each worker shall be maintained by the contractor like by punching their cards.

3.1.7 Fire prevention & First-Aid

The contractor shall arrange suitable first aid measures such as First Aid Box (Refer Appendix-B for details), trained personnel to administer First Aid, stand-by ambulance or vehicle and install fire protection measures such as adequate number of steel buckets with sand & water and adequate number of appropriate fire extinguishers (Refer Appendix-C for details) to the satisfaction of EIL/Owner. The contractor's safety personnel shall be trained enough to carry out above activities effectively so as to provide immediate relief in case of an emergency.

In case the number of workers exceeds 500, the Contractor shall position an ambulance/ vehicle on full time basis very close to the worksite.

3.1.8 Documentation

The Contractor shall evolve a comprehensive, planned and documented system for implementation and monitoring of the HSE requirements. This shall be submitted to EIL/Owner for approval. The monitoring for implementation shall be done by regular inspections and compliance to the observations thereof. The Contractor shall get similar HSE requirements implemented at his sub-contractor(s) work site/office. However, compliance of HSE requirements shall be the responsibility of the Contractor. Any review/approval by EIL/Owner shall not absolve contractor of his responsibility/liability in relation to all HSE requirements.

3.1.9 Audit

Contractor shall carry out internal HSE audits. He shall also cooperate during HSE audits by Owner/ EIL. Non-Conformances on HSE (including his sub-contractors) brought out during review/audit by his internal audit team as well as EIL/Owner's representative shall be resolved forthwith by Contractor. Compliance report shall be submitted to EIL/Owner promptly.

To this effect, the contractor shall submit an Audit Plan to EIL/Owner indicating the type of audits (internal by self including his sub-contractors, external by EIL/Owner & Third Party) and their frequencies. The contractor shall conduct an internal HSE audit atleast on quarterly basis and submit a report to EIL/Owner.

3.1.10 Meetings

The Contractor shall ensure participation of his top most executive at site (viz. Resident Engineer/ Site-in-Charge) in Safety Committee/HSE Committee meetings arranged by EIL/Owner usually on monthly basis or as and when called for. The compliance of any observations during the meeting shall be arranged urgently. The contractor shall assist EIL/Owner to achieve the targets set by them on HSE during the project implementation.

In addition, the contractor shall also arrange internal HSE meetings chaired by his top most executive at site on weekly basis and maintain records.

3.1.11 Intoxicating drinks & drugs and Smoking

The contractor shall ensure that his staff members & workers (permanent as well casual) shall not be in a state of intoxication during working hours and shall abide by any law relating to consumption & possession of intoxicating drinks or drugs in force. Awareness about local laws on this issue shall form part of the Induction Training.

The contractor shall ensure that all personnel working for him comply with No-smoking requirements of the owner as notified from time to time. Cigarettes, lighters, auto ignition tools or appliances shall not be allowed inside the plant complex. Smoking shall be permitted only inside smoking booths expressly designated & authorized by the Owner/EIL.

3.1.12 Penalty

The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliance or repeated failure in implementation of any of the HSE provisions; EIL/Owner may impose stoppage of work without any cost & time implication to the Owner and/or impose a suitable penalty.

The amount of penalty to be levied shall be upto a cumulative limit of

- 1.0% (one percent) of the contract value for Item Rate or Composite contracts with an overall ceiling of Rs. 10,00,000/- (Rupees ten lakhs).
- 0.2% (Zero decimal two percent) of the contract value for LSTK, EPC, EPCC or Package contracts with an overall ceiling of Rs.1,00,00,000/- (Rupees one crore).

This penalty shall be in addition to all other penalties specified elsewhere in the contract. The decision of imposing stop-work-instruction and imposition of penalty shall rest with EIL/Owner. The same shall be binding on the contractor. Imposition of penalty does not make the contractor eligible to continue the work in unsafe manner.

The amount of penalty applicable on different types of HSE violations is specified below:

S. No.	Violation of HSE norms	Penalty Amount
1.	For not using personal protective equipment (Helmet, Shoes, Goggles, Gloves, Full body harness, Face shield, Boiler suit, etc.)	Rs.250/- per day/Item/ Person.
2.	Working without Work Permit/Clearance	Rs.5,000/- per occasion
3.	Unsafe electrical practices (not installing ELCB, using poor joints of cables, using naked wire without top plug into socket, laying wire/cables on the roads, electrical jobs by incompetent person, etc.)	Rs.3,000/- per item per day.
4.	Working at height without full body harness, using non-standard/ rejected scaffolding and not arranging fall protection arrangement as required like Safety Nets.	Rs. 3,000/ per case per day.
5.	Unsafe handling of compressed gas cylinders (No trolley, jubilee clips double gauge regulator, improper storage/handling).	Rs.100/- per item per day.
6.	Use of domestic LPG for cutting purpose.	Rs.1,000 per occasion.
7.	No fencing/barricading of excavated areas.	Rs.1,000 per occasion.

8.	Not providing shoring/strutting/proper slope and not keeping the excavated earth at least 1.5M away from excavated area.	Rs.5,000/- per occasion.
9.	Non display of caution boards, list of hospitals, emergency services available at work locations.	Rs.500/- per occasion.
10.	Traffic rules violations like over speeding of vehicles, rash driving, wrong parking, not using seat belts, vehicles not fitted with reverse warning alarms.	Rs.1,000/- per occasion.
11.	Absence of Contractor's top most executive at site in the safety meetings whenever called by EIL/Owner	Rs. 5,000/- per meeting.
12.	Failure to maintain safety records by Contractor Safety personnel.	Rs.1,000/- per month.
13.	Failure to conduct daily safety site inspection, HSE meeting and HSE audit at predefined frequencies	Rs.1,000/- per occasion.
14.	Failure to submit the monthly HSE report by 5 th of subsequent month to Engineer-in-Charge.	Rs.5,000/- per occasion and Rs.100/- per day for further delay.
15.	Poor House Keeping	Rs.1,000/- per occasion
16.	Failure to report & follow up accident (including Near Miss) reporting system.	Rs.10,000/- per occasion
17.	Degradation of environment (not confining toxic spills, spilling oil/lubricants onto ground)	Rs.1,000/- per occasion
18.	Not medically examining the workers before allowing them to work at height, not providing ear muffs while allowing them to work in noise polluted areas, made them to work in air polluted areas without respiratory protective devices, etc.	Rs.1,000/- per occasion
19.	Violation of any other safety condition as per job HSE plan, work permit and HSE conditions of contract (using crowbar on cable trenches, improper welding booth, not keeping fire extinguisher ready at hot work site, unsafe rigging practices, non-availability of First-Aid box, etc.)	Rs.1,000/- per occasion
20.	Any violation not covered above	To be decided by EIL/Owner.

3.1.13 Accident/ Incident investigation

All accidents/incidents shall be reported immediately on Format No. HSE-2. Thereafter, a supplementary Accident/Incident investigation report on Format No. HSE-3 shall be submitted. Near Miss incident(s) shall also be reported on Format No. HSE-4. The accidents/incidents shall be investigated by a team of Contractor's senior personnel for establishing root cause and recommending corrective & preventive actions. Findings shall be documented and suitable actions taken to avoid recurrences shall be communicated to EIL/Owner. Owner/EIL shall have the liberty to independently investigate such occurrences and the Contractor shall extend all necessary help and cooperation in this regard. EIL/Owner shall have the right to share the content of this report with the outside world.

3.2 HOUSE KEEPING

Contractor shall ensure that a high degree of house keeping is maintained and shall ensure interalia; the followings:

- a. All surplus earth and debris are removed/disposed off from the working areas to designated location(s).
- b. Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas are removed to identified location(s).
- c. All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from work place to identified location(s).
- d. Roads shall be kept clear and materials like pipes, steel, sand, boulders, concrete, chips and bricks etc shall not be allowed on the roads to obstruct free movement of men & machineries.
- e. Fabricated steel structural, pipes & piping materials shall be stacked properly for erection.
- f. Water logging on roads shall not be allowed.
- g. No parking of trucks/trolleys, cranes and trailers etc shall be allowed on roads, which may obstruct the traffic movement.
- h. Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.
- i. Trucks carrying sand, earth and pulverized materials etc. shall be covered while moving within the plant area/ or these materials shall be transported with top surface wet.
- j. The contractor shall ensure that the atmosphere in plant area and on roads is free from particulate matter like dust, sand, etc. by keeping the top surface wet for ease in breathing.
- k. At least two exits for any unit area shall be assured at all times.

3.3 HSE MEASURES

3.3.1 Construction Hazards

Contractor shall ensure identification of all Occupational Health, Safety & Environmental hazards in the type of work he is going to undertake and enlist mitigation measures. Contractor shall carry out Job Safety Analysis (JSA) specifically for high risk jobs like working at height & in confined space, deep excavations, radiography jobs, electrical installations, blasting operations, demolishing/ dismantling activities, welding/ gas cutting jobs and submit the findings to EIL/Owner. The necessary HSE measures devised shall be in place prior to start of an activity by the contractor.

A list of typical construction hazards alongwith their effects & preventive measures is given in Appendix-E.

3.3.2 Accessibility

The Contractor shall provide safe means of access to any working place including provisions of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen and EIL/Owner.

The access to plant complex shall be strictly regulated. Any person or vehicle entering the complex shall undergo identification check, as per the procedures in force.

3.3.3 Personal Protective Equipments (PPEs)

The Contractor shall ensure that all their staff, workers and visitors including their sub-contractor(s) have been issued (records to be kept) & wear appropriate PPEs like nape strap type safety helmets preferably with head & sweat band with ¾" cotton chin strap (made of industrial HDPE), safety shoes with steel toe cap and antiskid sole, full body harness (CE marked and conforming to EN361), protective goggles, gloves, ear muffs, respiratory protective devices, etc. All these gadgets shall conform to applicable IS Specifications/CE or other applicable international standards.

Owner may issue a comprehensive color scheme for helmets to be used by various agencies. The Contractor shall follow the scheme issued by the owner. All Safety/ Fire personnel shall preferably wear red colour helmet so that workmen can approach them for guidance during emergencies.

For shot blasting, the usage of protective face shield and helmets, gauntlet and protective clothing is mandatory.

For offshore jobs/contracts, contractor shall provide PPEs (new) to EIL & Owner's personnel, at his (contractor's) cost. All personnel shall wear life jacket at all time.

An indicative list of HSE standards/codes is given under Appendix-A.

3.3.4 Working at height

The contractor shall issue height permit for working at height after verifying and certifying the checkpoints as specified in the attached permit (Format No. HSE-6). He shall also undertake to ensure compliance to the conditions of the permit during the currency of the permit including adherence to personal protective equipments.

The permit shall be issued initially for one week or expected duration of an activity and extended further for the balance duration. This permit shall be applicable in areas where specific clearance from Owner's operation Deptt./Safety Deptt. is not required. EIL field Engineers/Safety Officers/Area Coordinators may verify and counter sign this permit (as an evidence of verification) during the execution of the job.

In case work is undertaken without taking sufficient precautions as given in the permit, EIL Engineers may cancel the permit and stop the work till satisfactory compliance is arranged. Contractors are expected to maintain a register for issuance of permit and extensions thereof including preserving the used permits for verification during audits etc.

Contractor shall arrange (at his cost) and ensure use of Fall Arrester Systems by his workers. Fall arresters are to be used while climbing/descending tall structures. These arresters should lock automatically against the anchorage line, restricting free fall of the user. The device is to be provided with a double security opening system to ensure safe attachment or release of the user at any point of rope. In order to avoid shock, the system should be capable of keeping the person in vertical position in case of a fall.

Contractor shall ensure that Full body harnesses conforming EN361 and having authorized CE marking is used by all personnel while working at height. The lanyards and life lines should have enough tensile strength to take the load of the worker in case of a fall. One end of the lanyard shall be firmly tied with the harnesses and the other end with life line. The harness should be capable of keeping the workman vertical in case of a fall, enabling him to rescue himself.

Contractor shall provide Roof Top Walk Ladders for carrying out activities on sloping roofs in order to reduce the chances of slippages and falls.

Contractor shall ensure that a proper Safety Net System is used wherever the hazard of fall from height is present. The safety net, preferably a knotted one with mesh ropes conforming to IS 5175/ ISO 1140 shall have a border rope & tie cord of minimum 12mm dia. The Safety Net shall be located not more than 6.0 meters below the working surface extending on either side upto sufficient margin to arrest fall of persons working at different heights.

Contractor shall ensure positive isolation while working at different levels like in the pipe rack areas. The working platforms with toe boards & hand rails shall have sufficient space to hold the workmen and the tools & the tackles including the equipments required for executing the job.

3.3.5 Scaffoldings & Barricading

Suitable scaffoldings shall be provided to workmen for all works that cannot be safely done from the ground or from solid construction except such short period work that can be safely done using ladders. When a ladder is used, an extra workman shall be engaged for holding the ladder.

The contractor shall ensure that the scaffolds used during construction activities shall be strong enough to take the designed load. Owner/EIL reserves the right to ask the contractor to submit certification and or design calculations from his Engineering regarding load carrying capacity of the scaffoldings.

All scaffolds shall be inspected by a Scaffolding Inspector of the contractor. He shall paste a GREEN tag on each scaffold found safe and a RED tag on each scaffold found unsafe. Scaffoldings with GREEN tag only shall be permitted to be used and RED ones shall immediately be removed from the site.

The contractor shall ensure positive barricading of the excavated, radiography, heavy lift, high pressure hydrostatic & pneumatic testing and other such areas. Sufficient warning signs shall be displayed along the barricading areas.

3.3.6 Electrical installations

All electrical installations/ connections shall be carried out as per the provisions of latest revision of following codes/standards, in addition to the requirements of Statutory Authorities and IE/applicable international rules & regulations:

- OISD STD 173 : Fire prevention & protection system for electrical installations
- SP 30 (BIS) : National Electric Code

All electrical installations shall be approved by the concerned statutory authorities.

3.3.6.1 The contractor shall meet the following requirements:

- i) Ensure that electrical systems and equipment including tools & tackles used during construction phase are properly selected, installed, used and maintained as per provisions of the latest revision of the Indian Electrical/ applicable international regulations.
- ii) Shall deploy qualified & licensed electricians for proper & safe installation and for regular inspection of construction power distribution system/points including their earthing. A copy of the license shall be submitted to EIL / Owner for records. Availability of at least one competent licensed electrician shall be ensured at site round the clock to attend to the normal/emergency jobs.
- iii) All switchboards / welding machines shall be kept in well-ventilated & covered shed. The shed shall be elevated to avoid water logging. No flammable materials shall be used for constructing the shed. Also flammable materials shall not be stored in and around electrical equipment / switchboard. Adequate clearances and operational space shall be provided around the equipment.
- iv) Fire extinguishers and insulating mats shall be provided in all power distribution centers.
- v) Temporary electrical equipment shall not be employed in hazardous area without obtaining safety permit.
- vi) Proper house keeping shall be done around the electrical installations.
- vii) All temporary installations shall be tested before energising, to ensure proper earthing, bonding, suitability of protection system, adequacy of feeders/cables etc.
- viii) All welders shall use hand gloves irrespective of holder voltage.
- ix) Multilingual (Hindi, English and local language) caution boards, shock treatment charts and instruction plate containing location of isolation point for incoming supply, name & telephone No. of contact person in emergency shall be provided in substations and near all distribution boards / local panels.
- x) Operation of earth leakage device shall be checked regularly by temporarily connecting series test lamp (2 bulbs of equal rating connected in series) between phase and earth.
- xi) Regular inspection of all installations (at least once in a month)

3.3.6.2 The following features shall also be ensured for all electrical installations during construction phase by the contractor:

- i) Each installation shall have a main switch with a protective device, installed in an enclosure adjacent to the metering point. The operating height of the main switch shall not exceed 1.5 M. The main switch shall be connected to the point of supply by means of armoured cable.
- ii) The outgoing feeders shall be double or triple pole switches with fuses / MCBs. Loads in a three phase circuit shall be balanced as far as possible and load on neutral should not exceed 20% of load in the phase.
- iii) The installation shall be adequately protected against overload, short circuit and earth leakage by the use of suitable protective devices. Fuses wherever used shall be HRC type. Use of rewirable fuses shall be strictly prohibited. The earth leakage device shall have an operating current not exceeding 30 mA.
- iv) All connections to the hand tools / welding receptacles shall be taken through proper switches, sockets and plugs.
- v) All single phase sockets shall be minimum 3 pin type only. All unused sockets shall be provided with socket caps.
- vi) Only 3 core (P+N+E) overall sheathed flexible cables with minimum conductor size of 1.5 mm² copper shall be used for all single phase hand tools.
- vii) Only metallic distribution boxes with double earthing shall be used at site. No wooden boxes shall be used.
- viii) All power cables shall be terminated with compression type cable glands. Tinned copper lugs shall be used for multistrand wires / cables.
- ix) Cables shall be free from any insulation damage.
- x) Minimum depth of cable trench shall be 750 mm for MV & control cables and 900 mm for HV cables. These cables shall be laid over a sand layer and covered with sand, brick & soil for ensuring mechanical protection. Cables shall not be laid in waterlogged area as far as practicable. Cable route markers shall be provided at every 25 M of buried trench route. When laid above ground, cables shall be properly cleated or supported on rigid poles of atleast 2 M high. Minimum head clearance of 6 meters shall be provided at road crossings.
- xi) Under ground road crossings for cables shall be avoided to the extent feasible. In any case no under ground power cable shall be allowed to cross the roads without pipe sleeve.
- xii) All cable joints shall be done with proper jointing kit. No taped/ temporary joints shall be used.
- xiii) An independent earthing facility should preferably be established within the temporary installation premises. All appliances and equipment shall be adequately earthed. In case of armoured cables, the armour shall be bonded to the earthing system.
- xiv) All cables and wire rope used for earth connections shall be terminated through tinned copper lugs.

- xv) In case of local earthing, earth electrodes shall be buried near the supply point and earth continuity wire shall be connected to local earth plate for further distribution to various appliances. All insulated wires for earth connection shall have insulation of green colour.
- xvi) Separate core shall be provided for neutral. Earth / Structures shall not be used as a neutral in any case.
- xvii) ON/OFF position of all switches shall be clearly designated / painted for easy isolation in emergency.

3.3.7 Welding/ Gas cutting

Contractor shall ensure that flash back arrestors conforming to BS:6158 or equivalent are installed on all gas cylinders as well as at the torch end of the gas hose, while in use. All cylinders shall be mounted on trolleys and provided with a closing key. The burner and the hose placed downstream of pressure reducer shall be equipped with Flash Back Arrester/Non Return Valve device. The hoses for acetylene and oxygen cylinders must be of different colours. Their connections to cylinders and burners shall be made with a safety collar. At end of work, the cylinders in use shall be closed and hoses depressurized. All welding machines shall have effective earthing. In order to help maintain good housekeeping, and to reduce fire hazard, live electrode bits shall be contained safely and shall not be thrown directly on the ground.

3.3.8 Ergonomics and tools & tackles

The Contractor shall assign to his workmen, tasks commensurate with their qualification, experience and state of health. All lifting tools, tackles, equipment, accessories including cranes shall be tested periodically by statutory/competent authority for their condition and load carrying capacity. Valid test & fitness certificates from the applicable authority shall be submitted to Owner/EIL for their review/acceptance before the lifting tools, tackles, equipment, accessories and cranes are used. The contractor shall not be allowed to use defective equipment or tools not adhering to safety norms.

Contractor shall ensure installation of Safe Load Indicator (SLI) on all cranes (while in use) to minimize overloading risk. SLI shall have capability to continuously monitor and display the load on the hook, and automatically compare it with the rated crane capacity at the operating condition of the crane. The system shall also provide visual and audible warnings at set capacity levels to alert the operator in case of violations.

The contractor shall be responsible for safe operations of different equipments mobilized and used by him at the workplace like transport vehicles, engines, cranes, mobile ladders, scaffoldings, work tools, etc.

3.3.9 Occupational Health

The contractor shall identify all operations that can adversely affect the health of its workers and issue & implement mitigation measures.

For surface cleaning operations, sand blasting shall not be permitted even if not explicitly stated elsewhere in the contract.

To eliminate radiation hazard, Tungsten electrodes used for Gas Tungsten Arc Welding shall not contain Thorium.

Appropriate respiratory protective devices shall be used to protect workmen from inhalation of air borne contaminants like silica, asbestos, gases, fumes, etc.

Workmen shall be made aware of correct methods for lifting, carrying, pushing & pulling of heavy loads. Wherever possible, manual handling shall be replaced by mechanical lifting equipments.

For jobs like drilling/demolishing/dismantling where noise pollution exceeds the specified limit of 85 decibels, ear muffs shall be provided to the workers.

To avoid upper limb disorders and backaches, Display Screen Equipments' workplace stations shall be carefully designed & used with proper sitting postures. Power driven hand-held tools shall be maintained in good working condition to minimize their vibrating effects and personnel using these tools shall be taught how to operate them safely & how to maintain good circulation in hands.

The contractor shall arrange health check up for all the workers at the time of induction. Health check may have to be repeated if the nature of duty assigned to him is changed necessitating health check or doubt arises about his wellness. EIL/Owner reserve the right to ask the contractor to submit test reports. Regular health check-ups are mandatory for the workers assigned with Welding, Radiography, Blasting, Heavy Lift and Height (>2m) jobs. All the health check-ups shall be conducted by registered Medical practitioner and records are to be maintained.

The contractor shall ensure vaccination of all the workers including their families.

3.3.10 Hazardous substances

Hazardous, inflammable and/or toxic materials such as solvent coating, thinners, anti-termite solutions, water proofing materials shall be stored in appropriate containers preferably with lids having spillage catchment trays and shall be stored in a good ventilated area. These containers shall be labeled with the name of the materials highlighting the hazards associated with its use and necessary precautions to be taken.

Where contact or exposure of hazardous materials exceeds the specified limit or otherwise have harmful affects, appropriate personal protective equipments such as gloves, goggles, aprons, chemical resistant clothing, respirator, etc. shall be used.

The work place shall be checked prior to start of activities to identify the location, type and condition of any asbestos materials which could be disturbed during the work. In case asbestos material is detected, usage of appropriate PPEs by all personnel shall be ensured and the matter shall be reported immediately to EIL/ Owner.

3.3.11 Slips, trips & falls

The contractor shall establish a regular cleaning and basic housekeeping programme that covers all aspects of the workplace to help minimize the risk of slips, trips & falls. The contractor shall take positive measures like keeping the work area tidy, storing waste in suitable containers & harmful items separately, keeping passages, stairways, entrances & exits especially emergency ones clear, cleaning up spillages immediately and replacing damaged carpet/ floor tiles, mats & rugs at once to avoid slips, trips & falls.

3.3.12 Radiation exposure

- a) All personnel exposed to physical agents such as non-ionizing radiation, ultraviolet rays or similar other physical agents shall be provided with adequate shielding or protection commensurate with the type of exposure involved.

- b) For ionizing radiation, requirements of Bhabha Atomic Research Centre (BARC)/ Atomic Energy Regulatory Board (AERB) shall be followed.

3.3.13 Explosives/Blasting operations

Blasting operations shall be carried out as per latest Explosive Rules (Indian/ International) with prior permission. The contractor shall obtain license from Controller of explosives for collection, transportation, storage of explosives as well as for carrying out blasting operations.

3.3.14 Demolition/ Dismantling

The contractor shall adhere to safe demolishing/ dismantling practices at all stages of work to guard against unsafe working practices. The contractor shall disconnect service lines (power, gas supply, water, etc.)/ make alternate arrangements prior to start of work and restore them, if required as directed by EIL/ Owner at no extra cost. Before carrying out any demolition/ dismantling work, the contractor shall take prior approval of EIL/Owner in Format No.HSE-9. For revamp jobs in operating plants where location of underground utilities is not known with certainty, the contractor shall depute an experienced person for supervision and shall make adequate arrangements for Fire fighting & First-Aid during the execution of these activities.

3.3.15 Road Safety

The contractor shall ensure adequately planned road transport safety management system. The vehicles shall be fitted with reverse warning alarms & flashing lights and usage of seat belts shall be ensured. The contractor shall also ensure a separate pedestrian route for safety of the workers and comply with all traffic rules & regulations. The maximum allowable speed shall be adhered to. In case of an alert or emergency, the vehicles must clear all the routes, roads, access.

Dumpers, Tippers, etc. shall not be allowed to carry workers within the plant area and also to & from the labour colony. Hydras shall only be allowed for handling the materials at fabrication/ storage yards and in no case shall be allowed to transport the materials.

For pipeline jobs, the contractor shall submit a comprehensive plan covering transportation of pipes, movement of side booms, movement of vehicles on the ROW, etc.

3.3.16 Welfare measures

Contractor shall, at the minimum, ensure the following facilities at work sites.

- A crèche at site where 10 or more female workers are having children below the age of 6 years.
- Reasonable canteen facilities at site and in labour camps at appropriate location depending upon site conditions.
- Adequately lighted & ventilated Rest rooms at site (separate for male workers and female workers)
- Toilets, drinking water, adequate lighting at site and labour camps, commensurate with applicable Laws/ Legislation

3.3.17 Environment Protection

Contractor shall ensure proper storage and utilization methodology of materials that are detrimental to the environment. Where required, Contractor shall ensure that only the environment friendly materials are selected and emphasize on recycling of waste materials

such as metals, plastics, glass, paper, oil & solvents. The waste that can not be minimized, reused or recovered shall be stored and disposed of safely. In no way, toxic spills shall be allowed to percolate into the ground. The contractor shall not use the empty areas for dumping the wastes.

The contractor shall strive to conserve energy and water wherever feasible.

The contractor shall ensure dust free environment at workplace by sprinkling water on the ground at frequent intervals. The air quality parameters for dust, poisonous gases, toxic releases, harmful radiations, etc. shall be checked by the contractor on daily basis and whenever need arises.

The contractor shall not be allowed to discharge chemicals, oil, silt, sewage, sullage and other waste materials directly into the controlled waters like surface drains, streams, rivers, ponds. A discharge plan suggesting the methods of treating the waste before discharging shall be submitted to EIL/Owner for approval.

For pipeline jobs, top soil shall be stacked separately while making ROW through fields. This fertile soil shall be placed back on top after backfilling.

For offshore construction barges, arrangements shall be made for safe disposal of human, food & other wastes and applicable laws in this regard shall be followed.

3.3.18 Rules & Regulations

All persons deployed at site shall be knowledgeable of and comply with the environmental laws, rules & regulations relating to the hazardous materials, substances and wastes. Contractor shall not dump, release or otherwise discharge or dispose off any such materials without the express authorization of EIL/Owner. An indicative list of Statutory Acts & Rules relating to HSE is given under Appendix-D.

3.3.19 Weather Protection

Contractor shall take appropriate measures to protect workers from severe storms, solar radiations, poisonous gases, dust, etc. by ensuring proper usage of PPEs like Sun glasses, Sun screen lotions, respirators, dust masks, etc. and rearranging/ planning the construction activities to suit the weather conditions.

3.3.20 Communication

All persons deployed at the work site shall have access to effective means of communication so that any untoward incident can be reported immediately and assistance sought by them.

All health & safety information shall be communicated in a simple & clear language easily understood by the local workforce.

3.3.21 Confined Space Entry

The contractor shall obtain a work permit (Format No. HSE -7) before entering a confined space. All necessary precautions mentioned therein shall be adhered to. An attendant shall be positioned outside a confined space for extending help during an emergency. All appropriate PPEs and air quality parameters shall be checked before entering a confined space. It shall be ensured that the piping of the equipment which has to be opened, is pressure- free by checking that blinds are in place, vents are open and volume is drained.

3.3.22 Heavy Lifts

The contractor shall submit detailed rigging studies plan for EIL/ Owner approval prior to lifting equipment which cannot be erected with a crane of approx. 100 MT capacity due to constraints of its dimensions, location of foundation height, approach & weight.

Prior to actual lifting activities, contractor shall check the validity of the crane inspection certificate issued by statutory/ competent authority. This requirement shall also apply to all rigging equipments utilized for the job.

The contractor shall, at all times, be responsible for all rigging activities.

Adequate safety measures such as positive barricading, usage of appropriate PPEs, permit to work, etc. shall be taken during all heavy or critical lifts.

3.3.23 Key Performance Indicators

The contractor shall measure an activity in both leading & trailing indicators for statistical and performance measurement. The activities pertaining to key performance indicators are covered in Monthly HSE Report (Format No. HSE-5). The contractor shall try to achieve a statistically fair record and strive for its continual improvement.

3.3.24 Unsuitable Land Conditions

Contractor shall take appropriate measures and necessary work permits/clearances if work is to be done in or around marshy areas, river crossings, mountains, monuments, etc.

3.3.25 Under Water Inspection

Contractor shall ensure that boats and other means used for transportation, surveying & investigation works shall be certified seaworthy by a recognized classification society. It shall be equipped with all life saving devices like life jackets, adequate fire protection arrangements

and shall possess communication facilities like cellular phones, wireless, walkie-talkie. All divers used for seabed surveys, underwater inspections shall have required authorized license, suitable life saving kit. Number of hours of work by divers shall be limited as per regulations. EIL/ Owner shall have the right to inspect the boat and scrutinize documents in this regard.

3.4 TOOL BOX MEETING (TBM)

Contractor shall conduct daily TBM with workers prior to start of work and shall maintain proper record of the meeting. A suggested format is given below. The TBM is to be conducted by the immediate supervisor of the workers.

TOOLBOX MEETING RECORDING SHEET		
Date & Time		
Subject		
Presenter		
Hazards involved		
Precautions to be taken		
Worker's Name	Signature	Section
Remarks, in any		

The topics during TBM shall include

- Hazards related to work assigned on that day and precautions to be taken.
- Any forthcoming HSE hazards/events/instruction/orders, etc.

The above record can be kept in local language, which workers can read. These records shall be made available to EIL/ Owner whenever demanded.

3.5 TRAINING & INDUCTION PROGRAMME

Contractor shall conduct an induction programme on HSE for his workers and maintain records. The Gate Pass shall be issued only to those workers who successfully qualify the induction programme.

Contractor shall ensure that all his personnel possess appropriate training to carry out the assigned job safely. The training should be imparted in a language understood by them and should specifically be trained about

- Potential hazards to which they may be exposed at their workplace
- Measures available for prevention and elimination of these hazards

The topics during training shall cover, at the minimum ;

- Education about hazards and precautions required
- Emergency and evacuation plan
- HSE requirements
- Fire fighting and First-Aid
- Use of PPEs
- Local laws on intoxicating drinks, drugs, smoking in force

Records of the training shall be kept and submitted to EIL/ Owner whenever demanded.

For offshore and jetty jobs, contractor shall ensure that all personnel deployed have undergone a structured sea survival training including use of lifeboats, basket landing, use of radio communication etc. from an agency acceptable to Owner/EIL.

3.6 INSPECTION

The contractor shall carryout daily HSE inspection and record observations at a central location. These inspection records shall be freely accessible to Owner/ EIL representatives. The contractor shall also assist Owner/EIL representatives during the HSE inspections conducted by them.

3.7 ADDITIONAL SAFETY REQUIREMENTS FOR WORKING INSIDE A RUNNING PLANT

As a minimum, the contractor shall ensure adherence to following safety requirements while working in or in the close vicinity of an operating plant:

- a) Contractor shall obtain permits for Hot work, Cold work, Excavation and Confined Space from Owner in the prescribed format.
- b) The contractor shall monitor, record and compile list of his workers entering the operational plant/unit each day and ensure & record their return after completing the job.

- c) Contractor's workers and staff members shall use designated entrances and proceed by designated routes to work areas only assigned to them. The workers shall not be allowed to enter units' area, tanks area, pump rooms, etc. without work authorization permit.
- d) Work activities shall be planned in such a way so as to minimize the disruption of other activities being carried out in an operational plant/unit and activities of other contractors.
- e) The contractor shall submit a list of all chemicals/toxic substances that are intended to be used at site and shall take prior approval of the Owner.
- f) Specific training on working in a hydrocarbon plant shall be imparted to the work force and mock drills shall be carried out for Rescue operations/First-Aid measures.
- g) Proper barricading/cordoning of the operational units/plants shall be done before starting the construction activities. No unauthorized person shall be allowed to trespass. The height and overall design of the barricading structure shall be finalized in consultation with the Owner and shall be got approved from the Owner.
- h) Care shall be taken to prevent hitting underground facilities such as electrical cables, hydrocarbon piping during execution of work.
- i) Barricading with water curtain shall be arranged in specific/critical areas where hydrocarbon vapors are likely to be present such as near horton spheres or tanks. Positioning of fire tenders (from owner) shall also be ensured during execution of critical activities.
- j) Emergency evacuation plan shall be worked out and all workmen shall be apprised about evacuation routes. Mock drill operations may also be conducted.
- k) Flammable gas test shall be conducted prior to any hot work using appropriate measuring instruments. Sewers, drains, vents or any other gas escaping points shall be covered with flame retardant tarpaulin.
- l) Respiratory devices shall be kept handy while working in confined zones where there is a danger of inhalation of poisonous gases. Constant monitoring of presence of Gas/Hydrocarbon shall be done.
- m) Clearance shall be obtained from all parties before starting hot tapping, patchwork on live lines and work on corroded tank roof.
- n) Positive isolation of line/equipment by blinding for welding/cutting/grinding shall be done. Closing of valve will not be considered sufficient for isolation.
- o) Welding spatters shall be contained properly and in no case shall be allowed to fall on the ground containing oil. Similar care shall be taken during cutting operations.
- p) The vehicles, cranes, engines, etc. shall be fitted with spark arresters on the exhaust pipe and got it approved from Safety Department of the Owner.
- q) Plant air should not be used to clean any part of the body or clothing or use to blow off dirt on the floor.
- r) Gas detectors should be installed in gas leakage prone areas as per requirement of Owner's plant operation personnel.

- s) An experienced full time safety personnel shall be exclusively deployed to monitor safety aspects in running plants.

3.8 SELF ASSESSMENT AND ENHANCEMENT

The contractor shall develop a method of check & balance through self assessment & enhancement techniques and shall explore the opportunities for continual improvement in the HSE system.

3.9 HSE PROMOTION

The contractor shall encourage his workforce to promote HSE efforts at workplace by way of organizing workshops/seminars/training programmes, celebrating HSE awareness weeks & National Safety Day, conducting quizzes & essay competitions, distributing pamphlets, posters & material on HSE, providing incentives for maintaining good HSE practices and granting bonus for completing the job without any lost time accident.

4.0 DETAILS OF HSE MANAGEMENT SYSTEM BY CONTRACTOR

4.1 ON AWARD OF CONTRACT

The Contractor shall submit a comprehensive Health, Safety and Environment Manual or programme for approval by EIL/Owner prior to start of work. The Contractor shall participate in the pre-start meeting with EIL/Owner to finalize HSE Plans including the following:

- Job procedure to be followed by the Contractor for construction activities including handling of equipments, scaffolding, electric installations, etc. describing the risks involved, actions to be taken and methodology for monitoring each activity.
- EIL/Owner review/audit requirement.
- Organization structure along with responsibility and authority, records/ reports etc. on HSE activities.
- Emergency evacuation plan/ procedures for site and labour camps
- Job Safety Analysis for high risk jobs
- Procedures for reporting & investigation of accidents and near misses.
- HSE Training programmes
- Reference to Rules, Regulations and statutory requirements.
- HSE reporting

4.2 DURING JOB EXECUTION

Contractor shall implement approved Health, Safety and Environment management programme including but not limited to as brought out under para 3.0. Contractor shall also ensure:

- to arrange workmen compensation insurance, registration under ESI Act, third party liability insurance etc, as applicable.
- to arrange all HSE permits before start of activities (as applicable), like permits for hot work, working at heights (Refer Format No. HSE-6), confined space (Refer Format No. HSE-7), Radiation Work Permit (Refer Format No. HSE-8), Demolishing/ Dismantling Work Permit (Refer Format No. HSE-9), storage of chemical/ explosive materials & its use and implement all precautions mentioned therein. In this regard, requirements of Oil industry Safety Directorate Standard No. Std -105 "Work Permit Systems" shall be complied with while working in existing Oil or Gas processing plants.

- to submit, timely, the completed checklist on HSE activities in Format No.HSE-1, Monthly HSE report in Format No.HSE-5 (use of web based package is compulsory wherever the facility is available else a hard copy is to be submitted), accident/incident reports, investigation reports etc. as per EIL/Owner requirements. Compliance of instructions on HSE shall be done by Contractor and informed urgently to EIL/Owner.
- that his top most executive at site attends all the Safety Committee/HSE meetings arranged by EIL/Owner. Only in case of his absence from site that a second senior most person shall be nominated by him, in advance, and communicated to EIL/Owner.
- display at site office and at prominent locations HSE Policy, caution boards, list of hospitals, emergency services available, safety signs like Men at work, Speed Limits, Hazardous Area.
- provide posters, banners for safe working to promote safety consciousness.
- assess, analyze & mitigate the construction hazards
- carryout audits/inspection at his works as well as sub contractor works as per approved HSE plan/procedure/programme & submit the reports for EIL/Owner review.
- assistance & cooperate during HSE audits by EIL/Owner, and submit compliance report.
- generate & submit of HSE records/report as per this specification.
- apprise EIL/Owner on HSE activities at site.
- carryout all dismantling activities safely, with prior approval of EIL/Owner representative.

4.3 DURING SHORT LISTING OF THE SUB-CONTRACTORS

The contractor shall review the HSE management system of the sub-contractors in line with the requirements given in this specification. The contractor shall be held responsible for the shortcomings observed in the HSE management system of the sub-contractor(s) during execution of the job.

5.0 RECORDS

At the minimum, the contractor shall maintain/ submit HSE records in the following reporting formats:

1.	Monthly HSE Checklist cum compliance report	HSE-1
2.	Accident/ Incident Report	HSE-2
3.	Supplementary Accident/ Incident Investigation report	HSE-3
4.	Near Miss Incident Report	HSE-4
5.	Monthly HSE Report	HSE-5
6.	Permit for working at height	HSE-6
7.	Permit for working in confined space	HSE-7
8.	Permit for radiation work	HSE-8
9.	Permit for demolishing/ dismantling	HSE-9

**APPENDIX-A
(Sheet 1 of 2)**

A. I.S. CODES ON HSE

SP: 53	Safety code for the use, Care and protection of hand operated tools.
IS: 818	Code of practice for safety & health requirements in electric and gas welding and cutting operations
IS: 1179	Eye & Face precautions during welding, equipment etc.
IS: 1860	Safety requirements for use, care and protection of abrasive grinding wheels.
IS: 1989 (Part -II)	Leather safety boots and shoes
IS: 2925	Industrial Safety Helmets
IS: 3016	Code of practice for fire safety precautions in welding & cutting operation.
IS: 3043	Code of practice for earthing
IS: 3764	Code of safety for excavation work
IS: 3786	Methods for computation of frequency and severity rates for industrial injuries and classification of industrial accidents
IS: 3996	Safety Code of scaffolds and ladders
IS: 4082	Recommendations on stacking and storage of construction materials and components at site
IS: 4770	Rubber gloves for electrical purposes
IS: 5121	Safety code for piling and other deep foundations
IS: 5216 (Part-I)	Recommendations on Safety procedures and practices in electrical works
IS: 5557	Industrial and Safety rubber lined boots
IS: 5983	Eye protectors
IS: 6519	Selection, care and repair of Safety footwear
IS: 6994 (Part-I)	Industrial Safety Gloves (Leather & Cotton Gloves)
IS: 7293	Safety Code for working with construction Machinery
IS: 8519	Guide for selection of industrial safety equipment for body protection
IS: 9167	Ear protectors
IS: 11006	Flash back arrestor (Flame arrestor)
IS: 11016	General and safety requirements for machine tools and their operation
IS: 11057	Specification for Industrial safety nets
IS: 11226	Leather safety footwear having direct moulded rubber sole
IS: 11972	Code of practice for safety precaution to be taken when entering a sewerage system
IS: 13367	Code of practice-safe use of cranes
IS: 13416	Recommendations for preventive measures against hazards at working place

**APPENDIX-A
(Sheet 2 of 2)**

B. INTERNATIONAL STANDARDS ON HSE

Safety Glasses	:	ANSI Z 87.1, ANSI ZZ 87.1, AS 1337, BS 2092, BS 1542, BS 679, DIN 4646/ 58211
Safety Shoes	:	ANSI Z 41.1, AS 2210, EN 345
Hand Gloves	:	BS 1651
Ear Muffs	:	BS 6344, ANSI S 31.9
Hard Hat	:	ANSI Z 89.1/89.2, AS 1808 , BS 5240, DIN 4840
Goggles	:	ANSI Z 87.1
Face Shield	:	ANSI Z 89.1
Breathing Apparatus	:	BS 4667, NIOSH
Welding & Cutting	:	ANSI Z 49.1
Safe handling of compressed Gases in cylinders	:	P-1 (Compressed Gas Association 1235 Jefferson Davis Highway, Arlington VA 22202 - USA)

APPENDIX-B

DETAILS OF FIRST AID BOX

SL. NO.	DESCRIPTION	QUANTITY
1.	Small size Roller Bandages, 1 Inch Wide (Finger Dressing small)	6 Pcs.
2.	Medium size Roller Bandages, 2 Inches Wide (Hand & Foot Dressing)	6 Pcs.
3.	Large size Roller Bandages, 4 Inches Wide (Body Dressing Large)	6 Pcs.
4.	Large size Burn Dressing (Burn Dressing Large)	4 Pkts.
5.	Cotton Wool (20 gms packing)	4 Pkts.
6.	Antiseptic Solution Dettol (100 ml.) or Savalon	1 Bottle
7.	Mercurichrome Solution (100 ml.) 2% in water	1 Bottle
8.	Ammonia Solution (20 ml.)	1 Bottle
9.	A Pair of Scissors	1 Piece
10.	Adhesive Plaster (1.25 cm X 5 m)	1 Spool
11.	Eye pads in Separate Sealed Pkt.	4 pcs.
12.	Tourniquet	1 No.
13.	Safety Pins	1 Dozen
14.	Tinc. Iodine/ Betadin (100 ml.)	1 Bottle
15.	Polythene Wash cup for washing eyes	1 No.
16.	Potassium Permanganate (20 gms.)	1 Pkt.
17.	Tinc. Benzoine (100 ml.)	1 Bottle
18.	Triangular Bandages	2 Nos.
19.	Band Aid Dressing	5 Pcs.
20.	Iodex/Moov (25 gms.)	1 Bottle
21.	Tongue Depressor	1 No.
22.	Boric Acid Powder (20 gms.)	2 Pkt.
23.	Sodium Bicarbonate (20 gms.)	1 Pkt.
24.	Dressing Powder (Nebasulf) (10 gms.)	1 Bottle
25.	Medicinal Glass	1 No.
26.	Duster	1 No.
27.	Booklet (English & Local Language)	1 No. each
28.	Soap	1 No.
29.	Toothache Solution	1 No.
30.	Vicks (22 gms.)	1 Bottle
31.	Forceps	1 No.
32.	Note Book	1 No.
33.	Splints	4 Nos.
34.	Lock	1 Piece
35.	Life Saving/Emergency/Over-the counter Drugs	As decided at site

Box size : 14" x 12" x 4"

Note : The medicines prescribed above are only indicative. Equivalent medicines can also be used.
A prescription, in this regard, shall be required from a qualified Physician.

APPENDIX-C

TYPE OF FIRES VIS-À-VIS FIRE EXTINGUISHERS

<div>Fire ↓</div> <div>Fire → Extinguisher</div>	Water	Foam	CO ₂	Dry Powder	Multi purpose (ABC)
Originated from paper, clothes, wood	✓	✓	can control minor surface fires	can control minor surface fires	✓
Inflammable liquids like alcohol, diesel, petrol, edible oils, bitumen	×	✓	✓	✓	✓
Originated from gases like LPG, CNG, H ₂	×	×	✓	✓	✓
Electrical fires	×	×	✓	✓	✓

LEGEND : ✓ : CAN BE USED

 × : NOT TO BE USED

Note : Fire extinguishing equipment must be checked atleast once a year and after every use by an authorized person. The equipment must have an inspection label on which the next inspection date is given. Type of extinguisher shall clearly be marked on it.

APPENDIX-D

Indicative List of Statutory Acts & Rules Relating to HSE

- The Indian Explosives Act and Rules
- The Motor Vehicle Act and Central Motor Vehicle Rules
- The Factories Act and concerned Factory Rules
- The Petroleum Act and Petroleum Rules
- The Workmen Compensation Act
- The Gas Cylinder Rules and the Static & Mobile Pressure Vessels Rules
- The Indian Electricity Act and Rules
- The Indian Boiler Act and Regulations
- The Water (Prevention & Control & Pollution) Act
- The Water (Prevention & Control of Pollution) Cess Act
- The Mines & Minerals (Regulation & Development) Act
- The Air (Prevention & Control of Pollution) Act
- The Atomic Energy Act
- The Radiation Protection Rules
- The Indian Fisheries Act
- The Indian Forest Act
- The Wild Life (Protection) Act
- The Environment (Protection) Act and Rules
- The Hazardous Wastes (Management & Handling) Rules
- The Manufacturing, Storage & import of Hazardous Chemicals Rules
- The Public Liability Act
- The Building and Other Construction Workers (Regulation of Employment and Condition of service) Act
- Other statutory acts Like EPF, ESIS, Minimum Wage Act.

**APPENDIX-E
(Sheet 1 of 12)**

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(A) EXCAVATION ● Pit Excavation upto 3.0m	➤ Falling into pit	➤ Personal injury	➤ Provide guard rails/ barricade with warning signal ➤ Provide atleast two entries/ exits. ➤ Provide escape ladders.
	➤ Earth Collapse	➤ Suffocation/ Breathlessness ➤ Buried	➤ Provide suitable size of shoring and strutting, if required. ➤ Keep soil heaps away from the edge equivalent to 1.5m or depth of pit whichever is more. ➤ Don't allow vehicles to operate too close to excavated areas. Maintain atleast 2m distance from edge of cut. ➤ Maintain sufficient angle of repose. Provide slope not less than 1:1 and suitable bench of 0.5m width at every 1.5m depth of excavation in all soils except hard rock. ➤ Battering/benching the sides.
	➤ Contact with buried electric cables ➤ Gas/ Oil Pipelines	➤ Electrocution ➤ Explosion	➤ Obtain permission from competent authorities, prior to excavation, if required. ➤ Locate the position of buried utilities by referring to plant drawings. ➤ Start digging manually to locate the exact position of buried utilities and thereafter use mechanical means.
● Pit Excavation beyond 3.0m	➤ Same as above plus ➤ Flooding due to excessive rain/ underground water	➤ Can cause drowning situation	➤ Prevent ingress of water ➤ Provide ring buoys ➤ Identify and provide suitable size dewatering pump or well point system
	➤ Digging in the vicinity of existing Building/ Structure	➤ Building/Structure may collapse ➤ Loss of health & wealth	➤ Obtain prior approval of excavation method from local authorities. ➤ Use under-pining method ➤ Construct retaining wall side by side.
	➤ Movement of vehicles/ equipments close to the edge of cut.	➤ May cause cave-in or slides. ➤ Persons may get buried.	➤ Barricade the excavated area with proper lighting arrangements ➤ Maintain at least 2m distance from edge of cut and use stop blocks to prevent over-run ➤ Strengthen shoring and strutting

APPENDIX-E : (Sheet 2 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
<ul style="list-style-type: none"> Narrow deep excavations for pipelines, etc. 	<ul style="list-style-type: none"> Same as above plus Frequent cave-in or slides 	<ul style="list-style-type: none"> May cause severe injuries or prove fatal 	<ul style="list-style-type: none"> Battering/benching of sides Provide escape ladders
	<ul style="list-style-type: none"> Flooding due to Hydro-static testing 	<ul style="list-style-type: none"> May arise drowning situation 	<ul style="list-style-type: none"> Same as above plus Bail out accumulated water Maintain adequate ventilation.
<ul style="list-style-type: none"> Rock excavation by blasting 	<ul style="list-style-type: none"> Improper handling of explosives 	<ul style="list-style-type: none"> May prove fatal 	<ul style="list-style-type: none"> Ensure proper storage, handling & carrying of explosives by trained personnel. Comply with the applicable explosive acts & rules.
	<ul style="list-style-type: none"> Uncontrolled explosion 	<ul style="list-style-type: none"> May cause severe injuries or prove fatal 	<ul style="list-style-type: none"> Allow only authorized persons to perform blasting operations. Smoking and open flames are to be strictly prohibited
	<ul style="list-style-type: none"> Scattering of stone pieces in atmosphere 	<ul style="list-style-type: none"> Can hurt people 	<ul style="list-style-type: none"> Use PPE like goggles, face mask, helmets etc.
<ul style="list-style-type: none"> Rock excavation by blasting (Contd) 	<ul style="list-style-type: none"> Entrapping of persons/ animals. 	<ul style="list-style-type: none"> May cause severe injuries or prove fatal 	<ul style="list-style-type: none"> Barricade the area with red flags and blow siren before blasting.
	<ul style="list-style-type: none"> Misfire 	<ul style="list-style-type: none"> May explode suddenly 	<ul style="list-style-type: none"> Do not return to site for atleast 20 minutes or unless announced safe by designated person.
<ul style="list-style-type: none"> Piling Work 	<ul style="list-style-type: none"> Failure of pile-driving equipment 	<ul style="list-style-type: none"> Can hurt people 	<ul style="list-style-type: none"> Inspect Piling rigs and pulley blocks before the beginning of each shift.
	<ul style="list-style-type: none"> Noise pollution 	<ul style="list-style-type: none"> Can cause deafness and psychological imbalance. 	<ul style="list-style-type: none"> Use personal protective equipments like ear plugs, muffs, etc.
	<ul style="list-style-type: none"> Extruding rods/casing 	<ul style="list-style-type: none"> Can hurt people 	<ul style="list-style-type: none"> Barricade the area and install sign boards Provide first-aid
	<ul style="list-style-type: none"> Working in the vicinity of 'Live-Electricity' 	<ul style="list-style-type: none"> Can cause electrocution/ Asphyxiation 	<ul style="list-style-type: none"> Keep sufficient distance from Live-Electricity as per IS code. Shut off the supply, if possible Provide artificial/rescue breathing to the injured
(B) CONCRETING	<ul style="list-style-type: none"> Air pollution by cement 	<ul style="list-style-type: none"> May affect Respiratory System 	<ul style="list-style-type: none"> Wear respirators or cover mouth and nose with wet cloth.
	<ul style="list-style-type: none"> Handling of ingredients 	<ul style="list-style-type: none"> Hands may get injured 	<ul style="list-style-type: none"> Use gloves & other PPE.
	<ul style="list-style-type: none"> Protruding reinforcement rods. 	<ul style="list-style-type: none"> Feet may get injured 	<ul style="list-style-type: none"> Use Safety shoes Provide platform above reinforcement for movement of workers.

APPENDIX-E : (Sheet 3 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	➤ Earthing of electrical mixers, vibrators, etc. not done.	➤ Can cause electrocution/asphyxiation	➤ Ensure earthing of equipments and proper functioning of electrical circuit before commencement of work.
	➤ Falling of materials from height	➤ Persons may get injured	➤ Use hard hats ➤ Remove surplus material immediately from work place. ➤ Ensure lighting arrangements during night hours
	➤ Continuous pouring by same gang	➤ Cause tiredness of workers and may lead to accident.	➤ Insist on shift pattern ➤ Provide adequate rest to workers between subsequent pours.
	➤ Revolving of concrete mixer/ vibrators	➤ Parts of body or clothes may get entrapped.	➤ Allow only mixers with hooper ➤ Provide safety cages around moving motors ➤ Ensure proper mechanical locking of vibrator
● Super-structure	➤ Same as above plus ➤ Deflection in props or shuttering material	➤ Shuttering/props may collapse and prove fatal	➤ Avoid excessive stacking on shuttering material ➤ Check the design and strength of shuttering material before commencement of work ➤ Rectify immediately the deflection noted during concreting.
	➤ Passage to work place	➤ Improperly tied and designed props/planks may collapse	➤ Ensure the stability and strength of passage before commencement of work. ➤ Do not overload and stand under the passage.
(C) REINFOR-CEMENT	➤ Curtailment and binding of rods	➤ Persons may get injured	➤ Use PPE like gloves, shoes, helmets, etc. ➤ Avoid usage of shift tools
	➤ Carrying of rods for short distances/at heights	➤ Workers may get injured their hands and shoulders.	➤ Provide suitable pads on shoulders and use safety gloves. ➤ Tie up rods in easily liftable bundles ➤ Ensure proper staging.
	➤ Checking of clear distance/ cover with hands	➤ Rods may cut or injure the fingers	➤ Use measuring devices like tape, measuring rods, etc.
	➤ Hitting projected rods and standing on cantilever rods.	➤ Persons may get injured and fell down	➤ Use safety shoes and avoid standing unnecessarily on cantilever rods ➤ Avoid wearing of loose clothes

APPENDIX-E : (Sheet 4 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	➤ Falling of material from height	➤ May prove fatal	➤ Use helmets ➤ Provide safety nets
	➤ Transportation of rods by trucks/trailers	➤ Protruded rods may hit the persons	➤ Use red flags/lights at the ends ➤ Do not protrude the rods in front of or by the side of driver's cabin. ➤ Do not extend the rods 1/3 rd of deck length or 1.5m whichever is less
(D) WELDING AND GAS CUTTING	➤ Welding radiates invisible ultraviolet and infra-red rays	➤ Radiation can damage eyes and skin.	➤ Use specified shielding devices and other PPE of correct specifications. ➤ Avoid thoriated tungsten electrodes for GTAW
	➤ Improper placement of oxygen and acetylene cylinders	➤ Explosion may occur	➤ Move out any leaking cylinder ➤ Keep cylinders in vertical position ➤ Use trolley for transportation of cylinders and chain them ➤ Use flashback arrestors
	➤ Leakage/cuts in hoses	➤ May cause fire	➤ Purge regulators immediately and then turn off ➤ Never use grease or oil on oxygen line connections and copper fittings on acetylene lines ➤ Inspect regularly gas carrying hoses ➤ Always use red hose for acetylene & other fuel gases and black for oxygen
	➤ Opening-up of cylinder	➤ Cylinder may burst	➤ Always stand back from the regulator while opening the cylinder ➤ Turn valve slowly to avoid bursting ➤ Cover the lug terminals to prevent short circuiting
	➤ Welding of tanks, container or pipes storing flammable liquids	➤ Explosion may occur	➤ Empty & purge them before welding ➤ Never attach the ground cable to tanks, container or pipe storing flammable liquids ➤ Never use LPG for gas cutting

APPENDIX-E : (Sheet 5 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES ...(Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(E) RADIOGRAPHY	➤ Ionizing radiation	➤ Radiations may react with the skin and can cause cancer, skin irritation, dermatitis, etc.	<ul style="list-style-type: none"> ➤ Ensure Safety regulations as per BARC/AERB before commencement of job. ➤ Cordon off the area and install Radiation warning symbols ➤ Restrict the entry of unauthorized persons ➤ Wear appropriate PPE and film badges issued by BARC/AERB
	➤ Transportation and Storage of Radiography source	➤ Same as above	<ul style="list-style-type: none"> ➤ Never touch or handle radiography source with hands ➤ Store radiography source inside a pit in an exclusive isolated storage room with lock and key arrangement. The pit should be approved by BARC/AERB. ➤ Radiography source should never be carried either in passenger bus or in a passenger compartment of trains. ➤ BARC/AERB have to be informed before source movement. ➤ Permission from Director General of Civil Aviation is required for booking radio isotopes with airlines.
	➤ Loss of Radio isotope	➤ Same as above	<ul style="list-style-type: none"> ➤ Try to locate with the help of Survey Meter. ➤ Inform BARC/AERB (*)
(F) ELECTRICAL INSTALLATION AND USAGE	➤ Short circuiting	➤ Can cause Electrocutation or Fire	<ul style="list-style-type: none"> ➤ Use rubberized hand gloves and other PPE ➤ Don't lay wires under carpets, mats or door ways. ➤ Allow only licensed electricians to perform on electrical facilities ➤ Use one socket for one appliance ➤ Ensure usage of only fully insulated wires or cables ➤ Don't place bare wire ends in a socket ➤ Ensure earthing of machineries and equipments ➤ Do not use damaged cords and avoid temporary connections ➤ Use spark-proof/flame proof type field distribution boxes.

(*) Atomic Energy Regulatory Board (AERB),
Bhabha Atomic Research Centre (BARC)
Anushaktinagar, Mumbai – 400 094

APPENDIX-E : (Sheet 6 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			<ul style="list-style-type: none"> ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Protect electrical cables/equipment's from water and naked flames ➤ Check all connections before energizing
	➤ Overloading of Electrical System	➤ Bursting of system can occur which leads to fire	<ul style="list-style-type: none"> ➤ Display voltage and current ratings prominently with 'Danger' signs. ➤ Ensure approved cable size, voltage grade and type ➤ Switch off the electrical utilities when not in use ➤ Do not allow unauthorized connections. ➤ Ensure proper grid wise distribution of Power
	➤ Improper laying of overhead and underground transmission lines/cables	➤ Can cause electrocution and prove fatal	<ul style="list-style-type: none"> ➤ Do not lay unarmoured cable directly on ground, wall, roof of trees ➤ Maintain atleast 3m distance from HT cables ➤ All temporary cables should be laid atleast 750 mm below ground on 100 mm fine sand overlying by brick soling ➤ Provide proper sleeves at crossings/ intersections ➤ Provide cable route markers indicating the type and depth of cables at intervals not exceeding 30m and at the diversions/termination
(G) FIRE PREVENTION AND PROTECTION	➤ Small fires can become big ones and may spread to the surrounding areas	➤ Cause burn injuries and may prove fatal	<ul style="list-style-type: none"> ➤ In case a fire breaks out, press fire alarm system and shout "Fire, Fire" ➤ Keep buckets full of sand & water/ fire extinguishing equipment near hazardous locations ➤ Confine smoking to 'Smoking Zones' only. ➤ Train people for using specific type of fire fighting equipments under different classes of fire ➤ Keep fire doors/shutters, passages and exit doors unobstructed ➤ Maintain good house keeping and first-aid boxes (for details refer Appendix-B) ➤ Don't obstruct access to Fire extinguishers. ➤ Do not use elevators for evacuation during fire. ➤ Maintain lightning arrestors for elevated structures ➤ Stop all electrical motors with internal combustion

APPENDIX-E : (Sheet 7 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			<ul style="list-style-type: none"> ➤ Move the vehicles from dangerous locations ➤ Remove the load hanging from the crane booms ➤ Remain out of the danger areas.
	➤ Improper selection of Fire extinguisher	➤ It may not extinguish the fire	<ul style="list-style-type: none"> ➤ Ensure usage of correct fire extinguisher meant for the specified fire (for details refer Appendix-C). ➤ Do not attempt to extinguish Oil and electric fires with water. Use foam cylinders/CO₂/sand or earth.
	➤ Improper storage of highly inflammable substances	➤ Same as above	<ul style="list-style-type: none"> ➤ Maintain safe distance of flammable substances from source of ignition ➤ Restrict the distribution of flammable materials to only min. necessary amount ➤ Construct specifically designed fuel storage facilities ➤ Keep chemicals in cool and dry place away from heat. Ensure adequate ventilation ➤ Before welding operation, remove or shield the flammable material properly ➤ Store flammable materials in stable racks, correctly labeled preferably with catchment trays. ➤ Wipe off the spills immediately
	➤ Short circuiting of electrical system	<ul style="list-style-type: none"> ➤ Same as above ➤ Can cause Electrocutation 	<ul style="list-style-type: none"> ➤ Don't lay wires under carpets, mats or door ways ➤ Use one socket for one appliance. ➤ Use only fully insulated wires or cables ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Ensure earthing of machinaries and equipments
(H) VEHICULAR MOVEMENT	➤ Crossing the Speed Limits (Rash driving)	➤ Personal injury	<ul style="list-style-type: none"> ➤ Obey speed limits and traffic rules strictly ➤ Always expect the unexpected and be a defensive driver ➤ Use seat belts/helmets ➤ Blow horn at intersections and during overtaking operations. ➤ Maintain the vehicle in good condition ➤ Do not overtake on curves, bridges and slopes
	➤ Adverse weather condition	➤ Same as Above	<ul style="list-style-type: none"> ➤ Read the road ahead and ride to the left ➤ Keep the wind screen and lights clean ➤ Do not turn at speed. ➤ Recognize the hazard, understand the defense and act correctly in time.

APPENDIX-E : (Sheet 8 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	<ul style="list-style-type: none"> ➤ Consuming alcohol before and during the driving operation 	<ul style="list-style-type: none"> ➤ Same as above 	<ul style="list-style-type: none"> ➤ Alcohol and driving do not mix well. Either choose alcohol or driving. ➤ If you have a choice between hitting a fixed object or an on-coming vehicle, hit the fixed object ➤ Quit the steering at once and become a passenger. Otherwise take sufficient rest and then drive. ➤ Do not force the driver to drive fast and round the clock. ➤ Do not day dream while driving
	<ul style="list-style-type: none"> ➤ Falling objects/ Mechanical failure 	<ul style="list-style-type: none"> ➤ May prove fatal 	<ul style="list-style-type: none"> ➤ Ensure effective braking system, adequate visibility for the drives, reverse warning alarm.. ➤ Proper maintenance of the vehicle as per manufacturer instructions
(I) PROOF TESTING (HYDROSTATIC /PNEUMATIC TESTING)	<ul style="list-style-type: none"> ➤ Bursting of piping ➤ Collapse of tanks ➤ Tanks flying off 	<ul style="list-style-type: none"> ➤ May cause injury and prove fatal 	<ul style="list-style-type: none"> ➤ Prepare test procedure & obtain EIL/owner's approval ➤ Provide separate gauge for pressurizing pump and piping/equipment ➤ Check the calibration status of all pressure gauges, dead weight testers and temperature recorders ➤ Take dial readings at suitable defined intervals and ensure most of them fall between 40-60% of the gauge scale range ➤ Provide safety relief valve (set at pressure slightly higher than test pressure) while testing with air/ nitrogen ➤ Ensure necessary precautions, stepwise increase in pressure, tightening of bolts/nuts, grouting, etc. before and during testing ➤ Keep the vents open before opening any valve while draining out of water used for hydrotesting of tanks. ➤ Pneumatic testing involves the hazard of released energy stored in compressed gas. Specific care must therefore be taken to minimize the chance of brittle failure during a pneumatic leak test. Test temperature is important in this regard and must be considered when the designer chooses the material of construction.

APPENDIX-E : (Sheet 9 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			<p>A pressure relief device shall be provided, having a set pressure not higher than the test pressure plus the lesser of 345 KPa (50 psi) or 10% of the test pressure.</p> <p>The gas used as test fluid, if not air, shall be nonflammable and nontoxic.</p>
(J) WORKING AT HEIGHTS	➤ Person can fall down	➤ May sustain severe injuries or prove fatal	<p>➤ Provide guard rails/barricade at the work place</p> <p>➤ Use PPE like full body harness, life line, helmets, safety shoes, etc.</p> <p>➤ Obtain a permit before starting the work at height above 3 meters</p> <p>➤ Fall arrest and safety nets, etc. must be installed</p> <p>➤ Provide adequate working space (min. 0.6 m)</p> <p>➤ Tie/weld working platform with fixed support</p> <p>➤ Use roof top walk ladder while working on a slopping roofs</p> <p>➤ Avoid movement on beams</p>
		➤ May hit the scrap/material stacked at the ground or in between	<p>➤ Keep the work place neat and clean</p> <p>➤ Remove the scrap immediately</p>
	➤ Material can fall down	➤ May hit the workers working at lower levels and prove fatal	<p>➤ Same as above plus</p> <p>➤ Do not throw or drop materials or equipment from height. I.e. do not <i>bomb</i> materials</p> <p>➤ All tools to be carried in a tool-kit Bag or on working uniform</p> <p>➤ Remove scrap from the planks</p> <p>➤ Ensure wearing of helmet by the workers working at lower levels</p>
(K) CONFINED SPACES	➤ Suffocation/drowning	➤ Unconsciousness, death	<p>➤ Use respiratory devices, if reqd.</p> <p>➤ Avoid over crowding inside a confined space</p> <p>➤ Provide Exhaust fans for ventilation</p> <p>➤ Do not wear loose clothes, neck ties, etc</p> <p>➤ Fulfill conditions of the permit</p>

APPENDIX-E : (Sheet 10 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			<ul style="list-style-type: none"> ➤ Check for presence of hydrocarbons, O₂ level ➤ Obtain work permit before entering a confined space ➤ Ensure that the connected piping of the equipment which is to be opened is pressure free, fluid has been drained, vents are open and piping is positively isolated by a blind flange
	➤ Presence of foul smell and toxic substances	➤ Inhalation can pose threat to life	<ul style="list-style-type: none"> ➤ Same as above plus ➤ Check for hydrocarbon and Aromatic compounds before entering a confined space ➤ Depute one person outside the confined space for continuous monitoring and for extending help in case of an emergency
	➤ Ignition/ flame can cause fire	➤ Person may sustain burn injuries or explosion may occur	<ul style="list-style-type: none"> ➤ Keep fire extinguishers at a hand distance ➤ Remove surplus material and scrap immediately ➤ Do not smoke inside a confined space ➤ Do not allow gas cylinders inside a confined space ➤ Use low voltage (24V) lamps for lighting ➤ Use tools with air motors or electric tools with max. voltage of 24V ➤ Remove all equipments at the end of the day
(L) HANDLING AND LIFTING EQUIPMENTS	➤ Failure of load lifting and moving equipments	➤ Can cause accident and prove fatal	<ul style="list-style-type: none"> ➤ Avoid standing under the lifted load and within the operating radius of cranes ➤ Check periodically oil, brakes, gears, horns and tyre pressure of all moving machinery ➤ Check quality, size and condition of all chain pulley blocks, slings, U-clamps, D-shackles, wire ropes, etc. ➤ Allow crane to move only on hard, firm and leveled ground. ➤ Allow lifting slings as short as possible and check gunny packings at the friction points ➤ Do not allow crane to tilt its boom while moving ➤ Install Safe Load Indicator ➤ Ensure certification by applicable authority

APPENDIX-E : (Sheet 11 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	➤ Overloading of lifting equipments	➤ Same as above	<ul style="list-style-type: none"> ➤ Safe lifting capacity of derricks and winches written on them shall be got verified ➤ The max. safe working load shall be marked on all lifting equipments ➤ Check the weight of columns and other heavy items painted on them and accordingly decide about the crane capacity, boom and angle of erection ➤ Allow only trained operators and riggers during crane operation.
	➤ Overhead electrical wires	➤ Can cause electrocution and fire	<ul style="list-style-type: none"> ➤ Do not allow boom or other parts of crane to come within 3m reach of overhead HT cables ➤ Hook and load being lifted shall preferably remain in full visibility of crane operators.
(M) SCAFFOLDING, FORMWORK AND LADDERS	➤ Person can fall down	➤ Person May sustain severe injuries and prove fatal	<ul style="list-style-type: none"> ➤ Provide guard rails for working at height ➤ Face ladder while climbing and use both hands. ➤ Ladders shall extend about 1m above landing for easy access and tying up purpose ➤ Do not place ladders against movable objects and maintain base at 1/4 unit of the working length of the ladder. ➤ Suspended scaffolds shall not be less than 500 mm wide and tied properly with ropes ➤ No loose planks shall be allowed ➤ Use PPE, like helmets, safety shoes, Etc
	➤ Failure of scaffolding material	➤ Same as above	<ul style="list-style-type: none"> ➤ Inspect visually all scaffolding materials for stability and anchoring with permanent structures. ➤ Design scaffolding for max. load carrying capacity. ➤ Scaffolding planks shall not be less than 50X250 mm full thickness lumber or equivalent. These shall be cleated or secured and must extend over the end supports by atleast 150mm and not more than 300mm ➤ Don't overload the scaffolds ➤ Do not splice short ladders to make a longer one. Vertical ladders shall not exceed 6m.
	➤ Material can fall down	➤ Persons working at lower level gets injured	<ul style="list-style-type: none"> ➤ Remove excess material and scrap immediately ➤ Carry the tools in a tool-kit bag only ➤ Provide safety nets

APPENDIX-E : (Sheet 12 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES (...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
(N) STRUCTURAL WORKS	➤ Personal negligence and danger of fall	➤ Can cause injury or casualty	<ul style="list-style-type: none"> ➤ Do not take rest inside rooms built for welding machines or electrical distribution system. ➤ Avoid walking on beams at height ➤ Wear helmet with chin strap and full body harness while working at height. ➤ Use hand gloves and goggles during grinding operations ➤ Cover or mark the sharp and projected edges ➤ Do not stand within the operating radius of cranes
	➤ Lifting/ slipping of material	➤ Same as above	<ul style="list-style-type: none"> ➤ Do not stand under the lifted load ➤ Stack properly all the materials. Avoid slippage during handling ➤ Control longer pieces lifted up by cranes from both ends ➤ Remove loose materials from height ➤ Ensure tightening of all nuts & bolts
(O) PIPELINE WORKS	➤ Erection/ lowering failure	➤ Can cause injury	<ul style="list-style-type: none"> ➤ Do not stand under the lifted load ➤ Do not allow any person to come within the radii of the side boom handling pipes ➤ Check the load carrying capacity of the lifting tools & tackles ➤ Use safe Load Indicators ➤ Use appropriate PPEs
	➤ Other	➤ Same as above	<ul style="list-style-type: none"> ➤ Wear gum boots in marshy areas ➤ Allow only one person to perform signaling operations while lowering of pipes ➤ Provide night caps on pipes ➤ Provide end covers on pipes for stoppage of pigs while testing/ cleaning operations

FORMAT NO. : HSE-1 REV 0
HSE CHECKILIST CUM COMPLIANCE REPORT

(Sheet 1 of 6)

PROJECT : _____ REPORT NO. : _____
DATE : _____ CONTRACTOR : _____
INSPECTION BY : _____ OWNER : _____
FREQUENCY : FORTNIGHTLY JOB NO. : _____

Note : Write 'NA' wherever the item is not applicable

SL. NO.	ITEM	YES	NO	REMARKS	ACTION
1.	HOUSEKEEPING				
a)	Waste containers provided and used				
b)	Sanitary facilities adequate and Clean				
c)	Passageways and Walkways Clear				
d)	General neatness of working areas				
e)	Other				
2.	PERSONNEL PROTECTIVE EQUIPMENT				
a)	Goggles; Shields				
b)	Face protection				
c)	Hearing protection				
d)	Foot protection				
e)	Hand protection				
f)	Respiratory Masks etc.				
g)	Full body harness conforming to CE, EN 361				
h)	Hard hat (HDPE)				
i)	Other				
3.	EXCAVATIONS/OPENINGS				
a)	Openings properly covered or barricaded				
b)	Excavations shored				
c)	Excavations barricaded				
d)	Overnight lighting provided				
	Other				

FORMAT NO.:HSE-1 REV 0
(Sheet 2 of 6)

	ITEM	YES	NO	REMARKS	ACTION
4.	WELDING & GAS CUTTING				
a)	Gas cylinders chained upright				
b)	Cables and hoses not obstructing				
c)	Screens or shields used				
d)	Flammable materials protected				
e)	Live electrode bits contained properly				
f)	Fire extinguisher (s) accessible				
g)	Other				
5.	SCAFFOLDING & BARRICADING				
a)	Fully decked platforms				
b)	Guard and intermediate rails in place				
c)	Toe boards in place				
d)	Adequate shoring				
e)	Adequate access				
f)	Positive barricading for critical activities				
g)	Installation of warning signs				
h)	Other				
6.	LADDERS				
a)	Extension side rails 1 m above				
b)	Top of landing				
c)	Properly secured				
d)	Angle + 70° from horizontal				
e)	Other				

FORMAT NO.:HSE-1 REV 0
(Sheet 3 of 6)

	ITEM	YES	NO	REMARKS	ACTION
7.	HOISTS, CRANES AND DERRICKS				
a)	Condition of cables and sheaves OK				
b)	Condition of slings, chains, hooks and eyes O.K.				
c)	Inspection and maintenance logs maintained				
d)	Outriggers used				
e)	Signs/barricades provided				
f)	Signals observed and understood				
g)	Qualified operators				
h)	Other				
8.	MACHINERY, TOOLS AND EQUIPMENT				
a)	Proper instruction				
b)	Safety devices				
c)	Proper cords				
d)	Inspection and maintenance				
e)	Other				
9.	VEHICLE AND TRAFFIC				
a)	Rules and regulations observed				
b)	Inspection and maintenance				
c)	Licensed drivers				
d)	Other				

FORMAT NO.:HSE-1 REV 0
(Sheet 4 of 6)

	ITEM	YES	NO	REMARKS	ACTION
10.	TEMPORARY FACILITIES				
a)	Emergency instructions posted				
b)	Fire extinguishers provided				
c)	Fire-aid equipment available				
d)	Secured against storm damage				
e)	General neatness				
f)	In accordance with electrical requirements				
g)	Other				
11.	FIRE PREVENTION				
a)	Personnel instructed				
b)	Fire extinguishers checked				
c)	No smoking in Prohibited areas.				
d)	Hydrants Clear				
e)	Other				
12.	ELECTRICAL				
a)	Use of 3-core armored cables				
b)	Usage of 'All insulated' or 'double-insulated' electrical tools				
c)	All electrical connection are routed through ELCB				
d)	Natural Earthing at the source of power (Main DB)				
e)	Continuity and tightness of earth conductor				
f)	Covering of junction boxes, panels and other energized wiring places				
g)	Ground fault circuit interrupters provided				
h)	Prevention of tripping hazards				
f)	Other				

FORMAT NO.:HSE-1 REV 0
(Sheet 5 of 6)

	ITEM	YES	NO	REMARKS	ACTION
14.	HANDLING AND STORAGE OF MATERIALS				
a)	Properly stored or stacked				
b)	Passageways clear				
c)	Other				
15.	FLAMMABLE GASES AND LIQUIDS				
a)	Containers clearly identified				
b)	Proper storage				
c)	Fire extinguishers nearby				
d)	Other				
16.	WORKING AT HEIGHT				
a)	Erection plan and work permit obtained				
b)	Safety nets				
c)	Full body harness and lanyards; chute lines				
d)	Health Check record available for workers going up?				
e)	Other				
17.	CONFINED SPACE				
a)	Work Permit obtained				
b)	Test for toxic gas and sufficient availability of oxygen conducted				
c)	Atleast one person outside the confined space for monitoring deputed				
d)	Availability of sufficient means of entry, exit and ventilation				
e)	Fire extinguisher and first-aid facility ensured				
f)	Lighting provision made by using 24V Lamp				
g)	Proper usage of PPEs ensured				
18.	RADIOGRAPHY				
a)	Proper storage and handling of source as per BARC/AERB guidelines				
b)	Work permit obtained				

FORMAT NO.:HSE-1 REV 0
(Sheet 6 of 6)

	ITEM	YES	NO	REMARKS	ACTION
c)	Cordoning of the area done				
d)	Use of appropriate PPE's ensured				
e)	Proper training to workers/supervisors imparted				
f)	Minimum occupancy of workplace ensured				
19.	HEALTH CHECKS				
a)	Workers medically examined and found be fit for working i) at heights ii) in confined space				
b)	Availability of First Aid facilities.				
c)	Proper sanitation at site, office and labour camps				
d)	Arrangement of medical facilities.				
e)	Measures for dealing with illness.				
f)	Availability of Potable drinking water for workmen & staff.				
g)	Provision of crèches for children.				
h)	Stand by vehicle available for evacuation of injured				
20.	ENVIRONMENT				
a)	Chemical and Other Effluents properly disposed				
b)	Cleaning liquid of pipes disposed off properly				
c)	Seawater used for hydro-testing disposed off as per agreed procedure				
d)	Lubricant Waste/Engine oils properly disposed				
e)	Waste from Canteen, offices, sanitation etc disposed properly				
f)	Disposal of surplus earth, stripping materials, Oily rags and combustible materials done properly				
g)	Green belt protection				

Signature of Resident
Engr. With Seal

FORMAT NO. : HSE-2 REV 0
ACCIDENT/INCIDENT REPORT

(To be submitted by contractor after every Accident/ Incident within 24 hours)

Report No.: _____

Name of Site: _____

Date: _____

Name of work: _____

Contractor: _____

Type of Accident/ Incident: ☐ Fatal ☐ Other Lost Time ☐ Non Loss Time ☐ First-Aid case

Name of the injured :

Age :

Father's name :

Sub-contractor M/s :

Date & time of Accident/ Incident :

Location :

Brief description of Accident/ Incident

Cause of Accident/ Incident

Nature of injury/damage

Medical Aid provided/actions taken

Intimation to local authorities (if applicable)

Signature of contractor
with seal

To : Owner
: RCM/Site-in-charge EIL (3 copies)

└─> Divisional Head (Constn) through RCM
└─> Project Manager EIL, through RCM

FORMAT NO. : HSE-3 REV 0
SUPPLEMENTARY ACCIDENT/
INCIDENT INVESTIGATION REPORT

Supplementary to Report No: _____ (Copy enclosed)

Project : _____ Site : _____

Name of work : _____ Dated : _____

Contractor : _____ Work Order/LOI No. _____

Name of the Injured : _____ Age : _____

Sub-Contractor M/s : _____

Date & Time of Accident/ Incident : _____ Location : _____

Brief Description & Cause of Accident/ Incident

Nature of Injury/Damage

Comments of Medical Practitioner, who attended the victim/injured

Suggested improvement in the working condition, if any

Loss of man days and impact on site works

Any other comment by Safety Officer

Signature of Contractor
with Seal

To : Owner
: RCM/Site-in-charge EIL (3 copies)

→ Divisional Head (Constn) through RCM
→ Project Manager EIL, through RCM

FORMAT NO. : HSE-4 REV 0
NEAR MISS INCIDENT – SUGGESTED PROFORMA

Report No.: _____

Name of Site: _____

Date: _____

Name of work: _____

Contractor: _____

Incident reported by :

Date & Time of Incident :

Location :

Brief description of incident

Probable cause of incident

Suggested corrective action

Steps taken to avoid recurrence

Yes ☐

No ☐

Signature of Contractor
with seal

To : Owner
: RCM/Site-in-charge EIL (3 copies)

→ Divisional Head (Constn) through RCM
→ Project Manager EIL, through RCM

FORMAT NO. : HSE-5 REV 0
MONTHLY HEALTH, SAFETY & ENVIRONMENT (HSE) REPORT
(To be submitted by each Contractor)

Actual work start Date : _____ For the Month of : _____

Project : _____ Report No : _____

Name of the Contractor : _____ Status as on : _____

Name of Work : _____ Job No : _____

(Wherever web based package is available, the contractor shall feed the record in that)

ITEM		UPTO PREVIOUS MONTH		THIS MONTH		CUMU-LATIVE	
1) Average number of Staff & Workmen (average daily headcount, not man days)							
2) Manhours worked							
3) Number of Induction programmes conducted							
4) Number of HSE meetings organized at site							
5) Number of HSE awareness programmes conducted at site							
6) Number of Tool Box Meetings conducted							
7) Number of Lost Time Accidents (LTA)		Fatal					
		Other LTA					
8) Number of Loss Time Injuries (LTI)		Fatalities					
		Other LTI					
9) Number of Non-Loss Time Accidents							
10) Number of First Aid Cases							
11) Number of Near Miss Incidents							
12) No. of unsafe acts/ practices detected							
13) No. of disciplinary actions taken against staff/ workmen							
14) Man-days lost due to accidents							
15) LTA Free Manhours i.e. Number of LTA free manhours from the Last LTA							
16) Frequency Rate (No. of LTA per 2 lacs manhours worked)							
17) Severity Rate (No. of man days lost per 2 lacs manhours worked)							
18) Loss Time Injury Frequency (No. of LTI per 2 lacs manhours worked)							
19) No. of activities for which Job Safety Analysis (JSA) completed							
20) No. of incentives/ awards given							
21) No. of occasions on which penalty imposed by EIL/ Owner							
22) No. of Audits conducted							
23) No. of pending NCs in above Audits							
24) Compensation cases raised with Insurance							
25) Compensation cases resolved and paid to workmen							
26) Whether workmen compensation policy taken			Yes				No
27) Whether workmen compensation policy is valid			Yes				No
28) Whether workmen registered under ESI Act, as applicable			Yes				No
Remarks, if any							

Date :

Safety Officer/Resident Engineer
(Signature and Name)

To : - OWNER
- RCM EIL (2 copies)

FORMAT NO. : HSE-6 REV 0
PERMIT FOR WORKING AT HEIGHT (ABOVE 2 METER)

(Sheet 1 of 2)

Project site _____
Name of the work _____
Name of Contractor _____
Total No. of workers _____

Sr.No. _____
Date _____
Nature of work _____
Exact location of work _____
Duration of work: from _____ to _____

The following items have been checked and compliance shall be ensured during the currency of the permit:

SL. No.	ITEM	DONE	NOT REQD.
1.	Equipment/Work Area inspected	<input type="checkbox"/>	<input type="checkbox"/>
2.	Considered hazard from other routine/non-routine operations and concerned person alerted	<input type="checkbox"/>	<input type="checkbox"/>
3.	ELCB provided	<input type="checkbox"/>	<input type="checkbox"/>
4.	Proper lighting provided	<input type="checkbox"/>	<input type="checkbox"/>
5.	Area cordoned off.	<input type="checkbox"/>	<input type="checkbox"/>
6.	Precautions against public traffic taken	<input type="checkbox"/>	<input type="checkbox"/>
7.	Sound Scaffolding provided	<input type="checkbox"/>	<input type="checkbox"/>
8.	Adequate protected Platform provided	<input type="checkbox"/>	<input type="checkbox"/>
9.	Access and Exit to the area (Ladder properly fixed)	<input type="checkbox"/>	<input type="checkbox"/>
10.	Floor Openings covered	<input type="checkbox"/>	<input type="checkbox"/>
11.	Safety Net provided	<input type="checkbox"/>	<input type="checkbox"/>
12.	Health check of personnel	<input type="checkbox"/>	<input type="checkbox"/>

- A. Following personal protective equipment/measures are provided (✓ mark) and used as relevant: Hard hat /Gloves/Goggles/Shoes/Face Shield/Life line/Full body safety harness/ Roof top walk ladder/Any other(pl. specify)
- B. This permit shall be available at the work site at all times.
- C. Permit shall be issued for maximum one week only (Monday to Sunday)
- D. This permit shall be applicable in non-operational areas.
- E. After completion of the work, used permits shall be preserved for record purposes
- F. Additional precautions, if any _____

Permission is granted to work (See overleaf) = Yes/No

Name of Contractor's supervisor
(Initiator)

Name of Contractor's Safety Officer
(Issuing Authority)

FORMAT NO. : HSE-6 REV 0
(Sheet 2 of 2)

GRANT OF PERMIT AND EXTENSIONS

Sl No.	Validity Period From _____ To _____	Work Time From _____ Hrs. To _____ Hrs	Initiator (Supervisor of Contractor)	Issuing Authority (Safety Officer) of Contractor	Verification by EIL with date

Additional safety instructions, if any:-

FORMAT NO. : HSE-7 REV 0
CONFINED SPACE ENTRY PERMIT

Project site _____
Name of the work _____
Name of Contractor _____
Exact location of work _____

Sr.No. _____
Date _____
Nature of work _____

Safety Requirements POSITIVE ISOLATION OF THE VESSEL IS MANDATORY

(A) Has the equipment been ?

Y	NR		Y	NR		Y	NR	
<input type="checkbox"/>	<input type="checkbox"/>	isolated from power/steam/air	<input type="checkbox"/>	<input type="checkbox"/>	water flushed &/or steamed	<input type="checkbox"/>	<input type="checkbox"/>	radiation sources removed
<input type="checkbox"/>	<input type="checkbox"/>	isolated from liquid or gases	<input type="checkbox"/>	<input type="checkbox"/>	Manways open & ventilated	<input type="checkbox"/>	<input type="checkbox"/>	proper lighting provided
<input type="checkbox"/>	<input type="checkbox"/>	depressurized &/or drained	<input type="checkbox"/>	<input type="checkbox"/>	cont. inert gas flow arranged	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	blanked/ blinded/ disconnected	<input type="checkbox"/>	<input type="checkbox"/>	adequately cooled	<input type="checkbox"/>	<input type="checkbox"/>	

(B) Expected Residual Hazards

<input type="checkbox"/>	<input type="checkbox"/>	lack of O ₂	<input type="checkbox"/>	<input type="checkbox"/>	combustible gas/ liquid	<input type="checkbox"/>	<input type="checkbox"/>	H ₂ S / toxic gases
<input type="checkbox"/>	<input type="checkbox"/>	corrosive chemicals	<input type="checkbox"/>	<input type="checkbox"/>	pyrophoric iron / scales	<input type="checkbox"/>	<input type="checkbox"/>	electricity / static
<input type="checkbox"/>	<input type="checkbox"/>	heat/ steam / frost	<input type="checkbox"/>	<input type="checkbox"/>	high humidity	<input type="checkbox"/>	<input type="checkbox"/>	ionizing radiation
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

(C) Protection Measures

<input type="checkbox"/>	<input type="checkbox"/>	gloves	<input type="checkbox"/>	<input type="checkbox"/>	ear plug / muff	<input type="checkbox"/>	<input type="checkbox"/>	goggles / face shield
<input type="checkbox"/>	<input type="checkbox"/>	protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	dust / gas / air line mask	<input type="checkbox"/>	<input type="checkbox"/>	personal gas alarm
<input type="checkbox"/>	<input type="checkbox"/>	grounded air educter/blower /AC	<input type="checkbox"/>	<input type="checkbox"/>	attendant with SCBA/air mask	<input type="checkbox"/>	<input type="checkbox"/>	rescue equipment/team
<input type="checkbox"/>	<input type="checkbox"/>	Fire fighting arrangements	<input type="checkbox"/>	<input type="checkbox"/>	safety harness & lifeline	<input type="checkbox"/>	<input type="checkbox"/>	communication equipment
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

Authorization / Renewal (It is safe to enter the confined space)

Date	No. of persons allowed	Name of persons allowed	Signature		Time		Signature
			Contractor's Supervisor	Contractor's Safety Officer	From	To	Workman

Permit Closure :

(A) Entry ☐ was closed ☐ stopped ☐ will continue on ...

(B) ☐ Site left in a safe condition
☐ Housekeeping done

(C) Multilock ☐ removed ☐ key transferred
☐ Ensured all men have come out ☐ Manways barricaded

Remarks, if any:

FORMAT NO. : HSE-8 REV 0
RADIATION WORK PERMIT

Project : Sr.No. :
Name of the work : Date :
Name of contractor : Job No. :

Location of work :

Source strength :

Cordoned distance (m) :

Name of Radiographing agency :

Approved by Owner/EIL ☐

No. of workers engaged :

The following items have been checked & compliance shall be ensured during currency of the permit:

S. No.	Item description	Done
1.	Safety regulations as per BARC/AERB ensured while source in use/in transit & during storage	<input type="checkbox"/>
2.	Area cordoned off	<input type="checkbox"/>
3.	Lighting arrangements for working during nights ensured	<input type="checkbox"/>
4.	Warning signs/ flash lights installed	<input type="checkbox"/>
5.	Cold work permit taken (if applicable)	<input type="checkbox"/>
6.	PPEs like film badges, dosimeters used	<input type="checkbox"/>

Additional precautions, if any _____

(Radiography Agency's BARC/AERB authorized Supervisor)

(Contractor's Safety Officer)

Permission is granted.

Permit is valid from _____ AM/PM _____ Date to _____ AM/PM _____
Date

(Signature of permit issuing authority)

Name : Designation : Date :

Permit renewal :

Permit extended upto		Additional precautions required, if any	Sign of issuing authority with date
Date	Time		

Work completed/ stopped/ area cleared at _____ Hrs of Date _____

(Sign. of permit issuing authority)

Name :

FORMAT NO. : HSE-9 REV 0
DEMOLISHING/DISMANTLING WORK PERMIT

Project : Sr.No. :
Name of the work : Date :
Name of contractor : Job No.:

Name of sub-contractor : No. of workers to be engaged :

Line No./ Equipment No./ Structure to be dismantled :

Location details of dismantling/ demolition with sketch : (clearly indicate the area)

The following items have been checked & compliance shall be ensured during currency of the permit:

S. No.	Item description	Done	Not Applicable
1.	Services like power, gas supply, water, etc. disconnected	<input type="checkbox"/>	<input type="checkbox"/>
2.	Dismantling/ Demolishing method reviewed & approved	<input type="checkbox"/>	<input type="checkbox"/>
3.	Usage of appropriate PPEs ensured	<input type="checkbox"/>	<input type="checkbox"/>
4.	Precautions taken for neighbouring structures	<input type="checkbox"/>	<input type="checkbox"/>
5.	First-Aid arrangements made	<input type="checkbox"/>	<input type="checkbox"/>
6.	Fire fighting arrangements ensured	<input type="checkbox"/>	<input type="checkbox"/>
7.	Precautions taken for blasting	<input type="checkbox"/>	<input type="checkbox"/>

(Contractor's Supervisor)

(Contractor's Safety Officer)

Permission is granted.

(Permit issuing authority)

Name :

Date :

Completion report :

Dismantling/ Demolishing is completed on _____ Date at _____ Hrs.

Materials/ debris transported to identified location ☐ Tagging completed (as applicable) ☐

Services like power, gas supply, water, etc. restored ☐

(Permit issuing authority)

SAFETY PRACTICES DURING CONSTRUCTION

OISD-GDN-192

**Oil Industry Safety Directorate
Government of India
Ministry of Petroleum and Natural Gas**

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SAFETY PRACTICES DURING CONSTRUCTION

1.0 INTRODUCTION

Safety in Construction Management deserves utmost attention especially in the hydrocarbon industry, such as Exploration, Refineries, Pipelines and Marketing installations, Gas Processing units etc. Construction is widely recognised as one of the accident prone activities. Most of the accidents are caused by inadequate planning, failure during the construction process and/or because of design deficiencies. Besides property loss, accidents also result in injuries and fatalities to the personnel; same needs to be prevented.

The reasons for accidents during construction activities are related to unique nature of the industry, human behaviour, difficult work-site conditions, extended odd duty hours, lack of training & awareness and inadequate safety management. Unsafe working methods, equipment failure and improper housekeeping also tend to increase the accident rate in construction.

Ensuring good quality of materials, equipment and competent supervision along with compliance of standard engineering practices shall go a long way to in built safety into the system.

The objective of this standard is to provide practical guidance on technical and educational framework for safety and health in construction with a view to:

- (a) prevent accidents and harmful effects on the health of workers arising from employment in construction;
- (b) ensure appropriate safety during implementation of construction;
- (c) provide safety practice guidelines for appropriate measures of planning, control and enforcement.

2.0 SCOPE

This document specifies broad guidelines on safe practices to be adhered to during construction activities in oil industry. However, before commencing any job, specific hazards and its effects should be assessed and necessary corrective/preventive actions should be taken by all concerned. The document is intended only to supplement and not to

replace or supersede the prevailing statutory requirements, which shall also be followed as applicable. For Personal Protective Equipment, OISD-STD-155 (Part I&II) shall be referred to. The scope of this document does not include the design aspects and quality checks during construction.

3.0 DEFINITIONS

Definitions of various terminology are given below:

- *Adequate, appropriate or suitable* are used to describe qualitatively or quantitatively the means or method used to protect the worker.
- *Brace*: A structural member that holds one point in a fixed position with respect to another point; bracing is a system of structural members designed to prevent distortion of a structure.
- *By hand*: The work is done without the help of a mechanised tool.
- *Competent Authority*: A statutory agency having the power to issue regulations, orders or other instructions having the force of law.
- *Competent person*: A person possessing adequate qualifications, such as suitable training and sufficient knowledge, experience and skill for the safe performance of the specific work. The competent authorities may define appropriate criteria for the designation of such persons and may determine the duties to be assigned to them.
- *Execution agency*:
Any physical or legal person, having contractual obligation with the owner, and who employs one or more workers on a construction site
- *Owner*:
Any physical or legal person for whom construction job is carried out.
It shall also include owner's designated representative/consultant/nominee/agent, authorised from time to time to act for and on its behalf, for supervising/

coordinating the activities of the execution agency.

- *Hazard*: Danger or potential danger.
- *Guard-rail*: An adequately secured rail erected along an exposed edge to prevent persons from falling.
- *Hoist*: A machine, which lifts materials or persons by means of a platform, which runs on guides.
- *Lifting gear*: Any gear or tackle by means of which a load can be attached to a lifting appliance but which does not form an integral part of the appliance or load.
- *Lifting appliance*: Any stationary or mobile appliance used for raising or lowering persons or loads.
- *Means of access or egress*: Passageways, corridors, stairs, platforms, ladders and any other means for entering or leaving the workplace or for escaping in case of danger.
- *Scaffold*: Any fixed, suspended or mobile temporary structure supporting workers and material or to gain access to any such structure and which is not a lifting appliance as defined above.
- *Toe-board*: A barrier placed along the edge of a scaffold platform, runway, etc., and secured there to guard against the slipping of persons or the falling of material.
- *Worker*: Any person engaged in construction activity.
- *Workplace*: All places where workers need to be or to go by reason of their work.

4.0 GENERAL DUTIES

4.1 GENERAL DUTIES OF EXECUTION AGENCIES

4.1.1 Execution agency should:

- i) provide means and organisation to comply with the safety and health measures required at the workplace.
- ii) provide and maintain workplaces, plant, equipment, tools and machinery and organise

construction work so that, there is no risk of accident or injury to health of workers. In particular, construction work should be planned, prepared and undertaken so that:

- (a) dangers, liable to arise at the workplace, are prevented;
 - (b) excessively or unnecessarily strenuous work positions and movements are avoided;
 - (c) organisation of work takes into account the safety and health of workers;
 - (d) materials and products used are suitable from a safety and health point of view;
 - (e) working methods are adopted to safeguard workers against the harmful effects of chemical, physical and biological agents.
- iii) establish committees with representatives of workers and management or make other arrangement for the participation of workers in ensuring safe working conditions.
 - iv) arrange for periodic safety inspections by competent persons of all buildings, plant, equipment, tools, machinery, workplaces and review of systems of work, regulations, standards or codes of practice. The competent person should examine and ascertain the safety of construction machinery and equipment.
 - v) provide such supervision to ensure that workers perform their work with due regard to safety and health of theirs as well as that of others.
 - vi) Employ only those workers who are qualified, trained and suited by their age, physique, state of health and skill.
 - vii) satisfy themselves that all workers are informed and instructed in the hazards connected with their work and environment and trained in the precautions necessary to avoid accidents and injury to health.
 - viii) Ensure that buildings, plant, equipment, tools, machinery or workplaces in which a dangerous defect has been found should not be used until the defect has been rectified.

- ix) Organise for and remain always prepared to take immediate steps to stop the operation and evacuate workers as appropriate, where there is an imminent danger to the safety of workers.
- x) establish a checking system by which it can be ascertained that all the members of a shift, including operators of mobile equipment, have returned to the camp or base at the close of work on dispersed sites and where small groups of workers operate in isolation.
- xi) provide appropriate first aid, training and welfare facilities to workers as per various statutes like the Factories Act, 1948 etc. and, whenever collective measures are not feasible or are insufficient, provide and maintain personal protective equipment and clothing in line with the requirement as per OISD-STD-155 (Vol. I & II) on Personnel Protective Equipment. They should also provide access to workers to occupational health services.
- xii) Educate workers about their right and the duty at any workplace to participate in ensuring safe working conditions to the extent of their control over the equipment and methods of work and to express views on working procedures adopted as may affect safety and health.
- xiii) Ensure that except in an emergency, workers, unless duly authorised, should not interfere with, remove, alter or displace any safety device or other appliance furnished for their protection or the protection of others, or interfere with any method or process adopted with a view to avoiding accidents and injury to health.
- xiv) Ensure that workers do not operate or interfere with plant and equipment that they have not been duly authorised to operate, maintain or use.
- xv) Ensure that workers do not sleep, rest or cook etc in dangerous places such as scaffolds, railway tracks, garages, confined spaces or in the vicinity of fires, dangerous or toxic substances, running machines or vehicles and heavy equipment etc.
- xvii) Obtain the necessary clearance/permits as required and specified by owner
- xviii) As per the Govt. circular as amended from time to time all contractors who employ more than 50 workers or where the contract value exceeds Rs. 50 crores, the following facilities are to be provided by contractor at site :
- Arrangement for drinking water
 - Toilet facilities
 - A creche where 10 or more women workers are having children below the age of 6 years
 - Transport arrangement for attending to emergencies
- xix) should deploy a safety officer at site
- 4.2 GENERAL DUTIES OF OWNERS**
- 4.2.1 Owners should:
- i) co-ordinate or nominate a competent person to co-ordinate all activities relating to safety and health on their construction projects;
 - ii) inform all contractors on the project of special risks to health and safety;
 - iii) Ensure that executing agency is aware of the owner's requirements and the executing agency's responsibilities with respect to safety practices before starting the job.
- 5.0 SAFETY PRACTICES AT WORK PLACES**
- 5.1. GENERAL PROVISIONS**
- 5.1.1 All openings and other areas likely to pose danger to workers should be clearly indicated.
- 5.1.2 Workers & Supervisors should use the safety helmet and other requisite Personal Protective Equipment according to job & site requirement. They should be trained to use personal protective equipment.
- 5.1.3 Never use solvents, alkalis and other oils to clean the skin.
- 5.1.4 Lift the load with back straight and knees bent as far as possible. Seek the help in case of heavy load.

5.1.5 Ensure the usage of correct and tested tools and tackles. Don't allow the make shift tools and tackles.

5.1.6 No loose clothing should be allowed while working near rotating equipment or working at heights.

5.2 MEANS OF ACCESS AND EGRESS

Adequate and safe means of access (atleast two, differently located) to and egress from all workplaces should be provided. Same should be displayed and maintained.

5.3 HOUSEKEEPING

5.3.1 Ensure:

- i) proper storage of materials and equipment;
- ii) removal of scrap, inflammable material, waste and debris at appropriate intervals.

5.3.2 Removal of loose materials, which are not required for use, to be ensured. Accumulation of these at the site can obstruct means of access to and egress from workplaces and passageways.

5.3.3 Workplaces and passageways, that are slippery owing to oil, grease or other causes, should be cleaned up or strewn with sand, sawdust, ash etc.

5.4 PRECAUTIONS AGAINST THE FALL OF MATERIALS & PERSONS AND COLLAPSE OF STRUCTURES

5.4.1 Precautions should be taken such as the provision of fencing, look-out men or barriers to protect any person against injury by the fall of materials, or tools or equipment being raised or lowered.

5.4.2 Where necessary to prevent danger, guys, stays or supports should be used or other effective precautions should be taken to prevent the collapse of structures or parts of structures that are being erected, maintained, repaired, dismantled or demolished.

5.4.3 All openings through which workers are liable to fall should be kept

effectively covered or fenced and displayed prominently.

5.4.4 As far as practicable, guardrails and toe-boards should be provided to protect workers from falling from elevated workplaces.

5.5 PREVENTION OF UNAUTHORISED ENTRY

5.5.1 Construction sites located in built-up areas and alongside vehicular and pedestrian traffic routes should be fenced to prevent the entry of unauthorised persons.

5.5.2 Visitors should not be allowed access to construction sites unless accompanied by or authorised by a competent person and provided with the appropriate protective equipment.

5.6 FIRE PREVENTION AND FIRE FIGHTING

5.6.1 All necessary measures should be taken by the executing agency and owner to:

- i) avoid the risk of fire;
- ii) control quickly and efficiently any outbreak of fire;
- iii) bring out a quick and safe evacuation of persons.
- iv) Inform unit/fire station control room, where construction work is carried out within existing operating area.

5.6.2 Combustible materials such as packing materials, sawdust, greasy/oily waste and scrap wood or plastics should not be allowed to accumulate in workplaces but should be kept in closed metal containers in a safe place.

5.6.3 Places where workers are employed should, if necessary to prevent the danger of fire, be provided with:

- i) suitable and sufficient fire-extinguishing equipment, which should be easily visible and accessible;
- ii) an adequate water supply at sufficient pressure meeting the requirements of various OISD standards.

5.6.4 To guard against danger at places having combustible material,

- workers should be trained in the action to be taken in the event of fire, including the use of means of escape.
- 5.6.5 At sites having combustible material, suitable visual signs should be provided to indicate clearly the direction of escape in case of fire.
- 5.6.6 Means of escape should be kept clear at all times. Escape routes should be frequently inspected particularly in high structures and where access is restricted.
- 5.7 LIGHTING**
- 5.7.1 Where natural lighting is not adequate, working light fittings or portable hand-lamps should be provided at workplace on the construction site where a worker will do a job.
- 5.7.2 Emergency lighting should be provided for personnel safety during night time to facilitate standby lighting source, if normal system fails.
- 5.7.2 Artificial lighting should not produce glare or disturbing shadows.
- 5.7.3 Lamps should be protected by guards against accidental breakage.
- 5.7.4 The cables of portable electrical lighting equipment should be of adequate size & characteristics for the power requirements and of adequate mechanical strength to withstand severe conditions in construction operations.
- 5.8 PLANT, MACHINERY, EQUIPMENT AND HAND TOOLS**
- 5.8.1 General Provisions**
- i) Plant, machinery and equipment including hand tools, both manual and power driven, should:
- a) be of proper design and construction, taking into account health, Safety and ergonomic principles.
 - b) be maintained in good working order;
 - c) be used only for work for which they have been designed.
- d) be operated only by workers who have been authorised and given appropriate training.
 - e) be provided with protective guards, shields or other devices as required.
 - ii) Adequate instructions for safe use should be provided.
 - iii) Safe operating procedures should be established and used for all plant, machinery and equipment.
 - iv) Operators of plant, machinery and equipment should not be distracted while work is in progress.
 - v) Plant, machinery and equipment should be switched off when not in use and isolated before any adjustment, clearing or maintenance is done.
 - vi) Where trailing cables or hose pipes are used they should be kept as short as practicable and not allowed to create a hazard.
 - vii) All moving parts of machinery and equipment should be enclosed or adequately guarded.
 - viii) Every power-driven machine and equipment should be provided with adequate means, immediately accessible and readily identifiable to the operator, of stopping it quickly and preventing it from being started again inadvertently.
 - ix) Operators of plant, machinery, equipment and tools should be provided with PPEs, including where necessary, suitable ear protection.
- 5.8.2 Hand tools**
- i) Hand tools should be repaired by competent persons.
 - ii) Heads of hammers and other shock tools should be dressed or ground to a suitable radius on the edge as soon as they begin to mushroom or crack.
 - iii) When not in use and while being carried or transported sharp tools should be kept in sheaths, shields, chests or other suitable containers.
 - iv) Only insulated or nonconducting tools should be used on or near live electrical installations.

- v) Only non-sparking tools should be used near or in the presence of flammable or explosive dusts or vapours.

5.8.3 Pneumatic Tools

- i) Operating triggers on portable pneumatic tools should be:
 - a) so placed as to minimise the risk of accidental starting of the machine.
 - b) so arranged as to close the air inlet valve automatically when the pressure of the operator's hand is removed.
- ii) Hose and hose connections for compressed air supply to portable pneumatic tools should be:
 - a) designed and tested for the pressure and service for which they are intended;
 - b) fastened securely on the pipe outlet and equipped with the safety chain, as appropriate.
- iii) Pneumatic shock tools should be equipped with safety clips or retainers to prevent dies and tools from being accidentally expelled from the barrel.
- iv) Pneumatic tools should be disconnected from power and the pressure in hose lines released before any adjustment or repair is made.

5.8.4 Electrical Tools

- i) Low voltage portable electrical tools should generally be used.
- ii) All electrical tools should be earthed, unless they are "all insulated" or "double insulated" tools which do not require earthing.
- iii) All electrical tools should get inspected and maintained on a regular basis by a competent electrician and complete records kept.

5.8.5 Engines

- i) Engines should:
 - a) be installed so that they can be started safely and the maximum safe speed cannot be exceeded.
 - b) have controls for limiting speed.

- c) have devices to stop them from a safe place in an emergency.
- ii) IC engines should not be run in confined spaces unless adequate exhaust ventilation is provided.
- iii) When IC engines are being fuelled:
 - a) the engine should be shut off.
 - b) care should be taken to avoid spilling fuel;
 - c) no person should smoke or have an naked light in the vicinity.
 - d) a fire extinguisher should be kept readily available.
- iv) Secondary fuel reservoir should be placed outside the engine room.

6.0 CONSTRUCTION ACTIVITIES

The various common activities in construction are as under:

- Excavation
- Scaffolding, Platforms & Ladders
- Structural Work, Laying of Reinforcement & Concreting
- Road Work (Laying of roads)
- Cutting /Welding
- Working in Confined Space
- Proof/Pressure Testing
- Working at Heights
- Handling & Lifting Equipments
- Vehicle Movement
- Electrical
- Offshore
- Demolition
- Radiography
 - Sand/shot blasting/ spray painting
 - Work above water

The safe practices to be followed during the implementation of above construction activities are given below:

6.1 EXCAVATION

- 6.1.1 All excavation work should be planned and the method of excavation and the type of support

work required should be decided considering the following:

- i) the stability of the ground;
 - ii) the excavation will not affect adjoining buildings, structures or roadways;
 - iii) to prevent hazard, the gas, water, electrical and other public utilities should be shut off or disconnected, if necessary;
 - iv) presence of underground pipes, cable conductors, etc.,
 - v) the position of culvert/bridges, temporary roads and spoil heaps should be determined;
- 6.1.2 Before digging begins on site, all excavation work should be planned and the method of excavation and the type of support work required decided.
- 6.1.3 All excavation work should be supervised.
- 6.1.4 Sites of excavations should be thoroughly inspected:
- i) daily, prior to each shift and after interruption in work of more than one day;
 - ii) after every blasting operation;
 - iii) after an unexpected fall of ground;
 - iv) after substantial damage to supports;
 - v) after a heavy rain, frost or snow;
 - vi) when boulder formations are encountered.
- 6.1.5 Safe angle of repose while excavating trenches exceeding 1.5m depth upto 3.0m should be maintained. Based on site conditions, provide proper slope, usually 45° , and suitable bench of 0.5m width at every 1.5m depth of excavation in all soils except hard rock or provide proper shoring and strutting to prevent cave-in or slides.
- 6.1.6 As far as possible, excavated earth should not be placed within one meter of the edge of the trench or depth of trench whichever is greater.
- 6.1.7 Don't allow vehicles to operate too close to excavated area. Maintain atleast 2m distance from edge of excavation. No load, plant or equipment should be placed or moved near the edge of any excavation where it is likely to cause its collapse and thereby endanger any person unless precautions such as the provision of shoring or piling are taken to prevent the sides from collapsing.
- 6.1.8 Adequately anchored stop blocks and barriers should be provided to prevent vehicles being driven into the excavation. Heavy vehicles should not be allowed near the excavation unless the support work has been specially designed to permit it.
- 6.1.9 If an excavation is likely to affect the security of a structure on which persons are working, precautions should be taken to protect the structure from collapse.
- 6.1.10 Barricade at 1m height (with red & white band/self glowing caution board) should be provided for excavations beyond 1.5m depth. Provide two entries/exits for such excavation.
- 6.1.11 Necessary precautions should be taken for underground utility lines like cables, sewers etc. and necessary approvals/clearances from the concerned authorities shall be obtained before commencement of the excavation job.
- 6.1.12 Water shall be pumped/bailed out, if any accumulates in the trench. Necessary precautions should be taken to prevent entry of surface water in trenches.
- 6.1.13 During rains, the soil becomes loose. Take additional precaution against collapse of side wall.
- 6.1.14 In hazardous areas, air should be tested to ascertain its quality. No one should be allowed entry till it is suitable for breathing.
- 6.1.15 In case of mechanised excavation, precaution shall be taken to not to allow anybody to come within one meter of extreme reach of the mechanical shovel. The mechanised excavator shall be operated by a well-trained experienced operator. When not in operation, the machine shall be kept on firm leveled ground with mechanical shovel resting on ground. Wheel or belt shall be suitably jammed to prevent any accidental movement of the

machine. Suitable precautions as per manufacturer guidelines should be taken for dozers, graders and other heavy machines.

- 6.1.16 In case of blasting, follow strictly IS:4081-1986 & Indian Explosive Act and rules for storage, handling and carrying of explosive materials and execution of blasting operation.

6.2 SCAFFOLDING, PLATFORMS & LADDERS

6.2.1 Metal as material of construction

- i) A scaffold should be provided and maintained or other equally safe and suitable provision should be made where work cannot safely be done on or from the ground or from part of a building or other permanent structure.
- ii) Scaffolds should be provided with safe means of access, such as stairs, ladders or ramps. Ladders should be secured against inadvertent movement.
- iii) Every scaffold should be constructed, erected and maintained so as to prevent collapse or accidental displacement when in use.
- iv) Every scaffold and part thereof should be constructed :
 - (a) in such a way so as not to cause hazards for workers during erection and dismantling;
 - (b) in such a way so as guard rails and other protective devices, platforms, ladders, stairs or ramps can be easily put together;
 - (c) with sound material and of requisite size and strength for the purpose for which it is to be used and maintained in a proper condition.
- v) Boards and planks used for scaffolds should be protected against splitting.
- vi) Materials used in the construction of scaffolds should be stored under good conditions and apart from any material unsuitable for scaffolds.
- vii) Couplers should not cause deformation in tubes. Couplers should be made of drop forged steel or equivalent material.

- viii) Tubes should be free from cracks, splits and excessive corrosion and be straight to the eye, and tube ends cut cleanly square with the tube axis.
- ix) Scaffolds should be designed for their maximum load as per relevant code.
- x) Scaffolds should be adequately braced.
- xi) Scaffolds which are not designed to be independent should be rigidly connected to the building at designated vertical and horizontal places.
- xii) A scaffold should never extend above the highest anchorage to an extent which might endanger its stability and strength.
- xiii) Loose bricks, drainpipes, chimney-pots or other unsuitable material should not be used for the construction or support of any part of a scaffold.
- xiv) Scaffolds should be inspected and certified:
 - (a) before being taken into use;
 - (b) at periodic intervals thereafter as prescribed for different types of scaffolds;
 - (c) after any alteration, interruption in use, exposure to weather or seismic conditions or any other occurrence likely to have affected their strength or stability.
- xv) Inspection should more particularly ascertain that:
 - (a) the scaffold is of suitable type and adequate for the job;
 - (b) materials used in its construction are sound and of sufficient strength;
 - (c) it is of sound construction and stable;
 - (d) that the required safeguards are in position.
- xvi) A scaffold should not be erected, substantially altered or dismantled except by or under the supervision.
- xvii) Every scaffold should be maintained in good and proper condition, and every part should be kept fixed or secured so that no part can be

displaced in consequence of normal use.

- xviii) If out-rigger scaffolding is to be used, it should be specifically designed and inspected before putting in use.

6.2.2 Lifting appliances on scaffolds

- i) When a lifting appliance is to be used on a scaffold:
 - (a) the parts of the scaffold should be carefully inspected to determine the additional strengthening and other safety measures required;
 - (b) any movement of the scaffold members should be prevented;
 - (c) if practicable, the uprights should be rigidly connected to a solid part of the building at the place where the lifting appliance is erected.

6.2.3 Prefabricated scaffolds

- i) In the case of prefabricated scaffold systems, the instructions provided by the manufacturers or suppliers should be strictly adhered to. Prefabricated scaffolds should have adequate arrangements for fixing bracing.
- ii) Frames of different types should not be intermingled in a single scaffold.
- iii) Scaffolding shall be erected on firm and level ground.
- iv) All members of metal scaffolding shall be checked periodically to screen out defective / rusted members. All joints should be properly lubricated for easy tightening.
- v) Entry to scaffolding should be restricted.
- vi) Erection, alteration and removal shall be done under supervision of experienced personnel.
- vii) Use of barrels, boxes, loose bricks etc., for supporting platform shall not be permitted.
- viii) Each supporting member of platform shall be securely fastened and braced
- ix) Where planks are butt-joined, two parallel putlogs shall be used, not

more than 100mm apart, to give support to each plank.

- x) Platform plank shall not project beyond its end support to a distance exceeding 4 times the thickness of plank, unless it is effectively secured to prevent tipping. Cantilever planks should be avoided.
- xi) The platform edges shall be provided with 150mm high toe board to eliminate hazards of tools or other objects falling from platform.
- xii) Erect ladders in the "four up-one out position"
- xiii) Lash ladder securely with the structure.
- xiv) Using non-slip devices, such as, rubber shoes or pointed steel ferules at the ladder foot, rubber wheels at ladder top, fixing wooden battens, cleats etc.
- xv) When ladder is used for climbing over a platform, the ladder must be of sufficient length, to extend at least one meter above the platform, when erected against the platform in "four up-one out position."
- xvi) Portable ladders shall be used for heights not more than 4mt. Above 4mt flights, fixed ladders shall be provided with at least 600 mm landings at every 6mt or less.
- xvii) The width of ladder shall not be less than 300mm and rungs shall be spaced not more than 300mm.
- xviii) Every platform and means of access shall be kept free from obstruction.
- xix) If grease, mud, gravel, mortar etc., fall on platform or scaffolds, these shall be removed immediately to avoid slippage.
- xx) Workers shall not be allowed to work on scaffolds during storms or high wind. After heavy rain or storms, scaffolds shall be inspected before reuse.
- xxi) Don't overload the scaffolding. Remove excess material and scrap immediately.
- xxii) Dismantling of scaffolds shall be done in a pre-planned sequential manner.

6.2.4 Suspended scaffolds/boatwain's chair

- i) In addition to the requirements for scaffolds in general as regards soundness, stability and protection against the risk of falls, suspended scaffolds should meet the following specific requirements.
 - (a) platforms should be designed and built with dimensions that are compatible with the stability of the structure as a whole, especially the length;
 - (b) the number or anchorage should be compatible with the dimensions of the platform;
 - (c) the safety of workers should be safeguarded by an extra rope having a point of attachment independent of the anchorage arrangements of the scaffold;
 - (d) the anchorage and other elements of support of the scaffold should be designed and built in such a way as to ensure sufficient strength;
 - (e) the ropes, winches, pulleys or pulley blocks should be designed, assembled, used and maintained according to the requirements established for lifting gear adapted to the lifting of persons according to national laws and regulations;
 - (f) Before use, the whole structure should be checked by a competent person.

6.2.5 Bamboo Scaffolding

- i) In general, it should be avoided as far as possible. It should not be used in the unit/off-site areas and where hot work is to be done.
- ii) For construction and maintenance of residential and office buildings, situated outside explosive licensed area, bamboo scaffold, if used, should conform to provisions given in IS-3696 (Part 1)-1987.

6.3 STRUCTURAL WORK, LAYING OF REINFORCEMENT & CONCRETING

6.3.1 General provisions

- i) The erection or dismantling of buildings, structures, civil

engineering works, formwork, falsework and shoring should be carried out by trained workers only under the supervision of a competent person.

- ii) Precautions should be taken to guard against danger to workers arising from any temporary state of weakness or instability of a structure.
- iii) Formwork, falsework and shoring should be so designed, constructed and maintained that it will safely support all loads that may be imposed on it.
- iv) Formwork should be so designed and erected that working platforms, means of access, bracing and means of handling and stabilising are easily fixed to the formwork structure.

6.3.2. Erection and dismantling of steel and prefabricated structures

- i) The safety of workers employed on the erection and dismantling of steel and prefabricated structures should be ensured by appropriate means, such as provision and use of:
 - (a) ladders, gangways or fixed platforms;
 - (b) platforms, buckets, boatswain's chairs or other appropriate means suspended from lifting appliances;
 - (c) safety harnesses and lifelines, catch nets or catch platforms;
 - (d) Power-operated mobile working platforms.
- ii) Steel and prefabricated structures should be so designed and made that they can be safely transported and erected.
- iii) In addition to the need for the stability of the part when erected, the design should explicitly take following into account:
 - (a) the conditions and methods of attachment in the operations of transport, storing and temporary support during erection or dismantling as applicable;
 - (b) Methods for the provision of safeguards such as railings and working platforms, and, when necessary, for mounting them

- easily on the structural steel or prefabricated parts.
- iv) The hooks and other devices built in or provided on the structural steel or prefabricated parts that are required for lifting and transporting them should be so shaped, dimensioned and positioned as:
 - (a) to withstand with a sufficient margin the stresses to which they are subjected;
 - (b) Not to set up stresses in the part that could cause failures, or stresses in the structure itself not provided for in the plans, and be designed to permit easy release from the lifting appliance. Lifting points for floor and staircase units should be located (recessed if necessary) so that they do not protrude above the surface;
 - (c) To avoid imbalance or distortion of the lifted load.
 - v) Storeplaces should be so constructed that:
 - (a) there is no risk of structural steel or prefabricated parts falling or overturning;
 - (b) storage conditions generally ensure stability and avoid damage having regard to the method of storage and atmospheric conditions;
 - (c) racks are set on firm ground and designed so that units cannot move accidentally.
 - vi) While they are being stored, transported, raised or set down, structural steel or prefabricated parts should not be subjected to stresses prejudicial to their stability.
 - vii) Every lifting appliance should:
 - (a) be suitable for the operations and not be capable of accidental disconnection;
 - (b) be approved or tested as per statutory requirement.
 - viii) Lifting hooks should be of the self-closing type or of a safety type and should have the maximum permissible load marked on them.
 - ix) Tongs, clamps and other appliances for lifting structural steel and prefabricated parts should:
 - (a) be of such shape and dimensions as to ensure a secure grip without damaging the part;
 - (b) be marked with the maximum permissible load in the most unfavourable lifting conditions.
 - x) Structural steel or prefabricated parts should be lifted by methods or appliances that prevent them from spinning accidentally.
 - xi) When necessary to prevent danger, before they are raised from the ground, structural steel or prefabricated parts should be provided with safety devices such as railings and working platforms to prevent falls of persons.
 - xii) While structural steel or prefabricated parts are being erected, the workers should be provided with appliances for guiding them as they are being lifted and set down, so as to avoid crushing of hands and to facilitate the operations. Use of such appliances should be ensured.
 - xiii) A raised structural steel or prefabricated part should be so secured and wall units so propped that their stability cannot be imperiled, even by external agencies such as wind and passing loads before its release from the lifting appliance.
 - xiv) At work places, instruction should be given to the workers on the methods, arrangements and means required for the storage, transport, lifting and erection of structural steel or prefabricated parts, and, before erection starts, a meeting of all those responsible should be held to discuss and confirm the requirements for safe erection.
 - xv) During transportation within the construction area, attachments such as slings and stirrups mounted on structural steel or prefabricated parts should be securely fastened to the parts.
 - xvi) Structural steel or prefabricated parts should be so transported that the conditions do not affect the stability of the parts or the means of transport result in jolting, vibration or stresses due to blows, or loads of material or persons.

- xvii) When the method of erection does not permit the provision of other means of protection against fall of persons, the workplaces should be protected by guardrails, and if appropriate by toe-boards.
- xviii) When adverse weather conditions such as snow, ice and wind or reduced visibility entail risks of accidents, the work should be carried on with particular care, or, if necessary, interrupted.
- xix) Structures should not be worked on during violent storms or high winds, or when they are covered with ice or snow, or are slippery from other causes.
- xx) If necessary, to prevent danger, structural steel parts should be equipped with attachments for suspended scaffolds, lifelines or safety harnesses and other means of protection.
- xxi) The risks of falling, to which workers moving on high or sloping girders are exposed, should be limited by all means of adequate collective protection or, where this is impossible, by the use of a safety harness that is well secured to a strong support.
- xxii) Structural steel parts that are to be erected at a great height should as far as practicable be assembled on the ground.
- xxiii) When structural steel or prefabricated parts are being erected, a sufficiently extended area underneath the workplace should be barricaded or guarded
- xxiv) Steel trusses that are being erected should be adequately shored, braced or guyed until they are permanently secured in position.
- xxv) Load-bearing structural member should not be dangerously weakened by cutting, holing or other means.
- xxvi) Structural members should not be forced into place by the hoisting machine while any worker is in such a position that he could be injured by the operation.
- xxvii) Open-web steel joists that are hoisted singly should be directly

placed in position and secured against dislodgment.

6.3.3 Reinforcement

- i) Ensure that workers use Personnel Protective equipment like safety helmet, safety shoes, gloves etc.
- ii) Don't place the hand below the rods for checking clear distance. Use measuring devices.
- iii) Don't wear loose clothes while checking the rods.
- iv) Don't stand unnecessarily on cantilever rods.
- v) To carry out welding/cutting of rods, safety procedures/precautions as mentioned in Item No. 6.5 to be followed.
- vi) For supplying of rods at heights, proper staging and/or bundling to be provided.
- vii) Ensure barricading and staging for supplying and fixing of rods at height.
- viii) For short distance carrying of materials on shoulders, suitable pads to be provided.
- ix) While transporting material by trucks/trailers, the rods shall not protrude in front of or by the sides of driver's cabin. In case such protrusion cannot be avoided behind the deck, then it should not extend $1/3^{\text{rd}}$ of deck length or 1.5M whichever is less and tied with red flags/lights.

6.3.4 Concreting

- i) Ensure stability of shuttering work before allowing concreting.
- ii) Barricade the concreting area while pouring at height/depths.
- iii) Keep vibrator hoses, pumping concrete accessories in healthy conditions and mechanically locked.
- iv) Pipelines in concrete pumping system shall not be attached to temporary structures such as scaffolds and formwork support as the forces and movements may effect their integrity.

- v) Check safety cages & guards around moving motors/parts etc. provided in concreting mixers.
- vi) Use Personal Protective Equipment like gloves, safety shoes etc. while dealing with concrete and wear respirators for dealing with cement.
- vii) Earthing of electrical mixers, vibrators, etc. should be done and verified.
- viii) Cleaning of rotating drums of concrete mixers shall be done from outside. Lockout devices shall be provided where workers need to enter.
- ix) Where concrete mixers are driven by internal combustion engine, exhaust points shall be located away from the worker's workstation so as to eliminate their exposure to obnoxious fumes.
- x) Don't allow unauthorised person to stand under the concreting area.
- xi) Ensure adequate lighting arrangements for carrying out concrete work during night.
- xii) Don't allow the same workers to pour concrete round the clock. Insist on shift pattern.
- xiii) During pouring, shuttering and its supports should be continuously watched for defects.

6.4 ROAD WORK

- 6.4.1 Site shall be barricaded and provided with warning signs, including night warning lamps at appropriate locations for traffic diversion.
- 6.4.2 Filled and empty bitumen drums shall be stacked separately at designated places.
- 6.4.3 Mixing aggregate with bitumen shall preferably be done with the help of bitumen batch mixing plant, unless operationally non-feasible.
- 6.4.4 Road rollers, Bitumen sprayers, Pavement finishers shall be driven by experienced drivers with valid driving license.
- 6.4.5 Workers handling hot bitumen sprayers or spreading bitumen aggregate mix or mixing bitumen

with aggregate, shall be provided with PVC hand gloves and rubber shoes with legging up to knee joints.

- 6.4.6 At the end of day's work, surplus hot bitumen in tar boiler shall be properly covered by a metal sheet, to prevent anything falling in it,
- 6.4.7 If bitumen accidentally falls on ground, it shall be immediately covered by sprinkling sand, to prevent anybody stepping on it. Then it shall be removed with the help of spade.
- 6.4.8 For cement concrete roads, besides site barricading and installation of warning signs for traffic diversion, safe practices mentioned in the chapter on "Concreting", shall also be applicable.

6.5 CUTTING/WELDING

- 6.5.1 Common hazards involved in welding/cutting are sparks, molten metal, flying particles, harmful light rays, electric shocks etc. Following precautions should be taken: -
 - i) A dry chemical type fire extinguisher shall be made available in the work area.
 - ii) Adequate ventilation shall be ensured by opening manholes and fixing a shield or forced circulation of air etc, while doing a job in confined space.
 - iii) Ensure that only approved and well-maintained apparatus, such as torches, manifolds, regulators or pressure reducing valves, and acetylene generators, be used.
 - iv) All covers and panels shall be kept in place, when operating an electric Arc welding machine.
 - v) The work piece should be connected directly to Power supply, and not indirectly through pipelines/structures/equipments etc.
 - vi) The welding receptacles shall be rated for 63 A suitable for 415V, 3-Phase system with a scraping earth. Receptacles shall have necessary mechanical interlocks and earthing facilities.
 - vii) All cables, including welding and ground cables, shall be checked for

- any worn out or cracked insulation before starting the job. Ground cable should be separate without any loose joints.
- viii) Cable coiling shall be maintained at minimum level, if not avoidable.
 - ix) An energised electrode shall not be left unattended.
 - x) The power source shall be turned off at the end of job.
 - xi) All gas cylinders shall be properly secured in upright position.
 - xii) Acetylene cylinder shall be turned and kept in such a way that the valve outlet points away from oxygen cylinder.
 - xiii) Acetylene cylinder key for opening valve shall be kept on valve stem, while cylinder is in use, so that the acetylene cylinder could be quickly turned off in case of emergency. Use flash back arrestors to prevent back-fire in acetylene/oxygen cylinder.
 - xiv) When not in use, valves of all cylinders shall be kept closed.
 - xv) All types of cylinders, whether full or empty, shall be stored at cool, dry place under shed.
 - xvi) Forced opening of any cylinder valve should not be attempted.
 - xvii) Lighted gas torch shall never be left unattended.
 - xviii) Store acetylene and oxygen cylinders separately.
 - xix) Store full and empty cylinders separately.
 - xx) Avoid cylinders coming into contact with heat.
 - xxi) Cylinders that are heavy or difficult to carry by hand may be rolled on their bottom edge but never dragged.
 - xxii) If cylinders have to be moved, be sure that the cylinder valves are shut off.
 - xxiii) Before changing torches, shut off the gas at the pressure reducing regulators and not by crimping the hose.
 - xxiv) Do not use matches to light torches, use a friction lighter.
 - xxv) Move out any leaking cylinder immediately.
 - xxvi) Use trolleys for oxygen & acetylene cylinder and chain them.
 - xxvii) Always use Red hose for acetylene and other fuel gases and Black for oxygen, and ensure that both are in equal length.
 - xxviii) Ensure that hoses are free from burns, cuts and cracks and properly clamped.
 - xxix) Avoid dragging hoses over sharp edges and objects
 - xxx) Do not wrap hoses around cylinders when in use or stored.
 - xxxi) Protect hoses from flying sparks, hot slag, and other hot objects.
 - xxxii) Lubricants shall not be used on Ox-fuel gas equipment.
 - xxxiii) During cutting/welding, use proper type goggles/face shields.
- ## 6.6 WORKING IN CONFINED SPACES
- ### 6.6.1 Following safety practices for working in confined space like towers, columns, tanks and other vessels should be followed in addition to the safety guidelines for specific jobs like scaffolding, cutting/welding etc.
- i) Shut down, isolate, depressurise and purge the vessel as per laid down procedures.
 - ii) Entry inside the vessel and to carry out any job should be done after issuance of valid permit only in line with the requirement of OISD-STD-105.
 - iii) Ensure proper and accessible means of exit before entry inside a confined space.
 - iv) The number of persons allowed inside the vessel should be limited to avoid overcrowding.
 - v) When the work is going on in the confined space, there should always be one man standby at the nearby manway.

- vi) Before entering inside the vessels underground or located at lower elevation, probability of dense vapours accumulating nearby should also be considered in addition to inside the vessel.
 - vii) Ensure requisite O₂ level before entry in the confined space and monitor level periodically or otherwise use respiratory devices.
 - viii) Check for no Hydrocarbon or toxic substances before entry and monitor level periodically or use requisite Personal Protective Equipment.
 - ix) Ensure adequate ventilation or use respiratory devices.
 - x) Depending upon need, necessary respirator system, gas masks and suit shall be worn by everyone entering confined space. In case of sewer, OWS or in the confined area where there is a possibility of toxic or inert gas, gas masks shall be used by everyone while entering.
 - xi) Barricade the confined spaces during hoisting, radiography, blasting, pressure testing etc.
 - xii) Use 24V flameproof lamp fittings only for illumination.
 - xiii) Use tools with air motors or electric tools with maximum voltage of 24V.
 - xiv) House keeping shall be well maintained.
 - xv) Safety helmet, safety shoes and safety belt shall be worn by everyone entering the confined space.
 - xvi) Don't wear loose clothing while working in a confined space.
 - xvii) In case of the vessels which are likely to contain pyrophoric substances (like Iron Sulphide), special care need to be taken before opening the vessel. Attempt should be made to remove the pyrophoric substances. Otherwise, these should be always kept wet by suitable means.
 - xviii) The cutting torches should also be kept outside the vessel immediately after the cutting.
 - xix) The gas cylinders used for cutting/welding shall be kept outside.
 - xx) All cables, hoses, welding equipment etc., shall be removed from confined space at end of each work day, even if the work is to be resumed in the same space the next day.
 - xxi) To the extent possible sludge shall be cleared and removed from outside before entering.
 - xxii) No naked light or flame or hot work such as welding, cutting and soldering should be permitted inside a confined space or area unless it has been made completely free of the flammable atmosphere, tested and found safe by a competent person. Only non-sparking tools and flameproof hand lamps protected with guard and safety torches should be used inside such confined space or area for initial inspection, cleaning or other work required to be done for making the area safe.
 - xxiii) Communication should be always maintained between the worker and the attendant.
- 6.7 PROOF/PRESSURE TESTING**
- 6.7.1 Review test procedure before allowing testing with water or air or any other fluid.
 - 6.7.2 Provide relief valves of adequate size while testing with air or other gases.
 - 6.7.3 Ensure compliance of necessary precautions, step wise loading, tightening of fasteners, grouting etc. before and during testing.
 - 6.7.4 Inform all concerned in advance of the testing.
 - 6.7.5 Keep the vents open before opening any valve for filling/draining of liquid used for hydrotesting. The filling/draining should not exceed the designed rate for pressure testing.
 - 6.7.6 Provide separate gauges of suitable range for pressurising pump and the equipment to be tested.
 - 6.7.7 Provide gauges at designated locations for monitoring of pressures.

6.7.8 Check the calibration of all pressurising equipment and accessories and maintain records.

6.7.9 Take readings at pre-defined intervals.

6.8 WORKING AT HEIGHTS

6.8.1 General Provision

- i) While working at a height of more than 3 meters, ISI approved safety belt shall be used.
- ii) While working at a height of more than 3 meters, permit should be issued by competent person before commencement of the job.
- iii) Worker should be well trained on usage of safety belt including its proper usage at the time of ascending/descending.
- iv) All tools should be carried in tool kits to avoid their falling.
- v) If the job is on fragile/sloping roof, roof walk ladders shall be used.
- vi) Provide lifeline wherever required.
- vii) Additional safety measures like providing Fall Arrestor type Safety belt, safety net should be provided depending upon site conditions, job requirements.
- viii) Keep working area neat and clean. Remove scrap material immediately.
- ix) Don't throw or drop material/equipment from height.
- x) Avoid jumping from one member to another. Use proper passageway.
- xi) Keep both hands free while climbing. Don't try to bypass the steps of the ladder.
- xii) Try to maintain calm at height. Avoid over exertion.
- xiii) Avoid movements on beam.
- xiv) Elevated workplaces including roofs should be provided with safe means of access and egress such as stairs, ramps or ladders.

6.8.2 Roof Work

- i) All roof-work operations should be pre-planned and properly supervised.

ii) Roof work should only be undertaken by workers who are physically and psychologically fit and have the necessary knowledge and experience for such work.

iii) Work on roofs shouldn't be carried on in weather conditions that threaten the safety of workers.

iv) Crawling boards, walkways and roof ladders should be securely fastened to a firm structure.

v) Roofing brackets should fit the slope of the roof and be securely supported.

vi) Where it is necessary for a person to kneel or crouch near the edge of the roof, necessary precautions should be taken.

vii) On a large roof where work have to be carried out at or near the edge, a simple barrier consisting of crossed scaffold tubes supporting a tubing guardrail may be provided.

viii) All covers for openings in roofs should be of substantial construction and be secured in position.

ix) Roofs with a pitch of more than 10 should be treated as sloping.

x) When work is being carried out on sloping roofs, sufficient and suitable crawling boards or roof ladders should be provided and firmly secured in position.

xi) During extensive work on the roof, strong barriers or guardrails and toe-boards should be provided to stop a person from falling off the roof.

xii) Where workers are required to work on or near roofs or other places covered with fragile material, through which they are liable to fall, they should be provided with suitable roof ladders or crawling boards strong enough and when spanning across the supports for the roof covering to support those workers.

xiii) A minimum of two boards should be provided so that it is not necessary for a person to stand on a fragile roof to move a board or a ladder, or for any other reason.

6.8.3 Work on tall chimneys

- i) For the erection and repair of tall chimneys, scaffolding should be provided. A safety net should be maintained at a suitable distance below the scaffold.
- ii) The scaffold floor should always be at least 65 cm below the top of the chimney.
- iii) Under the working floor of the scaffolding the next lower floor should be left in position as a catch platform.
- iv) The distance between the inside edge of the scaffold and the wall of the chimney should not exceed 20 cm at any point.
- v) Catch platforms should be erected over:
 - (a) the entrance to the chimney;
 - (b) Passageways and working places where workers could be endangered by falling objects.
- vi) For climbing tall chimneys, access should be provided by:
 - (a) stairs or ladders;
 - (b) a column of iron rungs securely embedded in the chimney wall;
 - (c) Other appropriate means.
- vii) When workers use the outside rungs to climb the chimney, a securely fastened steel core rope looped at the free end and hanging down at least 3 m should be provided at the top to help the workers to climb on to the chimney.
- viii) While work is being done on independent chimneys the area surrounding the chimney should be enclosed by fencing at a safe distance.
- ix) Workers employed on the construction, alteration, maintenance or repair of tall chimneys should not:
 - a) work on the outside without a safety harness attached by a lifeline to a rung, ring or other secure anchorage;
 - b) put tools between the safety harness and the body or in pockets not intended for the purpose;
 - c) haul heavy materials or equipment up and down by hand to or from the workplace on the chimney;
 - d) fasten pulleys or scaffolding to reinforcing rings without first verifying their stability;
 - e) work alone;
 - f) climb a chimney that is not provided with securely anchored ladders or rungs;
 - g) Work on chimneys in use unless the necessary precautions to avoid danger from smoke and gases have been taken.
- x) Work on independent chimneys should not be carried on in high winds, icy conditions, fog or during electrical storms.

6.9 HANDLING AND LIFTING EQUIPMENT:

6.9.1 General Provisions

Following are the general guidelines to be followed with regard to all types of handling and lifting equipment in addition to the guidelines for specific type of equipments dealt later on.

- i) There should be a well-planned safety programme to ensure that all the lifting appliances and lifting gear are selected, installed, examined, tested, maintained, operated and dismantled with a view to preventing the occurrence of any accident;
- ii) All lifting appliances shall be examined by competent persons at frequencies as specified in "The Factories act".
- iii) Check thoroughly quality, size and condition of all lifting tools like chain pulley blocks, slings, U-clamps, D-shackles etc. before putting them in use.
- iv) Safe lifting capacity of all lifting & handling equipment, tools and shackles should be got verified and certificates obtained from competent authorities before its use. The safe working load shall be marked on them.
- v) Check periodically the oil, brakes, gears, horns and tyre pressure of all moving equipments like cranes,

- forklifts, trailers etc as per manufacturer's recommendations.
- vi) Check the weights to be lifted and accordingly decide about the crane capacity, boom length and angle of erection.
 - vii) Allow lifting slings as short as possible and check packing at the friction points.
 - viii) While lifting/placing of the load, no unauthorised person shall remain within the radius of the boom and underneath the load.
 - ix) While loading, unloading and stacking of pipes, proper wedges shall be placed to prevent rolling down of the pipes.
 - x) Control longer jobs being lifted up from both ends.
 - xi) Only trained operators and riggers should carry out the job. While the crane is moving or lifting the load, the trained rigger should be there for keeping a vigil against hitting any other object.
 - xii) During high wind conditions and nights, lifting of heavy equipments should be avoided. If unavoidable to do erection in night, operator and rigger should be fully trained for night signaling. Also proper illumination should be there.
 - xiii) Allow crane to move on hard, firm and leveled ground.
 - xiv) When crane is in idle condition for long periods or unattended, crane boom should either be lowered or locked as per manufacturer's guidelines.
 - xv) Hook and load being lifted shall remain in full visibility of crane operators, while lifting, to the extent possible.
 - xvi) Don't allow booms or other parts of crane to come within 3 meters reach of overhead electrical cables.
 - xvii) No structural alterations or repairs should be made to any part of a lifting appliance, which may affect the safety of the appliance without the permission and supervision of the competent person.
- i) Hoist shafts should be enclosed with rigid panels or other adequate fencing at:
 - (a) ground level on all sides;
 - (b) all other levels at all points at which access is provided;
 - (c) all points at which persons are liable to be struck by any moving part.
 - ii) The enclosure of hoist shafts, except at approaches should extend where practicable at least 2mt above the floor, platform or other place to which access is provided except where a lesser height is sufficient to prevent any person falling down the hoistway and there is no risk of any person coming into contact with any moving part of the hoist, but in no case should the enclosure be less than 1mt in height.
 - iii) The guides of hoist platforms should offer sufficient resistance to bending and, in the case of jamming by a safety catch, to buckling.
 - iv) Where necessary to prevent danger, adequate covering should be provided above the top of hoist shafts to prevent material falling down them.
 - v) Outdoor hoist towers should be erected on firm foundations, and securely braced, guyed and anchored.
 - vi) A ladderway should extend from the bottom to the top of outdoor hoist towers, if no other ladderway exists within easy reach.
 - vii) Hoisting engines should be of ample capacity to control the heaviest load that they will have to move.
 - viii) Hoists should be provided with devices that stop the hoisting engine as soon as the platform reaches its highest stopping place.
 - ix) Winches should be so constructed that the brake is applied when the control handle is not held in the operating position.
 - x) It should not be possible to set in motion from the platform a hoist, which is not designed for the conveyance of persons.

6.9.2 Hoists

- xi) Winches should not be fitted with pawl and ratchet gears on which the pawl must be disengaged before the platform is lowered.
 - xii) Hoist platforms should be capable of supporting the maximum load that they will have to carry with a safety factor.
 - xiii) Hoist platforms should be equipped with safety gear that will hold the platform with the maximum load if the hoisting rope breaks.
 - xiv) If workers have to enter the cage or go on the platform at landings there should be a locking arrangement preventing the cage or platform from moving while any worker is in or on it.
 - xv) On sides not used for loading and unloading, hoist platforms should be provided with toe-boards and enclosures of wire mesh or other suitable material to prevent the fall of parts of loads.
 - xvi) Where necessary to prevent danger from falling objects, hoist platforms should be provided with adequate covering.
 - xvii) Counterweights consisting of an assemblage of several parts should be made of specially constructed parts rigidly connected together.
 - xviii) Counterweights should run in guides.
 - xix) Platforms should be provided at all landings used by workers.
 - xx) Following notices should be posted up conspicuously and in very legible characters:
 - (a) on all hoists:
 - on the platform: the carrying capacity in kilograms or other appropriate standard unit of weight;
 - on the hoisting engine: the lifting capacity in kilograms or other appropriate standard unit of weight;
 - (b) on hoists authorised or certified for the conveyance of persons:
 - on the platform or cage: the maximum number of persons to be carried at one time;
 - (c) on hoists for goods only:
 - on every approach to the hoist and on the platform: prohibition of use by persons.
 - xxi) Hoists intended for the carriage of persons should be provided with a cage so constructed as to prevent any person from falling out or being trapped between the cage and any fixed part of the structure when the cage gate is shut, or from being struck by the counterbalance weight or by articles or materials tailing down the hoistway.
 - xxii) On each side in which access is provided, the cage should have a gate fitted with devices which ensure that the gate cannot be opened except when the cage is at a landing and that the gate must be closed before the cage can move away from the landing.
 - xxiii) Every gate in the enclosure of the hoist shaft which gives access from a landing place to the cage should be fitted with devices to ensure that the gate cannot be opened except when the cage is at that landing place, and that the cage cannot be moved away from that landing place until the gate is closed.
- 6.9.3 Derricks**
- Stiff-leg derricks**
- i) Derricks should be erected on a firm base capable of taking the combined weight of the crane structure and maximum rated load.
 - ii) Devices should be used to prevent masts from lifting out of their seating.
 - iii) Electrically operated derricks should be effectively earthed from the sole plate or framework.
 - iv) Counterweights should be so arranged that they do not subject the backstays, sleepers or pivots to excessive strain.
 - v) When derricks are mounted on wheels:

- a) a rigid member should be used to maintain the correct distance between the wheels;
 - b) they should be equipped with struts to prevent them from dropping if a wheel breaks or the derrick is derailed.
- vi) The length of a derrick jib should not be altered without consulting the manufacturer.
 - vii) The jib of a scotch derrick crane should not be erected within the backstays of the crane.

Guy derricks

- i) The restraint of the guy ropes should be ensured by fitting stirrups or anchor plates in concrete foundations.
- ii) The mast of guy derricks should be supported by six top guys spaced approximately equally.
- iii) The spread of the guys of a guy derrick crane from the mast should not be more than 45° from the horizontal.
- iv) Guy ropes of derricks should be equipped with a stretching screw or turnbuckle or other device to regulate the tension.
- v) Gudgeon pins, sheave pins and fool bearings should be lubricated frequently.
- vi) When a derrick is not in use, the boom should be anchored to prevent it from swinging.

6.9.4 Gin poles

- i) Gin poles should:
 - (a) be straight;
 - (b) consist of steel or other suitable metal;
 - (c) be adequately guyed and anchored;
 - (d) be vertical or raked slightly towards the load;
 - (e) be of adequate strength for the loads that they will be required to lift/move.
- ii) Gin poles should not be spliced and if a gin pole is composed of different elements, they should be assembled in conformity with their intrinsic material strength.

- iii) Gin poles should be fastened at their feet to prevent displacement in operation.
- iv) Gin poles, which are moved from place to place and re-erected, should not be taken into use again before the pole, lifting ropes, guys, blocks and other parts have been inspected, and the whole appliance has been tested under load.
- v) When platforms or skips are hoisted by gin poles, precautions should be taken to prevent them from spinning and to provide for proper landing.

6.9.5 Tower cranes

- i) Where tower cranes have cabs at high level, persons, capable and trained to work at heights, should only be employed as crane operators.
- ii) The characteristics of the various machines available should be considered against the operating requirements and the surroundings in which the crane will operate before a particular type of crane is selected.
- iii) Care should be taken in the assessment of wind loads both during operations and out of service. Account should also be taken of the effects of high structures on wind forces in the vicinity of the crane.
- iv) The ground on which the tower crane stands should have the requisite bearing capacity. Account should be taken of seasonal variations in ground conditions.
- v) Bases for tower cranes and tracks for rail-mounted tower cranes should be firm and level. Tower cranes should only operate on gradients within limits specified by the manufacturer. Tower cranes should only be erected at a safe distance from excavations and ditches.
- vi) Tower cranes should be sited where there is clear space available for erection, operation and dismantling. As far as possible, cranes should be sited so that loads do not have to be handled over occupied premises, over public thoroughfares, other construction works and railways or near power cables.

- vii) Where two or more tower cranes are sited in positions where their jibs could touch any part of the other crane, there should be direct means of communication between them and a distinct warning system operated from the cab so that one driver may alert the other of impending danger.
- viii) The manufacturers' instructions on the methods and sequence of erection and dismantling should be followed. The crane should be tested before being taken into use.
- ix) The climbing operation of climbing tower cranes should be carried out in accordance with manufacturers' instructions. The free-standing height of the tower crane should not extend beyond what is safe and permissible in the manufacturers' instructions.
- x) When the tower crane is left unattended, loads should be removed from the hook, the hook raised, the power switched off and the boom brought to the horizontal. For longer periods or at times when adverse weather conditions are expected, out of service procedures should be followed. The main jib should be slewed to the side of the tower away from the wind, put into free slew and the crane immobilised.
- xi) A windspeed measuring device should be provided at an elevated position on the tower crane with the indicator fitted in the drivers' cab.
- xii) Devices should be provided to prevent loads being moved to a point where the corresponding safe working load of the crane would be exceeded. Name boards or other items liable to catch the wind should not be mounted on a tower crane other than in accordance with the manufacturers' instructions.
- xiii) Tower cranes should not be used for magnet, or demolition ball service, piling operations or other duties, which could impose excessive loading on the crane structure.

6.9.6 Lifting ropes

- i) Only ropes with a known safe working capacity should be used as lifting ropes.
- ii) Lifting ropes should be installed, maintained and inspected in accordance with manufacturers' instructions.
- iii) Repaired steel ropes should not be used on hoists.
- iv) Where multiple independent ropes are used, for the purpose of stability, to lift a work platform, each rope should be capable of carrying the load independently.

6.10 VEHICLE MOVEMENT

- 6.10.1 Park vehicles only at designated places. Don't block roads to create hindrance for other vehicles.
- 6.10.2 Don't overload the vehicle.
- 6.10.3 Obey speed limits and traffic rules.
- 6.10.4 Always expect the unexpected and be a defensive driver.
- 6.10.5 Drive carefully during adverse weather and road conditions.
- 6.10.6 Read the road ahead and ride to the left.
- 6.10.7 Be extra cautious at nights. Keep wind screens clean and lights in working condition.
- 6.10.8 All vehicles used for carrying workers and construction materials must undergo predictive/preventive maintenance and daily checks
- 6.10.9 Driver with proper valid driving license shall only be allowed to drive the vehicle
- 6.10.10 Routes shall be leveled, marked and planned in such a way so as to avoid potential hazards such as overhead power lines and sloping ground etc.
- 6.10.11 While reversing the vehicles, help of another worker should be ensured at all times
- 6.10.12 An unattended vehicle should have the engine switched off
- 6.10.13 Wherever possible one-way system shall be followed
- 6.10.14 Barriers/fixed stops should be provided for excavation/openings to prevent fall of vehicle

- 6.10.15 Load should be properly secured
- 6.10.16 The body of the tipper lorry should always be lowered before driving the vehicle off.
- 6.10.17 Signs/signals/caution boards etc. should be provided on routes .

6.11 ELECTRICAL

6.11.1 General Provisions

- i) Only persons having valid licenses should be allowed to work on electrical facilities.
- ii) No person should be allowed to work on live circuit. The same, if unavoidable, special care and authorisation need to be taken.
- iii) Treat all circuits as "LIVE" unless ensured otherwise.
- iv) Electrical "Tag Out" procedure "MUST" be followed for carrying out maintenance jobs.
- v) Display voltage ratings prominently with "Danger" signs.
- vi) Put caution/notice signs before starting the repair works.
- vii) All electrical equipment operating above 250V shall have separate and distinct connections to earth grid.
- viii) Proper grounding to be ensured for all switch boards and equipment including Portable ones prior to taking into service.
- ix) Make sure that electrical switch boards, portable tools, equipments (like grinding machine etc.) don't get wet during their usage. If it happens, stop the main supply, make the tools dry and then only use them. Check proper earthing.

All temporary switch boards/ KIOSKS put up at work site should be suitably protected from rain and the level of same should be high enough to avoid contact with water due to water logging.
- x) Don't work wet on electrical system.
- xi) Don't overload the electrical system.
- xii) Use only proper rated HRC fuses.
- xiii) Industrial type extension boards and Plug sockets are only to be used.
- xiv) ELCB for all temporary connections must be provided. Use insulated 3-pin plug tops.
- xv) All power supply cables should be laid properly and neatly so that they don't cause hindrance to persons working and no physical damage also takes place to the cables during various construction activities.
- xvi) All Power cables to be properly terminated using glands and lugs of proper size and adequately crimped.
- xvii) Use spark-proof/flame proof type electrical fittings in Fire Hazard zones as per area classification under OISD-STD-113.
- xviii) Check installations of steel plates/pipes to protect underground cables at crossings.
- xix) Don't lay unarmored cable directly on ground, wall, roof or trees. All temporary cables should be laid at least 750 mm below ground and cable markers should be provided. Proper sleeves should be provided at road crossings. In case temporary cables are to be laid on wooden poles/steel poles, the minimum cable heights should be 4.5 M.
- xx) Maintain safe overhead distance of HT cables as per Indian Electricity Rules and relevant acts.
- xxi) Don't connect any earthing wire to the pipelines/structures.
- xxii) Don't make any unsafe temporary connections, naked joints/wiring etc.
- xxiii) Ensure that temporary cables are free from cuts, damaged insulation, kinks or improper insulated joints.
- xxiv) Check at periodic intervals that pins of sockets and joints are not loose.
- xxv) Protect electrical wires/equipments from water and naked flames.
- xxvi) Illuminate suitably all the work areas.
- xxvii) All switchboards should be of MS structure only and incoming source should be marked.
- xxviii) Hand lamps should not be of more than 24V rating.
- xxix) Fire extinguishers (DCP/CO₂/Sand buckets) should be kept near

temporary switch boards being used for construction purposes. Don't use water for fighting electrical fires.

xxx) Insulating mats shall be provided in the front and back end of switch boards.

xxxi) All parts of electrical installations should be so constructed, installed and maintained as to prevent danger of electric shock, fire and external explosion.

Periodic checking/certification of electrical safety appliances such as gloves, insulating mats, hoods etc. to be done/witnessed along with maintaining a register at site signed by competent authority.

xxxii) A notice displaying following, should be kept exhibited at suitable places:

- a) prohibiting unauthorised persons from entering electrical equipment rooms or from handling or interfering with electrical apparatus;
- b) containing directions as to procedures in case of fire, rescue of persons in contact with live conductors and the restoration of persons suffering from electric shock;
- c) specifying the person to be notified in case of electrical accident or dangerous occurrence, and indicating how to communicate with him.

xxxiii) No other cables/pipes to be laid in trench used for electrical cables.

xxxiv) Utmost care should be taken while excavating Earth from cable trench to avoid damage or any accident.

xxxv) Sub-station floor cut-outs meant for switch board installations to be covered wherever installation is incomplete.

NOTE: A Residual Current Operated Circuit Breaker (RCCB) or Earth Leakage Circuit Breaker (ELCB), when installed, protects a human being to the widest extent. RCCB or ELCB should be provided as per Indian Electricity Rules.

6.11.2 Inspection and maintenance

i) All electrical equipment should be inspected before taking into use to

ensure suitability for its proposed use.

ii) At the beginning of every shift, the person using the electrical equipment should make a careful external examination of the equipment and conductors, especially the flexible cables.

iii) Apart from some exceptional cases, work on or near live parts of electrical equipment should be forbidden.

iv) Before any work is begun on conductors or equipment that do not have to remain live:

- a) the current should be switched off by a responsible authorised person;
- b) precautions should be taken to prevent the current from being switched on again;
- c) the conductors or the equipment should be tested to ascertain that they are dead;
- d) the conductors and equipment should be earthed and short-circuited;
- e) neighbouring live parts should be adequately protected against accidental contact.

v) After work has been done on conductors and equipment, the current should only be switched on again on the orders of a competent person after the earthing and short-circuiting have been removed and the workplace reported safe.

vi) Electricians should be provided with approved and tested tools, and personal protective equipment such as rubber gloves, mats etc.

vii) All conductors and equipment should be considered to be live unless there is a proof of the contrary.

viii) When work has to be done in dangerous proximity to live parts the current should be cut off. If for operational reasons this is not possible, the live parts should be fenced off or enclosed by qualified staff from the sub-station concerned.

6.11.3. Testing

- i) Electrical installations should be inspected and tested and the results recorded.
- ii) Periodic testing of the efficiency of the earth leakage protective devices should be carried out.
- iii) Particular attention should be paid to the earthing of apparatus, the continuity of protective conductors, polarity and insulation resistance, protection against mechanical damage and condition of connections at points of entry.

6.12 OFFSHORE

6.12.1 General

The isolated nature of offshore installations are hazardous. They call for greater need for safety and survival at offshore. Safety at offshore is safety of installations and safety of personnel. Safety problems and accidents at offshore have high risks due to limited space, helicopter operation, sea transport etc. Following are the general safety guidelines to be followed in addition to the safety guidelines stipulated for specific jobs dealt later on:

- i) Workers should be well trained to do their job independently with high degree of self-control and self-discipline.
- ii) On arrival at offshore, everyone should be briefed about the safety rules to be followed at offshore, evacuation system etc. All personnel should wear overall (dangri), helmet and shoes for personnel protection.
- iii) In case of emergency, workers should follow instruction of Field Production Superintendent (F.P.S.) In certain cases instructions may be given to abandon the offshore installation and evacuate the persons to safe location.
- iv) To overcome above problems, offshore personnel must receive training for using life saving appliances and other personal survival techniques.
- v) Any person working at offshore should have one person as standby for any eventuality.

6.12.2 Drilling Rigs

- i) Location of jack up rigs should not be less than 5 Kms from shipping route. Orientation of the rig, wind direction etc are required for safe landing of helicopter. Information w.r.t. sea currents, wind speed, Hi-lo tide etc are required for mooring of supply vessels.
- ii) Sea bed condition at every location should be ensured for safety of rig.
- iii) Radio and other communication facilities should be such to maintain contact with base all times.
- iv) During toeing of rig, the rig deck should be clear of load, toeing lines should be in good condition and tensions in various toeing lines should be constantly monitored.
- v) Few steps during toeing are:
 - a) crane booms should be secured to their vesta,
 - b) all hatches and water tight doors should be closed,
 - c) number of personnel on board should be restricted,
 - d) evacuate in case of emergency and operation should be completed preferably in day light.

6.12.3 Drilling

- i) In view of CO₂ and H₂S gas cut from well, effective ventilation should be provided where drilling is in progress.
- ii) Safety alarm shall be checked in advance in view of failure of ventilation system.
- iii) Suitable sensors for H₂S and Methane should be function tested time to time and suitable colour code should be given.
- iv) Working areas of the crane should be illuminated during night to avoid accident.
- v) Clear space should be available for despatch and receipt of load and, in particular, basket transfer of passengers. Persons engaged in loading/unloading of materials should be protected from falling into the sea.

- vi) Signal light should be fitted at the top of the jib.
- vii) Crane hook should be fitted with safety latches.
- viii) Experienced person should be engaged in operation of specific equipment like winches, cranes etc.
- ix) At least three cable turns shall always be there on the winch drum.
- x) Adequate communication like walkie talkie, round robin phone should be available between the crane operator, supervisor and helper.
- xi) Crane operation should be completely stopped during helicopter landing/taking off.
- xii) Except for helicopter landing deck, all decks, platforms, bridges, ladders should have rigid and fixed guard rails atleast one meter high and should have one intermediate rail midway between the handrail and 100 mm toe board.
- xiii) Wooden ladders shall not be used at offshore.
- xiv) Flow sensor in the flow line should be ensured for safe working and to avoid blow out.
- xv) Hydrogen sulphide gas In offshore is of great risk and at 10 ppm (0.001%) concentration in air, a person should not be exposed for more than 8 hours, If concentration is more, then breathing apparatus should be used. Corrosion of equipment is also caused by H₂S.
- xvi) Portable H₂S gas detector should be continuously used.
- iii) Surface safety valve or SDV should be checked for no gas leakage from bleed port / flange etc., in the well head area. It should not be in "mechanical override" or bypassed from panel.
- iv) High pressure gas lift lines - blowdown system should be O.K.
- v) Auto actuation of SDVs in the inlet of pressure vessels should be O.K. and in "normal position" from shutdown panels. A record of status of switches normal/bypassed in auto-con* panels (PSH, PSL, LSL, ILSL) should be maintained.

*** Shut Down Panels**

6.12.4 Production Platforms

- i) In case hydrocarbon is released due to overpressure, leak, overflow, gas blow etc., shut down process to stop flow of hydrocarbon. Prevent ignition of released hydrocarbon and in case of fire shut in the process complex and follow emergency contingency plan.
- ii) Sub surface safety valve (SSSV) below the well head should be actuated during uncontrolled well - flow and they should be regularly checked.
- vi) Welders rectifier set and electrical connections to it should be checked and approved by electrical-in-charge for proper electrical safety.
- vii) "SCADA" telemetry system if available should be operational for remote opening and closing of wells at unmanned platforms (through RPMC).
- viii) Local ESD/FSD (near the work site) should be provided for jobs of very critical nature, so that the persons working can access it immediately in emergency for safety. Safety officer should judge the requirement & inform FPS for the same.
- ix) Railings and Gratings etc. in and around work area should be O.K. and inspected to avoid slippage of man into sea.
- x) Emergency shut down (ESD) system is initiated when an abnormal condition is detected. ESD should be checked once in six months.
- xi) Platform should be manned round the clock.
- xii) Welding and cutting work should be regulated by hot work permit.
- xiii) All detectors should be calibrated as per recommendation of the manufacturer.
- xiv) No system should be by-passed which affects the system of platform.

- xv) In H₂S field platforms, due care shall be taken as per recommendations.
- xvi) Follow the instructions of F.P.S. during stay at platform

6.12.5 Fire Prevention And Control

- i) Provision be made for safe handling and storage of dirty rags, trash, and waste oil. Flammable liquids and chemicals applied on platform should be immediately cleaned.
- ii) Paint containers and hydrocarbon samples, gas cylinders for welding and cutting should be stored properly. Cylinders should be transported in hand-cart.
- iii) Smoking should be restricted and no smoking area should be identified.
- iv) Special attention should be given to crude oil pump seals, diesel and gas engines which are potential source of ignition in the event of failure.
- v) Fire and smoke detectors i.e. ultraviolet heat, thermal and smoke detector should be function tested once in three months.
- vi) Fire is controlled in offshore by water spraying, Halon, CO₂ flooding, DCP and sprinkler system.
- vii) Foaming agent is applied for controlling fire in liquid hydrocarbon. The system is not effective in gas fire.
- viii) Light weight breathing system should be used.
- ix) The fire control plan at offshore should reveal control station, fire alarms and fire detectors, deluge valves and sprinkler, fire extinguishing appliances, fireman outfit and ventilation system.
- x) Fire fighting equipment should be maintained in ready to use condition.

6.12.6 Life Saving Appliances

- i) Life boats with a speed of 6 knots and carrying capacity upto 50 persons are used in offshore.
- ii) No. of life boats on one installation should have a capacity to

accommodate twice the number of persons onboard installation.

- iii) Launching appliances and life boat equipment should be checked every week.
- iv) Boat landing areas should be adequately illuminated.
- v) Life raft has no power and they rely on drift.
- vi) Life jacket lifts the wearer after entering water.
- vii) Life buoys are used to rescue persons if any person accidentally falls in the sea.
- viii) All life saving appliances should be inspected by the MMD surveyor /sr. officials once a year.
- ix) Every life boat shall be inspected once a week.
- x) Every life boat and life raft should be serviced once a year by a competent authority,

6.12.7 Safety Precautions during Helicopter Transportation

- i) Passenger briefing regarding safety rules while travelling in helicopter should be carried out before boarding the helicopter.
- ii) Emergency procedure should be briefed to all the passenger In case helicopter is to ditch into the sea.
- iii) Heli-pad should have a non-skid surface. Nylon rope net should be stretched on the deck.
- iv) Proper drainage should be available on helideck.
- v) There should be no obstruction on the helideck itself and within 3 meters of its parameter. Closest super structure above the helideck should have red obstruction light.
- vi) While landing fire crew of two persons should be standby adjacent to helideck.
- vii) Heli-deck should be properly illuminated for night landing.
- viii) During switching off helicopter, persons should not be allowed to go out/ towards helicopter

6.13 DEMOLITION

6.13.1. General provisions

- i) When the demolition of any building or structure might present danger to workers or to the public:
 - (a) necessary precautions, methods and procedures should be adopted, including those for the disposal of waste or residues;
 - (b) the work should be planned and undertaken only under the supervision of a competent person.
- ii) Before demolition operations begin:
 - (a) structural details and builders' drawings should be obtained wherever possible;
 - (b) details of the previous use should be obtained to identify any possible contamination and hazards from chemicals, flammables, etc.;
 - (c) an initial survey should be carried out to identify any structural problems and risks associated with flammable substances and substances hazardous to health. The survey should note the type of ground on which the structure is erected, the condition of the roof trusses, the type of framing used in framed structures and the load-bearing walls;
 - (d) a method of demolition should be formulated after the survey and recorded in a method statement having taken all the various considerations into account and identifying the problems and their solutions;
- iii) All electric, gas, water and steam service lines should be shut off and, as necessary, capped or otherwise controlled at or outside the construction site before work commences.
- iv) If it is necessary to maintain any electric power, water or other services during demolition operations, they should be adequately protected against damage.
- v) As far as practicable, the danger zone round the building should be adequately fenced off and sign posted. To protect the public a fence 2m high should be erected enclosing the demolition operations and the access gates should be secured outside working hours.
- vi) The fabric of buildings contaminated with substances hazardous to health should be decontaminated. Protective clothing and respiratory devices should be provided and worn.
- vii) Where plant has contained flammable materials, special precautions should be taken to avoid fire and explosion.
- viii) The plant to be demolished should be isolated from all other plant that may contain flammable materials. Any residual flammable material in the plant should be rendered safe by cleaning, purging or the application of an inert atmosphere as appropriate.
- ix) Care should be taken not to demolish any parts, which would destroy the stability of other parts.
- x) Demolition activities should not be continued under adverse climatic conditions such as high winds, which could cause the collapse of already weakened structures.
- xi) To prevent hazards parts of structures should be adequately shored, braced or otherwise supported.
- xii) Structures should not be left in a condition in which they could be brought down by wind pressure or vibration.
- xiii) Where a deliberate controlled collapse technique is to be used, expert engineering advice should be obtained, and:
 - (a) it should only be used where the whole structure is to come down because it relies on the removal of key structural members to effect a total collapse;
 - (b) it should only be used on sites that are fairly level and where there is enough surrounding space for all operatives and equipment to be withdrawn to a safe distance.
- xiv) When equipment such as power shovels and bulldozers are used for

demolition, due consideration should be given to the nature of the building or structure, its dimensions, as well as to the power of the equipment being used.

- xv) If a swinging weight is used for demolition, a safety zone having a width of at least one-and-a-half times the height of the building or structure should be maintained around the points of impact.

6.13.2. Demolition of structural steelwork

- i) All precautions should be taken to prevent danger from any sudden twist, spring or collapse of steelwork, ironwork or reinforced concrete when it is cut or released.
- ii) Steel construction should be demolished tier by tier.
- iii) Structural steel parts should be lowered and not dropped from a height.

6.14 RADIOGRAPHY

- 6.14.1 All radiography jobs shall be carried out as per BARC Safety Regulations
- 6.14.2 During field radiography, nearby area around the radiation source should be cordoned off.
- 6.14.3 If the field radiography is to be done at the same location repeatedly, it is advisable to provide either a wire fencing around or a temporary brick enclosure.
- 6.14.4 Special permission/permit should be taken for radiography from area-in-charge.
- 6.14.5 As far as possible, field radiography should be done only during night time when there is little or no occupancy there.
- 6.14.6 Radiation warning signals should be pasted all along the cordoned off area.
- 6.14.7 Entry into the restricted area by unauthorised persons should be strictly prohibited during exposure.
- 6.14.8 The radiation level alongwith the cordon should be monitored by a suitable and well-calibrated radiation survey meter.
- 6.14.9 All personnel working with radiography sources should wear appropriate protective equipment and film badges issued by BARC.
- 6.14.10 Protection facilities such as manipulator rod, remote handling tongs, lead pots, radiation hazard placards and means of cordon off shall be available at each site.
- 6.14.11 The radiography source shall never be touched or handled directly with hands.
- 6.14.12 The package containing radiography cameras and sources should never be carried by public transport like bus, train etc.
- 6.14.13 Radiography sources and cameras, when not in use, should be stored inside a source pit with lock and key arrangement as approved by BARC. The storage room should preferably be located in an isolated area of minimum occupancy and radiation level outside the storage room should not exceed 0.25 mR/hr as per BARC Regulations.
- 6.14.14 In case of an accident (due to loss or of damage to radiography source), action should be taken in line with BARC Safety Rules/Guidelines.

6.15 SAND/SHOT BLASTING/ SPRAY PAINTING

- 6.15.1 Sand blasting should be used only after approval from competent person.
- 6.15.2 Air Compressor used for sand/shot blasting/painting should have guard and positioned away from the work place.
- 6.15.3 Exhaust of the prime mover, if IC engine is used, should be directed away from the work place.
- 6.15.4 In case of motor driven compressor, the body of the motor as well as the compressor to be properly earthed.
- 6.15.5 The hoses used for compressed air should be of proper quality, and health of the same to be ensured through regular check/ test.

- 6.15.6 The operator of sand/shot blasting/painting should wear suitable PPE's including mask.
- 6.15.7 Adequate measures to be taken to suppress dust/spray particle.
- 6.15.8 Sand used for sand blasting should be suitably covered & protected from rain/moisture.
- 6.15.9 When these activities are done in confined places, adequate measure to be taken for proper ventilation.

6.16 WORK ABOVE WATER

6.16.1 General Provisions

- i) Where work is done over or in close proximity to water & where possibility of drowning exists, provision should be made for:
 - a) Preventing workers from falling into water;
 - b) The rescue of workers in danger of drowning;
 - c) Safe and sufficient transport.
- ii) Provisions for the safe performance of work over or in close proximity to water should include, where appropriate, the provision and use of suitable and adequate:
 - a) fencing, safety nets and safety harnesses;
 - b) lifebuoys, life jackets and manned boats;
 - c) protection against such hazards as reptiles and other animals.
- iii) Gangways, pontoons, bridges, footbridges and other walkways or work places over water should:
 - a) possess adequate strength and stability;
 - b) be sufficiently wide to allow safe movement of workers;
 - c) have level surfaces free from tripping hazards;
 - d) be adequately lit when natural light is insufficient;
 - e) where practicable and necessary, to prevent danger, be provided with toe-boards, guard rails, hand ropes etc.
 - f) be secured to prevent dislodgment by rising water or high winds;
 - g) if necessary, be equipped with ladders which should be sound, of sufficient strength and length and be securely lashed to prevent slipping.

- iv) All deck openings including those for buckets should be fenced.

6.16.2 Rescue & Emergency procedures

- i) Persons who work over water should be provided with some form of buoyancy aid. Life jackets should provide sufficient freedom of movement, have sufficient buoyancy to bring persons to the surface and keep them afloat face upwards, be easily secured to the body, be readily visible by way of self luminous paint/strip.
- ii) Nobody should work alone on or above water.
- iii) Each worker should be trained in the procedure to be followed in the event of an emergency.

7.0 ADDITIONAL SAFETY PRECAUTION FOR UNITS WITH HYDROCARBONS

In addition to general safety precautions as outlined above for the activities in Clause 6.0, following additional safety precautions need to be taken for the sites within the operating area or nearby, where presence of Hydrocarbons cannot be ruled out.

- i) No job shall be carried out without a valid permit. Permit should be in line with OISD-STD-105 "Work Permit System".
- ii) Smoking should be prohibited in all places containing readily combustible or flammable materials and "No Smoking" notices be prominently displayed.
- iii) In confined spaces and other places where flammable gases, vapours or dusts can cause danger, following measures should be taken:
 - (a) only approved type electrical installations and equipment, including portable lamps, should be used;
 - (b) there should be no naked flames or source of ignition;
 - (c) oily rags, waste and clothes or other substances liable to spontaneous ignition should be removed without delay to a safe place;
 - (d) ventilation should be provided.

- iv) Regular inspections should be made of places where there are fire risks. These include the vicinity of heating appliances, electrical installations and conductors, stores of flammable and combustible materials, welding and cutting operations.
- v) Welding, flame cutting and other hot work should only be done after issuance of work permit in line with the requirement of OISD-STD-105 after appropriate precautions, as required, are taken to reduce the risk of fire. For carrying out other jobs also, OISD-STD-105 should be followed strictly.
- vi) Fire-extinguishing equipment should be well maintained and inspected at suitable intervals by a competent person. Access to fire-extinguishing equipment such as hydrants, portable extinguishers and connections for hoses should be kept clear at all times.
- vii) All supervisors and a sufficient number of workers should be trained in the use of fire-extinguishing equipment, so that adequate trained personnel are readily available during all working periods.
- viii) Audio means to give warning in case of fire should be provided where this is necessary to prevent danger. Such warning should be clearly audible in all parts of the site where persons are liable to work. There should be an effective evacuation plan so that all persons are evacuated speedily without panic and accounted for and all plant and processes shut down.
- ix) Notices should be posted at conspicuous places indicating:
 - (a) the nearest fire alarm;
 - (b) the telephone number and address of the nearest emergency services.
- x) The work site shall be cleared of all combustible materials, as Sparks and molten metal coming from the welding job can easily ignite combustible materials near or below the welding site. If the combustible materials cannot be removed from the area, the same shall be properly shielded.
- xi) A dry chemical type fire extinguisher shall be made available in the work area. Also fire protection facilities like running hoses etc. as per permit should be complied with.
- xii) Wherever required, welding screens shall be put up to protect other equipment in adjoining areas against flying sparks. Material used should be metal/asbestos/water curtain.
- xiii) Welding or cutting of vessels/equipments used in Hydrocarbon/hazardous chemicals shall be done after proper gas freeing and verifying the same with the explosive-meter.
- xiv) The confined space/equipment shall be gas freed and cleaned.
- xv) Absence of any toxic gas and any flammable gas above explosion limit shall be ensured with the help of gas detection instrument and explosive meter respectively.
- xvi) Used and hot electrode stubs shall be discarded in a metal bucket.
- xvii) Use approved and certified flame arrestors for vehicles.
- xviii) Work permit to be obtained, if construction work is carried out within existing operating area.

8.0 FIRST AID

First aid facilities should be provided in line with various statutory regulations like factory act etc. However following care should be taken:

- i) First aid, including the provision of trained personnel should be ensured at work sites. Arrangement should be made for ensuring the medical attention of the injured workers. First aid box should be as per the Factory rules.
- ii) Suitable rescue equipment, like stretchers should be kept readily available at the construction site.
- iii) First-aid kits or boxes, as appropriate and as per statutory requirements, should be provided at workplaces and be protected against contamination by dust, moisture etc.

- iv) First-aid kit or boxes should not keep anything besides material for first aid in emergencies.
- v) First-aid kits and boxes should contain simple and clear instructions to be followed, be kept under the charge of a responsible person qualified to render the first aid and be regularly inspected and stocked.
- vi) Where the work involves risk of drowning, asphyxiation or electric shock, first-aid personnel should be proficient in the use of resuscitation and other life saving techniques and in rescue procedures.
- vii) Emergency telephone numbers of nearby Hospitals, Police, Fire Station and Administration should be prominently displayed.

9.0 DOCUMENTATION

The intention of keeping documentation of all types of accident(s) is to prevent recurrence of similar accident(s). All accidents should be reported as per OISD Guidelines (OISD-GDN-107) and Factories act, 1948.

All accidents (major, minor or near miss) should be investigated, analysed and recommendations should be documented along with implementation status.

All related data should be well-documented and further analysis highlighting the major cause(s) of accidents be done. This will help in identifying thrust areas and training needs for prevention of accidents.

10.0 SAFETY AWARENESS & TRAINING

Safety awareness to all section of personnel ranging from site-in-charge to workmen helps not only preventing the risk but also build up the confidence. Time and expenditures also get saved as a result.

Safety awareness basically seeks to persuade/inform people on safety besides supplementing skill also. Awareness programme may include followings:

- i) **Poster:** Posters with safety slogan in humorous, gruesome demonstrating manner may be used to discourage bad habits attributable to accidents by appealing to the workers' pride, self-love, affection curiosity or human aspects. These should be displayed in prominent location(s).
- ii) **Safety Sign Boards:** Different type of message of cautioning, attention, notice etc. should be displayed at the appropriate places for learning/awareness of the workmen while working at site.
- iii) **Films & Slides:** Film(s) narrating the accident including the causes and possible remedial ways of preventing the recurrence of a similar accident should be displayed at regular intervals. Slides consisting main points of the film show may also be shown to workers.
- iv) **Talks, lectures & conferences:** The success of these events would depend much on audience's understandings of the speaker (s). The speakers are to be knowledgeable and good presenter. Speakers should know to hold the attention and to influence the audiences.
- v) **Competitions:** Organise competition(s) between the different deptts/categories of workers. The sense of reward/recognition also will improve safety awareness and result in enhancing safety levels.
- vi) **Exhibitions:** Exhibitions also make the workers acquainted with hazards and means of preventive measures.
- vii) **Safety Publication:** Safety publications including pocket books dealing with ways of investigation and prevention in the field of safety and so on, may be distributed to workers to promote the safety awareness.
- viii) **Safety Drives:** From time to time, an intensive safety drive by organising a safety day or a safety week etc. should be launched.
- ix) **Training:** Training for covering the hazards for different trade should be imparted. Training should also include the specific hazards related

to a job in addition to the general safety training as has been dealt in various chapters and should include all workers. Reference may be drawn from OISD-STD-154.

11.0 REFERENCES

- i) *Factory Act, 1948*
- ii) *Indian Electricity Rules*
- iii) *Safety & Health in Construction by ILO*
- iv) *The Building & Other Construction Workers (Regulation, Employment and Conditions of Service) Act 1996*

**LIST OF SAFETY CODES FOR CIVIL WORKS PUBLISHED BY BUREAU OF
INDIAN STANDARDS**

Sr.no	Code No.	Title
01. IS : 818		Code of Practice for Safety and Health Requirements in Electric and Gas Welding and Cutting Operations – First Revision.
02. IS : 875		Code of practice for Structural safety of buildings: Masonry walls
03. IS : 933		Specification for Portable Chemical Fire Extinguisher, Foam Type – Second Revision.
04. IS : 1179		Specification for Equipment for Eye and Face Protection during Welding – First Revision.
05. IS : 1904		Code of practice for Structural safety of buildings: Shallow foundations
06. IS : 1905		Code of practice for Structural safety of buildings: Masonry walls
07. IS : 2171		Specification for Portable Fire Extinguishers, Dry Powder Type – Second Revision.
08. IS : 2361		Specification for Building Grips – First Revision.
09. IS : 2750		Specification for Steel Scaffoldings.
10. IS : 2925		Specification for Industrial Safety Helmets – First Revision.
11. IS : 3016		Code of Practice for Fires Precautions in Welding and Cutting Operations – First Revision.
12. IS : 3521		Industrial safety belts and harnesses
13. IS : 3696 – Part I		Safety Code for Scaffolds and Ladders : Part I – Scaffolds.
14. IS : 3696 – Part II		Safety Code for Scaffolds and Ladders : Part II – Ladders.
15. IS : 3764		Safety Code for Excavation Work.
16. IS : 4014 -Part I & II		Code of practice for Steel tubular scaffolding
17. IS : 4081		Safety Code for Blasting and Related Drilling Operations.
18. IS : 4082		Recommendations on staking and storage of construction materials at site
19. IS : 4130		Safety Code for Demolition of Buildings – First Revision.
20. IS : 4138		Safety Code Working in Compressed Air-First Revision
21. IS : 4756		Safety code for Tunneling works
22. IS : 4912		Safety requirements for Floor and Wall Openings, Railings and toe Boards –First Revision.
23. IS : 5121		Safety Code for Piling and other Deep Foundations.
24. IS : 5916		Safety Code for Construction involving use of Hot Bituminous Materials.
25. IS : 5983		Specification for Eye Protectors – First Revision.
26. IS : 6922		Structures subject to underground blasts, criteria for safety and design of
27. IS : 7155		Code of recommended practices for conveyor safety
28. IS : 7205		Safety Code for Erection on Structural Steel Works.

Sr.no	Code No.	Title
29.	IS : 7069	Safety Code for Handling and Storage of Building Materials.
30.	IS : 7293	Safety Code for Working with Construction Machinery.
31.	IS : 7323	Guidelines for operation of Reservoirs
32.	IS : 7969	Safety code for handling and storage of building material
33.	IS : 8758	Recommendation for Fire Precautionary Measures in construction of Temporary Structures and Pandals.
34.	IS : 8989	Safety Code for Erection of Concrete Framed Structures.
35.	IS : 9706	Code of Practices for construction of Arial ropeways for transportation of material
36.	IS : 9759	Guidelines for de-watering during construction
37.	IS : 9944	Recommendations on safe working load for natural and man-made fibre roap slings
38.	IS : 10291	Safety code for dress divers in civil engineering works
39.	IS :10386 – Part I	Safety Code for Construction, Operation and Maintenance for River Valley Projects.
40.	IS :10386 – Part II	Safety Code for Construction, Operation and Maintenance of River Valley Projects.
41.	IS : 11057	Code of practice for Industrial safety nets
42.	IS : 13415	Code of Practice on safety for Protective barriers in and around building
43.	IS : 13416	Recommendations for preventive measures against hazards at working places

OISD – GDN – 207

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CONTRACTOR SAFETY

OISD – GUIDELINES – 207

**Oil Industry Safety Directorate
Government of India
Ministry of Petroleum & Natural Gas**

CONTRACTOR SAFETY

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5.6	Inspection / Audit
5.7	Penalties for non-compliance
5.8	Incident Reporting and Investigation System
5.9	Safety Committee Meetings
5.10	Safety Equipment / Personnel Protective Equipment
6.0	REFERENCES
	ANNEXURE I List of BIS codes / Statutory Regulations
	ANNEXURE II Checklist for Safety Inspection / Audit

CONTRACTOR SAFETY

1.0 INTRODUCTION

Oil and Gas operations like Drilling, Production, Refining, Transportation and Distribution are inherently hazardous. A large number of contractor workforce is deployed to carry out construction, maintenance and other jobs. The analysis of the incidents in the Petroleum Sector indicates that a large number of incidents involved contractor workforce and have resulted in either casualty or injury besides leading to property damage and operational interruptions and environmental degradation.

In order to improve the safety levels of oil installations, the contractor safety is of utmost importance and there is a need to institute a good contractor safety system.

2.0 SCOPE

This standard covers broadly the guidelines on the management system for enhancing the safety levels of the contractor workforce deployed in construction, maintenance and operation activities in the hydrocarbon industry.

The safety precautions to be taken while carrying out different activities during construction / maintenance have separately been covered in OISD-GDN-192 on "Safety Practices during Construction".

3.0 DEFINITIONS

Work station/Work site

A place/unit where the job is carried out by contractor/executing agency in specified manner with safety, during construction phase or in operation phase.

Owner

Any physical or legal person/entity for whom prescribed job is carried out.

It shall also include owner's designated representative / consultant /nominee / agent, authorised from time to time to act for and

on its behalf, for supervising / co-ordinating the activities of the contractor/execution agency.

Contractor / Executing Agency

A physical or legal person/entity having contractual obligation with the owner, and who deploys one or more worker on the site.

Contractor Worker

It covers all workmen who are either self-employed or employed through contractor, the casual workers and includes contractor's supervisor, working at a location / site employed directly by Owner or through their contractor.

Incident

An incident is an unplanned, uncontrolled, unintended or unforeseen event, caused by unsafe acts and / or unsafe conditions, resulting in or having the potential to result in personal injury and/or property damage.

Consultant

Consultant is a physical or legal person/entity engaged by owner to provide the consultancy services to owner for management of the contract on their behalf or as specified.

Designer

Designer is a physical or legal person / entity engaged by owner to provide design services of a work site.

Owner's Representative / Engineer In Charge

The Owner's representative/Engineer-in-charge is the one, who has been designated by the owner to manage the contract.

Owner's Safety Officer

A properly trained person designated by owner who ensures safety at work site.

4.0 DUTIES/ RESPONSIBILITIES

4.1 OWNER

4.1.1 Owner's Management

The commitment to safety has to be emphasised by the owner by practice by its own management and employees at all levels. The duties and responsibilities of owner should include:

- i) To institute a mechanism for identification and compliance of all applicable statutory rules & regulations (Refer Annexure I for a list of few important Bureau of Indian Standards & statutory regulations).
- ii) To provide specific information to contractors and make workers aware on the hazards associated with job assigned.
- iii) To provide information about Risk Mitigation measures available at the place of work.
- iv) To provide the contractor with information on Owners Safety Plan & Regulations, Emergency Management Plan, lockout/ tag out procedure, confined space entry, work permit system, excavation/trench permit system etc.
- v) To specify rules (e.g. for security including access arrangements) and safety rules such as fire protection, first aid arrangements, Work Permit systems etc.
- vi) To provide comprehensive list of statutory regulations / standards and specification, to be complied with during execution of contract, in the tender document itself.
- vii) To ensure training of the contractor workforce, medical examination, and proper usage of safety equipment.

viii) To specify the requirements of Health, Safety and Environment (HSE) (commensurate with the nature of job) in Pre- Qualification criteria.

ix) To designate Engineer-in-charge and safety officer.

x) To arrange for a multi-disciplinary safety audit team to conduct surprise / regular safety audits and monitor the implementation of the recommendations.

xi) To introduce suitable schemes for motivation of the contractor worker to adhere to safety guidelines.

xii) To review safety practices & their implementation through periodic surprise visit of the work sites and monthly review meeting.

xiii) To develop the HSE plans and incorporate the same in the tender document.

xiv) To liaise with external agencies like press, public etc and with law enforcement, regulatory, statutory agencies etc.

xv) To report to statutory agencies on safety compliance and accidents, if any.

4.1.2 Owner's Representative/Engineer-in-charge

The duties & responsibilities of engineer-in-charge should include:

- i) To ensure that all Contract requirements including Health, Safety, Environment & Security are complied with.
- ii) To ensure that contractor workforce deployed is adequately qualified, trained and in state of health to commensurate with the requirements of the job.
- iii) To ensure that the Tools / Tackles and Machinery being used are properly

tested and are in sound working conditions and necessary resources proposed for providing safe place of work and necessary PPE are being used.

- iv) To take the required necessary corrective action immediately upon noticing or receipt of a report on noncompliance or any such condition which poses a threat to health, safety or environment. If during the course of execution of the contract, any situation of non-compliance with the contractor's safety and health plan are noticed / reported, the same will be taken up with the contractor for correction. In the event of repeated non compliance, suitable action to be initiated as per the contract.
- v) To ensure that the incidents are reported to all concerned within stipulated timeframe.
- vi) To ensure submission of a plan for safe working (Method Statement) from contractor and approval of the same by competent person / department.
- vii) To ensure that Work Permit System in line with OISD-STD-105 is adhered to.
- viii) To ensure availability of all the documentation needed for the execution of contract.
- ix) To ensure that the quality controls have been maintained during fabrication/erection and all jobs required for safe commissioning have been carried out.
- x) To ensure safe dismantling of all temporary facilities/connections put up by the contractor, after completion of work.
- xi) To compile a report on the safety performance (at the conclusion of each contract or periodically such as annually for renewable and long-term

contracts), which is to be considered in future when selecting contractors.

- xii) To ensure that the Consultant, contractor and sub-contractor employ / designate qualified & trained Safety Engineer / Officer commensurate with requirement of the job.

4.1.3 Owner's Safety Officer

The duties & responsibilities of the Owner's Safety Officer should include:

- i) To assess the hazards associated with jobs in consultation with all concerned and establish safe working procedure including identification of the escape routes.
- ii) To establish a written record of factors which can cause injuries and illnesses.
- iii) To undertake routine/surprise inspections of all work sites and identify unsafe conditions & practices, if any. Check for compliance of the safety practices being followed with approved HSE Plan.
- iv) To investigate promptly the incidents (including near-miss) in order to advise corrective and/or preventive action.
- v) To maintain statistical information for use in analyzing all phases of incidents and events involving contract personnel.
- vi) To provide the means for complying with the reporting requirements for occupational injuries and illnesses.
- vii) To check whether the proposed working arrangements are safe and satisfactory, particularly at the interface between the contractor's planned work and owner's existing facilities.
- viii) To communicate to the Contractor the imposed restrictions which may affect the work/personnel such as the temporary closure of a corridor or electrical isolation of equipment.

- ix) To review and monitor the contractor's adherence to approved HSE plan and all applicable environmental, health, and safety requirements.
- x) To ensure that Consultant, Contractor's Managers, Supervisors and workmen at all levels (who will plan, monitor, oversee and carry out the work) undergo Health, Safety and Environmental training in their respective responsibilities with respect to conducting work safely and with due regard for the protection of the environment.
- xi) To identify areas of operations where specialized training is required to deal with potential dangers.
- xii) To document and to bring to the attention of the Owner's Supervisor and Contractor any non-compliance/violation of the safety norms against approved safety and health plan or safety and health requirements and also raise these issues in the Safety Committee Meetings.
- xiii) To take part in Tool Box Meetings at random and to ensure maintenance of records.

4.2 CONTRACTOR

4.2.1 Contractor's Management

Duties & responsibilities of the contractor should include the following:

- i) To implement safe methods and practices, deploy appropriate machinery, tools & tackles, experienced supervisory personnel and skilled work force etc. required for execution.
- ii) To prepare a comprehensive and documented plan for implementation, monitoring and reporting of Health, Safety and Environment (HSE) and implement the same after its approval.

- iii) To nominate qualified & trained Safety Engineers / Officers reporting to the Site in charge, for supervision, co-ordination and, liaison for the implementation of the safety plan.

Similar HSE Plan should be implemented at the sub- contractor's or supplier's site /office. However the compliance with the HSE Plan is to be the sole responsibility of the Contractor.

- iv) To arrange suitable facilities in liaison with the owner for drinking water, toilets, lighting, canteen, crèche etc as applicable as per Laws/ Legislation at site and also arrange for workmen compensation insurance, third party liability insurance, registration under ESI / PF act etc as applicable.
- v) To arrange for fire protection equipment as per the advice of owner.
- vi) To ensure that its employees have completed appropriate health and safety training as required by the statute / regulation and also as per requirements of the Owner / Consultant. The documentation of such training imparted to all its employees should be maintained and produced for verification as required.
- vii) To comply with all the security arrangements of owner.
- viii) To ensure that the plant and equipment used on-site by him / his employees is correctly registered, controlled and maintained in sound working condition.
- ix) To ensure availability of First Aid boxes and First Aid trained attendant.
- x) To ensure that all incidents including near misses are reported to all concerned immediately.

In construction projects where sub-contractors are engaged, the contractor should set out the responsibilities, duties and safety measures that are expected of

the sub-contractor's workforce. These measures should include the provision and use of specific safety equipment, methods of carrying out specific tasks on safety and the inspection and appropriate use of tools.

The responsibilities indicated separately under contractor's Supervisor, Safety Officer and contract worker are contractually that of the Contractor and legally binding on the Contractor only. However the specific detailing as above has been given separately for guidance and operational convenience.

The selection of sub contractors, if employed, should be approved by the owner. Sub-contractor should comply fully with all safety rules and conditions applicable to the main contractor.

4.2.2 Contractor's Supervisor / Safety Officer

Duties & responsibilities of the Contractor's supervisor/Safety Officer should include the following:

- i) To ensure strict compliance with work permit system by carrying out work only with appropriate work permits and after ensuring that all safety precautions / conditions in the permit are complied with and closing the same after job completion.
- ii) To ensure that required guards and protective equipment are provided, used, and properly maintained.
- iii) To ensure that tools and equipment are properly maintained and tested.
- iv) To plan the workload and assign workers to jobs in commensuration with their qualification, experience and state of health.
- v) To ensure that the workers understand the work to be done, the hazards that may be encountered, and the proper precautions/procedure for carrying out the work safely.
- vi) To take immediate action to correct any violation of safety rules observed or reported.
- vii) To ensure that the workers likely to be exposed to hazardous chemicals/materials have access to appropriate Material Safety Data Sheets (MSDS), wherever applicable, and provide necessary mitigation measures.
- viii) To ensure inspection and certification of all tools (hand operated as well as mechanically operated) being used. Defective tools shall be immediately removed.
- ix) To ensure that appropriate warning signboards or tags are displayed.
- x) To ensure that workers have proper training for their job assignments, including use of appropriate PPE and first aid fire fighting equipment.
- xi) To comply with all applicable safety and health standards, rules, regulations and orders issued by competent authority pertaining to the assigned activities.
- xii) To ensure that sick and/or injured workers receive appropriate first aid and/or medical attention.
- xiii) To report each incident and/or injury in accordance with established procedures and assist in investigation.
- xiv) To take necessary action for correction of any unsafe act / condition at the workplace. However, in case the same is outside the limits of authority, it should be reported to Owner's Engineer-in-charge immediately.
- xv) To conduct daily inspections to ensure compliance with safety standards, codes, regulations, rules and orders applicable to the work concerned.

- xvi) To ensure that workers under their supervision are aware of their responsibilities.
- xvii) To arrange daily tool box meeting and regular site safety meetings and maintain records in the required formats. (Refer Clause 5.9.1)
- xviii) To arrange stand-by supervisor/ worker where situations so demand.
- xix) To develop methods and display banners/posters to inculcate safety consciousness.
- xx) To attend training and ensure participation of his workers for training as per schedule arranged by the Owner / Consultant and keeps himself updated.
- xxi) To keep records of number of persons working at the site.
- xxii) To keep a constant liaison with Engg-in-charge / owners' representative on safety issues.
- xxiii) To maintain accident & nearmiss record in a register.
- xxiv) To ensure that only PPE of the approved type by owner is used at site.

A separate Safety Officer should be assigned, where more than 100 workers are employed at site. For smaller jobs, the supervisor should assume the role of the safety officer also.

4.2.3 Contract workers

The duties & responsibilities of the contractor worker should include the following:

- i) To perform work safely as per the job requirement and instructions.
- ii) To inform all concerned regarding unsafe conditions/acts.

- iii) To wear PPE as stipulated and necessary for the job.
- iv) To inform promptly to their supervisor regarding all work related incidents resulting in personal injury, illness and/or property damage.
- v) To take all necessary and appropriate safety precautions to protect themselves, other personnel and the environment.

4.3 CONSULTANT

The activities and responsibilities covered under the scope of the Owner may be delegated to the consultant in those cases as applicable, based on the respective contract conditions. The primary responsibility of Consultant is to ensure compliance with agreed HSE plan for the contract by the Contractor. However those responsibilities conferred on Owner as Principal employer cannot be delegated to consultant.

Where the consultant's scope involves Engineering and Design, those factors under **Designer** should also be applicable.

In all cases, the Consultant's scope should include submission of latest HSE plans for work under his and Contractor's purview and implementing the same till job completion. It should conform to owner's overall HSE plan. This should include Guidelines and Implementation and Reporting Methodology to be followed with required report formats.

Adequate number of Safety Officers shall be provided by the Consultant with necessary skills required for the work to be performed.

The Consultant shall review the documents submitted by the contractor and advise owner on acceptance as well as advise suitability and number of Contractor's safety officers / supervisors.

4.4 DESIGNER

The Process Designer should identify all hazards and risks likely to be encountered during fabrication, erection including

dismantling, Pre-commissioning, commissioning and Performance run to meet the Guarantees and advise the risk mitigation measures.

All the hazards and safety measures to be adopted while handling Dangerous chemicals and Catalysts should be detailed by the Process Licensor and the same should be again included in the scope of the suppliers. Specific write ups/MSDS should be obtained from Patented single source suppliers also.

Designs should recognize, include and apply safe practice during preparation, construction and subsequent operational use and maintenance after completion of the Project.

All documents including drawings and calculations are to be originated, checked and approved in accordance with latest international codes, standards, specifications and design basis philosophy.

Preferred use of low risk materials, policy on hazardous substances, preferred use of low noise and dust-suppressed equipment etc. should be encouraged.

5.0 SAFETY MANAGEMENT

5.1 JOB SAFETY ANALYSIS (JSA)

Job safety analysis (JSA) provides a mechanism by which the contractor, safety officer or supervisor take a detailed look at how an individual task is performed and its inherent hazards and preventive measures. This procedure helps in integrating accepted safety and health principles and practices into a particular operation. In a JSA, each step of the job is examined to identify potential hazards and to determine the safest way to do the job.

A job safety analysis includes five steps as below:

- Select a job
- Break the job down into a sequence of steps
- Identify the hazards against each of these steps (based on knowledge of

accident, causes of injuries and personal experience) and determine the preventive measures to overcome these hazards

- Apply the controls to the hazards
- Evaluate the controls

5.2 CRITERIA OF SELECTION OF A CONTRACTOR

“Contractor Safety” can be ensured to a large extent if competent agency for execution of assignment or job, based on HSE system agreed upon by owner, is selected. It is necessary to assess his capabilities and competencies to perform work safely.

A databank should be developed for all the contractors for their past performance on HSE aspects. An attempt should also be made to get similar data from other similar industries.

The data required will depend upon complexity involved in the job and type / size of resources required. Format needs to be suitably developed depending upon size, nature of the job & hazard associated therein. The format designed should also take care of the skill required to carry out the job.

Performance review is essential for all type of contractors. It helps in recording actual performance/experience with contractors while the contract is in progress. It is essential that resources agreed as per the contract are reviewed at mobilization stage for ensuring compliance from the day one and thorough effective supervision / monitoring system are at place.

This activity also helps in taking timely action in case of unsatisfactory performance to correct the situation and ensure safe work during execution period and deciding about suitability of the contractor for future jobs.

The periodicity of such performance review will depend upon size/type/complexity of contract. However, the performance should be reviewed at least at mobilisation stage and at the end of the contract.

5.3 SITE PLANNING AND LAYOUT

Before starting the construction/maintenance job at existing workplace in operation or green field locations, following should be ensured: -

- i) Details regarding location of workshop/ fabrication yard, site office, stores, laboratory, electrical installations, placement of construction machinery, medical and welfare facilities, lighting underground and above ground piping route, cable route etc. should be decided prior to commencement of the work in consultation with owner / Consultants and implementation should be ensured. Layout should be displayed at strategic locations.
- ii) The resources required to meet any emergency situations like fire fighting, first aid etc. should be planned and mobilized as per the job requirement.
- iii) The sequence or order in which work to be done and any hazardous operations or processes should be identified.
- iv) Free access to site shall be provided with clear roads, passage, gangways, staircases etc. Access to construction site should be leveled, open and free from any obstructions like construction material or scrap/waste, exposure to hazards such as falling materials, material handling equipment and vehicles. Any pit or ditch shall be covered or barricaded.
- v) Arrangements should be made to maintain good housekeeping at site. Scrap and debris generated out of construction work should be removed/disposed off at a regular interval as directed. Emergency exit should be provided in case of blockade of primary exit.
- vi) Suitable warning notices and also the routes to and from welfare facilities should be displayed prominently.

vii) Pedestrian pathways and routes for vehicular traffic (light/heavy vehicles including material handling equipment) should be earmarked.

viii) Artificial lighting to be provided at places where work continues or workers pass by after sunset or in case natural light is insufficient like confined spaces.

ix) Keep all equipment /machines under cover to prevent them from dust, rain/flood water, heat etc. and follow storage instructions as applicable for each of them.

5.4 GATE ENTRY PROCEDURE

Gate entry at any site / workplace / unit is to be restricted to ensure entry of only authorised persons / vehicles.

5.4.1 Entry procedure for all contractor worker should be as follows:

A. Issuance of Pass

- i) The passes are to be issued after the owner's representative/engineer-in-charge forwards the application of the contractor providing complete details of the workers being engaged. The contractor may be asked to submit Character & Antecedents (C&A) verification of individual worker from concerned authorities.
- ii) With regard to issuance of passes for all vehicles including material handling equipment, owner's representative / engineer-in-charge should forward the application only after ensuring that all documents pertaining to the fitness of the vehicle/equipment and valid driving license of the driver etc. are available.
- iii) The passes should be serially numbered with address, contractor name, identification mark, signature of the worker etc.
- iv) Special colour code for passes should be used for persons entering different

areas like Administrative Block, Unit area, Project Area (wherever applicable).

- v) Contractor workers engaged on routine basis for long periods should be provided with monthly photo pass.
- vi) Special permit is required separately for working beyond normal working hours and holidays.

B. Gate Entry

- i) Entry of the contractor's employees should be permitted with valid gate passes only.
- ii) Entry of contractor's workers should be allowed in presence of authorized representative of contractor.
- iii) Records of persons at the time of entry/exit should be maintained.
- iv) At the entry gate of the location, a physical checking for non-carrying of lighter, matchboxes, explosives etc. should be carried out.
- v) Gate passes/Identity Cards should be displayed on persons at all the times.
- vi) For Mega-projects at existing / operating installations, it is preferable to have a separate gate for entry of contractor workers and also the project areas should be segregated fencing from operational area by fencing / other physical means.
- vii) No vehicle should be allowed to enter in an operational area without proper flame arrestor.
- viii) Awareness on Safety through training / posters etc. highlighting Do's and Don'ts should be spread within entire contractor workforce. Video/Audio tapes on Safety Topics should be played preferably.
- ix) For occasionally engaged labourers such as for material handling etc., spot photograph may be preferably

taken with two copies (one for preparing the pass and other for attachment with gate register). Specific advice and recommendation of User Department may be given due cognizance. Relevant details are to be written. The pass should be collected back at the gate after day's work.

5.4.2 Tank Truck Loading (TTL) Operation :

At the loading / unloading location, a large no. of Tank Trucks of petroleum products enter the installation. Crew members are generally not regular entrants. The procedure should be as follows:

- i) The gate pass should be issued to the individual crew members on written request of the transporter mentioning TT registration nos., License and certificate of training as per MV rule 9.
- ii) Character & Antecedent (C & A) verification of the TTL crew through local police is to be done preferably and record maintained.
- iii) For loading/unloading purpose, register entry at security gate is made before allowing entry into the premises with recording of names of crew members, time of entry, pass Sr. No., TT no. etc.
- iv) For loading/unloading, crew is allowed entry alongwith TT only, after checking of TT from explosive/security point of view.
- v) Out time, invoice no., Destination etc., are recorded while TTs go out of the security gate.

5.5 TRAINING

Training is to educate contractor workforce on various hazards associated with the job/workplace and on the respective preventive / mitigation measures to avoid untoward incidents.

i) Workers should be adequately and suitably:

- (a) informed of potential safety and health hazards to which they may be exposed to at their workplace;
- (b) instructed and trained in the measures available for the prevention, control and protection against those hazards.

ii) No person should be employed in any work at a workplace unless that person has received the necessary information, instruction and training so as to be able to do the work competently and safely. The competent authority should, in collaboration with employers, promote training programs to enable all the workers to read and understand the information / instructions related to safety and health matters.

iii) The information, instruction and training should be given in a language understood by the worker and written, Oral, visual and participative approaches should be used to ensure that the worker has assimilated the information.

iv) Every worker should receive instruction and training regarding the general safety and health measures common to the workplace. This should include:

- (a) general rights and duties of workers at the workplace;
- (b) means of access and egress both during normal working and in an emergency;
- (c) measures for good housekeeping;
- (d) location and proper use of welfare amenities and first aid facilities provided;
- (e) proper use and care of the items of personnel protective

equipment and protective clothing provided to the worker;

- (f) general measures for personal hygiene and health protection;
- (g) fire precautions to be taken;
- (h) action to be taken in case of an emergency;
- (i) requirements of relevant safety and health rules and regulations.

Copies of the relevant safety and health rules, regulations and procedures should be available to workers upon the commencement of and upon any change of employment.

5.5.1 Training Techniques

a) Lectures

This technique should be applied when it is required to transfer information in local language to a large contractor workforce with controlled content and time.

b) Case Study

This is an effective technique based on the presentation of case of real events by Trainer to highlight probable causes like Human Error, ignorance about the job etc.

c) Videos

Videos, an effective technique of communication, should be used to display the right techniques of performing a task in a safe manner and hazards associated with a job.

d) Demonstration at site

Right way to do a job should invariably be demonstrated to workers at the site itself. The right way is also a safe way. Hazards due to wrong procedures, short cuts and their adverse effects etc. should also be highlighted.

5.5.2 Training/Awareness Module and Frequency

A. General Safety Training to all categories of contractor employees should be imparted before induction and annually thereafter. No person should be allowed to enter the installation without undergoing this training. This training program may cover:

- i) Mandatory uses of PPE like Cotton clothes, Helmet, Safety Shoes, Safety Belts etc.
- ii) Probable Hazards
- iii) Important Telephone No / Escape route
- iv) First Aid
- v) Use of Fire extinguisher

The contractor workers, if engaged in operation of the plants/facilities, should be trained in line with Clause No. 4.6 of OISD-GDN-206 on "Safety Management System". For other categories of contractor workers, training modules for different category employees are as follows:

B. Contractor Supervisor

Contractor Supervisor should be trained in accordance with the provision of clause no. 5.1.1.2, 5.2.7, 5.3.10, 5.6.12 and 5.7.8 of OISD-STD-154 on 'Safety Aspects in Functional Training'

C. Contractor Worker

Yearly training programme should be carried out for contractor worker and the records should be maintained. The training programme should cover at least the following:

- i) Worker responsibility for safety of himself and work area.
- ii) Associated hazards with the job and job area including electrical shock hazards.

iii) Importance of First Aid fire fighting equipment, their use & operations

iv) Communication system at the installation

v) Fire / Accident Reporting procedure

vi) General Safety rules

vii) Safety Measures during execution of job such as:

- Welding / Cutting / Grinding
- Working at height
- Confined space entry
- X ray / radiation
- Erection / Dismantling of scaffolding
- Tank construction and repairs
- Handling of chemicals etc.

viii) Importance & use of PPE

ix) Emergency Routes

x) Assembly Points

xi) Job Specific Training

D. Consultant / Contractor

Awareness program should be carried out for Consultant / Contractor at the time of induction. This program should cover at least the following:

- i) Responsibility of contractor for safety of their personnel and work area
- ii) Hazardous property of Petroleum products and chemical used
- iii) Communication system
- iv) Fire / Accident Reporting procedure
- v) Medical facility available
- vi) Statutory requirements

- vii) Importance of First Aid equipment and required at the site
- viii) Work Permit system
- ix) Direct/ Indirect losses due to accident
- x) Safety Measures while executing the jobs such as:
 - Welding / Cutting / Grinding
 - Working at height
 - Confined space entry
 - X ray / radiation
 - Erection / Dismantling of scaffolding
 - Tank construction and repairs
 - Handling of chemicals etc.
 - electrical jobs
- xi) Safety training needs of their supervisors and workers
- xii) Importance & Use of PPE at the site
- xiii) General Safety rules at the installation

E Security Personnel

Training program should be carried out for Security personnel at the time of induction and annually thereafter and the records should be maintained. The training program should cover at least the following:

- i) Layout of Plant and Facilities
- ii) Vulnerable locations
- iii) Safety regulations (Statutory and in company)
- iv) Fire Protection Facilities and Locations
- v) Role in case of Fire / Disaster
- vi) Emergency Procedure and Drills
- vii) Industrial First Aid
- viii) Use of Personnel Protective Equipment
- ix) Disaster Management Plan

5.6 INSPECTION / AUDIT

Inspection / Audit is a tool to evaluate compliance of all safety requirements. Most of the information could be gathered

through site inspection using ready-made check lists to ensure that contractors / agencies abide by the safety rules and norms while working at operating / construction sites.

A checklist, while carrying out different type of jobs, should be developed based on hazards associated with the job being performed and requirements as per OISD-GDN-192 on "Safety Practices during Construction". Typical format is enclosed at Annexure II, which should be modified to suit the requirement of the site / job to be done.

Before starting the work and at regular intervals thereafter, Contractor's Supervisor/safety Officer and Owner's representative / Engineer-in charge/safety Officer should inspect as per the checklist so prepared to ensure that contractor has prepared to start the work with all safety precaution required for safe execution of job.

5.7 PENALTIES FOR NON-COMPLIANCE

Financial or other type of penalties like seizure of gate passes, stoppage of work for a limited period etc. may be levied on the contractors or their workers for non-compliance of safety rules. A provision of suitable accident severity based penalty clause for contractor may be incorporated to ensure adherence of systems and procedures. A few of the usual non-compliance are as follows:

- Non-usage of PPEs like Safety helmet / Safety shoes / Safety goggles / Respiratory protection etc. by the contractor personnel
- Non-usage of the safety belt and life line by the workers while working at height
- Non-provision of basic safety requirement such as 24 V lamp for working in confined space, uncertified / non standard lifting tools, earth leakage protection & earthing connections for electrical appliances as per Indian Electricity Rules, emergency isolation switches etc.

- Violation of Safety Permit conditions like Fire fighting equipment
- Non-barricading of area while rigging, digging etc.
- Working without valid work permit
- Unauthorised road closure/blockage

5.8 INCIDENT REPORTING AND INVESTIGATION SYSTEM

All the incidents including near-miss should be reported immediately by contractor's Supervisor to Contractor and owner's Supervisor/Engineer-in-charge, who should inform to Owner's Safety Officer and owner's Management. Owner's Safety Department will be required for onward reporting as per OISD, Statutory requirements.

All accidents regardless of the extent of injury or damage should be investigated in order to find probable causes, lessons learnt thereof and remedial measures required to prevent its recurrence.

The incident investigation should be done as per provision of clause no. 4.12 of OISD-GDN-206 on 'Safety Management System'. All the recommendations of investigation / Enquiry Report need to be monitored closely for its implementation. A proper record needs to be maintained to ensure implementation of all the recommendations and same should be reviewed from time to time.

5.9 SAFETY COMMITTEE MEETINGS

Following three type of safety committee meetings should be held aiming at raising the level of safety consciousness at the site:

5.9.1 Toolbox meeting

To maintain awareness, update training and convey important safety and health information, contractor supervisors should conduct tool box meetings at least weekly and also prior to start of any work. All the contractor workers should attend this meeting. The owner's supervisor/Engineer-in-charge and safety officers should also

attend these meetings on random basis. Tool box meeting should be conducted more frequently depending upon circumstances. Record of the same can be maintained in the following typical format.

TOOLBOX MEETING FORM

SUBJECT :
 PRESENTER :
 DATE :
 TIME : From..... To.....
 CONTENT IN BRIEF :

Participant's Name	Signature
-----	-----
-----	-----
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5.9.2 Site Safety Committee Meeting

Primary purpose of this safety committee is to enable owner, contractor and workers to work together to monitor the site safety and health plan so as to prevent accidents and improve working condition on site. Its size and membership will depend on the size and nature of job.

The safety committee should include representatives of owner, consultant, contractor identified as safety officer/supervisor. It should be headed by Engineer-in-charge.

The safety committee should have regular and frequent meetings, atleast fortnightly, to discuss the safety and health program on site and to make suggestions for improvement. The meetings should be documented with a time bound action plan. The functions carried out by safety committee should include:

- i) Review compliance of pending items of last Safety meetings.
- ii) Consideration of the reports of safety personnel.
- iii) Discussion of accident/near-miss and illness reports in order to make appropriate recommendation for prevention.

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| <ul style="list-style-type: none"> iv) Examination/evaluation of suggestions made by workers. v) Dissemination of acquired knowledge through training programs and information sharing sessions. vi) Discussion & review of Fire Prevention & Disaster Management Plan. vii) To send recommendation to Apex Body for consideration/approvals. | <ul style="list-style-type: none"> 2) OISD-GDN-192 on “Safety During Construction” 3) OISD-STD-155 Part(I&II) on “Personnel Protective Equipment” 4) Building & Other Construction workers (Regulation of Employment & Condition of Service) Act 1996 |
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5.9.3 Safety Review Meeting by Location Head

This meeting should be headed by the Location head and attended by Owner’s Supervisor/Engineer-in-charge, owner’s safety Officer and all concerned department heads. Prime purpose of this review is to ensure that all the recommendations of various committees are being complied with and to take decisions on critical points raised. This meeting should take place at least once in every quarter. All the investigation reports/ audit findings with status of implementation of recommendations should be discussed.

5.10 SAFETY EQUIPMENT / PERSONNEL PROTECTIVE EQUIPMENT

The type of safety equipment to be used is decided based on the job requirement. Selection should be made based on OISD-GDN-192, OISD-STD-155 (Part I & II) and the job requirement. Safety equipment / Personnel Protective Equipment (PPE) shall be of approved make. Contractor shall provide necessary training to each employee regarding proper usage and upkeep of PPE including its limitation.

A register showing stock and issue of PPE should be maintained by the contractor at site and must be available for inspection.

6.0 REFERENCES

- 1) OISD-GDN-206 on “Safety Management System”

ANNEXURE I**LIST OF SAFETY CODES FOR CIVIL WORKS PUBLISHED BY BUREAU OF
INDIAN STANDARDS**

Sl.no.	Code No.	Title
1	IS: 818	Code of Practice for Safety and Health Requirements in Electric and Gas Welding and Cutting Operations – First Revision.
2	IS: 875	Code of practice for Structural safety of buildings: Masonry walls
3	IS: 933	Specification for Portable Chemical Fire Extinguisher, Foam Type – Second Revision.
4	IS: 1179	Specification for Equipment for Eye and Face Protection during Welding – First Revision
5	IS: 1904	Code of practice for Structural safety of buildings: Shallow foundations
6	IS: 1905	Code of practice for Structural safety of buildings: Masonry walls
7	IS: 1989 – Part II	Leather Safety Boots and shoes for heavy metal industry
8	IS: 2171	Specification for Portable Fire Extinguishers, Dry Powder Type – Second Revision
9	IS: 2361	Specification of Building Grips – First Revision
10	IS: 2750	Specification for Steel Scaffoldings
11	IS: 2925	Specification for Industrial Safety Helmets – First Revision
12	IS: 3016	Code of Practice for Fires Precautions in Welding and Cutting Operations – First Revision
13	IS: 3521	Industrial Safety Belts and harnesses
14	IS: 3696 – Part I	Safety Code for Scaffolds and Ladders: Part I – Scaffolds
15	IS: 3696 – Part II	Safety Code for Scaffolds and Ladders: Part II – Ladders
16	IS: 3764	Safety Code for Excavation Work
17	IS: 4014 – Part I & II	Code of Practice for Steel Tubular Scaffolding
18	IS: 4081	Safety Code for Blasting and Related Drilling Operations
19	IS: 4082	Recommendations on stacking and storage of construction materials at site
20	IS: 4130	Safety Code for Demolition of Buildings – First Revision
21	IS: 4138	Safety Code for working in compressed air – First Revision

22	IS: 4756	Safety Code for Tunneling works
23	IS: 4912	Safety requirements for Floor and Wall openings, Railings and toe boards – First Revision
24	IS: 5216 – Part I & II	Recommendations on safety procedures and practices in electrical work
25	IS: 5121	Safety code for piling and other deep foundations
26	IS: 5916	Safety Code for Construction involving use of Hot Bituminous materials
27	IS: 6994 – Part I	Specifications for safety gloves: Part I – Leather and Cotton gloves
28	IS: 5983	Specification for Eye Protectors – First Revision
29	IS: 6922	Criteria for safety and design of structures subject to underground blasts
30	IS: 7155	Code of recommended practices for conveyor safety
31	IS: 7205	Safety Code for Erection on Structural Steel Works
32	IS: 7069	Safety Code for Handling and Storage of Building Materials
33	IS: 7293	Safety Code for Working with Construction Machinery
34	IS: 7323	Guidelines for operation of Reservoirs
35	IS: 7969	Safety Code for handling and storage of building materials
36	IS: 8758	Recommendation for Fire Precautionary Measures in construction of Temporary Structures and Pandals
37	IS: 8989	Safety Code for Erection of Concrete Framed Structures
38	IS: 9706	Code of Practices for construction of Aerial ropeways for transportation of material
39	IS: 9759	Guidelines for de-watering during construction
40	IS: 9944	Recommendations on safe working load for natural and manmade fibre rope slings
41	IS: 10667	Guide for selection of industrial safety equipment for protection foot and leg
42	IS: 10291	Safety Code for dress divers in civil engineering works
43	IS: 10386 – Part I	Safety Code for Construction, Operation and Maintenance for River Valley Projects
44	IS: 10386 – Part II	Safety Code for Construction, Operation and Maintenance for

River Valley Projects

45	IS: 11057	Code of Practice for Industrial Safety Nets
46	IS: 13415	Code of Practice on safety for Protective barriers in and around building
47	IS: 13416	Recommendations for preventive measures against hazards at working places

Statutory Regulations

Latest Statutory Acts and Rules, as given below, may be referred:-

1. The Petroleum Acts 1934 and Petroleum Rules 2002
2. The Factory Act, 1948 (As amended by Factory Amendment Act 1987) and concerned Factory Rules
3. The Water (Prevention and Control of Pollution) Act 1974 & Rules 1975
4. The Environment (Protection) Act 1986
5. The Manufacturing, Storage and Import of Hazardous Rules 1989
6. The Hazardous Wastes Management (Management & Handling) Rules 1989
7. The Indian Electricity Act 1901 and Rules 1956
8. The Indian Explosive Acts, 1884 & The Indian Explosive Rules 1983
9. The Gas Cylinder Rules 1981 and the static & Mobile Pressure Vessels (Unfired) Rules 1981
10. The Indian Boiler Act 1923 and Regulations 1950
11. The Public Liability Act 1991 as amended in 1992
12. The Motor Vehicle act 1988 and Central Motor Vehicle rules 1989
13. Building & Other Construction workers (Regulation of Employment & Condition of Service) Act 1996

In addition to above, various other statutory acts like EPF, ESIS, Minimum wage act and other local statutory requirements shall also be complied with.

CHECK LIST FOR SAFETY INSPECTION / AUDIT

Job _____ Location _____ Date of Audit _____ Frequency _____

Inspected by _____ Contractor (s) _____

Sl.no.	ITEM	YES	NO	NA	REMARKS / ACTION
1.0	PERSONNEL PROTECTIVE EQUIPMENT (PPE): Are following PPEs being used as per the job requirements?				
1.1	Safety Helmets				
1.2	Safety Shoes				
1.3	Gum Boots				
1.4	Safety Belts with life line				
1.5	Gloves				
1.6	Ear Plug				
1.7	Goggles				
1.8	Shield Glass				
1.9	Face Protection				
1.10	Breathing Apparatus				
1.11	Canister Mask				
1.12	Hand wash / Eye wash/ Respirating filter / cloth				
1.13	Boiler Suit				
1.14	Others				
2.0	HOUSE KEEPING				
2.1	Whether Waste Bins are provided / used				
2.2	Are Passageways / Walkways clear?				
2.3	Is General neatness O.K.?				
2.4	Is the Ground free from oil, grease etc. and is not found to be slippery?				
2.5	Others				

3.0	EXCAVATION				
3.1	Whether soil stability is checked?				
3.2	Whether proper shoring for the excavation is provided to prevent cave-in for side of slope >45 Degree?				
3.3	Whether proper precautions have been taken if the excavation is adjoining to heavy structure like building, street and roadways?				
3.4	While excavating whether proper slope usually 45° & suitable benches of 0.5 m width at each 1.5 m depth are provided?				
3.5	Whether barricading of 1m height with glowing caution board is provided for excavation beyond 1.5m depth?				
3.6	Whether excavating earth is placed beyond 1m of the edge of the trench?				
3.7	Whether heavy vehicle movement is restricted to come too close to the excavating area?				
3.8	Whether necessary precaution is taken for underground pipes, sewers, cables by contractors?				
3.9	Whether excavation hot work permit is taken?				
3.10	Whether extra precaution is taken for bailing out water properly while excavating?				
3.11	During rains whether the excavation is done with extra precaution to prevent caving in?				
3.12	Whether two separate entry/ exit points with necessary ladders / steps, as per requirement, have been provided?				
3.13	Whether one person is available at all the time to communicate any hazards noticed with workers working in deep trenches or excavation?				
3.14	Whether necessary precautions like				

	regular gas testing are being taken in areas having hydrocarbons and LPG so that no gas accumulation takes place in the trenches.				
3.15	Whether IS: 4081-1986 & Indian Explosive act & rules for storage, handling & carrying of explosive material and execution of blasting operation is followed?				
3.16	Whether in case of mechanised excavation, caution board is provided for do's and don'ts like 'Nobody to enter' within one meter of the extreme reach?				
3.17	Whether the following are inspected during excavation work :- a) Boulder formation encountered b) Collapsing / development of cracks of sides c) Marked damage to support d) Unexpected fall of ground e) Inspection of site after each blast.				
3.18	Others				
4.0	PERMITS				
4.1	Whether valid work permit is issued to start any work?				
4.2	Whether all conditions of the permit are fulfilled before starting the job?				
4.3	As noted in the permit, whether compliance of all the recommendations are ensured?				
4.4	Whether permits are available at work site all the times?				
4.5	Whether hot work permit registered in fire station?				
4.6	Whether permits are being closed after the completion of job?				
4.7	Others				
5.0	SAFETY IN CUTTING / WELDING/GRINDING				
5.1	Whether LPG / Oxygen / Acetylene/ Gas				

	cylinders are kept outside only while working in confined space?				
5.2	Are Acetylene /LPG cylinders kept in upright position and secured at designated places under shed – wet gunny bags wrapped around it if the same is under sun at designated place?				
5.3	Check cylinder and cylinder valves for any kind of damage?				
5.4	Whether protective valves are kept on cylinder while not in use?				
5.5	Whether proper means and method for transportation of cylinders to avoid dropping and rolling are being adopted / followed?				
5.6	Whether gas cylinders, regulators are kept away/free from oil and grease?				
5.7	Whether all hoses were found to be free of any damage or crack?				
5.8	Whether oxygen and acetylene cylinders are stored separately?				
5.9	Whether color coding is being used for easy identification of different type of cylinders and hoses?				
5.10	Whether cylinder keys are available near the cylinder?				
5.11	Whether gas torches with NRV with flash back arrestor of approved make are only being used?				
5.12	Whether pressure gauges are in working condition and checked from time to time?				
5.13	Whether welding shields are used while welding?				
5.14	Whether proper earthing for welding machines are provided?				
5.15	Whether power is taken from approved sources (welding receptacles)?				
5.16	Whether welding receptacles are properly grounded?				

5.17	Whether welding cables are maintained in good condition and without any joints/cuts?				
5.18	Whether to avoid short circuit, welding machines are protected against rain?				
5.19	Whether earth connectors are securely connected to the job and not to the adjoining pipeline or structure?				
5.20	Whether flame arrestor of DG set is of approved make and quality?				
5.21	Others				
6.0	SAND / SHOT BLASTING				
6.1	Whether sand blasting is used only after getting approval from competent authority?				
6.2	Whether air compressor used for sand / shot blasting are positioned away from work place?				
6.3	Whether exhaust of the prime mover is directed away from the work place?				
6.4	Whether in case of motor driven compressor, the body of the motor as well as the compressor is properly earthed?				
6.5	Whether line operator of sand/shot blasting wear suitable PPEs including mask?				
6.6	Whether adequate measures are adopted to confine dust/spray particles?				
6.7	Whether adequate measures are taken for proper ventilation while the work is done in confined space?				
6.8	Others				
7.0	SAFETY WHILE WORKING AT HEIGHTS / SCAFFOLDING / LADDERS				
7.1	Whether work permit is obtained to take up work at height above 3 mts?				
7.2	Whether steel pipes scaffoldings are used in unit/off site areas?				

7.3	Whether provision for suitable platform with all scaffoldings are made? Whether its construction is as per specification with toe board and railing?				
7.4	Whether the area below working at height is cordoned?				
7.5	Whether suitable platform is provided?				
7.6	Whether ISI approved quality and good condition safety belts are used while working at heights?				
7.7	Whether life line of safety belt is Anchored to an independent secured support capable of withstanding load of a falling person?				
7.8	Whether the area around the scaffold is cordoned off to prohibit the entry of unauthorized person?				
7.9	Whether ropes used are of good condition and adequate strength free of defects?				
7.10	Whether ladder is placed at secured and leveled surface?				
7.11	Whether it is extended 1.5 Mts. Above the landing point?				
7.12	Whether ladder used are of adequate length and tying short ladder is avoided?				
7.13	Whether metallic ladders are placed away from electrical system?				
7.14	Whether tools or materials are removed after completion of the day's job at heights?				
7.15	Whether a valid permit is obtained before taking up work on asbestos or fragile roof?				
7.16	Whether sufficient precaution is taken while working on fragile roof?				
7.17	Whether provision is made to arrange duck ladder, crawling board for working at fragile roof?				
7.18	Whether scaffolding has been erected on rigid / firm / levelled surfaces only?				

7.19	Whether scaffold has been inspected by competent person prior to being put in use?				
7.20	Whether the scaffolding has been designed for the load to be borne?				
7.21	Whether the erection and dismantling of the scaffolding is being done only by trained persons and under supervision?				
7.22	Whether safety net with proper working arrangement and life line has been provided?				
7.23	Others				
8.0	SAFETY IN CONFINED SPACE				
8.1	Whether a permit is obtained to enter a confined space?				
8.2	Whether gas test for hydrocarbon, toxic gas, oxygen level is obtained before entering any confined space?				
8.3	Whether adequate oxygen level is ensured in confined space before entering? If not, whether all precaution like using of Breathing Apparatus set is ensured?				
8.4	Whether, in case of chance of ingress of hydrocarbon gases / toxic gases, Personnel Monitoring System (PMS) is used or not?				
8.5	Whether only in presence of a supervisor, worker enters in confined space?				
8.6	Whether provision of sufficient means of entry and exit is available?				
8.7	Whether provision of ventilation to remove welding fumes, dust, exhaust gases are made?				
8.8	Whether provision of 24V (Hand lamps with cage as per OISD-STD-155) light for working inside space is made?				

8.9	Is it strictly ensured that a stand-by trained person is standing outside before a person enters a confined space and communication is being maintained all the time with workers working inside?				
8.10	Whether life belt with one end under control of stand-by person outside is kept while working in confined space?				
8.11	Whether Personnel protective Equipment are in good condition as specified in the permit?				
8.12	Whether absence of Hydrogen Sulfide, CO or other toxic gas is ensured before entering into a confined space? If yes, whether proper required PPE like BA, Gas Mask are used.				
8.13	Whether boxing up is being done only as per the approved procedures and by competent persons?				
8.14	Whether all the safety precautions listed in OISD-GDN-192 are taken while working in sewers, OWS etc.?				
8.15	Whether proper house keeping is being maintained inside the confined space?				
8.16	Whether training has been provided to workers working in the confined space and the workers only of sound health are being asked to work in the confined space?				
8.17	Others				
9.0	SAFETY IN MATERIAL HANDLING				
9.1	Whether all lifting tools, tackles, machines, chains, ropes etc. are of sound construction, made of sound material and maintained in good condition?				
9.2	Whether safe working load, date of testing visibly marked/painted on the equipment?				
9.3	Whether lifting tools, tackles are of adequate strength for the load to be handled?				
9.4	Whether all parts including the working gears fixed or movable of every lifting machine, chain, rope, tackles specify the				

	<p>following condition:</p> <p>a) Thoroughly examined by competent person at least once a year or such interval as required by statutory authority.</p> <p>b) Document of such examination are maintained and produced to owner supervisor before use of particular equipment?</p>				
9.5	Whether chain blocks and cables are inspected before each use to assure their sound condition?				
9.6	<p>Whether hoist and lift if used are:</p> <p>a) Properly maintained and thoroughly examined by competent authority at least once in every year.</p> <p>b) A register to be maintained to record particulars of such examination in prescribed forms and shall be produced to the owner supervisor before use.</p>				
9.7	Whether area below the movement of boom of crane is cleared to avoid injury from falling objects?				
9.8	Whether it is ensured that crew of truck leave the truck in crane handling area before starting loading / unloading, if not involved in rigging operation?				
9.9	Whether transporting material from one place to another is done by suitable means?				
9.10	Whether carrier with sufficient capacity without projecting parts is used for transporting materials?				
9.11	Whether riggers engaged are well trained and conversant with signaling procedures including night signalling if required?				
9.12	Whether permission of authorized person is obtained before working on or near an overhead crane?				
9.13	Whether trained riggers are available all the time along with crane?				

9.14	Whether barricading has been done to ensure no unauthorised person enters in the working area of the crane?				
9.15	Whether lifting plan has been prepared and approved before start of the work?				
9.16	Whether route of crane movement has been planned before the crane moves out of the garage?				
9.17	Whether it has been ensured that no electrical cable come within 3 metres or safe distance from the boom of the crane?				
9.18	Whether boom is being kept in the horizontal position or locked while idling?				
9.19	Whether material is being stacked / destacked in trucks with the help of wedges to ensure no slippage while loading / unloading takes place?				
9.20	Whether the forklift / crane is being operated only by trained person?				
9.21	Others				
10.0	ELECTRICAL SAFETY				
10.1	Has the Electrical Line Clearance procedure been followed involving electrical and other concerned Dept. and filling of formats?				
10.2	Have Danger Signs with Voltage rating/ Men at work signboards been displayed at both Sub Station as well as the work site?				
10.3	Has the contractor worker understood the electrical circuit on which he is going to work with probable electrical hazards and mitigation measures to be adopted?				
10.4	Whether contractor has engaged electrician (s) having valid electrical licence in line with provisions in Indian Electricity Rules?				

10.5	Have all checks prior to switching operation been carried out and authorisation of owner/ user section obtained subsequently?				
10.6	Have all earthing links on electrical conductors removed before charging the line/ apparatus?				
10.7	Have PPE as prescribed under Indian Electricity Rules been in place, kept healthy and used?				
10.8	Are earthing and bonding arrangement of non-current carrying metallic parts in line with provisions of Indian Electricity Rules – 1956 amended time to time as IS: 3043?				
10.9	Have electrical part of OISD-GDN-192 and Clause No. 9.0 for Temporary installations in OISD-173 been understood and followed wherever applicable?				
10.10	Are flexible wires having voltage of 240 volts above earth potential taken through PVC conduits?				
10.11	Whether portable hand lamps with a voltage rating of not more than 24 volts used with flameproof enclosures in confined spaces within columns, vessels etc?				
10.12	Have the Switches, MCBs, fuses etc. been inspected for proper ratings?				
10.13	Has Earth Leakage Circuit Breaker (ELCB) been used on the incoming side to protect against leakage of current? Is the device tested every time the work is started?				
10.14	Whether all portable appliances are provided with insulated Three pin Plugs and socket arrangement?				
10.15	Whether industrial type extension boards and plug sockets are used?				
10.16	Has the electrical equipment brought to site by contractor been inspected by owner's supervisor/ safety officer for damage/cuts/abrasion etc? Is record of				

	Insulation Resistance, wherever required , being kept?				
10.17	Have standard practices for termination of conductors/ cables been followed (e.g. use of proper lugs, crimping tool, cable glands etc)? Is cable armour in continuity from feeding point to load?				
10.18	Are the Contractor supervisor and workmen well acquainted with first aid for electrical shock?				
10.19	Are the wires/ cables identifiable along their route towards the load by using colour coding and/or markers?				
10.20	Others				
11.0	ROAD WORK				
11.1	Whether site is barricaded and provided with warning signs including night warning lamps/ self glowing markers at appropriate location for diversion of traffic?				
11.2	Whether mixing aggregates with bitumen is done with the help of batch mixing plants? If no, whether adequate precautions have been taken?				
11.3	Whether road rollers, bitumen sprayers, pavement finishers are driven by experienced drivers with valid driving licenses?				
11.4	Whether the worker handling hot bitumen sprayers or spreading bitumen aggregate mix or mixing bitumen with aggregate are provided with PVC hand gloves rubber shoes with pegging upto knee joints?				
11.5	Others				
12.0	FORM WORK, REINFORCEMENT				
12.1	Whether form work, shuttering, shoring etc. are adequately designed and provided to erect the structure and to support the expected load?				

12.2	Whether staging (support) for shuttering is designed for loads like worker movement, impact load and other incidental loads during construction?				
12.3	Whether workers use PPEs at work site?				
12.4	Whether all safety procedures are adopted while cutting rod?				
12.5	Whether proper staging and bundling is provided for supplying rods at height?				
12.6	Whether sufficient cross bracings are provided for high staging works at vulnerable points?				
12.7	Others				
13.0	CONCRETING				
13.1	Whether the concreting area is barricaded?				
13.2	Whether vibrator hoses, pumping concrete accessories are in healthy condition and mechanically strong?				
13.3	Whether it is ensured that no pipe line in concrete pumping system is attached to any temporary strut such as scaffolds etc.?				
13.4	Whether it is checked that safety guards around moving parts are provided in concrete mixer/ machines?				
13.5	Whether earthing of electrical mixers, vibrator etc. are checked?				
13.6	Whether entry of unauthorised person in the concreting area is restricted?				
13.7	Whether adequate lighting arrangement is made in the concreting area if working during night?				
13.8	Whether PPEs like gum boots, gloves and dust masks etc. are being used?				
13.9	For overhead or underground work, whether form work and shuttering have been checked so that the same do not collapse during concreting?				

13.10	Others				
14.0	DEMOLISHING (DEMOLISHING BY BLAST NOT CONSIDERED)				
14.1	Has the stability of structure been examined by competent person and found OK?				
14.2	Are non-sparking tools being used, if required?				
14.3	Is intermittent clearing operation being done to keep the area reasonably tidy and clean?				
14.4	Whether effective barricading has been provided?				
14.5	Whether Electrical and other facilities like water, oil, gas pipelines have been isolated/protected?				
14.6	Whether the plan of demolition (including sequence of activities) has been prepared and approved prior to start of the work?				
14.7	Others				
15.0	RADIOGRAPHY				
15.1	Are safety precautions for handling of source as per guidelines of BARC being followed?				
15.2	Is the potency of the source being used within acceptable limits as per the BARC regulations?				
15.3	Is the area being cordoned with proper signs during radiography?				
15.4	Does proper place exist as per BARC regulations for storage of source / Personnel safety equipment?				
15.5	Does the radiographer has valid certificate of radiography from competent authority (BARC)?				
15.6	Is radiographer using Exposure Meter / Dosi Meter?				
15.7	Whether minimum occupancy of the				

	premises / workplace is being ensured while radiography is in progress?				
15.8	Is permit system being followed?				
15.9	Others				
16.0	ADDITIONAL SAFETY PRECAUTION FOR UNITS WITH HYDROCARBONS				
16.1	Are jobs being carried out with a valid work permit only as per OISD-STD-105 "Work Permit System".				
16.2	Is smoking prohibited in all places containing combustible or flammable materials and "No Smoking" notices prominently displayed.				
16.3	Are only approved type electrical installations and equipment, including portable lamps, being used?				
16.4	Are oily rags, waste, wooden materials and clothes or other substances liable to spontaneous ignition being removed?				
16.5	Are the combustible materials properly shielded in case same cannot be removed from the area?				
16.6	Has welding screens (like metal/asbestos/ water curtain) been put up to protect other equipment / facilities/ OWS/ drains in adjoining areas against flying sparks, as may be required?				
16.7	Is Gas-testing being done with the means of a calibrated Gas detection Meter prior to start of Hot work and being done subsequently at regular intervals as per the requirement?				
16.8	Are regular inspections being done of places where there are fire risks like in the vicinity of heating appliances, electrical installations and conductors, stores of flammable and combustible materials, welding and cutting operations?				
16.9	Are fire-extinguishing equipment being placed at strategic locations and are kept well maintained and inspected at suitable intervals by a competent person.				
16.10	Are access to fire-extinguishing equipment such as hydrants, portable				

	extinguishers and connections for hoses kept clear at all times?				
16.11	Are all supervisors and a sufficient number of workers trained in the use of fire-extinguishing equipment?				
16.12	Are audio means, to give warning in case of fire provided, audible in all parts of the site where persons are liable to work?				
16.13	Is there an effective evacuation plan in place so that all persons are evacuated speedily without panic?				
16.14	Others				
17.0	EMERGENCY PROCEDURES				
17.1	Is signaling / siren system effective?				
17.2	Is arrangement for rescuing affected person adequate?				
17.3	Are signs showing emergency exit route installed?				
17.4	Is emergency exit route clear of obstacles?				
17.5	Is communication system adequate?				
17.6	Whether emergency vehicle with driver has been provided to meet any emergency situation?				
17.7	Does any tie-up with hospitals or local doctors exist?				
17.8	Has the assembly point for workers in case of emergency been identified and earmarked?				
17.9	Has training been provided to a few workers for First Aid?				
17.10	Others				
18.0	WELFARE FACILITIES				
18.1	Is hygienic conditions prevailing at labour camps?				
18.2	Are First Aid facilities available?				

18.3	Does proper sanitation exist at site office and labour camps?				
18.4	Does any arrangement of medical facilities like tie ups with nearby hospital exist?				
18.5	Is proper drinking water facility available for workmen & staff?				
18.6	Are crèches provided for children (if applicable)?				
18.7	Is any proper place/canteen/restroom provided for eating food and taking rest?				
18.8	Is any place earmarked for storing / keeping clothing?				
18.9	Is Adequate washing facility available?				
18.10	Does proper ventilation at working place exist?				
18.11	Others				
19.0	GENERAL				
19.1	Are illumination levels at workplace and passages adequate?				
19.2	Is communication system adequate?				
19.3	Are display and caution boards provided at strategic locations?				
19.4	Are road barriers being used for blocking any roads/passage?				
19.5	Has the structure been adequately secured against storm/high winds during construction/ erection?				
19.6	Are the equipment properly earthed?				
19.7	Are vehicles being checked like brakes, oil, lights etc. on regular basis?				
19.8	Is compressed air being used only for its intended purpose and not for any other purpose?				
19.9	Are only proper clothes and not loose clothes being used while working around				

	machinery?				
19.10	Are nails or other sharp objects being removed or bent?				
19.11	Are machine guards over moving parts of machinery such as coupling, pulley, wheel etc. installed?				
19.12	Whether after maintenance of machinery the guards are securely fitted before putting into operation?				
19.13	Are working platforms / gangways provided with hand rails & toe guards?				
19.14	Are swing platforms provided with chains & secured adequately when not in use?				
19.15	Are the approaches to work sites being maintained & kept clear of obstacles?				
19.16	Whether engines of equipment entering into the operating area have exhaust and muffler system with approved spark arrestor?				
19.17	Whether vehicles/engine driven equipment, electrical equipment and tools used are certified?				
19.18	Whether contractors inform his workers about hazards and safe procedures?				
19.19	Whether sufficient care is taken so that spark do not go outside working enclosure & falls below?				
19.20	Whether contractor's qualified / trained supervisor is present?				
19.21	Whether all exhausts of engines are provided with approved type of flame arrestors and exhaust is not facing toward the place where the workers are working?				
19.22	Others				

Signature of the Auditor

ELECTRICAL POWER IS THE MAINSTAY OF ANY CONSTRUCTION ACTIVITY. AT THE SAME TIME IT REQUIRES UTMOST CARE IN IT'S UTILISATION TO AVOID ACCIDENTS DUE TO ELECTRICAL SHOCK, FIRE INCIDENTS OR ELECTRIC SHORT CIRCUITS. EXPOSURE OF ELECTRICAL INSTALLATION TO ADVERSE ENVIRONMENTAL CONDITIONS INCREASE THE RISK OF SUCH ACCIDENTS. HENCE IT IS NECESSARY TO TAKE EXTRA PRECAUTIONS FOR SUCH INSTALLATIONS TO ENSURE SAFETY OF PERSONNEL AND EQUIPMENT. THIS STANDARD ADDRESSES THE SAFETY MEASURES REQUIRED TO BE ADOPTED FOR THE ELECTRICAL INSTALLATIONS BY ALL CONTRACTORS DURING CONSTRUCTION PHASE.

1. ALL ELECTRICAL CONNECTIONS/WORK FOR ELECTRICAL INSTALLATIONS SHALL BE CARRIED OUT AS PER PROVISIONS OF THE LATEST REVISION OF THE FOLLOWING CODES AND STANDARDS IN ADDITION TO THE REQUIREMENTS OF STATUTORY AUTHORITIES AND IE RULES:
OISD-STD-173 : FIRE PREVENTION AND PROTECTION SYSTEM FOR ELECTRICAL INSTALLATIONS.
SP-30 (BIS) : NATIONAL ELECTRIC CODE.
THE INSTALLATION SHALL HAVE APPROVAL FROM CONCERNED STATUTORY AUTHORITIES.
2. ALL ELECTRICAL CONNECTIONS SHALL BE DONE BY AN ELECTRICIAN WITH VALID LICENCE AND TO THE SATISFACTION OF ENGINEER-IN-CHARGE.
3. ONE COMPETENT LICENCED ELECTRICIAN SHALL BE MADE AVAILABLE BY CONTRACTOR AT SITE ROUND THE CLOCK TO ATTEND TO THE NORMAL/EMERGENCY JOBS.
4. ALL SWITCH BOARDS/WELDING MACHINES SHALL BE KEPT IN WELL VENTILATED & COVERED SHED. THE SHED SHALL BE ELEVATED TO AVOID WATER LOGGING. NO FLAMMABLE MATERIALS SHALL BE USED FOR CONSTRUCTING THE SHED. ALSO FLAMMABLE MATERIALS SHALL NOT BE STORED IN AND AROUND ELECTRICAL EQUIPMENT/SWITCHBOARD. ADEQUATE CLEARANCES AND OPERATIONAL SPACE SHALL BE PROVIDED AROUND THE EQUIPMENT.
5. FIRE EXTINGUISHERS AND INSULATING MATS SHALL BE PROVIDED IN ALL POWER DISTRIBUTION CENTERS.
6. TEMPORARY ELECTRICAL EQUIPMENT SHALL NOT BE EMPLOYED IN HAZARDOUS AREAS WITHOUT OBTAINING SAFETY PERMIT.
7. PROPER HOUSE KEEPING SHALL BE DONE AROUND THE ELECTRICAL INSTALLATIONS.
8. ALL TEMPORARY INSTALLATIONS SHALL BE TESTED BEFORE ENERGISING, TO ENSURE PROPER EARTHING, BONDING, SUITABILITY OF PROTECTION SYSTEM, ADEQUACY OF FEEDERS/CABLES ETC.
9. ALL WELDERS SHALL USE HAND GLOVES IRRESPECTIVE OF HOLDER VOLTAGE.
10. MULTILINGUAL (ENGLISH, HINDI AND LOCAL LANGUAGE) CAUTION BOARDS, SHOCK TREATMENT CHARTS AND INSTRUCTION PLATE CONTAINING LOCATION OF ISOLATION POINT FOR INCOMING SUPPLY, NAME & TELEPHONE NO. OF CONTACT PERSON IN EMERGENCY SHALL BE PROVIDED IN SUBSTATIONS AND NEAR ALL DISTRIBUTION BOARDS/LOCAL PANELS.
11. OPERATION OF EARTH LEAKAGE DEVICE SHALL BE CHECKED REGULARLY BY TEMPORARILY CONNECTING SERIES TEST LAMP (2 BULBS OF EQUAL RATING CONNECTED IN SERIES) BETWEEN PHASE AND EARTH.
12. THE FOLLOWING DESIGN FEATURES SHALL BE ENSURED FOR ALL ELECTRICAL INSTALLATIONS DURING CONSTRUCTION PHASE.
 - 12.1 EACH INSTALLATION SHALL HAVE A MAIN SWITCH WITH A PROTECTIVE DEVICE, INSTALLED IN AN ENCLOSURE ADJACENT TO THE METERING POINT. THE OPERATING HEIGHT OF THE MAIN SWITCH SHALL NOT EXCEED 1.5 M. THE MAIN SWITCH SHALL BE CONNECTED TO THE POINT OF SUPPLY BY MEANS OF ARMoured CABLE.
 - 12.2 THE OUTGOING FEEDERS SHALL BE DOUBLE OR TRIPLE POLE SWITCHES WITH FUSES/MCBs. LOADS IN A THREE PHASE CIRCUIT SHALL BE BALANCED AS FAR AS POSSIBLE AND LOAD ON NEUTRAL SHOULD NOT EXCEED 20% OF LOAD IN THE PHASE.

1	26.09.06	REVISED & ISSUED AS STANDARAD	BP	RKS/UAP	JMS	VC
0	04.12.01	ISSUED AS STANDARD	UAP	AA	VPS	GRR
Rev. No.	Date	Purpose	Prepared by	Checked by	Stds. Committee Convenor	Stds. Bureau Chairman
Approved by						

- 12.3 THE INSTALLATION SHALL BE ADEQUATELY PROTECTED AGAINST OVERLOAD, SHORT CIRCUIT AND EARTH LEAKAGE BY THE USE OF SUITABLE PROTECTIVE DEVICES. FUSES WHEREVER USED SHALL BE HRC TYPE. USE OF REWIRABLE FUSES SHALL BE STRICTLY PROHIBITED. THE EARTH LEAKAGE DEVICE SHALL HAVE AN OPERATING CURRENT NOT EXCEEDING 30 mA.
- 12.4 ALL CONNECTIONS TO THE HANDTOOLS/WELDING RECEPTACLES SHALL BE TAKEN THROUGH PROPER SWITCHES, SOCKETS AND PLUGS.
- 12.5 ALL SINGLE PHASE SOCKETS SHALL BE MINIMUM 3 PIN TYPE ONLY. ALL UNUSED SOCKETS SHALL BE PROVIDED WITH SOCKET CAPS.
- 12.6 ONLY 3 CORE (P+N+E) OVERALL SHEATHED FLEXIBLE CABLES WITH MINIMUM CONDUCTOR SIZE OF 1.5 MM² COPPER SHALL BE USED FOR ALL HAND TOOLS.
- 12.7 ONLY METALLIC DISTRIBUTION BOXES WITH DOUBLE EARTHING SHALL BE USED AT SITE. NO WOODEN BOXES SHALL BE USED.
- 12.8 ALL POWER CABLES SHALL BE TERMINATED WITH COMPRESSION TYPE CABLE GLANDS. LUGS SHALL BE USED FOR MULTISTRAND WIRES/CABLES.
- 12.9 CABLES SHALL BE FREE FROM ANY INSULATION DAMAGE.
- 12.10 CABLES SHALL BE LAID IN UNDERGROUND AT A MINIMUM DEPTH OF 750 MM, FOR LV & CONTROLS AND 900MM FOR HV CABLES COVERED WITH SAND, BRICK AND SOIL FOR ENSURING MECHANICAL PROTECTION. CABLES SHALL NOT BE LAID IN WATER LOGGED AREA AS FAR AS PRACTICABLE. CABLE ROUTE MARKERS SHALL BE PROVIDED AT EVERY 25 M OF BURIED TRENCH ROUTE. WHEN LAID ABOVE GROUND, CABLES SHALL BE PROPERLY CLEATED OR SUPPORTED ON RIGID POLES OF ATLEAST 2 M HIGH. MINIMUM HEAD CLEARANCE OF 6 METERS SHALL BE PROVIDED AT ROAD CROSSING.
- 12.11 UNDER GROUND CABLES SHALL NOT BE ALLOWED TO CROSS THE ROADS WITHOUT PIPE SLEEVE.
- 12.12 ALL CABLE JOINTS SHALL BE DONE WITH PROPER JOINTING KIT. NO TAPED/TEMPORARY JOINTS SHALL BE USED.
- 12.13 AN INDEPENDENT EARTHING FACILITY SHOULD PREFERABLY BE ESTABLISHED WITHIN THE TEMPORARY INSTALLATION PREMISES. ALL APPLIANCES AND EQUIPMENT SHALL BE ADEQUATELY EARTHED. IN CASE ARMoured CABLES ARE USED, THE ARMOUR SHALL BE BONDED TO THE EARTHING SYSTEM.
- 12.14 ALL CABLES AND WIRE ROPE USED FOR EARTH CONNECTIONS SHALL BE TERMINATED THROUGH TINNED COPPER LUGS.
- 12.15 IN CASE OF LOCAL EARTHING, EARTH ELECTRODES SHALL BE BURIED NEAR THE SUPPLY POINT AND EARTH CONTINUITY WIRE SHALL BE CONNECTED TO LOCAL EARTH PLATE FOR FURTHER DISTRIBUTION TO VARIOUS APPLIANCES. ALL INSULATED WIRES FOR EARTH CONNECTION SHALL HAVE INSULATION OF GREEN COLOUR.
- 12.16 SEPARATE CORE SHALL BE PROVIDED FOR NEUTRAL. EARTH/STRUCTURES SHALL NOT BE USED AS A NEUTRAL IN ANY CASE.
- 12.17 ON/OFF POSITION OF ALL SWITCHES SHALL BE CLEARLY DESIGNATED/PAINTED FOR EASY ISOLATION IN EMERGENCY.
13. ALL INSULATIONS SHALL BE INSPECTED BY ENGINEER-IN-CHARGE ATLEAST ONCE IN A MONTH.

1	26.09.06	REVISED & ISSUED AS STANDARD	<i>B. Prakash</i> BP	<i>RKS/UAP</i> RKS/UAP	<i>JMS</i> JMS	<i>VC</i> VC
0	04.12.01	ISSUED AS STANDARD	UAP	AA	VPS	GRR
Rev. No.	Date	Purpose	Prepared by	Checked by	Std. Committee Convenor	Std. Bureau Chairman
Approved by						

TIME SCHEDULE

[APPENDIX – V TO SCC]

TIME SCHEDULE

NAME OF WORK	TIME OF COMPLETION
PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI (BIDDING DOCUMENT No.: KNM/1038-000-CQ-TN-7033/1001)	45 (FORTY FIVE) DAYS FOR EITHER SECTION OR FOR BOTH THE SECTIONS TOGETHER

Note :

1. The time of completion shall be reckoned from the date of award of contract, which shall be the date of issue of Fax/Letter of Acceptance/ Notification of Award, whichever is earlier.
2. The time indicated is for completing all the Works in all respects as per specifications, codes, drawings and instructions of Engineer-in-Charge including mobilisation and demobilisation.
3. It should be noted that the period of completion given above includes period for procurement, mobilisation at site, erection/ construction, inspection, testing/ commissioning, rectifications, if any, retesting etc. complete in all respects to the entire satisfaction of Owner/ Engineer-in-Charge.
4. Final completion shall be on attending all the defects observed.

SCHEDULE OF RATES

NAME OF WORK

**PAINTING WORKS FOR FACADE OF INNER &
OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
FOR REDEVELOPMENT OF CONNAUGHT PLACE,
NEW DELHI**

BIDDING DOCUMENT

KNM/1038-000-CQ-TN-7033/1001

NAME OF BIDDER

M/s.

PREAMBLE TO SCHEDULE OF RATES

1. The Schedule of Rates shall be read with all other sections of this Bidding Document.
2. The Contractor is deemed to have studied the specifications and details of works to be done including scope of work, scope of supply and technical specification within the Time Schedule and should have acquainted himself of the conditions prevailing at site.
3. All duties and taxes including or any other statutory payment payable by the Contractor under the Contract, or for any other cause, shall be included in the Schedule of Rates except Service Tax.
4. Bidders must submit the firm RATES for all the items of Schedule of Rates. The Bids of all such bidders not complying this requirement shall not be accepted.
5. Bidder shall quote as per S.O.R. item only. No comment, explanation or clarification in S.O.R. is acceptable.
6. The quantities given in SOR format are tentative and shall be used to evaluate the bidder's position.
7. All items of work mentioned in the Schedule of Rates shall be carried out as per the specifications and instructions of Owner/EIL and the rates are deemed to be inclusive of material, consumable, labour, supervision, tools & tackles, etc. as called for in the Bidding Document.
8. EIL reserves the right to cancel/ delete/ curtail any item or group of work if necessary. Such a step shall not be construed as reason for changing the rates.
9. No stipulation, deviation, terms & conditions, presumption, basis etc. shall be stipulated in the price bid. Any conditions, if stipulated, then the bid shall be liable for rejection.

STAMP & SIGNATURE OF BIDDER

NAME OF PROJECT: REDEVELOPMENT OF CONNAUGHT PLACE

NAME OF WORK: PAINTING WORKS FOR FAÇADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI

BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001

SCHEDULE OF RATES (SECTION-A)

Item No.	Description	Unit	Qty	Rate (IN Fig.) (Rs.)	Rate (In Word) (Rs.)	Amount (In fig.) (Rs.)
1	Finishing walls with Apex Ultima exterior paint manufactured by Asain Paints or equivalent (one or more coats) & of required shade on old work over including cleaning , preparing of surfaces, curing etc. All complete as per manufacturer specification & directions of the Engineer-in-Charge	Sqm	46450			
2	Providing and applying one or more coats of plastic emulsion paint of approved brand & manufacture of required colour on ceiling (old work) including cleaning and preparation of surface to the satisfaction of the Engineer-in-Charge	Sqm	3125			
3	Providing and applying one or more coats of DUCO paint of ICI or approved equivalent of required colour on wooden frames / shutters including applying a coat of primer and cleaning / preparation of old surface complete as per manufacturer's specifications & directions of the Engineer-in-Charge.	Sqm	4579			
TOTAL						

NAME OF PROJECT: REDEVELOPMENT OF CONNAUGHT PLACE

NAME OF WORK: PAINTING WORKS FOR FAÇADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI

BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001

SCHEDULE OF RATES (SECTION-B)

Item No.	Description	Unit	Qty	Rate (IN Fig.) (Rs.)	Rate (In Word) (Rs.)	Amount (In fig.) (Rs.)
1	Finishing walls with Apex Ultima exterior paint manufactured by Asain Paints or equivalent (one or more coats) & of required shade on old work over including cleaning , preparing of surfaces, curing etc. All complete as per manufacturer specification & directions of the Engineer-in-Charge	Sqm	46450			
2	Providing and applying one or more coats of plastic emulsion paint of approved brand & manufacture of required colour on ceiling (old work) including cleaning and preparation of surface to the satisfaction of the Engineer-in-Charge	Sqm	3125			
3	Providing and applying one or more coats of DUCO paint of ICI or approved equivalent of required colour on wooden frames / shutters including applying a coat of primer and cleaning / preparation of old surface complete as per manufacturer's specifications & directions of the Engineer-in-Charge.	Sqm	4579			
TOTAL						

STATEMENT FOR DETAILS OF SERVICE TAX (SECTION-A)

NAME OF PROJECT: REDEVELOPMENT OF CONNAUGHT PLACE

NAME OF WORK: PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE

BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001

NAME OF BIDDER:

S.No.	Tax	% of Total Price (Quoted in Form SP-1) on which Service Tax is applicable.	Ceiling Amount on which the Tax is applicable [Based on % indicated in column (3)] (in INR)	Rate of Tax (in %age)	Amount of Tax (in INR)
(1)	(2)	(3)	(4)	(5)	(6)
1	SERVICE TAX			12.36 (Refer Note - 2)	
TOTAL					

Notes:

- 1 Service Tax amount shall not be included by the Bidder in their quoted price and the same shall be reimbursed by Owner against submission of required invoices as per the provisions of the Bidding Document.
- 2 Bidders shall consider the rate of Service Tax (including cess) applicable presently @ 12.36% on actual value of services.
- 3 The Service Tax amount indicated by the Bidder in this Form shall include both, namely,
 - (i) the amount of Service Tax payable by the bidder and reimbursable by Owner
 - (ii) the amount of Service Tax, if any, directly payable by EIL / Owner, as applicable to recipient of service, as per the reverse charge rule of Service Tax.
- 4 The Service Tax, if any, to be payable by the Owner under reverse charge rule shall not be reimbursed to the Contractor but shall be directly submitted to the Service Tax Authorities by Owner. If the same has already been reimbursed / paid to the Contractor for whatsoever reason, the said amount, as submitted by the Owner to Service Tax Authorities, shall be deducted / recovered / adjusted from the payment due to the Contractor.
- 5 Total Amount of Service Tax shall be payable based on the ceiling amount of services on which Service Tax is applicable as declared by the bidder at Column (4). If discrepancies are found between the ceiling amount of services on which Service Tax is applicable based on % indicated in column (3) and ceiling amount indicated by the bidder at Column (4), the ceiling amount of services on which Service Tax is applicable shall be reworked and corrected based on % indicated in column (3) for evaluation / award. If there is any discrepancy between the amount of service tax quoted by the bidder in column (6) and the amount of service tax worked out by applying rate of service tax @ 12.36% on ceiling amount, then the amount of service tax worked out by applying rate of service tax @ 12.36% on ceiling amount shall be considered for evaluation / award purpose, if any.
- 6 In case the above Form duly filled in is not found in the price bid, Service Tax @ 12.36% on total price of Form SP-1 shall be considered for evaluation / award. However, Service Tax shall be reimbursed as indicated in Note 1 above.

STATEMENT FOR DETAILS OF SERVICE TAX (SECTION-B)

NAME OF PROJECT: REDEVELOPMENT OF CONNAUGHT PLACE

NAME OF WORK: PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE

BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001

NAME OF BIDDER:

S.No.	Tax	% of Total Price (Quoted in Form SP-1) on which Service Tax is applicable.	Ceiling Amount on which the Tax is applicable [Based on % indicated in cloumn (3)] (in INR)	Rate of Tax (in %age)	Amount of Tax (in INR)
(1)	(2)	(3)	(4)	(5)	(6)
1	SERVICE TAX			12.36 (Refer Note - 2)	
TOTAL					

Notes:

- 1 Service Tax amount shall not be included by the Bidder in their quoted price and the same shall be reimbursed by Owner against submission of required invoices as per the provisions of the Bidding Document.
- 2 Bidders shall consider the rate of Service Tax (including cess) applicable presently @ 12.36% on actual value of services.
- 3 The Service Tax amount indicated by the Bidder in this Form shall include both, namely,
 - (i) the amount of Service Tax payable by the bidder and reimbursable by Owner
 - (ii) the amount of Service Tax, if any, directly payable by EIL / Owner, as applicable to recipient of service, as per the reverse charge rule of Service Tax.
- 4 The Service Tax, if any, to be payable by the Owner under reverse charge rule shall not be reimbursed to the Contractor but shall be directly submitted to the Service Tax Authorities by Owner. If the same has already been reimbursed / paid to the Contractor for whatsoever reason, the said amount, as submitted by the Owner to Service Tax Authorities, shall be deducted / recovered / adjusted from the payment due to the Contractor.
- 5 Total Amount of Service Tax shall be payable based on the ceiling amount of services on which Service Tax is applicable as declared by the bidder at Column (4). If discrepancies are found between the ceiling amount of services on which Service Tax is applicable based on % indicated in cloumn (3) and ceiling amount indicated by the bidder at Column (4), the ceiling amount of services on which Service Tax is applicable shall be reworked and corrected based on % indicated in cloumn (3) for evaluation / award. If there is any discrepancy between the amount of service tax quoted by the bidder in cloumn (6) and the amount of service tax worked out by applying rate of service tax @ 12.36% on ceiling amount, then the amount of service tax worked out by applying rate of service tax @ 12.36% on ceiling amount shall be considered for evaluation / award purpose, if any.
- 6 In case the above Form duly filled in is not found in the price bid, Service Tax @ 12.36% on total price of Form SP-1 shall be considered for evaluation / award. However, Service Tax shal be reimbursed as indicated in Note 1 above.



NEW DELHI MUNICIPAL COUNCIL

REDEVELOPMENT OF CONNAUGHT PLACE, NEW DELHI

(BIDDING DOCUMENT NO.: KNM/1038-000-CQ-TN-7033/1001)
(DOMESTIC COMPETITIVE BIDDING)

BIDDING DOCUMENT FOR

PAINTING WORKS FOR FACADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE

VOLUME II OF II (TECHNICAL)

Prepared & Issued by:



(भारत सरकार का उपक्रम)

(A Govt. of India Undertaking)

Cost of Bidding document Rs. 5,000/- (Non-refundable)

Sl. No.....

MASTER INDEX (Technical Section)

Name of work: Painting work for façade of inner & outer circle blocks of Connaught Place for redevelopment of Connaught Place

Section-A	Painting work for façade of A, B, C Inner Circle blocks & G, H, K Outer Circle blocks of Connaught Place
Section-B	Painting work for façade of D, E, F Inner Circle blocks & L, M, N block outer circle blocks of Connaught Place
Section-A+B	Painting work for façade of A,B,C,D,E,F Inner Circle blocks & G,H,K,L,M,N Outer Circle blocks of Connaught Place

Bidding document no.: 1038-000-24-41-CQ-T-7033

Technical Section

S. No.	Description	No. of Sheets
01	Master Index	1
02	Scope of work	2
03	Scope of supply	2
04	Technical Specification	4
05	List of approved makes	2

SCOPE OF WORK

FOR

SECTION-A	PAINTING WORK FOR FAÇADE OF A, B, C INNER CIRCLE BLOCKS & G, H, K OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-B	PAINTING WORK FOR FAÇADE OF D, E, F INNER CIRCLE BLOCKS & L, M, N BLOCK OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-A+B	PAINTING WORK FOR FAÇADE OF A,B,C,D,E,F INNER CIRCLE BLOCKS & G,H,K,L,M,N OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE

SCOPE OF WORK FOR PAINTING WORK FOR FAÇADE OF INNER & OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE

1.1 GENERAL

- 1.1.1 Rates for all the items of Schedule of Rates include all cost involved for the performance of the completed item considering all parts of the Bidding Document. In case any activity though specifically not covered in description of item under 'Schedule of Rates' but is required to complete the work which could be reasonably implied/ inferred from the contents of the Bidding Document, the cost for carrying out such activity of work shall be deemed to be included in the item rate.
- 1.1.2 Scope of work as mentioned under this Annexure shall be read in conjunction with item description of Schedule of Rates and Contractor's scope shall include all activities of work as specified in the item description of Schedule of Rates.
- 1.1.3 The detailed Scope with regard to individual discipline is mentioned under Technical Specification provided in Technical Part of the Bidding Document.
- 1.1.4 The general character and the scope of work to be carried out under this contract are illustrated in Specification and Schedule of Quantities. The Tenderer shall carry out and complete the said work under this contract in every respect in conformity with the contract documents and with the direction of and to the satisfaction of Engineer-In-charge. The tenderer shall furnish all labour, materials and equipments (except those to be supplied by the client) as listed under Schedule of quantities and specified otherwise, transportation and incidental necessary to complete the Painting of façade work of Inner & Outer circle blocks as described in the Specifications.

1.2 SCOPE OF WORK

Above work shall include following major activities:

- 1.2.1 Duco paints for windows.
- 1.2.2 External paint work.
External paint work with one or more coats of Ultima Apex paint on the external surface.
- 1.2.3 Plastic emulsion paint for ceiling of façade corridor.

SCOPE OF SUPPLY

FOR

SECTION-A	PAINTING WORK FOR FAÇADE OF A, B, C INNER CIRCLE BLOCKS & G, H, K OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-B	PAINTING WORK FOR FAÇADE OF D, E, F INNER CIRCLE BLOCKS & L, M, N BLOCK OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-A+B	PAINTING WORK FOR FAÇADE OF A,B,C,D,E,F INNER CIRCLE BLOCKS & G,H,K,L,M,N OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE

**SCOPE OF SUPPLY FOR PAINTING WORK FOR FAÇADE OF INNER & OUTER CIRCLE
BLOCKS OF CONNAUGHT PLACE FOR REDEVELOPMENT OF CONNAUGHT PLACE**

1.0. SCOPE OF SUPPLY:

- 1.1. All materials, equipment, consumables etc. required for successful completion of the works and not specifically mentioned as to be supplied by Owner shall be supplied by the Contractor at their sole cost and expense. Only the materials, which are specified in Technical / Job specification as Free Issued or Supplied by Owner, shall be supplied/ issued by Owner.

TECHNCIAL SPECIFICATIONS

for

Section-A	Painting work for Façade of A, B, C Inner Circle Blocks & G, H, K Outer Circle Blocks of Connaught Place
Section-B	Painting work for Façade of D, E, F Inner Circle Blocks & L, M, N Block Outer Circle Blocks of Connaught Place
Section-A+B	Painting work for Façade of A,B,C,D,E,F Inner Circle Blocks & G,H,K,L,M,N Outer Circle Blocks of Connaught Place

1. GENERAL NOTES:

- 1.1. Contractor shall be responsible for the co-ordination of all works as mentioned in BOQ, specifications, conditions, etc. with all occupants without any extra claim.
- 1.2. All types of samples like finishing and construction materials to be got approved from Engineer-in-charge/ NDMC before bulk purchase.
- 1.3. Rates for finishing items like painting etc., shall include in itself, for all heights and levels including scaffolding etc. complete as instruction given by Engineer-in-charge.
- 1.4. Keep the site away from debris arising from the works during the construction period, and leave the site free from debris on daily basis and completion of the project to the satisfaction of the Engineer-in-charge.
- 1.5. General lighting for the work. Provide electric lights, maintain system, all as required for the works and of other contractors and remove the temporary installations on completion.
- 1.6. Provide temporary power connection and run DG set as standby power of adequate capacity at site for electricity required his own work, Engineer-in-charge's / consultant's site establishment, general lighting and other services as directed by Engineer-in-charge.
- 1.7. Barricading the works area shall be as per approval of Engineer-in-charge.
- 1.8. Work has to be carried out in occupied building so all precautions needs to be taken to avoid any inconvenience to occupants / customers.
- 1.9. Nothing extra shall be paid for the following:
 - 1.9.1. Work in patches, narrow widths, small quantities, curved surfaces, projected bands, setbacks, offsets, corbels, architraves.
 - 1.9.2. Use of all scaffolding and cradles, dust sheets and other coverings for the protection of fixtures, fittings, furniture, floors etc.
 - 1.9.3. Cleaning drops or dirt etc. including washing the floors, glasses and leaving the premises neat and clean.
 - 1.9.4. Minor repairs of broken cornices shall be done with white cement prior to the painting.
- 1.10. Work shall be carried out at any elevation. The quoted rate shall be valid for all levels and heights of the sub-structure and super-structure. Colors of priming coats (and body coats where specified) shall be lighter than those of Finish coat. The consultant / Engineer-in-Charge shall have unlimited choice of colours.
- 1.11. Samples of all colours stains and finishes shall be prepared in advance of requirements so As not to delay work and shall be submitted to the Engineer-in-Charge for approval before any work is commenced. Any work done without such approval shall be redone to the Engineer-in-Charge's satisfaction, without additional expense to the employer.

2. CODES AND STANDARDS:

Latest editions of relevant Indian Standards are relevant to these specifications wherever applicable. Except as otherwise specified, all painting shall be applied in conformity with IS codes as Applicable to the work/ manufacturer specification.

3. DELIVERY, STORAGE AND CONTAINER SIZE:

Paint shall be delivered to the site in sealed containers which plainly show the type of paint, color formula or specification number) batch number, quantity, date of manufacture, name of manufacturer and instructions for use. Pigmented paints shall be supplied in containers not larger than 20 liters.

All materials shall be stored under cover in a clean storage space, which shall be accessible at all times to the Engineer-in-Charge. If storage is allowed inside the building floors shall be kept clean and free from Paint spillage.

4. SURFACE PREPARATION:

All oil, grease, dirt, dust, loose mill scale and any other foreign substance shall be removed from the surface to be painted and polished by the use of solvent and clean wiping material following the solvent cleaning, the surfaces shall be cleaned by scraping, chipping, blasting wire brushing or other effective means as approved by the Engineer-in-Charge.

In the event the surfaces become otherwise contaminated in the interval between cleaning and painting, re-cleaning shall be done by the Contractor at no additional cost. Surfaces of stainless steel, aluminum, bronze, and machined surfaces adjacent to metal work being cleaned or painted shall be protected by effective masking or other suitable means, during the cleaning and painting operations.

If the old paint is firm and sound, it shall be cleaned of grease, smoke etc. The surface shall then be rubbed down with sand paper and dusted.

5. Execution

5.1. General

5.1.1. Preparation of Materials

The manufacturer's instructions are to be followed when tinning paints and in no case shall thinners exceed 5% by volume. Paints shall be stirred regularly unless otherwise recommended by the manufacturer. Most paints are provided in a condition ready for use. It is important that only those additions or admixtures are made which are expressly permitted on the container labels or in the manufacturer's literature.

Materials shall not be used when either the shelf life or the pot-life has been exceeded. All partially used paint packagers, such as kegs, Drums and tins shall always be properly resealed so as to avoid deterioration of the remaining material.

5.1.2. Cleanliness

In all painting operations, including preparatory work, cleanliness is essential. Rags or polythene sheeting during painting operations shall protect completed works. Rags and waste which have become saturated with drying oil or paint e.g. when cleaning utensils, are liable to ignite spontaneously. They shall not be left lying about, but shall be taken away immediately.

Painting containers shall be emptied and cleaned with a suitable solvent each day after use. Brushes, knives and other utensils shall be cleaned after use and be

appropriately stored so as to be maintained in clean condition. Paste of size left on pails or in brush stocks can prove fertile ground for the propagation of molds and woodwork when the contaminated articles are again used.

5.1.3. Weather Conditions

No exterior or interior painting, finishing or sealing shall be carried out during periods of rain, sandstorm or high winds unless the areas concerned can be protected until the paint has dried.

5.2. Application

Materials covered by processing instructions provided by the manufacturer are to be used according to these instructions.

Paint, lacquer and varnish applications and coatings may be applied by hand or mechanically. Paint, lacquer and varnish applications and coatings must adhere firmly and appear as a uniform finish and proper flow in the case of varnish paints, using him specified materials in accordance with the following performance instructions.

When one or more coats must be dry before the following coat is applied. This does not apply to wet-on-wet techniques. Drying times stated by the manufacturer must be observed. Standing times must not be exceeded. Application shall be as specified by the paint manufacturer.

One or more coats of plastic emulsion paint of the approved make and shade shall be applied to all specified interior surfaces as per manufacturer's instructions or as directed by the Engineer-in-Charge.

6. Plastic Emulsion Paint:

Plastic emulsion paint is not suitable for application on external, wood and iron surface and surfaces which are liable to heavy condensation. These paints are to be used on Internal surfaces except wooden and steel.

Plastic emulsion paint as per IS 5411 of approved brand and manufacture and of the required shade shall be used.

The number of coats shall be as stipulated in the item. The paint will be applied in the usual manner with brush, spray or roller. The paint dries by evaporation of the water content and as soon as the water has evaporated the film gets hard and the next coat can be applied. The time of drying varies from one hour on absorbent surfaces to 2 to 3 hours on non-absorbent surfaces.

The thinning of emulsion is to be done with water and not with turpentine. Thinning with water will be particularly required for the under coat which is applied on the absorbent surface. The quantity of water to be added shall be as per manufacturer's instructions.

The surface on finishing shall present a flat velvety smooth finish. If necessary more coats will be applied till the surface presents a uniform appearance.

LIST OF MAKES OF MATERIALS

FOR

SECTION-A	PAINTING WORK FOR FAÇADE OF A, B, C INNER CIRCLE BLOCKS & G, H, K OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-B	PAINTING WORK FOR FAÇADE OF D, E, F INNER CIRCLE BLOCKS & L, M, N BLOCK OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE
SECTION-A+B	PAINTING WORK FOR FAÇADE OF A,B,C,D,E,F INNER CIRCLE BLOCKS & G,H,K,L,M,N OUTER CIRCLE BLOCKS OF CONNAUGHT PLACE

LIST OF APPROVED MANUFACTURES / MAKES OF MATERIALS

Specifications/brands names of materials (Refer materials, whichever are applicable for the scope of work) and finishes approved by the Engineer in charge are listed below. However approved equivalent materials and finishes of any other specialized firms may be used, in case it is established that the brands specified below are not available in the market and subject to approval of the alternate brand by the Engineer in charge.

S. No.	Description of Items	Approved Manufacturer
01	DISTEMPER & PAINTS	ICI, ASIAN PAINTS, BERGER PAINTS, NEROLAC