



United Nations  
Educational, Scientific and  
Cultural Organization

# REGIONAL CENTRE FOR BIOTECHNOLOGY

an institution of education, training and research

Established by the Dept. of Biotechnology, Govt. of India  
Under the Auspices of UNESCO  
180 Udyog Vihar Phase 1, Gurgaon - 122016, India

## CONSTRUCTION OF PHASE-I EXTENSION WORKS OF NCR BIOTECH SCIENCE CLUSTER AT FARIDABAD

(BIDDING DOCUMENT NO. KNM/A091-000-CP-TN-7037/1000)  
(DOMESTIC COMPETITIVE BIDDING)

## BIDDING DOCUMENT FOR CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER DEVELOPMENTAL WORKS

### VOLUME I OF II (COMMERCIAL)

Prepared & Issued by:



Cost of Tender document Rs. 10,000/- (Non-refundable)

Sl. No.....

## MASTER INDEX

**NAME OF WORK** : CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER DEVELOPMENTAL WORKS.

**NAME OF PROJECT** : CONSTRUCTION OF PHASE-I EXTENSION WORKS OF NCR BIOTECH SCIENCE CLUSTER AT FARIDABAD

**BIDDING DOCUMENT NO.** : KNM/A091-000-CP-TN-7037/1000

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**ISSUE LETTER OF BIDDING DOCUMENT**

**NAME OF WORK : CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER DEVELOPMENTAL WORKS.**

**BIDDING DOCUMENT NO. : KNM/A091-000-CP-TN-7037/1000**

1.0 One set of Bidding Document along with drawings (if any) 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. 10,000/- (Rupees Ten 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 \_\_\_\_\_ 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



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180 Udyog Vihar Phase 1, Gurgaon - 122016, India



**DOMESTIC COMPETITIVE BIDDING FOR CONSTRUCTION OF PHASE-I EXTENSION  
WORKS OF NCR BIOTECH SCIENCE CLUSTER AT FARIDABAD**

Engineers India Ltd. (EIL) on behalf of Regional Centre for Biotechnology (RCB) invites sealed bids from eligible bidders for following work :

Description	Sale Period of Bidding Document	Bid Due Date & Time
Civil, Structural, Electrical, HVAC, Elevators and Other Developmental Works. (Bidding Document No.: KNM/A091-000-CP-TN-7037/1000)	21.01.2014 to 10.02.2014 [1400 Hrs. (IST) to 1600 Hrs. (IST)]	11.02.2014 Upto 1200 Hrs. (IST)

The detailed IFB & Bidding Document with contact details can be viewed and downloaded from EIL's website: <http://tenders.eil.co.in> or from Govt. website: <http://eprocure.gov.in/cppp> or from RCB's website: <http://www.rcb.res.in>; <http://www.rcb.ac.in>. All amendments, time extension, clarifications etc. will be uploaded in the websites only and will not be published in newspapers. Bidders should regularly visit the above websites to keep themselves updated.

AGM(C&P), EIL, New Delhi

**DOMESTIC NOTICE FOR INVITATION FOR BIDS (IFB) FOR  
CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER  
DEVELOPMENTAL WORKS FOR CONSTRUCTION OF PHASE-I EXTENSION WORKS OF  
NCR BIOTECH SCIENCE CLUSTER AT FARIDABAD**

**(BIDDING DOCUMENT NO. KNM/A091-000-CP-TN-7037/1000)**

**(DOMESTIC COMPETITIVE BIDDING)**

**1.0 INTRODUCTION**

1.1 Regional Centre for Biotechnology (RCB) on behalf of NCR Biotech Science Cluster, Faridabad (Haryana) is constructing Phase-I Extension works consisting of:

- a) 4th wing of Regional Centre for Biotechnology (RCB) Block.
- b) Advance Technology Platform Centre (A.T.P.C.) & Bio-Incubator Building.
- c) Hostel.
- d) Staff Residential Apartments.
- e) Directors Residences.

EIL has been appointed Project Management Consultants on behalf of RCB for implementation of Phase-I Extension works of NCR Biotech Science Cluster.

1.2 EIL on behalf of RCB invites sealed bids for Civil, Structural, Electrical, HVAC, Elevators and other Developmental Works for Construction of Phase-I extension works of NCR Biotech Science Cluster at Faridabad 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 shall generally comprise of but not be limited to the following:

- a) Architectural, Civil, Structural.
- b) Internal and External Electrification.
- c) Sanitary & Plumbing works.
- d) Installation of Fire Suppression and Fire Alarm System works.
- e) Pumps, water treatment and drinking water supply System.
- f) Sewerage / Drainage system.
- g) HVAC works.
- h) Elevators.
- i) Landscaping and Horticulture Works.
- j) Hook of the new services facilities with the existing facilities.

**2.2 TIME SCHEDULE :**

21 (Twenty One) months from the date of issue of Letter of Acceptance as follows:

- 18 months for construction works
- 3 months for Testing / Commissioning & Handing Over.

### 3.0 SALIENT FEATURES OF BIDDING DOCUMENT

S. No.	Salient Feature	Details
a)	<b>Bidding Document No.</b>	: KNM/A091-000-CP-TN-7037/1000
b)	<b>Bidding Document on Sale</b>	: From 21.01.2014 to 10.02.2014
c)	<b>Cost of Bidding Document (Non-refundable)</b>	: Rs.10,000/- (Rupees Ten 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)	<b>Earnest Money Deposit (EMD)</b>	: Rs. 57,14,000.00 (Rupees Fifty Seven Lakh Fourteen Thousand only).
e)	<b>Date &amp; Time of Pre-bid Meeting</b>	: 30.01.2014 at 1100 Hrs (IST)
f)	<b>Venue of Pre-bid Meeting</b>	: Business Centre, Engineers India Limited, EI-Annexe Building, 2-B, Bhikaiji Cama Place, R.K. Puram, New Delhi-110066.
g)	<b>Last date of receipt of Bidder's Queries for Pre-bid meeting</b>	: Bidder may submit their queries, if any, latest by 28.01.2014 addressed to Mr. K.N. Mahapatra, AGM (C&P) at Fax No. (011) 26167664 / 26191714 or e-mail: <a href="mailto:kn.mahapatra@eil.co.in">kn.mahapatra@eil.co.in</a> / <a href="mailto:lalit.sharma@eil.co.in">lalit.sharma@eil.co.in</a>
h)	<b>Last Date and time for receipt of Bids</b>	: 1200 Hrs. (IST) on 11.02.2014
i)	<b>Bid to be submitted at</b>	: Dak Receipt Section, Engineers India Limited, EI-Annexe Building, 2-B, Bhikaiji Cama Place, R.K. Puram, New Delhi-110066.
j)	<b>Opening of Techno-Commercial (Unpriced Bid)</b>	: 1400 Hrs. (IST) on 11.02.2014  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 Bidder should have completed the similar work(s) in previous Seven (7) years ending last day of the month previous to the one in which bids are invited as follows:

One contract involving similar completed work costing not less Rs. 55.42 Crore (Rupees Fifty Five Crore Forty Two Lakh Only).

OR

Two contracts involving similar completed works, each costing not less than Rs. 34.63 Crore (Rupees Thirty Four Crore Sixty Three Lakh Only).

OR

Three contracts involving similar completed works, each costing not less than Rs. 27.71 Crore (Rupees Twenty Seven Crore Seventy One Lakh Only).

**Similar works means: Composite Works for Construction of Ground/Stilt + min.4 floors building including electrical & HVAC works.**

#### 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 Rs. 3960.00 Lakh (Rupees Three Thousand Nine Hundred Sixty Lakh 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 / RCB.
- 5.2 Bidder should not be under liquidation, court receivership or similar proceedings.
- 5.3 Joint Venture (JV) / Consortium Bids / Bids from wholly owned subsidiary relying on parent's company experience shall not be accepted.
- 5.4 Experience of only the bidding entity shall be considered. 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 Bidding Document. 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'.
- 5.5 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.

- 5.6 If work order/ completion certificate does not indicate all activities as defined under “similar work” 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.
- 5.7 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.
- 5.8 All documents furnished by the Bidder in support of meeting the BQC including the 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.

- 5.9 Submission of authentic documents is the prime responsibility of the Bidder. Wherever EIL / RCB has concern or apprehension regarding the authenticity/ correctness of any document, EIL / RCB reserves a right of getting the document cross verified from the document issuing authority.
- 5.10 In case, audited balance sheets and profit and loss account of immediate preceding financial year is not available for bid closing date upto 30<sup>th</sup> 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 30<sup>th</sup> 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.
- 5.11 EIL/RCB 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 etc.
- 5.12 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-BSC-Phase-I”, payable at New Delhi or Bank Guarantee (BG) in the name of “Engineers India Limited, New Delhi”. BG shall be valid for a period of 06 (Six) months from the due date of opening of Techno-commercial Bids and shall be submitted from any Indian Scheduled bank which includes Indian Branch of Foreign bank recognized as Scheduled bank by Reserve Bank of India as per 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.

- 5.13 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, EI 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.
- 5.14 The complete Bidding Document is also available on the website of EIL <http://tenders.eil.co.in>, Govt. website: <http://eprocure.gov.in/cppp> and on RCB's website: <http://www.rcb.res.in>; <http://www.rcb.ac.in>. Bidders submitting their bid on the basis of downloaded document need not to pay cost of Bidding Document.
- 5.15 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 copy of required valid certificate of MSE.
- 5.16 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.
- 5.17 All amendments, time extension, clarifications etc. will be uploaded in the websites only and will not be published in newspapers. Bidders should regularly visit the above websites to keep themselves updated. No extension in the bid due date / time shall be considered on account of delay in receipt of any document by mail.
- 5.18 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.
- 5.19 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.
- 5.20 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.
- 5.21 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.
- 5.22 EIL/RCB 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.
- 5.23 Bids sent through Telex/ Telegraphic/ Fax/ E-mail/Computer floppy/CD/DVD/Pen Drive shall not be accepted. EIL/ RCB takes no responsibility for delay, loss or non- receipt of bid sent by Post/Courier.
- 5.24 Purchase Preference to Central Public Sector Undertakings shall be allowed as per existing Government Policy.

- 5.25 EIL / RCB 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.
- 5.26 Canvassing in any form by the Bidder or by any other agency on their behalf may lead to disqualification of their bid.
- 5.27 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.
- 5.28 For detailed specifications, terms and conditions and other details, refer Bidding Document.
- 5.29 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](mailto:kn.mahapatra@eil.co.in)/  
[lalit.sharma@eil.co.in](mailto:lalit.sharma@eil.co.in)

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

**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, 4<sup>th</sup> FLOOR,  
2-B, BHIKAIJI CAMA PLACE,  
R.K. PURAM, NEW DELHI - 110066

Date :

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

Bidding Document No.: **KNM/A091-000-CP-TN-7037/1000**

Subject : **CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER  
DEVELOPMENTAL WORKS**

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.

(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: CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER  
DEVELOPMENTAL WORKS**

**(BIDDING DOCUMENT NO.: KNM/A091-000-CP-TN-7037/1000)**

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) MOBILE NUMBER : \_\_\_\_\_
- (iv) TELEFAX NUMBER : \_\_\_\_\_
- (v) CONTACT PERSON : \_\_\_\_\_
- (vi) E-MAIL ADDRESS : \_\_\_\_\_

B) Contact person at Delhi, if any :

- (i) POSTAL ADDRESS : \_\_\_\_\_  
\_\_\_\_\_
- (ii) TELEPHONE NUMBER : \_\_\_\_\_
- (iii) MOBILE NUMBER : \_\_\_\_\_
- (iv) TELEFAX NUMBER : \_\_\_\_\_
- (v) CONTACT PERSON : \_\_\_\_\_
- (vi) 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.  
4<sup>th</sup> Floor, El Annexe Building  
Bhikaiji Cama Place, R.K. Puram  
New Delhi – 110066

**SUBJECT : CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER DEVELOPMENTAL WORKS  
(BIDDING DOCUMENT NO.: KNM/A091-000-CP-TN-7037/1000)**

**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
Rs. 57,14,000.00		

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 4 **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 :

## **INSTRUCTIONS TO BIDDER**

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**A GENERAL****1.0 Introduction**

1.1 Regional Centre for Biotechnology (RCB) has established NCR Biotech Science Clusters at Village Bhankari, Faridabad Haryana and is constructing Phase-I Extension works. EIL has been appointed Project Management Consultants on behalf of RCB for implementation of Phase-I Extension works of NCR Biotech Science Clusters.

**2.0 Definitions**

2.1 With respect to this document, the following definitions shall apply:

- i) The "Owner" shall mean "Regional Centre for Biotechnology (RCB)" or its authorized representative(s).
- ii) "EIL" means Engineers India Limited, a company incorporated in India & having its registered office at 1, Bhikaji Cama Place, New Delhi – 66.
- iii) The "Project Manager" shall mean the project manager of Engineers India Limited or his successor or authorized nominee.
- iv) "Instructions to Bidders" shall mean the documents describing the manner in which Bidder shall prepare and submit his bid.
- v) "Letter Inviting Bid" (LIB)/ "Invitation for Bid" (IFB) shall mean EIL's request to Bidder for a Bid/ Tender together with the Bidding Document on behalf of the Owner.
- vi) "Tender" or "Bid" shall mean Bidder's offer to perform the Work, in accordance with Bidding Document.
- vii) "Tender Document" or "Bidding Document" shall mean the documents issued to the bidder including any subsequent addenda to enable bidder submit his Bid.
- viii) "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/RCB 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/RCB 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 7 (Seven) 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 7 days of receipt of the Bidding Document.

#### **7.0 SPLIT-UP OF WORK**

- 7.1 No Split up of work is envisaged. Total work shall be awarded to one agency only.

#### **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. Jitendra Singh, Dy. Manager (Infrastructure)  
(M) : 09818631159

### **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 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.
- 10.2 Bidder's authorized representative(s), shall attend the pre bid meeting on the prescribed day at the given venue. During the pre bid meeting, all the technical and commercial issues shall be discussed and concluded to ensure that the bid received subsequent to pre bid meeting shall be without any deviations to terms and conditions. Hence, bidders shall treat the pre bid meeting as utmost important and depute competent & senior person capable of taking on the spot decision to sort out all the technical and commercial issues.
- 10.3 However, in case any bidder does not attend the pre bid meeting, it shall be understood that bidder has a clear understanding of the scope & terms & conditions of the bidding document and does not have any comments / deviations to the requirements of the bidding document.
- 10.4 In order to ensure fruitful discussions during pre bid meeting, the bidder is requested to submit any queries / clarification / information pertaining to Bidding Document, as per the proforma enclosed, in writing delivered by hand or by fax / e-mail as per format enclosed in the Bidding Document so as to reach two days prior to Pre-bid meeting. These queries shall be replied during pre-bid meeting. The editable soft copies of the queries shall also be e-mailed to enable EIL to prepare replies to the queries against each query in the same format expeditiously.
- 10.5 The bidders are required to participate in the pre-bid meeting with the following essential documents, so that the same can be reviewed & discussed during the meeting to avoid any techno-commercial clarifications / discussions post bid :
- a) Latest annual report including Profit & loss account.
  - b) Technical details, documents, design, filled datasheets as per Scope of Work document.
  - c) Any other relevant document / details.
- 10.6 Record notes of meeting, including the question raised and the responses given will be furnished as expeditiously as possible to all the bidders and shall also be uploaded on the website. After pre-bid meeting, no further queries will be entertained from the bidders.
- 10.7 Any modification to the Bidding Document, which may become necessary as a

- result of the pre-bid discussions, shall be intimated to all the bidders through the issue of an Addendum / Amendment.
- 10.8 After pre-bid meeting, no deviation shall be accepted and if any deviation is found in the bid of any bidder, the offer shall be liable to be rejected without raising any technical / commercial queries.
- 10.9 Technical / Commercial queries shall not be issued once the bid have been opened. However, wherever CQ / TQ are unavoidable, the same shall be raised only once and the cut-off date given for CQ / TQ replies shall be adhered to. Offers shall be evaluated based on the information available upto cut-off date for CQ / TQ replies.
- 10.10 Extension in bid due date shall not generally be granted.

### **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 along with Work Order copies and Completion Certificates.
- 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 preceding 3 years.

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.

- vi) 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.
- 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 receivership 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 Summary of Prices (FORM SP-1) with the prices being replaced by the word "Quoted" duly signed and stamped along with the signed and stamped copy of the estimated Schedule of Rates (FORM SP-0).
- xviii) Internet Based Reverse Auctioning may be adopted. Therefore, information pertaining to Digital Signature must be submitted by the bidder in their Techno commercial offer. The digital signature should be of Class III B and shall be issued by C.A. (Certifying Authority) in India, in the name of signatory of the bid on behalf of his Company.
- xix) Any other information required in the Bidding Documents or considered relevant by the bidder.

#### 16.4 PART - II - PRICE BID

16.4.1 This Part shall contain the following in one original plus one copy in separate sealed envelope clearly superscribing Bidding document no., Bid due date, Bidder's name & address and "**Price Bid - Envelope No. 3**".

- Percentage increase/ decrease to the estimated cost as per FORM SP-1.

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 Bidder shall quote percentage increase / decrease in Form SP-1 to the total estimated price and the same percentage shall be applicable to all the items of the Estimated Schedule of Rates, i.e., Form SP-0. Bidder shall be presumed to have quoted against the tendered description of work as per the Schedule of Rates and the same shall be binding on the Bidder.
- 17.3 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 Prices shall be deemed to be inclusive of all taxes & duties as per the provisions stated in the Special Conditions of Contract (SCC).
- 17.5 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.
- 17.6 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.
- 17.7 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 04 (Four) 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 04 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 IFB in the form of Crossed Demand Draft/Pay Order in favour of "EIL-BSC-Phase-I" payable at New Delhi or Non-revocable Bank Guarantee in the name of "Engineers India Limited, New Delhi". Bank Guarantee shall be on non-judicial stamp paper of value not less than Rs.100/- from an Indian Scheduled bank which includes Indian Branch of Foreign bank recognized as Scheduled bank by Reserve Bank of India as per proforma enclosed in the Bidding Document, and valid upto two months beyond the validity of the bids (i.e. Six months). EMD shall be submitted in a separate envelope (Envelope-1) marked EARNEST MONEY DEPOSIT, with Part-I of the Bid. Bank Guarantee shall be revalidated for extended period as required by EIL/RCB in writing. Any Bid not accompanied by EMD as stated above will be rejected.
- 20.2 If the Bidder, after submission, revokes his Bid or modifies the terms and conditions thereof during the validity of his Bid except where EIL/RCB has given opportunity to do so, the earnest money shall be liable to be forfeited. EIL/RCB may at any time cancel or withdraw the Bidding Process without assigning any reason and in such cases the earnest money submitted by the Bidders will be returned to them.
- 20.3 The successful Bidder shall be required to submit Security Deposit and to execute the Contract Agreement with Owner in the manner and within the time period indicated in Bidding Document. Should the successful Bidder fail or refuse to sign the agreement or furnish the Security Deposit within the specified period, the earnest money shall be forfeited without prejudice to his being liable to any further loss or damage incurred in consequence by Owner.
- 20.4 After the award of work to the successful Bidder by Owner, Owner / EIL will return the Earnest Money to all unsuccessful Bidders. Earnest Money shall be returned

to the successful Bidder after he has furnished the Security Deposit/ Initial Security Deposit and has executed the Contract Agreement with Owner.

## **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 two 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/RCB 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 WITHDRAWL 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/RCB 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 1<sup>st</sup> 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/RCB 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/RCB, 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/RCB.
- 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/RCB 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/RCB 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 after percentage increase or decrease shall be read out.

### 31.0 **ARITHMATIC CORRECTION**

- 31.1 In case of any discrepancy in the %age increase / decrease quoted by the bidder in figures and in words in Summary of Price (Form SP-1), the %age increase / decrease quoted in words shall be considered for evaluation / award.

### 32.0 **EVALUATION OF PRICE BIDS**

- 32.1 Based on percentage increase / decrease to the estimated cost as per FORM SP-1, total quoted price will be calculated after arithmetic correction, if any.
- 32.2 Conditional discount, if offered, shall not be considered for evaluation.
- 32.3 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.
- 32.4 In case, percentage increase / decrease in prices etc. are not filled up in the Priced Bid and are not as per the requirements of the Bidding document, the same shall not be considered for evaluation.
- 32.5 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.
- 32.6 The work shall be awarded to the bidder whose total evaluated price is the lowest.
- 32.7 Purchase Preference to Central Public Sector Undertakings shall be allowed as per existing Government Policy.
- 32.8 Internet Based Reverse Auctioning may be adopted, in which case bidders shall

be intimidated 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.

### **33.0 CONTACTING THE OWNER**

33.1 Bidders are advised not to contact EIL/RCB 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/RCB 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 Fax of Intent/ Acceptance / Letter of Acceptance that their bid has been accepted. The Fax / Letter of Acceptance will constitute the formation of a Contract until the Contract agreement has been signed.

### **36.0 CORRUPT & FRAUDULENT PRACTICES**

36.1 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.

36.2 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.
- 36.3 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.
- 36.4 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.
- 36.5 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.
- 36.6 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 debarring them from future business with EIL/Owner.

### **37.0 CONTRACT AGREEMENT**

- 37.1 The Contractor shall execute a formal contract, as per the proforma enclosed in the Bidding Document, with the OWNER 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
- 37.2 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 and bidders acceptance there of shall constitute a binding contract between the successful Bidder and the Owner based on terms contained in the aforesaid documents and the finally submitted and accepted prices.
- 37.3 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) Fax/Letter of Intent/ Acceptance .
  - iv) Detailed letter of Award/Acceptance along with enclosures attached therewith.

### **38.0 CLARIFICATION REQUESTS FROM BIDDERS**

- 38.1 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 B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, 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**

(To be submitted on a non-judicial stamp paper of appropriate value)

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 of .....20....

**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.

**SIGNATURE OF BIDDER** : \_\_\_\_\_  
**NAME OF BIDDER** : \_\_\_\_\_  
**COMPANY SEAL** : \_\_\_\_\_

**PRESENT COMMITMENTS AS ON .....**

**(Specify the Date i.e. date of sale of Bidding Document)**

<b>SR. NO.</b>	<b>FULL POSTAL ADDRESS OF CLIENT &amp; NAME OF OFFICER-IN- CHARGE</b>	<b>DESCRIPTION OF THE WORK</b>	<b>VALUE OF CONTRACT (IN RUPEES)</b>	<b>DATE OF COMMENCEMENT OF WORK</b>	<b>SCHEDULED COMPLETION PERIOD</b>	<b>%AGE COMPLETION AS ON DATE</b>	<b>EXPECTED DATE OF COMPLETION</b>	<b>REMARKS</b>

**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

**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 Part i.e. Summary of Prices with prices replaced by word "Quoted"

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.

<b>SL. NO.</b>	<b>EIL'S QUERY</b>	<b>BIDDER'S REPLY/ CONFIRMATION</b>
1.0	Confirm that your Bid is valid for 04 (Four) 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 percentage increase/ decrease to Total estimated price has been quoted in Form-SP1 and submitted in the price bid.	
b)	Confirm that the quoted price is for complete scope of work, supply of all material, labour, consumables etc. construction, erection, testing, commissioning, performance guarantee test run(s) and supply of spare parts 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.)	

<b>SL. NO.</b>	<b>EIL'S QUERY</b>	<b>BIDDER'S REPLY/ CONFIRMATION</b>
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 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 your compliance to the Minimum Construction Equipments and Manpower, Qualification & Experience requirement of Key personnel to be deployed as per SCC.	
15.0	Confirm that adequate numbers of construction equipments, tools, tackles etc. shall be deployed to complete the work as per the time schedule.	
16.0	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.	
17.0	Confirm that while submitting your price, you have taken consideration of scope of supplies, scope of work and technical requirement mentioned in Bidding Document.	
18.0	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.	
19.0	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.	
20.0	Confirm that Bidder is not under Liquidation, court receivership or similar proceedings.	
21.0	Confirm the following:	
a)	The planning schedule, S-curves etc, submitted by the	

SL. NO.	EIL'S QUERY	BIDDER'S REPLY/ CONFIRMATION
	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 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.	
22.0	Confirm that the Bidder has not been banned OR delisted by any Government or Quasi Government agencies or Public Sector Units.	
23.0	Confirm that Form SP-1 duly filled and signed & stamped has been submitted in the price bid.	

**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](mailto:kn.mahapatra@eil.co.in) / [lalit.sharma@eil.co.in](mailto: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 submitted our prices in Price Bid in separate envelope. We confirm that rate quoted by us include price for all works/activities/supply etc. as mentioned in Item Description of the respective SOR Item(s) in Schedule of Rates and are in line with the provisions of the bidding documents.

**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**

**CONSTRUCTION OF THE BIO-TECH SCIENCE  
CLUSTER  
AT  
FARIDABAD, HARYANA**

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**GENERAL CONDITIONS OF CONTRACT**  
**(CHAPTER – I)**

**GENERAL INFORMATION**

1.1 DEFINITIONS OF TERMS

In the contract document as herein defined where the context so admits, the following words and expressions will have the following meanings respectively:

The “Owner” shall mean “Regional Centre for Biotechnology (RCB)” or its authorized representative(s).

The “Project Manager” shall mean the project manager of EIL or his successor or authorized nominee.

The “Contractor” means the Individual, Agency, Firm or Company (whether incorporated or not), whose tender has been accepted by Owner and selected for performance of the Contract, includes the Contractor’s legal representatives, his/ their successors and permitted assigns.

The “Owner’s Representative” means the person designated by Regional Centre for Biotechnology (RCB), and shall include his authorized nominee or agent; provided, however, that the Owner’s representative may be one person for certain aspects of this agreement and another person for other aspects of work covered by this contract.

The “Engineer-in-Charge” shall mean the Engineer or other officer of the OWNER, Consultant or other organization for the time being nominated by the OWNER in writing to act as Engineer-in-charge for the purpose of the contract or any specific works.

The “Work” shall mean the works to be executed in accordance with the contract or part thereof as the case may be and shall include all extra, additional, altered or substituted works as required for performance of the contract.

The “Completion Certificate” shall mean the certificate to be issued by the Engineer-in-Charge when the works have been completed to his satisfaction.

The “Final Completion Certificate” in relation to a work means the certificate regarding the satisfactory compliance of the various provisions of contract by the contractor, issued by the Engineer-in-Charge after the period of liability is over.

“Permanent Work” means and includes works which will be incorporated in and form a part of the work to be handed over to Owner by the Contractor on completion of the contract.

“Construction Equipment” means all appliances and equipments of whatsoever nature for use in or about the execution, completion, operation and maintenance of the work unless intended to form part of the permanent work.

“Site” means the areas inside the premises of the Owner on which the permanent works are to be executed or carried out and any other places provided by Owner for the purpose of the Contract.

The "Contract Document" means collectively the tender documents, designs, drawings, specifications, agreed variations, if any, contract and other documents constituting the tender and acceptance thereof.

The "Contract" shall mean the agreement between Owner and the Contractor for the execution of the works; however, including therein all contract documents.

The "Specifications" shall mean various technical specifications attached and referred to in the tender documents. It shall also include relevant Indian Standard Institution Specifications and standards and specifications of any other country wherever applicable.

The "Drawing" shall include maps, plans and tracings or prints thereof with any modifications approved in writing by the Engineer-in-Charge and such other drawings as may, from time to time, be furnished or approved in writing by the Engineer-in-Charge.

"Tender Document" means document to be issued to Bidder, based on which Bid is to be submitted.

The "Tender" or "Bid" means the tender submitted by the bidder for acceptance by Owner.

"Bidder" means any person, company, firm or body who is issued the Tender Document by Owner/ EIL for submission of bid.

The "Alteration Order" means an order given in writing by the Engineer-in-Charge to effect additions to or deletions from and alterations in the works.

The "Sub-Contractor" means any person or firm or company (other than the contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Engineer-in-Charge and the legal personal representatives, successors and permitted assigns of such person, firm or Company.

"Acceptance of Tender" shall mean the Acceptance of Tender issued by the Owner to the Contractor, and shall include a letter, telegram or fax of acceptance or other notification of award of work, and a detailed Letter of Acceptance.

"Approval" shall mean the written and signed approval of the Owner or Engineer-in-Charge authorized in this behalf by the Owner, and with respect to a plan or drawing shall include an approval subject to the limitation(s) specified in such approval.

"Site Engineer" shall mean the Engineers/ Officers for the time being designated by the Engineer-in-Charge as his representative(s) in writing and authorized by him to assist him in performing his duties and functions for the purpose of the Contract.

"Total Contract Value" shall up to calculation of the entire remuneration due to the contractor in terms of the contract on successful completion of the work, mean the Total Contract Value as specified in the Acceptance of the Tender, and after calculation of the entire remuneration due to the Contractor under the contract on successful completion of the contract, shall mean the totality of such remuneration.

"NIT" means Notice Inviting Tender.

"LIT" means Letter Inviting Tender.

"EMD" means Earnest Money Deposit.

"GCC" means General Conditions of Contract.

"SOR" means Schedule of Rates.

"SCC" means Special Condition of Contract

"BQC" means Bidders Qualification Criteria.

"BEC" means Bid Evaluation Criteria.

## 1.2 Land for Contractor's Field Office, Godown and Workshop:

Owner will at his own discretion and convenience and for the duration of the execution of the work make available near the site, land for construction of contractor's 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. Layout and other details in this regard shall be approved by the Engineer-in-Charge beforehand.

On completion of the works undertaken by the Contractor (or even earlier if the exigencies of the situation so demands) he shall remove all temporary works erected by him within two weeks and have the site cleared, leveled and dressed as directed by Engineer-in-Charge.

If the Contractor shall fail to comply with these requirements to the complete satisfaction of the Engineer-in-Charge, the Engineer-in-Charge may at the expenses 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. The Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such surplus materials disposed off as aforesaid.

The Owner however reserves the right to ask the contractor at any point of time during the pendency of the contract to vacate the land by giving 7 (seven) days' notice on Security reasons or on National Interest or otherwise. Contractor shall not be entitled upon any vacation or notice to claim any resultant compensation or damage from the Owner, nor shall such notice or vacation constitute a ground or basis for extension of time for completion.

Land provided by the Owner to the Contractor within the provisions hereof shall be strictly on license basis, and shall not create any right, title, or interest whatsoever in the Contractor herein or in respect thereof. Rent to be charged for the land shall be so occupied shall be indicated in the Special Conditions of Contract.

## 1.3 Land for Residential Accommodation:

It will not be possible for Owner to provide land for residential accommodation for staff and labour of the Contractor. Contractor will have to make his own arrangement at his cost in this regard and the quoted rates shall be deemed to have included the same.

#### 1.4 Scope of Work:

The scope of work is defined in the Special Conditions of Contract and Specifications.

The contractor shall provide all necessary materials, equipment and labour etc. for the execution and maintenance of work till completion. All materials that go with the work shall be approved by Engineer-in-Charge prior to procurement and use.

#### 1.5 Access to site:

The contractor shall construct, if necessary, at his own cost and initiative, temporary access road to the site from the main public feeder road(s) and from borrow areas and mines and quarries, and shall so align such roads or ways so as not to interfere with the construction of the site or hamper construction of pavement roads by or on behalf of the Owner or other Contractors operating at or about the job site.

The contractor shall if so required or relative to the performance of any other work at the site or construction of permanent roads, suspend, discontinue use of and/ or re-route any access road constructed by him. No suspension, discontinuance or re-routing as aforesaid shall form the basis of any claims by the Contractor against the Owner for compensation of damages, or ground for extension of time for completion, or other claim whatsoever.

#### 1.6 Power, Water and Other facilities:

The Contractor shall be responsible to provide within the scope of work all facilities, consumables and utilities necessary for the performance of the work including (but not limited to ) water, power, transportation, labour, tools, construction and testing equipment, machinery and land at or about the job site(s) for the Contractor's field offices, godowns, workshop, residential accommodation for Contractor's staff, quarry rights and borrow areas, access roads and rights of way to or the job site(s) and the Contractor's offices, godowns, workshop accommodation, quarries and/ or borrow areas.

Owner does not warranty or undertake the provision of any facility, consumable or utility whatsoever to the Contractor.

**GENERAL INSTRUCTIONS TO TENDERERS**  
**(CHAPTER – II)**

2.0 SUBMISSION OF TENDER

2.1 Tenders must be submitted in original and as per details given in other clauses given hereunder. The rates shall be filled in the Schedule given in the tender documents. Reservations, if any, regarding the tender conditions should be clearly brought out in a separate letter accompanying the tender.

2.2 Addenda to this tender document, if issued, must be signed and submitted along with the tender document.

3.0 DOCUMENTS

3.1 The tenders, as submitted, will consist of all the documents prescribed in instruction to bidder provided elsewhere.

3.2 All pages to be initiated

All pages of tender documents shall be initialed at the lower right hand corner or signed wherever required in the tender documents by the tenderer (or by a person holding power of attorney authorizing him to sign on behalf of the tenderer) before submission of the tender.

3.3 Rates to be in figures and words

The tenderer should clearly and unambiguously quote in English language, (both in figures as well as in words) the rates and the amounts tendered by him in the Schedule of Rates. The amount for each item should be worked out and entered and requisite totals given for all items, both in figures and in words. The tendered amount for the work shall be entered in the tender and duly signed by the tenderer.

If some discrepancies are found between the rates given in words and figures of the amount shown in the tender, the following procedure shall be applied:

- a. When there is a difference between the rates in figures and words, the rate which corresponds to the amount worked out by the tenderer shall be taken as correct.
- b. When the rate quoted by the tenderer in figures and words tallies but the amount is incorrect, the rate quoted by the tenderer shall be taken as correct.
- c. When it is not possible to ascertain the correct rate in the manner prescribed above the rate as quoted in words shall be adopted.

3.4 Corrections and Erasures

All corrections and alterations in the entries of tender papers will be signed in full by the tenderer with date. No erasures or overwriting are permissible.

3.5 Signing of Tender

3.5.1 The tender shall contain the name, addresses of residence and place of business of person or persons making the tender, and shall be signed by the tenderer with his usual signature.

Partnership firms shall furnish the full names of all the partners in the tender. It should be signed only in the partnership names by all the partners, or a representative duly authorized through a power of attorney, followed by the names and designations of the person signing. A copy of constitution of the firm with names of all partners and the power of attorney for the authorized representative shall be furnished along with the tender.

Tender by Corporations shall be signed by an authorized representative holding Power of Attorney towards the same, which shall also be accompanying the tender. The Owner may reject outrightly any tender not supported by adequate proof of the signatory's authority.

3.5.2 When a tenderer signs a tender in a language other than in English, the total amount tendered should, in addition, be written in the same language. The signature should be attested by at least one witness.

### 3.6 Witness

Witnesses and sureties shall be persons of status and property and their names, occupations and addresses shall be stated below their signatures.

### 3.7 Details of Experience

The tenderer should enclose documentary proof to show that he has previous experience in having successfully completed in the recent past works of similar nature as stipulated elsewhere, together with the names of Owners, location of sites and executed values of Contracts.

3.8 The Owner reserves the right to consider/ evaluate/ accept only substantially responsive tenders.

A substantially responsive tender is one, which, in the opinion of the Owner (which shall be final and binding on the tenderers), substantially conforms to all the terms, conditions, specifications and requirements of the tender document without material deviations or reservations in respect of any of the following:

- a. Scope, quality or performance of the work.
- b. Owner's rights or the tenderer's obligations under the contract as per the tender documentation.
- c. Such deviations the correction of which would affect the competitive position of other tenderers, who have submitted substantially responsive bids,
- d. Any tender unaccompanied by the earnest money in a form which is acceptable as per the tender documents, or falling short of the requirement of the tender document.

In case any essential information given by a bidder is found to be incorrect or a misrepresentation, the bid is likely to be rejected as not responsive, and if the bid has resulted in a contract, the contract is liable to be terminated with consequences of termination as provided in Clause no 38.0 of GCC.

## 4.0 TRANSFER OF TENDER DOCUMENTS

Transfer of tender documents purchased by one intending tenderer to another is not permitted.

## 5.0 EARNEST MONEY

5.1 The tenderer must, as a condition for the consideration of the tender, pay the amount of Earnest Money as mentioned in the Notice/ Letter Inviting Tenders in any of the following forms:

- a. Crossed Bank Demand Draft duly pledged to ““EIL-BSC-Phase-I”” New Delhi.
- b. Bank Guarantee from any Schedule ‘A’ bank. Bank Guarantee shall be furnished in the form approved by Owner and shall remain valid for a period as specified elsewhere from the last date for submission of the tender.

5.2 The tenderer should attach the official receipt issued for the bank draft or the bank guarantee along with the tender, failing which the tender will not be considered.

5.3 No interest shall be allowed on the Earnest Money deposited by the tenderer.

5.4 The Earnest Money of the unsuccessful tenderers will be refunded without any interest only after the award of the work to the successful bidder, within a reasonable period of time.

The Earnest Money deposited by successful tenderer(s) shall, unless it has been adjusted in accordance with cl. No. 17.3 towards Security Deposit, be refunded by the Owner, after the Initial Security Deposit or the Full Security Deposit, as the case may be, has been deposited by him as Contractor.

5.5 The Earnest Money deposited shall however be forfeited if the tenderer

- a. fails to deposit the requisite Initial Security Deposit as per clause 9.0/ 17.0 hereof.
- b. fails to execute the agreement within 10 (ten) days after the receipt of letter of acceptance (LOA) of tender or Letter of Intent (LOI).

## 6.0 VALIDITY

Tenders submitted by tenderers shall generally remain valid for acceptance for a period of 4 (four) months from the date of opening of the tender. The tenderers shall not be entitled during this period of four months, without the written consent of Owner, to revoke or cancel his tender or to vary the tender submitted or any terms thereof.

In case of a two bid system, the four month period shall be reckoned from the date of opening of the techno-commercial bid.

## 7.0 ADDENDA

7.1 Addenda to the tender document may be issued prior to the scheduled date of opening of the tenders (in case of two bid system, prior to the date of opening the price part of the bid), to provide clarifications on documents or to reflect modifications in the design or contract terms.

7.2 Each addendum issued by the Owner will be distributed, in duplicate, to each person/ organization to which a set of tender documents has already been issued.

Each recipient will retain one copy of each addendum for submission along with his tender and return one signed copy to the Owner as acknowledgement of receipt of the addendum.

All addenda issued by the Owner shall become part of Tender Documents.

## 8.0 RIGHT OF OWNER TO ACCEPT OR REJECT TENDER

The right of acceptance of tender will rest with Owner.

Owner does not bind itself to accept the lowest tender, and reserves the authority to reject any or all the tenders received without assigning any reason whatsoever.

The whole work may be split up between two or more contractors or accepted in part and not entirely, if considered expedient.

Tenders are liable to be rejected if any of the following conditions are encountered in the submitted tender:

- a. any of the particulars and prescribed information are missing
- b. incomplete in any respect
- c. prescribed conditions are not fulfilled
- d. contains uncalled for remarks
- e. contains additional conditions
- f. misleading or false representation is made or the information in the forms, statements and enclosures required in the pre-qualification document are deliberately suppressed.

Bidders may be rejected on the following grounds as well:

- a. record of poor performance such as abandoning work, not properly completing the contract, or financial failures/ weaknesses etc are reported against the bidder.
- b. bidder has been blacklisted or debarred by any Govt Deptt./ PSU

Canvassing in connection with tenders is strictly prohibited and tenders submitted by the Tenderers who resort to canvassing will be liable for rejection.

In case, after examining the tenders received, it appears to the Owner that two or more tenders are collusive or otherwise manipulated to the disadvantage of the Owner and against the spirit of ethical competition, the Owner reserves the right to summarily reject such tenders. It shall not be incumbent upon the Owner to prove any collusion or other malpractice in this regard.

## 9.0 SECURITY DEPOSIT

The person/ persons whose tender may be accepted (hereafter called the Contractor) shall within 10 (ten) days of the receipt by him of the LOA/ LOI, shall remit the security deposit to the account "EIL-BSC-Phase-I" in the manner stipulated in Clause 17.0.

## 10.0 TIME SCHEDULE

The time allowed for carrying out the job has been mentioned elsewhere in Bidding Document. This shall be signed and submitted along with the tender.

#### 11.0 COLLECTION OF DATA: TENDERER'S RESPONSIBILITY

The tenderer shall visit the site and acquaint him fully of the site and its various related conditions prior to quoting.

No claims whatsoever will be entertained after submission of bids on the plea of ignorance of difficulties involved in execution of work or carriage of materials.

Any claim at a later date based on either incorrectness or inadequacy of the information/ data made available by the Owner/ Consultant to the tenderer shall not be entertained. The Owner/ Consultant shall be fully absolved of any and all liabilities in this regard.

#### 12.0 RETIRED GOVERNMENT OR OWNER'S OFFICERS

No engineer of Gazetted rank or other Gazetted Officer, employed in Engineering or Administrative duties in an Engineering Department of the State/ Central Government or of Owner/ EIL is allowed to work as a Contractor or his employee for a period of two years from his retirement from such services, without the prior written permission of his original employer or Owner.

The contract, if awarded, is liable to be cancelled at any point of time if either the Contractor or any of his employees is found to have violated the aforesaid requirement.

#### 13.0 SIGNING OF THE CONTRACT

The successful tenderer shall be required to execute an agreement in the proforma attached with this tender document within 10 (ten) days from the date of receipt of the notice of acceptance of tender or Letter of Intent, or such extended time as may be permitted by the Owner for the purpose to do so.

In the event of failure on the part of the successful tenderer to sign the agreement within the above stipulated period, the Earnest Money Deposit (EMD) or his Initial Security Deposit (ISD) will be forfeited and the acceptance of the tender shall be treated as cancelled.

## **GENERAL OBLIGATIONS**

### **(CHAPTER – III)**

#### 14.0 INTERPRETATION OF CONTRACT DOCUMENTS

- 14.1 The several contract documents forming the total contract are to be taken together as a whole and are to be taken as mutually explanatory of one another.
- 14.2 Should there be any doubt or ambiguity in the interpretation of the contract documents or discrepancy, inconsistency, contradiction, error or omission in any of the Contract Documents, the Contractor shall prior to commencing relative work, apply in writing to the Engineer-in-Charge for his decision in resolution of the doubt, ambiguity, or contradiction, or correction of the error or omission, as the case may be.
- 14.3 Notwithstanding anything provided in cl. No. 14.2 above, either the Contractor or the Site Engineer may at any time prior to, during or even after (if the Contractor have failed to make an application as provided for in cl. No.14.2) the execution of the work or any part thereof, apply to the Engineer-in-Charge in writing for his decision in resolution of any doubt, ambiguity or contradiction, in the Contract Documents or any of them or the correction of any error or omission therein, as the case may be.
- 14.4 The decision of Engineer-in-Charge on cl. No. 14.2 and 14.3 shall be in writing and shall be final, conclusive and binding upon the Contractor and shall form part of the Contract Documents, with the intent that the Contract Documents shall be read as though the decision is and was at all times incorporated therein, and the Contractor shall carry out the work in accordance with such decisions.
- 14.5 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 been made to the Contractor, such work shall be deemed to be defective/ bad work and the provisions of Cl.No.60.0 shall apply thereto.
- 14.6 Any work shown, indicated or included in the job description, plan(s), drawings(s) specification(s) and/ or Schedule of Rates shall be deemed to form part of the work, notwithstanding failure to show, indicate or include such work in any other or others among the documents aforesaid, with the intent that the indication or inclusion of the work within any one of the said documents shall be deemed to be a sufficient indication for inclusion of the work within the scope of work covered by the contract.
- 14.7 Headings and Marginal Notes.

All headings of and marginal notes to the clauses of these General Conditions of Contract or any other Contract Document are solely for the purpose of giving a concise indication and a general guide for convenience in reading and segregating the general subject of the various clauses, and not a summary of the contents thereof.

Consequently, they shall never be deemed to form part of the Contract Documents and be used in the interpretation of the contract.

#### 14.8 Singular and Plural

In these Contract Documents, unless otherwise stated specifically, words imparting the singular shall include the plural and vice versa wherever the context so requires.

#### 14.9 Masculine and Feminine

Where the context so requires, words imparting the masculine gender shall also include the feminine gender and the neuter gender and vice-versa.

#### 14.10 Meanings

Unless expressly stipulated to the contrary in this contract

- a. The words “directions(s)/ directed”, “instruction(s)/ instructed”, “order(s)/ ordered”, “requirement(s)/ required”, “permission(s)/ permitted”, “approval(s)/ approved”, shall mean the written directions, instructions, orders, requirements, permissions or approvals, as the case may be, of the OWNER or of Engineer-in-charge.
- b. The words “as felt”, “considered necessary”, “acceptable”, “desirable” or “satisfactory”, shall mean that the Owner or Engineer-in-charge feels or considers that the particular thing is necessary, acceptable, desirable, or satisfactory, as the case may be.

#### 14.11 Language

All documents pertaining to the contract, including drawings, manuals and any other writings shall be in the English language.

The translations, if any, in Hindi language, as may be furnished by the Owner of any of the documents forming the contract, shall not anyway operate as the contract between the parties or regulate upon the terms and conditions of the contract documents.

Therefore, all rights and obligations of the parties in terms of Contract Documents and any reference to the Contract or Contract Documents or any of them shall be deemed to be the rights and obligations arising out of the Contract Documents as written in English, and/ or Contract or Contract Documents or any of them as written in English.

No claim, dispute, difference or other objection will lie or will be entertained by the Owner on account of any difference in the import or interpretation between any provision in the Hindi translation of the Contract Documents or any of them and the Contract Documents in English.

#### 14.12 Measurement units

The metric system of measurement units shall be used in the contract, unless otherwise expressly stipulated.

#### 15.0 CONFLICT

In case of irreconcilable conflict in non-technical matters between the provisions in the separate contract documents concerning or governing the same aspect precedence shall be given to the provisions contained in the documents mentioned below in the order in which they are set out below:

- a) Formal contract Agreement.

- b) Acceptance of Tender.
- c) Price Schedule annexed to Letter of Intent/ Acceptance.
- d) Agreed Variations annexed to the Letter of Intent/ Acceptance.
- e) Addenda to the Tender Document.
- f) Special Conditions of the Contract.
- g) Special Instructions to the Tenderer.
- h) General Conditions of Contract.
- i) Instructions to Tenderer.

A variation or amendment issued after the execution of the formal contract shall take precedence over the formal contract and all other Contract Documents.

In case of irreconcilable conflict in technical matters between the provisions of two separate contract documents concerning the same aspect relevant clauses in this regard shall be referred to.

#### 16.0 CONTRACTOR TO OBTAIN HIS OWN INFORMATION

The Contractor in deriving and fixing his rate is deemed to have him-self independently obtained all necessary information for the purpose of preparing his tender. The correctness of the details given in the Tender Document should be considered by the tenderer as indicative and not guaranteed.

The Contractor shall be deemed to have examined the contract documents, to have generally obtained his own information in all matters whatsoever that might affect carrying out the works at the scheduled rates and to have satisfied himself of the sufficiency of his tender.

Any error in description/ quantity/ any other aspect in scheduled rates or omissions there-from shall neither vitiate the Contract nor release the Contractor from executing the work comprised in the Contract, in accordance with the drawings and specifications, at the scheduled rates.

Irrespective of the defects, omissions or errors that may be found in the Contract Documents, Contractor is deemed to know the scope, nature and magnitude of the work, the requirements of materials and labour, the type of work involved etc. and as to what all he has to do to complete the works in accordance with the Contract Documents.

The Contractor shall be deemed to have visited the surroundings and to have satisfied himself on the following:

- a. as to the nature of all existing structures, if any,
- b. as to the nature and condition of the railways, roads, bridges and culverts,
- c. means of transport and communications, whether by land, water or air
- d. as to possible interruptions there-to and the access

- e. as to the sites for obtaining earth, sand, stones, bricks and other materials,
- f. the sites for disposal of surplus materials, debris etc
- g. the available accommodation as to whatever required as depots and such other buildings as may be necessary for executing and completing the works,
- h. to have made local independent enquiries as to the subsoil, sub-soil water and variations thereof,
- i. storms, prevailing winds, climatic conditions.
- j. all other similar matters affecting these works.

He is deemed to have acquainted himself as to his liability for payment of Government taxes, royalties, customs duty and other charges.

Any neglect or failure on the part of the contractor in obtaining necessary and reliable information upon the foregoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of the works at the schedule rates and time in strict accordance with the provisions of the Contract Documents.

No verbal agreement or inference from conversations with any officer or employee of Owner either before or after the execution of the Contract Agreement shall in any way affect or modify any of the terms of obligations herein contained.

## 17.0 SECURITY DEPOSIT

17.1 The Contractor shall furnish Security Deposit in the amount equivalent to a sum of 10% (ten percent) of the Total Contract Value. Such Security Deposit shall be held by the Owner as security for the due performance of the Contractor's obligations under the contract.

17.2 This may be deposited as follows:

- a. initially at 2½% (two and half percent) of the value of awarded contract (referred to as Initial Security Deposit) within 10 (ten) days of receipt by him of the notification of acceptance of tender or the Letter of Intent, and
- b. the balance 7½% (seven and half percent) will be recovered in installments at the rate of 10% (ten percent) of the value of each running account bill, till the total security deposit amount is collected, after which no further deductions from bills will be made on this account.

Alternatively, the Contractor may at his option, deposit the full amount of 10% (ten percent) of the Awarded Contract Value towards the Security Deposit within 10 (ten) days of receipt of the notification accepting his tender or Letter of Intent/ Acceptance.

17.3 Contractor can furnish the initial or total security deposit amount

- a. By Demand Draft/ Pay Order drawn on a Banking Branch of a Nationalized/ Scheduled Bank payable to the "EIL-BSC-Phase-I" account at New Delhi. (Cheques shall not be accepted), or

- b. By Bank Guarantee(s) from any Schedule 'A' Bank in the form prescribed. Bank Guarantee shall be generally valid upto a period of 3 (three) months beyond the end of the Defects Liability period.

The Earnest Money deposited with the tender may be adjusted towards Security Deposit, provided it had been furnished in cash or by demand draft.

- 17.4 The Contractor may, at any time and from time to time, during the course of or after completion of the work, with the permission of Owner, substitute his cash security deposit, including retention money(ies) deducted from his bills and lying with the Owner, by Bank Guarantee(s) in the prescribed proforma from a Schedule 'A' bank and withdraw the equivalent cash amount(s), provided the amount covered by any such Bank Guarantee is not less than Rs 1 lakh (Rupees one lakh only).
- 17.5 If at any time during the course of the contract, the gross value of the work, as reflected by the Running Account Bills submitted by the Contractor has in the opinion of the Owner (which shall be final and binding on the Contractor) exceeded or is likely to exceed the "Total Contract Value" indicated in the acceptance of tender, the Contractor shall be bound to pay further security deposit as will make up the total Security Deposit to 10% (ten percent) of the then anticipated contract value, failing which owner shall be at liberty to make such deductions towards retention money(ies) from the Contractor's running bills and will ensure at all times that the Security Deposit does not fall below 10% (ten percent) of the gross value of the work, as reflected by the gross payment made to the contractor, without taking into account any deductions.

If the shortfall in Security Deposit is discovered after completion of the work, the shortfall shall be made good by the Contractor on demand from the Owner, failing which it will be recovered from any money(ies) due to the Contractor from the Owner under this contract and/ or any other contract with the Owner.

- 17.6 If after completion of the work, the "Total Contract value" falls below the Awarded Contract value as indicated in the Acceptance of tender, such that the total Security Deposit (made up of initial security deposit and retention money(ies) or otherwise) in the hands of the Owner is in excess of the Total Security Deposit calculated at 10% (ten percent) of the reduced contract value, such excess amount, as in the form of cash in the hands of the Owner, shall be refunded to the Contractor along with the final bill.

If Security Deposit furnished by the Contractor to the Owner in the form of Bank Guarantee(s) is in excess of Rs 1 lakh, the Contractor shall be permitted to replace the Bank Guarantee(s) already submitted by Bank Guarantee(s) equivalent to cover the reduced value of Security Deposit without altering the validity period.

- 17.7 All compensation or other sums of money payable by the Contractor to Owner under terms of this contract may be deducted from/ paid by the sale of a sufficient part of his Security Deposit or from any sums which may be due or may become due to the Contractor by Owner on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the Contractor shall within 10 (ten) days thereafter make good in cash, bank draft, or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or realized by sale of his Security Deposit, or any part thereof.
- 17.8 No interest shall be payable by Owner for sum deposited as Security Deposit in any form whatsoever.

17.9 Upon determination of the contract prior to completion of work(s) for any cause, the Owner shall in so far as the Security Deposit constitutes cash refund and in so far as the Security Deposit is in any other form, release/ discharge/ return as the case may be, to Contractor, the unutilized balance of the Security Deposits, if any, for the time being remaining in the hands of the Owner after settlement of accounts and in discharge of all amounts due from the Contractor to the Owner and fulfillment of all obligations of the Contractor.

## 18.0 TIME OF PERFORMANCE

18.1 The work covered by this contract shall be commenced within 7 (seven) days after the issue of the Letter of Acceptance/ Intent of tender and be completed in stages on or before the dates as mentioned in the time schedule of completion of works.

The contractor should bear in mind that time is the essence of this agreement, unless such time is extended pursuant to the provisions of clause no. 19.0.

Requests for revision of construction time after tenders are opened will not receive consideration.

## 18.2 Time Schedule for completion

The contractor shall complete in all respects in accordance with the Contract the entire work at each job site within the time specified in this behalf in the Time Schedule.

If the Owner so requires, the Progress Schedule in the form of PERT chart, giving the latest dates of starting and the latest dates of finishing of various operations comprising the work as also the activities in the critical path and the latest dates for achievement of specific milestones in respect of the work so as to complete in all respects the works (including testing and consequential operations) within the time provided in the Time Schedule, shall be provided by the contractor. The progress schedule should also indicate the interlinking of the various activities and bring to light the specific/ critical items on which the inputs from the Owner/ Engineer-in-Charge would be required to ensure adherence to the schedule.

Engineer-in-Charge shall review and comment/ prepare the progress schedule (the dates of progress/ milestones as fixed by the Engineer-in-Charge being final and binding upon the Contractor) which shall then be the "Approved schedule" for the purpose of monitoring and contract and shall be strictly adhered to.

The Engineer-in-Charge may at his discretion modify this programme after review from time to time.

## 19.0 FORCE MAJEURE

Any delay in or failure of performance of either party hereto shall not constitute default hereunder or give to any claims for damages, if and to the extent such delays or failure of performance is caused by occurrences such as Acts of God or the public enemy, expropriation or confiscation of facilities by Government authorities, compliance with any order or request of any Governmental authority, acts of war, rebellion or sabotage or damage resulting there from tidal waves, fires, floods, explosion, earthquake, epidemics, quarantine restrictions, revolutions, civil wars, riots or illegal strikes, freight embargoes and transporters strikes affecting the country as a whole.

Inclement weather, shutdown, third party breach, delay in supply of material(s) or commercial hardship shall not afford the Contractor a ground for Extension of time under this clause or relieve the Contractor of his full obligations under the Contract, except to the extent otherwise specifically provided elsewhere.

The contractor shall keep record of the circumstances referred to above, which are responsible for causing delays in the completion of work and bring these to the notice of the Engineer-in-Charge.

## 20.0 EXTENSION OF TIME

Request for an extension of the time, if any, for completion of the work by the Contractor on the grounds of his having been unavoidably hindered in its execution, or any other grounds, shall be in writing to the Engineer-in-Charge within 10 (ten) days of the date of the hindrance on account of which he desires such extension as aforesaid, and the Engineer-in-Charge shall, if in his opinion (which shall be final and binding) reasonable grounds have been shown therefore authorize such extension of time as may in his opinion be necessary or proper.

In general, only the existence of force majeure circumstances as defined in clause no 19.0 shall afford the Contractor a ground for extension of time for completion of the work or any part of the work or any operation(s) involved therein.

The application for extension of time made by the Contractor to the Engineer-in-Charge should contain full details of:

- a. The notice under cl. No.20.0 with a copy each of the notice sent to the Engineer-in-Charge.
- b. The activity for the progress schedule affected.
- c. The bottleneck(s)/ obstruction(s) perceived/ experienced and the reason(s) there for.
- d. Extension required/ necessitated on account of (c) above.
- e. Extension required/ necessitated on account of reasons attributable to the Owner.
- f. The total extension of time (if any) required/ necessitated for completion, taking the above into account and after eliminating all overlaps.

The opinion/ decision of the Engineer-in-Charge in this behalf and as to the extension of time necessary shall be final and binding upon the Contractor.

Irrespective of the reasons for delay (including due to force majeure condition), if any, whether tenable for extension of time or not, the entire contract shall be completed without any escalation and within the quoted rates (including rates approved as per provisions of cl. No. 53.0) itself, and nothing shall be payable by the Owner to the Contractor for delay in the commencement, progress or completion of the work due to any reason whatsoever, irrespective of recommendation/ approval of extension of time by EIL/ Owner.

## 21.0 COMPENSATION FOR DELAY

- 21.1 The time allowed for carrying out the work as entered in the Contract, shall be strictly observed by the Contractor. The work shall throughout the stipulated period of the contract be carried out with all the diligence (time being deemed to be the essence of the Contract).

The contractor shall pay to owner as compensation, an amount equal to 1% (one percent) or such an amount as the Engineer-in-Charge (whose decision in writing shall be final), may decide on the amount of the contract value for every week that the work may remain incomplete as per the time schedule, subject to a maximum compensation of 10% (ten percent) of the contract value, after which period action will be taken by the Engineer-in-Charge under the provisions of the Contract.

- 21.2 To ensure good progress during the execution of the work the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month,
- a. to complete one fifth of the work before one-fourth of the time allowed under contract has elapsed,
  - b. three-eighth of the work before one-half of such time has elapsed and
  - c. three-fourth of the work before three-fourth of such time has elapsed.

In the event of the contractor failing to comply with this condition, he shall be liable to pay as compensation an amount as stipulated above.

The compensation so paid shall not relieve the contractor from his obligations to complete the work or from any other obligations and liabilities under the contract.

## 22.0 SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL LOSS

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation without reference to the actual loss or damage sustained by Owner and whether or not damage shall have been sustained.

## 23.0 RIGHT OF OWNER TO FOREFIT SECURITY DEPOSIT

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the Contract, Owner shall be entitled to recover such sum by appropriating in part or whole of the security deposit retained from the contractor, and to sell Government securities, etc. forming whole or part of such security.

In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable (as the case may be) shall be deducted from any sum then due or which at any time there-after may become due to the Contractor, either under this or under any other contract with the Owner.

Should the above still not be sufficient to cover the recoverable amount, the contractor shall pay to the Owner upon demand the balance amount remaining.

## 24.0 ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FORFEITED

- 24.1 In any case in which under any clause of this contract the contractor shall have forfeited the whole of his Security Deposit (whether paid in one sum or deducted by installments) or have committed a breach of any of the terms contained in this

Contract, Owner shall have power to adopt any of the following courses as it deem best suited to its interest:

- a) To rescind the contract, in which case the Security Deposit of the Contractor shall stand forfeited and be absolutely at the disposal of Owner. Written rescission notice to the Contractor under the hand of the Engineer-in-Charge shall be treated as conclusive evidence in this regard.
- b) To employ labour paid by Owner and to supply materials to carry out the work or any part of the work, debiting the Contractor with the amount equivalent to the cost of labour and the price of the materials at landed cost, with suitable overheads. A certificate of the Engineer-in-Charge as to the amount of recovery shall be final and conclusive against the Contractor.

Contractor shall however under the above circumstances be credited with the value of the work done, in all respects in the same manner and at the same rates as if it had been carried out by the Contractor under the terms of his contract. The certificate of the Engineer-in-Charge as to the value of the work done shall be final and conclusive against the contractor.

- c) To measure up the work of the Contractor and to take such part thereof as shall be unexecuted out of his hands and to give it to another contractor to complete.

In this case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor had the whole work been executed by him, shall be borne and paid by the original Contractor. The certificate in writing of the Engineer-in-Charge shall be final and conclusive in this regard.

This amount may be deducted from any money due to the Contractor by Owner under the Contract or otherwise, or from his Security Deposit, or from the proceeds of sale thereof, or a sufficient part thereof.

24.2 In the event of any of the above courses being adopted by Owner, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any agreements or made any advances on account of or with a view to the execution of the work or the performance of the contract.

24.3 In case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work therefore actually performed under this contract unless and until the Engineer-in-Charge will certify in writing the performance of such work, and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.

25.0 CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN UNDER CLAUSE 24.0

25.1 In any case in which any of the powers conferred upon Owner by clause 24.0 thereof shall have become exercisable and the same had not been exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the Contractor for which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his Security Deposit, and liability of the contractor for past and future compensation shall remain unaffected.

25.2 In the event of Owner putting in force the powers under sub-clause (a), (b) or (c) vested in it under the preceding clause no. 24.1, Owner may, if it so desires, take possession of all or any tools, plants and machinery, materials and stores in or upon the works or the site thereof or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account at the contract rates or in case of these not being applicable in current market rates to be certified by Engineer-in-Charge whose certificate thereof shall be final and binding.

25.3 Otherwise the Engineer-in-Charge may give notice in writing to the Contractor or his authorized agent requiring him to remove such tools, plant materials or stores from the premises (within a time to be specified in such notice).

In the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and at his risk in all respects, without any further notice as to the date, time or place of sale.

The certificate of the Engineer-in-Charge as to the expense of any such removal and the amount of the proceeds & expenses of any such sale shall be final and conclusive against the contractor.

#### 26.0 OWNER/ EIL NOT BOUND BY PERSONAL REPRESENTATION

The contractor shall not be entitled to any increase on the schedule of rates or any other right or claim whatsoever by reason of any representation, explanation or statement on alleged representation, promise or guarantees given or alleged to have been given to him by any person.

#### 27.0 CHANGES IN CONSTITUTION

The Contractor, whether an individual, proprietary concern, partnership firm, private limited company or public limited company, shall not make any changes in its constitution, by transfer of substantial shareholding or of management (in the case of a company) or by addition or deletion of partners, change in the terms of partnership, or make any other material changes without prior intimation to and approval of the Owner. Any such unauthorized change shall attract the provisions of the clauses 33.0.

#### 28.0 IF THE CONTRACTOR DIES

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, Owner shall have the option of terminating the contract without compensation to the contractor.

#### 29.0 MEMBERS OF OWNER AND THE OWNER NOT INDIVIDUALLY LIABLE

No Director, or Officer, official or employee of Owner/ EIL shall in any way be personally bound or liable for the acts or obligations of Owner under the contract or answerable for any default or omission in the observance or performance of any of the acts, matters, or things which are herein contained.

#### 30.0 CONTRACTOR'S OFFICE AT SITE

The contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be open at all reasonable hours to receive instructions, notices or other communications.

### 31.0 CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT

i) Contractor's Field Engineer: After the award of work the contractor should name the Engineer responsible for the work, to whom equipment and materials, if any, will be issued and to whom all site instructions and notices can be issued. He should have necessary Power of Attorney, which shall be deposited to the Engineer-in-Charge in original.

ii) Contractor's field staff strength: The contractor shall provide sufficient and qualified staff, competent sub-agents, engineering assistants, foremen and leading hands, including those specially qualified by previous experience to supervise the types of works comprised in the contract, in such a manner as will ensure work of the best quality, expeditious working and proper supervision.

Whenever in the opinion of the Engineer-in-Charge this is not the case, additional and properly qualified supervisory staff shall be employed by the Contractor within the time frame specified by the Engineer-in-Charge, without additional charge on account thereof.

The Contractor shall ensure to the satisfaction of Engineer-in-Charge that sub-contractor(s), if any, shall provide competent and efficient supervision over the work entrusted to them.

Where so required, the Contractor shall furnish a field organization chart as well as full details of field staff.

iii) Conduct of Contractor's Field Staff:

The Contractor shall be responsible for the proper behavior of all the staff, foremen, workmen and others, and shall exercise a proper degree of control over them.

In particular and without prejudice to the said generality, the contractor shall be bound to prohibit and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interests of the community or of the proprietor or occupiers of land and properties in the neighborhood.

In the event of such employee so trespassing, the contractor shall be responsible therefore and relieve EIL of all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-Charge upon any matter arising under this clause shall be final and binding.

iv) If and whenever any of the Contractor's or his sub-contractor's agents, sub-agents, assistants, foremen or other employees shall, in the opinion of Engineer-in-Charge, be guilty of any misconduct, or be incompetent, or insufficiently qualified, or negligent in the performance of their duties, or that in the opinion of the Engineer-in-Charge, it is undesirable for administrative or any other reason for such person(s) to be employed in the works, the Contractor if so directed by the Engineer-in-Charge, shall at once remove such person(s) from employment thereon.

Any person(s) so removed from the works shall not again be employed in connection with the works without the written permission of the Engineer-in-Charge.

Any person so removed from the works shall be immediately replaced, at the expense of the Contractor, by a qualified and competent substitute.

Should the contractor be requested to repatriate any person removed from the works, he shall do so and shall bear all costs in connection herewith.

- v) If and when required by Owner, all the Contractor's personnel entering upon the premises shall be properly identified by badges of a type acceptable to Owner which must be worn at all times on the premises of the Owner/ EIL and all work sites.

## 32.0 SUB-LETTING OF WORK

- i) No part of the Contract nor any share or interest there-in shall in any manner or degree be transferred, assigned or sublet by the contractor directly or indirectly to any firm or corporation whatsoever, except as provided for in the succeeding sub-clause, without the consent in writing of the Engineer-in-Charge.

- ii) The Engineer-in-Charge may give written consent to sub-contract for the execution of any part of the works at the site, being entered into by the Contractor provided each individual sub-contract is submitted to the Engineer-in-Charge before being entered into and is approved by him.

- iii) List of Sub-Contractors to be supplied:

At the commencement of every month the Contractor shall supply to the Engineer-in-Charge list of all sub-contractors or other person(s) or firm(s) engaged by the Contractor and working at the site during the previous month, with particulars of the general nature of the sub-contractor(s) or work(s).

- iv) Contractor's liability not limited by sub-contractors:

Notwithstanding any sub-letting with such approval as aforesaid, and notwithstanding that the Engineer-in-Charge shall have received copies of any sub-contracts, the contractor shall be and shall remain solely responsible for the proper and expeditious execution of the contract in all respects, as if subletting or subcontracting had not taken place, and as if such work had been done directly by the Contractor.

- v) Owner may terminate sub-contractors:

If any sub-contractor engaged upon the works at the site executes any work which, in the opinion of the Engineer-in-Charge, is not in accordance with the Contract Documents, the Engineer-in-Charge may give written notice to the Contractor requiring him to terminate such sub-contract.

The Contractor upon the receipt of such notice shall terminate such sub-contract and the latter shall forthwith leave the works, failing which the Engineer-in-Charge shall have the right to remove such sub-contractor(s) from the Site.

- vi) No remedy for action taken under this clause:

No action taken by the Engineer-in-Charge under the clause shall relieve the Contractor of any of his liabilities under the Contract or give rise to any right to compensation, extension of time, or otherwise.

### 33.0 POWER OF ENTRY

33.1 If the contractor shall not commence the work in the manner previously described in the contract documents or if he shall at any time in the opinion of the Engineer-in-Charge:

- i) Fail to carry on the works in conformity with the contract documents, or
- ii) Fail to carry on the works in accordance with the time schedule, or
- iii) Substantially suspend work or the works for a period of 14 (fourteen) days without authority from the Engineer-in-Charge, or
- iv) Fail to carry on and execute the works to the satisfaction of the Engineer-in-Charge, or
- v) Fail to supply sufficient or suitable constructional plant, temporary works, labour, materials or things, or
- vi) Commit or suffer or permit any other breach of any of the provisions of contract on his part to be performed or observed or persist in any of the above mentioned breaches of the contract for 14 (fourteen) days, after notice in writing shall have been given to the Contractor by the Engineer-in-Charge requiring such breach to be remedied, or
- vii) If the contractor shall abandon the works, or
- viii) If the contractor during the continuance of the contract shall become bankrupt, make any arrangement or composition with his creditors, or permit any execution to be levied or go into liquidation whether compulsory, or voluntary (not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction), or

If there is any change in the constitution of the Contractor, then in any such case, the Owner shall have the power to enter upon the works and take possession of the materials, temporary works, constructional plant, and stock thereon, and to revoke the contractor's license to use the same. The Owner shall then also have the rights to complete the works by his agents, other contractors, or workmen at the risk and cost of the contractor.

33.2 Alternatively, the owner shall also have the power to relet the same upon any terms and to such other person, firm or corporation as the Engineer-in-Charge in his absolute discretion may think proper to employ.

For the purpose aforesaid owner may permit to use or authorize the use of any materials, temporary works, considered plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said materials other than such as may be certified in writing by the Engineer-in-Charge to be reasonable, and without making any payment or allowance to the Contractor for the use of the said temporary works, constructional plant and stock or being liable for any loss for damage there to.

33.3 If the owner shall by reason of his taking possession of the works or of the works being completed by other contractor (due account being taken of any such extra work or works which may be omitted) then the amount of such excess as certified by the Engineer-in-Charge shall be deducted from any money which may be due to the Contractor for work done by him under the Contract and not paid for.

33.4 Any deficiency shall forthwith be made good and paid to Owner by the Contractor.

Owner shall have power to sell any of the constructional plant, materials etc. in such manner and for such price as Owner may think fit and to recoup and retain the said deficiency or any part there of out of the proceeds of the sale.

#### 34.0 MAIN CONTRACTOR'S RESPONSIBILITY WITH OTHER AGENCIES

Without repugnance to any other condition, it shall be responsibility of the main contractor executing the work of civil construction to work in close co-operation and co-ordinate the works with the mechanical, electrical, air-conditioning, lift and inter-communication contractors, other agencies or their authorized representatives, in providing the necessary grooves, recesses, cuts and opening etc. in walls, slabs, beams and columns etc., and making good the same to the desired finish as per specifications, for the placement of electrical/ inter-communications cables/ conduits, air-conditioning inlets & outlets grills and other equipments etc. wherever required.

For the above said requirements in false ceiling and other partitions, the main Contractor, before starting up the works shall in consultation with the electrical, mechanical, inter-communication, air-conditioning contractors and other agencies prepare and put up a joint scheme, showing the necessary openings, grooves, recesses, cuts, the methods of fixing required for the works of the aforesaid, and the finishes therein, to the Engineer-in-Charge, and get the approval.

The main contractor before finally submitting the scheme to the Engineer-in-Charge shall have the written agreement of the other agencies. The Engineer-in-Charge before communications shall get the final agreement of all the agencies, which shall be binding. No claim whatsoever shall be entertained on account of the above.

#### 35.0 OTHER AGENCIES AT SITE

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works such as site grading, filling, leveling, civil, electrical and mechanical engineering works etc. No claim whatsoever shall be entertained for the work being executed under the above circumstances.

#### 36.0 NOTICES

Any notice hereunder may be served on the contractor or his duly authorized representative at the job site or may be served by registered mail directly to the address furnished by the Contractor. Proof of issue by Owner of any such notice would be conclusive of the Contractor having been duly informed of all contents therein.

#### 37.0 RIGHTS OF VARIOUS INTERESTS

i) Owner reserves the right to distribute the work among more than one contractor. The Contractor shall cooperate and afford other contractor reasonable opportunity for access to the works for the carriage and storage of materials and execution of their works.

- ii) Wherever the work being done by the Owner/ EIL or by other contractors employed by the Owner the respective rights of the various interests involved shall be determined by the Engineer-in-Charge to secure the completion of the various portions of the work in general harmony.

## 38.0 DETERMINATION & TERMINATION OF CONTRACT

### 38.1 Right of Owner to Determine & Terminate Contract

- i) Owner shall, at any time, be entitled to determine and terminate the contract, if in its opinion the cessation of the work becomes necessary owing to paucity of funds, change in scheme or from any other cause, whatsoever.
- ii) A notice in writing from the Engineer-in-Charge to the Contractor of such determination and termination and the reason therefore shall be the conclusive proof of the fact that the contract has been so determined and terminated by Owner.
- iii) Upon determination and termination of the Contract, the Engineer-in-Charge may require the contractor:
  - 1. To perform to completion or to any other intermediary stage of completion, to the satisfaction of Engineer-in-Charge, any work(s) already commenced by the Contractor: and
  - 2. To take such steps as are considered necessary by the Engineer-in-Charge for properly protecting and securing the works performed by the Contractor, to the satisfaction of Engineer-in-Charge:

And the Contractor shall act accordingly and the same shall be deemed to be included within the Contractor's scope of work.
- iv) Upon receipt of the notice as mentioned at (ii) above the Contractor shall, unless the notice otherwise requires,
  - 1. Immediately discontinue work and/ or supply from the date and to the extent specified in the notice.
  - 2. Not place any further orders or sub-contracts for materials, services or facilities other than as may be necessary or required for completing or performing such portion of the work(s) or supplies which the Contractor is required to complete or perform.
  - 3. Promptly make every reasonable effort to obtain cancellation or fulfillment, as the case may be, at the option of the Engineer-in-Charge/ Owner of all orders and sub-contractors to the extent they relate to the performance of the work(s) or supplies cancelled.
  - 4. Assist the Engineer-in-Charge/ Owner as specifically requested in writing by the Engineer-in-Charge/ Owner in the maintenance, protection and disposition of property/ works acquired by the Owner pursuant to the contract.
- v) Upon such determination/ termination of the contract, the Owner shall take over from the Contractor the approved surplus materials supplied by the Contractor for permanent incorporation in the work and lying at the job site on

the date of receipt of the notice by the Contractor. Decision of the Engineer-in-Charge in this regard shall be final and binding.

- vi) Upon determination/ termination of the contract, the Contractor agrees to waive any claim for damages, including loss of anticipated profits on account thereof, and as the sole right and remedy of the Contractor against the Owner resultant upon such determination/ termination, the Contractor agrees to accept from the Owner the following namely:
1. The cost of setting and paying claims for cancellation or completion of pending orders and/ or sub-contracts as provided for in (iii) above.
  2. The cost of protecting, securing and/ or maintaining the works pursuant to the provisions of (iii) above.
  3. Payment for supplies actually made determined in accordance with the provisions (iv) above.
  4. Payment for the work actually performed by the Contractor calculated on the basis of Unit rates or lump-sum rates wherever applicable. Where unit / lump-sum rates are not applicable and/ or relative works are incomplete, the provisions of cl. No. 53.0 shall apply for calculating remuneration.
  5. The cost of materials taken over pursuant to the provisions in (iv) above, as are deemed fair and reasonable and are supported by vouchers to his satisfaction.
  6. An allowance, if any due, as determined by the Engineer-in-Charge (whose decision shall be final) to cover the cost of Contractor's actual mobilization and demobilization at job site for the work to the extent uncovered by payments under items (1) to (5) above.

The contractor shall not be entitled to any other compensation in addition to the payments specifically provided for above, and the contractor hereby specifically waives any and all contrary rights and claims whatsoever.

### 38.2 Mutual Rescission

No mutual rescission of this contract or the mutual rescission of any obligation of either party hereto, shall be binding upon the other party unless such mutual rescission is reduced to writing and signed by both parties hereto.

### 38.3 Bankruptcy

If a petition of bankruptcy be filed by or against the contractor, Owner may, at its opinion, and within 60 (sixty) days of the filing of such petition cancel this contract and agreement provisions contained in Clause 38.1 above shall apply in such a case.

### 39.0 PATENTS, ROYALTIES, LIENS & LIABILITIES

- 39.1 If any equipment, machinery or materials to be used or supplied or methods or processes to be practiced or employed in the performance of the Contract is/ are covered by a patent under which the Contractor or his sub-contractor is not licensed, the Contractor shall before supplying or using the equipment, machinery, materials, methods or processes as the case may be, obtain such license(s) and pay such

royalty(ies) and license fee(s) as may be necessary in connection with the performance of this contract.

- 39.2 In the event the Contractor fails to pay such royalty or obtain such license, the Contractor will defend at his own expense any suit for infringement of patent which is brought against the Contractor or the Owner as a result of the failure, and shall pay any damages and costs awarded in such suit and will keep the Owner indemnified from and against all other consequences thereof.
- 39.3 The Contractor shall promptly notify Owner if the Contractor has acquired knowledge of any process / product under which a suit for infringement could be reasonably brought because of the use by Owner of any equipment, machinery, materials, composition, process, methods to the supplied hereunder.
- 39.4 Owner shall similarly indemnify and save harmless the Contractor from any loss on account of claims against Contractor for the contributory infringement of patent rights arising out and based upon the use by Owner of any process (included in the design prepared by Owner and used in the operation of the plant) which infringes on any patent rights.
- 39.5 All drawings/ blue prints/ tracings/ reproducible/ models/ plans/ specifications and copies thereof furnished by/ on behalf of Owner as well as all drawings/ tracings/ reproducible/ plans/ specifications/ design/ calculations etc. prepared by the Contractor for the purposes of execution of work covered in or connected with this contract, shall be the property of Owner and shall not be used for any other work. These materials are to be delivered to Owner upon completion of the contract.
- 39.6 Where so desired by Engineer-in-Charge, the contractor agrees to respect the secrecy of any documents, drawings etc. issued to him for the execution of this contract, and restrict access to such documents, drawings etc. to the minimum.
- 39.7 Further, the Contractor agrees to execute an individual Secrecy agreement with each or any person employed by the Contractor having access to such documents, drawings etc.
- 39.8 In any event the Contractor shall not issue drawings and documents to any other agency or individual without the written approval by Engineer-in-Charge.
- 39.9 Liens:

Contractor shall indemnify and save harmless Owner from and against all actions, suits proceedings, losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against Owner by reason of any act or omission of the Contractor, his agents or employees in the execution of the work or in regarding the same.

If, at any time, there should be evidence of any lien or claim for which Owner might have become liable and which is chargeable to the Contractor, Owner shall have the right to retain (out of any payment then due or thereafter becomes due) an amount sufficient to completely indemnify Owner against such lien or claim.

If such lien or claim be valid, Owner may pay and discharge the same, and deduct the amount so paid from any money which may be or may become due and payable to the Contractor.

If any lien or claim remaining unsatisfied after all payments are made, the Contractor shall refund or pay to Owner all moneys that the latter may be compelled to pay in discharging such lien or claim, including all costs and reasonable expenses.

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of Owner, without references to the actual loss or damage sustained and whether or not any damage shall have been sustained.

The final payment shall not become due until the contractor delivers to the Engineer-in-Charge a certification that all invoices for labour, materials and services have been paid in lieu thereof, and if further required, an affidavit that so far as the Contractor has knowledge or information the releases and receipts include all the labour and material for which a lien could be filled.

Contractor will indemnify and hold Owner harmless, for a period of 2 (two) years after the issue of Final Certificate, from all liens and other encumbrances against Owner on account of debts or claims alleged to be due from the Contractor or his sub-contractor to any person including sub-contractors.

Contractor shall defend or contest at his own expense any fresh claim or litigation brought against Owner/ Contractor even after the expiry of 2 (two) years from the date of issue of Final Completion Certificate.

#### 39.10 Publicity:

Contractor will not give any items concerning details of the work to the press or a news dissemination agency without prior written approval from Engineer-in-Charge.

Contractor shall not take any picture on site without specific written approval of Owner.

#### 40.0 OPERATION OF CONTRACT

##### 40.1 Law Governing:

Regardless of the place of contracting, place of performance or otherwise, this agreement, and all amendments, modifications, alterations, or supplements, thereto shall be governed by the law of Indian and particularly the State of Haryana.

##### 40.2 Non-waiver of Defaults

It shall always be open to the Owner by written communication to the Contractor to waive in whole or part any right or enforcement of any right or remedy which the Owner may have against the Contractor or of any obligations which the Contractor may have hereunder, provided always that:

- (i) No waiver shall be presumed or inferred unless made in written communication addressed by the Owner to the Contractor and specifically communicated as a waiver;
- (ii) No waiver of any right or part of any right on one occasion shall be deemed to be a waiver or abandonment of that right for all occasions with the intent that a waiver once given shall be limited to the specific waiver and shall be without

prejudice to the right of Contractor and/ or the future enforcement of the right by the Owner in respect of the same and/ or any other dependent obligation.

## **PERFORMANCE OF WORK**

### **(CHAPTER – IV)**

#### 41.0 EXECUTION OF WORKS

41.1 All the works shall be executed in strict conformity with the provisions of the Contract Documents and with such explanatory detailed drawings, specifications and instructions as may be furnished from time to time to the Contractor by the Engineer-in-Charge whether mentioned in the contract or not. The Contractor shall be responsible for ensuring that works through-out are executed in the most substantial and proper workmanlike manner, with the quality of material and workmanship in strict accordance with the specifications, and to the entire satisfaction of the Engineer-in-Charge.

41.2 Wherever it is mentioned in the specifications that the Contractor shall perform certain work or provide certain facilities/ materials, it is understood that the Contractor shall do so at his own cost.

41.3 The materials, design and workmanship shall satisfy the relevant Indian Standards, the job specifications contained here-in and codes referred to. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be considered part of the scope and satisfied.

#### 42.0 CO-ORDINATION AND INSPECTION OF WORK

42.1 The coordination and inspection of the day-to-day work under the contract shall be the responsibility of the Engineer-in-Charge. The written instructions regarding any particular job will normally be passed by the Engineer-in-Charge or his authorized representative.

A work order book will be maintained by the Contractor for each section in which the aforesaid written instructions will be entered. These will be signed by the Contractor or his authorized representative by way of acknowledgement within 12 (twelve) hours.

42.2 This shall be in addition to instructions or orders issued in writing by the Engineer-in-Charge.

#### 43.0 GENERAL CONDITIONS OF CONSTRUCTION AND ERECTION WORK

43.1 Work has to be executed during normal working hours on weekdays only. Normally work in the night, on Sundays and other holidays observed by Owner will not be permitted.

However, contractor should be prepared to work two or three shifts per day (including Sundays and Holidays), if so required by Engineer-in-Charge, without any extra cost over the quoted rates.

43.2 If at any time the contractor wants to work more than one shift or on Sunday/ Holiday or beyond normal working hours, he shall get the approval of Engineer-in-Charge at least 24 (twenty-four) hours before-hand. Refusal by Engineer-in-Charge at any time for such extension of working hours shall not constitute any claim for compensation or extension of time of completion.

- 43.3 The execution of the work may entail working in the monsoon season also. The contractor must maintain a minimum labour force as may be required for the job plan (including any efforts towards retrieval of delay in the agreed schedule) and execute the construction and erection works according to the prescribed schedule. No extra rate will be considered for such work in monsoon.
- 43.4 During monsoon and other period, it shall be the responsibility of the Contractor to keep the construction work site free from water at his own cost. He should also make necessary equipment and provisions (like dewatering pumps, tarpaulins for cement etc.) readily available at worksite, for which no extra payment will be made.
- 43.5 The Contractor must arrange for the placement of workers in such a way that the delayed completion of the work or any part thereof for any reason whatsoever will not affect their proper employment. Owner will not entertain any claim for idle time payment whatsoever.
- 44.0 DRAWINGS TO BE SUPPLIED BY THE OWNER
- 44.1 General drawings for the work indicating the broad scope of work are attached with tender. This is for general guidance of the contractor to enable him to visualize the type of work and/ or supplies contemplated under the contract. The Contractor will be deemed to have studied the drawings and formed an idea about the work involved.
- 44.2 Detailed working plan(s), drawing(s), specification(s) and approval(s) on the basis of which actual execution is to proceed, if required, will be furnished from time to time during the actual progress of work.
- 44.3 The Contractor shall be deemed to have gone through the drawings supplied to him thoroughly and carefully and in conjunction with all other connected drawings/ details.
- 44.4 Discrepancies, if any, in this regard shall be promptly brought to the notice of the Engineer-in-Charge before actually carrying out the work.
- 44.5 It shall be the exclusive responsibility of the Contractor to call upon the Engineer-in-Charge for and to pursue and obtain from the Engineer-in-Charge any plan(s), drawing(s), specification(s), or approval(s) (including in respect of approvals to be furnished by Owner) required to be furnished to the Contractor under the contract for proper and timely execution of the work/ any particular item or job therein/ the making of any supply, as the case may be, as and when required, sufficiently in advance of the stage of delivery of the materials or of the commencement of progress of work, for the performance or continuance of which the same shall be required.

Any failure by the Contractor to do so shall be entirely at the risk and cost of the Contractor, and shall not constitute any ground for the extension of time, unless:

- a. Engineer-in-Charge shall fail to provide the Contractor plan(s), drawing(s), specification(s) or approval(s)/ disapproval(s) within 15 (fifteen) days of the notice by the Contractor to the Engineer-in-Charge specially stating the drawing(s), specification(s), or approval(s) which is/ are pending, the period for which it/ they are pending, the reasons for which it/ they are pending, and that the notice is being given pursuant to the provisions of this clause on the clear understanding that if these are not being provided within 15 (fifteen) days the Contractor will be making claim for deemed approval pursuant thereto.

- b. If thereafter, said notice notwithstanding, the approval/ disapproval is not granted within 15 (fifteen) days the relative approval(s) shall be deemed to have been granted and the Contractor shall proceed with the work accordingly, without entitlement to any extension of time on this account.

- 44.6 Copies of all detailed working drawings relating to the works shall be kept at the Contractor's office on the site and shall be made available to the Engineer-in-Charge at any time during the contract.

The drawings shall be returned to the Owner on completion of the works.

- 44.7 Reference is also invited to Clause 39.3 & 39.4 above regarding drawings and other documents.

#### 45.0 SETTING OUT WORKS

- 45.1 The Engineer-in-Charge shall furnish the Contractor with only the four corners of the work site and a level benchmark. The Contractor shall have to set out the work from these four corners. Contractor shall provide efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out. All markings and guidelines shall be done with paint where so required, in a truly professional way.

- 45.2 The Contractor shall provide, fix and be responsible for the maintenance of all survey marks, stakes, templates, level marks, profiles and other similar things, either existing or supplied and fixed by the Contractor, and shall take all necessary precaution to prevent their removal or disturbance.

Pillars bearing geodetic marks located at the sites of unit of works under construction should be protected and fenced by the Contractor.

Contractor shall be solely responsible for the consequence of any removal or disturbance should the same take place and for their efficient and timely reinstatement.

- 45.3 Before beginning the works, the Contractor shall at his own cost, provide all necessary reference and level posts, pegs, bamboos, flags, ranging rods, strings and other materials for proper layout of the work in accordance with the scheme for bearing marks acceptable to the Engineer-in-Charge.

The center, longitudinal or face lines and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct mark at the center to enable a theodolite to be set over it.

- 45.4 No work shall be started until all these points are checked and approved by the Engineer-in-Charge in writing, but such approval shall not relieve the Contractor of any of his responsibilities.

The Contractor shall provide all labour, instruments, material and other facilities free of cost, as required by Engineer-in-Charge, for the proper checking of layout and inspection of the points during construction.

- 45.5 On completion of works, the Contractor must submit the geodetic documents according to which the work was carried out along with the Final Documents.

#### 46.0 RESPONSIBILITY FOR LEVEL AND ALIGNMENT

The Contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the levels and correctness of every part of the work and shall rectify effectually the errors or imperfections therein.

Such rectifications shall be carried out by the Contractor, at his own cost, when instructions are issued to that effect by the Engineer-in-Charge.

#### 47.0 MATERIALS TO BE SUPPLIED BY CONTRACTOR

47.1 The Contractor shall procure and provide all the materials required for the construction including reinforcement bars, cement and other building materials for the completion of the works and shall make his own arrangements for procuring such materials and for the transport thereof.

Owner may give necessary recommendation to the respective authority, if so desired by the Contractor, but assumes no further responsibility of any nature what-so-ever.

47.2 Unless otherwise specified, Owner will insist on the procurement of materials which bear ISI stamp and are supplied by reputed manufacturers or suppliers approved by Owner or listed for the relative materials with the DGS&D and/ or borne on the approved list of EIL.

47.3 If in respect of any material neither ISI marking / approval nor any approved list of suppliers is available, such materials shall be obtained from sources/ suppliers/ manufacturers approved by the Engineer-in-Charge.

47.4 Before procuring, the Contractor should get the approval of Engineer-in-Charge for samples of any material to be used for the works.

47.5 All materials procured should meet the specifications given in the tender document.

Contractor shall be fully responsible in respect of the suitability and quality of the material actually supplied or defects therein or in any works or construction in or relative to which the same has been utilized.

47.6 Manufacturer's certificates shall be submitted for all brought out materials supplied by the contractor.

47.7 Notwithstanding any other provisions in the Contract Documents for analysis or tests of materials and in addition thereto, the Contractor shall, if so required, for reasonable cause by the Engineer-in-Charge in writing, at his own risk and cost analyze, test, prove and weigh all materials (including materials incorporated in works) required to be so done by Engineer-in-charge, and shall have such analysis test conducted by agency (ies) as specified by the Engineer-in-Charge. Contractor shall provide all possible help and support required in this regard to the Engineer-in-Charge without any loss of time and without any cost implications upon the Owner.

47.8 The Owner does not warrant or undertake the provision of any material(s) and the Contractor shall not imply by conduct, expression or assurance or by any other means any promise or obligation on the part of the Owner in this respect understood by the Contractor, unless made by specific written instrument forming part of the Contract or appropriately entitled as an amendment to the Contract.

#### 48.0 CONTRACTOR'S SCOPE OF SUPPLY UNDERTAKEN BY OWNER

- i) It shall be the responsibility of the Contractor to arrange in time all materials required for the works other than those to be supplied by Owner.
- ii) If in the opinion of the Engineer-in-Charge the execution of the work is likely to be delayed due to the Contractor's inability to make arrangements for supply of materials which normally he has to arrange for, the Engineer-in-Charge shall have the right at his own discretion to issue such materials, if available with Owner, or procure the materials from the market or elsewhere, and the Contractor will be bound to take such materials at the rate decided by the Engineer-in-Charge.
- iii) This, however, does not in any way absolve the Contractor of responsibility of making arrangements for the supply of such materials in part, or in full should such a situation occur. Nor shall this constitute a reason for the delay in the execution of the work or call for any escalation of rates.
- iv) All materials so supplied to contractor shall not be removed on any account from the site of work, and shall be at all times open for inspection to the Engineer-in-Charge.
- v) Any such materials remaining unused at the time of the completion or termination of the Contract shall be treated in line with the relevant provisions of the Contract as if these materials have been procured by the Contractor.
- vi) Rate for supply of these items will be debited at cost price, which for the purpose of the Contract shall include the cost of carriage and all other expenses whatsoever such as storage and supervision charges which shall have been incurred in obtaining the same at Owner stores.
- vii) The sums due from the Contractor for the value of material supplied by Owner will be recovered from the running account bills on the basis of the actual consumption of materials in the work covered and for which the running account bill has been prepared.
- viii) After the completion of the works, however, the contractor has to account for the full quantity of materials supplied to him as per relevant clauses in this document.
- ix) Notwithstanding anything contained to the contrary in any or all the clauses of this contract, where any material for the execution of the contract is procured with the assistance of Owner, the contractor shall hold the said material as if a trustee for the Owner and use such materials economically and solely for the purpose of the contract.
- x) In the event of breach of the aforesaid condition, the contractor shall for the criminal breach of trust, be liable to compensate Owner at double the rate or any higher rate. In the event of those materials at that time having higher rate or not being available in the market, then any other rate to be determined by the Engineer-in-Charge shall be the penal rate of compensation and his decision shall be final and conclusive.

#### 49.0 CONDITIONS FOR ISSUE OF MATERIALS BY OWNER

- ii) Materials specified as to be issued by Owner will be supplied to the Contractor by Owner from its stores. It shall be the responsibility of the Contractor to take delivery of the materials and arrange for its loading, transport, unloading and carting at the site of work at his own cost. The materials shall be issued between the working hours and as per rules of Owner as framed from time to time.
- iii) The Contractor shall bear all incidental charges for the storage and safe custody of materials at site after these have been issued to him.
- iv) Materials specified as to be issued by Owner shall be issued in standard sizes as obtained from the manufacturers.
- v) The Contractor shall construct suitable godowns at the site of work for storing the materials safely against any damage by rain, dampness, fire, theft, etc.
- vi) It shall be the duty of the Contractor to inspect the materials supplied to him at the time of taking delivery and satisfy himself that they are in good condition. After the materials have been delivered by Owner, it shall be the responsibility of the Contractor to keep them in good condition. If the materials are damaged or lost, at any time, they shall be repaired and/ or replaced by him at his own cost according to the directions of the Engineer-in-Charge.
- vii) Owner shall not be liable for delay in supply or non-supply of any material which Owner has undertaken to supply where such failure or delay is due to natural calamities, act of enemies, transport and procurement difficulties and any circumstances beyond the control of Owner. In no case, the Contractor shall be entitled to claim any compensation or loss suffered by him on this account.
- viii) None of the materials supplied to the Contractor will be utilized by the Contractor for manufacturing items which can be obtained from standard manufacturer in the finished form itself.
- ix) The Contractor shall furnish to the Engineer-in-Charge, sufficiently in advance, a statement showing category-wise requirement of the quantities of such materials to be supplied by Owner to him and the date by which the same will be required by him for incorporating in the works, so as to enable the Engineer-in-Charge make necessary arrangements for procurement and supply of the materials.
- x) The Contractor shall, if desired by the Engineer-in-Charge, be required to execute an indemnity bond in the prescribed form, for safe custody and accounting of all materials issued by Owner.
- xi) A day-to-day account of the materials issued by Owner shall be maintained by the Contractor indicating the daily receipt, consumption and balance in hand. This account shall be maintained in a manner prescribed by the Engineer-in-Charge along with all connected papers viz. requisitions, issues, etc. and shall always be available for inspection in the Contractor's office at site.
- xii) The Contractor should see that only the required quantities of materials are got issued. The Contractor shall not be entitled to cartage and incidental charges for returning the surplus materials, if any, to the stores where from they were issued or to any other place as directed by the Engineer-in-Charge.

- xiii) All packing materials of stores issued by Owner shall be returned to Owner's store, or disposed off as directed by Engineer-in-Charge.
- xiv) The value of the materials as may be supplied to the Contractor by the Owner will be debited to the Contractor's account at the rates shown in the schedule of materials.
- xv) After the completion of the works, however, the Contractor has to account for the full quantity of materials supplied to him as per relevant clauses in this document.
- xvi) Cost price for the purpose of the contract shall include the cost of carriage and all other expenses whatsoever such as storage and supervision charges which shall have been incurred in obtaining the same at Owner's stores.
- xi) In the event issue cannot reasonably be accounted for from consumption, the Contractor shall for the criminal breach of trust, be liable to compensate Owner at double the rate or any higher rate. In the event of those materials at that time having higher rate or not being available in the market, then any other rate to be determined by the Engineer-in-Charge shall be the penal rate of compensation and his decision shall be final and conclusive.

#### 50.0 MATERIAL OBTAINED FROM DISMANTLING

If the Contractor in the course of execution of the work is called upon to dismantle any part of work for reason other than those stipulated in clauses 59.0 and 63.0 hereunder, the materials obtained in the work of dismantling etc. will be considered as the property of Owner and will be disposed off by the Contractor to the best advantage of Owner as the Engineer-in-Charge deems fit.

#### 51.0 ARTICLES OF VALUE FOUND

All gold, silver and other metals, minerals or stones of any kind or description and all precious stones, coins, treasure, relics, antiquities and other similar things whatsoever which shall be found in, under or upon the site shall be the exclusive property of Owner.

The contractor shall forthwith upon discovery thereof notify the Owner of such discovery with the detail(s) of the item(s) or things discovered and pending directions by the Owner only preserve the same as trustee of the Owner to the satisfaction of the Engineer-in-Charge and shall from time to time deliver the same to such person or persons indicated by the Engineer-in-Charge.

#### 52.0 DISCREPANCIES BETWEEN INSTRUCTIONS

Should any discrepancy occur between the various instructions furnished to the contractor or his authorized representative, or any doubt arise as to the meaning of any such instructions or should there be any misunderstanding between the Contractor's staff and the Engineer-in-Charge's staff, the Contractor shall refer the matter immediately in writing to the Engineer-in-Charge, whose decision thereon shall be final and conclusive.

No claim for losses alleged to have been caused by such discrepancies between instructions, doubts, or misunderstanding shall in any event be admissible.

#### 53.0 ALTERATIONS IN SPECIFICATIONS AND DESIGNS & EXTRA WORK

- 53.1 In addition to the provisions of cl. No. 44.0, the Engineer-in-Charge shall have power to make any alterations in, omission from, additions to or substitutions for the schedule of rates, the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of work.
- 53.2 Contractor shall be bound to carry out such altered/ extra/ new items of work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-Charge.
- 53.3 Such alterations shall not invalidate the Contract and any altered, additional or substituted work which Contractor may be directed to do in the manner above specified as part of the work shall be carried out by Contractor on the same terms and conditions in all respects on which he agreed to do the work.
- 53.4 The time for completion of work may be extended for the part of the particular job at the discretion of the Engineer-in-Charge for only such alterations, additions or substitutions of work as he may consider as just and reasonable.
- 53.5 The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions:

- i) If the rates for additional, altered or substituted class of work are specified in Contract for work, Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the Contract.
- ii) If the rates for the additional, altered or substituted work are not specifically provided in Contract for work, the relative rates will be derived from the rates for similar class of work as are specified in Contract for work.

The opinion of the Engineer-in-Charge as to whether or not the relative rates can be reasonably so derived from the items in this Contract will be final and binding on Contractor.

- iii) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in the Sub-Clause (i) & (ii) above, then Contractor shall, within seven (7) days of the date of receipt of order to carry out such work shall inform the Engineer-in-Charge of the rate which it is his intention to charge for such class of work, supported by analysis of the rate(s) claimed.

Engineer-in-Charge shall determine the rate(s) on the basis of prevailing market rate(s) of materials, labour cost at schedule of labour rates/ market rate/ minimum wages as per stipulation, plus 15% (fifteen percent) of the component not taken from any Schedule of Rates, to cover Contractor's supervision, overheads and profit and pay the Contractor accordingly.

The decision of the Engineer-in-Charge will be final and binding on Contractor as to the current market rates of materials and the quantum of labour involved per unit of measurement.

- iv) Provisions contained in Sub-clause (i) to (iii) above shall not however apply in case where the value of addition of new items together with the value of alterations, additions/ deletions or substitutions exceeds

by or is less than (+/-) 25% (Twenty five percent) of the accepted Value of Contract as given in the Letter of Acceptance of Tender.

The item rates in the Schedule of Rates shall hold good for all such variations between the above mentioned limits.

- a) In case the total value of the work, including additional, altered or substituted work exceeds 25% (twenty five percent) of the value stipulated in the Letter of Acceptance of Tender, the Contractor shall for the excess of work done over 25%, claim revision of the rates for only those items which have exceeded individually the limit of 25% supported by a proper rate analysis.

The Engineer-in-Charge may revise the rates for such excess quantity having regard to the market rates, and the contractor shall be paid in accordance with the rates so fixed.

The decision of the Engineer-in-Charge in this respect shall be final and binding on the Contractor.

Under no circumstances, Contractor shall suspend work on the plea of non-settlement of items falling under this clause.

- b) If as a consequence of such alteration the total contract value for the completed works on finalization and settlement of all dues to the contractor under the contract shall be less than 75% (Seventy five percent) of the Total Value of Contract as specified for the purpose of Security Deposit in the acceptance of tender, then the Contractor shall be entitled by way of allowance for the advantage (including profit) which the Contractor may have anticipated on the execution of the complete work, to 15% (fifteen percent) of the difference between the aggregate aforesaid and 75% (Seventy five percent) of the Total Contract Value specified in the Acceptance of Tender.

The contractor shall not be entitled to any other compensation or expenses or damages or loss of profit whatsoever in this regard.

- c) Lump sum contract shall also allow for any increase or decrease in the total quantity of work upto approximately twenty-five percent (25%) of the quoted price and the contract value shall be adjusted accordingly based on item wise or work wise schedule of rates suitable for evaluating the value of the work done & preparing Running Account Bills, provided by Contractor.
- d) The rates of any work determined in accordance with the provisions of cl. No. 53.5 shall for the purpose of the Contract with respect to the work or items of work or supply affected by such amendment, alteration or modification be deemed to be rate(s) for such work or item(s) of work within the Schedule of Rates, or the lump sum price, as the case may be.

#### 54.0 ACTION WHERE NO SPECIFICATION IS ISSUED

In case of any class of work for which there is no such specification supplied by Owner, as is mentioned in the tender documents, such work shall be carried out in accordance with Indian Standard Specifications. If the Indian Standard Specifications do not cover the same, the work should be carried out as per standard Engineering Practice, subject to the approval of the Engineer-in-Charge.

#### 55.0 ABNORMAL RATES

The Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item, considering all specifications and conditions of contract. This will avoid loss of profit or gain in case of curtailment or change of specification for any item.

In case it is noticed that the rates quoted by the tenderer for any item are unusually high or unusually low it will be sufficient cause for the rejection of the tender unless Owner is convinced about the reasonableness of the rates on scrutinizing the analysis for such rate to be furnished by the tenderer on demand.

## 56.0 INSPECTION OF WORKS

- 56.1 The Engineer-in-Charge will have full power and authority to inspect the works at any time wherever in progress either on the site or at the Contractor's premises/ workshops wherever situated, premises/ workshops of any person/ firm/ corporation where work in connection with the contract may be in hand or where materials are being/ to be supplied, and the contractor shall afford or procure for the Engineer-in-Charge every facility and assistance to carry out such inspection.

The Contractor shall, at all times at which reasonable notice of the intention of the Engineer-in-Charge or his representative to visit the works shall have been given to the Contractor, either himself be present to receive orders and instructions, or have a responsible agent duly accredited in writing present for the purpose.

Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself.

The Contractor shall give not less than 3 (three) days notice in writing to the Engineer-in-Charge before covering up or otherwise placing beyond reach of inspection and measurement of any work in order that the same may be inspected and measured. In the event of breach of above, the same shall be uncovered at contractor's expenses for carrying out such measurement or inspection.

- 56.2 No material or construction equipment shall be dispatched from the Contractor's stores before obtaining the approval in writing of the Engineer-in-Charge.

The Contractor is to provide at all times during the progress of the work and the maintenance period proper means of access with ladders/ gangways etc. and the necessary attendance to move and adopt as directed for inspection or measurement of the works by Engineers-in-Charge.

## 57.0 ASSISTANCE TO THE ENGINEERS

The contractor shall make available to the Engineer-in-Charge all necessary instruments and assistance in checking of setting out of works and in the checking of any works made by the Contractor for the purpose of setting out and taking measurements of work.

He shall also provide all instruments and labour free of cost for testing and inspection of all works either under progress or on completion.

## 58.0 TESTS FOR QUALITY OF WORK

- 58.1 Within 2 (two) weeks of the receipt of the Letter of Acceptance from the Owner, the Contractor shall submit to the Engineer-in-Charge, a detailed Quality Assurance Plan (QAP) envisaged by him for ensuring due and proper adherence to quality as

required by the Specifications for the work. The QAP shall give in detail the organization and methodology, checks and controls, as well as the correction mechanisms built into the QAP system as envisaged by the Contractor at the site and elsewhere, for ensuring quality inputs into the work and for ensuring quality output on the job.

58.2 The Engineer-in-Charge shall be entitled at all times to make or cause to be made such addition(s), modification(s) or alteration(s) in the QAP as he considers necessary to improve the QAP. The decision of Engineer-in-Charge shall be final and binding in this regard, and the Contractor shall follow the altered QAP at all times thereafter.

58.3 All workmanship shall be of the respective kinds described in the contract documents and in accordance with the instructions of the Engineer-in-Charge. These shall be subjected from time to time to such tests at contractor's cost as the Engineer-in-Charge may direct, at the place of manufacture or other places. The contractor shall provide within their quoted rates such assistance required for examining, measuring and testing any workmanship as may be selected and required by the Engineer-in-Charge.

58.4 All the tests that will be necessary in connection with the execution of the work, as decided by the Engineer-in-Charge, shall be carried out at the field testing laboratory of the contractor, to be established at site.

All the equipments and instruments of the laboratory shall be of approved quality and shall be duly calibrated at pre-decided frequencies, to be approved by the Engineer-in-Charge.

In case of non-availability of testing facility with the Contractor, the required test shall be carried out at the cost of Contractor at Government or any other approved testing laboratory, as directed by Engineer-in-Charge.

#### 59.0 SAMPLES

The contractor shall furnish to the Engineer-in-Charge for approval, when requested or if required by the specifications, adequate samples of all materials and finishes to be used in the work.

Such samples shall be submitted before the work is commenced providing ample time to perform tests and examinations thereof.

All materials furnished and finishes applied in actual work shall be fully equal to the approved samples.

#### 60.0 ACTION AND COMPENSATION IN CASE OF BAD WORK

If any work has been executed with

- a. unsound, imperfect or unskilled workmanship, or
- b. with materials of any inferior description, or
- c. any materials or articles provided by the contractor for the execution of the work are unsound/ of a quality inferior to that contracted for, or
- d. otherwise not in accordance with the contract,

the contractor shall on the written demand from the Engineer-in-Charge/ his authorized representative specifying the work/ materials/ articles complained of, forthwith rectify or remove and reconstruct the work so specified and provide other proper and suitable materials or articles at his own risk and cost.

The above is notwithstanding that the same may have been inadvertently passed, certified and paid for.

In the event of failure to do so within a period as specified by the Engineer-in-Charge in his demand aforesaid, the Contractor shall be liable to pay compensation at the rate of ½% (half per cent) per week of the estimated cost of the portions of the work in question.

While his failure to do so shall continue the Engineer-in-Charge may on expiry of notice period rectify or remove, and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be, at the risk and expense in all respect of the contractor.

The decision of the Engineer-in-Charge as to any question arising under this clause shall be final, conclusive and binding.

#### 61.0 SUSPENSION OF WORKS

- i) Subject to the provisions of sub-para (v) of this clause, the contractor shall, if ordered in writing by the Engineer-in-Charge/ his representative, temporarily suspend the works or any part thereof for such period and such time as so ordered and shall not after receiving such written orders, proceed with the work therein ordered to be suspended until he shall have received a written order to proceed therewith.
- ii) During the period of any suspension the Contractor shall at his own cost within the scope of the relative work properly protect and secure the work and materials so far as is necessary in the opinion of the Engineer-in-Charge.
- iii) The contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of this temporary suspension of the works aforesaid.
- iv) An extension of time for completion, corresponding with the delay caused by any such suspension of the works as aforesaid will be granted to the contractor, should he apply for the same provided that the suspension was not consequent to any default or failure on the part of the contractor.
- v) In case of suspension of entire work, ordered in writing by the Engineer-in-Charge, for a period of more than 2 (two) months, the contractor shall have the option to terminate the contract.

#### 62.0 OWNER MAY DO PART OF WORK

Upon failure of the contractor to comply with any instructions given in accordance with the provisions of this contract, Owner shall have the right to place additional labour force, tools, equipments and materials on such parts of the work, as the Engineer-in-Charge designate, instead of assuming charge of entire work.

Owner may also engage another contractor to carry out the work.

In all such cases, Owner shall deduct from the amount which otherwise might be due to the Contractor, the cost of such work and materials with 10% (ten percent) added. Should the amount thereof exceed the amount due to the Contractor, the Contractor shall pay the difference to Owner.

#### 63.0 POSSESSION PRIOR TO COMPLETION

The Engineer-in-Charge shall have the right to take possession of or use any completed or partially completed work or part of the work.

Such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contract agreement.

If such prior possession or use by the Engineer-in-Charge delays the progress of work, equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly.

#### 64.0 DEFECT LIABILITY PERIOD

64.1 The Defect Liability Period for the works (including the materials incorporated therein within the Contractor's scope of supply) shall unless otherwise specified be 12 (twelve) months from the date of issue of Completion Certificate.

64.2 The Contractor shall at his own cost and initiative maintain the work within the Defect Liability Period.

If any damage shall happen to the work while in progress or after completion from any cause whatsoever or any imperfection or defects become apparent either in the materials supplied by the contractor or in the workmanship within the Defect Liability Period, the contractor shall make the same good at his own expense.

In default, the Engineer-in-Charge may cause the same to be made good by other workmen at the risk and cost of the Contractor in all respects, and recover the costs incurred by the Owner in this behalf together with a supervision cost of 15% (fifteen percent) thereon admissible to the Owner (of which certificates of the Engineer-in-Charge shall be final and binding) from any sums that may be then or at any time thereafter become due to the contractor or from his security deposit.

64.3 If the Contractor feels that any variation in work in quality of materials or proportions would be beneficial or necessary to fulfill the guarantees called for, he shall bring this to the notice of the Engineer-in-Charge in writing. The decision of the Engineer-in-Charge in this regard shall be final and binding.

64.4 The work will not be considered as complete and taken over by Owner until all the temporary works, site offices etc. as constructed by contractor under the provisions of cl. No.1.2 is removed and work site cleaned/ cleared/ leveled to the satisfaction of the Engineer-in-Charge.

64.5 Defect Prior To Taking Over:

If at any time before the work is taken over, the Engineer-in-Charge shall:

- a) Decide that any work done or materials used by the contractor or any sub-contractor is/ are defective or not in accordance with the contract or that the works or any portion thereof are defective or do not fulfill the requirements of

contract (all such matters being hereinafter called 'Defects' in this clause), and

- b) As soon as reasonably practicable, gives to the Contractor notice in writing of the said decision specifying particulars of the defects alleged to exist or to have occurred,

then the Contractor shall at his own expenses and with all necessary speed make good the defects so specified.

In case the contractor shall fail to do so, Owner may take, at the cost of the Contractor, such steps as may in all circumstances be reasonable to make good such defects.

The expenditure so incurred by Owner will be recovered from the amount due to the contractor. The expenditure incurred shall be calculated based on the costs incurred by the Owner in this behalf together with a supervision cost of 15% (fifteen percent) thereon admissible to the Owner (of which certificates of the Engineer-in-Charge shall be final and binding).

#### 64.6 Defects after taking over:

In order that the Contractor could obtain a Completion Certificate, he shall make good with all possible speed any defect attributable to the contractor that may have been noticed or developed after the works or group of the work has been taken over. The period allowed for carrying out such work will be normally 1 (one) month.

If any defect be not remedied within a reasonable time, Owner may proceed to do the work at Contractor's risk and expense and deduct from the final bill, such amount as may be decided by the Engineer-in-Charge.

## **CERTIFICATES AND PAYMENTS** **(CHAPTER – V)**

### 65.0 CONTRACTOR'S REMUNERATION

65.1 The price to be paid by Owner to the Contractor (for the whole of the work to be done and for the performance of all the obligations undertaken by the Contractor under the Contract Documents) shall be ascertained by the application of the respective Schedule of Rates (the inclusive nature of which is more particularly defined by way of amplification but not of limitation, with the succeeding sub-clauses of this clause) and payment to be made according to the work actually executed and approved by the Engineer-in-Charge.

The extent expressly provided herein constitutes the sole and inclusive remuneration of the contractor under the contract and no further or other payment whatsoever shall be or become due or payable to the contractor under the contract.

### 65.2 Schedule of Rates to be inclusive

All costs, expenses, outgoings and liabilities of every nature and description whatsoever and all risks whatsoever (foreseen or unforeseen) to be taken or which may occur in or relative to the execution, completion, testing and/ or handing over the work to the Owner and/ or in or relative to acquisition, loading, unloading, transportation, storing, working upon, using, converting, fabricating, erecting any item, equipment, material or component in or relative to the works and the Contractor shall be deemed to have known the nature, scope, magnitude and the extent of the works and item, materials, utilities, consumables, equipment, and components and work, labour and services required for the proper and complete execution of the works, though the Contract Documents may not fully and precisely set out, describe or specify them.

The generality hereof shall not be deemed to be anywise limited, restricted or abridged because in certain cases they shall/ may not expressly state that the Contractor shall do or perform any particular work, labour or service or because in certain cases, the Contract Documents state a particular work, operations, supply, labour, or service shall be performed/ made by the Contractor at his own cost or without additional payment, compensation or charge or without entitlement of claim against the Owner or words to similar effect, and in other cases, they do not do so or because in cases it is stated that the same are included in or covered by the Schedule of Rates and in other cases, it is not so stated.

The Schedule of Rates is deemed to include supervision charges, establishment overheads, finance charges and other costs and expenses of and charges to the Contractor, and Contractor's profit of and relative to the work to be taken in executing, completing and handing over the work to Owner by the Contractor.

The opinion of the Engineer-in-Charge as to the items/ components of work which are necessary and reasonable for completion of work shall be final and binding on the contractor, although the same may not be shown on or described specifically in Contract Documents.

### 65.3 Schedule of Rates to cover constructional plant, materials, labour etc.

Without in any way limiting the provisions of the preceding sub-clause the Schedule of Rates shall be deemed to include and cover the cost of all constructional plant,

equipment, supply of water and power, construction of temporary roads and access, temporary works and facilities(except as provided for herein), pumps, wiring, pipes, scaffolding, shuttering and other materials, supervision, labour, insurances, fuel, stores, spares, supplies, appliances and other materials, items, articles, and things whatsoever (foreseen or unforeseen) to be supplied, provided or arranged by the contractor in or relative to or in connection with the performance and/ or execution of each item specified in the Schedule of Rates and any related or incidental works or operations by expression or implication involved therein or incidental thereto, and all other matters in connection with each item in every respect maintained and as shown or described in the Contract Documents or as may be ordered in writing during the continuance of the contract.

#### 65.4 Schedule of Rates to cover royalties, rent and claims

The Schedule of Rates shall be deemed to include and cover the cost of royalties, license fees, charges, duties, penalties, levies and damages whatsoever payable for in respect of any protected or patented goods, materials, equipment or processes employed in or relative to the works and all rents, royalties, license fees, any other fee, duty, penalty, levy, loss or damage payable on the excavation, removal or transportation of any material or acquisition or use of any right of way or other rights, licenses, permits, privileges or usages required for or relative to the performance of the works.

The Schedule of Rates shall include an indemnity of Owner which the contractor hereby gives against all actions, proceedings, claims, damages, costs and expenses arising from the incorporation or the use of the works of any such articles, processes or materials as mentioned above.

The cost of all indemnities to the Owner and insurance premia on insurance required in terms of the Contract Documents under any law, rule or regulation or otherwise taken by the Contractor shall be deemed to be included in the Schedule of Rates.

#### 65.5 Schedule of Rates to cover taxes and duties

Custom duties, excise duties and other duties, sales tax on sale or purchase or turnover or on works contract or otherwise and other direct and indirect taxes, quay and port charges or dues and all other duties, taxes, fees, charges, levies, octroi and/ or cesses whatsoever imposed by the Central Government or State Government or Municipal or Local bodies and any other Authorities whatsoever payable on any material and/ or works imported, exported, transported, supplied or performed (including materials incorporated in the works or brought to site for the performance of the work) without any entitlement to the contractor for any exemption, remission, refund, or reduction thereof, all of which expenses shall be deemed to be included in and covered by the Schedule of Rates.

The contractor shall also obtain and pay for all permits, or other privileges necessary to complete work.

#### 65.6 Schedule of Rates to cover risks of delay

The Schedule of Rates shall be deemed to include and cover the cost of all risks whatsoever (foreseen or unforeseen) including but not limited to risks of delay or extension of time or reduction or increase in the work or scope of work and/ or cancellation of Contract and/ or accidents, strike, civil commotion, war, labour trouble, third party breach, fire, lightning, inclement weather, storm, tempest, flood, earthquake and other acts of God, Government regulation or imposition or restriction,

dislocation of road, rail, and other transport, access or facilities, flooding of site and/or access roads or approaches thereto, suspension of work, sabotage and other cause whatsoever and interference with the contractor's conduct of the works which occur from any cause including orders of Owner in the exercise of his powers and on account of extension of time granted due to various reasons and for all other possible or probable causes of delay.

#### 65.7 Schedule of Rates cannot be altered

For work under unit rate basis, the schedule of rates are fully inclusive rates which have been fixed by the contractor and agreed to by Owner and cannot be subject to escalation or increase or alteration on any account whatsoever.

For lump sum contracts the payment will be made according to the work actually carried out, for which purpose an item-wise or work-wise schedule of rates shall be furnished, suitable for evaluating the value of work done and preparing running account bills.

#### 66.0 PROCEDURE FOR MEASUREMENT & BILLING OF WORK IN PROGRESS

##### 66.1 (i) Measurements

All measurements shall be in metric system, and except where expressly indicated to the contrary in the Schedule of Rates or other Contract Documents, all measurements shall be taken in accordance with the procedures set forth in the Schedule of Rates, specifications and other contract documents, notwithstanding any provision(s) in the relative standard method of measurement or any other general or local custom to the contrary.

All the works in progress will be jointly measured by the authorized agents of the Engineer-in-Charge and Contractor progressively.

Such measurements will be got recorded in the measurement book by the Engineer-in-Charge or his authorized representative and signed in token of acceptance by the contractor or his authorized representative.

For the purpose of taking joint measurement the contractor's representative shall be bound to be present whenever required by the Engineer-in-Charge.

If Contractor is absent on any date appointed for joint measurements for any reason whatsoever, the measurements will be taken by the Engineer-in-Charge or his representative and this will be deemed to be correct and binding on the contractor.

Measurements shall be signed and dated on each page by the representatives of Contractor and Engineer-in-Charge. If the Contractor objects to any of the measurements recorded, including 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 representative of the contractor and Engineer-in-charge. In absence of any noted objection as aforesaid, the Contractor shall be deemed to have accepted the relative measurements as entered in the Measurement book/ sheets and shall be barred from raising any objection in respect of any measurement recorded in the measurement book.

All measurements relative to which any objections have been noted in the measurement book shall be submitted to the Engineer-in-charge for his decision, and the decision of the Engineer-in-charge relative thereto (whether on the correct

measurement to be adopted or on the mode of measurement to be adopted) shall be final and binding upon the Contractor.

Works that are likely to be covered up by subsequent operations should be got measured before such covering up, failing which such covered works may be liable for not being measured.

ii) Billing

Monthly or otherwise as the Engineer-in-Charge may specify in this behalf, the Contractor shall make a quantitative assessment of the work performed by him at each job site during the preceding month/ other specified period and submit a Running Account Bill(s) within one week of the end of such period, in approved proforma and in quintuplicate, to the Engineer-in-Charge with detailed measurements thereof, the said running account Bill(s), to be drawn by applying unit quantities measured to the applicable item(s) in the Schedule of Rates. The Engineer-in-Charge thereafter shall have summary verification undertaken of the work and quantities entered in the Running Account Bill(s) and shall certify the Running Account Bill(s) for payment on basis of such verification.

iii) Dispute in Mode of Measurement

In case of any dispute as to the mode of measurement to be adopted for any item of work not covered by the contract document, mode of measurement as per Indian Standard Specification No. 1200 (latest edition) and such other Indian Standard Specification as may be applicable shall be followed.

In case of such item not being covered by the said Indian Standard Specifications also, shall be measured in accordance with the method of measurement in this behalf determined by the Engineer-in-Charge, whose decision shall be final and binding upon the contractor.

## 67.0 LUMP-SUMS IN TENDER

Where the contract stipulates a lump sum as payable for the work or 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, in the opinion of the Engineer-in-Charge, capable of measurement or determination at any stage, the Engineer-in-Charge may at his discretion, pay the lump sum amount entered in the tender or a percentage thereof and the certificate in writing of the Engineer-in-Charge shall be final to any sum or sums payable to him under the provisions of this clause.

## 68.0 PAYMENTS OF RUNNING ACCOUNT TO BE REGARDED AS ADVANCES

All running account payments shall be regarded merely as payment by way of advance against the amount which will become due to the Contractor in terms of the Contract as final payment only, and specifically shall not be regarded as an acceptance or completion of any work(s) paid for in terms of any Running Account Bill or otherwise, notwithstanding any verification or certification by the Engineer-in-Charge.

Consequently, payments through RA Bills shall not preclude the following:

- a. requirement of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-executed or

- b. be considered as an admission of the due performance of the contract, or any part thereof, in this respect, or
- c. of the accruing of any claim by the contractor.

Nor shall it conclude, determine or affect in any way the following:

- a. the powers of the Owner under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise, or
- b. in any other way varies or affects the contract.

Nothing provided in the foregoing clauses hereof shall anyway be deemed to confer any rights or entitlement on the Contractor or receive on account payments or advance payments of any kind whatsoever, nor shall any failure or delay by the Owner to make any advance or on account payment(s) as herein envisaged or otherwise afford the Contractor a ground or basis for extension of time for completion or otherwise relieve the Contractor from any of its/ his liabilities under the Contract, it being clearly understood that these on account payments or advance payments are only by way of assistance to the Contractor.

Unless or until an extension of time has been granted by the Owner/ Engineer-in-Charge under clause 20.0 hereof, on account payments made under Running Account Bills raised by the Contractor for the works executed after expiry of the date of final completion of the works under the approved progress schedule, shall be subject to provisional with-holding of an amount towards adjustment by way of discount in the price calculated as per provisions of cl. No. 21.0 hereof. The amount so with-held shall be adjusted towards price adjustment (if any) finally determined after completion of works.

As an alternative, the Contractor shall have option to provide a Bank Guarantee from a schedule bank and in a format acceptable to the Owner for a sum equal to 10% (ten percent) of the total contract value which shall be available for recovery of the price discount (if any) finally determined after completion of works. This bank guarantee shall be in addition to any other bank guarantee to be provided by the contractor as per provisions of the contract, and shall generally be valid for a period of not less than 12 (twelve) months from the date of final completion of the works.

## 69.0 FINAL BILL

- 69.1 Within 15 (fifteen) days from the date of final execution of any portion/ section/ part of the provisions of the contract as the case may be, the Contractor shall cause to be jointly taken with the representative of the Engineer-in-charge, final measurements herein provided for the works covered by the said final execution of the portion of work.

In the event of failure on the part of the Contractor on the above, Engineer-in-Charge may, of his own initiative, notify the contractor in writing of the date(s) for final measurements. The Contractor shall be bound to present himself for the measurements on date(s) so notified, failing which provisions of relevant portions of cl. No. 66.1 shall apply.

- 69.2 On the basis of the Final Measurements entered in the Measurement Books/ sheets (the measurements decided by the Engineer-in-Charge upon any objection and/ or mode of measurement decided by the Engineer-in-Charge upon any objection being the measurement to be adopted in such an event), the Contractor shall prepare and

submit to the Engineer-in-Charge a Final Bill in the prescribed form with reference to the total work covered by the Contract.

Such bill is to be drawn up by applying the applicable rate(s) specified in the schedule of rates to the relative measured quantity (ies). Final bill shall also include the reconciliation or accounting of all materials supplied by or on behalf of the Owner, as free issue material or otherwise.

- 69.3 The final bill shall, in addition to the payment entitlements arrived at according to the above, include a separate statement annexed thereto the notified claims of the Contractor as provided in cl. No. 70.0.
- 69.4 The Final Bill drawn in accordance with the provisions hereof shall be submitted to the Engineer-in-Charge for certification in quintuplicate accompanied by the Completion Certificate relating to the works and other related certificates.
- 69.5 The final bill shall be submitted by the contractor within one month of the date fixed for completion of the work. Otherwise, the Engineer-in-Charge's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on all parties.
- 69.6 The Engineer-in-Charge shall within 30 (thirty) days of the receipt of the Final Bill drawn in accordance with the provisions hereof proceed to check, correct or certify the Final Bill and shall forward the corrected and certified Final Bill to the Owner for scrutiny and payment together with the Completion Certificate, and shall send to the Contractor for information one copy of the Final Bill as corrected and certified.
- 69.7 Payment of the amount(s) due to the Certified Final Bill to the extent admitted by the Owner shall be made within 90 (ninety) days from the date of its certification by the Engineer-in-Charge.
- 69.8 All monies payable to the Contractor under the Contract shall be due to him only after submission to the Owner of the Certified Final Bill accompanied by the Completion Certificate and other related certificates in respect of the works.
- 69.9 The payment to the Contractor on the Final Bill shall be subject to deduction of retention money(ies), balance Security Deposits and other claims, if any, as well as income tax as provided under section 194-C of the Income Tax Act and such other taxes and deductions as provided for under the law, rule or regulation having the force of law for the time being applicable (including any hold ups directed or necessitated by the Court Orders of any Tribunal or other statutory authority and/ or of the Vigilance Commission).
- 69.10 The Owner may authorize the Engineer-In-Charge and/ or any other person(s) to commence a dialogue with the Contractor for arriving at a settlement of the notified claims of the Contractor annexed to the Final Bill as provided above.
- 69.11 If a settlement is negotiated with the Contractor in respect of such claims and such settlement is approved by the Owner, the Contractor shall submit a supplementary Final Bill to the Owner drawn in terms of the said settlement, and the Supplementary Bill shall be processed in the same manner sequence as mentioned above for the Final Bill.
- 69.12 Without prejudice to and in addition to any other right or inspection, test or examination by the Owner, before or after the passing and payment of the Final Bill, but before the expiry of the Defect Liability Period, external agencies such as Chief

Technical Examiner (CTE) or Central Vigilance Commission (CVC) shall have the right to technically audit the works.

Any defect in works pointed out by this technical audit group/ agency shall be final and binding on the Contractor, notwithstanding that the Final Bill had been passed and/ or paid to the Contractor and notwithstanding that the findings and report of this agency is released after the expiry of the Defect Liability Period.

The contractor will be bound to remove the defects pointed out by the technical audit group/ agency and to repair/ replace the defective works to the satisfaction of the Owner, and the Owner shall be entitled to retain in whole or part the Contractor's dues (if Final Bill has not been paid) or the Security Deposit (if any) remaining in the hands of the Owner, or to en-cash in whole or part the Bank Guarantee(s) (if any) remaining in the hands of the Owner to ensure the fulfillment of the Contractor's obligations in this regard.

#### 70.0 NOTICE OF CLAIMS FOR ADDITIONAL PAYMENT

70.1 Should the contractor consider that he is entitled to any extra-payment or compensation or to make any claims whatsoever in respect of the works over and above the amounts due in terms of the Contract, and should the Contractor dispute the validity of any deductions made or threatened by Owner from any Running Account Bill in respect of the works, he shall forthwith give notice in writing in this behalf to the Engineer-in-Charge.

70.2 Such notice shall be given to the Engineer-in-Charge within 10 (ten) days, from the ordering of any work or happening of any event upon which the contractor bases such claims.

Notice shall contain full particulars of the nature of such claims with full details and amount claimed.

Failure on the part of the contractor to put forward any claim with the necessary particulars as above and within the time specified as above shall be an absolute waiver thereof and the Owner shall not anyway be liable in respect of any claim by the Contractor.

70.3 No omission by the Engineer-in-Charge to reject any such claim and no delay in dealing therewith shall be a waiver by the Engineer-in Charge of any rights in respect thereof, with an intent that all such claims otherwise valid within the provisions of this contract shall be dealt with/ considered by the Owner at the time of submission of Final Bill.

#### 71.0 PAYMENT OF CONTRACTOR'S BILL

No payment shall be made for works estimated to cost less than ₹ 2,00,000/- till after the whole of the work shall have been completed and a certificate of completion given.

In the case of works estimated to cost more than ₹ 2,00,000/- the contractor, on submitting the bill therefore be entitled to receive payment after necessary deduction towards security deposit proportionate to the part thereof, approved and passed by the Engineer-in-Charge, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor.

This payment will be made after making necessary deductions as stipulated elsewhere in the Contract Document for materials, security deposit etc.

Payment due to the contractor shall be made by Owner in official Indian currency by Electronic fund transfer or Crossed 'Account Payee' cheque, forwarding the same to registered office or the notified office of the contractor or delivered to his authorized representative.

In no case will Owner be responsible if the cheque is mislaid or mis-appropriated by un-authorized persons or otherwise lost or stolen.

In all cases, the contractor shall present his bill duly pre-receipted on proper revenue stamp.

## 72.0 RECEIPTS FOR PAYMENT

Receipts for payment made on account of work when executed by the Contractor, must be signed by a person holding due Power of Attorney in this respect on behalf of the Contractor.

When the Contractor is described in his tender as a limited Company the receipts must be signed in the name of the Company by one of its Principal Officers or by some other persons having authority to give effectual receipt for the company.

## 73.0 COMPLETION CERTIFICATE

73.1 As soon as the works have been complete in accordance with the contract (except in minor respects that do not affect their use for the purpose for which they are intended and except for maintenance thereof provided in clause 64.0), the Engineer-in-Charge shall issue a certificate (hereinafter called Completion Certificate) in which he shall certify the date on which the works have been so completed.

73.2 Application for Completion Certificate:

When the Contractor fulfills his obligation under clause 64.0 he shall be eligible to apply for Completion Certificate.

The contractor may apply for separate Completion Certificate in respect of each such portion of the work by submitting the completion documents along with such application for Completion Certificate.

The Engineer-in-Charge shall normally issue to the Contractor the completion certificate within 1 (one) month after receiving an application from the Contractor, after verifying from the completion documents and satisfying himself that the work has been completed in accordance with and as set out in the construction and erection drawings, and the Contract Documents.

The contractor, after obtaining the completion certificate, is eligible to present the final bill for the work executed by him under the terms of contract.

73.2 Completion Certificate:

a. Within 1 (one) month of the completion of the work in all respects, the contractor shall be furnished with a certificate by the Engineer-in-Charge of such completion.

- b. Upon completion, the Contractor shall clear the job site/ allotted land of all scaffolding, wiring, pipes, surplus materials, Contractor's labour, material, equipment and machinery and shall demolish, dismantle and remove all 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 job site/ any land allotted and shall remove all rubbish from the job site/ land and shall clear, level and dress the job site/ land to the satisfaction of the Engineer-in-Charge and shall put the Owner in undisputed custody and possession of the job site/ land. No certificate shall be given nor shall the work be deemed to have been completed until the above is complied with nor until the work shall have been measured by the Engineer-in-Charge, whose measurement shall be binding and conclusive.
- c. If the contractor shall fail to comply with the requirements of this clause on or before the date fixed for the completion of the work, the Engineer-in-Charge may at the expenses of the Contractor undertake the same including disposing off the useful materials as deemed fit to the advantage of the Owner, and the contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum remaining after deducting from the amount actually realized by the sale thereof, the full expenses incurred by Engineer-in-charge in removal and disposal of such scaffolding, surplus materials, debris, etc.
- d. Owner shall be deemed to have taken over the works on the date of completion of the contract as described in the Completion Certificate issued by the Owner.
- e. If the works have been divided into various groups in the Contract, Owner shall be entitled to take over any group or groups before the other or others and thereupon the Engineer-in-Charge shall issue a completion certificate, in respect thereof. Such completion certificate will, however, be for such group or groups so taken over only.
- f. If by reason of any default on the part of the contractor a completion certificate has not been issued in respect of every portion of the works within 1 (one) month after the date fixed by the contractor for the completion of the works, Owner shall be at liberty to use the works for which certificate has not been issued, provided that the works or the portion thereof so used as aforesaid shall be reasonably capable for being used and that the contractor shall be afforded reasonable opportunity for completing these works for the issue of completion certificate.

### 73.3 Completion Certificate Documents:

For the purpose of clause 73.0 the following documents will be deemed to form the completion documents:

- a. The Technical Documents according to which the work was carried out.
- b. Three sets of Construction Drawings showing therein the modification and corrections made during the course of execution signed by the Engineer-in-Charge (As-built drawings).
- c. Completion Certificate for 'embedded' and 'covered' up works.
- d. Certificates of tests performed for various works.
- e. Certificates of final levels as set out for various works.

- f. Materials appropriation Statement for the materials issued by Owner's Stores for the works and list of surplus materials returned to Owner's Stores duly supported by necessary documents.

#### 74.0 FINAL DECISION AND FINAL CERTIFICATE

- 74.1 After the expiry of the Defect Liability Period as provided for and after all the liabilities of the Contractor in respect of the Contract have been satisfied, the Owner or Engineer-in-Charge shall on application of the Contractor, issue a Final Certificate to the Contractor, certifying that the Contractor has performed all his obligations in respect of the Defect Liability Period.
- 74.2 Upon application for the Final Certificate the Contractor shall be deemed to have warranted that he has fully paid and satisfied all claims for work, labour, materials, supplies, equipment and all other liabilities whatsoever touching or affecting the Contract, and to have undertaken to indemnify and keep indemnified the Owner from and against all claims, demands, debts, liens, obligations and liabilities whatsoever arising there-from or relating thereto and upon issue of the Final Certificate , the Contractor shall be deemed to have released, acquitted and discharged the Owner from and against all claims (known or unknown), liens, demands or causes of action of any kind whatsoever arising out of or relating to the Contract or otherwise howsoever touching or affecting the same and to have undertaken to indemnify and keep indemnified the Owner from and against the same.
- 74.3 Within 15 (fifteen) days of application made by the Contractor in this behalf accompanied by the Final Certificate, or within 15 (fifteen) days of the passing of the Contractor's Final Bill by the Owner, whichever shall be later, the Owner shall pay/ refund to the Contractor the unadjusted balance (if any) of the Security Deposit for the time being remaining in the hands of the Owner, and upon such payment/ refund, the Owner shall stand discharged of all obligations and liabilities to the Contractor under the Contract.
- 74.4 The contractor shall not be considered to have fulfilled the whole of his obligations under the contract until Final Certificate shall have been given by the Engineer-in-Charge notwithstanding any previous entry upon the works and taking possession, working or using of the same or any part thereof by Owner.

#### 75.0 CERTIFICATES AND PAYMENTS NO EVIDENCE OF COMPLETION

- 75.1 No certificate other than the final certificate or payments against a certificate or on general account shall be taken to be an admission by Owner of the due performance of the contract, any part thereof or of validity of any claim by the contractor.
- 75.2 Owner reserves the right to carry out a post payment audit and/ or technical examination of the works and the final bills including all supporting vouchers, abstracts etc. and to enforce recovery if as a result of such examination any over-payment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the Contract and such recovery will be made by Owner from the Contractor by any or all of the methods presented above.

- 75.3 Owner reserves the right to make such recovery and adjustment, notwithstanding the fact that the amount of the Final Bill may be included by one of the parties as an item of dispute before and Arbitrator, appointed under the Arbitration clause of the contract, and notwithstanding the fact that the amount of the Final Bill figures in the Arbitration award.
- 75.4 And further, unless the Contractor pays and clears the claim of Owner immediately on demand, Owner shall, at all times be entitled to deduct the said debt or sum from the sums due to the Contractor or becoming payable to the Contractor under these presents or under any other Contract of transactions whatsoever between the Contactor and the Company.

## TAXES AND INSURANCE

### (CHAPTER – VI)

#### 76.0 TAXES, DUTIES, OCTROI, ETC.

The contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes, duties, octrois, royalties etc. now or hereafter imposed, increased, or modified, and all sales tax duties, octrois, royalties etc. now in force and thereafter increased, imposed or modified from time to time in respect of works and materials and all contribution and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by any Central or State Governmental authority or other local authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to by the persons employed by the Contractor or by his sub-contractor and the Contractor shall be responsible for the compliance with all obligations and restrictions imposed by the Labour Law or any.

The contractor further agrees to comply, and to secure the compliance of all his sub-contractors, with all applicable Central, States, Municipal and local laws and regulations and requirements of any Central, State or Local Governmental or other agency or authority.

Contractor further agrees to defend, indemnify and hold harmless from any liability or penalty which may be imposed by the Central, State or local authorities by reason of any violation by the contractor or his sub-contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against Owner arising under/ growing out of, or by reason of the work provided for by this contract, whether brought by employees of the sub-contractor/ by third parties, or by Central or State Government authority of any administrative sub-division thereof, or other local authorities.

#### 77.0 INDEMNITY AND INSURANCE

The Contractor shall at all times indemnify and keep indemnified the Owner and its officers, servants and agencies from and against all third party claims whatsoever (including but not limited to property loss and damage, personal accident, injury or death of or to property or person and any sub-contractor and/ or the servants or agents of the Contractor or any other contractor(s) and any sub-contractor and/ or of the Owner), and the Contractor shall at his own cost and initiative at all times up to the successful conclusion of the defect liability period take out and maintain insurance policies in respect of all insurable liabilities under this clause, including but not limited to third party insurance and liabilities under the Motor Vehicles Act, 1988; Workmen's compensation Act, 1923; Fatal Accidents Act, 1855; Personal Injuries (Compensation) Insurance Act, 1963; Emergency Risk Insurance Act, and/ or other Industrial Legislation from time to time in force in India with Insurance companies approved by Owner, and such policy (ies) shall be not lesser limit than the limits hereunder specified with reference to the matters hereunder specified, namely:

i) Workman's Compensation & Employer's Liability Insurance

Insurance shall be effected for all the Contractor's employees engaged in the performance of this contract. If any of the work is sublet, the Contractor shall

require the sub-contractor to provide Workman's Compensation and employer's responsibility insurance for the latter's employees, if such employees are not covered under the Contractor's Insurance.

- ii) Any other Insurance required under Law or Regulations or by Owner.

Contractor shall also carry and maintain any and all other insurance, which he may be required under any law or regulations from time to time. He shall also carry and maintain any other insurance, which may be required by Owner.

- iii) Automobile Liability Insurance

Contractor shall take out an Automobile liability Insurance to cover all risks to Owner for each of his vehicles plying on works of this contract and these insurances shall be valid for the total contract period. No extra payment will be made for this insurance. Owner shall not be liable for any damage or loss not made good by the insurance company, should such damage or loss result from unauthorized use of the vehicle.

- (iv) Employees State Insurance Act.

The contractor agrees to and does hereby accept full and exclusive liability for the compliance with obligations imposed by the Employees State Insurance Act, 1948, as amended from time to time.

The Contractor further agrees to defend, indemnify and hold Owner harmless from any liability or penalty which may be imposed by Central, State or local authority by reason of any asserted violation by contractor or sub-contractor of the Employees' State Insurance Act. 1948 and its amendments.

The contractor also agrees to defend, indemnify and hold Owner and its officers, servants and agents harmless from all claims, suits or proceedings that may be brought on by reason of the work provided for by this contract whether brought by employees of the contractor, the sub-contractor or his employees, by third parties or by Central or State Govt. authority or any administrative sub-division thereof, or other local authorities.

The contractor agrees to fill in with Employees' State Insurance Corporation, the Declaration Forms and all forms which may be required in respect of the Contractor's or sub-contractor's employees who are employed in the work provided for or those covered by ESI from time to time under the Agreement.

The contractor shall deduct and secure the agreement of the sub-contractor to deduct the employees' contribution as per the first Schedule of the Employee's State Insurance Act from wages and affix the Employee's Contribution card at wages payment intervals.

The contractor shall remit and secure the agreement of the sub-contractor to remit to the State Bank of India, "Employee's State Insurance Corpn. Accounts" the employer's contribution as required by the Act. The term "employer" in this case shall be understood as "the Contractor".

The Contractor agrees to maintain all cards and records as required under the Act in respect of employees and payments and the contractor shall secure the agreement of the sub-contractor to maintain such records. Any expenses,

incurred for making contributions or maintaining records whether by contractor or his sub-contractor shall be to the Contractor's account.

Owner shall retain such sum as may be necessary from the total contract value until the contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, and its amendments from time to time have been paid.

#### 78.0 DAMAGE TO PROPERTY

Contractor shall be responsible for making good, to the satisfaction of the Engineer-in-Charge, any loss of and any damage to the structures and properties belonging to

- a. Owner, or
- b. Being got executed by owner, or
- c. Procured/ being procured by Owner/ other agency or within the premises of all the works of Owner,

if such loss or damage is due to fault and/ or the negligence or willful act or omission of the contractor, his employees, agents, representatives or sub-contractors.

## **LABOUR LAWS AND SAFETY REGULATIONS**

### **(CHAPTER – VII)**

#### 79.0 LABOUR LAWS

- i) The Contractor shall be responsible for strict compliance of and shall ensure strict compliance by its sub-contractors, servants and agents of all laws, rules, regulations having the force of law affecting the relationship of employer and employee between the Contractor/ sub-contractors and their respective employees and/ or otherwise concerning labour, social welfare and provident fund, pension, bonus, gratuity and other benefits to employees. Without prejudice to the generality of this provision, the Contractor shall comply with and ensure that his sub-contractors and other agencies employed by him comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employers Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefit Act, 1961, Mines Act, 1952, Contract Labour (Abolition and Regulation) Act, 1970, Payment of Bonus Act, Gratuity Act, Factories Act and the Employees Provident Fund and Miscellaneous Act, 1952 as amended from time to time and all rules, regulations and schemes framed thereunder from time to time.
- ii) The Contractor and sub-contractor(s) of the Contractor shall obtain from the authority (ies) designated in this behalf under any applicable law, rule or regulation any and all such license(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 work 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 sub-contractors and other agency(ies) employed by him on the work, obtain a valid license under the Contract Labour (Regulation and Abolition) Act, 1970 and shall duly and faithfully observe and comply with the provisions of the Contract Labour (Regulation and Abolition) Central rules 1971 and other Central and State rules as amended from time to time and applicable to the work, and shall duly, promptly and faithfully maintain and/ or cause to be maintained all records and facilities required to be ,maintained and/ or provided in terms thereof or any license granted thereunder.
- iii) No labour below the age of 18 (eighteen) years shall be employed on the work.
- iv) The contractor shall not pay less than what is provided under law to labourers engaged by him or his sub-contractors on this work, for work done other than on item rates basis, labour rates shall not exceed the standard rates prevailing in locality for the respective classes of labour employed.
- v) The Contractor shall at his expenses comply with all labour laws and keep the Owner indemnified in respect thereof.

#### 80.0 CONTRACTOR TO INDEMNIFY OWNER

- i) The Contractor shall indemnify Owner and every member, officer and employee of Owner and also of the Engineer-in-Charge, claims, demands, costs and expenses whatsoever arising out of any failure by the contractor in

the performance of the obligations on relevant labour laws, Acts, regulations, etc. and under the contract documents.

Owner shall not be liable for or in respect of any demand or compensation payable by law in respect of or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or his sub-contractor. The contractor shall indemnify and keep indemnified Owner against all such damage and compensation and against all claims, damage, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

ii) Payment of Claims and Damages

Should Owner have to pay any money in respect of such claims or demands as aforesaid, the amount so paid and the costs incurred by Engineer-in-charge shall be charged and paid by the contractor. The contractor shall not be at liberty to dispute or question the right of Owner to make such payments, notwithstanding same may have been made without his consent or authority or in law or otherwise to the contrary.

iii) In every case in which by virtue of the provision of section 12, sub-section (1) of workmen's compensation Act 1923 or other applicable provision of Workman's Compensation Act or any other Act, Owner is obliged to pay compensation to workman employed by the contractor in execution of the Works.

Owner will recover from the contractor the amount of the compensation so paid and without prejudice to the rights under section 12, sub-section (2) of the said Act, Owner shall be at liberty to recover such amount or any thereof by deducting it from the security deposit or from any sum due to the contractor, whether under this contract or otherwise.

Owner shall not be bound to contest any claim made under section 12, sub-section (1) of the said Act, except on the written request of the contractor and upon his giving to Owner full security for all costs which might become liable in consequence of contesting such claim.

iv) Employment Liability

The Contractor shall be solely and exclusively responsible for engaging or employing persons for the execution of work. All employees engaged by the contractor shall be on his/ their pay-roll and be paid by him /them.

All disputes or differences between the Contractor and his/ their employees shall be settled by him/ them. Owner has absolutely no liability whatsoever concerning the employees of the contractor.

The contractor shall indemnify the Owner against all loss or damage or liability arising out of or in the course of his/ their employing persons or relations with his/ their employees.

The Contractor shall make regular and full payment of wages and salaries to his employees and furnish necessary proof whenever required by the Engineer-in-Charge.

In case of any complaint by any employee of the Contractor or his sub-contractor regarding non-payment of wages, salaries or other dues, Owner reserves the right to make such payments directly to such employee or sub-contractor of the contractor and recover the amount in full from the bills of the contractor. The Contractor shall not claim any compensation or reimbursement thereof.

The Contractor shall comply with the Minimum wages Act applicable to the area with regard to payment of wages of his employees and also of employees of his sub-contractor.

- v) The contractor shall advise in writing to all his employees and the employees of his sub-contractor as follows :

“It is to be fully understood that your appointment is only in connection with our construction contract with the Owner and that it does not give you any right or claim for employment with the Owner”.

#### 81.0 HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

In respect of all labour directly or indirectly employed in the works for the performance of the Contractor's part of this agreement, the contractor shall comply with or cause to be complied with all the rules and regulations of the local sanitary and other authorities or as framed by Engineer-in-charge from time to time for the protection of health and sanitary arrangements for all workers, whether of the Contractor or other agency including workers of Engineer-in-Charge.

#### 82.0 SAFETY REGULATIONS

- i) In respect of all labour, directly or indirectly employed in the work for the performance of contractor's part of this agreement, the Contractor shall at his own expense arrange for all the safety provisions as per safety codes of CPWD, Indian Standards Institution, the Electricity Act, the Mines Act and such other Acts as applicable.
- ii) The Contractor shall observe and abide by all fire and safety regulations of Owner. Before starting construction work contractor shall consult safety Engineer of Owner/ Engineer-in-charge and must make good to the satisfaction of the Engineer-in-Charge any loss or damage due to fire to any portion of the work done or to be done under this agreement or to any of the existing property of Owner.

The contractor undertakes to ensure due and complete compliance with all laws, regulation, rules etc. whether of the Central Government or of the State Government or of any other competent authority applicable to the workmen employed, or whose services are other-wise availed of by the contractor whether in connection with the construction work at the site or otherwise.

The Owner shall have the right to inspect the records maintained by the Contractor concerning such workmen from time to time and the Contractor shall whenever required by the Owner produce such records as the Owner may call upon the contractor to produce for the Owner inspection in order to ascertain whether or not the requirements of all such laws, regulations, rules etc. have been complied with by the contractor.

In the event of any contravention of such laws, regulations, rules etc. coming to light, whether as a result of such inspection or otherwise, the Owner shall have the right to require the contractor to effect such compliance within such time as the Owner prescribe in that behalf .

In the event of the contractor failing to effect such compliance within the time prescribed by the Owner, then the Owner shall without prejudice to his other rights be entitled to withhold from the amount payable to the contractor any amount payable to the workmen under any such laws, regulations or rules and to make payment thereof to the workmen.

The Owner shall also have in that event the right to terminate the contract with immediate effect and to exercise powers reserved to the Owner under the contract as a result of termination.

## ARBITRATION

### (CHAPTER – VIII)

#### 83.0 SETTLEMENT OF DISPUTES BY ARBITRATION

83.1 All questions, disputes or differences arising under, out of or in connection with this Contract shall be mutually settled by and between EIL and the Contractor (Owner and by the Contractor for operation and maintenance work during O&M period) based on the provisions of Contract. In the event such disputes and differences can not be settled amicably between the parties as stated above, the matter shall be referred to and settled in accordance with the Arbitration procedure.

83.2 **GOVERNING LAWS & JURISDICTION:** The terms and provisions of this Contract shall be governed, interpreted and settled in accordance with the **laws of India (procedural and substantive) in force from time to time** and is subjected to and referred to the **court of law located at New Delhi** which shall have exclusive jurisdiction.

#### 83.3 ARBITRATION:

83.3.1 Except as otherwise provided elsewhere in the Contract, if during the execution of the Contract, any dispute, difference, question or disagreement arises between the parties with respect to the interpretation of Contract and/ on any other issue(s) and/or breach thereof, the same shall be decided by an **Arbitral Tribunal** consisting of **three Arbitrators**. Each party shall appoint one Arbitrator within 30 days from the date of receipt notice to other party and the Arbitrator so appointed shall appoint the third Arbitrator who will act as Presiding Arbitrator.

83.3.2 In case a party fails to appoint an arbitrator within 30 days from the date of receipt of request to do so by the other party, upon request of a party, the Chief Justice of High Court or any person or institution designation by him within whose jurisdiction the subject contract has been made, shall appoint the arbitrator/ Presiding Arbitrator upon request of one of the parties.

83.3.3 If any of the Arbitrators so appointed dies, resigns, incapacitated or withdraws for any reason from the proceedings, the concerned party/ arbitrators shall appoint another person in his place in the same manner as aforesaid. Such person shall proceed with the reference from the stage where his predecessor had left if both parties consent for the same.

83.3.4 It is mandatory for the party invoking arbitration shall specify all disputes to be referred to arbitration at the time of invocation of arbitration and not thereafter.

83.3.5 The Arbitral Tribunal shall give reasoned award and the same shall be final, conclusive and binding on the parties.

83.3.6 The fees of the arbitrators shall be borne by the parties nominating them and the fee of the Presiding Arbitrator, costs and other expenses incidental to arbitration proceedings shall be borne equally by the parties.

83.3.7 Subject to the aforesaid the provisions of the **Arbitration and Conciliation Act, 1996 and any statutory modifications or re-enactment** in lieu thereof shall apply to the arbitration proceedings under this clause.

#### **83.4 ARBITRATION WITH INDIAN PSUs**

- 83.4.1 In the event one of the arbitrators/parties or all the parties is (are) Government Department/Public Enterprises/ Public Sector Undertaking, the Arbitration and Conciliation Act, 1996 shall not be applicable for award.
- 83.4.2 All disputes or differences relating to, arising from or connected with the Contract, such disputes or difference shall be referred by either party to the arbitration of one of the Arbitrators in the Department of Public Enterprises to be nominated by the Secretary to the Government of India, in charge of the Bureau of the Public Enterprises. The award of the Arbitrator shall be final and binding upon the parties to the dispute. However, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Dept. Of Legal Affairs, Ministry of Law & Justice, Govt. of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/ Additional Secretary, whose decision shall be final, conclusive and binding upon the parties.
- 83.4.3 The parties in disputes shall share the cost of arbitration equally as intimated by the arbitrator.

## **SAFETY CODE**

### **(CHAPTER – IX)**

#### A. GENERAL

Contractor shall adhere to safe construction practices and guard against hazardous and unsafe working conditions.

Contractor shall comply with safety rules of Owner as set forth herein.

#### B. FIRST AID AND INDUSTRIAL INJURIES

1. Contractor shall maintain First-Aid facilities for his employees and those of his sub-contractors.
2. 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 Engineer-in-Charge prior to start of construction, and their telephone numbers shall be prominently posted in Contractor's field office.
3. All critical industrial injuries shall be reported promptly to the Engineer-in-Charge as also a copy of Contractor's report covering each personal injury requiring the attention of a Physician shall be furnished.

#### C. CONTRACTOR'S BARRICADES

1. Contractor shall erect and maintain barricades required in connection with his operation to guard or protect :
  - a) Excavations.
  - b) Hoisting areas.
  - c) Areas adjudged hazardous by inspectors of Engineer-in-Charge/ Contractor.
  - d) Owner's existing property likely to get damaged by Contractor's operations, in the opinion of Engineer-in-Charge.
  - e) Railroad unloading spots.
2. Contractor's employees and those of his Sub-contractor shall become acquainted with barricading practices specified by Owner and shall respect the provisions hereof.
3. Barricades and hazardous area adjacent to and along normal routes of travel shall be marked by approved type of electric red flasher lights at night.
4. Suitable warning boards of standard traffic type shall be erected 30M away from each road barricade as well as barricades for work spots within 2M of road curb.

#### D. SCAFFOLDING

- i) Suitable scaffoldings should be provided for workmen for all works that cannot be done safely from the ground or from solid construction except such short period of work as can be done safely from ladders.

When a ladder is used, an extra Mazdoor shall be engaged for holding the ladder.

If the ladder is used for carrying materials as well, suitable footholds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal and 4 vertical).

- ii) Scaffolding or staging more than 4M above the ground or floor, swing 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 1M high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such 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.
- iii) Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform of the gangway or the stairway is more than 4M above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (ii) above.
- iv) Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1M.
- v) Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9M in length while the width between the side rails in rung ladder shall in no case be less than 30cm for ladder upto and including 3M in length. For longer ladders this width should be increased by at least 5mm for each additional 30cm. of length. Uniform step spacing shall not exceed 30cm. Adequate precaution shall be taken to prevent danger from electrical equipment.
- vi) No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or public.
- vii) The Contractor shall also provide all necessary fencing and lights to protect the workers and staff from accidents.
- viii) The contractor shall be bound to bear the expenses of defence of every suit, action or other proceedings of law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit or action or proceedings to any such person, or which may with the consent of the Contractor be paid to compromise any claim by any such person.

## E. EXCAVATION AND TRENCHING

All trenches, 1.2 M or more in depth, shall at all times be supplied with at least one ladder for each 30.0 M length or fraction thereof.

Ladder shall be extended from bottom of the trench to at least 1.0 M above the surface of the ground. The site of the trenches which is 1.5 M 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.

The excavated material shall not be placed within 2.0 M of the edge of the trench or half of the trench depth whichever is more.

Cutting shall be done from top to bottom with proper slopes. Under no circumstances under-mining or under-cutting shall be done.

## F. DEMOLITION

- a) Before any demolition work is commenced and also during the process of the work all roads and open areas adjacent to the work site shall either be closed or suitably protected.
- b) No electric cable or apparatus which is liable to be a source of danger shall remain electrically charged.
- c) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so over loaded with debris or materials as to render it unsafe.

## G. SAFETY EQUIPMENT

All necessary personal protective equipments (PPE), as considered adequate by the Engineer-in-Charge, should be kept available for the use of the persons employed on the site and maintained in a condition suitable for immediate use.

The Contractor should take adequate steps to ensure proper use of equipments by those concerned.

Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.

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.

Those engaged in welding and cutting works shall be provided with protective face and eye-shields, hand gloves etc.

Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

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 to the public.

The Contractor shall not employ women and men (below the age of 18 years) on the work of painting with products containing lead in any form. Wherever men (above the age of 18 years) are employed on the work of lead painting, the following precautions should be taken.

1. No paint containing lead or lead product shall be used except in the form of paste or readymade paint.
2. Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
3. 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.

#### H. 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.

#### I. HOISTING EQUIPMENT

Use of hoisting machine and tackle including their attachments, anchorage and supports shall conform to the following standard or conditions.

- 1a. 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.
- 1b. 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.
2. 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 give signals to the operator.
3. In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means.

Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

4. The Contractor shall notify the safe working load of machines to the Engineer-in-Charge, whenever he brings any machinery to site of work and get it verified by the Engineer-in-Charge.

**K. ELECTRICAL EQUIPMENT**

Motors, Gearing, Transmission, Electric Wiring and other dangerous parts of hoisting appliances shall be provided with efficient safe-guards.

Hoisting appliances should be provided with such means as will reduce to the minimum risk of accidental descent of the load.

Adequate precaution should 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 apparels such as gloves, sleeves and boots and insulated tools as may be necessary should be provided.

The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.

**L. 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 places of work.

**M. DISPLAY OF SAFETY INSTRUCTIONS**

The safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.

**N. 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 the Owner or their representatives.

**O. NO EXEMPTION**

Notwithstanding the above clauses from (A) to (N) there is nothing in these to exempt the Contractor from the operations of any other Act or Rules in force in the Republic of India.

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 thereto or any existing works whether the property of the company or of a third party.

In addition to the above, the Contractor shall abide by the Safety Code provisions as per C.P.W.D. and Indian Standard Safety code framed from time to time.

# **EXHIBITS TO GCC**

## **SECURITY** **PRO-FORMAS**

**[Only the Relevant Exhibits as per provisions in SCC  
and its Annexure shall be applicable]**

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## EXHIBIT-1

### [Proforma for] AGREEMENT

(To be submitted on non-judicial stamp paper of appropriate value, minimum ₹ 100/-, of Delhi State, to be purchased in the name of "Engineers India Ltd.")

This Agreement entered into this \_\_\_\_\_ day of \_\_\_\_\_ (YEAR) (hereinafter shall be referred to as the "Agreement" which shall include its subsequent Amendment(s), if any), having Contract Effective Date (CED) \_\_\_\_\_ [Date of issue of LOI/FOI or as mentioned in LOI/FOI], is executed for \_\_\_\_\_ [NAME OF WORK & Project (Bidding Document No.: \_\_\_\_\_)],

#### BY AND BETWEEN

M/s ENGINEERS INDIA LTD. (EIL), a Government of India Company registered under the Companies Act, 1956 having its registered office at Engineers India Bhavan, 1, Bhikaiji Cama Place, R. K. Puram, New Delhi-110 066 (hereinafter shall be referred to as the "**Company**", which expression unless repugnant to its meaning or context thereof, shall include its executors, administrators, successors and permitted assignees) as ONE PART

#### AND

M/s. \_\_\_\_\_, a company registered under \_\_\_\_\_ having its registered office at \_\_\_\_\_ [Full Address] (hereinafter shall be referred to as the "**Contractor**", which expression unless repugnant to its meaning or context thereof, shall include its executors, administrators, successors and permitted assignees) as OTHER PART.

The above named companies shall also be individually referred to as "party" and collectively as "parties".

**WHEREAS** the Company desirous of carrying out the above mentioned subject work as per terms and conditions of the Contract through an experienced and competent agency with sound technical expertise and financial capability as per provisions of the Contract through competitive bidding process

**AND WHEREAS** the Contractor, participated and responded to the bidding process successfully and represents that it has experience, expertise and technical knowledge and financial strength to carry out the said work in a professional manner as per terms and conditions of the Company's Bidding and other documents in respect of the said work,

**AND WHEREAS** pursuant to the above and discussions conducted/communications made with the Contractor during the bidding process, the Company has awarded the subject work to the Contractor vide Letter of Intent (LOI)/ Fax of Intent (FOI) dated \_\_\_\_\_ [DATE] on the terms and conditions as agreed to by the parties as of the said date of notification/award of work and as outlined in this Agreement

#### **NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. In this Agreement words and expression have the same meaning as are respectively defined to them in the General Conditions of Contract, Special conditions of Contract and in any other sections of the Contract document
2. **WORK TO BE PERFORMED:** Except as specified elsewhere in this Contract, the Contractor shall faithfully perform the subject work in all respects in a professional manner as per detailed scope of work, scope of supply, various terms and conditions, Schedule of Rates/Schedule of Lump sum Prices, Technical Specifications, Drawings,

Standards etc. as defined in various sections of the Contract document and as per the best industry practices as required.

3. **COMPENSATION:** As full consideration for the satisfactory performance of this Contract including fulfilling of all obligations and liabilities under this Contract by the Contractor, the Company/Owner shall compensate the Contractor in accordance with the prices set forth in the Schedule of Rates/Schedule of Lump sum Prices as per the payment provisions of this Contract.
4. **CONTRACT:** This Contract comprises:
  - i) Detailed Letter of Acceptance including all Annexures (like Schedule of Rates/ Schedule of Lump sum Prices etc.)
  - ii) This Agreement
  - iii) Letter of Intent/ Fax of Intent
  - iv) Bidding document comprising Special Conditions of Contract with all its Annexures including Scope of work, Scope of supply, Payment terms, Time Schedule, General Conditions of Contract, Technical Specifications, Drawings etc. as defined in the Detailed Letter of Acceptance and various sections of the Bidding document, including Addendum/Corrigendum, if any.

In the event of any ambiguity or conflict among the Contract document listed above, the order of precedence shall be the order in which they are listed in the Special Conditions of Contract.

5. The Contract constitutes the entire Agreement between the Company and the Contractor with respect to the subject matter of the Contract, and supersedes all communication, negotiations and Agreement [both written and oral] of the parties with respect thereto prior to date of Agreement.

IN WITNESS WHEREOF the parties have executed this Agreement in \_\_\_\_\_ [Place], the day and year first above written.

Signed and Delivered  
For and on behalf of  
**ENGINEERS INDIA LTD.**

Signed and Delivered  
For and on behalf of  
**< Name of Contractor >**

\_\_\_\_\_  
Name:  
Designation:  
Date:  
Place:

\_\_\_\_\_  
Name:  
Designation:  
Date:  
Place:

In the presence of two witnesses:

\_\_\_\_\_  
Name:  
Designation:  
Date:  
[By Company]

\_\_\_\_\_  
Name:  
Designation:  
Date:  
[By Contractor]

## EXHIBIT-2

[Proforma for] **BANK GUARANTEE (BG) FOR EARNEST MONEY DEPOSIT  
(EMD)/ BID SECURITY**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of the issuing Bank)

<b>Ref.:</b>	<b>BG No.</b>	:	_____
<b>TO</b>	<b>Date of Issue</b>	:	_____
	<b>Date of Expiry</b>	:	_____
			(4/6 Months as per provision)
<b>Engineers India Ltd., New Delhi</b>	<b>Date of Claim</b>	:	_____
	<b>Bank Name &amp;</b>	:	_____

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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), 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 \_\_\_\_\_ (hereinafter 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 during the Bid validity period i.e. \_\_\_\_\_ [4 Months/ 6 Months as per provision of Tender document] 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

1. 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]

**EXHIBIT-3**

[Proforma for] **COMPOSITE BANK GUARANTEE (CBG)**  
**TOWARDS**  
**PERFORMANCE SECURITY / PERFORMANCE GUARANTEE (PG) AND**  
**MOBILISATION ADVANCE (MA)**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of the issuing Bank)

<b><u>Ref .:</u></b>	<b><u>BG No.</u></b>	:	_____
<b>TO</b>	<b><u>Date of Issue</u></b>	:	_____
<b>Engineers India Ltd., New Delhi</b>	<b><u>Date of Expiry</u></b>	:	_____
	<b><u>Date of Claim</u></b>	:	_____
	<b><u>Bank Name &amp;</u></b>	:	_____

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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), having entered into a Contract dated \_\_\_\_\_ (hereinafter referred to as the "**Contract**" which expression shall include all the amendments thereto) with M/s. \_\_\_\_\_ (Name of Contractor) having its Head/Registered Office at \_\_\_\_\_ (hereinafter referred to as the "**Contractor**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) and Contract having been unequivocally accepted by the Contractor resulting in a **Contract bearing No.:** \_\_\_\_\_ **dated** \_\_\_\_\_ **valued at** \_\_\_\_\_ **[a]** for \_\_\_\_\_ (Name of work) [Bidding Document No.: \_\_\_\_\_ ] and the Company having agreed

**To make an advance payment to the Contractor towards mobilization advance up to a maximum limit of Ten percent (10%) of the estimated value of the Contract as per terms and conditions of payment of such advance included in the Bidding/Contract document against submission of Composite Bank Guarantee [CBG] to the Company by the Contractor towards Performance Guarantee [PG] for the faithful performance of the entire Contract as well as payment of Mobilization Advance,**

we \_\_\_\_\_ (Name of Bank) established/registered under \_\_\_\_\_ (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 Contractor and undertake to pay on demand signed by the Company's duly authorized officer to the Company any money or all money to the extent of the value of this Composite Bank Guarantee at the time but in any case not exceeding \_\_\_\_\_ (in Fig.) \_\_\_\_\_ (in words) in aggregate at any time without any demur, reservation, recourse, contest and/or without any reference to the Contractor. Any such demand made by the Company on the Bank shall be conclusive and binding notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

2. The Bank agrees that the Composite Bank Guarantee herein contained shall be irrevocable and shall continue to be enforceable.
3. The Company shall have the fullest liberty, without affecting in any way the liability of the Bank under this Composite Bank Guarantee from time to time to extend the time for performance of the Contract by the Contractor, or the Company and the Contractor may mutually vary the terms of the Contract. The Company shall have the fullest liberty without affecting this Composite Bank Guarantee to postpone from time to time the exercise of power vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants contained or implied in the Contract between the Company and the Contractor or any other course of remedy or security available to the Company. The Bank shall not be released from its obligations under these presents by any exercise by the Company of its liberty with reference to matters aforesaid or any of them or by reason of any other act of forbearance or other acts of Company on the part of Company or any other indulgence shown by the Company or by any other matter or thing whatsoever, which under law would, but for this provision, have the effect of relieving the Bank.
4. The Bank also agrees that the Company at its option shall be entitled to enforce this Composite Bank Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Contractor and without any reference to the Contractor and notwithstanding any security or other Guarantee that the Company may have in relation to the Contractor's liabilities.
5. The Bank further agrees that this Composite Bank Guarantee herein contained shall remain in full force during the period that is taken for the performance of the Contract (including the Defect Liability Period) and it shall continue to be enforceable until all the dues of the Company under or by virtue of this Contract have been fully paid and its claim satisfied or discharged.
6. The Bank further agrees that as between the Bank and Company for the purpose of this Composite Bank Guarantee any notice given to the Bank by the Company that the money is payable by the Contractor and any amount claimed in such notice by the Company shall be conclusive and binding on us notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.
7. The Bank further agrees that this Composite Bank Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor 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.

8. The Bank further agrees that this Composite Bank Guarantee shall not be affected by any change in the Bank's Constitution. The Bank also undertakes not to revoke this Composite Bank Guarantee during its currency.
9. The Bank further agrees that for the faithful performance of the Contract, if requested by the Contractor in writing, the Bank shall issue Amendment to this Composite Bank Guarantee, as and when required, incorporating the extended date of validity and/or the value of this Composite Bank Guarantee.
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 Defect liability period i.e. up to \_\_\_\_\_ [Date] and any extension(s) thereof on written instruction from the Contractor 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 Composite Bank Guarantee is payable to the Company in favour of the above said account number at New Delhi
2. 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]**

## EXHIBIT-4

[Proforma for] **PERFORMANCE SECURITY / PERFORMANCE GUARANTEE (PG)**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of the issuing Bank)

<b>Ref.:</b>	<b>BG No.</b>	:	_____
<b>TO</b>	<b>Date of Issue</b>	:	_____
<b>Engineers India Ltd., New Delhi</b>	<b>Date of Expiry</b>	:	_____
	<b>Date of Claim</b>	:	_____
	<b>Bank Name &amp;</b>	:	_____

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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), having entered into a Contract dated \_\_\_\_\_ (hereinafter referred to as the "**Contract**" which expression shall include all the amendments thereto) with M/s. \_\_\_\_\_ (Name of Contractor) having its Head/Registered Office at \_\_\_\_\_ (hereinafter referred to as the "**Contractor**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) and Contract having been unequivocally accepted by the Contractor resulting in a **Contract bearing No.:** \_\_\_\_\_ dated \_\_\_\_\_ **valued at** \_\_\_\_\_ [a] for \_\_\_\_\_ (Name of work) [Bidding Document No.: \_\_\_\_\_] and the Company having agreed

**that the Contractor shall furnish to the Company a Performance Guarantee [PG] for the faithful performance of the entire Contract equivalent to the Ten percent (10%) of the value of the Contract,**

we \_\_\_\_\_ (Name of Bank) established/registered under \_\_\_\_\_ (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 Contractor and undertake to pay on demand signed by the Company's duly authorized officer to the Company any money or all money to the extent of the value

of this Performance Guarantee at the time but in any case not exceeding \_\_\_\_\_ (in Fig.) \_\_\_\_\_ (in Words) in aggregate at any time without any demur, reservation, recourse, contest and/or without any reference to the Contractor. Any such demand made by the Company on the Bank shall be conclusive and binding notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

2. The Bank agrees that the Performance Guarantee herein contained shall be irrevocable and shall continue to be enforceable.
3. The Company shall have the fullest liberty, without affecting in any way the liability of the Bank under this Performance Guarantee from time to time to extend the time for performance of the Contract by the Contractor, or the Company and the Contractor may mutually vary the terms of the Contract. The Company shall have the fullest liberty without affecting this Performance Guarantee to postpone from time to time the exercise of power vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants contained or implied in the Contract between the Company and the Contractor or any other course of remedy or security available to the Company. The Bank shall not be released from its obligations under these presents by any exercise by the Company of its liberty with reference to matters aforesaid or any of them or by reason of any other act of forbearance or other acts of Company on the part of Company or any other indulgence shown by the Company or by any other matter or thing whatsoever, which under law would, but for this provision, have the effect of relieving the Bank.
4. The Bank also agrees that the Company at its option shall be entitled to enforce this Performance Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Contractor and without any reference to the Contractor and notwithstanding any security or other Guarantee that the Company may have in relation to the Contractor's liabilities.
5. The Bank further agrees that this Performance Guarantee herein contained shall remain in full force during the period that is taken for the performance of the Contract (including the Defect Liability Period) and it shall continue to be enforceable until all the dues of the Company under or by virtue of this Contract have been fully paid and its claim satisfied or discharged.
6. The Bank further agrees that as between the Bank and Company for the purpose of this Performance Guarantee any notice given to the Bank by the Company that the money is payable by the Contractor and any amount claimed in such notice by the Company shall be conclusive and binding on us notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.
7. The Bank further agrees that this Performance Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor 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.
8. The Bank further agrees that this Performance Guarantee shall not be affected by any change in the Bank's Constitution. The Bank also undertakes not to revoke this Performance Guarantee during its currency.

9. The Bank further agrees that for the faithful performance of the Contract, if requested by the Contractor in writing, the Bank shall issue Amendment to this Performance Guarantee, as and when required, incorporating the extended date of validity and/or the value of this Performance Guarantee.

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 Defect liability period i.e. up to \_\_\_\_\_ [Date] and any extension(s) thereof on written instruction from the Contractor 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 Performance Guarantee is payable 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 for] **BANK GUARANTEE (BG)**  
**AGAINST**  
**MOBILISATION ADVANCE (MA)**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of the issuing Bank)

<b><u>Ref.:</u></b>	<b><u>BG No.</u></b>	:	_____
<b>TO</b>	<b><u>Date of Issue</u></b>	:	_____
<b>Engineers India Ltd., New Delhi</b>	<b><u>Date of Expiry</u></b>	:	_____
	<b><u>Date of Claim</u></b>	:	_____
	<b><u>Bank Name &amp;</u></b>	:	_____

Dear Sirs,

- 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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), having entered into a Contract dated \_\_\_\_\_ (hereinafter referred to as the "**Contract**" which expression shall include all the amendments thereto) with M/s. \_\_\_\_\_ having its Head/Registered Office at \_\_\_\_\_ (hereinafter referred to as the "**Contractor**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) and Contract having been unequivocally accepted by the Contractor resulting in a **Contract bearing No.:** \_\_\_\_\_ dated \_\_\_\_\_ **valued at** \_\_\_\_\_ [a] for \_\_\_\_\_ (Name of work) [Bidding Document No.: \_\_\_\_\_] and the Company having agreed

**To make an advance payment to the Contractor towards mobilization advance up to a maximum limit of Ten percent (10%) of the estimated value of the Contract as per terms and conditions of payment of such advance included in the Bidding/Contract document against submission of a Bank Guarantee [BG] to the Company by the Contractor towards payment of interest bearing Mobilisation Advance,**

we \_\_\_\_\_ (Name of Bank) established/registered under \_\_\_\_\_ (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 Contractor and undertake to pay on demand signed by the Company's duly authorized officer to the Company any money or all money to the extent of the value of this Bank Guarantee at the time but in any case not exceeding \_\_\_\_\_ [a x 0.1] (in Fig.) \_\_\_\_\_ (in words) in aggregate at any time without any demur, reservation, recourse, contest and/or without any reference to the Contractor. Any such demand made by the Company on the Bank shall be conclusive and binding notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

2. The Bank agrees that the Bank Guarantee herein contained shall be irrevocable and shall continue to be enforceable.
3. The Company shall have the fullest liberty, without affecting in any way the liability of the Bank under this Bank Guarantee from time to time to extend the time for performance of the Contract by the Contractor, or the Company and the Contractor may mutually vary the terms of the Contract. The Company shall have the fullest liberty without affecting this Bank Guarantee to postpone from time to time the exercise of power vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants contained or implied in the Contract between the Company and the Contractor or any other course of remedy or security available to the Company. The Bank shall not be released from its obligations under these presents by any exercise by the Company of its liberty with reference to matters aforesaid or any of them or by reason of any other act of forbearance or other acts of Company on the part of Company or any other indulgence shown by the Company or by any other matter or thing whatsoever, which under law would, but for this provision, have the effect of relieving the Bank.
4. The Bank also agrees that the Company at its option shall be entitled to enforce this Bank Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the Contractor and without any reference to the Contractor and notwithstanding any security or other Guarantee that the Company may have in relation to the Contractor's liabilities.
5. The Bank further agrees that this Bank Guarantee herein contained shall remain in full force during the period that is taken for the recovery of the full amount of mobilization advance including interest and penalty (if any) and it shall continue to be enforceable until all the dues of the Company under or by virtue of this Contract have been fully paid and its claim satisfied or discharged with respect to recovery of mobilization advance.
6. The Bank further agrees that as between the Bank and Company for the purpose of this Bank Guarantee any notice given to the Bank by the Company that the money is payable by the Contractor and any amount claimed in such notice by the Company shall be conclusive and binding on us notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.
7. The Bank further agrees that this Bank Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor 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.

8. The Bank further agrees that this Bank Guarantee shall not be affected by any change in the Bank's Constitution. The Bank also undertakes not to revoke this Bank Guarantee during its currency.
9. 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 full and final recovery of mobilization advance including interest accrued on it i.e. up to \_\_\_\_\_ [Date] and any extension(s) thereof on written instruction from the Contractor 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 recovery of all dues with respect to liability under this Bank Guarantee and the Company's right under this Guarantee will cease.
10. The Bank further agrees that all claims under this Bank Guarantee is payable to the Company in favour of the above said account number at New Delhi
3. 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]

## EXHIBIT-6

[Proforma for] **HYPOTHECATION BOND FOR SECURED ADVANCE**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of Engineers India Ltd. and to be Notorised)

**Ref .:**

**TO**

**Engineers India Ltd., New Delhi**

Dear Sirs,

WHEREAS **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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), have entered into a **Contract** having **Contract bearing No.:** \_\_\_\_\_ dated \_\_\_\_\_ **valued at** \_\_\_\_\_ (hereinafter referred to as the "**Contract**" which expression shall include all amendments thereto) with us, carrying on the business in the name and style of M/s. \_\_\_\_\_, having our Head/Registered Office at \_\_\_\_\_ (hereinafter referred to as the "**Contractor**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) and Contract has been unequivocally accepted by us for

(Name of work) [Bidding Document No.: \_\_\_\_\_ ]  
(hereinafter shall be referred to as the "**Work**")

AND WHEREAS as per terms and conditions of the Contract, the Company at our request agreed to allow us withdrawing of secured advance(s) (hereinafter shall be referred to as the "Secured Advance") on the materials/equipment absolutely belonging to us and brought by us at the construction site for permanent incorporation in the Work during construction for a maximum amount of **75% of the cost of the materials/equipment or as specified** in the Special Conditions of Contract and/or its Annexure, against submission of Hypothecation Bond of full value of the materials/equipment with insurance document, test report and other relevant documents

AND WHEREAS the Company agreed to recover such Secured Advance from the measured running account invoice(s) till the full recovery of total amount of Secured Advance

AND WHEREAS the Company reserves its right to the option of payment of any further advance or advances on the security of other materials/equipment brought by us to the site of the said works.

NOW THEREFORE, in pursuance of the Contract, we DO HEREBY undertake and agree with the Company and confirm as follows:

1. That the value of the materials/ equipment for the purpose of calculating the amount of Secured Advance shall be determined by the Company, whose computation in this behalf shall be final and binding to us.
2. That the Secured Advance shall be confined to the materials/ equipment that are brought to site of works for permanent incorporation in the Work and the Secured Advance is to meet the reasonable requirement of the Work for the time being as determined by the Company, whose decision shall be final and binding.
3. That the materials/equipment against which Secured Advance is requested by us and is granted by the Company, are absolutely our own property and free from any encumbrances of any kind and we shall not make any application for or receive a further advance against these materials/equipment which is hypothecated or on any other materials/equipment which is not our property and free from encumbrances of any kind and we indemnify the Company against all claims to any materials/ equipment in respect of which Secured Advance is paid.
4. That the materials / equipment against which Secured Advance is paid shall be used solely in the execution of the said Work in accordance with the provisions of the Contract document and as per direction of the Company.
5. That we shall be custodian of the said materials/equipment to keep it in good condition and shall make at our own cost and risk all necessary and adequate security arrangements for proper watch, safe custody and protections against all risks until its permanent incorporation in the Work and the Work is handed over to the Company. In the event of the said materials/ equipment or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof, we shall forthwith replace the same with other materials/equipment of equivalent quality or repair and make good the same to the satisfaction of the Company.
6. That the said materials/ equipment hereby hypothecated to the Company shall at all times be open to inspection by the Company or its authorized representative(s)
7. That we shall maintain proper books and records (a daily account) pertaining thereto of the said materials/ equipment brought to the site of works for permanent incorporation in the works and of all issue made there from, and shall fortnightly or as often as required by the Company, submit an inventory of the said materials/equipment at site as verified by the Company.
8. That the said materials/equipment shall not on any account be removed from the site of the said Works except with the written permission of the Company.
9. That without prejudice to any other mode of recovery available to the Company, the said Secured Advance shall be fully recovered from our Running Account (R.A.) invoices/bills and Final Invoice to the extent of the value of the materials/equipment incorporated in the permanent work and measured for payment in the respective invoice(s).
10. That if at any time we are at default in the faithful performance or observance in any respect of any of the terms of provisions of the said agreement, we shall forthwith on demand and without protest or demur repay the Company the unadjusted balance of

the said Secured advance for the time being remaining unpaid, and shall until repayment thereof pay interest on the balance demanded **@15% (Fifteen Percent) per Annum from the expiry of 7 (Seven) days from the date of demand** and until repayment thereof in full.

11. That as security for the said Secured Advance and the unrecovered/unadjusted amount of advance thereof remaining from time to time, we do hereby hypothecate by way of first beneficiary to and in favour of Company (in the name of the Project Account No. as stated at the top of this Exhibit) the whole of our present and future materials which now have been brought to or may thereafter from time to time during the continuance of this security be brought to or in or upon or about the site of works for permanent incorporation in the works, the materials herein hypothecated being inclusive of the said materials but not confined thereto.
12. That at our own expense, the materials hereby hypothecated shall be insured through an appropriate insurance policy from an approved nationalized insurance agency in the joint names of ourselves and the Company with **the Company is the first beneficiary (in the name of the Project Account No. as stated at the top of this Exhibit) for the full value of the materials (on landed cost at site) plus 5% Administrative Cost** and we shall continue to renew and keep in force all insurance policy (ies) by paying all insurance premium(s) regularly as per the premium payment due date till the time all the Secured Advance is recovered by the Company (including penalty if any as stated in sl no. **10** above). The insurance policy (ies) so taken by us has/have the exclusive right in the name of the Company (Account number as stated above) to receive all proceeds of any such insurance and we undertake to pay to the Company all proceeds of any policy relative to the materials/equipment hereby hypothecated received by us during the continuance of this security against the Secured Advance of the materials/equipment towards liquidation of the said Secured Advance of the unadjusted balance thereof for the time being outstanding. We shall submit to the Company the insurance policy (ies) taken by us along with the receipt of all payments of the premium regularly within 7 days of payment of the premium(s).
13. That it shall be lawful for the Company at any time during the continuance of this security and without any notice to us to enter into or upon any place or premises where or wherein any of the materials/ equipment hereby hypothecated may be situated or kept or stored, for inspection, valuation, disposing of and/or taking particulars of all or any part of the materials/equipment hereby hypothecated and to check any statements, accounts, reports and information relative thereto and for any other acts, deeds and things as deemed necessary by the Company.
14. That we hereby undertake to give immediate possession to the Company on demand of all materials/equipment hypothecated to the Company, and agree to accept the accounts of sales and realizations given by the Company as conclusive proof of amounts realized and relative expenses and to pay on demand any shortfall deficiencies therein shown, the proceeds of sale or otherwise realizations of the materials hereby hypothecated to the Company to be applied by the Company in or towards the repayment of the Secured Advance and /or unadjusted balance thereof for the time being.
15. That subject to the powers of the Company and our contractual obligations hereunder, we shall be entitled to use the materials/ equipment hereby hypothecated for permanent incorporation in the construction/performance of the works so long as we are not prohibited in writing by the Company from time to time.

16. That the materials/equipment hereby hypothecated and all proceeds of sales and other realizations and proceeds of insurance thereof shall always be kept distinguishable and be held as the exclusive property of the Company specifically appropriable to the security hereby created and we shall not without the prior permission of the Company create any mortgage or encumbrance whatsoever of the said materials/ equipment or do any act, deed that may prejudice the security hereby created.
17. That the Company shall not in any way be responsible in respect of the quantity, weight, value, condition and final turn out or otherwise for the materials hereby hypothecated to the Company if the same is happened to be in the possession of the Company and for any loss, destruction or deterioration thereof, or damage thereto caused by theft, pilferage, robbery, fire, riot or civil commotion, malicious damage or otherwise for any other reasons or circumstances under or for which such loss, destruction, deterioration or damage happened, including any act, commission, negligence or default of the Company.
18. That if we at any time made any default in the performance or observance in any respect of any of the terms of provisions of the Contract or of these presents, the total amount of the Secured Advance(s) that may still be owing to the Company shall immediately on the happening of such default be repayable by us to the Company together with interest thereon at **15% (Fifteen percent) per annum** from the date or respective dates of the Secured Advance or Advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Company in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default from our end and we hereby covenants and agree to repay/pay the same to the Company accordingly.
19. That we hereby give charge and full right of all the said materials/equipment with the repayment to the Company of the total sum of Secured Advance and any further sum or sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the Contract and without prejudice to the powers contained therein if and whenever the covenant for payment and repayment herein before contained shall become enforceable and the money owing is not be paid in accordance therewith, the Company may at any time thereafter implement all or any of the following course of actions against us as may deem best:
  - a. Seize, recover, receive, remove and/or take possession of all or any part of the materials/equipment hypothecated and utilize the said materials/equipment or any part thereof in the completion of the said works on behalf of us in accordance with the provisions of the Contract, debiting from our dues/other provisions the actual cost of affecting such completion and amount due to the Company in respect of the Secured Advance(s) under these presents and crediting us with the value of work done as if we have carried out the work in accordance with the Contract and at the rates thereby provided. If there is still balance against us, we shall immediately on demand pay such unrecovered/ unadjusted amount to the Company.
  - b. Remove and sell, realize or dispose of the seized materials/equipment or any part thereof in any manner including by public auction or tendering or private contract with or without the intervention of the Court and out of the monies arising from the sale/such other action, all the sums aforesaid repayable or payable to the Company shall be retained by the Company under these presents and pay the surplus amount (if any) to us after full recovery.

- c. Deduct all or any part of the monies owing out of the Security Deposit or any sum due to us under the Contract.
20. That the security hereby given shall be operative and shall be a continuing security for the unadjusted balance of the said Secured Advance from time to time due to the Company notwithstanding that there may be a nil (zero) balance at any time or from time to time and notwithstanding that the said Secured Advance or unadjusted balance may exceed the limits of the said Secured Advance as herein envisaged.
21. That except in the event of such default on our part as aforesaid, interest on the said Secured Advance shall not be payable.
22. All expressions herein used and not defined above, shall unless repugnant to the meaning or context thereof, shall carry the same meaning assigned to them under the Contract.

Yours faithfully,

\_\_\_\_\_  
(Signature of Power of Attorney Holder)

Name:

Designation:

Name of Company:

Address for Communication:

Date:

Place:

**EXHIBIT-7**

[Proforma for] **BANK GUARANTEE (BG) IN LIEU OF RETENTION**

(To be submitted on non-judicial stamp paper of appropriate value minimum ₹ 100/- to be purchased in the name of the issuing Bank)

<b><u>Ref.:</u></b>	<b><u>BG No.</u></b>	:	_____
<b>TO</b>	<b><u>Date of Issue</u></b>	:	_____
<b>Engineers India Ltd., New Delhi</b>	<b><u>Date of Expiry</u></b>	:	_____
	<b><u>Date of Claim</u></b>	:	_____
	<b><u>Bank Name &amp;</u></b>	:	_____

Dear Sir,

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), **as Project Management Consultant (PMC) for and on behalf of Regional Centre for Biotechnology (RCB)** (hereinafter referred to as the "**Owner**"), having entered into a Contract dated \_\_\_\_\_ (hereinafter referred to as the "**Contract**" which expression shall include all the amendments thereto) with M/s. \_\_\_\_\_ having its Head/Registered Office at \_\_\_\_\_

(hereinafter referred to as the "**Contractor**" which expression unless repugnant to the context or meaning thereof, shall include all its Successors, Administrators, Executors and permitted Assignees) and Contract having been unequivocally accepted by the Contractor resulting in a **Contract bearing No.:** \_\_\_\_\_ dated \_\_\_\_\_ **valued at** \_\_\_\_\_ **[a]** for

\_\_\_\_\_ (Name of work) [Bidding Document No.: \_\_\_\_\_] and the Company having agreed **to make progress payments to Contractor for the above Contract against a bank guarantee (hereinafter referred to Guarantee) to be furnished by the Contractor of an amount equivalent to five percent [5%] of the invoiced value, in lieu of retention, commencing with the submission of the first invoice for progress payments and this Guarantee shall be increased by Contractor by five percent [5%] of the invoiced value for any and all subsequent invoices,**

we \_\_\_\_\_ (Name of Bank) established/registered under \_\_\_\_\_ (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 Contractor and undertake to pay on demand signed by the Company's duly authorized officer to the Company any money or all money to the extent of the value of this Guarantee at the time but in any case not exceeding \_\_\_\_\_ **[a x 0.05]** (in Fig.) \_\_\_\_\_ (in Words) in aggregate at any time without any demur, reservation,

recourse, contest and/or without any reference to the Contractor. Any such demand made by the Company on the Bank shall be conclusive and binding notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.

2. The Bank agrees that the Guarantee herein contained shall be irrevocable and shall continue to be enforceable.
3. The Company shall have the fullest liberty, without affecting in any way the liability of the Bank under this Performance Guarantee from time to time to extend the time for performance of the Contract by the Contractor, or the Company and the Contractor may mutually vary the terms of the Contract. The Company shall have the fullest liberty without affecting this Guarantee to postpone from time to time the exercise of power vested in them or of any right which they might have against the Contractor and to exercise the same at any time in any manner and either to enforce or to forbear to enforce any covenants contained or implied in the Contract between the Company and the Contractor or any other course of remedy or security available to the Company. The Bank shall not be released from its obligations under these presents by any exercise by the Company of its liberty with reference to matters aforesaid or any of them or by reason of any other act of forbearance or other acts of Company on the part of Company or any other indulgence shown by the Company or by any other matter or thing whatsoever, which under law would, but for this provision, have the effect of relieving the Bank.
4. 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 Contractor and without any reference to the Contractor and notwithstanding any security or other Guarantee that the Company may have in relation to the Contractor's liabilities.
5. The Bank further agrees that this Guarantee herein contained shall remain in full force during the period that is taken for the performance of the Contract and it shall continue to be enforceable until all the dues of the Company under or by virtue of this Contract have been fully paid and its claim satisfied or discharged.
6. The Bank further agrees that as between the Bank and Company for the purpose of this Guarantee any notice given to the Bank by the Company that the money is payable by the Contractor and any amount claimed in such notice by the Company shall be conclusive and binding on us notwithstanding any difference between the Company and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.
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 Contractor 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.
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 Performance Guarantee during its currency.
9. The Bank further agrees that for the faithful performance of the Contract, if requested by the Contractor in writing, the Bank shall issue Amendment to this Guarantee, as and when required, incorporating the extended date of validity.

10. This Guarantee is open for an initial amount of \_\_\_\_\_ equivalent to five percent [5%] of the invoiced value, in lieu of retention, of the first invoice for progress payments issued by the Contractor.
11. The Bank further agrees that this Guarantee shall be automatically increased by five percent [5%] of the invoiced value for any and all subsequent invoices for progress payments issued by the Contractor.
12. The above Guarantee shall become null and void upon presentation of the Certificate of Completion of works in all respect as per provision of the Contract and acceptance thereof, countersigned by the Company.
13. 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 (i.e. 5% of the total estimated contract value excluding the value of Operation and maintenance), unless the Contract value is amended further;
  - b. This Guarantee shall remain in full force up to and including **90 (Ninety)** days after the date of the final Acceptance of the Subject work (as per Completion Certificate issued by the Company) and any extension(s) thereof on written instruction from the Contractor on whose behalf this Guarantee has been given, in which case it shall remain in full force up to and including **90 (Ninety)** 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 within **90 (Ninety)** days after the date of the final Acceptance and the Company's right under this Guarantee will cease.
14. The Bank further agrees that the Bank shall directly inform to Company/ issue the Amendment to the Guarantee to the Company incorporating enhancement of the in lieu of retention amount after certification of each invoice by the Company.
15. The Bank further agrees that all claims under this Guarantee is payable the Company in favour of the above said account number at New Delhi
16. 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]

**EXHIBIT- 8**

[Proforma for] **MANDATE FORM**  
 [To be submitted after award of work]

1.	<b>Bidder Name</b>	:	
2.	<b>Bidder Code</b>	:	
3.	Address of the Bidder	:	
4.	<b>Particulars of Bank Account of Bidder</b>		
5.	a) <b>Name of the Bank</b>	:	
6.	b) Name of the Branch and Address of the Branch	:	
7.	c) Branch Code	:	
8.	d) <b>9 – Digit MICR Code Number</b> of the Bank & Branch (As appearing in the MICR Cheque issued by the Bank) (Please do not give multicity Cheque book Number)	:	
9.	e) <b>Type of Account</b> (saving Bank, Current or Cash Credit)	:	
10.	f) <b>Account Number</b>	:	
11.	g) RGTS/ IFSC Code No.	:	
12.	<b>E-mail</b> address of the Bidder	:	
13.	<b>Contact Person(s)</b> of the Bidder	:	

I/ We declare that the particulars given above are correct and complete and I / we accord our consent for receiving all our payments through Electronic Mechanism.

(Signature and Designation of the Authorised person(s)  
 of Bidder)

Official Seal of the Bidder

Place:

Date:

**BANK CERTIFICATION**

Certified that the particulars furnished above are correct as per our records.

Place:

Date:

Signature and Designation of authorized Officer of the Bank

Bank's Stamp

**APPENDIX-1**

**TO**

**GENERAL CONDITIONS OF CONTRACT**

**CONTRACTOR'S LABOUR REGULATIONS**

**(Reference: Clause 79.0 & 81.0 of GCC)**

1. These regulations may be called Model Contractors Labour Regulations.
2. Definition: In these regulations, unless otherwise expressed or indicated, the following works and expressions shall have meaning hereby assigned to them:
  - (a) "Labour" means a worker employed by a contractor, directly or indirectly through a sub-contractor or by an agent on his behalf to do any skilled, semi-skilled or unskilled manual, supervisory, technical or clerical work.
  - (b) "Fair Wage" means wages, which shall include wages for weekly day of rest and other allowances, whether for time or piece work, after taking into consideration prevailing market rates for similar employment's in the neighborhood but shall not be less than the minimum rates of wages fixed under the payment of Minimum Wages Act.
  - (c) "Wages shall have the same meaning as defined in the Payment of Wages Act.
  - (d) "Contractor" for the purpose of these regulations shall include an agent or sub-contractor employing labour on the work taken on the contract.
  - (e) "Inspecting Officer" means any Labour Enforcement Officer or Assistant Labour Commissioner of the Chief Labour Commissioner's Organization.
  - (f) "Prescribed" means prescribed under the Contract Labour (Regulation and Abolition) Act, 1970 and Rules framed thereunder.
3. Notice of commencement: The Contractor, shall within SEVEN days of commencement of the work, furnish in writing, to Inspecting Officer of the area concerned the following information:
  - (a) Name and Situation of the work.
  - (b) Contractor's name and address.

- (c) Particulars of the Department for which the work is undertaken
  - (d) Name and address of sub-contractors as and when they are appointed
  - (e) Commencement and probable duration of the work
  - (f) Number of workers employed and likely to be employed
  - (g) "Fair wages" for different categories of workers
  - (h) Number of hours of work to constitute a normal working day: The number of hours which shall constitute a normal working day for an adult shall be NINE hours. The working day of an adult worker shall be so arranged that it is inclusive of intervals, if any, for rest, it shall not spread over more than twelve hours on any day. When a worker is made to work for more than NINE hours on any day or for more than FORTY EIGHT hours in a week, he shall, in respect of overtime work, be paid wages at double the ordinary rate of wages.
- (ii) Weekly day of rest: Every worker shall be given a weekly day of rest which shall normally be a Sunday unless otherwise fixed and noticed at least TEN days in advance. A worker shall not be required or allowed to work on the weekly rest day unless he has or will have a substituted rest day, on one of the five days immediately before or after the rest day, provided that no substitution shall be made which will result in the worker working for more than ten days consecutively without a rest day for a whole day.
4. Where, in accordance with the foregoing provisions, a worker works on the rest day and has been given a substituted rest day, he shall be paid wages for the work done on the weekly rest day at the overtime rate of wages.
- (NOTE: The expression "ordinary rate of wages" means the fair wage the worker is entitled to).
5. Display of notice regarding Wages, Weekly day of Rest etc: The contractor shall, before the commencement of his work on the Contract, display and correctly maintain in a clean and legible condition in conspicuous places on the works, notice in English and in the local Indian language, spoken by majority of workers, giving the rate of fair wages, the hours of work for which such wages are payable, the weekly rest days workers are entitled to and name and address of the Inspecting Officer. The Contractor shall send a copy each of such notices to the Inspecting Officers.
- 6.1 Fixation of Wage Periods: The Contractor shall fix wage periods in respect of which wages shall be payable. No wage period shall normally exceed one month.
- 6.2 Payment of wages:

- (i) Wages due to every worker shall be paid to him direct. All wages shall be paid in current coins or currency or in both. The wages shall be paid without deductions of any kind except those specified by Central Government by General Order or Special Order in this behalf or permissible under the Payment of Wages Act.
- (ii) Wages of every worker employed as contract labour in an establishment or by Contractor are less than one thousand, such workers shall be paid within SEVEN days from the end of the Wage period: and before the expiry of the 10<sup>th</sup> day from the end of the wage period accordingly as the number of workers exceed 1,000.
- (iii) When employment of any worker is terminated by or on behalf of the Contractor, the wages earned by him shall be paid before expiry of the second working day from the date on which his employment is terminated.
- (iv) All payment of wages shall be made at the work site on a working day except when the work is completed before expiry of the wage period, in which case final payment shall be made at the work site within 48 hours of the last working day and during normal time.

(NOTE: The term “working day” means a day on which labour is employed, and the work is in progress).

- 7. Register for Workmen: A register of workmen shall be maintained in the prescribed form and kept at the work site or as near to it as possible, and the relevant particulars of every workmen shall be entered therein within THREE days of his employment/
- 8. Employment Card: The Contractor shall issue an employment card in the Form appended to these regulations to each worker on the day of work or entry into his employment. If a worker already has any such card with him issued by the previous employer, the Contractor shall merely endorse that Employment Card with relevant entries. The Contractor may, alternatively, issue an attendance-cum wage slip to each worker in the form appended. This card shall be valid for a wage period. The Contractor shall mark attendance on the cards twice each day and again after the rest interval, before he actually starts the work. On termination of employment of employment, the Employment Card shall again be endorsed by the Contractor, service certificate issued and returned to the Worker.
- 9. Register of Wages etc.
  - (i) A register of Wages-cum Muster Roll in the prescribed Form shall be maintained and kept at the work site or as near to it as possible.
  - (ii) A wage slip in the prescribed Form shall be issued to every worker employed by the Contractor at least a day prior to disbursement of wages.
- 10. Fines and deductions which may be made from Wages:

- (i) Wages of a worker shall be paid to him without any deduction of any kind except the following:
  - (a) Fitness;
  - (b) Deduction for absence from duty, i.e. from the place of his employment he is required to work. The amount of deductions shall be in proportion to the period for which he was absent;
  - (c) Deduction for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money which he is required to account for, where such damage or loss is directly attributable to his neglect or default;
  - (d) Deductions for recovery of advances or for adjustment of overpayment of wages. Advance granted shall be entered shall be entered in a register; and
  - (e) Any other deduction which the corporation may from time to time allow.
- (ii) No fitness shall be imposed on any worker say in respect of such acts and omissions on his part as have been approved by the Chief Labour Commissioner or Competent Authority.
- (iii) No fitness shall be imposed on a worker and no deductions for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deduction.
- iv) The total amount of fines which may be imposed in any one wage period on a worker shall not exceed an amount equal to three paise in a rupee of the wages payable to him in respect of that wage period.
- (v) No fine imposed on a worker shall be recovered from him in installments, or after expiry of sixty days from the date on which it was imposed. Every fine shall be deemed to have been imposed on the day of the omission in respect of which it was imposed.
- (vi) The Contractor shall maintain both in English and the local Indian language, a list approved by the Chief Labour Commissioner or Competent Authority clearly stating the acts and commissions for which penalty or fine may be imposed on a workman and display it in good condition in conspicuous place on the work site.
- (vii) The Contractor shall maintain a register of fines and the register of deductions for damage or loss in the prescribed Forms which should be kept at the place of work.
- (viii) The Contractor shall display in a conspicuous place of work the list of acts and omissions for which the fines can be imposed. They are as under:

1. Willful insubordination or disobedience, whether alone or in combination with other.
2. Theft, fraud or dishonest in connection with the Contractors beside a business or property of Corporation
3. Taking or giving bribes or any illegal gratification
4. Habitual late attendance
5. Drunkenness, fighting, riotous or disorderly or indifferent behavior
6. Habitual negligence
7. Smoking near or around the area where combustible or other materials are locked
8. Habitual indiscipline
9. Causing damage to work in the progress or to property of the Corporation or of the Contractor.
10. Sleeping on duty
11. Malingering or slowing down work
12. Giving of false information regarding name, age, father's name etc
13. Habitual loss of wage cards supplied by the employers
14. Unauthorized use of employer's property or manufacture or making of unauthorized articles at the work place
15. Bad workmanship in construction and maintenance by skilled workers which is not approved by the Corporation and for which the Contractor is compelled to undertake rectification
16. Making false complaints and/or misleading statements
17. Engaging on trade within the premises of the establishments
18. Any unauthorized divulgence of business affairs of the employers
19. Collection or canvassing for the collection of an money within the premises of an establishment unless authorized the by the employer
20. Holding meeting inside the premises without previous sanction of the employers

21. Threatening or intimidating any workmen or employer during the working hours within the premises
  22. Non-observance of Safety norms/practices applicable to the Worksite.
11. Register of Accidents: The Contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:
  - (a) Full particulars of the laborers who met with accident
  - (b) Rate of wages
  - (c) Sex
  - (d) Age
  - (e) Nature of accident and cause of accident
  - (f) Time and date of accident
  - (g) Date and time when admitted in hospital
  - (h) Date of discharge from the hospital
  - (i) Period of treatment and result of treatment
  - (j) Percentage of loss of earning capacity and disability as assessed by Medical Officer
  - (k) Claim required to be paid under Workmen's Compensation Act
  - (l) Date of payment of compensation
  - (m) Amount paid with details of the person to whom the same was paid
  - (n) Authority by whom the compensation was assessed
  - (o) Remarks
12. Preservation of Register: The Register of Workmen and the Register of Wages-cum-Muster Roll required to maintain under these Regulation shall be preserved for 3 years after the date on which the last entry is made therein.
13. Enforcement: The Inspecting Officer shall either, on his own motion or on a complaint received by him, carry out investigations and send a report to the Engineer-in-charge specifying the amounts representing Workers' dues and amount of penalty to be imposed on the Contractor for breach of these Regulations, that have to be recovered from the Contractor, indicating full details of the recoveries proposed and the reasons thereof. It shall be

obligatory on the part of the Engineer-in-charge on receipt of such a report to deduct such amounts from payment due to the Contractor.

14. Disposal of amounts from the Contractor: The Engineer-in-charge shall arrange payment to workers concerned within FORTY FIVE days from receipt of a report from the Inspecting Officer. In cases where there is an appeal, payment of workers dues would be arranged by the Engineer-in-charge wherever such payments arise, within THIRTY days from the date of receipt of the decision of the Regional Labour Commissioner (RLC).
15. Appeal against decision of Inspecting Officer: Any person aggrieved by a decision of the Inspecting Officer may appeal against such decision to the RLC concerned within THIRTY days from the date of decision, forwarding simultaneously a copy of his appeal to the Engineer-in-charge. The decision of the RLC shall be final and binding upon the Contractor and the workmen.
16. Representation of parties:
  - (i) A workmen shall be entitled to be represented in any investigation or enquiry under these Regulations by an officer of a registered trade union of which he is a member or by an officer of a Federation of Trade Unions to which the said trade unions is affiliated or where the workman is not a member of any registered trade union, by an officer of a registered trade union, connected with, or by any other workman employed in the industry in which the worker is employed.
  - (ii) A contractor shall be entitled to be represented in any investigation of enquiry under these Regulations by an officer of an Association of Contractors of which he is a member or by an officer of a Federation of Association of Contractors to which the said association is affiliated or where the Contractor is not a member of any Association of Contractors, by an officer of association of employers, connected with, or by any other employer engaged in, the industry in which the Contractor is engaged.
  - (iii) No party shall be entitled to be represented by a legal practitioner in any investigation or enquiry under these Regulations.
17. Maternity benefits for female employees: The Contractor shall extend the leave, pay and other benefits as admissible to the female employees. No maternity benefits shall be admissible to a female worker unless she has been employed for a total period of not less than 6 months immediately proceeding the date on which she proceeds on leave. The Contractor shall maintain a register of maternity benefits in prescribed form, and shall be kept in all places of work.
18. Inspection of Books and other documents: The Contractor shall allow inspection of the Registers and other documents prescribed under these Regulations by Inspecting Officers and the Engineer-in-charge or his authorized representative at any time and by the worker or his agent on receipt of due notice at the convenient time.

19. Submission of Returns: The Contractor shall submit periodical returns as may be specified from time to time.
20. Amendments: The Corporation may, from time to time, add to or amend these Regulations, and issue such directions as it may consider necessary for the proper implementation of these Regulations or for the purpose of removing any difficulty which may arise in the administration thereof.

**APPENDIX-II  
TO THE GENERAL CONDITIONS OF CONTRACT**

**MODEL RULES FOR LABOUR WELFARE**

**(Refer: Clause 79.0 & 81.0 of GCC)**

1. Definitions
  - (a) "Workplace" means a place at which, on an average, twenty or more workers are employed on any day during which the Contract work is in progress.
  - (b) "Large Workplace" means a place at which, on an average 500 or more workers are employed.
  
2. First Aid
  - (i) At every workplace, there shall be provided and maintained in a readily accessible place First Aid appliances including an adequate supply of sterilized dressings and sterilized cotton wool as prescribed in the Factory Rules of the State in which the work is carried on. The appliances shall be kept in good order and in large work places, they shall be placed under the charge of a responsible person who shall be trained in First Aid treatment and who shall also be readily available during working hours. The First Aid boxes at the rate of not less than one box for 150 contract labour or part thereof shall be ordinarily employed. Adequate arrangement shall be made for immediate recoupment of items/equipment when necessary.

The first –aid box shall be distinctly marked with a red cross on white back ground and shall contain, or work places in which the number of contract labour employed does not exceed 50-the following equipment:-

    - a) Each first-aid box shall contain the following equipments :-
    - b) 6 small sterilized dressings.
    - c) 3 medium size sterilized dressings.
    - d) 3 large size sterilized dressings.
    - e) 3 large sterilized burn dressings.
    - f) 1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.
    - g) 1 (30 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
    - h) 1 snakebite lancet.
    - i) 1 (30 gms.) bottle of potassium permanganate crystals.
    - j) 1 pair scissors.
    - k) 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
    - l) 1 bottle containing 100 tablets (each of 5 gms.) of aspirin.
    - m) Ointment for burns.
    - n) A bottle of suitable surgical antiseptic solution.

For work places in which the number of contract labour exceed 50. Each first-aid box shall contain the following equipments:-

- a. 12 small sterilized dressings.
  - b. 6 medium size sterilized dressings.
  - c. 6 large size sterilized dressings.
  - d. 6 large size sterilized burn dressings.
  - e. 6 (15 gms.) packets sterilized cotton wool.
  - f. 1 (60 ml.) bottle containing a two per cent alcoholic solution iodine.
  - g. 1 (60 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
  - h. 1 roll of adhesive plaster.
  - i. 1 snake bite lancet.
  - j. 1 (30 gms.) bottle of potassium permanganate crystals.
  - k. 1 pair scissors.
  - l. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institutes /Government of India.
  - m. A bottle containing 100 tablets (each of 5 gms.) of aspirin.
  - n. Ointment for burns.
  - o. A bottle of suitable surgical antiseptic solution.
- (ii) At large work places, where hospital facilities are not available within easy distance of the Works, First Aid posts shall be established and be run by a trained compounder.

Where large work places are remotely situated far away from regular hospitals, an indoor ward shall be provided with one bed for every 250 employees.

Where large work places are situated in cities, towns or in their suburbs and no beds are considered necessary owing to proximity of city or town hospitals, suitable transport shall be provided to facilitate removal of urgent cases to these hospitals. At other workplaces, some conveyance shall be kept readily available to take injured person or persons suddenly taken seriously ill to the nearest hospital. At large work places, there shall be provided and maintained an ambulance room of the prescribed sizes, containing the prescribed equipment and in the charge of such medical and nursing staff as may be prescribed. For this purpose, the relevant provisions of the Factory Rules of the State Government area where the work is carried on may be taken as the prescribed standard.

3. Accommodation for labour: The Contractor shall during the progress of the Works, provide, erect and maintain necessary temporary living accommodation and ancillary facilities for labour at his own expense and to standard and scales as approved by the Engineer-in-charge. However, following specifications shall be followed:

- (a)(i) The minimum height of each hut at the caves level shall be 2.10m (7ft) and the floor area to be provided will be at the rate of 2.7 sqm (30 sq. ft) for each member of the worker's family staying with the labourer.

- (ii) The Contractor shall in addition construct suitable cooking places having a minimum area of 1.8m x 1.50m (6" x 5") adjacent to the hut for each family.
  - (iii) The Contractor shall also construct temporary latrines and urinals for the use of the labourers, each on the scale of not less than four per each one hundred of the total strength. Separate latrines and urinals been provided for women.
  - (iv) The Contractor shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These washing and bathing places shall be suitable screened.
- (b)(i) All the huts shall have walls of sun-dried burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be katcha, but plastered with mud gobri and shall be at least 15 cm (6") above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the Contractor shall ensure that throughout the period of their occupation, the roofs remain water-tight.
- (ii) The Contractor shall provide each hut with proper ventilation
  - (iii) All doors, windows and ventilators shall be provided with suitable leaves for security purposes.
  - (iv) There shall be kept an open space at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft) according to the availability of site with the approval of the Engineer-in-Charge. Back to back construction will be allowed.
4. Drinking Water: In every workplace, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

Where drinking water is obtained from an intermittent public water supply, each workplace shall be provided with storage where drinking water should be stored.

Every water-supply-storage shall be at a distance of not less than 15 meters from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well, which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and water proof.

A reliable pump shall be fitted to each covered well, trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. Washing and Bathing Places: Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept in clean and drained conditions.
6. Scale of accommodation in latrines and urinals : There shall be provided within the precincts of every workplace, latrines and urinals in an accessible place and the accommodation separately for each of these, shall not be less than at the following scales :-

No. of seats:

- |     |  |   |                           |
|-----|--|---|---------------------------|
| (a) | Where number of persons does not exceed 50                 | - | 2                         |
| (b) | Where number of persons exceeds 50 but does not exceed 100 | - | 3                         |
| (c) | For additional persons                                     | - | 3 per 100 or part thereof |

In particular cases, the Engineer-in-Charge shall have the power to increase the requirement, where necessary.

7. Latrines and Urinals: Except in workplaces provided with water-flushed latrines connected with a water-borne sewage systems, all latrines shall be provided with receptacles on dry earth system which shall be cleared at least four times daily and at least twice during working hours and kept in strictly sanitary condition. Receptacles shall be tarred inside and outside at least once a year.

If women are employed, separate latrine and urinals screened from those for men and marked in the vermicular letters "For Women Only" shall be provided on the scale laid down in Rule 6. Those for men shall be similarly marked "For Men Only". A poster showing the figure of a man and a woman shall also be exhibited at the entrance to latrines for each sex. There shall be adequate supply o water close to latrines and urinals.

8. Construction of latrines: Inside walls shall be constructed of masonry or other non-absorbent materials and shall be cement-washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for the purpose and kept available for inspection. Latrines shall have at least thatched roof.
9. Disposal of excreta: Unless otherwise arranged for by the local municipal authority, arrangement for proper disposal of excreta by incineration at the workplace shall be made by means of a suitable incinerator approved by the local medical, health and medical or cantonment authorities. Alternatively, excreta may be disposed off by putting a layer of night soils at the bottom of pucca tank prepared for the purpose and covering it with a 15 c.m. Layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn into manure).

The Contractor shall, at his own expense, carry out all instructions issued to him by the Engineer-in-charge to effect proper disposal of soil and other conservancy work in respect of Contractor's work people or employees at the site. The contractor shall be responsible for payment of any charges which may be levied by municipal or cantonment authority for execution of such work on his behalf.

10. Provision of shelters during rest: At every workplace shall be provided, free of cost, four suitable sheds, two for meals and two others for rest, separately for use of men and women labour. Height of each shelter shall not be less than 3 meters from the floor level to lowest part of roof. Sheds shall be kept clean and the space provided shall be on the basis of at least 0.5 sq.m per head.
11. Creches: At a place at which 20 or more women workers are ordinarily employed there shall be provided at least two huts of reasonable dimensions for use of children under the age of 6 years belonging to such women. One hut shall be used as a play room for the children and the other as their bedroom. Huts shall not be constructed to a standard lower than that of thatched roof, mud floor and wall with wooden planks spread over mud floor and covered with matting.

Huts shall be provided with suitable and sufficient opening for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be two dais in attendance. Sanitary utensils shall be provided to the satisfaction of local medical, health and municipal or cantonment authorities. Use of huts shall be restricted to children, their attendants and mothers of children.

The contractor shall provide one ayaa to look after the children in the creche when the number of women workers does not exceed 50 and two when the number of women workers exceeds 50.

Size of creche(s) shall vary according to the number of women workers employed.

Creche(s) shall be properly maintained and necessary equipment like toys etc. provided.

12. Canteen: A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered necessary.
13. Planning, setting and erection of the above mentioned structures shall be approved by the Engineer-in-charge and the whole of such temporary accommodation shall at all times during the progress of the works be kept tidy and in a clean and sanitary condition as per requirements of the local bodies and to the satisfaction of the Engineer-in-charge and at the Contractor's expense. The Contractor shall conform generally to sanitary requirements of local medical, health and municipal or cantonment authorities and at all time adopt such precautions as may be necessary to prevent soil pollution of the site.

On completion of the Work, the whole of such temporary structures shall be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in an effectively sealed off and the whole of site left clean and tidy to the entire satisfaction of the Engineer-in-charge and at the Contractor's expense.

14. Anti-material precautions: The Contractor shall, at his own expense, conform to all anti material instructions given to him by the Engineer-in-charge, including filling up any burrow pits which may have been dug by him.
15. Enforcement: The Inspecting Officer mentioned in the Contractors' Labour Regulations or any other officer nominated in his behalf by the Engineer-in-charge shall report to the Engineer-in-charge all cases of failure on the part of the Contractor and or his sub-contractors to comply with the provisions of these Rules either wholly or in part and the Engineer-in-charge shall impose such fines and other penalties as are prescribed in the conditions.
16. Interpretations etc: On any question as to the application, interpretation of effect of these Rules, the decision of the Chief Labour Commissioner or Deputy Chief Labour Commissioner (Central) shall be final and binding.
17. Amendments: Government/Corporation may, from time to time, add to or amend these rules and issue such directions as it may consider necessary for the proper implementation of these Rules or for the purpose of removing any difficulty which may arise in the administration thereof.

# **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 (GCC), 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 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.
- 1.5 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) Detailed Letter of Acceptance along with enclosures.
  - ii) Letter / Fax 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
- 1.6 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.
- 1.7 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.
- 1.8 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.
- 1.9 All drawings viz. Architectural, structural, Electrical, HVAC etc. and other services drawings for the work shall at all time be properly correlated before executing any work and no claim whatsoever shall be entertained in this respect.
- 1.10 The contractor shall submit a scheme and shop drawings of staging and Shuttering arrangement for Approval of Engineer-in-charge. The contractor shall also submit bar bending schedule for approval of Engineer-in-charge before Execution.

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- 1.11 The contractor, through his engineers, shall ensure quality construction in a planned and time bound manner. Any sub-standard Material / work beyond set out tolerance limits shall be summarily rejected by the Engineer-in-Charge.
- 1.12 The Contractor has to be fully familiar with the site condition. Lots of isolated hard rock/ isolated boulders are there in the site which is required to be excavated without resorting to blasting. The Contractor has to be equipped with all the machineries/ mechanism to deal with the situation without affecting the time schedule.
- 1.13 The materials, design and workmanship shall satisfy the specifications and codes mentioned in the Technical Part of the Bidding Document. 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 Engineer-in-Charge will be binding upon 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 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.
- 3.2 Contractor shall make his own arrangement for water, required for construction. If, however, piped water is supplied by the Owner/EIL, the contractor shall pay for the water based on the reading of water consumption which will be measured through Meter at the rate decided by Engineer-In-Charge. 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.
- 3.3 Contractor shall arrange power required for construction from Concerned supply Authorities for the Project site on behalf of the Owner/EIL (Owner/EIL shall make power available to the contractor only if surplus power is available and the Contractor shall pay for the power based on the meter reading of power consumption at the rate decided by Engineer-In-Charge. Contractor shall make his own arrangement in case power is not provided by Owner/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.
- 3.4 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.
- 3.5 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. Land provided by Owner shall not create any right, title or interest whatsoever in the contract.

3.6 Space shall be provided by Client for the storage of material/ working / office area to the agency/ Contractor. No space for labour hutments shall be provided by Client / EIL to contractor.

3.7 Contractor shall make his own arrangement for labour hutments outside Site at his own cost. No claim of payment on this account what so ever shall be entertained.

3.8 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 – VIII** 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 DRAWINGS AND DOCUMENTS**

5.1 The drawings accompanying the bid document (if any) are of indicative nature and issued for bidding purpose only. Purpose of these drawing is to enable the bidder to make an offer in line with the requirements of the Owner. However no extra claim whatsoever shall be entertained for variation in the "Approved for Construction" and "Bid document drawings" regarding any changes/units. Construction shall be as per drawings/specifications issued / approved by the Engineer-in-Charge during the course of execution of work. Detailed construction drawings (wherever required) on the basis of which actual execution of work is to proceed will be prepared by the contractor.

5.2 The drawings and documents to be submitted by the Contractor to Engineer-In-Charge after award of the work as per the requirements enlisted in the bidding document shall be for Engineer-In-Charge review, information and record. The Contractor shall ensure that drawings and documents submitted to Engineer-In-Charge are accompanied by relevant calculations, data as required and essential for review of the document/ drawings. EIL shall review the drawings/ documents within two weeks from the date of submission provided the same are accompanied by relevant calculations, data as required and essential for review.

5.3 All documents and drawings including those of Contractors sub-vendor's manufacturer's etc. shall be submitted to Owner after having been fully vetted in detail, approved and co-opted by the Contractor & shall bear Contractor seal/ certifications to this effect. All documents/drawings & submissions made to Owner without compliance to this requirement will not be acceptable and the delay & liability owing to this shall be to the Contractor's account.

5.4 The review of documents and drawings by Owner shall not absolve Contractor from his responsibility to meet the requirements of specifications, drawings etc. and liabilities for mistakes and deviations. Upon receiving the comments on the drawing/documents reviewed by Employer, Contractor shall incorporate the comments as required and ensure their compliance.

5.5 Copies of all detailed working drawing relating to the works shall be kept at the contractors' office at the site and shall be made available to the Engineer-in-charge/ Employer at any time during execution of the contract. However no extra claim what so ever shall be entertained for any variation in the "approved/issued for construction drawings" and "tender drawings" regarding any changes/units unless otherwise agreed.

5.6 The Contractor shall rectify any inaccuracies, errors and non-compliance to contractual

requirements. Any delay occurring on this shall not construe a reason for delay/ extension.

## **6.0 COMPLIANCE WITH LAWS**

6.1 The Contractor shall abide by all applicable rules, regulations, statutes, laws governing the performance of works in India, including but not limited to the following:

- i) Contract Labour (Regulation & Abolition) Act 1970 & the centre rules 1971 framed there under.
- ii) Payment of Wages Act.
- iii) Minimum Wages Act.
- iv) Employer's Liability Act.
- v) Factory Act.
- vi) Apprentices Act.
- vii) Workman's Compensation Act.
- viii) Industrial Dispute Act.
- ix) Environment Protection Act.
- x) Wild life Act.
- xi) Maritime Act.
- xii) Any other Statute, Act, Law as may be applicable.

## **7.0 WORKS CONTRACT**

7.1 The entire work covered under this contract shall be treated as "Works Contract".

## **8.0 TAXES, DUTIES AND LEVIES**

8.1 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. Service Tax is not applicable for this project.

8.2 Any new taxes/ duties/cess/levies notified/ imposed after the submission of last/ final price bid but before the contractual date of completion of work shall be to OWNER's account on submission of documentary evidence and after ascertaining its applicability with reference to contract. However, if such new taxes etc. is in substitution of existing taxes same will be considered on merit of each case.

8.3 Owner shall make from Contractor's bills such tax deductions as are required as per rules and regulations in force from time to time.

8.4 No variations, Statutory or otherwise shall be payable by OWNER to the CONTRACTOR on taxes and duties.

8.5 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.

8.6 C-FORM will not be issued by OWNER to the Contractor.

## **9.0 INCOME TAX & CORPORATE TAX**

9.1 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.

9.2 Corporate Tax Liability if any shall be to Contractor's account.

## **10.0 VAT ON WORKS CONTRACT / WORKS CONTRACT TAX**

10.1 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 shall be deducted from the Contractors bill, as applicable, as per the prevailing rate in Haryana State. Any variations to the same including statutory variations to the same shall be to Contractor's account.

**11.0 CONSTRUCTION WORKERS CESS**

11.1 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.

11.2 Prices quoted by the bidder shall be deemed to be inclusive of labour cess.

11.3 Cess as per the prevailing rate, shall be deducted at source from bills of the Contractor and remitted to the "Secretary, Building and Other Construction Workers Welfare Board" of the concerned State by the Owner as per the regulations. 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.

**12.0 FIRM PRICE**

12.1 The contracted prices shall be firm and fixed till the completion of the works in all respects except the price variation as per relevant clause of SCC. No variation in prices on any other account shall be admissible to the Contractor.

**13.0 PROVIDENT FUND**

13.1 The Contractor shall strictly comply with the provisions of Employees Provident Fund Act and register themselves with RPFC before commencing work. The Contractor shall deposit Employees and Employers contributions to the RPFC every month. The Contractor shall furnish along with each running bill, the challan / receipt for the payment made to the RPFC for the preceding months.

13.2 In case the relevant provident fund Authority's receipt/challans referred to above are not furnished, Owner/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.

**14.0 MOBILISATION ADVANCE**

14.1 Contractor shall be paid recoverable interest bearing Mobilisation Advance upto a maximum of 10% (ten percent) of awarded Contract value for the subject work. The mobilization advance will attract an interest rate at PLR charged by SBI (applicable as on date of award) plus 2% p.a. on reducing balance basis. Mobilization advance shall be paid to the Contractor in two instalments after signing the Contract Agreement in the following manner :

**(a) First Instalment**

5% (five percent) of awarded contract value shall be payable as the first instalment of mobilization advance after fulfilling the following formalities by the Contractor

- i) Signing of contract agreement by the Contractor.
- ii) Submission of a separate Bank Guarantee towards Security Deposit in line with provisions of bidding document..
- iii) Submission of a separate Bank Guarantee from an Indian Nationalized / Scheduled Bank / Indian branch of an International Bank as stipulated in approved proforma equivalent to 10% of 110% of the awarded contract value covering mobilization advance which shall be kept valid till completion of work. However, Contractor may submit Bank Guarantee of 10% as above in two stages of 5% each for availing advance against sub-clause (b) below.

**(b) Second Instalment**

Balance 5% Mobilization Advance shall be payable to the Contractor after the following :

- Contractor has constructed Site Office, storage shed, fabrication yard, etc. and has physically mobilized equipments and is ready to start the work to the entire satisfaction of Engineer – in –Charge and commencement of the work at site.

- Contractor has submitted utilization statement of the first mobilization advance.

14.2 Recovery of Mobilization Advance:

- The mobilization advance together with the interest accrued, shall be recovered from each running account bill @ 12% of gross amount of monthly R.A. Bill in such a manner that the total advance and interest accrued is recovered when approximate 85% of the contract value gets paid. Balance amount, if any, remaining shall be deducted in full from the pre-final bill. Bank Guarantee towards Mobilization Advance can be reduced accordingly on quarterly basis against the request of the Contractor.
- Notwithstanding above, in case no Running Bills are generated for consecutive 2 months, without written approval from Engineer-in-charge, Owner reserves the right to invoke the mobilization advance by encasing the bank guarantee.

**15.0 CHANGE ORDERS**

15.1 A change order will be initiated in case:

- The Owner directs the Contractor to include any addition to the scope of work not covered under this contract or deletes any part of the scope of the work under the contract.
- Contractor requests to delete any part of the work which will not adversely affect the operational capabilities of the project and if agreed by the Owner and for which cost and time benefits shall be passed on to the Owner.

15.2 Any changes required by the Owner before giving their approval to detailed procedure or any other document relating to material procurement, layout plans etc for complying with the requirements of bidding document shall not be construed to be a change in the scope of work under the contract.

15.3 Any change order as above comprising an alteration which involves a change in the cost of the works (which sort of alteration is hereinafter called a "Variation") shall be the subject of an amendment to the contract by way of an increase or decrease in the contract price and adjustment of the Construction Schedule if any.

15.4 If the contract provides applicable rates for the valuation of the variation in question, the contract price shall be increased or decreased in accordance with those rates. If the parties agree that the contract does not contain applicable rates then the parties shall negotiate a revision of the contract price which shall represent the change in cost of the works caused by the variations. Any change order must be duly approved by the Owner in writing.

15.5 If there is a difference of opinion between Contractor and Owner whether a particular work constitutes a change order or not, the matter shall be handled in accordance with the procedures set forth in para below.

15.6 Within 10(Ten) working days of receiving the comments from the Owner on the documents submitted by the Contractor for approval, the Contractor's response in writing stating which item(s) is/are potential change (s), if applicable, will be submitted to the Owner.

**16.0 PROCEDURE**

16.1 During execution of work if the Contractor observes that any new requirements which is not specific or intended in the bidding document has been indicated by Owner, they shall discuss the matter with Owner's representatives.

16.2 In case such requirement arises from the side of the Contractor they would also discuss the matter with Owner's Representative.

16.3 In either of the two cases above, the representatives of both the parties shall discuss the project requirement and mutually decide whether the project requirement constitutes a change order.

16.4 If it is mutually agreed that the project requirement/Inquiry constitutes a "Change Order" then

a joint memorandum will be prepared to confirm a "Change Order" and basic ideas of necessary agreed modifications.

- 16.5 Contractor will study the work required in accordance with the Joint memorandum and assess subsequent schedule and cost effect if any.
- 16.6 The results of this study would be discussed mutually to enable Owner to give a final decision whether Contractor should proceed with the Change Order or not, in the best interest of the Project.
- 16.7 If Owner's representative accepts the change order in writing then Contractor shall proceed with the work stipulated in the Change order. Time worked by all workmen employed and a statement showing the description and quantity of all materials and plant utilised for extra work shall be submitted to Owner. The Owner's representative shall sign and return to the Contractor the statement, as agreed. At the end of each month the Contractor shall deliver to the Owner's representative a priced statement of the labour, materials and plant used. Whenever any dispute arises as to cost allocation between the Contractor and the Owner, the voucher shall nevertheless be signed by the Owner as a record of time worked and materials used. List and vouchers so signed will be the subject of negotiations between the Owner and the Contractor regarding their costs allocation.
- 16.8 In case, mutual agreement as above that is whether Project Requirement constitutes a Change order or not, is not reached, then Contractor, in the interest of the project, shall take up the implementation of the work, if advised in writing to do so by Owner's representative pending settlement between the two parties to the effect whether the Project Requirement constitutes a change order or not as per the terms and conditions of Contract Documents.
- 16.9 The time and cost effect in such a case shall be mutually verified for the purpose of record. Should it be established that the said work constitutes a Change Order, the same shall be compensated taking into account the records kept and in accordance with the contract.
- 16.10 Should the amount of extra work/ change order, if any, which the Contractor may be required to perform by the Owner, fairly entitles the Contractor to extensions of time beyond the scheduled completion date for completion of either the whole of the works or for such extra work only, the Owner and the Contractor shall mutually discuss and decide the extension of time, if any to be granted to the Contractor.

#### **17.0 STATUTORY APPROVALS**

- 17.1 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 bid 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.
- 17.2 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.
- 17.3 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.

#### **18.0 DISTINCTION BETWEEN FOUNDATION AND SUPERSTRUCTURE**

- 18.1 To distinguish between work in foundations and superstructures, the following criteria shall apply:
- 18.2 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.

- 18.3 For Buildings only, all works upto 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".
- 18.4 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.
- 18.5 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.

## **19.0 TESTS AND INSPECTION**

- 19.1 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.
- 19.2 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.
- 19.3 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.
- 19.4 The Contractor shall provide for purposes of inspection access ladders, lighting and necessary instruments at his own cost.
- 19.5 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.
- 19.6 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.
- 19.7 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.
- 19.8 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.
- 19.9 Inspection and acceptance of work shall not relieve the Contractor from any of his responsibilities under this Contract.

## **20.0 INSPECTION OF SUPPLY ITEMS / MATERIALS**

- 20.1 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.
- 20.2 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.
- 20.3 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.
- 20.4 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.
- 20.5 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.

## **21.0 FINAL INSPECTION**

21.1 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.

## **22.0 SITE CLEANING**

22.1 The Contractor shall clean and keep clean the work site from time to time to the satisfaction of the Engineer- in-Charge for easy access to work site and to ensure safe passage, movement and working.

22.2 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 Engineer-in-Charge at the risk and cost of contractor by giving him one day notice.

22.3 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.

22.4 The Contractor shall be the custodian of the dismantled materials till the Engineer-in-Charge takes charge thereof.

22.5 The Contractor shall dispose off the unserviceable materials, debris etc. to any area as decided by the Engineer-in-Charge.

22.6 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.

22.7 No extra payment shall be paid on this account.

## **23.0 CONSTRUCTION EQUIPMENT AND ORGANIZATION**

### **23.1 CONSTRUCTION EQUIPMENT**

23.1.1 The Contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and time schedule, progressively deploy **minimum construction equipments and Tools & Tackles** as specified in **Appendix-V** to this SCC as 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.

### **23.2 SITE ORGANISATION**

23.2.1 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 **minimum supervisory personnel** as specified in **Appendix-VII** to this SCC 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.

23.2.2 Qualification and experience of Key Supervisory Personnel to be deployed for this work shall be as per **Appendix-VI** to this SCC.

## **24.0 MEASUREMENT OF WORKS**

24.1 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.

**25.0 TERMS OF PAYMENT**

25.1 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.

25.2 Contractor shall open a separate bank account for project exclusively for this job only to ensure funds are utilized for subject project only. The contractor may be required to submit the account details as and when required by Engineer-in-charge.

**25.3 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.

**26.0 ROUNDING OFF**

26.1 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.

**27.0 QUALITY ASSURANCE/ QUALITY CONTROL**

27.1 Bidder shall include in his offer the Quality Assurance Programme containing the overall quality management and procedures, which is required to be adhered to during the execution of contract. After the award of the contract detailed quality assurance programme shall be prepared by the contractor for the execution of contract for various works, which will be mutually discussed and agreed to.

27.2 The Contractor shall establish document and maintain an effective quality assurance system outlined in recognised codes.

27.3 Quality Assurance System plans/procedures of the Contractor shall be furnished in the form of a QA manual. This document should cover details of the personnel responsible for the Quality Assurance, plans or procedures to be followed for quality control in respect of Design, Engineering, Procurement, Supply, Installation, Testing and Commissioning. The quality assurance system should indicate organizational approach for quality control and quality assurance of the construction activities, at all stages of work at site as well as at manufacture's works and dispatch of materials.

27.4 The Owner or their representative shall reserve the right to inspect/witness, review any or all stages of work at shop/site as deemed necessary for quality assurance.

27.5 The contractor has to ensure the deployment of quality Assurance and Quality Control Engineer(s) depending upon the quantum of work. This QA/QC group shall be fully responsible to carryout the work as per standards and all code requirements. In case Engineer-in-charge feels that contractor's QA/QC Engineer(s) are incompetent or insufficient, contractor has to deploy other experienced Engineer(s) as per site requirement and to the full satisfaction of Engineer-In-Charge.

27.6 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.

27.7 The Contractor shall adhere to the quality assurance system as per EIL Specification given in the Bidding Document as **Appendix-III**.

**28.0 HEALTH SAFETY AND ENVIRONMENT (HSE) MANAGEMENT**

28.1 The CONTRACTOR, during entire duration of the Contract, shall adhere to HSE requirement as given in the bidding document attached as Appendix-IV herewith.

28.2 The CONTRACTOR shall establish document and maintain an effective Health, Safety and Environment (HSE) management system, with full compliance of the following requirements:

- a) The housing of construction labour should have all the provision of necessary

infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after completion of work.

- b) Disposal of muck during construction phase should not create any adverse affect on the neighbouring communities.
- c) The diesel generator sets to be used during construction should be low sulphur diesel type and should conform to Environment Protection Rules prescribed for air and noise emission standard.
- d) Vehicle hired for bringing construction materials to the site should be in good condition and should have pollution check certificate. The material loaded or unloaded should be covered before transportation to avoid fugitive emission.
- e) No ground water withdrawal shall be allowed at site during construction.
- f) The tendered rate should include all the expenses towards meeting the above requirements and no extra payment shall be made to the contractor for implementing the above requirements.

28.3 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.

28.4 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.

## **29.0 GENERAL ENVIRONMENT REQUIREMENT**

29.1 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.

## **30.0 ENTRY PASSES, GATE PASSES, WORK PERMITS, SAFETY REGULATIONS, SECURITY**

30.1 All construction areas of the project site during execution shall be properly barricaded with GI/MS sheets as per enclosed drawing to isolate the construction area from other surroundings to avoid any disturbance and to avoid the entry of unauthorized personnel and strict permit system for entry purpose shall be followed. Further during progress of work entire block shall be covered with tarpaulin with adequate strength to avoid any flow of dust/debris etc.

30.2 Gate Passes and Shipping Memos

30.2.1 To bring/takeout materials/ equipments/ tools/ tackles etc. from the SITE, the Contractor has to produce challan/proper documents to OWNER's personnel at gates, whenever required. The materials shall be checked thoroughly by OWNER's personnel at Gate and recorded in their register before allowing any material to be brought inside/taken out of the SITE by Contractor. It shall be Contractor's responsibility to ensure that the recorded entry no., date, signature of OWNER's authorised representative with stamp are recorded on challan/ supporting documents signed by OWNER's personnel at gate during entry/exit.

30.3 Safety Regulations

30.3.1 The Contractor shall abide by all safety regulations and ensure that safety equipment for specific job as stipulated in the factory act/ safety handbook is issued to workers during execution of work, failing which all the works at site shall be suspended.

30.4 Security

30.4.1 The Contractor shall make his own security arrangement at his own cost for the materials at site & the works till Handing Over of the works to the Owner.

## **31.0 FUEL REQUIREMENT OF WORKERS**

31.1 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.

### **32.0 COMPUTERIZED CONTRACTORS BILLING SYSTEM**

32.1 Without prejudice to stipulation in Terms and Conditions of Works Contract, Contractor should follow following billing system.

32.2 The bills will be prepared by the Contractor on their own PCs as per the standard formats and codification scheme proposed by Owner. The Contractor will be provided with data entry software to capture the relevant billing data for subsequent processing. Contractor will submit these data to Owner 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.

32.3 Owner will utilize these data for processing and verification of the contractor's bill and payment."

### **33.0 COMPLETION DOCUMENTS**

33.1 The following documents shall be submitted in soft copy and hard binder by the Contractor in 3 (Three) sets, as a part of completion documents:

- i) Test Certificate, Warranty /Guarantee certificates and copies of Purchase Order with Prices blank from manufacturers for all supply material.
- ii) All other requirements as specified in the respective specifications.
- iii) As built drawings.
- iv) Any other drawing/document/report specified elsewhere in the bidding document

33.2 One set of reproducible on polyester film of construction drawings showing therein the execution of the work duly approved by the Engineer-in-Charge.

### **34.0 PROTECTION OF EXISTING FACILITIES**

34.1 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.

34.2 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.

34.3 CONTRACTOR shall take all precautions to ensure that no damage is caused to the existing pipelines, cables etc. during construction.

### **35.0 WORK FRONT**

35.1 The work involved under this Contract may include such works as have to be taken up and completed after other agencies have completed their jobs. The CONTRACTOR will be required and bound to take up and complete such works as and when the fronts are available for the same and no claim of any sort whatsoever shall be admissible to the CONTRACTOR on this account. Only extension of time limit shall be admissible, if the availabilities of work fronts to the CONTRACTOR are delayed due to any reason not attributable to the CONTRACTOR and the same is responsible for delay in completion of work by CONTRACTOR.

### **36.0 COORDINATION WITH OTHER AGENCIES**

36.1 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.

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**37.0 UNDERGROUND AND OVERHEAD STRUCTURES**

37.1 The information to possible extent regarding existing structures/ overhead lines, existing pipelines and utilities are already indicated on alignment sheets. Over and above Contractor may encounter other structures/ pipelines/ OFC etc. that may not be appearing on alignment sheet, the Contractor is required to collect such information on his own before commencing the work. The Contractor shall execute the work in such a manner that the said structures, utilities, pipelines etc. are not disturbed or damaged, and shall indemnify and keep indemnified the Owner from and against any destruction thereof or damages thereto.

**38.0 EMPLOYMENT OF LOCAL LABOUR**

38.1 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.

38.2 The CONTRACTOR shall not recruit personnel of any category from among those who are already employed by the other agencies working at site but shall make maximum use of local labour available.

**39.0 CONTRACTOR'S LABOURERS TO LEAVE SITE ON COMPLETION OF THE WORK**

39.1 The labourers of CONTRACTOR must leave the location of the refinery/township/project site after the work is tapered off/ completed. .

**40.0 ROYALTY**

40.1 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.

**41.0 EXECUTION OF ELECTRICAL WORKS**

41.1 The Contractor shall engage an approved electrical agency for execution of electrical works, holding valid electrical Contractor licence. In case Contractor himself executes electrical works then he shall arrange valid electrical Contractor licence before start of electrical works at site.

**42.0 MAKE OF MATERIALS**

42.1 The materials required to be supplied by the Contractor under this contract shall be procured only from Owner / 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.

42.2 The Contractor shall purchase Cement, Structural Steel & HSD Re-Bars/TMT Bars from the manufacturers or their stockists as mentioned in **Appendix-X** to SCC.

**43.0 RESPONSIBILITY OF CONTRACTOR**

43.1 The entire work as per scope of work covered under this contract shall be awarded on single point responsibility basis.

43.2 It shall be the responsibility of the Contractor to obtain the approval for any revision and/or modifications decided by the Contractor from the Engineer-in-charge before implementation. Also such revisions and/or modifications if accepted/approved by the Engineer-in-charge shall be carried out at no extra cost to the Owner. Any changes required during and/or after approval for detailed construction drawings due to functional requirements or for efficient running of system keeping the basic parameters unchanged and which has not been indicated by the Contractor in the data/drawings furnished along with the offer will be carried out by the Contractor at no extra cost to the Owner.

43.3 All expenses towards mobilisation at site and demobilisation including bringing in equipment, clearing the site etc. shall be deemed to be included in the prices quoted and no separate payments on account of such expenses shall be entertained.

43.4 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.

- 43.5 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.
- 43.6 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.

#### **44.0 MECHANISED CONSTRUCTION**

- 44.1 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.
- 44.2 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.

#### **45.0 CHECKING OF LEVELS**

- 45.1 The Contractor shall be responsible for checking levels, orientation plan of all foundations, foundation bolts, etc., well in advance of taking up the actual erection work and bring to the notice of Engineer-in-Charge discrepancies, if any. In case of minor variations in levels etc. the Contractor shall carry out the necessary rectifications to the foundations within his quoted price.
- 45.2 The Contractor shall also be responsible for checking with templates, wherever necessary, the disposition of foundation bolts with the corresponding bases of structure and shall effect rectifications, as directed, within his quoted rate.

#### **46.0 CONSTRUCTION**

- 46.1 The CONTRACTOR shall within the scope of work observe in addition to specifications, all national and local laws, ordinances, rules and regulation and requirements pertaining to the work.
- 46.2 Various procedures and methods to be adopted by CONTRACTOR during the construction as required in the respective specifications shall be submitted to OWNER in due time and well in advance of the specific work for approval.
- 46.3 The CONTRACTOR shall carry out required supervision as per Quality Assurance Plan and furnish all assistance required by the OWNER in carrying out inspection work. The OWNER will have authorised representatives present who shall have free access to the work at all times. If an OWNER's representative notifies the CONTRACTOR'S representative of any deficiency in any work or in the supervision thereof, the CONTRACTOR shall make every effort to carry out such instructions consistent with best industry practice.

#### **47.0 GENERAL GUIDELINES DURING AND BEFORE ERECTION**

- 47.1 The CONTRACTOR shall be responsible for organising the lifting of the equipment in the proper sequence for orderly progress of the work and to ensure that access routes for erecting the other equipments are kept open.
- 47.2 Orientation of all foundations, elevations, lengths and disposition of anchor bolts and diameter of holes in the supports and saddles shall be checked by the CONTRACTOR well in advance of the installation. Rectifications, including chipping of foundations, shall be carried out where necessary in consultation with the Engineer-in-Charge. If a structural member needs to be dismantled to facilitate the equipment erection, this shall be done by the CONTRACTOR after

ensuring proper stability of the main structure in consultation with the Engineer-in-Charge. All such dismantled members shall be put back in position to the satisfaction of Engineer-in-Charge after the completion of the equipment erection.

- 47.3 During the performance of the work the CONTRACTOR shall at his own cost keep structures, materials and equipment adequately braced by guys, struts or other approved means which shall be supplied and installed by the CONTRACTOR as required till the installation work is satisfactorily completed. Such guys, shoring, bracing, strutting, planking supports etc. shall not interfere with the work of other agencies and shall not damage or cause distortion to other works executed by the CONTRACTOR or other agencies.
- 47.4 The CONTRACTOR shall duly comply with manufacturer(s) recommendations and detailed specifications for the installation of the various equipment and machines.
- 47.5 Various tolerances required as marked on the drawings and/or in accordance with the specifications and/or instructions of the Engineer-in-charge shall be maintained. Verticality shall be verified with the Theodolite and shall be maintained.

#### **48.0 REGISTRATION OF THE CONTRACT WITH STATUTORY AUTHORITIES**

- 48.1 Before submission their first invoice for Running payment, the Contractor shall register themselves and the contract at their own cost with the Reserve Bank of India, Income Tax, Sales Tax and such other statutory authorities, as may be required under the rules and regulations governing in India. The Contract Price shall be deemed to include all costs towards the same. A copy of all documents related to all such registration shall be submitted to Owner for record.

#### **49.0 TEST CERTIFICATES**

- 49.1 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.
- 49.2 Contractor shall also submit the test certificate with every batch of material supplied which will be approved by Engineer-in-Charge. In case any test is to be carried out, the same shall be got done in the approved laboratory at the cost of contractor.

#### **50.0 FREE ISSUE MATERIALS**

- 50.1 No free issue material will be supplied by Owner against the subject works.

#### **51.0 ADDITIONAL WORKS/ EXTRA WORKS**

- 51.1 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.

#### **52.0 QUANTITY OF WORKS**

- 52.1 Clause No. 53.5 (a), (b), (c) & (d) of GCC stand replaced by the following:

- (a) 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.
- (b) Notwithstanding anything to the contrary in any Clause of GCC and this Clause 52.0, variations in the quantities of the items set out in the Price Schedule shall be paid for by EIL in the following manner:
- (i) 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);
  - (ii) If the increase in the total Contract Price is likely to be more than the limit

specified in Clause 52.1 (b) (i) 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.

- (iii) There shall be no variation in the rates of items specified in the Price Schedule, unless specifically, mentioned elsewhere in the bidding document as a result of any decrease in the Contract Price and the Contractor shall not be entitled for any compensation in this regard.

### **53.0 GUARANTEE**

53.8 Guarantees shall be as per the provisions detailed out in the Technical part.

### **54.0 LIMITATION OF LIABILITIES**

54.1 The final payment by the Owner in pursuance of the contract terms shall not mean release of the Contractor from all his liabilities under the contract. The Contractor will be liable and committed under this contract to fulfil all his liabilities and responsibilities, till such time the Owner releases Contract Performance Guarantee. The liability of the contractor shall be limited to the total Contract Value.

### **55.0 PRICE VARIATION**

55.1 The Price Variation shall be applicable as per the provision as mentioned in **Appendix-IX** to SCC.

### **56.0 SECURED ADVANCE**

56.1 CONTRACTOR may be allowed Secured Advance on the materials brought to site for execution of contracted items of work to the extent of 75% of the value of materials against documentary evidence with test & inspection certificate to the satisfaction of Engineer-In-Charge and and after furnishing an Indenture in the format as per GCC, on non-judicial stamp paper of appropriate value and shall provide the Owner satisfactory evidence of insurance of insurable materials specified in **APPENDIX-XII** TO SCC for full value of the material during storage and erection against all insurable risks (including explosion) in the joint names of Owner and the CONTRACTOR. Items qualifying for Secured Advance are listed in **APPENDIX-XII** to SCC. However, Secured Advance shall not be payable for such items against which payment on supply is released as per the Payment Terms.

56.2 Decision of Engineer-in-Charge regarding the extent of materials required for incorporation in permanent works as well as the cost of materials, shall be final and binding on the CONTRACTOR.

56.3 The Secured Advance so paid shall be recovered from CONTRACTOR's R.A. Bills proportionately to the extent that the concerned materials are incorporated in the works and billed for. Balance amount, if any, will be recovered in full from the pre final bill of the CONTRACTOR / any other dues or shall be recovered completely when 90% of the Contract Value gets paid, whichever is earlier.

### **57.0 ABNORMAL RATES**

57.1 Clause No. 55.0 of GCC stands deleted.

### **58.0 INSURANCE**

58.1 Before commencing the execution of work, the Contractor shall obtain "Contractor's All Risk" (CAR) Policy or Storage cum Erection Policy, as applicable, for the total contract value at his own cost & expense in the joint names of Owner & Contractor (Owner shall be the first beneficiary ). Contractor shall also take insurance cover for workmen compensation, employer's liability insurance etc. as mentioned in (Chapter-VI) of GCC, if these are not covered in "CAR" policy. The Contractor shall keep all the Insurance Policies as mentioned above valid till the Completion of work.

### **59.0 SUB CONTRACTING**

59.1 If the CONTRACTOR is required to engage a Sub-Contractor for any part of work, then such

Sub-Contractors shall have prior proven experience of similar work and shall require specific approval by Engineer-in-charge.

59.2 Following the notification of Acceptance of Bid the CONTRACTOR will submit to the EIL for approval the details of Sub-Contractors for as per the format attached with SCC (**Appendix–XIII**). CONTRACTOR shall ensure that very competent and resourceful agencies with proven track record and performance should be proposed for the work to be sub-contracted.

59.3 The list of construction Sub-Contractors proposed in the Bids by the Bidders shall be considered as indicative only.

#### **60.0 WORK TO BE CARRIED OUT BY SPECIALIZED AGENCIES**

60.1 The contractor shall engage the specialized agencies after obtaining approval from Engineer-in-charge in respect of the following works to be carried at site:-

- Anti-termite treatment.
- Water proofing works.
- Painting work
- Structural Glazing/ Spider Glazing works
- Electrical / Communication/IT works.
- Elevator Works
- HVAC /BMS works
- Fire management system
- Horticulture works
- Any other work as directed by Engineer-in-Charge

60.2 Following the notification of Acceptance of Bid the CONTRACTOR will submit to EIL/ OWNER for approval the details of Sub-Contractors. CONTRACTOR shall ensure that very competent and resourceful agencies with proven track record and performance should be proposed for the work to be sub-contracted for above specialized works.

60.3 The specialized agency executing the work of Anti-termite treatment, Water Proofing, shall have to submit the Performance Guarantee for 10 years in the Format enclosed as **APPENDIX-XI to SCC**.

60.4 The list of Sub-Contractors proposed in the Bids by the Bidders shall be considered as indicative only.

60.5 Specialized agencies shall be finalized and Purchase order to be placed by contractor 90 days prior to the commencement of the specialized work as per Original Schedule.

#### **61.0 BARRICADING FOR THE WORKS**

61.1 Contractor shall provide adequate barricading of the works area as per the details/ specifications enclosed in the drawing and approval of Engineer-in-Charge. The barricading shall be completely painted. Name of work/client/Contractor and directional signs shall be marked on the barricades. Barricading shall be removed on completion of the works. Barricading shall be provided as per the provisions of the relevant tender item. Safety and Security of the passers-by may need to be ensured by the contractor.

61.2 The contractor shall provide G.I. Sheet barricading including adequate M.S. frame work up to the height of 5m at place of construction and cover the upper levels up to G+4 by geo-textile membrane for the RCB extension building and for two faces of ATPC building along existing buildings, so that the execution activities shall not interrupt / disturb the functioning of existing building. The contractor shall submit design of the barricading arrangement for review/ approval of EIL/ Architect. The cost of providing Hard Barricading and covers shall deem to be included in the rates of item.

#### **62.0 PERMISSIONS**

62.1 Permissions for road cutting inside RCB Campus, if any may be obtained from EIL by the contractor.

**63.0 WORK ON SUNDAYS AND HOLIDAYS**

63.1 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.

**64.0 LIGHTING ARRANGEMENT AT SITE**

64.1 The contractor shall provide adequate lighting of the work place and surrounding areas during working in 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.

**65.0 COMPENSATION FOR DELAY**

The existing 2<sup>nd</sup> para of Cl. No. 21.1 of GCC is replaced by the following :

“The contractor shall pay to owner as compensation, an amount equal to ) 0.5% (point five percent) or such an amount as the Engineer-in-Charge (whose decision in writing shall be final), may decide on the amount of the contract value for every week that the work may remain incomplete as per the time schedule, subject to a maximum compensation of 05% (five percent) of the contract value, after which period action will be taken by the Engineer-in-Charge under the provisions of the Contract.”

**66.0 MATERIALS TO BE SUPPLIED BY CONTRACTOR**

66.1 Clause no. 47.4 of GCC is modified to the following extent:

The Contractor should submit procurement schedule to Owner / EIL of bought out items within 30 days of award of work and further get the approval of Engineer-In-Charge for samples of materials as instructed by Engineer-In-Charge before procurement. Contractor shall place all the orders for procurement of materials in a phased manner 90 days prior to requirement of material as per original schedule.

An inspection categorization plan for all major items shall be submitted by the contractor within 30 days from the date of award of work for EIL's review and approval. Details of procurement status of all bought out items shall be submitted by the Contractor on a monthly basis in the format approved by Engineer-In-Charge. After placement of order, unpriced Purchased Order copies shall be submitted for reference and records and the procurement status shall be reviewed on weekly / monthly basis to meet the delivery status.

**67.0 ARBITRATION**

67.1 The following clause shall be added as clause No. 83.5 of GCC:

“The Contractor fully understands that EIL is executing the subject work on behalf of the Client. Any award passed by the Arbitral Tribunal shall be enforced against EIL only on receipt of the amount so awarded by the Arbitral Tribunal from the Client as per the terms of the main Contract executed between EIL & the Client. Any specific performance of Contract so ordered by the Tribunal shall also be equally applicable and enforced against the Client and its legal successors or permitted assignees.”

67.2 **SETTLEMENT OF DISPUTE BETWEEN GOVT. DEPT. / PUBLIC SECTOR UNDERTAKING**

Clause no. 83.4 of GCC is replaced by the following:

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 19 as above, 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 22<sup>nd</sup> 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.

67.3 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.

**68.0 HOOK-UP WITH EXISTING SERVICES**

68.1 Contractor need to hook-up the existing services with new services like electricity, HVAC chilled water line, fire alarm etc. Contractor shall make his own arrangement to hook-up / connect the new services with existing services on Saturdays & Sundays only with prior approval of Engineer-in-charge. To avoid any disruption of the services to the existing building.

68.2 No claim of payment and time extension on this account what so ever shall be entertained. The cost of this activity shall be deemed to be included in the rates of item.

**69.0 OFFICE FACILITIES FOR OWNER/ EIL**

69.1 The contractor shall at his own cost provide the following facilities at site for the use of EIL/ Architect/ Owner within 15 days of issue of Notification of Award of Work till the completion of work:

- a) Two nos. of Split A/C (1.5 Ton each) for existing offices of Owner/ EIL.
- b) Office furniture, cub boards, filing cabinets as per requirement.
- c) One office attendant/peon.
- d) Three PC (Core2Duo) with printer, Scanner and Broad-band facility.
- e) One telephone connection (with local call facilities) with telefax machine.

69.2 The contractor shall be responsible for all payments of telephone bills. The furniture & other accessories as mentioned above along with dismantled material shall be the property of the contractor after dismantling which shall be carried out as & when called by the Engineer-in-charge after completion of work. No claim of payment on this account what so ever shall be entertained.

**70.0 SECURITY DEPOSIT**

70.1 The Contractor shall within 15 days of award (i.e. issue of FOA / 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.

70.2 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 FOA / 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.

70.3 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.

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- 70.4 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.
- 70.5 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. The EIL reserves the right to deduct any amount due to the EIL from the Security Deposit at the time of expiry of Contract/ Termination of Contract.
- 70.6 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.
- 70.7 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.
- 70.8 In case Contractor does not furnish Bank guarantee towards security deposit as per clause 70.1 or does not exercise the option of converting EMD towards Initial security deposit as per clause 70.2 above, then the EMD submitted by the contractor shall be liable to be forfeited.
- 70.9 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.
- 70.10 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.
- 71.0 MODIFICATIONS TO GCC**
- 71.1 "Total contract Value" as appearing in GCC shall be read as "Contract Value".
- 71.2 General Instructions to Tenderers (Chapter-II) stand deleted.

**APPENDIXES  
TO  
SPECIAL CONDITIONS OF CONTRACT**

**MEASUREMENT OF WORK**  
**[APPENDIX – I TO SCC]**

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## **MEASUREMENT OF WORK**

### **A) ITEM RATE**

#### **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, shims, 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.

#### **2.0 ELECTRICAL WORKS**

- 2.1 The measurement of cable laying shall be made on the basis of length actually laid from lug to lug including length of loops provided.
- 2.2 The weights mentioned in drawing or shipping list shall be the basis of payment. If mountings for panels etc are packed separately, their erection weights shall include all mountings.

#### **3.0 STEEL STRUCTURES**

- 3.1 The rate for fabrication and erection of steel structure/ plates shall include cost of all handling and transport, trimming, straightening, edge preparation, preparation and getting approval of fabrication drawings, providing one coat of approved primer, providing and erecting all scaffoldings, temporary supports, tools and tackles, touch-up of primer coat, grouting etc. Welds, bolts, nuts, washers etc. shall not be measured. Rates for structural steel work shall deemed to include the same.
- 3.2 The quantity for payment will be assessed from the approved fabrication drawings and the respective bill of materials prepared by the Contractor and approved by EIL. The weight of
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structural materials/plate shall be calculated on the basis of relevant IS code and handbook. If sections are different from IS sections, then manufacturer's handbook shall be adopted. No allowance in weights shall be made for rolling tolerance.

#### **4.0 GRATING AND FRAMES**

- 4.1 Payment shall be made on the basis of weight of grating and frame actually laid. The rate shall include cost of cutting to size, fabricating, transporting and fixing, smoothing of ends if necessary and painting with one (1) coat of approved primer. Full deduction shall be made for openings equivalent to 300 mm dia and above. Rate shall include making openings of all sizes.

#### **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.

#### **B) LUMPSUM ITEMS**

The CONTRACTOR shall submit Billing Schedule in accordance with BREAK UP OF LUMPSUM PRICE which will be reviewed and approved by Engineer-in-Charge / OWNER. The progressive payment will be submitted by the CONTRACTOR on the basis of this APPROVED Billing Schedule. CONTRACTOR shall also furnish the total quantities for each activity included in Billing Schedule based on engineering progress till date.

The quantities indicated against each item of WORK shall be reasonable and assessed on the basis of volume of WORK involved. In case, during execution of WORK, it is noticed that quantities against certain items are not reasonable and have been furnished with the intent of getting payment not in proportion of WORK involved then the quantity of such items shall be modified as per decision of Engineer-in-Charge. The payment made earlier shall be adjusted accordingly.

For assessing the %age of WORK done in accordance with terms of payment, CONTRACTOR shall submit the measurement sheets based on drawings approved for construction. All measurements shall be in metric system. Such measurements will be in a proforma approved by OWNER. The measurements shall be signed in token of acceptance by the CONTRACTOR or his authorized representative. The %age of WORK done shall be calculated for each activity based on measurement sheets. The CONTRACTOR shall submit the bill in the approved proforma in triplicate to the Engineer-in-Charge of the WORK.

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 the CONTRACTOR in the presence of Engineer-in-Charge.

Measurement of weights shall be in Metric Tonnes correct to the nearest kilogram. Linear measurements shall be in meters, correct to the nearest centimetre.

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**TERMS OF PAYMENT**  
**[APPENDIX - II TO SPECIAL CONDITIONS OF CONTRACT]**

Progress payments shall be released to contractor against monthly running account bills duly certified by Engineer-In-charge after affecting the necessary deductions/recovery of mobilization advance and any other deductions as per the contract. The basis for the payment against various items shall be as mentioned below:

Following shall be the terms of payments for the subject work:-

1.1	<b>Civil Works</b>	
	Civil, Structural & Architectural works	<ul style="list-style-type: none"> <li>- 95% on completion of work on prorata basis as certified in monthly progress bill.</li> <li>- 05%.on completion of all works in all respects and issuance of completion certificate.</li> </ul>
1.2	<b>Structural Steel works</b>	<p>a. FABRICATION AT SITE</p> <ul style="list-style-type: none"> <li>- 5% on finalization of quantities, plan and submission of approved fabrication drawings.</li> <li>- 55% on receipt and acceptance of material at site.</li> <li>- 20% on fabrication, surface preparation and application of primer coat.</li> <li>- 15% on erection, alignment, welding, grouting etc.</li> <li>- 5% on completion of all works in all respects and issuance of completion certificate.</li> </ul> <p>b. FABRICATION AT YARD OUTSIDE PROJECT PREMISES</p> <ul style="list-style-type: none"> <li>- 05% on finalization of quantities, plan and submission of approved fabrication drawings.</li> <li>- 55% on receipt and acceptance of material at contractor fabrication yard outside the Project premises against Rolling Bank Guarantee for an equivalent amount of materials at contractor's shop with a validity till receipt of materials at Project premises plus 03 Months claim period.</li> <li>- 20% on fabrication, surface preparation and application of primer and receipt of fabricated structures at site.</li> <li>- 15% on erection, alignment, welding etc.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>

1.3	Structural steel painting works	<ul style="list-style-type: none"> <li>- 55% after completion of touch up/repair of primer and intermediate coat/coats.</li> <li>- 40% after completion of final coat</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
2.0	<b>Electrical Works</b>	
2.1	For Supply Items	<ul style="list-style-type: none"> <li>- 95% on receipt and acceptance of material at site.</li> <li>- 5% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
2.2	For Erection Items	<ul style="list-style-type: none"> <li>- 80% on completion of erection/installation.</li> <li>- 15% on testing and acceptance</li> <li>- 5% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
2.3	For Items involving both Supply & Erection	<ul style="list-style-type: none"> <li>- 65% on receipt and acceptance of material at site.</li> <li>- 20% after erection/installation.</li> <li>- 10% after testing and acceptance</li> <li>- 5% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
3.0	<b>INSTRUMENTATION</b>	
3.1	For Supply Items	<ul style="list-style-type: none"> <li>- 93% on receipt and acceptance of material at site.</li> <li>- 02% after mechanical completion.</li> <li>- 5% on completion of all works in all respects and issuance of completion certificate.</li> </ul>

3.2	For Erection/Installation Items	<ul style="list-style-type: none"> <li>a. Items not requiring Loop Checking <ul style="list-style-type: none"> <li>- 93% on completion of erection / installation and testing.</li> <li>- 02% after mechanical completion</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul> </li> <li>b. Items requiring loop checking <ul style="list-style-type: none"> <li>- 60% on completion of erection / installation.</li> <li>- 33% on testing and loop checking.</li> <li>- 02% after mechanical completion</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate</li> </ul> </li> </ul>
3.3	For Items with supply and erection / installation	<ul style="list-style-type: none"> <li>a. Items not requiring loop checking <ul style="list-style-type: none"> <li>- 65% on receipt and acceptance of materials at site.</li> <li>- 28% on completion of erection / installation and testing.</li> <li>- 02% after mechanical completion</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul> </li> <li>b. Items requiring loop checking <ul style="list-style-type: none"> <li>- 60% on receipt and acceptance of materials at site</li> <li>- 20% on completion of erection / installation.</li> <li>- 13% on testing and loop checking.</li> <li>- 02% after mechanical completion.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul> </li> </ul>
3.4	Ducts, Trays and Other Fabricated Materials  (Supply in Contractor's	<ul style="list-style-type: none"> <li>- 65% after receipt and acceptance of fabricated materials (Ducts / Trays) at site.</li> </ul>

	scope)	<ul style="list-style-type: none"> <li>- 25% after erection.</li> <li>- 03% after welding and final painting, if any.</li> <li>- 02% after mechanical completion.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
3.5	Calibrations Main Instruments	<ul style="list-style-type: none"> <li>- 80% after calibration.</li> <li>- 13% after completion of recalibration during loop test, if any.</li> <li>- 02% after mechanical completion</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
4.0	<b>PAINTING</b>	<ul style="list-style-type: none"> <li>- 30% on surface preparation and primer painting at shop / fabrication yard.</li> <li>- 65% on completion of final painting.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
5.0	<b>IBMS WORKS CONSISTING OF BMS, FIRE ALARM, CCTV &amp; ACCESS CONTROL SYSTEM</b>	
5.1	For items involving both Supply & Erection (Equipment only)	<ul style="list-style-type: none"> <li>- 70% on receipt of material at site and visual inspection on prorata basis.</li> <li>- 15% on installation on prorata basis.</li> <li>- 10% after testing and commissioning on prorata basis.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
5.2	For items involving both Supply & Erection (Cabling/ Wiring etc.)	<ul style="list-style-type: none"> <li>- 60% on receipt of material at site and visual inspection on prorata basis.</li> <li>- 20% on installation on prorata basis.</li> </ul>

		<ul style="list-style-type: none"> <li>- 15% after testing and commissioning on prorated basis.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
5.3	For items involving both Supply & Erection (Conduiting, Cable tray, Raceway etc.)	<ul style="list-style-type: none"> <li>- 60% on receipt of material at site and visual inspection on prorated basis.</li> <li>- 35% on installation on prorated basis.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
6.0	<b>ELEVATOR WORKS</b>	
6.1	For items involving both Supply & Erection	<ul style="list-style-type: none"> <li>- 70% on receipt of material at site and visual inspection on prorated basis.</li> <li>- 15% on installation and alignment on prorated basis.</li> <li>- 10% after testing and commissioning on prorated basis.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate</li> </ul>
7.0	<b>HVAC WORKS</b>	
7.1	For Equipment Items	<ul style="list-style-type: none"> <li>- 70% on receipt of material at site and inspection on pro-rata basis.</li> <li>- 15% on installation and alignment on pro-rata basis.</li> <li>- 10% after testing and commissioning.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
7.2	For other items involving both Supply & Erection and not covered above	<ul style="list-style-type: none"> <li>- 60% on receipt of material at site and inspection on pro-rata basis.</li> <li>- 20% after erection and alignment on pro-rata basis.</li> <li>- 15% after testing and commissioning.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>

8.0	<b>FIRE FIGHTING WORKS</b>	
8.1	For Equipment Items	<ul style="list-style-type: none"> <li>- 70% on receipt of material at site and inspection.</li> <li>- 15% on installation and alignment.</li> <li>- 10% after testing and commissioning.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
8.2	For Items Involving Supply & Erection and not covered above	<ul style="list-style-type: none"> <li>- 60% on receipt of material at site and inspection.</li> <li>- 20% after erection and alignment.</li> <li>- 15% after testing and commissioning.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
9.0	<b>For Any Other Items Not Mentioned Above</b>	<ul style="list-style-type: none"> <li>- 95% on completion of work on prorata basis as certified in monthly progress bill.</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>
10.0	<b>For Lumpsum Rate Item</b>	<ul style="list-style-type: none"> <li>- 95% on completion of total work in all respects. (For all lumpsum item included in Schedule of Rate, Contractor shall furnish price breakup for quoted lumpsum prices for the approval of Engineer-in-Charge. Progressive payment for such items shall be made accordingly. In this regard decision of Engineer-in- Charge shall be final and binding to the Contractor.)</li> <li>- 05% on completion of all works in all respects and issuance of completion certificate.</li> </ul>

**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 14 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 OWNER/ EIL after Award of Work.

4.0 All payments shall be made through EFT.

5.0 **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.

6.0 **Final Bill**

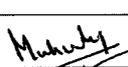
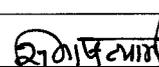
The final bill shall be submitted by the Contractor within the time frame specified in the General Conditions of the Contract. No further claims shall be made by the Contractor after submission of the final bill. The Contractor shall submit the final bill complete in all respect with no claim and no dues by Contractor, no objection certificate from labour officer and other completion documents.

**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

Rev. No	Date	Purpose	Prepared by	Checked by	Approved by
0	04.06.09	Issued as Standard Specification	 QMS Standards Committee	 QMS Standards Committee	 SCT Standard Bureau Chairman

**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)

<b>To BE FILLED BY ORIGINATOR</b>	Project _____	Originator Ref. _____
	Job No. _____	Order/Contract No. _____
	Equipment Title _____	Item No. _____
	Originator: Vendor/Contractor _____	
	<b>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</b>	
	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:	
	<ul style="list-style-type: none"> <li>* Time impact</li> <li>* Cost impact</li> <li>* Performance Warranty/Guarantee</li> </ul>	<ul style="list-style-type: none"> <li>More/Less/No change</li> <li>More/Less/No change</li> <li>Affected/Not affected</li> </ul>
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

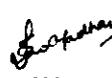
Date : \_\_\_\_\_

Signature : \_\_\_\_\_  
Name : \_\_\_\_\_

**STANDARD SPECIFICATION  
FOR  
HEALTH, SAFETY & ENVIRONMENT  
(HSE) MANAGEMENT  
AT CONSTRUCTION SITES**

**[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

5	19/12/2012	REVISED & UPDATED	 SM	 SM	 RKD	 DM
4	13/02/2008	REVISED & UPDATED	AS	RK	SCB	VC
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	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
JSA	:	Job Safety Analysis
LOTO	:	Lock Out & Tag Out
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 Talks

## Construction Standards Committee

**Convenor :** Sh. RK Das, ED(Construction)

**Members :** Sh. SK Kaul, GM (C&P)  
Sh. M.P. Jain, GM (CRA & HSE)  
Sh Rakesh Nanda, DGM (Piping)  
Sh. S Mukherjee, DGM (Construction)  
Sh. B Chakraborty, AGM (Construction)

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## 1.0 SCOPE

This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied by Contractors/ Vendors including their sub-contractors/ sub vendors during construction.

This specification is not intended to replace the necessary professional judgment needed to design & implement an effective HSE system for construction activities and the contractor is expected to fulfill HSE requirements in this specification as a minimum. It is expected that contractor shall implement best HSE practices beyond whatever are mentioned 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 Act,
- Indian Factories Act
- Job (Technical) specifications
- Relevant International / National Codes (refer Appendix-A for standards/codes on HSE)
- Relevant State & National Statutory requirements.
- Operating Manuals Recommendation of Manufacturer of various construction Machineries

## 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 duly & objectives to demonstrate commitment of their organization to ensure health, safety and environment aspects in their line of operations.

HSE Policy of the contractor shall be made available to Owner / EIL at the place of execution of specific contract works, as a valid document.

#### 3.1.2 Management System

The HSE management system of the Contractor shall cover the HSE requirements & commitments to fulfill them, including but not limited to what are specified under clause 1.0 and 2.0 above. The Contractor shall obtain the approval of its site specific HSE Plan from EIL / Owner prior to commencement of any site works. Corporate as well as Site management of the Contractor shall ensure compliance of their HSE Plan at work sites in its entirety & in true spirit.

### 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 or its consequences.

### 3.1.4 Deployment & Qualifications of Safety Personnel

The Contractor shall designate/deploy various categories of HSE personnel at site as indicated below in sufficient number. In no case, deployment of safety Supervisor / Safety Steward shall substitute deployment of Safety Officer / Safety Engr what is indicated in relevant statute of BOCW Act i.e deployment of safety officer/Safety Engineer is compulsory at project site. The Safety supervisors, Safety stewards etc. would facilitate the HSE tasks at grass root level for construction sites and shall assist Safety Officer / Engineers.

a) Safety Steward

For every 250 workmen, one safety steward shall be deployed.

As a minimum, he shall preferably possess High School leaving Certificate (of Class XII with Physics & Chemistry etc.) and trained in fire-fighting as well as in safety/occupational health related subjects, with minimum two year of practical experience in construction work environment and preferably have adequate knowledge of the language spoken by majority of the workers at the construction site.

b) Safety Supervisor

For every 500workmen, one safety Supervisor shall be deployed.

As a minimum, he shall possess a recognized Degree in Science (with Physics & Chemistry) or a diploma in Engg. or Tech. with minimum Two years of practical experience in construction work environment and should possess requisite skills to deal with construction safety & fire related day-to-day issues.

c) Safety Officer / Safety Engineer

One for every 1000 workers or part thereof shall be deployed.

Safety officer/Engineer Should Possess following Qualification & Experience :

- (i) Recognized degree in any branch of Engg. or Tech. or Architecture with practical experience of working in a building or other construction work in supervisory capacity for a period of not less than two years, **or** possessing recognized diploma in any branch of Engg. or Tech with practical experience of building or other construction work in supervisory capacity for a period of not less than five years.
- (ii) Recognized degree or diploma in Industrial safety with one paper in Construction Safety
- (iii) Preferably have adequate knowledge of the language spoken by majority of the workers at the construction site.

Alternately

- (i) Person possessing Graduation Degree in Science with Physics & Chemistry and degree or diploma in Industrial Safety (from any Indian institutes recognized by AICTE or State Council of Tech. Education of any Indian

State) with practical experience of working in a building, plant or other construction works (as Safety Officer, in line with Indian Factories Act, 1958) for a period of not less than five years, may be considered as Safety Officer, in case Owner/Client of the project agrees for /approves the same.

d) HSE In-Charge

In case there is more than one Safety Officer at any project construction site, one of them, who is senior most by experience (in HSE discipline), may be designated as HSE In-Charge. Duties & responsibilities of such person shall be commensurate with that of relevant statute and primarily to coordinate with top management of Client and contractors.

In case the statutory requirements i.e. State or Central Acts and / or Rules as applicable like the Building and Other Construction Workers' Regulation of Employment and Conditions of Service- Act,1996 or State Rules (wherever notified), the Factories Act, 1948 or Rules (wherever notified), etc. are more stringent than above clarifications, the same shall be followed.

Contractors shall ensure physical availability of safety personnel at the place of specific work location, where Hot Work Permit is required / granted. No work shall be started at any of the project sites until above safety personnel & concerned Site Engineer of Contractor are physically deployed at site. The Contractor shall submit a HSE organogram clearly indicating the lines of responsibility and reporting system and elaborate the responsibilities of safety personnel in their HSE Plan.

The Contractor shall verify & authenticate credentials of such safety personnel and furnish Bio-Data/ Resume/ Curriculum Vitae of the safety personnel as above for EIL/Owner's approval, at least 1 month before the mobilization. The Contractor, whenever required, shall arrange submission of original testimonials/certificates of their Safety personnel, to EIL/Owner (for verification/scrutiny, etc.)

Imposition / Realization of penalty shall not absolve the Contractor from his/her responsibility of deploying competent safety officer at site.

Adequate planning and deployment of safety personnel shall be ensured by the Contractor so that field activities do not get affected because of non-deployment of competent & qualified safety people in appropriate numbers.

### 3.1.5 Implementation, Inspection / Monitoring

- The 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 & implemented conscientiously by their site personnel at all levels at site.
- The Contractor shall ensure physical presence of their field engineers / supervisors, during the continuation of their contract works / site activities including all material transportation activities. Physical absence of experienced field engineers / supervisors of Contractor at critical work spot during the course of work, may invite severe penalization as per the discretion of EIC, including halting / stoppage of work.
- Contractor shall furnish their annual Inspection Plan, with regard to project issues /subjects, frequency and performers to EIL/Owner.
- The Contractor shall regularly review inspection report internally and implement all practical steps / actions for improving the status continuously.
- The Contractor shall ensure important safety checks right from beginning of works at every work site locations and to this effect format No: HSE-10 "Daily Safety Check List" shall be prepared by field engineer & duly checked by safety personnel for conformance.

- The Contractor shall carry out inspection to identify various unsafe conditions of work sites/machinery/equipments as well as unsafe acts on the part of workmen/supervisor/engineer while carrying out different project related works.
- Adequate records for all inspections shall be maintained by the Contractor and the same shall be furnished to EIL/Owner, whenever sought.
- The Contractor shall not carry-out work by engaging single worker anywhere without any supervisor anytime during day or night.
- To demonstrate involvement/commitment of site management of Contractor, at least one Safety Walk through in a month shall be carried out by Contractor's head of site (along with his area manager/field engineers) and a report shall be furnished to EIL/Owner as per format No: HSE-1" Safety walk through report" followed by compliance for unsatisfactory remarks.
- As a general practice lifting tools/tackles, machinery, accessories etc. shall be inspected, tested and examined by competent people (approved by concerned State authorities) before being used at site and also at periodical interval (e.g. during replacement,extension, modification, elongation/reduction of machine/parts, etc.) as per relevant statutes. Hydra, cranes, lifting machinery, mobile equipments / machinery / vehicles, etc. shall be inspected regularly by only competent / experienced personnel at site and requisite records for such inspections shall be maintained by every contractor. Contractor shall also maintain records of maintenance of all other site machinery (e.g. generators, rectifiers, compressors, cutters, etc.) & portable tools/equipments being used at project related works (e.g. drills, abrasive wheels, punches, chisels, spanners, etc.). The Contractor shall not make use of arbitrarily fabricated 'derricks' at project site for lifting / lowering of construction materials.
- Site facilities /temporary. installations, e.g. batching plant, cement godown, DG-room, temporary electrical panels/distribution boards, shot-blasting booth, fabrication yards, etc. and site welfare facilities, like labour colonies, canteen/pantry, rest-shelters, motor cycle/bicycle-shed, site washing facilities, First-aid centers, urinals/toilets, etc. should be periodically inspected by Contractor (preferably utilizing HR/Admn. personnel to inspect site welfare facilities) and records to be maintained.

### 3.1.6 Behaviour Based Safety

- The contractor shall develop a system to implement Behaviour-Based Safety (BBS) through which work groups can identify, measure and change the behaviours of employees and workers
- The BBS process shall include the following:
  - Identify the behaviours critical to obtaining required safety performance.
  - Communicate the behaviours and how they are performed correctly to all
  - Observe the work force and record safe/at risk behaviours. Intervene with workers to give positive reinforcement when safe behaviours are observed. Provide coaching/correction when at risk behaviours are observed
  - Collect and record observation data
  - Summarize and analyze observation data
  - Communicate observation data and analysis results to all employees
  - Provide recognition or celebrate when safe behaviour improvements occur
  - Change behaviours to be observed or change activators or change consequences as appropriate.
  - Communicate any changes to workforce
- Contractor through its own HSE committee shall implement the above process.
- The necessary procedures and reporting formats shall be developed by the contractor for approval by EIL/Owner.
- The HSE committee of contractor shall observe individual's behavior for safe practices adapted for utilization/execution of work for following as a minimum:-
  - PPE
  - Tools & equipment
  - Hazard Identification & control

- House keeping
- Confined space entry
- Hot works
- Excavation
- Loading & unloading
- Work At height
- Stacking & storage
- Ergonomics
- Procedures

### 3.1.7 Awareness and Motivation

- The Contractor shall promote and develop awareness on Health, Safety and Environment protection among all personnel working for the Contractor.
- Regular awareness programs and fabrication shop / work site meetings at least on monthly basis shall be arranged on HSE activities to cover hazards/risks involved in various operations during construction.
- Contractor to motivate & encourage the workmen & supervisory staff by issuing / awarding them with tokens/ gifts/ mementos/ monetary incentives / certificates, etc.
- Contractor shall assess & recognize the behavioral change of its site engineers / supervisors periodically and constantly motivate / encourage them to implement HSE practices at project works

### 3.1.8 Fire Prevention & First-Aid

- The Contractor shall arrange suitable First-aid measures such as First Aid Box (Refer Appendix-B for details), trained personnel/nurse (male) to administer First Aid, stand-by Ambulance vehicle and
- The Contractor shall arrange installation of fire protection measures such as adequate number of steel buckets with sand & water and adequate number of appropriate portable fire extinguishers (Refer Appendix-C for details) to the satisfaction of EIL/Owner.
- The Contractor shall deploy trained supervisory personnel / field engineers to cater to any emergency situation.
- In case the number of workers exceeds 500, the Contractor shall position an Ambulance / vehicle and nurse on round the clock basis very close to the worksite.
- The Contractor shall arrange FIRE DRILL at each site at least once in three months, involving site workmen and site supervisory personnel & engineers. The Contractor shall maintain adequate record of such fire drills at project site

### 3.1.9 Documentation

The Contractor shall evolve a comprehensive, planned and documented system covering the following as a minimum for implementation and monitoring of the HSE requirements and the same shall be submitted for approval by owner/EIL.

- HSE Organogram
  - Site specific HSE Plan
  - Safety Procedures, forms and Checklist. Indicative list of HSE procedures is attached as Appendix :H
  - Inspections and Test Plan
  - Risk Assessment & Job Safety Analysis for critical works.
- The monitoring for implementation shall be done by regular inspections and compliance of 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 fulfilling all HSE requirements.

### 3.1.10 Audit

The Contractor shall submit an Audit Plan to EIL/Owner indicating the type of audits and covering following as minimum:

- Internal HSE audits regularly at least on quarterly-basis by engaging internal qualified auditors (viz safety officers/Construction personnel having 5 years experience in construction safety and Lead Auditor Course :OSHA 18001certification).
- External HSE audits regularly at least on every six months by engaging qualified external auditors (viz safety officers/Construction personnel having 10 years experience in construction safety and Lead Auditor Course :OSHA 18001certification).

All HSE shortfalls/ non-conformances on HSE matters brought out during review/audit, shall be resolved forthwith ( generally within a week) by Contractor & compliance report shall be submitted to EIL/Owner.

In addition to above audits by contractor, the contractor's work shall be subjected to HSE audit by EIL/Owner at any point of time during the pendency of contract. The CONTRACTOR shall take all actions required to comply with the findings of the Audit Report and issue regular Compliance Reports for the same to OWNER/ EIL till all the findings of the Audit Report are fully complied.

Failure to carry-out HSE Audits & its compliance (internal & external) by Contractor, shall invite penalization.

### 3.1.11 Meetings

- The Contractor shall ensure participation of his top most executive at site (viz. Resident Construction Manager / Resident Engineer / Project Manager / Site-in-Charge) in Safety Committee / HSE Committee meetings arranged by EIL/Owner usually on monthly basis or as and when called for. In case Contractor's top most executive at site is not in a position to attend such meeting, he shall inform EIL/Owner in writing before the commencement of such meeting indicating reasons of his absence and nominate his representative – failure to do so may invite very stringent penalization against the specific Contractor, as deemed fit in Contract. The obligation of compliance of any observations during the meeting shall be always time bound. The Contractor shall always assist EIL/Owner to achieve the targets set by them on HSE management 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. Such internal HSE meetings shall essentially be attended by field engineers / supervisors (& not by safety personnel only) of the Contractor and its associates. Records of such internal HSE meetings shall be maintained by the Contractor for review by EIL/Owner or for any HSE Audits.
- Agenda of internal HSE meeting should broadly cover: -
  - a) Confirmation of record notes / minutes of previous meeting
  - b) Discussion on outstanding subjects of previous points / subjects, if any
  - c) Incidents / Accidents (of all types) at project site, if any
  - d) Current topics related to site activities / subjects of discussion
  - e) House keeping
  - f) Behavioral Safety

- g) Information / views / deliberations of members / site sub Contractors
- h) Report from Owner / Client
- i) Status of Safety awareness, Induction programs & Training programs

The time frame for such HSE meeting shall be religiously maintained by one and all.

### 3.1.12 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.
- The Contractor shall not allow any workman to commence any work at any locations of project activity who is/are influenced / effected with the intake of alcohol, drugs or any other intoxicating items being consumed prior to start of work or working day.
- Awareness about local laws on this issue shall form part of the Induction Training and compulsory work-site discipline.
- 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 as well as intoxicating drugs, dry tobacco powder, etc. shall not be allowed inside the project / plant complex.
- Smoking shall be permitted only inside smoking booths exclusively designated & authorized by the Owner/EIL.

### 3.1.13 Penalty

The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliances and also for 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 against defaulted Contractor shall be up to a cumulative limit of

2.0% (Two percent) of the contract value for Item Rate or Composite contracts with an overall ceiling of 1, 00, 00, 000 (Rupees One crore)

0.5% (Zero decimal five percent) of the contract value for LSTK, OBE, EPC, EPCC or Package contracts with an overall ceiling of 10, 00,00,000 (Rupees ten crores)

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 for the Contractor on different types of HSE violations is specified below:

Sl. 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 500/- per day/ Item / Person.
2.	Working without Work Permit/Clearance	Rs 20000/- per occasion

3	Execution of work without deployment of requisite field engineer / supervisor at work spot	Rs. 5000/- per violation per day
4.	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 10000/- per item per day.
5.	Working at height without full body harness, using non-standard/ rejected scaffolding and not arranging fall protection arrangement as required, like hand-rails, life-lines, Safety Nets etc.	Rs. 10000/- per case per day.
6.	Unsafe handling of compressed gas cylinders (No trolley, jubilee clips double gauge regulator, and not keeping cylinders vertical during storage/handling, not using safety cap of cylinder).	Rs 500/- per item per day.
7.	Use of domestic LPG for cutting purpose / not using flash back arresters on both the hoses/tubes on both ends.	Rs. 3000/- per occasion.
8.	No fencing/barricading of excavated areas / trenches.	Rs. 3000/- per occasion.
9.	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.
10.	Non display of scaffold tags, caution boards, list of hospitals, emergency services available at work locations.	Rs.1000/- per occasion per day
11.	Traffic rules violations like over speeding of vehicles, rash driving, talking on mobile phones during vehicle driving, wrong parking, not using seat belts, vehicles not fitted with reverse horn / warning alarms / flicker lamps during foggy weather.	Rs. 2000/- per occasion per day
12.	Absence of Contractor's RCM/SIC or his nominated representative (prior approval must be taken for each meeting for nomination) from site HSE meetings whenever called by EIL/Owner & failure to nominate his immediate deputy (in the site-organogram) for such HSE meetings.	Rs10000/- per meeting.
13.	Failure to maintain HSE records by Contractor Safety personnel, in line with approved HSE Plan/Procedures/Contract specifications..	Rs 10000/- per month.
14.	Failure to conduct daily site safety inspection (by Contractor's safety engineers/safety officers), internal HSE meeting, internal HSE Awareness/Motivation Program, Site HSE Training and HSE audit at predefined frequencies (as approved in HSE Plan).	Rs.10000/- per occasion.
15.	Failure to submit the monthly HSE report by 5 <sup>th</sup> of subsequent month to Project's Engineer-in-Charge / Owner	Rs. 10000/- per occasion and Rs. 1000/- per day of further delay.
16.	Poor House Keeping	Rs. 5000/- per occasion per subject

17.	Failure to report & follow up accident (including Near Miss) reporting system within specific time-frame.	Rs. 20000/- per occasion
18.	Degradation of environment (not confining toxic spills, spilling oil/lubricants onto ground)	Rs10000/- per occasion
19.	Not medically examining the workers before allowing them to work at height / to work in confined space / to work in shot-blasting / to work for painting / to work in bitumen or asphalt works, 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 5000/- per occasion per worker
20.	Violation of any other safety condition as per job HSE plan / work permit and HSE conditions of contract (e.g. 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 at site, not using hood with respiratory devices by blaster for shot//grit blasting, etc.)	Rs. 5000/- per occasion
21.	Failure to carry-out Safety audit in time (internal & external), close-out of identified shortfalls of Observations of Safety Aspects(OSA),etc	Rs. 20,000/- per occasion
22.	Carrying out sand blasting instead of grit/shot blasting	Rs. 50,000/- per day
23.	Failure to deploy adequately qualified and competent Safety Officer	Rs. 10000/- per day per Officer
24.	Utilization of hydra/ back-hoe loader for material shifting or any other unauthorized /unsafe lifting works	Rs 25,000/- per occasion
25.	Any incident / accident at project site has been caused because of willful negligence or gross violation of safety measures / provisions on the part of the Contractor or any of its sub-agencies	Rs 10,00,000/-per occasion
26.	Any violation not covered above	To be decided by EIL/Owner.

- The Contractor shall make his field engineers/supervisors fully aware of the fact that they keep track with the site workmen for their behavior and compliance of various HSE requirements. Safety lapses / defects of project construction site shall be attributable to the concerned job supervisor / engineer of the Contractor, (who remains directly responsible for safely executing field works). For repeated HSE violations, concerned job supervisor / engineer shall be reprimanded or appropriate action, as deemed fit, shall be initiated (with an information to EIL & Owner) by the concerned Contractor.

Contractor shall initiate verbal warning shall be given to the worker/employee during his first HSE violation. A written warning shall be issued on second violation and specific training shall be arranged / provided by the Contractor to enhance HSE awareness/skill including feedback on the mistakes/ flaws. Any further violation of HSE stipulations by the erring individuals shall call for his forthright debar from the specific construction site. A record of warnings for each worker/employee shall be maintained by the Contractor, like by punching their cards / Gate passes or by displaying their names at the Project entry gate. Warnings, penalizations,

appreciations etc. shall be discussed in HSE Committee meetings by site Head of the Contractor.

### 3.1.14 Accident / Incident Investigation

All accidents / incidents shall be informed to EIL/Owner at least telephonically by Contractor immediately and in writing within 24 hours on Format No. HSE-2 as applicable , by Contractor. Thereafter, a Supplementary Accident / Incident investigation Report on Format No. HSE-3 shall be submitted to EIL/Owner within 72 hours. Near Miss incident(s), Dangerous accidents/incident shall also be reported on Format No. HSE-4 within 24 hours. The accident/incident shall be investigated by a team of Contractor's senior Site personnel (involving Site-in-Charge or at least by his deputy) 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

The Contractor shall ensure that a high degree of house keeping is maintained and shall ensure inter alia; 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 identify 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 – same arrangement is preferable for digging pits / trench excavation / elevated work platforms / confined spaces etc.
- l) Welding cables and the power cable must be segregated and properly stored and used .The same shall be laid away from the area of movement and shall be free from obstruction.
- m) Schedule for upkeep/cleaning of site to be firmed up and implemented on regular basis

The Contractor shall carry-out regular checks (minimum one per fortnight) as per format No: HSE-11 for maintaining high standard of housekeeping and maintain records for the same.

### 3.3 HSE Measures

#### 3.3.1 Construction Hazards

The 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)/Risk Analysis specifically for high risk jobs/critical jobs like

- a) Working at height (+2.0 Mts height) for cold (incl. colour washing, painting, insulation etc.) & hot works.
- b) Work in confined space,
- c) Deep excavations & trench cutting (depth > 2.0 mts.)
- d) Operation & Maintenance of Batching Plant.
- e) Shuttering / concreting (in single or multiple pour) for columns, parapets & roofs.
- f) Erection & maintenance of Tower Crane.
- g) Erection of structural steel members / roof-trusses / pipes at height more than 2.0 Mts. with or without crane.
- h) Erection of pipes (full length or fabricated) at height more than 2.0 Mts. height with Crane of 100T capacity.
- i) All lifts using 100T Crane plus mechanical pulling.
- j) All lifts using two cranes in unison (Tandem Lifting).
- k) Any lift exceeding 80% capacity of the lifting equipments (hydra, crane etc.).
- l) Laying of pipes (isolated or fabricated) in deep narrow trenches – manually or mechanically.
- m) Maintenance of crane / extension or reduction of crane-boom on roads or in yards.
- n) Erection of any item at >2.0 Mts. height using 100T crane or of higher capacity
- o) Hydrostatic test of pipes, vessels & columns and water-flushing.
- p) Radiography jobs (in-plant & open field)
- q) Work in Live Electrical installations / circuits
- r) Handling of explosives & Blasting operations
- s) Demolishing / dismantling activities
- t) Welding / gas cutting jobs at height (+2.0 Mts.)
- u) Lifting / placing roof-girders at height (+2.0 Mts.)
- v) Lifting & laying of metallic / non-metallic sheet over roof/structures.
- w) Lifting of pipes, gratings, equipments/vessels at heights (+2.0 Mts) with & without using cranes
- x) Calibration of equipment, instruments and functional tests at yards / work-sites.
- y) Operability test of Pump, Motors (after coupling) & Compressors.
- z) Cold or Hot works inside Confined Space.
- aa) Transportation & shifting of ODC consignments into project areas.
- bb) Working in “charged/Live” elect. Panels
- cc) Stress Relieving works (Electrically or by Gas-burners).
- dd) Pneumatic Tests
- ee) Card board blasting
- ff) Chemical cleaning

and take feedback from EIL/Owner. The necessary HSE measures devised shall be put in to place, prior to start of an activity & also shall be maintained during the course of works, by the Contractor. Copies of such JSAs shall be kept available at work sites by the Contractor to enable all concerned carrying out checks / verification.

A list of typical construction hazards along with their effects & preventive measures is given in **Appendix-E**.

### 3.3.2 Accessibility

- The Contractor shall provide safe means of access (in sufficient numbers) & efficient exit 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 Contractor shall implement use of all measures including use of “life line”, “fall-arresters”, “retractable fall arresters”, “safety nets” etc. during the course of using all safe accesses & exits, so that in no case any individual remains at risk of slip & fall during their travel.
- The access to operating plant / project complex shall be strictly regulated. Any person or vehicle entering such complex shall undergo identification check, as per the procedures in force / requirement of EIL/Owner.
- Accessibility to ‘confined space’ shall be governed by specific system / regulation, as established at project site.

### 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 (CC 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. The Contractor shall implement a regular regime of inspecting physical conditions of the PPEs being issued / used by the workmen of their own & also its sub-agencies and the damaged / unserviceable PPEs shall be replaced forthwith.
- Owner/EIL may issue a comprehensive color scheme for helmets to be used by various agencies. The Contractor shall follow the scheme issued by the owner/EIL and shall choose any colour other than white (for Owner) or blue (for EIL) All HSE personnel shall preferably wear dark green band on their helmet so that workmen can approach them for guidance during emergencies. HSE personnel shall preferably wear such dresses with fluorescent stripes, which are noticeable during night, when light falls on them.
- For shot blasting, the usage of protective face shield and helmets, gauntlet and protective clothing is mandatory. Such protective clothing should conform relevant IS Specification.
- For off-shore jobs/contracts, contractor shall provide PPEs (new) of all types 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**.
- Contractor shall ensure procurement & usage of following safety equipments/ accessories (conforming to applicable IS mark / CE standard) by their staff, workmen & visitors including their subcontractors all through the span of project construction / pre-commissioning/ Commissioning:-
  - a. PPEs (Helmet, Spectacle, Ear-muff, Face shield, Hand gloves, Safety Shoes, Gum boot)
  - b. Barricading tape / warning signs
  - c. Rechargeable Safety torch (flame-proof)
  - d. Safety nets (with tie-chords)
  - e. Fall arresters

- f. Portable ladders (varying lengths)
- g. Life-lines (steel wire-rope, dia not less than 8.0 mm)
- h. Full body harness (double lanyard)
- i. Lanyard
- j. Karabiner
- k. Retractable fall arresters (various length)
- l. Portable fire extinguishers (DCP type) – 5 kg capacity
- m. Portable Multi Gas detector
- n. Sound level meter
- o. Digital Lux meter
- p. Fire hoses & flow nozzles
- q. Fire blankets / Fire retardant cloth (with eyelets)

#### 3.3.4 Working at Height

- The Contractor shall issue permit for working (PFW) 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 of personal protective equipments. Contractor's Safety Officer shall verify compliance status of the items of permit document after implementation of action is completed by Contractor's execution / field engineers at work site. Job Safety Analysis (JSA) for specific works at height duly commented by EIL/Owner, shall be kept attached with particular Permit for Work (PFW) at site for ready reference & follow-up.
- Such PFW shall be initially issued for one single shift or expected duration of normal work and extended further for balance duration, if required. EIL/Owner can devise block-permit system at any specific area, in consultation with project specific HSE Committee to specify the time-period of validity of such PFW or its renewal. This permit shall be applicable in areas where specific clearance from Owner's operation Deptt. /Safety Deptt. is not required. EIL / Owner's field Engineers/Safety Officers/Area Coordinators may verify and counter sign this permit (as an evidence of verification) during the execution of the job.
- All personnel shall be medically examined & certified by registered doctor, confirming their 'medical fitness for working at height. The fitness examination shall be done once in six months.
- In case work is undertaken without taking sufficient precautions as given in the permit, EIL /Owner Engineers may exercise their authority to cancel such permit and stop the work till satisfactory compliance/rectification is arranged made. Contractors are expected to maintain a register for issuance of permit and extensions thereof including preserving the used permits for verification during audits etc.
- The 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 or vessels / columns etc. 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.
- The 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.

- The Contractor shall provide Roof Top Walk Ladders for carrying out activities on sloping roofs in order to reduce the chances of slippages and falls.
- The 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 up to sufficient margin to arrest fall of persons working at different heights.
- In case of accidental fall of person on such Safety Net, the bottom most portion of Safety Net should not touch any structure, object or ground.
- The 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 be sufficiently strong & shall have sufficient space to hold the workmen and-tools & tackles including the equipments required for executing the job. Such working platforms shall have mid-rails, to enable people work safely in sitting posture.

### 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 or certified (by 3<sup>rd</sup> party competent person) man-basket. When a ladder is used, an extra workman shall always 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. Main Contractor shall always furnish duly approved construction-design details of scaffold & SWL (from competent designers) free of charge, before they are being installed / constructed at site. Owner/EIL reserves the right to ask the Contractor to submit certification and or design calculations from his Head office / Design/ Engineering expert regarding load carrying capacity of the scaffoldings.
- All scaffolds shall be inspected by a competent Scaffolding Inspector of the Contractor. He shall paste a GREEN tag (duly signed by competent Scaffolding Inspector) on each scaffold found safe and a RED tag (duly signed by competent Scaffolding Inspector) on each scaffold found unsafe. Scaffolds with GREEN tag only shall be permitted to be used and Scaffolds with RED ones shall immediately be made inaccessible. Work being found continuing on scaffolds with RED tag shall be considered unauthorized work by Contractor and may invite penalization from EIL/Owner. For every 120-125 m<sup>2</sup> /m<sup>3</sup> area / volume or its parts thereof minimum one TAG shall be provided.
- The Contractor shall ensure positive barricading (indicative as well as protective) 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.
- Scaffolding shall be constructed using foot seals or base plates only.

### 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.
- All temporary electrical installations / facilities shall be regularly checked by the licensed/competent electricians of the Contractor and appropriate records shall be maintained in format no: HSE-12” Inspection of temporary electrical booth/installation at project construction site”. Such inspection records are to be made available to EIL/Owner, whenever asked for.

3.3.6.1 The Contractor shall meet the following requirements:

- a. Shall make Single Line Diagram (SLD) for providing connection to each equipments & machinery and the same (duly approved by EIL/Owner) shall be pasted on the front face of DBs (distribution boards) or JBs (Junction boxes) at every site. ( A typical Switch Board Sketch is attached as Appendix -G )
- b. 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.
- c. 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 (ITI qualified) / licensed electrician (by State Elec. authorities) shall be ensured at site round the clock to attend to the normal/emergency jobs.
- d. All switchboards / welding machines shall be kept in well-ventilated & covered shed/ with rain shed protection. The shed shall be elevated from the existing ground level to avoid water logging inside the shed . Installation of electrical switch board must be done taking care of the prevention of shock and safety of machine.
- e. 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.
- f. Fire extinguishers and insulating mats shall be provided in all power distribution centers.
- g. Temporary electrical equipment shall not be employed in hazardous area without obtaining safety permit.
- h. Proper housekeeping shall be done around the electrical installations.
- i. All temporary installations shall be tested before energizing, to ensure proper earthing, bonding, suitability of protection system, adequacy of feeders/cables etc.
- j. All welders shall use hand gloves irrespective of holder voltage.
- k. 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.

1. 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. ELCB tester /test meter shall be used for testing ELCBs
- m. Regular inspection of all installations at least once in a month. (Ref. **Format HSE-12**).

3.3.6.2 The following features shall also be ensured for all electrical installations during construction phase by the contractor:

- 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.
- 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.
- 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.
- All connections to the hand tools / welding receptacles shall be taken through proper switches, sockets and plugs.
- All single phase sockets shall be minimum 3 pin type only. All unused sockets shall be provided with socket caps.
- Only 3 core (P+N+E) overall sheathed flexible cables with minimum conductor size of 1.5 mm<sup>2</sup> copper shall be used for all single phase hand tools.
- Only metallic distribution boxes with double earthing shall be used at site. No wooden boxes shall be used.
- All power cables shall be terminated with compression type cable glands. Tinned copper lugs shall be used for multi-strand wires / cables.
- Cables shall be free from any insulation damage.
- 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 at least 2.1 M high. Minimum head clearance of 6 meters shall be provided at road crossings.
- 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.
- All cable joints shall be done with proper jointing kit. No taped/ temporary joints shall be used.
- 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.

- All cables and wire rope used for earth connections shall be terminated through tinned copper lugs.
- 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.
- Separate core shall be provided for neutral. Earth / Structures shall not be used as a neutral in any case.
- 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. Empty & filled-up gas cylinders shall be stored separately with TAG, protecting them from direct sun or rain. Minimum 2 nos. of Portable DCP type fire extinguishers (10 kg) shall be maintained at the gas cylinder stores. Stacking & storing of compressed gas cylinders shall be arranged away from DG set, hot works, Elect. Panels / Elec. boards, etc
- The burner and the hose placed downstream of pressure reducer shall be equipped with Flash Back Arrestor/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.
- Cutting of metals using gases, other than oxygen & acetylene, shall require written concurrence from Owner.
- All welding machines shall have effective earthing at least at distinctly isolated two points.
- 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.
- The hoses of Acetylene and Oxygen shall be kept free from entanglement & away from common pathways / walkways and preferably be hanged overhead in such a manner which can avoid contact with cranes, hydra or other mobile construction machinery.
- Hot spatters shall be contained / restricted appropriately (by making use of effective fire-retardant cloth/fabric) and their flying-off as well as chance of contact with near-by flammable materials shall be stopped.
- The Contractor shall arrange adequate systems & practices for accumulation / collection of metal & other scraps and remnant electrodes and their safe disposal at regular interval so as to maintain the fabrication and other areas satisfactorily clean & tidy.
- All gas cylinders must have a cylinder cap on at all times when not in use.

### 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 arrange non-sparking tools for project construction works in operating plant areas / hydrocarbon prone areas.
- Wherever required the Contractor shall make use of Elevated Work Platforms (EWP) or Aerial Work Platforms (mobile or stationary) to avoid ergonomical risks and workmen shall be debarred to board such elevated platform during the course of their shifting / transportation.
- 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.
- The Contractor shall arrange periodical training for the operators of hydra, crane, excavator, mobile machinery, etc. at site by utilizing services from renowned manufacturers

### 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(hood with respiratory 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 work related upper limb disorders (WRULD) 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 blood circulation in hands.
- The Contractor shall arrange health check up (by registered medical practitioner) 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 reserves the right to ask the contractor to submit medical test reports. Regular health check-ups are mandatory for the workers assigned with Welding, Radiography, Blasting, Painting, Heavy Lift and Height (>2m) jobs. All the health check-ups shall be

conducted by registered Medical practitioner and records are to be maintained by the Contractor.

- The Contractor shall ensure vaccination of all the workers including their families, during the course of entire project span.

### 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. Respective MSDS (Material Safety Data Sheet) shall be made available at site & may be referred whenever problem arises.
- Where contact or exposure of hazardous materials are likely to exceed the specified limit or otherwise have harmful effects, appropriate personal protective equipments such as gloves, goggles/face-shields, 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

- All personnel exposed to physical agents such as ionizing & non-ionizing radiation, including ultraviolet rays or similar other physical agents shall be provided with adequate shielding or protection commensurate with the type of exposure involved.
- For Open Field Radiography works , requirements of Bhabha Atomic Research Centre (BARC)/ Atomic Energy Regulatory Board (AERB) shall be followed.
- The Contractor shall implement an effective system of control (as described in the AERB regulations) at site for handling radiography-sources & for avoiding its misuse & theft.
- The contractor shall generate the Format No: HSE-8 “Permit for radiation work” before start of work.
- In case the radiography work has to be carried out at day time, suitable methodology to be used so that other works, people are not affected.

### 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 Chief Controller of

Explosives (CCoE) for collection, transportation, storage of explosives as well as for carrying out blasting operations.

- The Contractor shall prepare exclusive method statement (in cognizance with statutory requirements) for diffusing unfired explosives, if any, at project site before carrying out actual task. Nowhere blasting shall be carried out by the Contractor or its agency without the involvement of competent supervisor and licensed blaster / shot blaster.

#### 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 and generate the 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 engineer for supervision and shall make adequate arrangements for Fire fighting & First-Aid during the execution of these activities.
- The Contractor shall arrange approved Job Safety Analysis (JSA) / Method Statement for the specific demolition / dismantling task and corresponding action plan commensurate with hazards / risks associated therein. In no case any activity related to demolition / dismantling shall be carried out by the Contractor without engaging own supervision / field engineer.

#### 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 / fog-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, including maintaining speed limit of 20 kmph or indicated by owner for all types of vehicles / mobile machinery. The maximum allowable speed shall be adhered to.
- In case of an alert or emergency, the Contractor must arrange clearance of all the routes, roads, access. The Contractor shall deploy sufficient number of traffic controllers at project site routes / roads/ accesses, to alert reversing movement of vehicles & machinery as well as pedestrians.
- Dumpers, Tippers, etc. shall not be allowed to carry workers within the plant area and also to & from the labour colony to & from project sites.
- Hydras shall only be allowed for handling the materials at fabrication/ storage yards and in no case shall be allowed to transport the materials over project / plant roads.
- The Contractor shall not deploy any such mobile machinery / equipments, which do not have competent operator and / or experienced banks-man / signal-man. Such machinery / equipments shall have effective limit-switches, reverse-alarm, front & rear-end lights etc. and shall be maintained in good working order.
- The Contractor shall not carry-out maintenance of vehicles / mobile machinery occupying space on project / plant roads and shall always arrange close supervision for such works.

- For pipeline jobs, the contractor shall submit a comprehensive plan covering transportation, loading / unloading of pipes, movement of side booms, movement of vehicles on the ROW, etc.
- Contractor's shall arrange /install visible road signs, diversion boards, caution boards, etc on project roads for safe movement of men and machinery.

### 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.
- Adequately ventilated / illuminated rooms at labour camps & its hygienic up-keeping.
- Reasonable canteen facilities at site and in labour camps at appropriate location depending upon site conditions. Contractor shall make use of "industrial" variety of LPG cylinder & satisfactory illumination at the canteens. Necessary arrangement for efficient disposal of wastes from canteens & urinals /toilets shall also be made and regular review shall be made to maintain the ambience satisfactorily hygienic & shall also comply with all applicable statutory requirements.
- Adequately lighted & ventilated Rest rooms at site (separate for male workers and female workers).
- Urinals, Toilets, drinking water, washing facilities, 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 disposes 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, rain, 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. Effective arrangement (without creating inconvenience to project facilities & permanent installations) for protecting workmen from hailstorm, drizzle in the form of temporary shelter shall be made at site.

### 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.

For information to all, typical subjects that should be communicated are: -

Inside the company (Top to down)

- a. Quality Policy
- b. HSE Policy contents
- c. Environment Policy
- d. HSE Objectives
- e. Safety Cardinal Rules
- f. HSE Target – reached or missed
- g. Praises & Warnings to personnel for HSE Management
- h. Safety Walk Through Reports and safety defects / shortfalls (by management)
- i. HSE Audit results
- j. Revised Statutory Health & Safety provisions, if any
- k. H & S publicity
- l. Suggestions

Inside the Company (Bottom to up)

- a. Complaints
- b. Compliances on safety defects / shortfalls
- c. Suggestions
- d. Proposals for changes & improvements
- e. HSE Reports (including near-miss reports)

### 3.3.21 Confined Space Entry

The contractor shall generate a work permit (Format No. HSE -7) before entering a confined space. People, who are permitted to enter into confined space, must be medically examined & certified by registered doctor, confirming their 'medical fitness for working in 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. Inside confined space works, only electrical facilities / installations of 24V shall be permitted. Contactor shall ensure usage of safe & suitable arrangement of oxygen supply for individual workmen (during the course of work in confined space), if oxygen concentration is found to be less than 19.5% (v/v) there.

### 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.
- Contractor shall generate the format no:HSE-15 "Permit for heavy lift/critical erection"
- 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.
- The Contractor shall ensure medical fitness of all workmen who are engaged / involved in erection of equipments, vessels etc. and such fitness checks shall be carried-out every six months interval with the help of a registered medical practitioner & record shall be maintained
- Adequate safety measures such as positive barricading, usage of appropriate PPEs, permit to work, etc. shall be taken during all heavy or critical lifts.
- For lifting any material (irrespective of shape, size or volume), at any height, it is always advisable to prepare a Plan of Erection (PoE) taking into consideration hazards & risks associated therein – this can enable people to put their own experiences of various natures & side-by-side establish a practical method for risk-free erection / lifts. The contractor shall prepare PoE & shall document the same, when risks are identified as "medium" or "high" and the same shall be approved by its competent / qualified engineer.

### 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.

Leading Indicators viz:-:

- Number of Safety Inductions carried-out at site (for workmen & staff members)
- Number of HSE inspections carried out
- Number of "Safety Walk Through" carried-out by site-head.

- Number of HSE shortfalls / lapses identified per contractor & closed-out in time.
- Number of Safety Meetings conducted (in-house / with contractors)
- Number of HSE Audits made (internal & external) vis-à-vis non conformances raised
- Number of HSE Awareness / Motivational program conducted by contractors
- Number of HSE Trainings conducted at site for supervisors & workmen
- Study of Near miss case reported
- Encouragements / Awards / Recognitions to workmen, job supervisors & field engineers.
- Suggestions for improvement

Trailing Indicators viz:-:

- Calculation of HSE statistics viz frequency rate, severity rate, LTA free manhours, etc.
- Analysis of incidents / accidents (nature, severity, types etc.)
- Study of Incident / Accident with respect to :-
  - Variety
  - Period of the year / project span
  - Timings of the incident / accident
  - Age profile of victims
  - Body parts involved
  - Penalty levied for causing incident / accident

### 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. The Contractor shall make right assessment and take all necessary action for developing work areas to make them safe & suitable for crane operations or other vehicular movement before carrying out any project related activity / operation. Contractor shall take all necessary actions to make the surroundings of its site establishments (site office, stores, lay-down area etc.) work-worthy safe and secure.

### 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.

### 3.3.26 Excavation

The Contractor shall obtain permission from competent authorities prior to excavation wherever required.

The Contractor shall locate the position of buried utilities (water line, cable route, etc.) by referring to project / plant drawing / in consultation with EIL/Owner. The Contractor shall start digging manually to locate the exact position of buried utilities & thereafter use mechanical means.

The Contractor shall keep soil heaps at least 1.5 M away from edge or a distance equal to depth of pit (whichever is more)

The Contractor shall maintain sufficient “angle of repose” during excavation – shall also provide slope or suitable bench as decided by EIL / Owner.

The Contractor shall arrange “battering” or “benching” wherever required for preventing collapse of edge of excavations.

The Contractor shall identify & arrange de-watering pump or well-point system to prevent earth collapse due to heavy rain / influx of underground water.

The Contractor shall arrange protective fencing / barricading with warning signal around excavated pits, trenches, etc. along with minimum 2 (two) entries, exits / escape ladders.

The Contractor must avoid “underpinning” / under-cutting to prevent collapse of chunk of earth during excavation

The Contractor shall use “stoppers” to prevent over-run of vehicle wheels at the edge of excavated pits / trenches.

The Contractor shall arrange strengthening of “shoring” & “strutting” proactively to avoid collapse of earth / edges due to vehicular movement in close proximity of excavated areas / pits/ trenches, etc.

### 3.4 Tool Box Talks (TBT)

Contractor shall conduct daily TBT with workers prior to start of work and shall maintain proper record of the meeting. A suggested format is given below. The TBT is to be conducted by the immediate supervisor of the workers

The Contractor shall conduct TBT before start of every morning or evening shift or night shift activities, for alerting the workers on specific hazards and their appropriate dos & don'ts. The Contractor shall provide sufficient rests to the site workmen and their foremen to avert fatigue & thereby endangering their lives during the course of site works.

#### TOOL BOX TALK RECORDING SHEET

Date & Time		
Work Location		
Subject (Nature of work)		
Presenter		
Hazards involved		
Precautions to be taken		
Worker's Name	Signature	Section
Remarks, in any		

The topics during TBT 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

- Initial induction of workers into Construction oriented activities and appraising them about the methodology of works and how to carry-out safely and the same should not be inter mixed with Tool Box Talks or HSE Training. In this regard careful action should be made & maintained for imparting HSE induction to every individual, irrespective of his task/designation/level of employment, whereas, HSE Training should be imparted to specific person/group of people who are to carry-out that specific task more than once – for example, Riggers must be trained for working at heights, welders must be trained for work in confined space, fitters/carpenters, mesons must be trained for work at heights, etc.
- Contractor shall conduct Safety induction programme on HSE for all his workers and maintain records. The Gate Pass shall be issued only to those workers who successfully qualify the Safety induction programme.
- The Contractor shall brief the visitors about the HSE precautions which are required to be taken before their proceeding to site and make necessary arrangements to issue appropriate PPEs like Aprons, hard hats, ear-plugs, goggles & safety shoes etc., to his visitors. The Contractor shall always maintain relevant acknowledgement from visitor on providing him brief information on HSE actions.
- 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: -

- Why safety should be considered during work - explanation
  - Education about hazards and precautions required
  - Employees' duties & responsibilities
  - Emergency and evacuation plan
  - HSE requirements during project activities
  - Fire fighting and First-Aid
  - Use of PPEs
  - Occupational health issues – dos & don'ts
  - Local laws on intoxicating drinks, drugs, smoking in force
  - Common environmental subjects – lighting, ventilation, vibration, smoke/fumes etc.
- Records of the training shall be kept and submitted to EIL/ Owner.
  - The Contractor shall make regular program for conducting Safety Training on various topics related to various activities & their safe-guarding utilizing experienced persons / outside agency / faculty. A program for Safety Training (indicative list as per Appendix –F) shall be furnished by the Contractor in its HSE Plan.
  - 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 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) Experienced full time safety personnel shall be exclusively deployed to monitor safety aspects in running plants.

### 3.7 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.

### 3.8 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 incentives / bonus for completing the job without any lost time accident.

### 3.9 Lock Out and Tag Out (LOTO) for Isolation of Energy Source

- Contractor shall follow the LOTO/Isolation procedure of owner for all energy source isolations installed/under purview by /of owner ie. "Brown field"
- For all the other energy source (not under purview of client/owner) i.e "Green field" Contractor shall develop a system to ensure the isolation of equipments, pipelines, Vessel, electrical panels from the energy source covering following as minimum:-
  - Identification of all energy source viz electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravitational, radiation and other forms of stored or kinetic energy.
  - Establishing the energy isolation devices viz: manually operated electrical circuit breakers, disconnection switches, blind flanges, etc.
  - Installation of Lock Out devices for preventing the inadvertent release of stored energy and Tag Out devices ( "Danger", "Do Not operate" or Do not Remove" tags) to indicate that testing, maintenance or servicing is underway and the device cannot be operated until the tag out device is removed.
  - Lock Out and Tag out log book
  - Permit for isolation and de-isolation of energy source as per format NO: HSE-16
  - Availability of competent persons like experienced operators at substations, pump house, units, etc. ; supervisors, etc.
- Contractor shall ensure that all the sources are locked out and tagged properly before giving clearance to start the job.
- After the completion of job, contractor shall ensure all tools and tackles are removed and nobody is present in the working area and signing on LOTO log book.
- Only on confirmation of above the contractor will remove their lock and tag from the isolation points and give instructions for energizing the same. Only the person carrying out the task shall himself carry the key for the lock in /Lock out.

## 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 Plan 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 which shall including the following:

- HSE policy & Objectives
- 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. Indicative list of procedures is enclosed as Annexure-H
- EIL/Owner review/audit requirement.
- Organization structure along with responsibility and authority, on HSE activities.
- Administrative & disciplinary steps involving implementation of HSE requirements
- 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 Inspection
- HSE Training programmes at project site
- HSE Awareness programmes at project site
- Reference to Rules, Regulations and statutory requirements.
- HSE documentation viz reporting, analysis & record keeping.

### 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, registration under BOCW Act, 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), Permit for erection/modification & dismantling of scaffolding (Refer Format No: HSE-14), Permit for heavy lift/critical erection (Refer Format No: HSE-15), Permit for energy Isolation & De-isolation" (HSE-16), 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 ([www.eil.co.in/conthse](http://www.eil.co.in/conthse)) 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 and carries out safety walk through regularly. 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 for performing the above tasks.

- 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, various do's & don'ts, etc.
- provide posters, banners for safe working to promote safety consciousness.
- identify, assess, analyze & mitigate the construction hazards & incorporate relevant control measures before actually executing site works. (HIRAC = Hazard Identification, Risk Analysis and Control).
- arrange testing, examination, inspection of own as well as borrowed construction equipments / machinery (stationary & mobile) before being used at site and also at periodical interval, through own resources and also by 3<sup>rd</sup> party competent agencies (as deemed fit in statutes). Records of such test, examination etc. shall be maintained & shall be submitted to EIL/Owner as & when asked for.
- carryout audits/inspection (internal & external) at his works as well as sub contractor works as per approved HSE plan/procedure/programme & submit the compliance reports of identified shortfalls for EIL/Owner review.
- arranging HSE training for site workmen (of his own & sub contractors) through internal or external faculty at periodical intervals.
- assistance & cooperate during HSE audits by EIL/Owner or any other 3<sup>rd</sup> party and submit compliance report.
- generate & submit of HSE records/report as per this specification.
- apprise EIL/Owner on HSE activities at site regularly.
- carry-out all dismantling activities safely, with prior approval of EIL/Owner representative.
- The Contractor shall ensure that "Hot works" and painting works do not continue at the same place / location at project site for which chance or probability of "fire" incident exists.

### 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/:

Safety Walk Through Report	HSE-1
Accident/ Incident Report	HSE-2
Supplementary Accident/ Incident Investigation report	HSE-3
Near Miss Incident Report	HSE-4

Monthly HSE Report	HSE-5
Permit for working at height	HSE-5
Permit for working in confined space	HSE-7
Permit for radiation work	HSE-8
Permit for demolishing/ dismantling	HSE-9
Daily Safety checklist	HSE-10
House keeping Assessment & compliance	HSE-11
Inspection of temporary electrical booth/installation	HSE-12
Inspection for scaffolding	HSE-13
Permit for erection/modification & dismantling of scaffolding	HSE-14
Permit for heavy lift/critical erection.	HSE-15
Permit for Energy isolation and de-isolation.	HSE-16
Permit for Excavation	HSE-17
Inspection reports of Equipment/tools/tackles	*
Report of Toolbox talks	As indicated in specification
PPE issue report/register	*
Site inspection reports	*
Training records	*

(\* ) The formats shall be developed in consultation with EIL/Owner

**APPENDIX-A**  
**(Sheet 1 of 2)**

**A. IS CODES ON HSE**

SP: 53	Safety code for the use, Care and protection of hand operated tools.
IS: 838	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 (Pt -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: 3696	Safety Code of scaffolds and ladders
IS: 4083	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 (Pt-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 (Pt-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/ 58311
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	:	P-1 (Compressed Gas Association Gases in cylinders 1235 Jefferson Davis Highway, Arlington VA 22202 - USA)
Full body harness	:	EN-361
Lanyard	:	EN-354
Karabiner	:	EN-362 and EN-12275

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 Savlon	1 Bottle
7.	Mercurochrome 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

Fire ↓ Fire Extinguisher →	Water	Foam	CO <sub>2</sub>	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 <sub>2</sub>	×	×	✓	✓	✓
Electrical fires	×	×	✓	✓	✓

LEGEND :                    ✓        : CAN BE USED  
                                      ×        : NOT TO BE USED

**Note:** Fire extinguishing equipment must be checked at least 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**

**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 at least 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 at least 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
Narrow deep excavations for pipelines, etc.	Same as above plus Frequent cave-in or slides	May cause severe injuries or prove fatal	Battering/benching of sides Provide escape ladders
	Flooding due to Hydro- static testing	May arise drowning situation	Same as above plus Bail out accumulated water Maintain adequate ventilation.
Rock by excavation blasting	Improper handling of explosives	May prove fatal	Ensure proper storage, handling & carrying of explosives by trained personnel. Comply with the applicable explosive acts & rules.
	Uncontrolled explosion	May cause severe injuries or prove fatal	Allow only authorized persons to perform blasting operations. Smoking and open flames are to be strictly prohibited
	Scattering of stone pieces in atmosphere	Can hurt people	Use PPE like goggles, face mask, helmets etc.
Rock excavation by blasting (Contd)	Entrapping of persons/ animals.	May cause severe injuries or prove fatal	Barricade the area with red flags and blow siren before blasting.
	Misfire	May explode suddenly	Do not return to site for at least 20 minutes or unless announced safe by designated person.
Piling Work	Failure of pile-driving equipment	Can hurt people	Inspect Piling rigs and pulley blocks before the beginning of each shift.
	Noise pollution	Can cause deafness and psychological imbalance.	Use personal protective equipments like ear plugs, muffs, etc.
	Extruding rods/casing	Can hurt people	Barricade the area and install sign boards Provide first-aid
	Working in the vicinity of 'Live-Electricity'	Can cause electrocution/ Asphyxiation	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	Air pollution by cement	May affect Respiratory System	Wear respirators or cover mouth and nose with wet cloth.
	Handling of ingredients	Hands may get injured	Use gloves & other PPE.
	Protruding reinforcement rods.	Feet may get injured	Use 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 hopper 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 <sup>rd</sup> 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.	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	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 has 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	Try to locate with the help of Survey Meter. Inform BARC/AERB (*)
(F) ELECTRICAL INSTALLATION AND USAGE	Short circuiting	Can cause Electrocutation or Fire	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
			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	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	Do not lay unarmoured cable directly on ground, wall, roof of trees Maintain at least 3m distance from HT cables All temporary cables should be laid at least 750 mm below ground on 100 mm fine sand overlying by brick soling Provide proper sleeves at crossings/ inter-sections 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	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 housekeeping 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 lightening 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
			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	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/CO <sub>2</sub> /sand or earth.
	Improper storage of highly inflammable substances	Same as above	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	Same as above Can cause Electrocutation	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 machineries and equipments
(H) VEHICULAR MOVEMENT	Crossing the Speed Limits (Rash driving)	Personal injury	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	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
	Consuming alcohol before and during the driving operation	Same as above	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
	Falling objects/ Mechanical failure	May prove fatal	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)	Bursting of piping Collapse of tanks Tanks flying off	May cause injury and prove fatal	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 hydro-testing 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
			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. The gas used as test fluid, if not air, shall be nonflammable and nontoxic.
(J) WORKING AT HEIGHTS	Person can fall down	May sustain severe injuries or prove fatal	Provide guard rails/barricade at the work place Use PPE like full body harness, life line, helmets, safety shoes, etc. Obtain a permit before starting the work at height above 3 meters Fall arrest and safety nets, etc. must be installed Provide adequate working space (min. 0.6 m) Tie/weld working platform with fixed support Use roof top walk ladder while working on a slopping roofs Avoid movement on beams
		May hit the scrap/material stacked at the ground or in between	Keep the work place neat and clean Remove the scrap immediately
	Material can fall down	May hit the workers working at lower levels and prove fatal	Same as above plus Do not throw or drop materials or equipment from height. I.e. do not <i>bomb</i> materials All tools to be carried in a tool-kit Bag or on working uniform Remove scrap from the planks Ensure wearing of helmet by the workers working at lower levels
(K) CONFINED SPACES	Suffocation/drowning	Unconsciousness, death	Use respiratory devices, if reqd. Avoid over crowding inside a confined space Provide Exhaust fans for ventilation Do not wear loose clothes, neck ties, etc Fulfill conditions of the permit

APPENDIX-E  
(Sheet 10 of 12)

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES  
(...Contd.)

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			<p>Check for presence of hydrocarbons, O<sub>2</sub> level</p> <p>Obtain work permit before entering a confined space</p> <p>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</p>
	Presence of foul smell and toxic substances	Inhalation can pose threat to life	<p>Same as above plus</p> <p>Check for hydrocarbon and Aromatic compounds before entering a confined space</p> <p>Depute one person outside the confined space for continuous monitoring and for extending help in case of an emergency</p>
	Ignition/ flame can cause fire	Person may sustain burn injuries or explosion may occur	<p>Keep fire extinguishers at a hand distance</p> <p>Remove surplus material and scrap immediately</p> <p>Do not smoke inside a confined space</p> <p>Do not allow gas cylinders inside a confined space</p> <p>Use low voltage (24V) lamps for lighting</p> <p>Use tools with air motors or electric tools with max. voltage of 24V</p> <p>Remove all equipments at the end of the day</p>
(L) HANDLING AND LIFTING EQUIPMENTS	Failure of load lifting and moving equipments	Can cause accident and prove fatal	<p>Avoid standing under the lifted load and within the operating radius of cranes</p> <p>Check periodically oil, brakes, gears, horns and tyre pressure of all moving machinery</p> <p>Check quality, size and condition of all chain pulley blocks, slings, U-clamps, D-shackles, wire ropes, etc.</p> <p>Allow crane to move only on hard, firm and leveled ground.</p> <p>Allow lifting slings as short as possible and check gunny packings at the friction points</p> <p>Do not allow crane to tilt its boom while moving</p> <p>Install Safe Load Indicator</p> <p>Ensure certification by applicable authority</p>

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	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	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	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	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 at least 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	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	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	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	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	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
(P) GRIT BLASTING	Pollution in neighboring area, hit by grits and high pressure air	Can cause personal injury	Ensure the blasting is done in enclosed shed. Keep safe distance while blasting operations. Wear positive pressure blast hood or helmet with view –window, ear-muff/plug, gloves, overall or leather coat /apron, rubber shoes.

APPENDIX-F

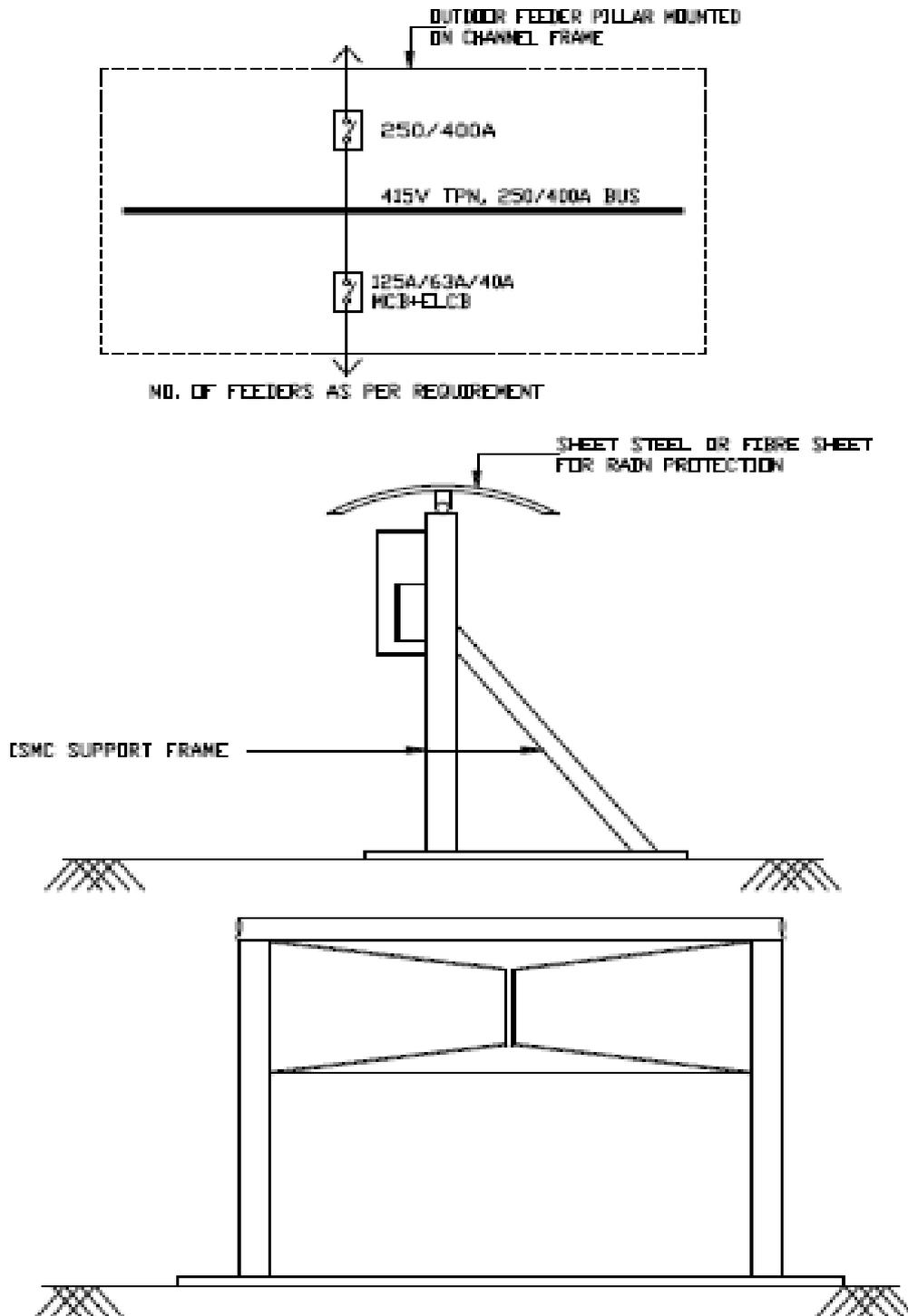
TRAINING SUBJECTS / TOPICS

(For contractors' personnel)

1. The Law & Safety – Statutory Requirement / Applicable statutes / Duties of employer / employee
2. Policy & Administration – Why HSE? / Duties & Responsibilities of Safety Personnel at project site / Effect of incentive on accident prevention
3. HSE & Supervision – Duties of Supervisor / HSE integrated supervision / Who should be held responsible for site accidents?
4. Safety Budget / Cost of Accidents – Direct costs / Indirect costs
5. Hazard Identification / Type of hazards / HIRAC
6. Behavioural Safety & Motivation
7. Housekeeping – Storage / Stacking / Handling of materials / Hydra handling
8. Occupational Health in Construction sector
9. Personal Protective Equipments – Respiratory & Non- respiratory
10. Electricity & Safety – ELCB / Fuse / Powered tools / Project illumination
11. Handling of Compressed Gas – Transportation / Storage / FBAs / Fire prevention
12. Machine Safety – Machine guarding / Maintenance
13. Transportation – Hazards & risks in transp. of materials / ODC consignments
14. Cranes & Other Lifting machinery – Legal requirements vis-à-vis essential safety requirements.
15. Communication – HSE Induction / TBTs / Safety Committee / Safety meeting / Safety propaganda / Publicity.
16. Excavation – Risks & Dangers / Safety measures
17. Working at Heights – Use of ladder / Work on roofs / Scaffolds / Double harness lanyards / Life-line / Fall arrester / Safety Nets / Floor openings
18. Hazards in Welding & important safety precautions
19. Gas Cutting – Hazards & safety measures
20. Fire prevention & fire protection

APPENDIX - G

CONSTRUCTION POWER BOARD( typ)



NOTES:-

- 1 CONTRACTOR TO INSTALL TEMPORARY CONST. POWER BOARD AS SHOWN IN THE DRG. ITS LOCATION SHALL BE EASILY ACCESSABLE.
- 2 POWER DISTRIBUTION BOARD SHALL BE EARTHED AT TWO POINTS BY MINIMUM 40X5MM GI STRIP FROM THE AVAILABLE GRID OR DIRECTLY CONNECTED TO TWO DIRECTLY DRIVEN EARTH ELECTRODES.
- 3 DISTRIBUTION BOARD SHALL BE FABRICATED BY USING 14MM CRCA SHEET STEEL WITH HINGED DOORS AND ALL COMPONENT MOUNTED IN IT.
4. ALL INCOMING AND OUTGOING CABLES SHALL HAVE BOTTOM ENTRY.

**APPENDIX-H**

**LIST OF PROCEDURES (MINIMUM) TO BE FORMING PART OF HSE PLAN:-**

A. HSE Management Procedures:

- HSE Risk Management (including JSA/HIRA)
- HSE Legal Compliance and Other Requirements
- HSE Objectives & Performance
- HSE Training and Competence (including Induction)
- HSE Motivation & Award Scheme
- HSE Audits
- HSE Meetings
- HSE Sub Contractor Management
- HSE Emergency Management
- HSE Incidents Reporting and Management
- HSE Reports
- HSE Management System Review
- HSE Change Management
- HSE procedure for Behaviour based Safety
- First Aid & Management
- Roles, Responsibility, accountabilities and Authorities

B. Job procedures/Safe Operating procedures

- Setting Up Site & Signage's
- Handling of Electrical Appliances
- Working at Height
- Confined Space Entry
- Permit to Work (including hot works)
- Housekeeping
- Lifting Operations
- Transportation of materials including Manual Handling
- Compressed Air Tools and Units
- Earthmoving Operations & excavation
- Scaffolding
- Fire Prevention/Protection
- Hazardous Substance handling & Storage
- Radiation Hazard
- Personal Protective Equipment

FORMAT NO. : HSE-1 REV 0

(Sheet 1 of 6)

**SAFETY WALK-THROUGH REPORT**

(Name & signature of walk through performer to be inserted at the bottom of each page)

Project : \_\_\_\_\_ Report no. : \_\_\_\_\_  
 Date : \_\_\_\_\_ Contractor : \_\_\_\_\_  
 Inspection by : \_\_\_\_\_ Owner : \_\_\_\_\_  
 Frequency : Monthly Job no. : \_\_\_\_\_

Note : Write 'NA' wherever the item is not applicable

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/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				
	Hearing protection				
	Foot protection				
e)	Hand protection				
f)	Respiratory Masks etc.				
g)	Full body harness conforming to CC, 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				
e)	Other				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-1 REV 0

(Sheet 2 of 6)

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/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 <sup>0</sup> from horizontal				
e)	Other				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-1 REV 0

(Sheet 3 of 6)

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/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 log-books maintained				
d)	Outriggers used				
e)	Reverse horn installed / active / coupled with gear				
f)	Signs/barricades provided				
g)	Signals observed and understood				
h)	Qualified operators				
i)	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				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-1 REV 0

(Sheet 4 of 6)

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/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 trained & instructed to make use of facility				
b)	Fire extinguishers checked periodically & record maintained				
c)	No smoking in Prohibited areas.				
d)	Fire Hydrants not obstructed <del>Clear</del>				
e)	<del>Other</del> Regular fire drill conducted				
12.	ELECTRICAL				
a)	Use of 3-core armored cables everywhere				
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)	Effective covering of junction boxes, panels and other energized wiring places				
g)	Ground fault circuit interrupters provided				
h)	Prevention of tripping hazards maintained				
f)	DCP extinguishers arranged & licensed electrician engaged at site				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-1 REV 0

(Sheet 5 of 6)

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/No	Remarks	Action
14.	HANDLING AND STORAGE OF MATERIALS				
a)	Safely stored or stacked				
b)	Passageways clear / free from obstructions				
c)	Fire fighting facility in place				
15.	FLAMMABLE GASES AND LIQUIDS				
a)	Containers clearly identified / protected from fire				
b)	Safe storage & transportation arrangement made				
c)	Fire extinguishers positioned nearby				
d)	Facilities kept away from electric spark, hot spatters & ignition source.				
16.	WORKING AT HEIGHT				
a)	Approved Erection plan and work permit in place				
b)	Safe access, Safe work platform & Safety nets provided				
c)	Life lines, Fall arrester, Full body harness and with double lanyards used;				
d)	Health Check record available for workers going up?				
e)	Protective handrails arranged around floor openings				
17.	CONFINED SPACE				
a)	Work Permit obtained from requisite authority				
b)	Test for toxic gas and sufficient availability of oxygen conducted & status				
c)	Supervisor present at site & at least one person outside the confined space for monitoring deputed				
d)	Availability of safe means of entry, exit and ventilation (register for entry & exit maintained)				
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 (authorized radiographer available)				
b)	Work permit obtained				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-1 REV 0

(Sheet 6 of 6)

Sl. No.	Item	Satisfactory/ Yes	Non Satisfactory/No	Remarks	Action
c)	Cordoning of the area done				
d)	Use of appropriate PPE's ensured				
e)	HSE training to workers/supervisors imparted during the fortnight (indicate topic)				
f)	Minimum occupancy of workplace ensured				
19.	HEALTH CHECKS				
a)	All Workers medically examined and found be fit for working at heights (slinging, rigging, painting etc.) in confined space in excavation / trenching in shot blasting				
b)	Availability of First Aid box with contents				
c)	Proper sanitation at site, office and labour camps				
d)	Arrangement of medical facilities.				
e)	Measures for dealing with illness at site & labour camps.				
f)	Availability of Potable drinking water for workmen & staff.				
g)	Provision of crèches for children.				
h)	Stand by vehicle / ambulance 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				

Safety walk-through performer (Name & Signature).....

FORMAT NO. : HSE-2 REV 0

(Sheet 1 of 3)

**ACCIDENT / INCIDENT REPORT**

(To be submitted by Contractor after every Incident / Accident within 24 hours to EIL/ Owner)

Report No.: \_\_\_\_\_ Date: \_\_\_\_\_

Project site: \_\_\_\_\_ Name of work: \_\_\_\_\_

Contractor's name: \_\_\_\_\_ Contractor's Job Engineer (name) \_\_\_\_\_

Non-disabling injury (Non-LTA)	Hospitalized but resumed duty before end of 48 hrs	
Disabling injury (other LTA)	Hospitalized & failed to resume duty within next 48 hrs	
Fatal (LTA):	Death / Expiry	
First Aid case (non LTA)	Resume duty after first aid	

Name of the injured: \_\_\_\_\_ Father's name of victim: \_\_\_\_\_

Sub Contractor's Name: .....

Gate Pass No.: ..... Age: \_\_\_\_ Yrs. Victim's medical fitness exam. (Pre-empl.) date: - \_\_\_\_\_

Date & time of Accident / Incident: \_\_\_\_\_

Names of Witnesses: (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_

**Profession of victim:**

Bar bender		Carpenter		Meson	
Fitter		Helper		Gas cutter	
Grinder		Welder		Electrician	
Driver		Rigger		M/c.operator	
Engineer		Manager		Other/specify	

**Qualification**

No formal education		Non-Matriculate		Matriculate	
Graduate		Post- grad		Other/specify	

**Job Experience**

NIL		Less than 2 yrs		2-5 yrs	
5-10 yrs		11-15 yrs		15 years and above	

Location where the incident happened: \_\_\_\_\_

\_\_\_\_\_

FORMAT NO. : HSE-2 REV 0

(Sheet 2 of 3)

Activity / Works that was continuing during incident / accident: -

Excavation		Demolition		Concrete carrying	
Concrete pouring		Transportation of materials (manually)		Transportation of materials (mechanically)	
Work on or adjacent to water		Work at height (+2.0 mts)		Scaffold preparation	
Scaffold dismantling		Piling works		Welding	
Grinding		Gas-cutting		Pipe fit-ups & fabrication	
Structural fabrications		Machine works		Hydro-testing works	
Electrical works		Erection activities		Other/specify	

What exactly the victim was doing just before the incident / accident? .....

.....  
.....

Nature of injury:

Bruise or Contusion		Abrasion (superficial wound)		Sprains or strains	
Cut or Laceration		Puncture or Open wound		Burn	
Inhalation of toxic or Poisonous fumes or gases		Absorption		Amputation	
Fracture		Other/specify			

Parts of body involved in incident / accident

Head		Face		Eyes	
Throat		Arm (above wrist)		Hand (including wrist)	
Fingers		Trunk (Abdomen / Back / Chest / Shoulder)		Throat	
Leg (above ankle)		Foot (incl. ankle)		Toes	
Multiple				Other/specify	

Accident type:

Struck against		Struck by		Fall from Elevation	
Fall on same level		caught in		caught under	
caught in between		Rubbed or abraded		Contact with (Electricity)	
Contact with (Temp./ extremes)		Contact with chemicals or oils		Vehicle accident	
Other/specify					

FORMAT NO. : HSE-2 REV 0

(Sheet 3 of 3)

**Medical Aid provided:** - (indicate specific aids / treatment etc.)-

.....  
 .....  
 -----

**Actions taken to prevent recurrence of similar incident / accident:** .....

.....  
 .....  
 .....  
 .....  
 .....  
 .....

**Intimation to local authorities** (Dist Collector / Local Police Station / ESI authority): Yes / No / NA.

If yes, to whom .....

Safety Officer  
(Signature and Name)

Site Head / Resident Construction Manager  
(Signature and Name)  
Stamp of Contractor

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

(Sheet 1 of 5)

**SUPPLEMENTARY INCIDENT / ACCIDENT INVESTIGATION REPORT**  
**TICK THE APPROPRIATE ONE AS APPLICABLE (furnish within 72 hours)**

Supplementary to Incident / Accident Report No: \_\_\_\_\_ (Copy enclosed)

Report No.: \_\_\_\_\_ Date: \_\_\_\_\_

Project site: \_\_\_\_\_ Name of work: \_\_\_\_\_

Contractor's name: \_\_\_\_\_ Contractor's Job Engineer (name) \_\_\_\_\_

<b>Non-disabling injury (Non-LTA)</b>	Hospitalized but resumed duty before end of 48 hrs	
<b>Disabling injury (other LTA)</b>	Hospitalized & failed to resume duty within next 48 hrs	
<b>Fatal (LTA):</b>	Death / Expiry	
<b>First Aid case (non LTA)</b>	Resume duty after first aid	

Name of the injured: \_\_\_\_\_ Father's name of victim: \_\_\_\_\_

Sub Contractor's Name: .....

Gate Pass No.: ..... Age: \_\_\_\_\_ Yrs. Victim's medical fitness exam. (Pre-empl.) date: - \_\_\_\_\_

**Date & time of Accident / Incident:** \_\_\_\_\_

Names of Witnesses: (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_

**Profession of victim:**

Bar bender		Carpenter		Meson	
Fitter		Helper		Gas cutter	
Grinder		Welder		Electrician	
Driver		Rigger		M/c.operator	
Engineer		Manager		Other/specify	

**Qualification**

No formal education		Non-Matriculate		Matriculate	
Graduate		Post- grad		Other/specify	

**Job Experience**

NIL		Less than 2 yrs		2-5 yrs	
5-10 yrs		11-15 yrs		15 years and above	

**Location where the incident happened:** \_\_\_\_\_

\_\_\_\_\_

FORMAT NO. : HSE-3 REV 0

(Sheet 2 of 5)

Activity / Works that was continuing during incident / accident: -

Excavation		Demolition		Concrete carrying	
Concrete pouring		Transportation of materials (manually)		Transportation of materials (mechanically)	
Work on or adjacent to water		Work at height (+2.0 mts)		Scaffold preparation	
Scaffold dismantling		Piling works		Welding	
Grinding		Gas-cutting		Pipe fit-ups & fabrication	
Structural fabrications		Machine works		Hydro-testing works	
Electrical works		Erection activities		Other/specify	

What exactly the victim was doing just before the incident / accident? .....

.....  
.....

Particular of tools & tackles being used and condition of the same after incident/accident:

.....  
.....

Description of Incident/Accident (How the incident was caused):

.....  
.....  
.....

Nature of injury:

Bruise or Contusion		Abrasion (superficial wound)		Sprains or strains	
Cut or Laceration		Puncture or Open wound		Burn	
Inhalation of toxic or Poisonous fumes or gases		Absorption		Amputation	
Fracture		Other/specify			

Parts of body involved in incident / accident

Head		Face		Eyes	
Throat		Arm (above wrist)		Hand (including wrist)	
Fingers		Trunk (Abdomen / Back / Chest / Shoulder)		Throat	
Leg (above ankle)		Foot (incl. ankle)		Toes	
Multiple				Other/specify	

FORMAT NO. : HSE-3 REV 0

(Sheet 3 of 5)

**Accident type:**

Struck against		Struck by		Fall from Elevation	
Fall on same level		caught in		caught under	
caught in between		Rubbed or abraded		Contact with (Electricity)	
Contact with (Temp./ extremes)		Contact with chemicals or oils		Vehicle accident	
Other/specify					

Name & Designation of person who provided First-Aid to the victim: -----

Name & Telephone number of Hospital where the victim was treated \_\_\_\_\_

Mode of transport used for transporting victim – Ambulance / Private car / Tempo / Truck / Others

How much time taken to shift the injured person to Hospital \_\_\_\_\_

In case of FATAL incident, indicate clearly the BOCW Registration No. of the victim /Company.....

Comments of Medical Practitioner, who treated / attended the victim/injured (attached / described here)\_\_\_\_\_

What actions are taken for investigation of the incident, please indicate clearly – (Video film / Photography / Measurements taken etc.....)

**Immediate cause** (Please tick the right applicable) –

Hazardous methods or procedures inadequately guarded		Poor housekeeping		Inadequate or improper PPE	
Environmental hazards (excess noise/ space constraint/ inadequate ventilation		improper illumination/Moving on oval surface		Working on dangerous equipment	

FORMAT NO.: HSE-3 REV 0

(Sheet 4 of 5)

Failure to secure		Horse-play		Failure to use PPE	
Inattention to surroundings		Improper use of hands & body-parts		By-passing safety devices	
Unsafe mixing or placement of tools & tackles		Bypassing standard procedures		Failure in communication	
Operating without authority		Improper use of equipment or tools & tackles		drug or alcoholic influence	
excessive haste		Others(specify)			

**Basic cause**

Over confidence		Impulsiveness		over-exertion	
Faulty judgement or poor understanding		Failing to keep attention constantly		Nervousness & Fear	
Fatigue		Defective vision		Ill health or sickness	
Slow reaction		Others(specify)			

**Root cause**

Inadequate Engg		Improper Design		Inadequate Planning & organization	
Inadequate knowledge		Inadequate skill		Inadequate training	
Inadequate supervision		Improper work procedure		Inadequate compliance with standard	
Substandard performance		Inadequate maintenance		Improper inspection	
Others(specify)					

Loss of man days and impact on site works, (if any) –

**Remarks from Contractor's Safety Officer / Engineer –**

Was the victim performing relevant tasks for which he was engaged /employed? Yes / No  
 Was the Supervisor present on work-site during the incident? Yes / No  
 Have the causes of incident rightly identified? Yes / No  
 Cause of Accident was \_\_\_\_\_

FORMAT NO. : HSE-3 REV 0

(Sheet 5 of 5)

Remedial measures recommended by **Safety Officer of Contractor** for avoiding similar incident in future

: .....

.....

.....

.....

.....

.....

.....

.....

**Intimation to local authorities** (Dist Collector / Local Police Station / ESI authority): Yes / No / NA.

If yes, to whom .....

Safety Officer  
(Signature and Name)

Site Head / Resident Construction Manager  
(Signature and Name)  
Stamp of Contractor

To : Owner  
: RCM// Site-in-charge of EIL (3 copies)  
→ Divisional Head (Constn) through RCM  
→ Project Manager EIL, through RCM

FORMAT NO. : HSE-4 REV 0

**NEAR MISS INCIDENT/ DANGEROUS OCCURRENCE SUGGESTED PROFORMA**  
(to be submitted within 24 hours)

- **Near Miss** : Human injury escaped & no damage to property, equipment or interruption to work.
- **Dangerous Occurrence**: Damage to property, equipment or interruption of work, but not resulting in personal injury/illness, e.g. Fire incident, collapse of structure, crane failure, etc

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

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 : \_\_\_\_\_

(Contractor in consultation with EIL shall generate the reports through web based package(www.eil.co.in/conthse) only.

ITEM	UPTO PREVIOUS MONTH	THIS MONTH	CUMULATIVE
1) Average number of Staff & Workmen (average daily headcount, not man days)			
2) Man-hours 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 Talks 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 man-hours i.e. LTA free man-hours counted from the Last LTA (enter date: .....)			
16) Frequency Rate (No. of LTA per 2 lacs man-hours worked)			
17) Severity Rate (No. of man days lost per 2 lacs man-hours worked)			
18) Loss Time Injury Frequency (No. of LTI per 2 lacs man-hours 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:

Prepared by Safety Officer  
(Signature and Name)

Approved by Site Head / Resident Construction Manager  
(Signature and Name)

To : - OWNER  
- RCM EIL (2 copies)

**FORMAT NO. : HSE-6 REV 0**  
**PERMIT FOR WORKING AT HEIGHTS (ABOVE 2.0 METER)**  
(In duplicate to be issued daily for site and for office)

Permit No..... Name of Main Contractor.....  
Name of work executing agency / sub agency / vendor:.....  
Date..... Exact Location of work.....  
Nature of work .....Duration of work (from) ..... (to) .....  
Number of workers covered within this permit.....  
(List may be enclosed with name & gate pass numbers.)

Sl. No.	Items / Subjects	Status of compliance (Yes / No)
1	Work areas / Equipments inspected	
2	Work area cordoned off	
3	Adequate lighting is provided	
4	Precautions against public traffic taken	
5	Concerned persons in & around have been alerted & cautioned	
6	Hazards / risks involved in routine / non-routine task assessed and control measures have been implemented at specific task	
7	ELCB provided for electrical connection & found working	
8	Ladder safely attached / fixed	
9	Scaffoldings are checked and TAGs are found used correctly	
10	Working platforms are provided and are found sound /safe for use	
11	Safe access & egress arrangements (e.g. ladders, fall arresters, life-lines etc.) are satisfactorily incorporated	
12	Openings on platform / floors are effectively cordoned / covered	
13	Use of following safety gadgets by people working at area under this permit, is checked and found satisfactory - Safety helmet Safety harness (full body) with double lanyard Safety Shoes Safety gloves Safety goggles	
14	Housekeeping of work area found satisfactorily tidy / clean & clear	
15	Adequate measures have been taken for works being continued at the ground level, when simultaneous works are permitted overhead at that very location.	
16	Materials are not thrown from heights on to ground	
17	Medical examination of workers are made & found satisfactory	
18	Responsible job engineer / supervisor found physically present at work spot for overall administration of work as well as safety of people.	

Above items have been checked & compliance has been found in place. Hence work is permitted to start / continue at the above-mentioned location. Work shall not start till identified lapses are rectified.

Additional Precautions, if any .....

Work Permit issued by  
Contractor Engineer/RCM

Verification By  
Contractor Safety Officer

**AT THE END OF THE DAY/WORK:**

All works at height are completed & workmen have returned safely from work location at (time)..... (date).....

(Sig. Contractor Engineer)

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								
<b>(A) Has the equipment been ?</b>								
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"/>	Man ways 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>(B) Expected Residual Hazards</b>								
<input type="checkbox"/>	<input type="checkbox"/>	lack of O <sub>2</sub>	<input type="checkbox"/>	<input type="checkbox"/>	combustible gas/ liquid	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> 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"/>	
<b>(C) Protection Measures</b>								
<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 duct/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)								
	No. of persons allowed	Name of persons allowed	Signature		Time		Signature	
			Contractor's Supervisor	Contractor's Safety Officer	From	To	Workman	
<b>Permit Closure :</b>								
(A)	Entry	<input type="checkbox"/> was closed	<input type="checkbox"/> stopped	<input type="checkbox"/> will continue on ...				
(B)		<input type="checkbox"/> Site left in a safe condition	<input type="checkbox"/> Housekeeping done					
(C)	Multilock	<input type="checkbox"/> removed	<input type="checkbox"/> key transferred					
		<input type="checkbox"/> Ensured all men have come out	<input type="checkbox"/> Man-ways barricaded					
Remarks, if any:								

FORMAT NO. : HSE-8 REV 0

**RADIATION WORK PERMIT**

Project : Sr.No. :  
Name of the work : Date :  
Name of site contractor : Job No.:

Location of work :

Source strength :

Cordoned distance (m) :

Name of Radiography 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
	Safety regulations as per BARC/AERB ensured while source in use/in transit & during storage	<input type="checkbox"/>
	Area cordoned off / safe working platform provided	<input type="checkbox"/>
	Lighting arrangements for working during nights ensured	<input type="checkbox"/>
	Warning signs/ flash lights installed	<input type="checkbox"/>
	Cold work permit taken (if applicable)	<input type="checkbox"/>
	PPEs like film badges, dosimeters used	<input type="checkbox"/>

Additional precautions, if any \_\_\_\_\_

(Radiography Agency's BARC/AERB authorized Supervisor)

Permission is granted.

Permit is valid from \_\_\_\_\_ AM/PM \_\_\_\_\_ Date to \_\_\_\_\_ AM/PM \_\_\_\_\_  
Date

(Signature of permit issuing authority of site contractor)

Name : Designation: Date:

Permit renewal:

Permit extended up to		Additional precautions required, if any	Sign of issuing authority with date (of site contractor)
Date	Time		

Work completed/ stopped/ area cleared at \_\_\_\_\_ Hrs of Date \_\_\_\_\_

(Sign. of permit issuing authority)

Name & Signature of site contractor:

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
.	Services like power, gas supply, water, etc. disconnected	<input type="checkbox"/>	<input type="checkbox"/>
	Dismantling/ Demolishing method reviewed & approved	<input type="checkbox"/>	<input type="checkbox"/>
	Usage of appropriate PPEs ensured	<input type="checkbox"/>	<input type="checkbox"/>
	Precautions taken for neighbouring structures	<input type="checkbox"/>	<input type="checkbox"/>
	First-Aid arrangements made	<input type="checkbox"/>	<input type="checkbox"/>
	Fire fighting arrangements ensured	<input type="checkbox"/>	<input type="checkbox"/>
	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)

CONTRACTOR'S NAME

FORMAT NO. : HSE-10 REV 0

**DAILY SAFETY CHECKLIST**

(To make use of before start of day's work)

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No.:

<b>Description of Job decided to perform : -</b>
--

• **Use of PPE / Safety Gadgets**

Sl. No	PPEs	Compliance (Yes / No)	Sl. No	PPEs	Compliance (Yes / No)
1	Safety Helmets		6	Face Shield	
2	Safety Shoes		7	Full body harness	
3	Hand Gloves		8	Fall Arrest System	
4	Dust Musk		9	Safety net	
5	Safety Goggles		10	Horizontal life-line made of steel wire, (dia not less than 8.0 mm.)	

(Serial No. 1 & 2 are compulsory for everyone. Specify & ensure use of other safety gadgets as required for the job)

• **Identify following important unsafe conditions: -**

Sl. No	Conditions	Yes / No
1	Access to work site / emergency escape clear	
2	Soil / Loose earth kept away from excavated pit / slope / ladder provided	
3	Electrical wire / welding lead lying entangled on ground / welding m/c. booth accessible	
4	Elevated work platform / open ends are protected	
5	Ground area cordoned off before lifting works or erection at height / ground area checked & cordoned-off before start of height works	
6	Structural members / erected pipes / wooden boards/pieces etc. are safely anchored at heights and are not likely to fall down on people when working beneath	
7	Rope ladders tied-up on tall steel structures, long before are removed to get rid of their use	
8	Any Other	

• **Indicate actions taken, if status of any of the above items is found "No"** .....

• **Specific Safety guidelines / precautions, if any** (communicated thro' TBT) .....

• **Above conditions and PPE compliances are checked by undersigned and correct status are indicated after verification**

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-11 REV 0

**HOUSEKEEPING ASSESSMENT & COMPLIANCE**

(Sheet 1 of 2)

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No. :  
Name of contractor : Fortnightly

Sl No.	Subjects of Review	Satisfactory/ Yes	Non satisfactory/No	Remarks	Action
1.	Cleanliness at the Main entry / access of site				
2.	Ground condition / floor areas free from water-logging / oil spillage				
3.	Ground & elevated floors free from rubbish / wastes / accumulated debris / scraps.				
4.	Manholes / openings are covered / fenced				
5.	Trenches are barricaded / walkways are in place				
6.	Drains are cleaned / not choked / not occupied by dumped materials				
7.	Sufficient CAUTION boards / instructions displayed				
8.	Construction machinery are maintained & parked in orderly manner.				
9.	Movement of site people are not obstructed because of dumping / storing of construction materials				
10.	Access / egress to Electrical Distribution Boards / Panels clear from wires / cables / earth-strips etc.				
11.	Electrical panel rooms / sheds / MCC / Control rooms / Substations etc. are clean & tidy and not used for storing dress / clothes, tiffin-box or bicycles.				
12.	Passage behind Elec. panels are free for access				
13.	Fire extinguishers / fire-buckets are accessible without any difficulty.				
14.	Stair-steps, platforms & landings are clear & tidy				
15.	Sheds / rooms & work areas have got sufficient illumination as well as ventilation				
16.	Cables / Wires / welding leads are routed / hanged appropriately & are not creating unsafe condition.				
17.	Stacking / storing of insulation materials or their packing.				
18.	Removal or cleanliness of left-over sand, concrete, brick-bats, insulation-materials, excess earth, wastes etc.				
19.	Storing / stacking of sand, metal chips, re-bars, steel pipes, valves, fittings etc.				
20.	One escape route at ground & minimum two escape routes at elevation available,				

FORMAT NO. : HSE-11 REV 0

(Sheet 2 of 2)

SI No.	Subjects of Review	Satisfactory/ Yes	Non satisfactory/No	Remarks	Action
21.	Captions / Posters / Slogans on various safety instructions are displayed legibly in local language				
22.	Cable trenches are water-free or regular arrangement for taking out accumulated water exists.				
23.	Windows of rooms / offices are regularly cleaned				
24.	Facilities for cycle sheds, drinking water, washing, rest-rooms etc. are maintained in tidy manner.				
25.	Toilet, Urinals, Canteen / kitchen / pantry etc. are maintained & free from obnoxious smell.				
26.	Construction tools / tackles are stored systematically - the items are tagged / tested / certified by competent third party.				
27.	Sufficient numbers of Dust-bins / Waste-bins found at site and are regularly emptied.				

Additional remarks, if any -

.....  
.....  
.....

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-12 REV 0

**INSPECTION OF TEMPORARY ELECTRICAL BOOTH / INSTALLATION**

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No. :  
Sub Station No:/Booth No Location:

SL NO	SUBJECTS	OBSERVATION (YES /NO)	ACTION TAKEN
1	Switchboards installed properly are in order and protected from rain & water-logging.		
2	Adequate illumination provided for switchboard operation during night hours & the lamps are protected from direct human contact.		
3	Voltage ratings, DANGER signs, Shock-Treatment-Chart displayed in the installation / booth		
4	Fire extinguisher (DCP or CO <sub>2</sub> ) & Sand Bucket kept in close vicinity of Switchboards		
5	Valid License & Competent Electrician / Wireman available & name/ license no. displayed at booth / installation.		
6	General housekeeping in & around booth / installation found in order.		
7	Cable-route-markers for U/G cables provided.		
8	Monthly inspection report of Electrical hand tools available in booth / installation.		
9	Insulated Mat provided in front of Elec. Panels.		
10	Rubber hand gloves available/ used by Electricians		
11	Availability of CAUTION boards for shutdown & / or repairing works.		
12	All incoming & outgoing feeders have proper MCCB / HRC fuses / Switches.		
13	Switchboards "earthed" at two distinctly isolated locations.		
14	Switchboards have adequate operating space at the front face & at the rear face too.		
15	All connections provided through 30mA ELCB.		
16	Testing records of all ELCBs available at site		
17	Only industrial type plugs & sockets are used.		
18	Temporary connections are 3-core double insulated & free from cuts & joints and 3 <sup>rd</sup> core is earthed at both ends		
19	Socket boards are properly mounted on stand & protected from water ingress.		
20	Electrical equipments operating above 250V have two earthing / double earthing.		
21	All incoming / outgoing cables are properly glanded & terminated with "lugs".		
22	Switch-boards are of industrial variety / type.		
23	Sketch for installation / connection (SLD) made & pasted & other safety labels/display boards		
24	Labeling of incoming / outgoing feeders made.		
25	All hand lamps are protected from direct contact.		
26	All electrical cable / joints are in safe condition		

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-13 REV 0

INSPECTION FOR SCAFFOLDING

(Sheet 1 of 2)

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No. :

Sl. No	Description	Yes	No	N.A	Actions taken
1	Whether work permit is obtained to take up work at height above 1.5 Mts?				
2	Whether atmospheric condition is "stormy" or "raining" and works at heights have been permitted?				
3	Whether steel pipes scaffoldings are used for units /off-site areas?				
4	Whether scaffolding has been erected on rigid/firm/leveled surfaces / ground? Whether "foot-seals" or "base-plates" are used beneath the up-rights (vertical steel pipes)				
5	Whether scaffold construction is as per IS specification with toe-board and hand-rails (top-rail as well as mid-rail)?				
6	Whether distance between two successive up-rights are less than 2.5 Mts (height of scaffold & load carrying capacity governs the distance between two uprights)				
7	Whether all uprights are extended at least 900 mm above the top most working platform (to enable fitting of handrails)?				
8	Whether vertical distance of two successive ledgers is satisfactory? (varying between 1.3 Mts. To 2.1 Mts)				
9	Whether the peripheral areas of working at height are cordoned-off? (for avoiding accident to people arising out of dropped / deflected materials)				
10	Whether platform is provided? Is it safely approachable?				
11	Whether end of scaffold platform / board are extended beyond transoms? (125mm to 150 mm)				
12	Whether CE / IS approved quality and worthy conditioned full-body safety harness (with double lanyard & karabiners) are used while working at heights?				
13	Whether life-line of safety harness is anchored to an independent secured support capable of withstanding load of a falling person?				
14	Whether the area around the scaffold is cordoned off to prohibit the entry of unauthorized person / vehicle?				
15	Whether clamps used are of good condition, of adequate strength and free from defects?				
16	Whether ladder is placed at secured and leveled surface?				
17	Whether water-pass and oil-spills are avoided around the scaffold structure?				
18	Whether ladder is extended 1.5mts. above the landing point at height?				
19	Whether more than one access/egress provided to the scaffold?				
20	Whether ladder used are of adequate length and overlapping of short ladders avoided?				
21	Whether metallic ladders are placed much away from near-by electrical transmission line?				
22	Whether rungs of ladder are inspected and found in good order?				
23	Whether fall-arresters provided on both the access/egress routes?				
24	Whether diagonal (cross) bracings are provided at regular interval on the scaffold?				
25	Whether working platform on the scaffold has been made free from "jolt" or "gap"?				
26	Whether tools or materials are removed after completion of the day's job at heights?				
27	Whether a valid Permit for Work (PFW) is obtained before taking up work over asbestos or fragile roof?				
28	Whether sufficient precaution is taken while working on fragile roof?				

FORMAT NO. : HSE-13 REV 0

(Sheet 2 of 2)

Sl. No	Description	Yes	No	N.A	Actions taken
29	Whether provision is made to arrange duck ladder, crawling board for working on fragile roof?				
30	Whether scaffold has been inspected by qualified civil engineers prior to their use?				
31	Whether the scaffolding has been designed for the load to be borne by the same?				
32	Whether the erection and dismantling of the scaffolding is being done by trained persons and under adequate supervision?				
33	Whether safety net with proper working arrangement and life-line has been provided?				
34	Whether TAGS (Green for acceptable and Red for incomplete/unsafe scaffolds) are used on scaffolds?				
35	Whether sufficient illumination is provided in and around the scaffold and access?				
36	Whether emergency rescue / response arrangements are made in place				

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-14 REV 0

PERMIT FOR ERECTION / MODIFICATION & DISMANTLING OF SCAFFOLDING

(Sheet 1 of 2)

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No. :  
Nature of activities : Duration: From.....To.....

Sl. No.	Subjects / Items	Done	Not Done	Remarks
1	Specific task of Erection / Modification / Dismantling of scaffolds, identified & TAGGED accordingly (before as well as after carrying-out jobs).			
2	People engaged in doing the job are identified & are certified by Job Engineer of Main Contractor as experienced / trained.			Names to be noted
3	Concerned persons are alerted by the Job Engineer of Main Contractor in connection with possible hazards & what the workmen MUST do / MUST not do.			
4	Verification by Job Engineer of Main Contractor made for confirming that all persons permitted to carry-out the jobs are making use of Helmet, Safety Shoes, Goggles, Gloves & Double lanyard safety harness and other relevant PPEs.			
5	Area of work is effectively cordoned-off / barricaded / illuminated.			
6	For taking-up / lowering down Scaffolding members / clamps / couplings etc. appropriate ropes / pulleys/ chains etc. have been arranged for use (not to throw any item) & the same have been verified as "fit for purpose".			
7	Items / members of scaffold, being lowered are removed from the area & stacked correctly.			
8	Ropes, chains, pulley blocks etc. being used for lifting or lowering scaffold items, are inspected by the Job Engineer & their certifications as well as physical conditions have been found O.K, before signing this PERMIT.			
9	Safety Net / Life-line / Fall Arresters etc. are arranged in position and Job Engineer has found working conditions favourable for activities to start.			
10	Scaffold erection or dismantling tasks are being supervised by Experienced Engineer / Competent person.			
11	Only competent & experienced people have been selected / engaged in Scaffolding erection, modification or dismantling tasks.			
12	Adequate & effective actions for traffic and movement of people around the cordoned-off area taken to avoid inadvertent incident			
13	Working platforms are protected with handrails & toe-boards.			
14	Access & Exit (for reach & escape) are safe for use by people.			
15	Tools, tackles to be used for above jobs are verified by job Engineers of Main contractor as genuinely good and tied-up at height (to prevent their fall).			
16	Site important Telephone Nos. are made known to everyone			
17	SOP (Safe Operating Procedure) for the specific task is made & followed too.			
18	Emergency vehicle has been arranged at work locations.			

- This permit for work shall be available at specific work location all the time.
- After completion of work, permit shall be returned to safety cell of main contractor, without fail.
- This Permit shall be issued maximum upto (Monday to Sunday).
- Additional Precautions, if any

• **ACCORD OF PERMISSION** (to be ticked) - YES ( ) / NO ( )

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-14 REV 0

(Sheet 2of 2)

Everyday Site working conditions & performance of workmen shall be assessed / checked by Contractor Site Engr. and Safety Officer shall verify the same .

	Name / sign.	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Site Engr.								
Safety Off.								

FORMAT NO. : HSE-15 REV 0

**PERMIT FOR HEAVY LIFT/CRITICAL ERECTION**

Project : Sr.No. :  
 Name of the work : Date :  
 Name of contractor : Job No. :  
 Nature of activities : Duration: From.....To.....  
 Location of work : Name /Type of crane :  
 Equipment/Structure to be erected: Wt. of equipment/ structure to be erected :

SL. NO.	Description of Item	Compliance Status			Remarks
		Yes	No	Not applicable	
1)	Is the crane type suitable for lift or as per erection procedure?				
2)	Is the crane have the correct number of counterweights fitted?				
3)	Availability of Load Certification of crane from authorized agency.				
4)	Is the load chart of crane available in crane cabin/or with Crane operator?				
5)	Is the device to check the Wind speed in crane is working? Is the safety features in crane are working?				
6)	Availability of Load certification of slings and other accessories from authorized agency				
7)	Availability of Licensee/certificate for crane operator from authorized agency.				
8)	Availability of approved JSA for the subject activities.				
9)	Availability of approved erection/rigging procedures.				
10)	Availability of temporary gratings/ platforms for critical lifting(as applicable)				
11)	Tool Box conducted before erection?				
12)	Has the area been cordoned off?				
13)	Are the authorized persons during erection are identified?				
14)	Does each person identified for erection understand their roles and responsibilities?				
15)	Is the ground on which crane will rest or outrigger support are correct?				
16)	Is hard stand requirement (if any) complied?				
17)	Is the communication system (viz walkie talkies,etc are working properly?				
18)	If more than one crane is lifting the load, is an Intermediate rigger will supervise the lift?				
19)	If there is other obstruction within the operating radius of the crane, have correct precautions been taken to prevent collision?				
20)	All the persons are wearing the requisite PPE?				

Inspected & Issued by  
Contractor Engineer/RCM

Verification By  
Contractor Safety Officer



FORMAT NO. : HSE-17 REV 0

**PERMIT FOR EXCAVATION** (depth 2m and above)

(Sheet 1 of 2)

Project : Sr.No. :  
Name of the work : Date :  
Name of contractor : Job No. :  
Job Description : Location:  
Size of excavation :

SL. NO.	Description of Item	Compliance Status			Remarks
		Yes	No	Not applicable	
1)	Suitable and sufficient risk assessments and method statements has been carried to ensure that the work shall be undertaken in accordance with specification and standard.				
2)	Are plans/details of underground services available and the same has been reviewed?				
3)	Has survey done to locate the services/obstacles, etc.				
4)	Has the live services (electrical, water line, air line, telephone line, etc) has been disabled for carrying out the job.				
5)	Is adequate barriers/fences to protect the excavation are in place?				
6)	Is Adequate warning signs are in place?				
7)	Is Assessment of ground conditions done and remedial action (if any) taken?				
8)	Safe access / egress (e.g. ramp / steps / ladders etc.) provided for site workmen & supervisors.				
9)	Is the excavation work being undertaken in proximity of structure, etc ? If Yes, it's effect is considered?				
10)	Availability of competent person for supervising the excavation work?				
11)	Adequate safe arrangement to prevent collapse of edges (e.g. shoring / strutting / benching / sloping etc.) made at site.				
12)	Hard barricades (at least 1.0M away from edge & for excavation near site access roads) with warning signs/caution boards are provided				
13)	Accumulation / passage-ways of water at periphery of excavation / trench stopped/ restricted.				
14)	Is the equipment being used for excavation has been checked for adequacy and is in good working condition having all the safety features?				
15)	Age & fitness of workmen ensured by medical test before engagement in job ?				
16)	Arrangement of Monitoring of possible oxygen deficiency or obnoxious gases done & action taken?				

**PERMIT GRANTED -** Yes / No

Name & Signature of Site Engr  
Contractor (Initiator)

Name & Signature of Safety Officer  
Contractor (Issuing authority)

FORMAT NO. : HSE-17 REV 0

**PERMIT FOR EXCAVATION**

(Sheet 2 of 2)

**NOTES: -**

1. Slopes or benches for excavation beyond 2.0M depth shall be designed & approved by Contractor's site head.
2. Excavated earth to be kept at least 1.5M away from edges
3. Safety helmets, Safety shoes or gum-boots, gloves, goggles, Face shield, Safety Harness shall be essential PPEs.
4. Permit shall be made in **duplicate** and original shall be available at site of work.
5. Permit shall be issued for maximum **one week** only (Monday to Sunday)
6. After completion of works, permit shall be closed & preserved for record purpose

**GRANT OF PERMIT AND EXTENSIONS**

Sl. No.	Validity period From ____ To ____	Working Time From ____ To ____	Initiator (site Engr. of Main Contractor)	Issuing authority (Safety Officer of Main Contractor)	Review by EIL / Owner (Remarks with date)
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Additional safety instructions if any: -

- 1.
- 2.
- 3.

**LIST OF DEPLOYMENT OF MINIMUM  
CONSTRUCTION EQUIPMENTS TO BE  
MOBILISED BY CONTRACTOR**

**[APPENDIX - V TO SPECIAL CONDITIONS OF CONTRACT]**

## MINIMUM EQUIPMENT DEPLOYMENT COMMITMENT

SL. NO.	EQUIPMENT	UNIT	QUANTITY REQUIRED	REMARKS
1	BATCHING PLANT	NOS	1* #	# Batching Plant is to be installed outside the Site. Contractor shall make his own arrangement for land for installation of Batching Plant and nothing extra shall be paid.  QUANTITIES MARKED (*) IS MINIMUM REQUIREMENT AT THE BEGINNING. QUANTITIES WITHOUT (*) IS ADDITIONAL MINIMUM REQUIREMENT.
2	STEEL SHUTTERING PLATE WITH ALL ACCESSORIES	SQM	5500*	
3	HYDRA	NOS	1*	
4	AIR COMPRESSOR	NOS	1	
5	WELDING MACHINE	NOS	2	
6	WEIGH BATCHER + CONCRETE MIXER	NOS	1*	
7	MIXTURE MACHINE (FOR MORTER MIXING)	NOS	2*+2	
8	BAR CUTTING MACHINE	NOS	2*	
9	BAR BENDING MACHINE	NOS	2*	
10	VIBRO-ROLLER (SMALL)	NOS	1	
11	CONCRETE PUMP WITH ALL ACCESSORIES	NOS	1*+1	
12	VIBRATORY SOIL COMPACTOR	NOS	4	
13	MOBILE TOWER CRANE	NOS	1*	
14	GENERATOR	NOS	1*	
15	DEWATERING PUMP	NOS	4*	
16	WATER TANK (5000 Ltrs.)	NOS	4*	
17	HOIST	NOS	2*+1	
18	EXCAVATOR (JCB)	NOS	3*	
19	EXCAVATOR (POCKLAIN)	NOS	3*	
20	STONE CUTTING MACHINE	NOS	2	
21	DUMPER	NOS	4*	
22	CONCRETE/ROCK BREAKER	NOS	2*	
23	TRACTOR TRALER	NOS	4*	
24	TRANSIT MIXER	NOS	2*+1	
25	WATER PUMP	NOS	2*	

QUANTITIES MARKED (\*) ABOVE REFERS TO THE MINIMUM DEPLOYMENT REQUIRED AT THE BEGINNING. MINIMUM DEPLOYMENT (MARKED \*) SHALL BE MADE AT SITE IN WORKING CONDITION, WITHIN 15 DAYS FROM THE AWARD OF CONTRACT AND SHALL BE MAINTAINED AT ALL TIMES TILL THEY ARE LOGICALLY REQUIRED (DECISION OF ENGINEER-IN-CHARGE IS FINAL AND BINDING IN THIS REGARD), WITHOUT ANY EXTRA FINANCIAL IMPLICATION. THE SECOND INSTALMENT OF MOBILIZATION ADVANCE SHALL BE RELEASED ONLY AFTER DEPLOYMENT OF ALL MACHINERIES/ EQUIPMENT IN FULL QUANTITIES AS MARKED (\*) AND IN GOOD CONDITION.

**NOTE: CONTRACTOR MAY TIE-UP WITH AN APPROVED RMC MANUFACTURER FOR SUPPLY OF RMC AND SUBMIT A MOU FOR THE SAME IN CASE THE CONTRACTOR DOES NOT INTEND TO INSTALL BATCHING PLANT.**

LIST OF LABORATORY EQUIPMENTS/ INSTRUMENTS TO BE PROVIDED AT SITE LABORATORY				
SL. NO.	DESCRIPTION	UNIT	MINIMUM QUANTITY REQUIRED	REMARKS
1	COMPRESSION TESTING MACHINE DIGITAL 2000KN X 1 KN LEAST COUNT	NOS	1	MANDATORY
2	CUBE MOULD 150X150X150 MM	NOS	45	MANDATORY
3	SPIRIT LEVEL 300MM LONG	NOS	2	PREFERRED
4	MEASURING CYLINDER GRADUATED BOROSIL GLASS 1000 ML	NOS	3	PREFERRED
5	MEASURING CYLINDER GRADUATED BOROSIL GLASS 500 ML	NOS	3	PREFERRED
6	MEASURING CYLINDER GRADUATED BOROSIL GLASS 250 ML	NOS	3	PREFERRED
7	MEASURING CYLINDER GRADUATED BOROSIL GLASS 200 ML	NOS	3	MANDATORY
8	ENAMEL TRAYS (FOR EFFLORESCENCE TEST FOR BRICKS)			
	(I) 300MM X 250MM X 40MM	NOS	2	MANDATORY
	(II) CIRCULAR PLATES OF 250MM DIA	NOS	4	MANDATORY
9	SIEVES AS PER IS 460-1962			
	(I) IS SIEVES- 450MM INTERNAL DIA, OF SIZES 100MM,80MM,63MM,50MM,40MM,25MM,20MM,12.5MM,10MM,6.3MM,4.75MM, COMPLETE WITH LID AND PAN	SET	1	MANDATORY
	(II) IS SIEVES- 200MM INTERNAL DIA(BRASS FRAME), OF SIZES 2.36MM,1.18MM,600MICRONS,425MICRONS,300MICRONS,212MICRONS,150MICRONS,90MICRONS,75MICRONS, WITH LID AND PAN	SET	1	MANDATORY
10	SIEVE SHAKER (ELECTRICALLY OPERATED) FOR 200MM DIA. WITH DIGITAL TIMER	NOS	1	MANDATORY
11	ELECTRICALLY OPERATED, THERMOSTATICALLY CONTROLLED UPTO 110°C STAINLESS STEEL OVEN OF CHAMBER SIZE 355X355X355MM-SENSITIVITY 1°C	NOS	1	MANDATORY
12	SLUMP TEST APPARATUS	SET	3	MANDATORY
13	AGGREGATE CRUSHING VALUE TEST APPARATUS	SET	1	PREFERRED
14	VICAT NEEDLE APPARATUS	SET	1	PREFERRED
15	PYCNOMETER	NOS	1	PREFERRED
16	FLAKINESS INDEX GAUGE	NOS	1	PREFERRED

LIST OF LABORATORY EQUIPMENTS/ INSTRUMENTS TO BE PROVIDED AT SITE LABORATORY				
SL. NO.	DESCRIPTION	UNIT	MINIMUM QUANTITY REQUIRED	REMARKS
17	ELONGATION INDEX GAUGE	NOS	1	PREFERRED
18	CORE CUTTER APARATUS WITH DOLLY AND RAMMER	NOS	2	PREFERRED
19	SAND REPLACEMENT TESTING APPARATUS	SET	1	PREFERRED
20	PROCTOR MOULD, 150MM WITH COLLAR & BASE PLATE	SET	1	PREFERRED
21	DIGITAL THERMOMETER 50 TO 300 DEGREE	NOS	2	PREFERRED
22	WATER TEST KID FOR CHLORIDE	SET	1	PREFERRED
23	LE-CHATLIER APPARATUS	NOS	1	PREFERRED
24	BLAIN AIR PERMEABILITY APPARATUS	NOS	1	PREFERRED
25	SCREW GAUGE 0-25 MM	NOS	2	PREFERRED
26	VERNIER CALLIPER 200 MM	NOS	2	PREFERRED
27	WIRE GAUGE	NOS	2	PREFERRED
28	RUBBER HAMMER	NOS	1	PREFERRED
29	TAMPING ROD 16MM DIA X 600MM LONG	NOS	2	MANDATORY
31	REBOUND HAMMER TESTING EQUIPMENT	NOS	1	PREFERRED
32	ELECTRONIC WEIGHING BALANCE 5KGS X 0.5 GRAM	NOS	1	MANDATORY
33	AGGREGATE IMPACT TESTER, IBS :2386(P-IV) WITH TAMPING ROD, MEASURING CUP & COUNTER	NOS	1	PREFERRED
34	RAPID MOISTURE METER 0-50% WITH CALCIUM CARBIDE REAGENT BOTTLE IN A NICE WOODEN CARRYING CASE	NOS	2	PREFERRED
35	SOIL PH% SOIL (MOISTURE METER)	NOS	1	PREFERRED
36	PRESSURE GAUGE (SENSO MAKE)	NOS	2	PREFERRED

Note: Items marked as Mandatory in remarks are Mandatory to be provided by Contractor and Items marked as a preferred are those items if required as per Engineer-in-charge shall be provided by Contractor.

**QUALIFICATION & EXPERIENCE REQUIREMENT AND  
PENALTY FOR NON MOBILISATION**

**[APPENDIX –VI TO SPECIAL CONDITIONS OF CONTRACT]**

**QUALIFICATION & EXPERIENCE REQUIREMENT AND  
PENALTY FOR NON MOBILISATION**

CATEGORY	QUALIFICATION & EXPERIENCE REQUIRED			
Construction Resident Manager/ Resident Engineer/Site-In-Charge	Degree or Diploma in Engineering with minimum following relevant experience in construction:			
	Contract value (Rs) →	< 5 Cr. works	5-20 Cr. works	> 20 Cr. works
	Degree holders	5 yrs	10 yrs	15 yrs
	Diploma holders	8 yrs	13 yrs	20 yrs
Lead Discipline Engineer (Mechanical, Civil, Electrical, Instrumentation)	Degree or Diploma in relevant Engineering discipline with following minimum experience in Construction:			
	Contract value (Rs) →	≤ 20 Cr. works	> 20 Cr. works	
	Degree holders	5 yrs	10 yrs	
	Diploma holders	8 yrs	13 yrs	
Lead Welding/ NDT Engineer	Degree or Diploma in Mechanical Engineering/ Metallurgy with the following experience in Welding & NDT (Non Destructive Testing) plus Level-II in RT (Radiographic Testing) (refer Note 1 also):			
	Contract value (Rs) →	≤ 20 Cr. Works	> 20 Cr. Works	
	Degree holders	5 yrs	10 yrs	
	Diploma holders	8 yrs	13 yrs	
Lead QA/QC Engineer	Degree in Engineering with following experience (refer Note 2 also):			
	Contract value (Rs) →	≤ 20 Cr. Works	> 20 Cr. Works	
	Experience	5 yrs of construction experience of which 2 years should be as QA Manager	10 yrs of construction experience of which 3 years should be as QA Manager	
Lead Planning Engineer	Degree in Engineering with following experience in Planning & Scheduling:			
	Contract value (Rs) →	≤ 20 Cr. works	> 20 Cr. works	
	Experience	5 yrs.	10 yrs.	
Safety Officer	As per clause 3.1.4 of EIL standard specification for HSE Management at construction sites (No. xxxx-/6-82-0001) enclosed elsewhere in the bid			
Warehouse- In- Charge/ Materials Manager	Diploma in Engineering or Diploma in Materials Management or Graduate in any stream with min. following experience in Warehousing/ Stores Management:			
	Contract value (Rs) →	≤ 20 Cr. works	> 20 Cr. works	
	Experience	5 yrs.	10 yrs.	
Quantity Surveyor	Degree or Diploma in Engineering with minimum following experience in quantity estimation, field measurement, rate analysis, bill preparation etc. in Construction field:			
	Contract value (Rs) →	≤ 20 Cr. works	> 20 Cr. works	
	Degree holders	2 yrs.	5 yrs.	
	Diploma holders	5 yrs.	10 yrs.	

Discipline Engineer	Degree in relevant Engineering Discipline with minimum 2 years of experience in construction or Diploma in relevant Engineering Discipline with minimum 4 years of experience in Construction.
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**Notes: (for Table on previous page)**

1. For Mechanical, Composite, EPC or EPCC Contracts of value more than Rupees 20 crores, the Lead Welding/NDT Engineers shall also possess Certified Welding Inspector qualification from American Welding Society or CSWIP3.1 Welding Inspector qualification from The Welding Institute, UK.
2. For Mechanical, Composite, EPC or EPCC Contracts of value more than Rupees 20 crores, the Lead QA/QC Engineer shall also be a qualified internal auditor for ISO 9001.
3. CVs of key construction personnel proposed to be deployed shall be submitted to Owner/Engineer-in-Charge prior to their mobilization at site. The mobilization of key personnel shall be done at site subject to prior approval of their CVs by Owner/Engineer-in-Charge.

**PENALTY FOR NON - MOBILIZATION OF KEY CONSTRUCTION PERSONNEL**

**I) Penalty for non-mobilization per day per person after the contractual mobilization period unless agreed otherwise by the Engineer-in-Charge:**

- Rs. 5000/- for Resident Construction Manager/ Resident Engineer/ Site-in-Charge;
- Rs. 3000/- for Lead QA/QC Engineer, Lead Planning Engineer, Lead Safety Officer and Warehouse In-charge

**II) Penalty for non-mobilization per day per person after completion of the mobilization period agreed during the Kick off Meeting:**

- Rs. 3000/- for Lead Discipline Engineer, Lead Welding/ NDT Engineer and the Quantity Surveyor

**Notes: (for Penalty clauses)**

- a) All intervening off days (Sundays etc.) and holidays will be counted for levy of penalty
- b) Mobilized personnel shall not be demobilized till contractual completion or based on consent of Engineer-in-Charge else penalties as above shall be applied.
- c) Total of above penalties shall not exceed 3% of the contract value.
- d) The above penalties are over & above all other contractual provisions for late mobilization of resources.

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**LIST OF DEPLOYMENT OF MINIMUM CONSTRUCTION  
MANPOWER TO BE MOBLISED BY CONTRACTOR  
[APPENDIX - VII TO SPECIAL CONDITIONS OF CONTRACT]**

## **MINIMUM REQUIREMENT OF KEY CONSTRUCTION PERSONNEL AT SITE**

<b>SL. NO.</b>	<b>CATEGORY</b>	<b>NUMBERS</b>
1	RESIDENT ENGINEER	1
2	LEAD ENGINEERS	Civil – 2
3	DISCIPLINE ENGINEERS	Civil – 6 Mechanical-1 Electrical-2
4	SUPERVISORS	Civil – 3 Mechanical-1 Electrical-1
5	LEAD QA/ QC ENGINEER	1
6	QA/ QC ENGINEER	2
7	LEAD PLANNING ENGINEER	1 (Can be H.O. Based)
8	PLANNING ENGINEER	1
9	LEAD SAFETY OFFICER	AS PER EIL STANDARD SPECIFICATION-6-82-0001
10	SAFETY SUPERVISORS	1
11	WAREHOUSE IN CHARGE/ MATERIAL MANAGER	1
12	LEAD BILLING ENGINEER	1
13	BILLING ENGINEER	1

**Note:**

1. The contractor is bound to deploy minimum number of personnel as decided by the Engineer-in-charge, otherwise the work may be held up by the Engineer-in-charge at contractor risk and cost.
2. Electrical & Mechanical may be deployed at site when it becomes necessary as instructed by the Engineer-in-Charge.

**SIGNATURE OF BIDDER WITH SEAL**

# **TIME SCHEDULE**

## **[APPENDIX – VIII TO SCC]**

## TIME SCHEDULE

NAME OF WORK	TIME OF COMPLETION
Civil, Structural, Electrical, HVAC, Elevators and other Developmental Works for Construction of Phase-I Extension Works of NCR Biotech Science Cluster.	21 (Twenty One) Months (18 months for construction + 3 months for Testing / Commissioning and Handing Over)

Note :

1. Time of completion shall be reckoned from date of award of contract, which shall be the date of issue of Letter / Fax of Acceptance (FOA).
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 preparation of drawings, procurement, mobilisation at site, fabrication, laying, erection/ construction, inspection, testing/ commissioning, rectifications, if any, retesting etc. complete in all respects to the entire satisfaction of Owner/ Engineer-in-Charge.
4. Completion shall be on attending all the defects observed.
5. Immediately after the contract is awarded the contractor shall submit a Time and Progress chart for each milestone and get it approved by the Engineer-In-Charge. The chart shall be prepared in direct relation to the time stated in the contract documents for completion of items of works. It shall indicate the dates of commencement and completion of various trades of work, which may be amended as necessary by agreement between Engineer-In-Charge and the contractor within the limitations of time imposed in the contract documents. However, the contractor shall complete the work as per milestones attached.

(SIGNATURE OF BIDDER)

## PRICE VARIATION

The Contract Price shall remain firm and fixed till the completion of Work in all respects and no escalation in prices on any account shall be admissible to the CONTRACTOR except for the following.

### 1. CEMENT & STEEL

The price variation shall be applicable on supply price of cement and bulk steel material (i.e. for structural steel, plates, and reinforcement bars) for site fabrication / construction for permanent incorporation in work only. The Contract Price shall be adjusted for any increase / decrease on account of variation in cement and steel prices as per the formula below.

The Contractor, shall raise separate invoice once in 3 (Three) months for adjustment in prices of cement and steel along with the documentary evidence. However, if there is substantial decrease in price of such items, EIL reserves the right to hold suitable proportionate amount from the RA invoice till the amount is settled through separately raised invoice by the Contractor.

The increase/ decrease in prices shall be determined based on the following:

$$V_m = IR \times Q \times \frac{M - M_o}{M_o}$$

Where :

$V_m$  = Variation in material cost.

$IR$  = Rate of the steel item as declared by SAIL / rate of cement as declared by ACC or Ultratech on the due date of submission of last priced bid.

$Q$  = Qty. of steel item / Cement permanently incorporated in the work

$M_o$  = All India Wholesale Price Index for nearest similar material (steel – rebar, rods & structural steel and Cement) released by Office of Economic Advisor to Govt. of India, Ministry of Commerce and Industry (as published by RBI) at the time of submission of last price bid.

$M$  = All India Wholesale Price Index for nearest similar material (steel – rebar, rods & structural steel and Cement) released by Office of Economic Advisor to Govt. of India, Ministry of Commerce and Industry (as published by RBI) at the time of placement of Purchase Order to material supplier.

Price Variation Clause shall be applicable only for above materials for which purchase orders are placed within 75% of original time schedule of the contract, reckoned from the date of issue of notification of award and brought to site within original time schedule of the contract. If above requirements are not met, the Price Variation for materials shall not be applicable.

The purchase orders for all items, for which price variation is applied, as mentioned above, shall be sent to Engineer-In-Charge immediately after placement of purchase order to the vendor, but not later than 7 days after placement of such purchase order.

## 2. LABOUR

The price variation for labour shall also be applicable for this contract for the contractual time period including extended period. However, price variation for labour shall not be applicable in the extended period, if any, in case the contractual time period is extended for reasons not attributable to the Owner.

Price Variation shall be worked out as follows :

$$VL = W \times \frac{30}{100} \times \frac{L - L_0}{L_0} \times 0.85$$

Where :

VL = Variation in labour cost i.e. amount of increase or decrease in Rupees to be paid or recovered.

W = Value of work done for which labour escalation is payable

L = Minimum wage in Rupees of an unskilled adult male mazdoor, fixed under any law, statutory rule or order as applicable on the last date of quarter previous to the one under consideration. In case of extended contractual period without any fault of the Contractor, the minimum wage prevailing on the last date of quarter previous to the quarter pertaining to stipulated date of Completion or the minimum wage prevailing on the last date of quarter previous to the one under consideration, whichever is less, shall be considered.

L<sub>0</sub> = Minimum daily wage in rupees of an unskilled adult male mazdoor, fixed under any law, statutory rule or order at the time of submission of last price bid.

The following principles shall be followed for working out the labour compensation :

The minimum wage of an unskilled male mazdoor mentioned above shall be the higher of the wage notified by Government of India, Ministry of Labour and that notified by the local administration both relevant to the place of work and the period of reckoning.

The escalation for labour also shall be paid at the same quarterly intervals when escalation due to increase in cost of steel & cement is paid under this Clause. If such revision of minimum wages takes place during any such quarterly intervals, the escalation compensation shall be payable at the revised rates only for work done in subsequent quarters.

Irrespective of variations in minimum wages of any category of labour, for the purpose of this clause, the variation in the rate for an unskilled adult male mazdoor alone shall form the basis for working out escalation compensation payable on the labour component.

In the event the wages of labour required for execution of the work decreases, there shall be a downward adjustment of the cost of work so that such wages of labour shall be deductible from the cost of work under this contract and in this regard the formula herein before stated under this Clause shall mutatis mutandis apply.

**VENDOR LIST FOR CEMENT, STRUCTURAL STEEL  
& HSD RE-BARS/TMT BARS**

**(APPENDIX -X TO SPECIAL CONDITIONS OF CONTRACT)**

### **Structural Steel**

1. Structural steel shall be allowed to be procured from manufacturers having valid BIS license. Structural steel shall conform to IS:2062 & IS:808 and will meet the technical specifications of the contract. This shall be subject to establishment of correlation with manufacturer's MTC for conformance to the applicable code.
2. In addition to establishment of traceability with manufacturer's MTC, for structural steel procured from other than reputed manufacturers (SAIL, TISCO, RINL, ESSAR, JINDAL, JSIW steel and ISPAT may be considered as reputed manufacturers), for each category/size of steel procured, one sample from every 50 Tons or part there of shall be drawn and tested.
3. In case of assorted lot, sample shall be drawn from each lot, irrespective of lot size.

## Approved manufacturers of cement and the methodology for procurement of cement

### 1.1 List of Approved Manufacturer of Cement:

Sl No	Name of Company	Product
1.	ACC,	All types of cements having validity of BIS approval on the date of ordering.
2.	Ultra tech cement	All types of cements having validity of BIS approval on the date of ordering.
3.	Vikram Cement	All types of cements having validity of BIS approval on the date of ordering.
4.	Shri Cement	All types of cements having validity of BIS approval on the date of ordering.
5.	Gujarat Ambuja,	All types of cements having validity of BIS approval on the date of ordering.
6.	Jaypee Cement	All types of cements having validity of BIS approval on the date of ordering.
7.	Century Cement	All types of cements having validity of BIS approval on the date of ordering.
8.	JK (Laxmi) cement	All types of cements having validity of BIS approval on the date of ordering.

### 1.2 CONTRACT CLAUSE FOR PROCURING CEMENT FROM NON LISTED MANUFACTURERS

In case of non availability of cement from the listed Manufacturers as above and forming part of the contract, Engineer In Charge may accord Project specific approval to the Contractor to use Cement procured from other reputed manufacturer of Cement subjected to fulfilling Technical requirements as per clause 1.3.

### 1.3 TECHNICAL REQUIREMENTS APPLICABLE TO CEMENT

- Availability of valid BIS license.
- Availability of valid ISO Certification from recognized body.
- Test certificates of the products from the reputed laboratories accredited by NABL.
- Infrastructural & testing facilities with methodology of Quality control of products.
- List of products being manufactured in the plant.
- The contractor shall furnish documentary evidence towards non availability of cement from the listed suppliers.
- The cement manufacturing plant must have the Capacity of production not less than 1 MMTPA.
- Cement procured shall meet the provisions of relevant IS codes for respective

grade / type of cement and shall have IS mark on them.

- The contractor shall furnish manufacturer's test certificates to the Engineer-in-Charge in respect of all supplies of cement brought by him to site for incorporation in permanent work
- In addition to verification of delivery orders and delivery challans of the cement manufacturer, samples shall be taken and got tested by the Engineer-in-Charge in an approved test house as per the provisions laid down in EIL Specifications/BIS codes. The sample size shall be as under in case of Cement.

<b>Type of cement</b>	<b>For Consignment below 100 MT</b>	<b>For Consignment above 100 MT</b>
All types	One sample for each 25 MT or part thereof	One sample for each 40 MT or part thereof

- The cost for all the tests shall be borne by the contractor. In case the test results indicate that the cement arranged by the contractor does not conform to the specifications, the same shall stand rejected as per discretion of EIC, and shall be removed immediately from the site of work by the contractor at his own expense and without any claim for compensation due to such rejection

## **Approved manufacturers for TMT Bars and Methodology for obtaining rebate**

### **1.1 List of Approved Manufacturer of TMT bars :**

<b>Sl. No</b>	<b>Name of Company</b>	<b>Product</b>
1.	SAIL	All types of bars having validity of BIS approval on the date of ordering.
2.	RINL	All types of bars having validity of BIS approval on the date of ordering.
3.	TATA STEEL LTD (TSL)	All types of bars having validity of BIS approval on the date of ordering.
4.	JINDAL STEEL & POWER LIMITED	All types of bars having validity of BIS approval on the date of ordering.
5.	JSW STEEL LIMITED	All types of bars having validity of BIS approval on the date of ordering.

### **1.2 CONTRACT CLAUSE FOR OBTAINING REBATE ON TMT REINFORCEMENT BARS**

In case of non availability of steel from the listed Producers as above and forming part of the contract, Engineer In Charge may accord Project specific approval to the Contractor to use TMT reinforcement bars procured from other reputed producers of TMT bars subjected to fulfilling Technical requirements. However, such approvals shall be considered subject to the contractor offering rebate as per following:

Difference in Base price of TMT reinforcement bars procured from "Primary Manufacturer" (Listed) & "Secondary Manufacturer" (Non Listed) shall be as per Memorandum issued by CPWD (Sample Memorandum attached for reference and available on CPWD website) & shall be considered for obtaining the rebate rate per MT. The Memorandum of CPWD as applicable on the date of receipt of material at site shall be considered for working out the rebate rate. Base price of TMT bars issued by CPWD shall be applicable for all types/grade of reinforcement bars. The sample memorandum of CPWD mentioned above shall be applicable irrespective of the geographical locations.

### **1.3 TECHNICAL REQUIREMENTS APPLICABLE TO TMT BARS**

- Availability of valid BIS license shall be verified from BIS website.
- Availability of valid ISO Certification from recognized body.
- Inspection reports of the products from the reputed third party inspection like DNV, LRS, CEIL, TU, BV, etc.
- Infrastructural and testing facilities with methodology of quality control of products.
- List of products being manufactured in the plant.
- The contractor shall furnish documentary evidence towards non availability of TMT bars from the listed suppliers
- Materials supplied by producers having Integrated steel plants shall have capacity of production of crude steel of 0.5 million tons per annum

- The producers must have valid license from BIS to produce High Strength Deformed (HSD) rebars / TMT bars conforming to IS: 1786. In addition to BIS license for HSD rebars, the producers must have valid license from any of the firms Tempcore, Thermex,
- Evcon Turbo & Turbo Quench to produce Thermo-Mechanically Treated (TMT) rebars and shall conform to the specifications laid by these firms for particular grade of TMT rebars.
- Steel material procured shall meet the provisions of IS: 1786 for respective grade of TMT rebars like Fe500, Fe500D, etc. and shall preferably have IS mark on them.
- The contractor shall furnish manufacturer's test certificates to the Engineer-in-Charge in respect of all supplies of rebars brought by him to site for incorporation in permanent work.
- In addition to verification of delivery orders and delivery challans of the steel manufacturer, samples shall be taken and got tested by the Engineer-in-Charge in an approved test house duly witnessed by Reputed third party agency like DNV, LRS, CEIL, TU, BV, etc. as per the provisions laid down in EIL Specifications/BIS codes. The sample size shall be as under in case of TMT bars.

<b>Size of Bar</b>	<b>For Consignment below 100 MT</b>	<b>For Consignment above 100 MT</b>
Under 10 mm dia bars	One sample for each 25 MT or part thereof	One sample for each 40 MT or part thereof
10mm to 16 mm dia bars	One sample for each 35 MT or part thereof	One sample for each 45 MT or part thereof
Over 16 mm dia bars	One sample for each 45 MT or part thereof	One sample for each 50 MT or part thereof

The cost for all the tests and the test certificates shall be borne by the contractor. In case the test results indicate that the rebars arranged by the contractor does not conform to the specifications, the same shall stand rejected as per discretion of EIC, and shall be removed immediately from the site of work by the contractor at his own expense and without any claim for compensation due to such rejection

**FORMAT OF GUARANTEE BOND**  
**[APPENDIX - XI TO SPECIAL CONDITIONS OF CONTRACT]**

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**GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION OF WORK IN RESPECT OF WATER PROOFING WORKS.**

This agreement made on \_\_\_\_\_ day of \_\_\_\_\_ two thousand \_\_\_\_\_ between \_\_\_\_\_ son of \_\_\_\_\_ (Hereinafter called the Guarantor of the one part) and Regional Centre for Biotechnology (RCB). (Hereinafter called RCB of the other part).

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated \_\_\_\_\_ and made between the GUARANTOR ON THE ONE PART AND RCB –on the other part, whereby the contractor inter alia, undertook to render the building and structures in the said contract recited completely water and leak proof.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date of completion/ handing over.

Provided that the guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse or alteration and for such purpose:

- a) Misuse of roof shall mean any operation, which will damage proofing treatment, like chopping of firewood and things of the same nature, which might cause damage to the roof.
- b) Alteration shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts.
- c) The decision of the Engineer-in-Charge with regard to nature and cause of defect shall be final.

During this period of guarantees, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-in-Charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from Engineer-in-Charge calling upon him to rectify the defects failing which the work shall be got done by RCB by some other contractor at the GUARANTOR'S risk & cost. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if guarantor fails to execute the water proofing or commits breach there under; then the guarantor will indemnify the Principal and his successors against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/ or damage and/ or cost incurred by RCB, the decision of the Engineer-in-Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator \_\_\_\_\_ and by \_\_\_\_\_ for an on behalf of RCB on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of

1. \_\_\_\_\_ 2. \_\_\_\_\_

SIGNED FOR AND ON BEHALF OF RCB BY \_\_\_\_\_ In the presence of

1. \_\_\_\_\_ 2. \_\_\_\_\_

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**GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION OF WORK IN RESPECT OF ANTI TERMITE TREATMENT WORKS**

The agreement made this \_\_\_\_\_ day of \_\_\_\_\_ two thousand \_\_\_\_\_ between \_\_\_\_\_ son of \_\_\_\_\_ (Hereinafter called the Guarantor of the one part) and Regional Centre for Biotechnology (RCB). (Hereinafter called RCB of the other part).

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated \_\_\_\_\_ and made between the GUARANTOR ON THE ONE PART AND RCB on the other part, whereby the contractor inter alia, undertook to render the building and structures in the said contract recited completely termite proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said structure will remain termite proof for ten years to be reckoned from the date of completion / handing over.

During this period of guarantee, the guarantor shall make good all defects and for that matter, shall replace at his risk and cost such wooden members as may be damaged by termites and in case of any other defect being found he shall render the building termite proof at his cost to the satisfaction of the Engineer-in-Charge and shall commence the work for such rectification within seven days from the date of issue of the notice from RCB calling upon him to rectify the defects failing which the work shall be got done by RCB from some other contractor at the GUARANTOR'S cost and risk and in the later case the decision of RCB as to the cost recoverable from the Guarantor shall be final and binding.

That if guarantor fails to execute the anti termite or commits breach here under; then the guarantor will indemnify the Principal and his successors against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/ or damage and/ or cost incurred by RCB, the decision of RCB will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator \_\_\_\_\_ and by \_\_\_\_\_ for an on behalf of RCB on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of

1. \_\_\_\_\_ 2. \_\_\_\_\_

SIGNED FOR AND ON BEHALF OF RCB BY \_\_\_\_\_ In the presence of

1. \_\_\_\_\_ 2. \_\_\_\_\_

**ITEMS QUALIFYING FOR SECURED ADVANCE**  
**[APPENDIX - XII TO SPECIAL CONDITIONS OF CONTRACT]**

## ITEMS QUALIFYING FOR SECURED ADVANCE

### 1. CATEGORY : 'A' -- ITEMS AGAINST WHICH SECURED ADVANCE CAN BE GRANTED

#### **A-1 CIVIL**

- i) Bricks
- ii) Stone and Brick aggregates
- iii) Stones
- iv) Finished products of brass, Iron or Steel such as doors and window frames, wiremesh, gate, G.I. Sheets.
- v) Precast RCC products such as pipes & fittings, jail, water storage tanks.
- vi) Doors and windows fitting.
- vii) Pipes and sanitary fittings of GI, CI, SCI and HCI.
- viii) Metallic doors/windows
- ix) M.S. Gratings.
- x) Reinforcement bars
- xi) Hydraulic door closures.
- xii) Structural steel.
- xiii) C.I. Flushing Cisterns
- xiv) C.I. Valves, Sluice gates etc.
- xv) Fencing, material, Chain-Link/Barbed wire etc.
- xvi) Anchor bolts and Nuts.

#### **A-2 ELECTRICAL**

- i) Steel Conduit
- ii) G.I. Pipes
- iii) C.I. Boxes
- iv) I.C. Boards
- v) Switchgears (Air circuit breakers and Air breaker switches)
- vi) A.C.S.R. Conductors.
- vii) A.C. Plant and Machinery
- viii) Pumps
- ix) Generating sets (without oil)
- x) G.I. Strips
- xi) Street light poles (Steel)
- xii) Cable Trays

#### **A-3 MECHANICAL**

- i) Structural Steel

- ii) Plates
- iii) Pumps/motors, vessels etc, diesel Engine, Side Entry Mixers, Suction Heater & any other mechanical equipment.
- iv) Refractory Bricks
- v) S.S. foil
- vi) Pipes/Pipe Fittings
- vii) Gratings
- viii) Valves, Hydrants, Monitors
- ix) Aluminium Sheet

#### **A-4 INSTRUMENTATION**

- i) Structural Steel
- ii) M.S. Sheet/G.I Sheets
- iii) Prefabricated trays
- iv) Pipes/Tubes/Fittings

## **2. CATEGORY : 'B'--- ITEMS AGAINST WHICH SECURED ADVANCE CAN BE GRANTED AFTER OBTAINING INSURANCE COVER FROM THE CONTRACTOR**

#### **B-I CIVIL**

- i) Kitchen sink china vitreous, flush back for wash basin vitreous china, water closet and pedestal type water closet vitreous china, urinals.
- ii) Glazed tiles, terrazo tiles and similar articles.
- iii) Marble/Kota Stone/Granite slabs
- iv) Asbestos cement products
- v) Finished timber products such as doors, windows, flush doors, particle boards (subject to the mandatory tests being satisfactory).
- vi) Bitumen in sealed drums.
- vii) Bitumen felt
- viii) Polythene pipes and fittings.
- ix) Sanitary fittings and pipes of S.W. Porcelain and chinaware materials.
- x) Laminated/safety one way vision and Bullet proof glasses.
- xi) Chemicals required for antitermite treatment (in sealed drums).
- xii) Paints, Varnishes, Distempers, pigment.
- xiii) Ceiling and false flooring frames and tiles etc.
- xiv) Acid proof tiles
- xv) Bitumen products required for mastic flooring etc.
- xvi) Waterproofing, compounds such as CICO etc.

- xvii) Materials for Grouting, Epoxy finishing etc.
- xviii) PVC Water storage Tanks, PVC tiles, PVC waterbar etc.
- xix) Cement

**B-2 ELECTRICAL**

- i) Transformers
- ii) Switchgears (Oil filled)
- iii) L.T. &.H.T. Cables
- iv) Fans
- v) Storage & Dry Batteries
- vi) Insulation tapes
- vii) Epoxy cable compounds
- viii) Electric light fittings
- ix) Wood battens, casing & capping and wooden boards
- x) Flexible wires
- xi) PVC materials
- xii) Rubber materials
- xiii) Glass wools, thermocol and other insulating materials.
- xiv) Porcelain H.T. and L.T. insulators
- xv) Electric heat tracing tapes
- xvi) Oil and Lubricants.

**B-3 MECHANICAL**

- i) Bitumen
- ii) Wrapping & Coating Material
- iii) Primer/Paints
- iv) Foam/Foam Seal Material
- v) Guniting Material
- vi) Insulation & Refractory Materials other than Bricks
- vii) Electrodes

**B-4 INSTRUMENTATION**

- i) SS/Copper Tubes
- ii) SS/Brass Compression Fittings
- iii) Control/Signal Cables
- iv) Junction Boxes/Marshalling Boxes
- v) Control Panels

**NOTE:** The Category "B" shall cover all the above items and any other item not covered in category "A" and "C" and imperishable in nature.

**3. CATEGORY : 'C' -- ITEMS AGAINST WHICH NO SECURED ADVANCE SHOULD BE GRANTED**

**C-1 CIVIL**

- i) Glass products other than those indicated in Category 'B'.
- ii) Sand and Mooram.
- iii) Chemical compounds other than those under Category 'B'.

**C-2 ELECTRICAL**

- i) Glass Globes and Shades.
- ii) Bulbs and Tubes.
- iii) Petrol and Diesel.
- iv) Freon and other Refrigeration gases.

# **APPROVAL OF CONSTRUCTION SUB- CONTRACTOR**

**(APPENDIX – XII TO SPECIAL CONDITIONS OF CONTRACT)**

**(APPROVAL OF CONSTRUCTION SUB-CONTRACTOR)  
FORMAT – I**

- 1) NAME OF MAIN CONTRACTOR : \_\_\_\_\_
- 2) NAME OF WORK, LOCATION : \_\_\_\_\_
- 3) NAME OF PROPOSED SUB-CONTRACTOR : \_\_\_\_\_
- 4) SCOPE OF WORK PROPOSED TO BE SUB-CONTRACTED (BRIEF) : \_\_\_\_\_
- 5) ESTIMATED VALUE OF THE PROPOSED WORK TO BE SUB-CONTRACTED (INR ): \_\_\_\_\_
- 6) QUALIFYING CRITERIA FOR SUB-CONTRACTOR:
- i) Similar work experience in relevant works:  
Completed **one job** of completed Contract value of not less than **50 %** of value of proposed work (as quoted by the main contractor) to be sub-contracted, in preceding seven years  
or  
Completed **two jobs** each of completed Contract value of not less than **30 %** of value of proposed work (as quoted by the main contractor) to be sub-contracted, in preceding seven years
- ii) Annual Turnover  
Not less than **100%** of value of proposed work (as quoted by the main contractor) to be sub-contracted, in any one of the preceding three years
- 7) Based on above information, we M/s \_\_\_\_\_ (Name of Main Contractor) propose M/s \_\_\_\_\_ (Name of proposed sub-contractor) as our sub-contractor for the above mentioned works. We understand that notwithstanding above approval, we shall remain fully responsible for the performance of the said sub-contractor and any failure of the sub-contractor shall not absolve/ relieve us of our responsibility to complete the works as per the terms and conditions of the Contract.

(NOTE: Bidders to fill all the details in the above proforma. Further, Bidder shall also fill-in the details at Sl.No.5 above based on the estimated value of the proposed work to be subcontracted. Estimate shall be linked to the SOR of the main contract).

(STAMP & SIGNATURE OF CONTRACTOR)

- 8) QUALIFICATION STATUS (TO BE STAMPED BY EIL):

# **SCHEDULE OF RATES**

**NAME OF WORK** : **CIVIL, STRUCTURAL, ELECTRICAL, HVAC, ELEVATORS AND OTHER DEVELOPMENTAL WORKS.**

**BIDDING DOCUMENT No.** : **KNM/A091-000-CP-TN-7037/1000**

**NAME OF BIDDER** : **M/s**

**PREAMBLE TO SCHEDULE OF RATES**

1. The Schedule of Rates shall be read in conjunction with all other sections of this Bidding Document.
2. The Contractor is deemed to have studied the drawings, 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. In case any activity though specifically not covered in description of item under 'Schedule of Rate (SOR)' but is required to complete the work which could be reasonably implied/ inferred from the contents of the Bidding Document, the prices quoted shall be deemed to be inclusive of cost incurred for such activity. No extra claim on this account shall be entertained, since Schedule of Rates is to be read in conjunction with all other documents forming part of the Contract.
4. All duties and taxes including Works Contract Tax, Turnover Tax and other levies 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.
5. Bidder shall quote percentage increase / decrease on the total estimated price upto 2 decimal places and the same percentage shall be applicable to all the items of works of the Estimated Schedule of Rates. Bidder shall not change rate/amount indicated in Estimated Schedule of Rates.
6. No comment, explanation or clarification in S.O.R. is acceptable. No condition in price part shall be acceptable.
7. The unit rates of the SOR items considering the % increase/decrease on estimated price, as quoted by the bidder, shall remain firm except as per the provisions indicated in the Special Conditions of Contract. The Bids of all such bidders not complying this requirement, shall not be accepted.
8. The quantities given in SOR format are tentative and shall be used to evaluate the bidder's position. EIL shall not make any commitment for quantities to be ordered on daily or monthly basis and payment shall be released for actual quantities ordered and executed.
9. No claim shall be entertained during currency of this Contract towards any items due to the above including where the Contractor has quoted low/ high rates.
10. All items of work mentioned in the Schedule of Rates shall be carried out as per the specifications, drawings and instructions of Owner and the rates are deemed to be inclusive of material, consumable, labour, supervision, tools & tackles and detailing of construction/fabrication drawings, isometric wherever required as called for in the detail specification and conditions of the Contract.
11. 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.

**STAMP & SIGNATURE OF BIDDER**

**SUMMARY OF PRICE**

**NAME OF WORK** : Civil, Structural, Electrical, HVAC, Elevators and other Developmental Works for Construction of Phase-I Extension Works of NCR Biotech Science Cluster.

**BIDDING DOCUMENT NO.** : KNM/A091-000-CP-TN-7037/1000

**NAME OF BIDDER** :

<b>A</b>	Total Estimated Price as per Estimated Schedule of Rates (FORM SP-0)	:	<b>Rs. 69,27,46,995.00</b>
<b>B</b>	Percentage increase (+) / decrease (-) on Total estimated cost (i.e. on 'A' above), applicable on all items of SOR	:	In figure _____ %
			In words _____ percent <b>(Refer Note-2)</b>
<b>C</b>	Total amount after considering percentage Increase (A+B) / Decrease (A-B) as above.	:	(In fig.) Rs. _____
			(In Words) Rupees _____ _____ _____

**Notes :**

- Bidder shall indicate the Percentage Increase/Decrease under Sr.no.B and total amount after considering Percentage Increase/Decrease as per Sr.no. C in Price bid only (and not in techno-commercial bid).
- Bidder shall indicate (+) for increase and (-) for decrease. For no increase/decrease, 'NIL' shall be indicated.
- The percentage should be quoted upto 2 decimal place.
- In case of any discrepancy in the %age increase / decrease quoted by the bidder in figures and in words, the %age increase / decrease quoted in words shall be considered for evaluation / award.

- 5 In case of any discrepancy in the total amount after considering %age increase / decrease quoted by the bidder at Sl. No. C and the total amount worked out after considering %age increase / decrease quoted by the bidder at Sl. No. B, the later shall be considered for evaluation and award.
- 6 In case the above Form duly filled in is not found submitted in the price bid, %age increase / decrease on the total estimated cost shall be considered as Nil for the purpose of evaluation / award.

## SCHEDULE OF RATES

**Name of Project: Construction of Phase-I Extension Works of NCR Biotech Science Cluster at Faridabad**

**Name of Work : Civil, Structural, Electrical, HVAC, Elevators and Other Developmental Works**

**Tender No.: KNM/A091-000-CP-TN-7037/1000**

**Name of Bidder:**

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
<b>Sub- Head - I , Earth Work</b>					
1.1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.				
	All kinds of soil	10850	cum	154	1,670,931
1.2	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.				
	Ordinary rock	4110	cum	240	986,400
1.3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	All kinds of soil	2042	cum	155	316,510
1.4	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	Ordinary rock	918	cum	257	235,926
	Hard rock (blasting prohibited)	5386	cum	603	3,247,758

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
1.5	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering etc., stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50m :				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	100	metre	203	20,300
1.6	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering etc., stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50m :				
a	Ordinary rock :				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	1110	metre	436	483,960
b	Hard Rock ( Blasting Prohibited )				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	960	metre	842	808,320
1.7	Extra for excavating trenches for pipes cables etc in ordinary /hard rock exceeding 1.5metre in depth but not exceeding 3m				
a	Ordinary rock :				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	550	metre	457	251,350
b	Hard Rock ( Blasting Prohibited )				
	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	300	metre	884	265,200
1.8	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	11131	cum	107	1,191,017
1.9	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.				
a	All kinds of soil	1757	cum	44	77,308
b	Ordinary rock or hard rock :	1531	cum	79	120,949
1.10	Supplying and filling in plinth with Jamuna sand under floors, including watering, ramming, consolidating and dressing complete.	750	cum	886	664,500

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
1.11	Disposal of surplus earth with in RCB campus with in 1.00 kilometre lead inclusive of all lift complete as per direction of Engineer in-Charge.	1761	cum	106	186,687
1.12	Disposal of excavated rock with in RCB campus with in 1.00 kilometre lead inclusive of all lift complete as per direction of Engineer in-Charge.	10414	cum	170	1,770,380
	<b>Total of Sub Head</b>				<b>12,297,496</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub - Head - II , Concrete Work</b>				
2.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
a	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size)	4	cum	4,443	17,772
b	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	1168	cum	4,117	4,808,656
c	1:5:10 ( 1 Cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	554	cum	3,857	2,136,778
2.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor,etc., up to floor five level, excluding the cost of centering, shuttering and finishing :				
	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	25	cum	6,113	152,825
2.3	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5mm nominal size).	362	sqm	232	83,984
2.4	Extra for providing and mixing water proofing material in cement concrete work @ 1kg per 50 Kg of cement.	97	per 50 Kg of Cement	46	4,462
2.5	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	362	sqm	114	41,268
2.6	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement :3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand including finishing the top smooth	730	sqm	398	290,540
2.7	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Nominal concrete 1:4:8 or leaner mix (i/c equivalent design mix)	30	cum	522	15,660
	<b>Total of Sub Head</b>				<b>7,551,945</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub - Head - III , RCC Work</b>				
3.1	Centering and shuttering including strutting, propping etc. and removal of form for :				
a	Foundations, footings, bases of columns, etc. for mass concrete.	3252	sqm	195	634,140
b	Walls ( any thickness) including attached pilasters, butteresses, plinth and string courses etc.	3771	sqm	352	1,327,392
c	Suspended floors, roofs, landings, balconies and access platform.	21984	sqm	388	8,529,792
d	Lintles, beams, plinth beams, girders, bressumers and cantilevers.	21695	sqm	325	7,050,875
e	Columns, Pillars, Piers, Abutments, Posts and Struts.	18492	sqm	444	8,210,448
f	Stairs, (Excluding landings) except spiral -staircases.	666	sqm	395	263,070
g	Extra for shuttering in circular work				
i)	Beams	200	sqm	65	13,000
ii)	Columns	180	sqm	89	16,020
h	Edges of slabs and breaks in floors and walls.				
i	Under 20 cm wide	170	metre	118	20,060
j	coffer slab and beam using water proof ply 12mm thick	1000	sqm	453	453,000
3.2	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m for every additional height of 1 metre or part thereof (Plan area to be measured.)				
	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	15682	sqm	152	2,383,664
3.3	Providing precast cement concrete Jali 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete excluding plastering of the jambs, sills and soffits.				
	50 mm thick	512	sqm	718	367,616
3.4	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
	Thermo - Mechanically Treated bars	512929	kg	70.00	35,905,030
3.5	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
	Thermo - Mechanically Treated bars	1225993	kg	70.00	85,819,518
3.6	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	2662	metre	29	77,198

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
3.7	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.				
	(Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).				
a	All works upto plinth level.	3717	cum	5,989	22,261,113
b	All works above plinth level upto floor V level.	6652	cum	6,671	44,375,492
3.8	Extra for providing richer mixes at all floor levels.				
	Note:- Excess/less cement over the specified cement content used is payable /recoverable separately.				
a	Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum).	1715	cum	67	114,905
3.9	Add (or deduct) for using extra ( or less) cement in the items of design mix over and above the specified cement content therein.	982	quintal	651	639,087
3.10	Providing and fixing sheet covering over expansion joints with iron screws as per design to match the colour / shade of wall treatment.				
	Aluminium fluted strips 3.15mm thick.				
	200mm wide	30	metre	476	14,280
3.11	Providing & Fixing 75 MM <i>DURAFill</i> of Dawn Color, manufactured by The Supreme Industries Limited, thickness built up using minimum 10 MM specifically extruded high performance sheet, minimum density 30 kg / Cu. Mt & compression strength of 0.21 Kg / Cm. Sq., when tested as per ASTM D-3575, including using double sided adhesive DURA tape (manufactured by The Supreme Industries Limited) of 75 MM x 25 MM x 2 MM at four places per sq.mtr to the cast surface to form the expansion joint including backer rod , silicn sealent etc complete.	50	sqm	814	40,700
3.12	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level for each four floors or part thereof.	1284	cum	183	234,972

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
3.13	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge	60	cum	1,235	74,100
3.14	Extra for cutting reinforcement bars manually/ by mechanical means in R.C.C. or R.B. work (Payment shall be made on the cross sectional area of R.C.C. or R.B. work) as per direction of Engineer - in -charge.	15	sqm	429	6,435
	<b>Total of Sub Head</b>				<b>218,831,907</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head IV - Brick Work</b>				
4.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
	Cement mortar 1:6 (1 Cement : 6 coarse sand)	782	cum	4,879	3,815,378
4.2	Brick work with non modular fly ash lime bricks (FALG Bricks) conforming to IS:12894-2002, class designation 10 average compressive strength in super structure above plinth level up to floor V level in :				
	Cement mortar 1:6 (1 cement : 6 coarse sand)	4422	cum	5,380	23,790,360
4.3	Extra for brick work / AAC block masonry / Tile brick masonry in superstructure above floor V level for each four floors or part thereof by mechanical means.	588	cum	276	162,288
4.4	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.				
	Cement mortar 1:4 ( 1 cement :4 coarse sand)	8851	sqm	680	6,018,680
4.5	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	1644	sqm	24	39,456
4.6	Extra for providing and placing in position 2 Nos. 6 mm dia. M.S. bars at every third course of half brick masonry.	8851	sqm	73	646,123
4.7	Brick edging 7cm wide 11.4cm. deep to plinth protection with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).	519	metre	41	21,281
4.8	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
	In cement mortar	120	cum	715	85,800
	<b>Total of Sub Head</b>				<b>34,579,366</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub Head - V Stone Work</b>				
5.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level with : with cement mortar 1:6 (1 cement : 6 coarse sand). Excluding the cost of stone ( The stone boulders shall be issued free of cost at site).	150	cum	3,582	537,300
5.2	Random rubble masonry with hard stone in superstructure above plinth level and upto floor five level, including leveling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) at window sills, ceiling level and the like. Excluding the cost of stone ( The stone boulders shall be issued free of cost at site).				
	Cement mortar 1:6 (1 cement : 6 coarse sand)	398	cum	4,291	1,707,818
5.3	Stone work (machine cut edges) for wall lining etc. (vener work) backing filled with a grout of 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including , pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing by means of cramps which shall be paid for separately) :				
a	Red sand stone - exposed face fine dressed with rough backing.				
	30 mm thick.	300	sqm	2,095	628,500
b	White sand stone - Exposed face machine cut and table rubbed with rough backing.				
	30 mm thick.	7948	sqm	2,940	23,367,120
5.4	Providing and fixing copper pins 7.5 cm long 6 mm diameter for securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand) including making the necessary chases.	37500	each	30	1,125,000
5.5	Stone work, plain in copings, cornices, string courses and plinth courses, upto 75 mm thick in Cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.				
	White sand stone	10	cum	38,368	383,841
5.6	Making chases up to 7.5x7.5 cm in walls including making good and finishing with matching surface after inserting copings, cornices, string courses and plinth courses, complete	915	metre	82	75,030
5.7	Extra for pre finished full round moulding in sand stone coping /bands etc.	915	metre	79	72,285

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
5.8	Providing and fixing cramps of required size & shape in RCC/ CC / Brick masonry backing with cement mortar 1:2 ( 1 cement :2 coarse sand) including drilling necessary hole in stones and embedding the cramp in the hole (fastener to be paid separately).				
	Stainless steel cramps.	8249	kg	595	4,907,988
5.9	Providing and fixing expansion hold fasteners on C.C. /R.C.C./Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.				
	Wedge expansion type				
	Fastener with threaded dia 10 mm.	37500	each	29	1,087,500
5.10	Forming "L" groove of uniform size upto 10mm x10mm on the edge of sand stone slab cladding and finishing the groove in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade, complete as per direction of the Engineer-in-charge :	835	metre	52	43,420
5.11	Extra for champering the exposed edges of stone slabs cladding to make "V" grooves between adjacent stones as required as per drawings complete	2647	metre	31	82,057
	<b>Total of Sub Head</b>				<b>34,017,860</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub Head - VI Marble Work</b>				
6.1	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) for wall lining (veneer work), /bands 200mm wide backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade: (To be secured to the backing by means of cramps, which shall be paid for separately).				
	Granite of any colour and shade				
a	Area of slab upto 0.50 sqm.	1354	sqm	4,335	5,869,590
6.2	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
a	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble.				
i	Area of slab upto 0.50 sqm.	537	sqm	2,310	1,240,470
ii	Area of slab over 0.50 sqm.	299	sqm	2,438	728,962
b	Granite of any colour and shade				
	Area of slab upto 0.50 sqm.	366	sqm	3,911	1,431,426
6.3	Providing edge moulding to 18mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.				
a	Marble work	1479	metre	130	192,270
b	Granite work	1342	metre	222	297,924
6.4	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	632	metre	237	149,784
6.5	Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.	212	each	369	78,228

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
6.6	Providing and fixing stone slab table rubbed, edges rounded and polished of size 75x50 cm deep and 1.8 cm thick fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.				
	Granite Stone of approved shade.	16	sqm	3,111	48,221
	<b>Total of Sub Head</b>				<b>10,036,875</b>
	<b>Sub- Head - VII Wood Work &amp; PVC Work</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
7.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length ( hold fast lugs or dash fastener shall be paid for separately).				
	Second class teak wood	42	cum	95,021	3,990,882
7.2	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.				
a	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	320	sqm	2,440	780,800
b	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. Piano hinges IS : 3818 marked with necessary screws.	671	sqm	2,062	1,383,602
7.3	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters :				
	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	1268	sqm	1,769	2,243,092
7.4	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).	1588	sqm	365	579,620
7.5	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured) :				
	Rectangular or square.	348	sqm	141	49,068
7.6	Extra for cutting rebate in flush door shutters ( Total area of the shutter to be measured).	361	sqm	104	37,544
7.7	Providing and fixing glazed shutters for doors, windows and clerestory windows using 4 mm thick float glass panes including black enamelled ISI marked M.S butt hinges with necessary screws.				
	Second class teak wood				
	30 mm thick	528	sqm	2,941	1,552,848

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
7.8	Providing and fixing 5.5mm thick heavy sheet float glass panes on doors / windows frames (frames to be paid seperately) including 35x12mm teak wood beading complete.	188	sqm	892	167,696
7.9	Providing and fixing wire gauge shutters using stainless steel grade 304 wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws:				
	Second Class teak wood -30 mm thick shutters.				
	With ISI marked stainless steel butt hinges of required size.	650	sqm	3,166	2,057,900
7.10	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.				
	Fixed to openings /wooden frames with rawl plugs screws etc.	30545	kg	117	3,573,765
7.11	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm) with double speed adjustment with necessary accessories and screws etc. complete.	362	each	1,078	390,236
7.12	Providing and fixing Aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade (AC 10 as per IS 1868), transparent or dued to required color or shade with necessary screws etc. complete:Heavy Duty				
	300 x 16 mm	597	each	231	137,907
7.13	Providing and fixing Aluminium tower bolts, ISI marked anodised (anodic coating not less than grade (AC 10 as per IS 1868), transparent or dued to required color or shade with necessary screws etc. complete:Heavy Duty				
a	300 x10 mm	849	each	115	97,635
b	250 x 10 mm	839	each	97	81,383
7.14	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868 ) transparent or dyed to required colour or shade, with necessary screws etc. complete :				
	150 x 10 mm	6554	each	234	1,533,636
7.15	Providing and fixing 85 x 42 Chromium plated brass pull bolt lock superior quality with necessary cromium plated screws etc. complete:Heavy Duty	213	each	214	45,582

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
7.16	Providing and fixing bright finished brass handles Superior quality with necessary brass screws etc complete .Heavy duty				
	125 mm	1683	each	180	302,940
7.17	Providing and fixing aluminium handle of approved make Deluxe EBCO code no AWH-D1 (L/R) or equivalent with SS screws etc complete as per direction of Engineer in Charge.	6554	each	304	1,992,416
7.18	Providing and fixing bright finished brass hanging floor door stopper size150mm of superior quality with necessary brass screws etc. complete (Heavy duty)				
	Single rubber stopper	1079	each	84	90,636
7.19	Providing and fixing aluminium casement stays IS marked anodised ( anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc. complete.	4324	each	71	307,004
7.20	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality.				
	1.00 mm thick	1395	sqm	696	970,920
7.21	Providing & fixing Toilet Cubicle Greenlam Sturdo Classique Grandeur or equivalent (of following standard dimension which includes 600mm door size width) made of heat, bacteria, water, chemical, scratch, impact and anti bacterial resistant 18mm thick solid compact laminate panels tested by Shriram Institute for Industrial Research Finish of the compact laminate should be raw silk which includes doors, pilasters & intermediate panels finished with approved texture/shade as per the detail drawings & as per IS 2046 (Indian Standard) and as per fire retardant BS-476/97 standard. The product should have Green Guard Certificate.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	This also includes providing and fixing in position necessary hardware made out of Stainless steel (Grade 304) as per manufacturer's specifications & Architects instructions like (1) Door Knob, (2) Gravity Hinges, (3) Thumb turn lockset indicators, (4) Coat hooks, (5) U-Channels, (6) SS-Shoe Box Plate (7) MS-Base Plate, (8) Rubber noise deafening tape (9) Screws & wall Plugs. All screws will of 304 Grade in stainless steel with satin finish. All pilasters are supported by stainless steel shoe box of Greenlam Classique Series or equivalent with MS-Base Plate. The base of the stainless steel shoe box will be anchored to the floor with a clearance height upto 110mm. Fixing of intermediate panels to the wall shall be stainless steel 'L' – Bracket or stainless U-Channel section are fixed into wall with screw inserts.	232	sqm	12,075	2,801,400
7.22	Providing and fixing Non metallic 42mm (minimum) thick asbestos free composite fire cum smoke check door frame with shutters (having vision panels) of 60 minutes fire resistance rating conforming to BS:476 Part-22/IS; 3614 Part II as per the prototype tested and certified by CBRI Roorkee and duly approved by TAC ( Tariff Advisory Committee) with shutters comprising of two non combustible boards each 12mm thick sandwiching 10mm (minimum) thick fire resistant insulation filler faced with 3mm (minimum) commercial ply veneering on both faces and seasoned hard wood lipping all around the shutter with heat activated instumescent fire seal strip of size 12mm x 4mm mounted in the grooves in the shutters on all sides except bottom and the vision panel of size 200 x 400mm made up of 6.8mm thick (nominal) clear wired fire rated glass (imported) of 60 minutes fire rating from				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Central/Pacific/Saint Gobain/CGI having electrically welded chemically treated steel wire mesh of 20mm spacing sandwiched in the center during the continuous rolling process including fire rated gasket channel & moulding/beading and filling the gap between moulding /beading and glass with suitable sealant including fixing each shutter with 4 Nos. stainless steel Ball bearing hinges of size 100mmx76mmx2mm with screws to the door frames made out of 2nd class teak wood of size 120mmx70mm (nominal) with heat activated intumescent fire seal strips of size 12mmx4mm provided in grooves on all the three sides of frame and painting the shutters with fire retardant paint of 'VIPER' or equivalent to provide class I surface spread of flame conforming to BS 476 Part 7, IS : 12777 in desired shade over a coat of fire resistant primer including providing & fixing a heavy duty door closer of ISI mark (Everite or equivalent) two stainless steel handles of size 300mm for each door shutter complete.				
	The rate includes the cost of all the materials, labor & T& P required for proper completion of the item described above. (For payment purpose the area of opening including door frame shall only be measured).	195	sqm	10,972	2,139,540
7.23	Providing and fixing ISI marked oxidised M.S. sliding door bolts with nuts and screws etc. complete :				
	250x16 mm	12	each	163	1,956
7.24	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc. complete :				
	250x10 mm	24	each	67	1,608
7.25	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc. complete :				
	125 mm	24	each	28	672
	<b>Total of Sub Head</b>				<b>27,312,288</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - VIII , Steel Work</b>				
8.1	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.				
	Using M.S. angles 40x40x6 mm for diagonal braces.	48	sqm	3,089	148,272
8.2	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.				
	Fixing with 15x3 mm lugs 10 cm. long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size).	834	kg	86	71,724
8.3	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 – part 1 and M.S. top cover of required thickness for rolling shutters.				
	80x1.20 mm M.S. laths with 1.20 mm thick top cover.	18	sqm	1,923	34,614
8.4	Providing and fixing ball bearing for rolling shutters.	4	each	458	1,832
8.5	Steel work in built up tubular ( round, square or rectangular hollow tubes etc.) railing etc. including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.				
	Electric resistance or induction butt welded tubes.	28000	kg	124	3,472,000
8.6	Providing and fixing circular / Hexagonal cast iron or M.S sheet box for ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1.5mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S sheet box by means of 3.3 mm dia. round headed screws, one lock at the corners. Clamp shall be made of 12 mm dia M.S bar bent to shape as per standard drawing.	780	each	145	113,100

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
8.7	Steel work welded in built up sections/ framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
a	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	16485	kg	78	1,285,830
b	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	24950	kg	91	2,270,450
8.8	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying a priming coat of approved steel primer.				
	M.S. tube.	1597	kg	102	162,843
8.9	Designing, providing, fabricating, and fixing in position tubular steel frame work using RHS/SHS of TATA TUBE for supporting polycarbonate sheet (at all heights) including the cost of RHS / SHS tubes and its cutting re-rolling, bolting / welding, hoisting and fixing in position to RCC members with MS plates applying a primary coat of approved steel primer special shaped washers and bending of RHS/SHS sections to required curvature (as per approved design) complete as per approved design and direction of Engineer in charge. The rate includes all labour, material, T&P machinery for hoisting scaffolding etc. to complete the item). The weight of RHS/SHS tubes used with MS plates, only shall be measured in this item for payment) Nothing extra shall be paid to bend the members as per design.	3875	kg	118	457,250

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
8.10	Providing and Fixing of sky lights consisting of Multi cell/tight cell Polycarbonate Panel System of approved uniform colour, 16mm thick (minimum) having uniform in color with an integral Tight-Cells having diagonal seperator in between,Vertical Standing Seam manufactured at both sides of the panel. Snap-on connector to interlock the panels shall have a grip-lock single/double tooth locking mechanism to ensure maximum uplift capability & shall be of same color as that of panel. Panel shall be factory sealed/end welded panels with additional End-cap/Aluminium U-Profile (mill finish) for ends. Panel shall be co-extruded with special anti glare compound and both side UV protected. The full system shall be secured using T - fasteners having minimum three points for fastening with self drilling on MS purlins perpendicular to direction of sheeting with purlin spacing as specified by Manufacturer.				
	The rate includes cost of all the operations,labour & all materials and tests (as applicable) involved such as bolts nuts and screws etc. and labour for cutting bending to required profile, necessary scaffolding, hoisting in position etc. for proper completion of the work etc. complete as per specification drawings and direction of Engineer in charge . Finished surface area of roofing fixed over steel tublar structure shall be measured for payment. MS tabular frame work shall be measured seperately for payment )	150	sqm	3,874	581,100
8.11	Providing and fixing MS space frame of Hollow tubes, channels, plates etc. including welding, grinding and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete i/c fixing the space frame with spherical node connectors (MERO TYPE), finishing the exposed surfaces with Epoxy paint (two or more coats) at all locations,prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface complete & stainless steel dash fasteners , stainless steel bolts etc., of required size, as per approval of Engineer-in-charge. ( for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)	11322	kg	236	2,671,992

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
8.12	Providing and fixing carbon steel galvanised ( minimum coating 5 micron ) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm <sup>2</sup> ), counter sunk head, comprising of 10 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.				
	10 x80 mm	12908	each	70	903,560
8.13	Providing and fixing stainless steel ( Grade 304) railing made of Hollow tubes, channels, plates etc. including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge. ( for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)	9683	kg	642	6,216,486
8.14	Providing and fixing 10 mm thick bevelled edge, toughened glass of Saint Gobain, Modiguard or approved equivalent make i/c drilling of holes etc in railing complete.	115	sqm	3,150	362,250
	<b>Total of Sub Head</b>				<b>18,753,303</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - IX Flooring</b>				
9.1	Kota stone slab flooring over 20mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 ( 1 cement : 4 coarse sand):				
	25 mm thick.	1676	sqm	1,126	1,887,176
9.2	Kota stone slabs 25 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm ( average) thick cement mortar 1: 3 ( 1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	310	sqm	1,156	358,360
9.3	Extra for pre finished nosing in treads of steps of Kota stone/sand stone slab.	1351	metre	71	95,921
9.4	Extra for Kota stone/ sand stone in treads of steps and risers using single length up to 1.5 metre .	608	sqm	16	9,727
9.5	Extra for pre finished nosing in treads of steps of granite stone slab	498	metre	261	129,978
9.6	Extra for marble /granite stone flooring in treads of steps and risers using single length up to 2.00 metre .	224	sqm	304	68,126
9.7	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, .hardening compound mixed @ 2 litre per 50kg of cement or as per manufacturers specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	26	sqm	504	13,104
9.8	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.				
	18 mm thick.	44	sqm	314	13,816
9.9	Providing and fixing glass strips in joints of terrazo/ cement concrete floors.				
	40 mm wide and 4 mm thick.	52	metre	36	1,872

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
9.10	Providing and fixing 1st quality ceramic glazed wall tiles ( rectified edges , 300x200mm size) conforming to IS : 15622 (thickness to be specified by the manufacturer ) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	4438	sqm	834	3,701,292
9.11	Providing and laying anti skid Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigment etc., complete.	3624	sqm	863	3,127,512
9.12	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete.				
	Size of Tile 600x600 mm	8919	sqm	1,473	13,137,687
9.13	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, in skirting , risers of steps over 12mm thick cement mortar 1:3(1 cement : 3coarse sand) including grouting the joints with white cement and matching pigments etc., complete.				
	Size of Tile 600x600 mm	688	sqm	1,482	1,019,589
9.14	Providing and laying gangsaw cut 18 mm thick mirror polished prepolished machine cut granite stone of required size and shape of approved shade , colour and texture in flooring laid over 20mm average thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement mixed with matching pigment epoxy touchups etc complete as per direction of engineer in charge .	4035	sqm	3,222	12,999,417

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
9.15	Providing and laying gangsaw cut 18 mm thick mirror polished prepolished machine cut granite stone of required size and shape of approved shade , colour and texture in risers of steps, skirting, dado and pillars laid on 12 mm ( average) thick cement mortar 1: 3 ( 1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	735	sqm	3,253	2,389,979
9.16	Extra for making edge chamfered of kota stone skirting as per drawing	907	metre	52	47,164
9.17	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 ( 1cement : 5 coarse sand) with joints finished flush.				
a	Red sand stone	450	sqm	547	246,150
b	White sand stone	550	sqm	574	315,700
	<b>Total of Sub Head</b>				<b>39,562,571</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - X Roofing</b>				
10.1	Making khurras 45 x 45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 ( 1 cement: 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size ) over P.V.C. sheet 1mx1mx400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edges and making and finishing the outlet complete.	127	each	175	22,225
10.2	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.(i) Single socketed pipes.				
	110 mm diameter	2046	metre	230	470,580
10.3	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.				
a	Bend 87.5°				
	110 mm bend	127	each	168	21,336
b	Shoe				
	110 mm shoe	127	each	304	38,608
10.4	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50mm hard wood plugs, screwed with M.S. screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.				
	110 mm	1677	each	183	306,891
10.5	Providing and fixing to the inlet mouth of rain water pipes cast iron grating 15 cm diameter and weighing not less than 440 grams.	127	each	39	4,953

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
10.6	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the rate of 1200 mm centre to centre to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel				
	with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm or both sides of joint and two coats of primer suitable for board,				
	all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :				
	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- Part I.	2747	sqm	845	2,321,384

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
10.7	Providing and fixing 16mm thick Mineral Fibre False Ceiling Tiles (Tegular) Armstrong or equivalent of size 600 x 600mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanized @ 90 gsm/sqm) consisting of main "T"runner suitably spaced at joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet spaced at 1200mm centre to centre and cross "T" of size 15x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and laying 16mm thick mineral fibre false ceiling tiles (ML) of approved texture in the grid including, wherever, required, cutting / making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. main "T" runners to be suspended from ceiling using GI slotted cleats fixed to ceiling with 6mm dia and 50mm long dash fasteners,				
	4mm GI adjustable rods with galvanized level clips spaced at 1200mm centre to centre along main T, bottom exposed width of 15mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge				
	i). Only mineral fibre false ceiling area will be measured for the purpose of payment				
	ii). The mineral fibre ceiling shall either be precast (moulded) or wetted product and shall have NRC value of 0.55(minimum) CAC 35-39, light reflection 84% (minimum), fire rating class A as per ASTM E-84, suitable for 99% relative humidity and also having thermal resistance "(R)" = 0.33sqm deg. C/W,	4121	sqm	955	3,935,364
10.8	Providing and fixing thermal insulation with Resin Bonded Fibre glass wool conforming to IS: 8183. Density 16kg/m <sup>3</sup> , 50mm thick, wrapped in 200G Virgin Polythene bags placed over existing false ceiling and held in position by criss-crossing GI wire.	1280	sqm	247	316,160
	<b>Total of Sub Head</b>				<b>7,437,501</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - XI Finishing</b>				
11.1	12 mm cement plaster of mix :				
	1 : 6 ( 1 cement : 6 fine sand )	22909	sqm	141	3,230,141
11.2	15 mm cement plaster on the rough side of single or half brick wall of mix:				
	1 : 6 ( 1 cement : 6 fine sand )	21741	sqm	163	3,543,718
11.3	6 mm cement plaster to ceilings of mix :				
	1 : 3 ( 1 cement : 3 fine sand)	15603	sqm	126	1,965,978
11.4	Washed stone grit plaster on exterior walls of height upto 10 metre above ground level in two layers, under layer 12mm cement plaster 1:4 ( 1 cement: 4 coarse sand ), furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per square metre, top layer 15mm cement plaster 1:1/2:2 ( 1 cement: 1/2 coarse sand : 2 stone chipping 10mm nominal size), in panels with groove all around as per approved pattern including scrubbing and washing the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in- charge (Payment for providing grooves shall be made separately).	17255	sqm	517	8,920,628
11.5	Forming groove of uniform size from 12x12mm and upto 25x15mm in the top layer of washed stone grit plastered surface as per approved pattern, including providing and fixing aluminum channels of appropriate size and thickness (not less than 2 mm), nailed to the under layer with rust proof screws and nails and finishing the groove complete as per specifications and direction of the Engineer-in-Charge.	34411	metre	73	2,512,018
11.6	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	55608	sqm	106	5,894,490
11.7	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound ) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.				
	Two coats.	55608	sqm	44	2,446,770
11.8	Finishing walls with textured exterior paint of required shade :				
	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm.	2376	sqm	133	316,041
11.9	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound ) content.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre.	1423	sqm	35	49,805
11.10	Painting with synthetic enamel paint, having VOC (Volatile Organic Compound) content less than 150 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.				
	Two coats.	3723	sqm	70	260,610
11.11	French spirit polishing :				
	Two or more coats on new works including a coat of wood filler.	2384	sqm	185	441,040
11.12	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	6136	sqm	37	227,014
11.13	Providing and fixing Glass reinforced concrete (GRC) screens synthetic rubber /FRP moulded in size, pattern, design, thickness and colour of approved quality/make. The screens made of 53 grade white cement, quartz, fine silica sand, alkali resistant glass fibre, super plasticiser, polymers and UV resistant synthetic inorganic pigments etc including dry fixing with stainless steel 304 grade "L" shaped cramps , dash fasteners etc complete.	12	sqm	2,625	31,500
11.14	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) :				
	Flush/ Ruled pointing	1992	sqm	145	288,840
11.15	Providing & fixing chicken mesh as per ISI specification and in the required with 50mm long Bombay nails on vertical and horizontal junctions of RCC and brick wall including scaffolding and all lead and lift etc. complete before plastering .	1150	sqm	89	102,350
11.16	Extra for washed grit plaster on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	4256	sqm	82	348,992
	<b>Total of Sub Head</b>				<b>30,579,934</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - XII , Aluminium Work</b>				
12.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
a	For fixed portion				
	Anodised aluminium (anodised transparent or dyed to required shade according to IS 1868 minimum anodic coating grade AC 15	54226	kg	361	19,575,729
b	For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of PVC/ neoprene gasket required ( Fittings shall be paid for separately).				
	Anodised aluminium (anodised transparent or dyed to required shade according to IS 1868 minimum anodic coating grade AC 15	25333	Kg	418	10,589,127
12.2	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the Architectural drawings and the direction of Engineer - in - Charge (Coast of aluminium snap beading shall be paid in basic item) :				
a	With float glass panes of 4.0 mm thickness	100	sqm	829	82,900
b	With float glass panes of 5.50 mm thickness	2082	sqm	1,059	2,204,838
12.3	Providing and fixing fly proof stainless steel grade 304 wire gauge, to Aluminium windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.				
	With 12 mm mild steel U beading.	2041	sqm	1,352	2,759,432

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
12.4	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg., for doors, including cost of cutting floors , embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.				
	With stainless steel cover plate minimum 1.25 mm thickness.	11	each	2,121	23,331
12.5	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.				
	Upto 5mm depth and 5 mm width	9340	metre	87	812,593
12.6	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass, Light transmission 27% to 30% Reflection external 17% to 20%, Reflection Internal 12% to 33%, solar factor 0.20 to 0.21, Shading coefficient 0.23 to 0.24 and U vlauue 1.6 to 1.8) or equivalent both side, having 12 mm air gap, including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete.	1258	sqm	3,551	4,467,158
12.7	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.				
a	355 X 19 mm	596	each	349	208,004
b	510 X 19 mm	1148	each	611	701,428
12.8	Providing and fixing 100 mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	11	each	406	4,466

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
12.9	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS : 1868 Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators with extruded built up standard tubular sections of approved make conforming to IS : 733 and IS : 1285 fixed with rawl plugs and stainless steel screws etc.	8404	kg	327	2,748,070
12.10	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	34	sqm	4,928	167,552
12.11	Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawiongs, the aluminium quality as per grade 6063T5or T6 as per BS 1474 including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer -in-Charge				
	The item includes cost of material such as cleats, sleeves, screws etc. necessary for fabrication extruded aluminium frame work, Nothing extra shall be paid on this account	1788	kg	355	634,563
12.12	Designing, fabricating, testing, protection, installing and fixing in position semi(grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels including:				
	(a) Structural analysis, design and preparation of shop drawings for the specified designloads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design with pressure without any failure including functional design of the aluminium sections for fixing glazing panels of various thickness, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc. structural and weather silicone sealants, flashings, fire stop (barrier)-cum smoke seats, microwave cured EPDM gaskets for water tightness, pressure equalisation & drainage and protection against fire hazard including :				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	(b) Fabricating and supplying serrated M.S. hot dip galvanized/ aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect vertically and proper fixing of structural glazing system with the RCC/masonry/structural steel framework of building structure using stainless steel anchor fasteners/bolts, nylon separator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.				
	(c ) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory/work shop environment, including double sided spacer tape, setting blocks and backer rod, all of approved grade brand and manufacturer, as per the approved sealant design, within and all around the perimeter for holding glass.				
	(d) Providing and fixing in position flashings of solid aluminium sheet 1mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.				
	(e) making provision for drainage of moisture/water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete.				
	This item includes cost of all inputs of designing labour for fabricating and installation of aluminium grid, installation of glazed units T&P scaffolding and other incidental charges including wastage etc. enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design checked and all the shop drawings vetted by the Principals of the structural glazing system.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over the building for occupation. In the end the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required as per the Architectural drawings as per item description as specified as per the approved shop drawings and as directed as specified as per the approved shop drawings and as directed by the Engineer-in-charge.	275	sqm	2,590	712,250
	<b>Note :-</b>				
	1- The cost of providing extruded aluminium frames, shadow boxes, fire stop (barrier)-cum-smoke seals, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub-head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places.				
	2- The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 sqm from the certified laboratories accredited by NABL(National Accreditation Board for Testing and Calibration laboratories) Department of Science & Technologies, India. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work.				
	<b>Performance Testing of Structural glazing system</b>				
	<b>Tests to be conducted in the NABL certified laboratories</b>				
	1-Performance laboratory Test for air Leakage Test (-50pa to 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1to 200mVhr"l.				
	2- Static Water Penetration Test (50pa to 1500pa) as per ASTM E-331-09 testing method for a range upto 2000ml"				
	3- Dynamic Water penetration (50pa to 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000ml				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	4- Structural Performance Deflection and deformation by static air pressure test (1.5 times design wind pressure without any failure) as per ASTM E-330-10 testing method for a range upto 50mm"				
	5- Seismic Movement Test (Upto 30mm) as per AAMA 501.4-09 testing method for Qualitative test;				
	<b>Tests to be conducted on site</b>				
	6- On site Test for Water leakage for a pressure range 50 kpa to 240kpa (35psi) upto 2000ml'				
12.13	Providing, assembling and supplying vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6mm thick, of approved colour and shade with reflective soft coating on surface # 2of approved colour and shade, an inner Heat strengthened clear floatglass 6mm thick, spacer tube 12mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances, as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer-in-Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor. (Payment for fixing of IGU Panels in the curtain glazing is included in cost of item No.26.2) For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.				
	(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, + 12mm Airgap + 6mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.	275	sqm	4,146	1,140,150
12.14	Designing, fabricating, testing, installing and fixing in position Curtain Wall Aluminium composite Panel cladding with with open grooves for linear as well as curvilinear portions of the building for all heights and all levels etc. including:				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	(a) Structural analysis, design and preparation of shop drawings for , pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design				
	(b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out to 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF/Lumiflon based fluoropolymer resin coating on approved colour and shade on face # 1 and polymer (service) coating on face#2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rod etc..				
	(c ) The fastening brackets of aluminium alloy 6005 T5/MS with Hot DIP Gal vanished with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bold of approved make in SS 316 nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing.				
	The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation.				
	The contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete aw per the architectural drawings as per item description as specified as per the approved shop drawings and as directed by the Engineer-in-Charge.				
	However, for the purpose of payment, only the actual area on the external face of the curtain wall with aluminium composite panel Cladding (including width of groove) shall be measured in sqm up to two decimal places	976	sqm	3,882	3,788,832
	<b>Note:</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	The following performance test are to be conducted on ACP system if area of ACP system exceeds 4500 sqm from the certified laboratories accredited by NABL (National Accreditation Board for Testing and Calibration laboratories) Department of Science & Technologies, India. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work.				
	<b>Performance Testing of ACP system</b>				
	<b>Tests to be conducted in the NABL certified laboratories</b>				
	1-Performance laboratory Test for air Leakage Test (-50pa to 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1to 200mVhr".				
	2- Static Water Penetration Test (50pa to 1500pa) as per ASTM E-331-09 testing method for a range upto 2000ml"				
	3- Dynamic Water penetration (50pa to 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000ml				
	4- Structural Performance Deflection and deformation by static air pressure test (1.5 times design wind pressure without any failure) as per ASTM E-330-10 testing method for a range upto 50mm"				
	5- Seismic Movement Test (Upto 30mm) as per AAMA 501.4-09 testing method for Qualitative test;				
	<b>Tests to be conducted on site</b>				
	6- On site Test for Water leakage for a pressure range 50 kpa to 240kpa (35psi) upto 2000ml'				
	<b>Total of Sub Head</b>				<b>50,620,423</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub- Head - XIII , Water Proofing</b>				
13.1	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C kitchen and the like consisting of :				
	Ist course of appying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645in recommended proportions including rounding off junction of vertical and horizontal surface.				
	II <sup>nd</sup> course of 20 mm cement plaster 1: 3 (1 cement :3 coarse sand) mixed with water proofing compound in recommended proportion including roudnigh off junction of vertical and horizontal surface				
	IIIrd course of applying blown or residual bitument applied hot at 1.7 kg. per sqm of area.				
	IVth course of 400 micron thick PVC sheet. ( Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitument @ 1.7 kg/sqm.)	2347	sqm	471	1,105,437
13.2	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations :				
	Applying a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment.				
	b) Laying brick bats with mortar using broken bricks /brick bats 25 mm to 115 size wiht 50 % of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer -in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement : 5 coarse sand ) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of juncitons of walls and slabs.				
	After two days of proper curing applying a second coat of cement slurry using 2.7 kg/sqm of cement admixed with water proofing compound conforming to SI : 2645 and approved by Engineer -in-charge.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 ( 1 cement : 4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer -in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern fo 300 x 300 mm square 3 mm deep.				
	The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer -in- charge.				
13.3	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	5913	sqm	927	5,481,351
13.4	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer, 3mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufactured of density at 25°C, 0.87 - 0.89 kg/ltr and viscosity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/5cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane :				
	3 mm thick	726	sqm	420	304,920

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
13.5	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ltr and viscosity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane :				
	3 mm thick	928	sqm	470	436,160
	<b>Total of Sub Head</b>				<b>7,327,868</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Sub Head XIV - External development</b>				
14.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavation earth to an average of 22.5cm depth dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth lead upto 50 metres.	2515	sqm	78	196,170
14.2	Supplying and stacking at site				
a	90 mm to 45 mm size stone aggregate	322	cum	1,178	379,316
b	63 mm to 45 mm size stone aggregate	235	cum	1,337	314,195
c	53 mm to 22.4 mm size stone aggregate.	235	cum	1,361	319,835
d	Stone screening 13.2 mm nominal size (Type A).	97	cum	1,480	143,560
e	Stone screening 11.2 mm nominal size (Type B).	50	cum	1,527	76,350
f	Mooram	76	cum	679	51,604
14.3	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, hand picking, rolling with 3 wheeled road / vibratory roller 8-10 tonne capacity in stages to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density .	644	cum	408	262,752
14.4	Scarifying metalled ( water bound) road surface including disposal of rubbish lead upto 50 m and consolidation of the aggregate received from scarifying with power road roller of 8 to 10 tonne capacity.	2515	sqm	14	35,210
14.5	Providing and applying tack coat using hot straight run bitumen of grade 80/100 including heating the bitumen with mechanically operated spray unit fitted on bitumen boiler, cleaning and preparing the existing road surface as per specification.				
	On W.B.M @ 0.75 KG/sqm	2515	sqm	46	115,690
14.6	Providing and laying semi- dense Bituminous concrete using crushed stone aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site by tippers, laying with paver finisher equipped with electronic sensor to the required grade, level and alignment and rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction and density as per specification, complete and as per directions of Engineer-in-Charge.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	25 mm compacted thickness with bitumen of grade VG-30 @5% (percentage by weight of total mix) and lime filler @ 2% (percentage by weight of Aggregate) prepared in Batch Type Hot Mix Plant of 100-120 TPH capacity.	2575	sqm	229	589,675
14.7	Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per manufacturer's specifications & direction of Engineer-in- Charge. 60mm thick C.C. paver block of M-35 grade with approved colour, design & pattern.	720	sqm	763	549,360
14.8	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement :3 coarse sand) including making joints with or without grooves ( thickness of joints except at sharp curve shall not to more than 5 mm) including making drainage opening wherever required complete etc. as per direction of Engineer -in -charge ( Length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer -in -charge.	32	cum	5,499	175,968
14.9	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50mm including strengthening with 2mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.				
	Made of G.I. wire of dia 4mm.	170	sqm	552	93,840

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.10	Fencing with angle iron post placed at required distance embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with horizontal lines and two diagonals interwoven with horizontal wires, of barbed wire weighing 9.38 kg per100 m (minimum), between the two posts fitted and fixed with G.I.staples, turn buckles etc. complete. (Cost of posts, struts, earthwork and concrete work to be paid for separately). Payment to be made per metre cost of total length of barbed wire used.				
	With G.I. barbed wire	3321	metre	14	46,494
14.11	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in opposite direction for 10 cm length and drilling holes upto 10 mm dia. etc. complete.	2475	kg	73	180,675
14.12	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length ( total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4 m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S.angle, C.C. blocks shall be paid separately)	1660	metre	298	494,680
14.13	Supplying and fixing turn buckles and straining bolts for barbed wire fencing.	250	set	155	38,750
14.14	Providing and fixing metal gabions boxes made of mechanically woven hexagonal shaped wire of type 10x12cm. Deges mechanically selvedged made of heavily (Zinc+PVC) coated GI wires as per BS :443 mesh wire 3mm dia , edge wire 3.9mm dia and filled with 20 to 50 kg weight trap stones including conveying with all the leads and lifts and placing at require places in required line, level slope section as directed etc with Gabion size 1.5m x1m x1m.	200	cum	2,572	514,400

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.15	Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including groutingthe joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	25	sqm	1,431	35,775
14.16	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20mm thick base mortar 1:4 (1cement:4 coarse sand) with joints 10mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in charge.	100	sqm	1,385	138,500
14.17	Providing and fixing Glass mosaaic tiles at finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge:	250	sqm	1,666	416,500
14.18	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements, laid to required slope and camber in panels as required including consolidation finishing and tamping complete.	236	cum	5,117	1,207,612
14.19	Supplying and stacking of good earth at site including royalty and carriage up to 1 km (earth measured in stacks will be reduced by 20% for payment).	3248	cum	323	1,049,104
14.20	Supplying and stacking at site dump manure from approved source, including carriage up to 1 km (manure measured in stacks will be reduced by 8% for payment) :				
	Screened through sieve of I.S. designation 20mm	406	cum	176	71,456
14.21	Fine dressing of the ground	100	100 sqm	184	18,400
14.22	Spreading of sludge, dump manure and / or good earth in required thickness as per direction of Officer-in-charge (Cost of sludge, dump manure and / or good earth to be paid separately).	3654	cum	26	95,004

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.23	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge..	3654	cum	18	65,772
14.24	Grassing with selection No.1 grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the good earth shall be paid for separately).				
	In rows 5 cm apart in both directions	108	100 sqm	883	95,364
14.25	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc.including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).	200	cum	110	22,000
14.26	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :				
a	Holes 1.2 m dia and 1.2 m deep	175	each	223	39,025
b	Holes 90 cm dia, and 90 cm deep	150	each	96	14,400
c	Holes 60 cm dia, and 60 cm deep	150	each	29	4,350
d	Holes 45 cm dia, and 45 cm deep	150	each	13	1,950

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.27	Providing and fixing M.S. flat iron tree guard 60 cm dia and 2 m high, above ground consisting 4 nos 25 x 6 mm, 2.25 m long and 8 nos 25 x 3 mm 2 m long verticals M.S. flats, riveted to 3 nos 25 x 6 mm M.S. flat iron rings in two halves, fixing together at site with required six numbers of 8 mm dia. and 30 mm long bolts, including painting two coats with synthetic enamel paint of approved brand and manufacture over a coat of primer. One name plate of 1 mm thick M.S. sheet of size 250x100 mm shall be welded to the tree guard near the middle height and lettered RCB/EIL/ any other approved name. The tree guard shall be suitably fixed to the ground by embedding four legs of tree guard in pits of suitable dia and to a depth of 25 cm, refilling the pits with soil and ramming, complete in all respect as per satisfaction and direction of Officer-in-charge.	625	each	3,028	1,892,500
14.28	Preparation of mounds of various size and shape by available excavated / supplied earth in layers not exceeding 20 cm in depth, breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.	200	cum	227	45,400
14.29	Planting of Trees including cost of plants as per drawing and direction of Engineer in Charge.				
A)	<b>Trees</b>				
i	Acacia Auriculiformis (Earpod Wattle) (min. ht. of 2.0 m and a canopy spread of 1m -1.5m with a trunk girth of 40 mm dia @ base)	25	each	787	19,675
ii	Alstonia Scholaris (Saptami) (min. ht. of 2.5 m and a canopy spread of 1m - 1.5m with a trunk girth of 50 mm dia @ base)	5	each	840	4,200
iii	Anthocephalus Kadamba (Kadamba )(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 50 mm dia @ base)	39	each	787	30,693
iv	Azardichta Indica (Neem)(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 55 mm dia @ base)	10	each	682	6,820
v	Butea Monosperma ( Dhak/Palash )(min. ht. of 2.0 m and a canopy spread of 1.5m -1.8m with a trunk girth of 55 mm dia @ base)	4	each	525	2,100
vi	Bauhinia Alba ( Kachnar )(min. ht. of 1.8 m and a canopy spread of 1m - 1.5m with a trunk girth of 40 mm dia @ base)	5	each	787	3,935
vii	Bauhinia Blakeana ( Hong Kong orchid )(min. ht. of 1.8 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 40 mm dia @ base)	13	each	840	10,920
viii	Bauhinia Purpurea (Kaniar )(min. ht. of 1.8 m and a canopy spread of 1.5m - 2.0m with a trunk girth of 40 mm dia @ base)	16	each	840	13,440

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
ix	Callestemon Lanceolatus ( Weeping bottlebrush )(min. ht. of 2.0 m and a canopy spread of 1m -1.5m with a trunk girth of 50 mm dia @ base)	21	each	840	17,640
x	Cassia Fistrula ( Amaltas )(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 50 mm dia @ base)	5	each	630	3,150
xi	Cassia Javanica (Java Cassia)(min. ht. of 2.5 m and a canopy spread of 1.5 m -2.0 m with a trunk girth of 40 mm dia @ base)	13	each	630	8,190
xii	Cassia Siamea (Kassod)(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 40 mm dia @ base)	32	each	525	16,800
xiii	Chorisia Speciosa (Pink silk cotton)(min. ht. of 2.5 m and a canopy spread of 2m -2.5m with a trunk girth of 55 mm dia @ base)	19	each	1,260	23,940
xiv	Delonix Regia (Gulmohur )(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 40 mm dia @ base)	35	each	735	25,725
xv	Emblica Officinalis( Amla)(min. ht. of 2.5 m and a canopy spread of 1.5 m -1.8m with a trunk girth of 50 mm dia @ base)	4	each	787	3,148
xvi	Ficus Benjamina (Weeping fig)(min. ht. of 2.0 m and a canopy spread of 1.5m -2.0m with a trunk girth of 60 mm dia @ base)	16	each	682	10,912
xvii	Grevillea Robusta (Silver Oak )(min. ht. of 3.0 m and a canopy spread of 1.5m -2.0 m with a trunk girth of 40 mm dia @ base)	175	each	787	137,725
xviii	Lagerstromia Speciosa (Jarul )(min. ht. of 2.5 m and a canopy spread of 1.5m -2.0m with a trunk girth of 30 mm dia @ base)	19	each	840	15,960
xix	Madhuca Longifolia (Mahua)(min. ht. of 1.8 m and a canopy spread of 1.5m -1.8m with a trunk girth of 55 mm dia @ base)	25	each	840	21,000
xx	Millingtonia Hortensis (Akash neem)(min. ht. of 2.5 m and a canopy spread of 1m -1.5m with a trunk girth of 40 mm dia @ base)	8	each	787	6,296
xxi	Plumeria Alba ( Champa - white flowering)(min. ht. of 1.8 m and a canopy spread of 1m -1.5m with a trunk girth of 40 mm dia @ base)	5	each	840	4,200
xxii	Plumeria Rubra ( Frangipani/temple tree - pink flowering)(min. ht. of 1.8 m and a canopy spread of 1m -1.5m with a trunk girth of 40 mm dia @ base)	9	each	840	7,560
xxiii	Polyalthia Longifolia (Ashoka)(min. ht. of 2.5 m and a canopy spread of 2m -2.5m with a trunk girth of 60 mm dia @ base)	5	each	840	4,200
xxiv	Peltoforum Pterocarpum ( Copperpod )(min. ht. of 2.5 m and a canopy spread of 1.8m -2.0m with a trunk girth of 55 mm dia @ base)	43	each	787	33,841
xxv	Pterospermum acerifolium (Kanak Champa)(min. ht. of 2.0 m and a canopy spread of 1.8m -2.0 m with a trunk girth of 55 mm dia @ base)	14	each	787	11,018

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
xxvi	Tamarindus Indica (Imli)(min. ht. of 2.5 m and a canopy spread of 1.5m - 2.0m with a trunk girth of 55 mm dia @ base)	5	each	787	3,935
xxvii	Terminalia Arjuna (Arjun)(min. ht. of 2.5 m and a canopy spread of 1.5m - 2.0 m with a trunk girth of 55 mm dia @ base)	5	each	787	3,935
B)	<b>Fruit Trees</b>				
i	Magefera Indica ( Dusseri Mango)(min. ht. of 1.8 m and a canopy spread of 1.2m -1.5m with a trunk girth of 40 mm dia @ base)	5	each	525	2,625
ii	Manilkara Zapota (Chiku)(min. ht. of 1.8 m and a canopy spread of 1.2m - 1.5m with a trunk girth of 40 mm dia @ base)	8	each	525	4,200
iii	Psidium Guajava (Guava)(min. ht. of 1.8 m and a canopy spread of 1.2m - 1.5m with a trunk girth of 40 mm dia @ base)	13	each	525	6,825
iv	Eugenia Jambolana (Jamun)(min. ht. of 2.0 m and a canopy spread of 1.5m - 1.8m with a trunk girth of 40 mm dia @ base)	2	each	630	1,260
C)	<b>Palm Trees</b>				
i	Bismarkia Nobilis(min. ht. of 1.0 m and a canopy spread of 1m with a min. 4 fronds / plant)	3	each	3,150	9,450
ii	Chysalidocarpus Lutescens (min. ht. of 1.0 m and a canopy spread of 1m with a min. 4 to 5 fronds / plant)	9	each	1,575	14,175
iii	Livingstonia Chinensis (Chinese fan palm)(min. ht. of 1.5 m and a canopy spread of 1.2m with a min. 3 fronds / plant)	3	each	2,625	7,875
iv	Roystonea regia (Royal Palm)(min. ht. of 3.0 m and a canopy spread of 1m with a min. 3 to 4 fronds / plant)	7	each	3,150	22,050
	<b>Fountain and Lighting Work</b>				
14.30	Providing fixnig, testing and commissioning of Geyser Jet and Foam Jet fountain and lighting work as per details below				
a	Brass /Gun metal with Shine chrome Foam Jet of approved make "Blu water Fountains " or equivalent creating a clearly visible foam flow 25/25/150	1	each	3,202	3,202
b	Brass /Gun metal with Shine chrome Geyser Jet of approved make "Blu water Fountains " or equivalent creating a large mound of white water - 25/135	8	each	3,412	27,296
c	Under water recessed lights (Submersible Lights) of approved make "Blu water Fountains " or equivalent IP-68,SL303 NL/Warm white /RGB submersible LED colour Change light in noryl body 9W(3x3W LEDs) cover with toughened glass and flexible cable as required.	18	each	1,942	34,956

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
d	Module Controller of approved make "Blu water Fountains " or equivalent Control module (warm white/RGB) for SL303NL /RGB upto 18 lights	1	each	7,612	7,612
e	Submersible pump of approved make Crompton Greaves or equivalent - 5HP single phase with pre filter basket	1	each	19,635	19,635
f	Out door Control Panel - electrical and Light panel cubical type wall / floor mounted consisting of Main incommer switch, Ameter, Voltmeter and phase indicating lamps, push button on/ off for each pump, fabricated out of 2mm thick CRCA MS sheet, duly stove enamelled with synthetic paint of approved shade over a coat of red oxide primer.	1	each	13,125	13,125
	Note :- Plumbing work for the fountain shall be carried out in accordance to drawing / direction and shall be measured and paid in respective item.				
<b>Bore well and harvesting Pits</b>					
14.31	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level.				
	Rocky strata including Boulders				
	300 mm dia	570	metre	937	534,090
14.32	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level.				
	Rocky strata including Boulders				
	300 mm dia	120	metre	1,001	120,120
14.33	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	150 mm nominal size dia	330	metre	616	203,280
	200 mm nominal size dia	225	metre	922	207,450
14.34	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
a	150 mm nominal size dia	60	metre	555	33,300
b	200 mm nominal size dia	75	metre	861	64,575
14.35	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	53	Cum	520	27,560
14.36	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	53	Cum	946	50,138
14.37	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.	53	Cum	885	46,905
14.38	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	8	Cum	1,026	8,208
14.39	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	15	each	1,007	15,105

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.40	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	300	hour	646	193,800
14.41	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:				
a	150 mm dia	15	each	205	3,075
b	200 mm dia	15	each	256	3,840
14.42	Providing and fixing M.S. clamp of required dia to the top of casing/housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.				
a	150 mm clamp	15	each	1,212	18,180
b	200 mm clamp	15	each	1,375	20,625
14.43	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).				
a	150 mm dia	15	each	254	3,810
b	200 mm dia	15	each	278	4,170
14.44	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc.				
	50 mm dia nominal bore	390	metre	538	209,820
14.45	SITC of borewell submersible pump set coupled with wet type squirrel cage induction motor of 5 HP capable of delivering water at a head of 175 mtrs. Consisting shaft, thrust bearing, non return valve complete with copper conductor PVC insulated submersible cable conform to IS 694, supporting clamps, DOL starter etc. as required	3	set	48,349	145,047

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
14.46	Fabrication, Supplying, Installation, Testing & Commissioning of Electrical control panel of cubical construction floor mounted type, fabricated out of 2mm thick CRCA sheet compartmentalised with hinged lockable doors, dust & vermin proof, powder coated of approved shade after 7 tank treatment process cable alley, interconnection having switch gears and accessories mountings & internal wiring, earth terminals, numbering etc. complete in all respecty suitabel for operation on 415V 3 phase 50 Hz AC supply with enclosure protection class IP 42 as required.				
	40 Amp FP MCCB 35 KA 1 - nos. Suitable HP.fully automatic star / delta starter with overload protection, single phase prevetor complete with all accessories and wiring, selector switch for local / remote operation & auto / manual switch off. - 1 nos.	1	set	15,647	15,647
14.47	Sypplying Laying of XLPE insulated PVC sheathed aluminium conductor 1.1 KV grade armoured UG cable of following size in ground as required.				
	3 x16 sqm.	150	mtr	210	31,500
14.48	Sypplying making end termination with brass compression gland & aluminium lugs of following size of PVC insulated PVC sheathed & XLPE aluminium conductor cable of 1.1 KV grade as required.				
	3 x16 sqm.	6	each	170	1,020
14.49	SITC of earthing station with G.I. plate of size 600x600x6mm i/c accessories and pdg. Masonary enclosure with cover plate having locking arrangement and watering pipe i/c charcoal / coke & salt complete as per specification.	6	set	4,587	27,522
14.50	Providing fixing 25x3mm G.I. strip on surface or in recess for earth connections as per specifications complete as required.	50	mtr	126	6,300
	<b>Total of Sub Head</b>				<b>12,411,967</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD – XV Sanitary Installation</b>				
15.1	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/6 litre (adjustable to 4 litre/8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	10	each	10,463	104,630
15.2	Providing and fixing white vitreous china pedestal type water closet(European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :				
a	W.C. pan with ISI marked white solid plastic seat and lid	214	each	3,349	716,686
b	Extra for providing & fixing dual flush 3/6 ltrs PVC flushing cistern instead of 10 litre low level white PVC flushing cistern.	214	each	2,418	517,452
15.3	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water ( 250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.	8	each	17,515	140,120
15.4	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps,32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require :				
a	White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps.	132	each	2,284	301,488
b	White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps.	84	each	2,070	173,880
c	Extra for providing wash basin with pair of chrome brass low flow pillar cock , having foam flow technology instead of pair of 15 mm C.P. brass pillar taps.	216	each	2,161	466,776
15.5	Providing and fixing stainless steel A ISI (18/8) kitchen sink as per IS 13983 with C.I. Brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required.				
	Kitchen sink with drain board				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	510 x 1040 mm bowl depth 250 mm	41	each	7,324	300,284
15.6	Providing and fixing white vitreous china laboratory sink with C. I .brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the wall wherever required :				
a	Size 450x300x150mm	1	each	2,283	2,283
b	Size 600x450x200mm	50	each	3,142	157,100
15.7	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	216	each	801	173,016
15.8	Providing and fixing 600x120x5mm glass shelf with edges round off supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	216	each	548	118,368
15.9	Providing and fixing toilet paper holder :				
	C.P. brass	224	each	357	79,968
15.10	Providing and fixing soil, waste and vent pipes :				
a	100 mm dia.				
	Centrifugally cast (spun) iron socketed pipe as per IS: 3989.	2853	metre	1,001	2,855,853
b	75 mm diameter :				
	Centrifugally cast (spun) iron socketed pipe as per IS: 3989.	1077	metre	827	890,679
15.11	Providing and fixing M.S. holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc. :				
a	For 100 mm dia. Pipe	1328	each	148	196,544
b	For 75 mm dia. Pipe	84	each	145	12,180
15.12	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
	100 mm				
	Sand cast iron S&S as per IS - 3989	346	each	403	139,438
15.13	Providing and fixing plain bend of required degree.				
a	100 mm				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Sand cast iron S&S as per IS : 3989	520	each	352	183,040
b	75 mm				
	Sand cast iron S&S as per IS - 3989	216	each	260	56,160
15.14	Providing and fixing heel rest sanitary bend				
	100 mm dia				
	Sand cast iron S&S as per IS - 3989	82	each	390	31,980
15.15	Providing and fixing single unequal plain junction of required degree :				
	100x100x75 mm				
	Sand cast iron S&S as per IS - 3989	250	each	723	180,750
15.16	Providing and fixing single equal plain junction of required degree :				
	100x100x100 mm				
	Sand cast iron S&S as per IS - 3989	276	each	604	166,704
15.17	Providing and fixing collar:				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
a	100 mm				
	Sand cast iron S&S as per IS - 3989	220	each	333	73,260
b	75 mm				
	Sand cast iron S&S as per IS- 3989	110	each	230	25,300
15.18	Providing and fixing terminal guard:				
a	100 mm				
	Sand cast iron S&S as per IS - 3989	82	each	455	37,310
b	75 mm				
	Sand cast iron S&S as per IS - 3989	12	each	388	4,656
15.19	Providing lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter:				
a	100 mm	5744	each	244	1,401,536
b	75 mm	997	each	206	205,382
15.20	Providing and fixing M.S. stays and clamps for sand cast iron/centrifugally cast (spun) iron pipes of diameter :				
a	100 mm	82	each	70	5,740
b	75 mm	12	each	59	708
15.21	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :				
a	100 mm inlet and 100 mm outlet				
	Sand cast iron S&S as per IS: 3989.	220	each	985	216,700
b	100 mm inlet and 75 mm outlet				
	Sand cast iron S&S as per IS - 3989	269	each	1,025	275,725
15.22	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work :				
a	100 mm diameter pipe	1355	metre	36	48,780
b	75 mm diameter pipe	212	metre	27	5,724
15.23	Providing and fixing PTMT Bottle Trap for Wash basin and sink.				
15.24	Bottle trap 31mm single piece moulded with height of 270mm, effective length of tail pipe 260mm from the centre of the waste coupling 77mm breadth with 25mm minimum water seal, weighing not less than 260gms.	216	each	428	92,448

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
15.25	Providing and fixing PTMT liquid soap container 109mm wide, 125mm high and 112mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour. weighing not less than 105 gms.	216	each	191	41,256
15.26	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fitting arrangement of approved quality and colour.				
	450MM long towel rail with total length of 495mm, 78mm wide and effective height of 88mm, weighing not less than 170gms.	216	each	429	92,664
15.27	Supply and fixing of approved make CP brass Double Coat Hook and fixed by using CP brass counter sunk screws etc., complete. <b>(CAT No. 1191 N of Jaguar make Continental Range) / Equivalent.</b>	224	each	671	150,304
15.28	Providing and fixing 100mm dia S.S grating (with or without hole) for , floor or Nahani trap.	565	each	239	135,035
15.29	Providing and fixing G.I floor drain consisting of 100x50mm G.I elbow (grating and G.I pipe to be paid separately), complete as per instructions.	196	each	598	117,208

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
15.30	Supplying and fixing of HDPE pipe (PE grade 63 - class 3 ) confirming to IS 14333 soil and waste pipes jointed with rubber ring with good quality lubricant with fittings inclusive of all necessary specials like bends, tees, offsets, junctions etc laid under floor/under ceiling/on walls with suitable clamps and specials curing, necessary chasing, jointing and restoring to original conditions, testing etc. including cost of materials, labour, HOM of machinery & equipments with all lead and lifts, loading and unloading charges, transportation cost and conveyance, all other incidental charges etc. complete for successful completion of work as per specifications, and as directed by Engineer -in- Charge.				
a	110 mm outer dia	250	each	596	149,000
b	75 mm outer dia	250	each	350	87,500

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
15.31	Supply and fixing of SWR HDPE Plain/Multi Floor Trap of `P' or `S' type and 75mm outlet complete, including cost of materials, labour, HOM of machinery & equipments with all lead and lifts, loading and unloading charges, transportation cost and conveyance, all other incidental charges etc. complete for successful completion of work as per specifications, and as directed by Engineer -in- Charge.				
	110mm inlet and 75 mm outlet	52	each	448	23,296
	<b>Total of Sub Head</b>				<b>11,154,911</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD – XVI Water Supply</b>				
16.1	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.				
	Internal work – Exposed on wall.				
a	15 mm dia. nominal bore	250	metre	190	47,500
b	20 mm dia. nominal bore	500	metre	233	116,500
c	25 mm dia. nominal bore	635	metre	296	187,960
d	32 mm dia. nominal bore	535	metre	351	187,785
e	40 mm dia. nominal bore	520	metre	434	225,680
f	50 mm dia. nominal bore	475	metre	538	255,550
16.2	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps i/c making good the walls etc. concealed pipe including painting with anti corrosive bitumastic paint, cutting chases and making good the wall.				
a	15 mm dia nominal bore	3000	metre	277	831,000
b	20 mm dia nominal bore	1118	metre	313	349,934
16.3	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.				
a	50 mm dia. nominal bore	50	metre	413	20,650
b	65 mm dia. nominal bore	100	metre	542	54,200
c	80 mm dia. nominal bore	125	metre	659	82,375
16.4	Providing and fixing Ball valve with hard chrome plated ball inside PTFE (Teflon) seat & ring with chrome plated center handle with female BSP threads complete in all respects.				
a	15 mm dia.	52	each	345	17,940
b	20 mm dia.	252	each	450	113,400
c	25 mm dia	28	each	602	16,856
d	32 mm dia	20	each	984	19,680
e	40 mm dia	8	each	1,456	11,648
f	50 mm dia	5	each	2,346	11,730
16.5	Providing and fixing gun metal gate valve with C.I. Wheel of approved quality (screwed end):				
a	50 mm dia nominal bore	1	each	786	786
b	65 mm dia nominal bore	2	each	1,350	2,700
c	80 mm dia nominal bore	1	each	2,015	2,015
16.6	Providing and fixing 45 cm long uplasticised PVC connection pipe with brass unions :				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	15 mm nominal bore	1264	each	70	88,480
16.7	Providing and laying S&S C.I standard specials such as tees, bends, collars, tapers, caps etc. (Heavy Class) :				
	Up to 300 mm dia.	1	qtls	4,645	4,645
16.8	Providing and laying S & S centrifugally cast ( spurn ) iron pipes ( Class LA ) Conforming to IS – 1536				
	100 mm dia pipe	225	metre	1,127	253,575
16.9	Providing lead caulked joints to spun iron or C.I pipes and specials including testing of joints but excluding the cost of pig lead.				
	100 mm diameter pipe	110	each	196	21,560
16.10	Supplying pig lead at site of work.	1	Quintel	10,988	10,988
16.11	Providing flanged joints to double flanged C.I / D.I pipes and specials including testing of joints.				
	100 mm diameter pipe	125	each	199	24,875
16.12	Providing and fixing of cast iron valves ( with cap ) complete with bolts, nuts, rubber insertions etc. ( the tail pieces if required will be paid separately):				
	100 mm diameter				
	Class II	1	each	4,091	4,091
16.13	Constructing masonry Chamber 60x60x75cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement : 4 fine sand) for sluice valve, with C.I surface box 100mm. top diameter,160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10graded stone aggregate 40mm nominal size) and inside plastering with cement mortat 1:3 ( 1cement :3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.				
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.	5	each	6,763	33,815
16.14	Painting G.I. Pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new works :				
a	15 mm diameter pipe	250	metre	9	2,250
b	20 mm diameter pipe	560	metre	10	5,600

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
c	25 mm diameter pipe	560	metre	14	7,840
d	32 mm diameter pipe	485	metre	17	8,245
e	40 mm diameter pipe	495	metre	20	9,900
f	50 mm diameter pipe	450	metre	23	10,350
	<b>C.P.BRASS FITTINGS.</b>				
16.15	Providing and filling sand of grading zone V or coarser grade all-round the G.I. pipes in external work.				
a	50 mm diameter pipe	50	metre	72	3,600
b	65 mm diameter pipe	100	metre	114	11,400
c	80 mm diameter pipe	125	metre	118	14,750
16.16	Supply and fixing of 15mm CP brass long body Bib Cock with wall flange and suitable length CP brass extension pipe all of approved make (CP fittings CAT No. CON-107KN of Jaguar – Continental Range) / Equivalent.				
	15 mm nominal bore	514	each	1,052	540,728
16.17	Providing and fixing C.P. brass stop cock (concealed) of approved quality conforming to IS standards 8931.				
	15 mm nominal bore	116	each	650	75,400
16.18	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931				
	15mm nominal bore	1258	each	532	669,256
16.19	Providing and fixing hand held ablution fitting (health faucet) with one meter long flexible tube and wall hook, all complete of following make or equivalent ( CAT No. ALD-573 of Jaguar ) / Equivalent.	224	each	1,461	327,264
16.20	Supply and fixing of 15mm CP brass 2 Way Bib Cock with wall flange and suitable length CP brass extension pipe all of approved make (CP fittings CAT No. CON-041 of Jaguar – Continental Range) / Equivalent	224	each	1,018	228,032
16.21	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet :				
	150 mm diameter	164	each	90	14,760
16.22	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
	25 mm nominal bore	24	each	469	11,256
16.23	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	2000	litre	6	12,000

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Total of Sub Head				4,950,549

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD – XVII Drainage</b>				
17.1	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :				
a	150 mm diameter	395	metre	317	125,215
b	200 mm diameter	620	metre	469	290,780
c	250 mm diameter	100	metre	711	71,100
d	300 mm diameter	200	metre	785	157,000
17.2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone aggregate 40 mm nominal size) all-round S.W. Pipes including bed concrete as per standard design:				
a	150 mm diameter S.W. pipe	395	metre	698	275,710
b	200 mm diameter S.W. pipe	620	metre	814	504,680
17.3	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) upto Haunches of S.W. pipes including bed concrete as per standard design:				
a	250 mm diameter	100	metre	602	60,200
b	300 mm diameter	200	metre	694	138,800
17.4	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design :				
	180x150 mm size P type				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	48	each	1,717	82,416
17.5	Providing and laying non-pressure NP2 class (light duty) R.C.C. Pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
a	150 mm dia. R.C.C. pipe	275	metre	357	98,175
b	250 mm dia. R.C.C. pipe	950	metre	479	455,050
c	300 mm dia. R.C.C. pipe	200	metre	519	103,800

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
17.6	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement :4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design :				
	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	149	each	8,466	1,261,434
	Extra for depth for manholes				
	Size 90x80 cm				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	17	metre	5,755	97,835
17.7	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	8	each	8,654	69,232
	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91m to 1.67m				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	4	metre	4,933	19,732
17.8	Constructing brick masonry circular type manhole 1.22m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	1.68m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	8	each	16,300	130,400
17.9	Extra depth for circular type manhole 1.22m internal dia (at bottom) beyond 1.68m to 2.29m				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	3	metre	6,391	19,173

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
17.10	Constructing brick masonry circular type manhole 1.52m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	1.68m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2	each	34,878	69,756
17.11	Extra depth for circular type manhole 1.52m internal dia (at bottom) beyond 2.30 m:				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2	metre	15,249	30,498
17.12	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) as per standard design :				
	With 20x20 mm square bar	235	each	274	64,390
17.13	Providing and fixing in position pre-cast R.C.C. Manhole cover and frame of required shape and approved quality :				
	LD-2.5				
	Rectangular shape 600x450mm internal dimensions	20	each	1,163	23,260

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
17.14	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete :				
	For pipes 250 to 300 mm diameter	7	each	415	2,905
17.15	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid, sand cast iron drop pipe and bend encased all-round with cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement : 4 coarse sand) plastered with cement mortar 1:3 (1 cement : 3 coarse sand) on inside of the manhole wall, lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement : 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications :				
	150 mm dia. sand cast iron drop connection	3	each	8,536	25,608
17.16	Extra for depths beyond 60 cm of sand cast iron drop connection complete :				
	150 mm dia. sand cast iron drop connection	3	metre	2,519	7,557
17.17	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	90	each	3,964	356,760

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
17.18	Construction brick masonry chamber for underground C.I. Inspection chamber and bends with bricks in cement mortar 1:4 ( 1 cement : 4 course sand ) C.I Cover with frame (light duty ) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and wight of frame 15kg) , R.C.C. Top slab with 1:2:4 mix ( 1 : cement 2 : coarse sand 4: graded stone aggregate 20 mm nominal size ) foundation concrete 1:5:10 ( 1 : cement 5 : coarse sand 10 : graded stone aggregate 40 mm nominal size ) , inside plastering 12 mm thick with cement mortar 1:3 ( 1 cement : coarse sand ) finished smooth with a floating coat of neat cement walls and bed concrete etc.				
	Inside dimensions 455 x 610 mm and 45 cm deep for single pipe line :				
	With common burnt clay F.P.S. ( non mouldlar ) bricks of class designation 7.5	50	each	4,730	236,500
	<b>Total of Sub Head</b>				<b>4,777,966</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD –XVIII - Fire Fighting System</b>				
18.1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS : 1239/3589 including all fittings like bends, elbow, tees, flanges, tapers, nut bolts, gasket etc. in ground including excavation and providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of the following sizes complete as required.				
	150 mm dia (External line)	220	metre	2,470	543,400
18.2	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS : 1239 and 3589 including all fittings like bends, elbow, tees, flanges, tapers, nut bolts, gasket etc. fixing the pipe on the wall/ceiling with suitable hangers, clamps, supports as required and painting with two or more coats of synthetic enamel paint of required shade complete as required. Note : Pipes upto 50 mm dia shall be threaded joints and 65 mm and above shall be welded joints.				
a	25 mm dia	35	metre	442	15,470
b	80 mm dia	28	metre	1,216	34,048
c	100 mm dia	85	metre	1,744	148,240
18.3	Supplying and fixing single headed internal hydrant valve with instantaneous Gun metal couplings of 63 mm dia with cast iron wheel ISI marked conforming to IS : 5290 (Type-A) with blank Gunmetal cap and chain as required.	35	each	8,502	297,570
18.4	Supplying and fixing first aid fire hose reel wall mounting swinging type fitted with 20 mm dia 36.5 mtr long high pressure water hose thermoplastic tube (Textile reinforced) type 2 conforming to IS : 12585 with 5 mm outlet gunmetal nozzle with shut off valve (IS : 884-1969).	29	each	10,586	306,994
18.5	Supplying and fixing Non Percolating (NCP) Hose ISI marked (IS:8423) 63 mm dia x 15 m long complete with instantaneous type gunmetal 63 mm dia,ISI marked Male & Female couplings (IS:903) bound and rivetted to hose pipe with copper rivets and 1.5 mm copper wire suitable for hot ambient condition for external hydrant.	58	each	6,677	387,266
18.6	Supplying and fixing Controlled Percolating (CP) Hose ISI marked (IS:8423) 63 mm dia x 15 m long complete with instantaneous type gunmetal 63 mm dia,ISI marked Male & Female couplings (IS:903) bound and rivetted to hose pipe with copper rivets and 1.5 mm copper wire suitable for hot ambient condition for external hydrant.	12	each	5,775	69,300

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.7	Supplying and fixing 63 mm dia Gunmetal branch pipe with 20 mm (nominal internal diameter) size Gun Metal nozzle conforming to IS : 903, suitable for instantaneous connection to interconnect hose pipe coupling as required.	35	each	2,855	99,925
18.8	Supplying and fixing of hose cabinet of size 900 mm x 600 mm x 500 mm made of 2 mm thick MS sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate external hydrant with butterfly valve, 2 Nos. 15 mtr. long hose pipe, 1No. branch pipe, mounted on wall or raised brick platform & duly painted with Post office red externally and white internally with synthetic enamel paint complete in all respects for external hydrant, as required.	6	each	5,644	33,864
18.9	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for fire hydrants, with C.I. surface box 350x350 mm. top and 165 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design.				
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.	4	each	5,362	21,448
18.10	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm. top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design.				
	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5.	7	each	9,741	68,187

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.11	Supplying and fixing 2 way fire brigade connection of cast iron body with 4 Nos. Gunmetal male instantaneous inlet couplings complete with cap and chain as required for 150 mm dia MS pipe connection, conforming to IS 904 as required.	6	Each	9,781	58,686
18.12	Providing and fixing angle iron (40 mm x 40 mm x 5 mm) door frame and M.S sheet (2 mm thick) cum glass shutter of size 1.2 mtr x 2.1 mtr (N.S.) with 25 mm x 25 mm x 3 mm angle frame all around & stiffened in between including hinges, handle, locking arrangement, painting with approved synthetic enamel paint including sign writing on glass at internal hydrant including providing and fixing M.S. Sheet 2 mm thick on remaining portion above door to close opening including painting etc. as required.	29	each	9,156	265,524
18.13	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gunmetal wheel valve, with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	6	each	8,438	50,628
18.14	Providing, installation, testing and commissioning of dial type pressure gauge with isolation cock and pipe at hydrant station				
	Dial diameter 100 mm caliberation, 0-15 kg	46	each	1,312	60,352
18.15	Providing, installation, testing and commissioning of cast brass ball valve of approved quality with tested pressure PN 1.5 MPa (screwed end).				
	25 mm nominal bore	29	each	1,207	35,003
18.16	Supplying, fixing, testing and commissioning of cast iron double flanged butterfly valves (PN 16) complete with 2 nos. matching flanges, bolts, nuts, washers 3 mm thick insertion neoprene gasket conforming to IS 13095.				
a	100 mm dia	16	each	4,012	64,192
b	150 mm dia	18	each	6,609	118,962
18.17	Providing, installation, testing and commissioning of dual plate non-return valve (PN 16) of following sizes conforming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc. complete as required.				
a	150 mm dia	16	each	6,944	111,104
b	100 mm dia	4	each	5,360	21,440

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.18	Supplying and fixing orifice plate made of 6 mm thick stainless steel with orifice of required size in between flange and landing valve of external and internal hydrant to reduce pressure to working pressure of 3.5 kg/cm <sup>2</sup> complete as per specifications as required.	21	each	1,312	27,552
18.19	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS : 1239/3589 including cutting, threading, welding etc. i/c all fittings like bends, elbow, reducers, tees, flanges, tapers, nut bolts, gasket etc. fixing the pipe on the wall/ceiling with suitable hangers, clamps, supports as required and painting with two or more coats of synthetic enamel paint of required shade complete as required. Note : Pipes upto 50 mm dia shall be threaded joints and 65 mm and above shall be welded joints.				
a	32 mm dia	2060	metre	574	1,182,440
b	40 mm dia	100	metre	688	68,800
c	50 mm dia	670	metre	843	564,810
d	65 mm dia	450	metre	1,016	457,200
e	80 mm dia	100	metre	1,210	121,000
f	100 mm dia	400	metre	1,738	695,200
g	150 mm dia	440	metre	2,511	1,104,840
18.20	Providing, fixing, testing and commissioning of 15 mm dia size quartzoid bulb type gunmetal sprinklers and set to operate at specified temperature.				
	Temperature of operation 68 deg.C.				
	Pendent/Upright type	1518	each	280	425,040
18.21	Supplying and fixing of Braided flexible sprinkler pipe 25mm dia , 1500mm in length as required as per direction of engineer in charge.				
	Pendent/Upright type	128	each	1,761	225,408
18.22	Providing, fixing, testing and commissioning of installation control valve of Cast iron body and brass/bronze working parts comprising of water motor alarm, bronze seat clapper, and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Wet riser/Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 150 mm dia and obtaining NOC from local bodies etc required.	2	each	45,023	90,046

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.23	Providing, installation, testing and commissioning of cast brass ball valve of approved quality with tested pressure PN 1.5 MPa (screwed end).				
	25 mm nominal bore	11	each	556	6,116
18.24	Supplying and installation of adjustable Rosette plate for sprinkler as per direction of Engineer in charge	1596	each	115	183,540
18.25	Providing and fixing electrically operated flow indicating switches in sprinkler branch line on each floor with necessary junction box installed in accessible place. (Wiring from switches to panel not included)				
	150 mm dia	11	each	4,058	44,638
18.26	Supplying and laying control wiring with multicore copper stranded conductor of following sizes PVC insulated, PVC sheathed armoured under ground cable between various sensors and system controller/starter etc. in pump house & out side on surface/existing cable tray complete with connections at both end with glands etc. as required.				
	2 core x 2.5 Sqm	200	metre	150	30,000
18.27	Supply and fixing M.S. Conduit of 16SWG IS I marked (15:9537-1981Part-11) complete with all fittings viz. tees, bends, junction boxes, clamps/supports etc. To be concealed in slabs/brick work as required or surface laid.				
	25 mm dia .	200	metre	150	30,000

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.28	Supplying, installation, testing and commissioning of annunciation panel, microprocessor based/solid state type made out of not less than 1.6 mm thick CRCA sheet powder coated in approved colour with locking arrangement, audio and visual indication of fault and operation of automatic sprinkler, system monitoring including providing and fixing the following connections interconnections etc. complete as required.				
	Monitoring of flow switches.				
	Monitoring the open circuit, short circuit & earth fault in control cable between panel and flow switches.				
	Battery charger trickle cum boost to take complete with indication of low battery voltage, mains failure and other accessories including providing and fixing of 2 Nos. 12 volts 24 AH each sealed maintenance free batteries.				
	Audible alarm	2	each	13,947	27,894
18.29	Providing and fixing of carbon-di-oxide type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:2878 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.				
	Capacity 4.5 Kg.	29	each	9,432	273,528
18.30	Providing and fixing of ABC Powder type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:13849 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.				
	Capacity 5.0 Kg.	29	each	6,653	192,937
18.31	Supply installation testing and commissioning of Electric driven fire (Terrace) pump of capacity 900 LPM 45 mtr. Head with suitable H.P. TEFC motor at 2900 r.p.m. complete with coupling, coupling guard, base plate, anti vibration pad, foundation etc.	6	SET	100,485	602,910
18.32	SUPPLY, ERECTION, TESTING & COMMISSIONING OF Cubical type floor mounted fire pumps i.e. Electric terrace pumps (Fire) control Panel fabricated from 16 Swg MS sheet duly painted with stove enameled finish of approved shade as per given in specification..	8	each	28,980	231,840

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
18.33	Providing and fixing PVC insulated armoured cable 1.1 Kv grade aluminium conductor on surface as required				
	(a)10 sq. mm X 3 Core	320	metre	349	111,680
18.34	Providing and fixing C.I double flanges suction strainer bucket type/ "Y" type including, nuts, bolts and 3mm thick rubber insertion complete.				
	(a) 100 mm dia,	8	each	6,799	54,392
	<b>Total of Sub Head</b>				<b>9,563,414</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD –XIX - Electrical Work</b>				
	<b>WIRING</b>				
19.1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.				
	Group C	1448	point	1,062	1,537,776
19.2	Wiring for twin control light point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed steel conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.	16	point	1,168	18,688
19.3	Point wiring in PVC conduit, with modular type switch Wiring for light point / fan point / exhaust fan point / call bell point with 1.5 Sq.mm FRLS PVC insulsted copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable etc as required.				
a	Group B	1818	point	623	1,132,614
b	Group C	2495	point	763	1,903,685
19.4	Wiring for Twin control light point with 1.5 Sq.mm FRLS PVC insulsted copper conductor single core cable in surface / recessed medium class PVC conduit, with two way modular switch, modular plate, suitable GI box and earthing the point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable etc as required.	60	point	821	49,260
19.5	Wiring for light/power plug with 2x4 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit alongwith 1 No. 4 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	30110	metre	180	5,419,800
19.6	Wiring for light/power plug with 4x4 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit along with 2 Nos. 4 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	10915	metre	292	3,187,180

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.7	Wiring for light/power 20A SPN Industrial Socket outlet with 2x6 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit along with 1 Nos. 6 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	5150	metre	227	1,169,050
19.8	Wiring for 30A TPN Industrial socket outletwith 4x6 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit along with 2Nos. 6 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	1120	metre	390	436,800
19.9	Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	36	each	2,264	81,504
19.10	Supply and fixing 20A, 240V, SPN industriral type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 20 amps 'C'series, SP, MCB, in sheet steel enclosure, on surface or inrecess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	206	each	836	172,216
19.11	Supplying and fixing GI box along with modular base , cover plate ,1 no.16A modular switch & 2 nos. 5/6A 3 pin sockets in recess etc as required.for computer terminal points.	565	each	544	307,360
19.12	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc as required.				
a	2 Module (75mm x 75mm)	80	each	167	13,360
b	3 Module (100mmX75mm)	2853	each	181	516,393
19.13	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including conections but excluding modular plate etc. as required.				
a	5/6 amps switch and 3 pin 5/6 amp socket outlet	876	each	187	163,812
b	16 amp switch and 6 pin 6/16 amp socket outlet	1977	each	291	575,307
19.14	Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	46	each	63	2,898
19.15	Circuit / submain /Light plug wiring in PVC conduit: Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface / recessed PVC conduit as required.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
a	2 x 1.5 Sq.mm + 1 x 1.5 Sq.mm earth wire	400	metre	122	48,800
b	2 x 2.5 Sq.mm + 1 x 2.5 Sq.mm earth wire(Circuit wiring)	4475	metre	147	657,825
c	4 x 2.5 Sq.mm + 2 x 2.5 Sq.mm earth wire(Circuit wiring)	2000	metre	225	450,000
d	2 X 4 sq. mm + 1 X 4 sq. mm earth wire ( <b>Circuit wiring for DG Supply in Hosuing Block</b> )	1975	metre	180	355,500
e	2 X 10 sq. mm + 1 X 10 sq. mm earth wire( Submain wiring )	210	metre	336	70,560
f	4 X 6 sq. mm + 2 X 6 sq. mm earth wire(Submain wiring )	1815	metre	390	707,850
g	4 x 10 Sq.mm + 2 x 10 Sq.mm earth wire (Submain wiring)	1885	metre	604	1,138,540
h	4x 16 Sq.mm + 2 x 16 Sq.mm earth wire (Submain wiring)	1865	metre	843	1,572,195

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.16	Supplying, installing, testing and commissioning of factory made ,painted powder coated paint DLP Aluminium trunking of Size 105x 50 mm on wall complete with fixing screws, interconnections,joints, earthing etc. as required.	475	metre	1,575	748,125
19.17	Supplying, and fixing of factory made Aluminium trunking cover of 50 mm width complete with fixing screws etc. as required.	475	metre	551	261,725
19.18	Supplying and installation of 150x40mm,two compartment M.S raceway with detachable screwed cover made out of 16SWG M.S CRCA sheet complete with primer and powder coated paint as required for installation in the floor	550	metre	577	317,350
	<b>Main Board, DB's &amp; Cables</b>				
19.19	Supply, installation, testing and commissioning of following LT distribution Panel Boards of 2 mm thick sheet steel cubical design for indoor mounting factory fabricated suitable for operation on 440 V 3 phase, 50 Hz, A.C. supply with ACB/ MCCBs/SFU/MCBs/ contactors and other accessories, all in compartmentalised, cubical construction complete in all respects as per approved drawing and design including internal wiring, labels, ferrules, cable termination gland plates, earth terminals, painting etc. conforming to specifications. All Incoming and Outgoing MCCBs shall be with thermal magnetic release and rotary operating handle (ROH) .				
a	<b>MDB-Housing</b>				
	400 A (36KA) 4P MCCB - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	160 A TP MCCB (36 KA) –1 No.				
	125 A TP MCCB (36 KA) –4 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-6 set	2	Set	147,000	294,000
b	<b>MDB-P(Guest House)</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	400 A 4P MCCB (36KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	200 A TP MCCB (36 KA) –4Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-5 sets	1	Set	168,000	168,000
c	<b>MDB-L(Guest House)</b>				
	250 A 4P MCCB (36KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 300 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	160 A TP MCCB (36 KA) –2 Nos.				
	125 A TP MCCB (36 KA) –3 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-6 sets	1	Set	140,700	140,700
d	<b>FDB (P-1)(Guest House)</b>				
	<b>Incoming:-</b>				
	200A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 250 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	125 A, 36 KA, TP MCCB - 1 No.				
	63 A, 36 KA, TP MCCB - 5 Nos.				
	<b>metreing and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-1 set	2	Set	84,000	168,000

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
e	<b>FDB (P-2)(Guest House)</b>				
	<b>Incoming:-</b>				
	125A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 200 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	63 A, 36 KA, TP MCCB - 5 Nos.				
	<b>metreing and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-1 set	2	Set	56,700	113,400
f	<b>FDB (P-3)(Guest House)</b>				
	<b>Incoming:-</b>				
	200A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 300 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	100 A, 36 KA, TP MCCB - 1 No.				
	63 A, 36 KA, TP MCCB - 5 Nos.				
	<b>metreing and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 1 set	1	Set	76,650	76,650
g	<b>FDB-L-1 (Guest House)(Director Residence)</b>				
	<b>Incoming :</b>				
	125A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	150A TPN AL. Bus Bars with coloured heat shrinkable PVC sleeve - 1Set				
	<b>Outgoing:</b>				
	100 A, 36 KA, TP MCCB - 1 No.				
	40 A TP MCB - 10 KA - 5 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-1 set	4	Set	40,393	161,572
h	<b>FDB-L-2 (Guest House)</b>				
	<b>Incoming :</b>				
	100A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	150A TPN AL. Bus Bars with coloured heat shrinkable PVC sleeve - 1Set				
	<b>Outgoing:</b>				
	40 A TP MCB - 10 KA - 4 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 1 set	2	Set	19,950	39,900
i	<b>FDB-L-3 (Guest House)</b>				
	<b>Incoming :</b>				
	160A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	200A TPN AL. Bus Bars with coloured heat shrinkable PVC sleeve - 1Set				
	<b>Outgoing:</b>				
	100 A, 36 KA, TP MCCB - 1 No.				
	40 A TP MCB - 10 KA - 4 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-1 set	1	Set	43,050	43,050
j	<b>Emergency Panel(Housing Blocks)</b>				
	<b>Incoming :</b>				
	160 A TP MCCB - 36 KA - 1No.				
	<b>Bus Bar:-</b>				
	1 Set of 200 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	63A TP MCCB 36KA - 1 No.				
	32A TP MCB 10KA - 2 Nos.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	40 A DP MCB 10KA - 2 Nos.				
	<b>Indication</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-6 set	2	Set	55,650	111,300
k	<b>MDB(P-1)-ATPC</b>				
	800 A 4P MDO ACB (50KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 1000 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	400 A 4P MCCB (36 KA) –1 No.				
	250 A TP MCCB (36 KA) –3 Nos.				
	125 A TP MCCB (36 KA) –1 No.				
	100 A TP MCCB (36 KA) –2 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs. - 8 set	1	Set	417,900	417,900
l	<b>MDB(P-2)-ATPC</b>				
	400 A 4P (36KA) MCCB - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	250 A TP MCCB (36 KA) –3 Nos.				
	125 A TP MCCB (36 KA) –1 No.				
	100 A TP MCCB (36 KA) –2 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-7 set	1	Set	184,800	184,800
m	<b>MDB(L-1)-ATPC</b>				
	630 A 4P (50KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 800 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	315 A 4P MCCB (36 KA) –1 No.				
	100 A TP MCCB (36 KA) –6 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-- 8 set	1	Set	177,450	177,450
n	<b>MDB(L-2)-ATPC</b>				
	315 A 4P MCCB (36 KA) –1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 400 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	100 A TP MCCB (36 KA) –6 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-7 set	1	Set	114,450	114,450
o	<b>FDB(P)(ATPC)</b>				
	<b>Incoming :</b>				
	250A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 400 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	100 A TP MCCB (36 KA) –4 Nos.				
	63 A TP MCCB (36 KA) –5 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 1 set	4	Set	105,000	420,000
p	<b>FDB(L)(ATPC)</b>				
	<b>Incoming :</b>				
	100A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 200 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	40 A TP MCB (10 KA) –5 Nos.				
	40 A DP MCB (10 KA) –1 No.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 1 set	4	Set	28,350	113,400
q	<b>UPS Panel(ATPC)</b>				
	<b>Incoming :</b>				
	100A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 150 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	40 A TPN MCB (10 KA) –5 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 6 set	4	Set	26,250	105,000
r	<b>AHU Panel--(ATPC &amp; RCB 4th wing)</b>				
	<b>Incoming :</b>				
	125A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	1 Set of 150 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	63 A TP MCCB (36 KA) –4 Nos.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 5 set	3	Set	52,500	157,500
s	<b>Lift Panel-Housing ,Guest House &amp; ATPC</b>				
	<b>Incoming :</b>				
	100A, 4P COS (36 KA) - 1 No.				
	100A, TP MCCB (36 KA) - 1 No.				
	<b>Bus Bar:-</b>				
	1 Set of 150 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	63 A TP MCCB - 36 KA - 2 Nos.				
	32 A DP MCB - 10 KA - 1 No.				
	<b>metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 3 set	5	Set	38,850	194,250
t	<b>MDB-P-RCB 4th wing</b>				
	400A 4P MCCB (36KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	125 A TP MCCB (36 KA) –1 No.				
	100 A TP MCCB (36 KA) –2 Nos.				
	63 A TP MCCB (36 KA) –4 Nos.				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.8 set	1	Set	131,250	131,250
19.20	Supplying, installation, testing and commissioning of following capacity overhead distribution bus trunking with aluminium bus bars in 1.6mm thick sheet steel enclosure in convenient sections with provision of tapping points for use on, 3 phase, 4 wire, 415 volts, 50 Hz, A.C. supply including jointing of sections, bends, earthing with 2 runs of galvanised iron strips, all installation accessories etc. as required.				
	200 amps TPN	350	metre	5,893	2,062,550
19.21	Supplying, installing, testing and commissioning of following capacity TPN tap off box / plug-in box made of 1.6mm thick sheet steel enclosure duly painted with powder coating on existing overhead bus bar system complete with TPN disconnecter FSU and HRC fuses, connections, earthing etc. as required.				
a	32 amps	12	each	5,346	64,152
b	63 amps	36	each	6,005	216,180
19.22	Supply, installation, testing and commissioning of LT Distribution and Meter Board of 2 mm thick sheet steel cubical design for <b>indoor</b> mounting factory fabricated suitable for operation on 440 V 3 phase, 50 Hz, A.C. supply with MCCBs/MCB and other accessories, all in compartmentalised, cubical construction complete in all respects including mounting plate, hinged lockable cover with window for Meter reading and internal wiring, labels, ferrules, cable termination gland plates, earth terminals, painting etc. conforming to specifications.				
	<b>Distribution and Meter Board for 3 Single phase Meters and 6 three phase meters</b>				
	<b>Incoming:-</b>				
	160 A TP MCCB (36 KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 200 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	Provision for Meter cubicals for single phase KWH Meter -3 Nos.				
	Provision for Meter cubicals for Three phase KWH Meter -6 Nos.				
	40 A , DP MCB -10KA - 3 Nos.				
	63 A , TP MCB 10KA - 6 Nos.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Indication and Metering</b>				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-10 set				
	<b>SITC of Distribution and meter board described as above.</b>	2	set	57,750	115,500
19.23	Supplying ,Installation,Testing and commissioning of single phase 30 A digital KWH meters in meter board. (L&T) make or similar as approved .	6	each	2,100	12,600
19.24	Supply, installation,testing and commissioning of LT Distribution and Meter Board of 2 mm thick sheet steel cubical design for <b>indoor</b> mounting factory fabricated suitable for operation on 440 V 3 phase, 50 Hz, A.C. supply with MCCBs/MCB and other accessories, all in compartmentalised, cubical construction complete in all respects including mounting plate, hinged lockable cover with window for Meter reading and internal wiring, labels, ferrules, cable termination gland plates, earth terminals, painting etc. conforming to specifications.				
	<b>Distribution and Meter Board for 6 Three phase Meters</b>				
	<b>Incoming:-</b>				
	125 A TP MCCB (36 KA) - 1 No				
	<b>Bus Bar:-</b>				
	1 Set of 200 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:-</b>				
	Provision for Meter cubicals for Three phase KWH Meter -6 Nos.				
	63 A , TP MCB -6 Nos.				
	<b>Indication and Metering</b>				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.- 7 set				
	<b>SITC of Distribution and meter board described as above.</b>	4	set	42,000	168,000
19.25	Supplying ,Installation,Testing and commissioning of Three phase 40 A digital KWH meters (L&T) make or similar as approved	38	each	4,289	162,982

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.26	Supplying and fixing following way prewired vertical type TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, terminal connectors for all incoming and outgoing circuits, duly prewired with adequate size of FR PVC insulated copper conductor upto the terminal connector/ neutral link, earthing etc as required (But without MCB/ RCCB/ Isolator). (Note : Prewired vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
	12 way Double door	21	each	14,758	309,918
19.27	S/F prewired TP MCB DB: Supplying and fixing following way, three pole and neutral, prewired, sheet steel, MCB distribution board, 415 volts, on surface / recess, complete with loose wire box, terminal blocks, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required. (But without MCB / RCCB / Isolator).				
a	8 way (4 + 24), Double door	70	each	10,394	727,580
b	12 way (4 + 36), Double door	39	each	12,771	498,069
19.28	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
a	2 + 4 way, Single door(Lift Room DB )	5	each	558	2,790
b	2 + 12 way, Single door	20	each	815	16,300
19.29	S/F TP MCB Isolator : Supplying and fixing following rating, four pole, 415 volts, MCB Isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	34	each	634	21,556
b	63 amps	75	each	645	48,375

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.30	S/F TP MCCB : Supplying and fixing following rating, four pole, 415 volts, MCCB in the existing Vertical DB complete with connections, testing and commissioning etc. as required.				
	100 amps	19	each	5,014	95,266
19.31	S/F DP RCCB : Supplying and fixing following rating, Double pole, 415 volts, Residual current circuit breaker (RCCB) , having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connection, testing and commissioning etc. as required.				
a	40 amps	235	each	1,585	372,475
b	63 amps	117	each	2,073	242,541
19.32	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	3906	each	153	597,618
b	Double Pole	19	each	433	8,227
c	6A-Double pole MCB10ka ( <b>Outgoing of Vertical DB for DG Supply in housing Block</b> )	84	each	433	36,372
19.33	Supplying, installation ,testing and commissioning of <b>10A Single phase Automatic source change over with current limiter</b> in existing DB with connection and setting of change over etc complete as required .	42	each	1,858	78,036
19.34	Providing and fixing on surface 63/100 amps rating and 16 KA breaking capacity MCCB in MS sheet enclosure complete with supporting angle iron frame including drilling holes ,making connection, etc. as required.	3	each	5,014	15,042
19.35	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	122	each	6	732
19.36	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides, and with inscription in single red colour on front side as required.	13	each	140	1,820
	<b>HT/LT CABLE, CABLE TERMINATION &amp; CABLE TRAY</b>				
	<b>H.T. CABLE</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.37	Supply and laying / fixing of followig size of 11 KV XLPE insulated aluminium conductor earthed and armoured cable conforming to IS 7098 (Part -II) complete as required in ground, on surface or on cable tray.				
	3 Core, 185 sq.mm	600	metre	1,701	1,020,600
19.38	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
	Above 120 sq. mm and upto 400 sq. mm	600	metre	<b>269</b>	161,400
	<b>H.T. CABLE TERMINATION</b>				
19.39	Supplying and making indoor cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
	3 Core 185 sq. mm	4	Each	3,599	14,396
19.40	Supply of following sizes of 1.1 KV grade single core/multicore aluminium conductor XLPE insulated and PVC sheathed armoured cable conforming to IS 1554 (Part-I) 1988.				
a	3.5 Core 400 sq.mm. XLPE Aluminium Cable	120	metre	2,231	267,720
b	3.5 Core 300 sq.mm. XLPE Aluminium Cable	2125	metre	1,748	3,714,500
c	3.5 Core, 185 sq.mm. XLPE Aluminium Cable	1300	metre	1,134	1,474,200
d	3.5 Core, 150 sq.mm. XLPE Aluminium Cable	50	metre	929	46,450
e	3.5 Core, 120 sq.mm. XLPE Aluminium Cable	390	metre	782	304,980
f	3.5 Core, 95 sq.mm. XLPE Aluminium Cable	350	metre	619	216,650
g	3.5 Core, 50 sq.mm. XLPE Aluminium Cable	1020	metre	362	369,240
h	3.5 Core, 35 sq.mm. XLPE Aluminium Cable	450	metre	278	125,100
i	4 Core, 16 sq.mm. XLPE Aluminium Cable	725	metre	189	137,025
j	4 Core, 6 sq.mm. XLPE Aluminium Cable	550	metre	147	80,850
	<b>Note: Actual length of cable should be verified at the site prior to the installation. Main cable from LT panel is not included in this .</b>				
19.41	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a	Upto 35 sq. mm	1525	metre	190	289,750
b	Above 35 sq. mm and upto 95 sq. mm	1295	metre	197	255,115

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
c	Above 95 sq. mm and upto 185 sq. mm	1600	metre	205	328,000
d	Above 185 sq. mm and upto 400 sq. mm	2185	metre	226	493,810
19.42	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
a	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	75	metre	46	3,450
b	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	145	metre	57	8,265
c	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	60	metre	88	5,280
19.43	Supply and making cable end termination with double compression brass glands and crimped aluminium lugs following sizes of PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade of the following sizes as required.				
a	3½ X 400 sq. mm (82mm)	6	each	1,263	7,578
b	3½ X 300 sq. mm (70mm)	16	each	987	15,792
c	3½ X 185 sq. mm (57mm)	32	each	705	22,560
d	3½ X 150 sq. mm (50mm)	2	each	526	1,052
e	3½ X 120 sq. mm (57mm)	14	each	438	6,132
f	3½ X 95 sq. mm (45mm)	14	each	421	5,894
g	3½ X 50 sq. mm (35mm)	38	each	300	11,400
h	3½ X 35 sq. mm (32mm)	8	each	257	2,056
i	4 X 16 sq. mm (28mm)	50	each	218	10,900
j	4 X 6 sq. mm (28mm)	50	each	171	8,550
19.44	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
a	150 mm . Width x 50 mm . Depth x 2 mm Thickness	225	metre	549	123,525
b	300 mm width X 50 mm depth X 1.6 mm thickness	30	metre	794	23,820
c	300 mm width X 62.5 mm depth X 2.0 mm thickness	25	metre	883	22,075
d	450 mm width X 62.5 mm depth X 2.0 mm thickness	65	metre	1,195	77,675
e	600 mm width X 75 mm depth X 2.0 mm thickness	40	metre	1,512	60,480
f	900 mm width X 75 mm depth X 2.0 mm thickness	25	metre	2,072	51,800
	<b>Conduiting / Wiring for Telephone/LAN</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.45	Supplying and fixing of following sizes of medium class <b>PVC</b> conduit alongwith the accesories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	2260	metre	67	151,420
b	25 mm	3705	metre	76	281,580
c	32 mm	1050	metre	96	100,800
19.46	Supplying and fixing metal box of following sizes (nominal size) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc. required.				
a	180 mm X 100 mm X 60 mm deep	57	each	126	7,182
b	200x250x75	35	each	290	10,150
	<b>Telephone Wiring</b>				
19.47	Supplying and fixing of <b>RJ-11 telephone socket outlet</b> with GI sheet box and modular cover plate complete as required:-				
	Single outlet in One Plate.	295	each	97	28,615
19.48	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
	1 or 2 Module (75mmX75mm)	295	each	167	49,265
19.49	Supplying & drawing following pair, 0.5 sq. mm. FR PVC insulated copper conductor, unarmoured telephone cable in the existing surface/ recessed steel / PVC conduit as required:-				
	2 Pair	6845	metre	18	123,210
19.50	Supplying, drawing of telephone cable with soldered terminals on both ends of 0.61 mm dia. annealed tinned electrolytic grade copper conductor, PVC insulated, twisted pairs bunched together in concentric layers so as to minimize crosstalk and wrapped with melinex tape & overall PVC sheathed suitable for indoor telephone wiring conforming to ITD-S/WS-113C and S/WS-114 in existing MS conduit on surface/ recessed/ above false and floor race ways/ ceiling etc. complete as required:-				
a	10 Pair	225	metre	178	40,050
b	20 Pair	200	metre	294	58,800

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.51	Supply and installation of <b>KRONE connector</b> type main telephone tag block of following sizes in sheet metal enclosure of suitable dimensions fabricated out of 16 SWG sheet steel with castle key lock, hinged type cover including termination of telephone cables, making connections, painting of box etc. complete as required:-				
a	10 Pairs	17	each	588	9,996
b	20 Pairs	10	each	824	8,240
c	50 Pairs	6	each	1,666	9,996
<b>Computer System Wiring</b>					
19.52	Supply, drawing, testing & commissioning of 4 Pair CAT-6 Non-Plenum UTP cable of 24 AWG solid copper conductors complete as required.	4450	metre	47	209,150
19.53	Supplying, installation, testing & commissioning of RJ-45 Flush mounted information outlets wired according to T 5688 standard with a surface mount box complete as required:-				
	Single Outlet in one Face plate	151	each	572	86,372
19.54	Supplying of <b>600 mm x 500 mm 6 U Free standing cabinet</b> with front locable door , side panels, 230 V AC 90 CFM fan 2 , three Hardware packet 1 set ( containing 20 Nos each of 3), AC power strip. Cantilever Tray 1U 225D, one earthing Strip 150 mm H,1 Cable manager 1U height.	9	each	9,418	84,762
19.55	Supplying of <b>12 U Free standing cabinet</b> with front locable door , side panels, 230 V AC 90 CFM fan 2 , three Hardware packet 1 set ( containing 20 Nos each of 3), AC power strip. Cantilever Tray 1U 225D, one earthing Strip 150 mm H,1 Cable manager 1U height.	2	each	12,196	24,392
19.56	Supplying,Installation ,Testing & Commissioning of 12 port of 10/100/1000 Gigabit managed Switch With 2 SFP Ports complete as required .	4	each	20,937	83,748
19.57	Supplying,Installation ,Testing & Commissioning of 24 port of 10/100/1000 Gigabit managed Switch With 2 SFP Ports complete as required .	5	each	25,599	127,995
19.58	Supplying of 1Mtr Cat 6 patch cord with 24 AWG suitable for Gigabit connection	151	each	184	27,784
19.59	Supplying of Cat 6, 12 port rack mountable Patch Panel Loaded for DATA	4	each	5,134	20,536
19.60	Supplying of Cat 6, 24 port rack mountable Patch Panel Loaded for DATA	5	each	7,003	35,015

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.61	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	4060	meter	24	97,440
19.62	Supplying and fixing of <b>Co- axial TV outlet</b> on wall / partition including flush MS Box, front plate and jack complete as required.				
	TV antenna socket outlet	208	each	99	20,592
19.63	Supplying and fixing of Splitter box in suitable size of G.I. Enclosure with cover plate including connections and making good the damage etc. as required.				
a	Two Nos. outgoing	8	each	231	1,848
b	Four Nos. outgoing	68	each	315	21,420
	<b>Note: Computer and networking system wiring shall include numbering and termination and testing of cables at both the ends.( computer outlet points )</b>				
	<b>Installation of Light fittings, fans and fixtures</b>				
19.64	Installation, testing and commissioning of prewired, flourescent fittings / compact flourescent fittings of all types, complete with all accessories,chain hangers,anchor fastners and tube etc.complee as required directly on ceiling/wall/ False ceiling, including connections with 1.5 sq.mm. PVC insulated, copper conductor, single core cable etc. as required.	3627	each	86	311,922
19.65	Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tubes etc., including supplying and fixing ball and socket 2 nos. down rods of 20 mm. dia. x 1.6 mm. thick steel conduit upto 30 cm. length, painting and wiring the down rods and connections with 1.5 sq.mm. PVC insulated, copper conductor, single core cable as required.	48	each	229	10,992
19.66	Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length wiring with 2 X 1.5 sq. mm FR PVC insulated, copper conductor, single core cable including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	36	each	31	1,116
19.67	Installation of exhaust fan upto 450 mm sweep in the existing opening, including making the hole to suit the size of the above fan, making good the damage, connections, testing, commissioning etc. as required.	289	each	198	57,222

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.68	Installation, testing and commissioning of ceiling fan including wiring the down rods of standard length (upto 30 cm) with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	409	each	118	48,262
19.69	Supplying and fixing extra conduit down rod of 10 cm length G.I. pipe 15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	192	each	22	4,224
19.70	Supplying and fixing extra conduit down rod of 20 cm length G.I. pipe 15 mm dia, heavy gauge including painting etc. as required. (Note : More than 15 cm length shall be rounded to the nearest 20 cm and 15 cm or less shall be rounded to the nearest 10 cm)	217	each	24	5,208
19.71	Extra for fixing the louvers / shutters complete with frame for a exhaust fan of all sizes.	289	each	85	24,565
<b>Supply of Light Fitting/Fans /Luminaries and Fixtures</b>					
19.72	Supplying of following lighting fixtures complete with special electronics low loss ballast/ lumilux tube/ lamp/ condenser/ starter /louvers/ reflector/cover etc. complete as required:-				
a	Recessed mounted 1 x 15 watt LED down light Fitting suitable for 15W LED Light . <b>Philips BBS-170 WITH 1X15W LED</b> or Equivalent make as approved.	518	each	2,583	1,337,994
b	Integral round shaped surface mounted 6W high powered LED,warmwhite light fitting with opal diffuser . <b>Bajaj BGCML 6W WW or Similar OSRAM/Philips/Wipro</b>	111	each	2,977	330,447
c	Surface mounted 2 x 11 watt CFL lamp Fitting suitable for and with 2 Nos. 11 Watt CFL lamp. <b>Philips FCS 518/211</b> or Equivalent make as approved.	209	each	1,249	261,041
d	surface mounted Integral round shaped 12W high powered LED, luminaire with opal diffuser . <b>Bajaj BGCML 1201WW or Similar OSRAM/Philips</b>	165	each	5,187	855,855
e	Integral 15W LED tube light fitting (Mirror Light) with aluminium diecast housing. <b>Philips LED Linea or similar of Bajaj/Osram/Wipro</b>	220	each	1,911	420,420
f	Surface mounted Aquafit 24 watt CFL lamp Bathroom Fitting suitable for and with 1 No. 24 Watt CFL lamp. <b>Philips Aquafit 32081 HDL</b> or Equivalent make as approved.	188	each	1,717	322,796

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
g	Surface mounted 1 x 13 watt CFL lamp Dwonlighter suitable for and with 1 No. 13 Watt CFL lamp. <b>Bajaj BJDS113 C WEB</b> or Equivalent make as approved.	276	each	1,853	511,428
h	Surface/wall Mounted Strip type flourscent fitting suitable for and with 1 no.28 watt lamps with diffuser <b>Philips TWG 207 HF</b> or Equivalent make as approved.	285	each	819	233,415
i	Surface / wall mounted Bulkhead luminaires1 x 11 watt CFL lamp Fitting suitable for and with 1 No. 11 Watt lamp. <b>Philips NXC 101or</b> similar make as approved.	98	each	1,076	105,448
j	Surface mounted 1'x1' -square 20W LED luminaire with translucent cover fixed to the housing . <b>Bajaj BGSSQL 20 01 WH</b> or Equivalent make as approved.	8	each	9,124	72,992
k	Surface mounted decorative pendent luminaires3 x 40 watt CFL lamp Fitting suitable for and with 3 No. 40 Watt lamp. <b>Decoan 3 light UFO Pendent</b> or similar as approved.	38	each	2,751	104,538
l	Supplying of fancy wall bracket fittings suitable for 1X13 watt lamp. <b>Make: Decon 05ZA02</b> or equivalent as approved.	494	each	1,071	529,074
m	Suplying of hanging cone type decorative luminaire with glass fitting suitable for and with 1 x 18W CFL lamp . <b>Decon:-Cone with glass 04WU</b> or equivalent as approved .	80	each	1,423	113,840
n	Recessed Mounted decorative LED fitting suitable for and with 43watt LED. <b>Philips RC365B LED33S-4000 PSU-OD 43W LED</b> or simillar equivalent make as approved.	12	each	10,657	127,884
o	Recessed decorative flourscent fitting suitable for and with 2 nos 36 watt T5 lamps / 4X14W T6 LAMPS. <b>Philips FBS470 2XPLL 36W IC D6 DF</b> or equivalent make as approved.	569	each	5,680	3,231,920
p	Surface Mounted decorative flourscent fitting with acrylic diffuser suitable for and with 1 no.28 watt TL5 lamps. <b>Philips TCS 019 1X36W EBE</b> or equivalent as approved.	116	each	1,680	194,880
q	Surface Mounted decorative flourscent fitting with high efficiency OLC optic suitable for and with 2 nos 36 watt TL-D lamps. <b>Philips TCS 398 / 2xTL-D36W M2 EBT 236</b> or equivalent make as approved.	36	each	5,008	180,288
r	Surface Mounted industrial batten fitting with optical reflector suitable for and with 2 nos 28 watt TL-5 lamps. <b>Philips TMS 122 M 2XTL5-28W EBT</b> or equivalent make as approved.	36	each	1,995	71,820

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
s	Surface mounted 1 x 13 watt CFL lamp Drum light Fitting suitable for and with 1 No. 13 Watt lamp with cover - <b>Decon 03TZ WITH 1X13W CFL</b> or Equivalent make as approved.	208	each	1,060	220,480
t	70W Cylindrical Down light suitable for 1xCDMT-TD70W lamp. <b>Philips MCS 2501XCDM-TD70W HF</b> or equivalent make as approved.	8	each	8,473	67,784
19.73	Supplying of <b>Ceiling fans</b> suitable for 230 Volt, 50 Hz, Single phase, A.C. supply and complete without speed regulator all standard accessories such as blades & capacitor etc. <b>Makes CG/Usha/Havels</b>				
a	3 Blade-1200 mm Ceiling fan	404	each	1,627	657,308
b	3 Blade-1400 mm Ceiling fan	5	each	1,785	8,925
19.74	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box excluding modular plate as required.	409	each	380	155,420
19.75	Supplying of following sizes of <b>Exhaust Fans</b> suitable for 230 Volt, 50 Hz, Single phase, A.C. supply and complete with all standard accessories such as motors, blades & louvers, shutters etc. <b>Makes GEC/Havels/Usha LX</b>				
a	300 mm dia.	284	each	1,365	387,660
b	450 mm dia.	5	each	2,625	13,125
19.76	Supply , Installation and commissioning of UPS system of following capacity including maintenance free batteries and all accessories ,wiring, connections etc suitable for backup for 30 mints. <b>Eaton ,APC MITHSUBISHI.</b> or equivalent make as approved .				
a	5KVA	2	each	66,990	133,980
b	10KVA	7	each	189,000	1,323,000
	<b>EARTHING for IEI ,Ext. EI,ESS And DG SET</b>				
19.77	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.				
	For Panel & Lightning Arrester Earthing	52	Set	4,585	238,420
19.78	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	255	metre	411	104,805

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.79	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	450	metre	140	63,000
19.80	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	18	Set	9,386	168,948
19.81	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	40	metre	1,070	42,800
19.82	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	60	metre	853	51,180
19.83	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	2800	metre	23	64,400
19.84	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, copper tube, having single prong at top, with 85 mm dia 3 mm thick copper base plate including holes etc. complete as required.	7	Each	778	5,446
19.85	Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required.	14	Each	71	994
19.86	Fixing of copper/ G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For horizontal run)	295	metre	34	10,030
19.87	Fixing of copper/ G.I. tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	1205	metre	69	83,145
19.88	Providing and fixing testing joint, made of 20 mm X 3 mm thick copper strip, 125 mm long, with 4 nos. of tinned brass bolts, nuts, chuck nuts and spring washers etc. complete as required.	14	Each	194	2,716
19.89	Providing and fixing 32 mm X 6 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	75	Metre	444	33,300
19.90	Providing and fixing 32 mm X 6 mm G.I. strip on surface or in recess for connections etc. as required.	135	Metre	142	19,170
19.91	Providing and fixing 32 mm X 6 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	69	metre	1,338	92,322

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.92	Providing and fixing 32 mm X 6mm copper strip on surface or in recess for connections etc. as required.	185	metre	1,120	207,200
19.93	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	165	metre	1,595	263,175
19.94	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	10	Each	3,941	39,410
	<b>Fire Alarm System</b>				
19.95	Supply fixing testing and commissioning of Analogue addressable multicriteria heat and smoke detectors with short circuit isolator,base and LED and connection etc. as required.(UL LISTED).				
	Multicriteria Smoke detector	363	each	4,793	1,739,859
19.96	Supplying fixing testing and commissioning of Addressable fault isolating shorted ,dewired and loose circuits between to successive fault isolators with automatic resetting arrangement (base model) modules for AHU's,lifts , pressurising fans etc. .(UL LISTED)	27	each	4,357	117,639
19.97	Supplying fixing testing and commissioning of intelligent Addressable control /output modules with short circuit isolator modules for AHU's,lifts , pressurising fans etc. .(UL LISTED)	15	each	7,408	111,120
19.98	Supplying fixing testing and commissioning of intelligent Addressable input modules with short circuit isolator modules for AHU's,lifts , pressurising fans etc. .(UL LISTED)	15	each	7,129	106,935
19.99	Supplying fixing testing and commissioning of Addressable Manual call box with short circuit isolator ,break glass /push button with built in LED for alarm indication suitable for recessed installation in wall connetion etc. as required .(UL LISTED)	38	each	5,544	210,672
19.100	Supplying fixing testing and commissioning of Addressable sounders/electronics hooters cum speakers as required for the fire detection and alarm system to be fixed at appropriate height on wall on surface or in recess as required.	38	each	8,715	331,170

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.101	Supply,installation,testing and commissioning of Microprocessor based <b>2 loop</b> expandable Analauge addressable type fire alarm control panel with LCD Display of 640 Characters.The panel should be equipped of <b>4 loops</b> with loop capacity to take 127 analauge addressable devices in one loop and 254 total devices capacity,1000 event history, Four access levels,capable of taking Flash scan devices flash EPROM sufficient numbers of programmable relay controls for controlling AHU's ,pressurisation fans,ventlation fans at fire pump room,monitoring of fire sprinkler and fire hydrant pump,240 V AC power supply ,automatic battery charger ,24V sealed lead acid batteries sufficient for 24 hours normal working and then be capable of operating the system for 2 hours during an emergency conditions as required. ( EN/LPCB Approve )	1	each	400,874	400,874
19.102	Design, Manufacture, supply installation testing and commissioning of following no. of zones <b>zonal fire alarm control and indication panel</b> . The panel shall be microprocessor based modular expandable with window type annunciation to indicate fire and fault LED lamps for visual indications audio alarm unit push buttons for acknowledge, test reset and terminals/connectors brought uot for tripping AHU in case of fire suitable for operation on 24 V,DC supply etc. as required.				
	Zonal control panel of 8 zones	3	each	55,456	166,368
19.103	Supplying, drawing, connecting , testing of following single core PVC insulated FRLS copper wires in existing conduit for Fire alarm System.				
a)	2 x 1.5 sq. mm	2950	metre	37	109,150
b)	4 x 1.5 sq. mm	1120	metre	69	77,280
19.104	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
a)	20 mm	2275	metre	138	313,950
b)	25 mm	1095	metre	160	175,200
c)	32 mm	100	metre	213	21,300

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
19.105	Supply, installation, testing & commissioning of self contained 3W LED (minimum one hour reserve) double sided emergency signage unit for ceiling / wall mounting & having "EXIT" or "FIRE EXTINGUISHER" or "FIRE HOSE REEL" as per actual mounting location complete with connections as required.	61	metre	8,064	491,904
	<b>Total of Sub Head</b>				<b>62,013,009</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD XX - Substation Equipments External Electrical Installations DG Sets</b>				
	<b>SUB - STATION</b>				
	<b>2000 KVA TRANSFORMER (CAST RESIN DRY TYPE)</b>				
20.1	Supply, installation, testing and commissioning of Cast Resin Dry Type 2000 KVA 11/0.433 KV,3 phase, 50 Hz, Dyn11 vector group, copper wound, class F insulation associated with winding temperature indicator/controller actuated by means of resistance temperature detector embedded in LV windings, indoor type Transformer with approximately 5% impedance, tapplings for OLTC, RTCC & AVR Operation on HV side in steps of +5% to -15%, @ 1.25%, having cable end boxes on HV side suitable for 3x185 Sqmm XLPE cable of 11KV side and 3200 Amp. Bus Duct arrangement on LV side with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker for safety tripping, suitably mounted on M.S.channel i/c supplying and grouting of suitable M.S. Channel with all accessories and conforming to IS 11171:1985 & complete in all respects as required at site.	1	each	4,364,850	4,364,850
	<b>L.T.PANEL</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
20.2	Supply,Installation,Testing and Commissioning of L.T.Panel suitable for 415 Volt,3phase,4wire 50Hz AC supply system fabricated in compartmentlized from CRCA sheet steel not less than 2mm thick duly treated with 7 tanks process, powder coated with approved shade and oven dried . The complete panel will have a short circuit with stand capacity of 31 MVA for 1 Second, IP 42 rating. It will have a suitable MS base channel powder coated. The panel will be fabricated in transportable sections. The panel shall have a common copper earth bar of size 25mm x 5mm at the rear with 2 Nos. earth studs. The LT panel will have suitable arrangement for bus-ducting/ cable termination into various incoming/outgoing switchgear as required. Cable termination will be at suitable terminal block at top/bottom of the panel and from the terminal block to switch, connection will be made with solid insulated strip/PVC insulated copper conductor cable of required current rating as required. For other construction details, refer to section IV of CPWD specifications, part IV- substations. <b>Note:- The Panel shall be coupled with existing LT panel and shall include the coupling plates ,nut,bolts etc. complete as required .</b>				
	The panel shall be complete with following switchgear and accessories.				
	<b>INCOMINGS FROM TRANSFORMER (2000KVA)</b>				
	1 no. of 3200 amp rating motor operated spring charging four pole ACB (EDO) for 2000 KVA transformer incomings , horizontal drawout type suitable for bus duct connection on incoming side. The ACB shall be electrically interlocked covering 24V DC shunt trip circuit, under voltage circuit & closing with bus couplers. and DG incomer .The panel shall be suitable for operation on AMF. The breakers shall be provided with following:-				
	Microprocessor release (SR-18G) having variable range of overcurrent, short circuit and earth fault protection.				
	TNC breaker control switch.				
	<b>Incomer panels from Transformer shall be provided with the following indications/metering.</b>				
	The indicating panel of the each Transformer incomer ACB shall be provided with the following.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	MFM meter with CT`s.				
	3 Nos. Phase indicating lamps backed upwith MCB.				
	Voltmeter & VSS.				
	Ammeter of required range & ASS along with required CT's.				
	ON/OFF/ Trip indicating lamps				
	Separate CT`s shall be provided for protection/metering / APFCR.				
	<b>Bus Bar</b>				
	Set of 3600Amps rating TPN Almunium Bus Bars of suitable length shall be provided for entire length of panel board.				
	<b>Bus Coupler</b>				
	1 no. of 3200 amp rating motor operated spring charging four pole ACB (EDO), horizontal drawout type.The ACB shall be electrically interlocked covering 24V DC shunt trip circuit, under voltage circuit & closing with Transformer and DG incomer .The panel shall be suitable for operation on AMF. The breakers shall be provided with following:-				
	TNC breaker control switch.				
	<b>Outgoing Panels</b>				
	All outgoing ACBpanels shall be provided with DN -1 release and MCCB Panels shall be provided with thermal / magnetic release and one set of ON/OFF indication lamps with protection MCB, and Ammeter of suitable range with Ammeter selector switch and CT's as required.				
	Following outgoings shall be on <b>Bus section 3 (New transformer no-3)</b>				
	1250A 4P ACB (MDO) -----1 No.				
	800A 4P ACB (MDO) -----1 No.				
	630 amp, 50KA TP MCCB ----- 2 Nos.				
	400 amp, 50KA TP MCCB ----- 2 Nos.				
	200 amp, 50KA TP MCCB ----- 2 Nos.				
		1	each	2,461,200	2,461,200
	<b>CAPACITOR PANEL</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
20.3	Design, manufacture, testing at works, supply, installation, testing & commissioning of 600 KVAR capacitor bank and panel consisting of 100/50/25 KVAR capacitor units in tier formation, housed in an integrated cubicle type, indoor type automatic switching 'ON' and 'OFF' control panel with microprocessor based automatic power factor correction panel of minimum 14 stages, dust and vermin proof hinged and lockable doors complete with interconnections, bonding to earth and painting (suitable for 415Volts, 3 phase 50 Hz supply system). Automatic switching "ON" and "OFF" control panel for 600KVAR capacitor banks.Each panel consists of:				
	<b>Incoming</b>				
	1250 Amp 4P ACB MDO, 50 KA .....1 no.				
	<b>Metering</b>				
	Multifunction Meter class 1 (0-800A)-1 no				
	400/5A, CL-1.0, 10VA Current Transformer .....3 nos.				
	Automatic Power factor control relay-14 stages .....1 no.				
	LED Type Indication Lamps for R,Y,B Phase & ON/OFF/ Trip				
	2A control fuse with base ..... 3 nos.				
	<b>Bus Bar</b>				
	1400 A rating electrolyte grade Al. bus bars				
	<b>Outgoings</b>				
	<b>100 KVAR Capacitor Bank feeders .....2 nos</b>				
	<b>Each feeder consists of the following:</b>				
	200A. 4P MCCB, of 36 KA .....1 no.				
	200A , TP , Power contactor with 2 NO+ 2 NC Auxiliary contacts ....1 no (contactor should be for capacitor duty)				
	LED Type Indication Lamps for ON/OFF				
	Start/Stop Push Button actuators .....2 nos.				
	2A control fuse with base ..... 3 nos.				
	100 KVAR Capacitor Bank .....1 no				
	7% DETUNED COPPER REACTOR,440,50HZ-1 No(for 100 Kvar)				
	<b>50 KVAR Capacitor Bank feeders .....4 nos</b>				
	<b>Each feeder consists of the following:</b>				
	125A. 4P MCCB, of 36 KA .....1 no.				
	110A , TP , Power contactor with 2 NO+ 2 NC Auxiliary contacts ....1 no (contactor should be for capacitor duty)				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	LED Type Indication Lamps for ON/OFF				
	Start/Stop Push Button actuators .....2 nos.				
	2A control fuse with base ..... 3 nos.				
	50 KVAR Capacitor Bank .....1 no				
	7% DETUNED COPPER REACTOR,440,50HZ-1 No (for 50 Kvar)				
	<b>25 KVAR Capacitor Bank feeders .....8 nos</b> <b>Each feeder consists of the following:</b>				
	63A. TP MCCB, of 25 KA .....1 no.				
	63A , TP , Power contactor with 2 NO+ 2 NC Auxiliary contacts ....1 no (contactor should be for capacitor duty)				
	LED Type Indication Lamps for ON/OFF				
	Start/Stop Push Button actuators .....2 nos.				
	2A control fuse with base ..... 3 nos.				
	25 KVAR Capacitor Bank .....1 no				
	7% DETUNED COPPER REACTOR,440,50HZ-1 No(for 25 Kvar)				
	Supply, Installation, testing and Commissioning of 600KVAR Capacitor panel complete as required with details as described above and as per specifications	1	each	1,430,100	1,430,100
	<b>Note:- The quoted rates for Sub-Station Equipments above from Item no-20.1 to 20.3 shall be inclusive of Supply ,Installation and Termination og Multicore copper control cables for operation ,indication and safety tripping etc complete as required .Nothing extra fro control cable shall be payable .</b>				
	<b>BUS DUCT</b>				
20.4	Supply, installation, testing and commissioning including design, manufacture at works of sheet steel enclosed compact sandwiched "AL" bus duct (IP-55) suitable for 415 V, 3 phase 4 wire 50 Hz AC supply system for indoor installation complete with bends , expansion joints, fire barriers ,copper flexible end connection at both ends , insulating materials, all mounting accessories, necessary steel structure support with down rods, dash fastner etc. complete as required and as per specifications including two runs of copper earth bus of size 25X5 mm strips etc. as required of the following ratings :-				
a)	3200A TPN(65KA) Aluminium Bus-Dust(From Transformer to LT Panel )	35	metre	48,300	1,690,500
b)	1600A TPN(50KA) Aluminium Bus-Dust(DG Set to LT Panel )	30	metre	33,600	1,008,000
c)	1250A TPN(50KA) Aluminium Bus-Dust(LT Panel to AC Panel)	40	metre	27,300	1,092,000

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Emergency Supply Panel</b>				
20.5	Supply,Installation,Testing and Commissioning of L.T.Panel suitable for 415 Volt,3phase,4wire 50Hz AC supply system fabricated in compartmentlized from CRCA sheet steel not less than 2mm thick duly treated with 7 tanks process, powder coated with approved shade and oven dried . The complete panel will have a short circuit with stand capacity of 31 MVA for 1 Second, IP 42 rating. It will have a suitable MS base channel powder coated. The panel will be fabricated in transportable sections. The panel shall have a common copper earth bar of size 25mm x 5mm at the rear with 2 Nos. earth studs. The LT panel will have suitable arrangement for bus-ducting/ cable termination into various incoming/outgoing switchgear as required. Cable termination will be at suitable terminal block at top/bottom of the panel and from the terminal block to switch, connection will be made with solid insulated strip/PVC insulated copper conductor cable of required current rating as required. For other construction details, refer to sectio				
	Note:- The Panel shall be coupled with existing LT panel and shall include the coupling plates ,nut,bolts etc. complete as required .				
	<b>Incoming:</b>				
	630A 4P MCCB(36 KA) - 1 No.				
	<b>Bus Bars:-</b>				
	1 Set of 800 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	250 A TP MCCB (36 KA) -1 No.				
	160 A TP MCCB (36 KA) -2 Nos.				
	100 A TP MCCB (36 KA) -2 Nos				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:-				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Digital Ammeter with CT -5 sets				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs 6 sets.				
	<b>Emergency Supply panel complete as required with details described as above and as per specifications.</b>	1	each	194,670	194,670
	<b>FEEDER PILLARS</b>				
20.6	Supply and fixing of floor mounting, totally enclosed, outdoor type (IP:65) <b>Feeder pillar for General supply</b> fabricated out of 2 mm thick cold rolled carbon anealed, sheet steel, internally strengthened with angle iron frame work with following incoming and outgoing feeders including Bus Bars, making connections/inter-connections with glands & lugs with crimping tool, suitable brick masonry / RCC foundation testing and commissioning complete as required.				
a)	<b>Feeder Pillar for emergency supply to housing block</b>				
	<b>Incoming</b>				
	630A 4P MCCB(36 KA) - 1 No.				
	<b>Bus Bars:-</b>				
	1 Set of 800 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	400 A TP MCCB (36 KA) -2 Nos.				
	100 A TP MCCB (36 KA) -2 Nos				
	63 A TP MCCB (36 KA) -2 Nos				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:-				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Digital Ammeter with CT -6 sets				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs 6 sets.				
	<b>Feeder pillar complete as required with details described as above and as per specifications.</b>	1	Set	213,964	213,964
b)	<b>Feeder Pillar for Services</b>				
	<b>Incoming:</b>				
	400A 4P MCCB(36 KA) - 1 No.				
	<b>Bus Bars:-</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	<b>Outgoing:</b>				
	200 A TP MCCB (36 KA) -1 No.				
	100 A TP MCCB (36 KA) -3 Nos				
	63 A TP MCCB (36 KA) -2 Nos				
	<b>Metering and Indications:</b>				
	The incomer MCCB shall be provided with the following:-				
	One (1) No. Multifunction meter with SPMCBs & 3 way ON & OFF selector switch.				
	Digital Ammeter with CT -6 sets				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs 6 sets.				
	<b>Feeder pillar complete as required with details described as above and as per specifications.</b>	1	Set	155,647	155,647
20.7	Dismantling, shifting ,Installation, testing & commissioning of 500KVA 11/0.433KV Package Substation complete as required including brick masonry foundation etc. as required (From one place to other within the same site at RCB faridabad.	1	each	49,350	49,350
20.8	Dismantling ,shifting ,Installation, testing & commissioning of 500KVA 433V DG set complete as required including foundation etc. as required (From RCB office at gurgaon to RCB site at Faridabad ).The work shall be complete as required inclusive of cartage, loading ,unloading of DG set from gurgon to RCB site at Faridabad .	1	each	96,652	96,652
20.9	Providing, laying and fixing following dia in ground complete with G.I. fittings including trenching (75 cm deep) and re-filling etc as required				
a	150 mm dia G.I. pipe (medium class)	80	metre	1,383	110,640
b	150mm dia HDPE Pipe	100	metre	895	89,500
20.10	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
a	250 mm dia	120	metre	445	53,400
b	300 mm dia	200	metre	555	111,000
	<b>CONTROL CABLE</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
20.11	Supply and laying / fixing of followig size of 1.1 KV PVC insulated Copper conductor armoured cable conforming to IS 1554 (Part -I) complete as required in ground, on surface or on cable tray.				
a	2X2.5 sq.mm	75	metre	142	10,650
b	4X 2.5 sq.mm	80	metre	220	17,600
c	8X 2.5 sq.mm	100	metre	378	37,800

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>POLES AND LIGHT FITTINGS</b>				
20.12	Supplying, Installation, Testing and commissioning of 7.5mtr high MS decorative type steel tubular pole with single bracket 500mm, duly primed and painted. The pole shall be painted with MRF polyurethane paint of approved colour. The bottom and middle embellishments are cast in iron and fixed to the column by grub screw. The column shall be provided with inbuilt loop box with 4 way 32Amp Heavy duty connector, 2 Nos SPMCB's with wiring from MCB to fitting with 3x2.5 sq.mm PVC insulated single core wires and shall have matching flush door, fabricated painted complete with RCC foundation including 4x16mm dia foundation bolts of 300mm length suitable DWC / PVC pipe laid within the foundation for incoming and outgoing cables as per the Department's requirement. (Keslec / Twinkle / Bajaj / Hilite Make).				
	Top dia - 90mm. Length 5500mm				
	Bottom dia - 140mm. Length 2000mm				
	Base plate - 300 x 300 x 25mm thick duly welded in column.				
	RCC foundation 600 x 600 x 1200mm	11	each	40,372	444,092
20.13	Supplying, Installation, Testing and commissioning of decorative 3.5 long MS tubular pole light pole standard pole fabricated out of 70 mm dia. pipe 2.0 metre long and bottom dia of 140 mm 1.5 meter long complete with 300 mm x 300 mm x 6 mm thick MS plate welded at bottom including wiring with 3x2.5sqmm copper wire from JB to light fitting, connections etc. as required. Welding of 1 no. earth stud and drilling holes for drawing the wire etc. complete as required including cement concrete foundation, wiring and connections. A looping/ junction box shall be inbuilt into the pole.	25	each	23,126	578,150
20.14	Supplying, Installation, Testing and commissioning of 70 watt CDMT Post Top lantern fitting with 70 watt CDMT lamp, heavy duty copper wound ballast and accessories. Philips Post Top decorative luminaire HPS360 1 x CDMTD 70GR or similar equivalent make as approved.	25	each	9,791	244,775
20.15	Street light fitting with high pressure die cast aluminium housing POT optics reflector and toughened glass (IP65) complete with accessories and 150W CDMT lamp Phillips cat No. CRP330 – 1xSONT-150WTP/Bajaj BGEST 150MH or equivalent as approved.	11	each	9,576	105,336

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>ROAD LIGHTING PILLAR ,&amp; PILLAR EARTHING</b>				
20.16	Supply and fixing of floor mounting, totally enclosed, compartmentalized, cubical, dust, vermin proof and outdoor type <b>ROAD LIGHTING PILLAR</b> fabricated out of 2mm thick cold rolled carbon anealed CRCA, sheet steel, intermnally strengthened with angle iron frame work with following incoming and outgoing feeders (fabricatedout of 2mm CRCA sheet steel) including supplying and mounting including making connectins / interconnections with lugs / glands crimping tools, testing and commissioning of following items inside the panel/pillar. The pillar shall be suitable for automatic operation of external lighting.				
	Incoming				
	100A TP MCCB(25KA) -1 No.				
	63A, TP Contactor -1 No.				
	Time Switch with daily dial suitable for operation on 230V single phase 50Hz AC supply -1No.				
	Auto Manual Selector Switch 1 No.				
	Bus Bars				
	TPN bus bar of 100A rating				
	Outgoings				
	20A TP MCB 6 No.				
	Indication lamps (LED Type) 3 No.				
	Road lighting Pillar of above details & specifications	1	each	50,463	50,463
	<b>DIESEL GEN. SETS</b>				
20.17	Providing installing / testing and commissioning of Diesel Generating Set having prime power rating of 1010 KVA at 1500 RPM, 0.8 lagging power factor at 415 volts suitable for 50 Hz, 3 phase system and for 0.85 load factor, consisting of the following.				
	<b>Diesel Engine</b> : Radiator cooled electric start Diesel Engine four stroke of suitable B.H.P at 1500 RPM for above out put of alternator at 40 Degree Celiues, 50% RH & at 1000 mtr above MSL & conforming to BS:5514, BS:649/IS:10000, capable of taking 10% overloading for one hour after 12 hour of continous operation. The engine will be fitted with all the required accessories.				
	<b>Engine Instrument Panel</b> fitted with and having Digital display for the following.				
	Start-Stop switch				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Lubrication oil pressure indication.				
	Lubrication oil temperature indication.				
	Battery charging indication.				
	RPM indication.				
	Over speed indication.				
	Low Lube Oil trip indication.				
	Engine Hours indication.				
	Speed Governor				
	Heavy duty air cleaner				
	<b>Alternator</b> : Synchronous alternator rated at 1010 KVA at 1500 RPM, 0.8 lagging P.F. at 415 volts suitable for 50 Hz, 3 phase system at 40 Degree Celsius, 50% RH and at 1000 mtr. Above MSL. The alternator shall be having SPDP enclosure, brushless, continuous duty type, self excited / PMG, self regulated through AVR. The alternator shall conform to IS:4722 / BS:2613 and will be suitable for tropical conditions. Class of insulation will be H type. (Space heaters, RTD & BTD alongwith cables are covered in this item).				
	<b>Base Frame &amp; Foundation</b> : Both the Engine & Alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendation of manufacturer.				
	<b>Fuel Tank</b> : Daily service fuel tank suitable for 990 Ltrs capacity, fabricated out of 3mm thick MS sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications and accessories as required as per specification.				
	<b>Exhaust System</b> : Dry exhaust manifold with residential grade silencer and catalytic converter.				
	<b>Starting System</b> : DC starting system comprising of starter motors, voltage regulator and arrangement for initial excitation complete with suitable 2 No. 12 V, 150 AH or more capacity, dry type, maintenance free batteries.				
	<b>Accoustic and weather proof enclosure</b> with arrangement for fresh air intake for cooling of the engine and alternator, extraction, discharging hot air into the atmosphere as per specifications.	1	set	8,242,500	8,242,500

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
20.18	Interconnecting ,Testing and commissioning of the existing PLC Logic control panel with additional 1 no. 2000KVA transformer and 1 no 1010 KVA DG Set being installed in the scope of work of this tender with all wiring ,control cables, accessories and equipment etc . Complete as required .				
	A PLC based Auto Synchronising ,Auto Load management ,Auto Load sharing control Logic panel for 3 nos . 2000KVA transformers and 3 nos. DG sets ( 2 nos. 1500 KVA and 1 no 1010KVA ) is already installed and is in operation in the ESS with 2 nos Transformer of capacity 2000KVA and 2 nos. DG set 1500KVA . 1 no transformer of 2000kVA and 1 no DG set of 1010KVA to be installed in future are being installed under the scope of this work & the same are to be connected to the existing PLC panel.	1	set	290,787	290,787
20.19	Providing, laying, testing and commissioning of welded black M.S. pipe of following sizes conforming to IS:3589, cut to required lengths and installed with all joints, providing and fixing in position necessary fittings like bends, reducers, tees, couplers, necessary supports & clamps, flexible connections, antivibration mountings, hangers, including insulation, with mineral wool / rock wool, 50mm thick wire mesh and 24 SWG Aluminium Cladding etc. as required as per specifications (Exhaust pipe).				
	250mm dia. 5.2mm thick	40	metre	5,071	202,840
	<b>Total of Sub Head</b>				<b>23,346,466</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD XIX- HVAC SYSTEM</b>				
21.1	<b>Centrifugal Water Cooled Chilling Machine With Variable Speed Drive &amp; Microprocessor Based Control Panel (Note: Chillers Standby)</b>				
	Supply, installation, testing and commissioning of Centrifugal Water Cooled Water Chilling M/C of 500 TR capacity at below mentioned operating conditions with R - 134a refrigerant, open / semihermatic / hermatically sealed centrifugal compressor, direct / gear driven by suitable KW Sq. Cage induction motor complete with variable speed drive, water-cooled shell & tube condenser, insulated shell and tube flooded chiller, flow switches at condenser & chiller outlet, refrigerant piping, Refrigerant and Oil (First Charge), flexible pipe connector at condenser & chiller inlet / outlet, integral lubrication system, Microprocessor based control panel, chiller / floor mounted VFD & accessories etc. all mounted on M.S. frame. Motor shall be suitable for 415 volts $\pm$ 10%, 50Hz $\pm$ 5 %, three phase A.C. supply. The chilling m/c as described above shall be ARI Certified & in line with specifications & shall have interface card compatible with BMS system.	1	each	9,428,664	9,428,664
	Condenser CDW IN - 32.00° C.				
	CDW OUT - 36.40° C.				
	FLOW - 1910 USGPM				
	Fouling Factor (FPS) - 0.001				
	Chiller CHW IN - 11.0° C.				
	CHW OUT - 5.5° C.				
	FLOW - 1090 USGPM				
	Fouling Factor (FPS) - 0.0005				
	IKW / TR (Maximum) - 0.68				
	The price quoted for supply, installation, testing & commissioning of Centrifugal Chilling Unit shall be inclusive of all duties & taxes, insurance, transportation / shipment cost from works to site, loading / unloading etc. as required.				
21.2	<b>Primary Chilled Water Pump</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Supply, loading, unloading, packing, installation, testing and commissioning of end suction top discharge horizontal centrifugal Primary Chilled Water Pump sets with suitable electric motor for circulation of chilled water for central air-conditioning system. The pump motor shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. The system shall be complete in all respects including the anti-vibration pads, flexible expansion bellows at both ends, suction guide vanes etc. and suitable for following ratings as per specifications. Pump performance characteristics shall be suitable for parallel operation as follows:-				
	1090 USGPM x 40ft. head for chiller.				
	Total Static pressure given above minimum required for the system. Actual static pressure shall be calculated & confirmed by the vender at time of Bidding.	1	each	187,887	187,887
21.3	<b>Secondary Chilled Water Pump (VFD OPERATED)</b>				
	Supply, loading, unloading, packing, installation, testing and commissioning of Secondary variable speed pumping system, end suction top discharge. 1 No. dedicated BMS compatible microprocessor based pump controller housed with in the enclosure of one of the A.F.D., with pumping software duly downloaded. Adjustable frequency drives for each pump and differential pressure sensor/transmitters as necessary and as described in the specifications. The system shall be complete in all respects including anti-vibration pads, flexible expansion bellows at both ends, suction guide vanes etc. and suitable for following ratings:				
	1090 USGPM x 80ft.head ,				
	Total Static pressure given above minimum required for the system. Actual static pressure shall be calculated & confirmed by the vender at time of Bidding.	1	each	556,626	556,626
21.4	<b>Condenser Water Pump</b>				
	Supply, loading, unloading, packing, installation, testing and commissioning of End Suction top discharge horizontal type Condenser Water Pumps, each capable of delivering specified flow rate, complete with bronze impeller, TEFC motor of 415 + 10% volts, 3 Phase, 50 Hz along with anti-vibration pads, flexible expansion bellows at both ends, suction guide vanes etc.				
	1910 USGPM x 80 ft. head.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Total Static pressure given above minimum required for the system. Actual static pressure shall be calculated & confirmed by the vender at time of Bidding.	1	each	397,635	397,635
21.5	<b>COOLING TOWERS (VFD Operated):</b>				
	Supply, loading, unloading, packing, installation, testing and commissioning of FRP induced draught type cooling towers each complete with FRP basin having and auxiliary rectangular suction tank at the bottom. The basin shall be complete with connections for drain, overflow, makeup water, quick fill and float valve, plus hot dipped galvanised suction strainer FRP body, of sufficient strength to with stand wind velocities upto 60 m/s, vibrations and earth quakes, fan and motor assembly conforming to IP-55, protection for outdoor operation fill media of honeycomb design arranged in the suitable pattern for ease of replacement, distribution pipes consisting of PVC sprinkler pipes mounted on top of the main supply standby, sprinkler head mounted on ball bearings designed to take both radial and vertical thrust overflow pipe, ladder, vibration isolation pads, cables, controls etc. As per specifications and drawing.				
	600 TR	1	each	857,325	857,325
21.6	<b>Double Skin Floor/Ceiling Mounted AHUs (VFD Operated)</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Supply, installation, testing and commissioning of factory fabricated Double Skinned Chilled Water Air- handling unit horizontal / vertical floor mounted made out of 25 mm thick panels consisting of G.I. casing of thickness 0.8mm outside layer and 0.8 mm thickness inside layer with polyurethane foam (PUF) insulation of density not less than 38 kg/Cum factory injected between them by injection moulding machine complete with blower, blower section with DIDW centrifugal backward curved fan and blower motor TEFC type suitable for operation on 415 volts $\pm$ 10%, 50 Hz $\pm$ 5% AC supply, 6 Row cooling coil ( As required CFM / TR as under.) made of Aluminium finned Copper tube, (tube thickness not less than 0.5 mm) with coil section, pre-filter section (minimum 50 mm thick) with non woven synthetic media of 10 micron particle size with an efficiency of 90%, drain pan made out of 1.25 mm stainless steel (SS Grade 304) sheet insulated with 10 mm thick closed cell polyurethane foam (PUF) insulation, thermal break, necessary vibration isolation arrangement, sound level 75 db at the distance of 2 mtr. (maximum), BMS compatible etc. complete as per specifications and of following capacities.				
a)	10000 CFM, St.Pr. 50mm WG	3	each	200,076	600,228
b)	8000 CFM, St.Pr. 50mm WG	4	each	154,479	617,916
c)	24500 CFM, St.Pr. 50mm WG	2	each	547,027	1,094,054
d)	7500 CFM, St.Pr. 50mm WG	1	each	154,169	154,169
e)	26000 CFM, St.Pr. 50mm WG	2	each	580,519	1,161,038

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
21.7	<b>Fan Coil Unit</b>				
	Supply, installation, testing and commissioning of GI powder coated fan coil units complete with fan, 3 speed motor, 4 row deep cooling coil, aluminium filter mesh with filter box, double sandwiched insulated tray, ball valve with strainer, balancing valve with control , copper connection, rotary switch, supporting arrangement, electrical wiring etc. The fan shall be selected for 5 mm external static pressure. The complete fan coil unit shall be in line with the standard specification. The capacity of fan coil units shall be as follows:				
	2.5 TR 1000 cfm with 2Kw strip heater	15	each	30,639	459,585
21.8	<b>Chilled Water MS Piping</b>				
	SITC of Factory pre-insulated 'C' class (havy duty) MS chilled piping of M.S. with factory insulation/jacketing (HDPE/AL/GI) for buried/indoor application with all necessary fittings like elbows, tees, reducers, bends, MS flanges, joints, supports, excavation,refilling, welding, painting etc complete as per specifications.				
a)	20 mm dia pipe	240	metre	545	130,800
b)	25 mm dia pipe	114	metre	1,165	132,810
c)	32 mm dia pipe	108	metre	605	65,340
d)	40 mm dia pipe	66	metre	1,522	100,452
e)	50 mm dia pipe	112	metre	1,858	208,096
f)	65 mm dia pipe	168	metre	2,263	380,184
g)	80 mm dia pipe	96	metre	2,635	252,960
h)	100 mm dia pipe	182	metre	3,444	626,808
i)	125 mm dia pipe	327	metre	4,168	1,362,936
j)	150 mm dia pipe	40	metre	5,539	221,560
k)	200 mm dia pipe	175	metre	7,434	1,300,950
l)	250 mm dia pipe	30	metre	9,135	274,050
m)	350 mm dia pipe	20	metre	11,776	235,520
21.9	<b>Condenser Water Piping:</b>				
	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc. as per specification and as required complete in all respect.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Note:-The Pipes size 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. And from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.				
a)	450mm dia MS pipes	40	metre	9,882	395,280
b)	300 mm dia MS pipes	40	metre	4,070	162,800
21.10	Supply, installation, testing and commissioning of following valves in condenser water line (complete with necessary fitting like flanges, gasket and hardware like nut, bolts and washer etc.) as per specification given in the tender.				
a)	<b>Butterfly Valves without insulation</b>				
i)	300mm dia	9	each	16,777	150,993
ii	50 mm dia	2	each	2,557	5,114
b)	<b>Motorised Butterfly valves</b>				
	300mm dia	2	each	72,317	144,634
c)	<b>ball valves</b>				
i)	25 mm dia	2	each	844	1,688
ii)	20 mm dia	4	each	735	2,940
d)	<b>Balancing Valve</b>				
	300 mm dia	1	each	68,590	68,590
e)	<b>Y-strainer</b>				
	300 mm dia	1	each	32,919	32,919
f)	<b>Non Return valves</b>				
	300 mm dia	1	each	20,827	20,827
g)	<b>pot strainers.</b>				
	300 mm dia	1	each	108,205	108,205
21.11	<b>Digital Display Type Thermostat for AHU</b>				
	Supply, installation, testing and commissioning of automatic control for AHUs consisting of digital thermostat.	15	each	6,930	103,950
21.12	<b>Automatic Controls For Fan Coil Units</b>				
	Supply, installation, testing and commissioning of automatic control for Fan Coil Units consisting of digital thermostat, which will have provision of setting of room temperature, setting of fan speed (High, Medium, Low).	15	each	7,859	117,885
21.13	<b>Thermometer</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Providing & fixing in position the mercury in glass industrial type Thermometer complete as required	32	each	707	22,624
21.14	<b>Pressure Gauges</b>				
	Providing & fixing in position the industrial type pressure guage complete as required	32	each	994	31,808
21.15	Providing, fixing, testing and commissioning of <b>automatic air purging valves.</b>				
	20mm dia	2	each	1,113	2,226

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
21.16	<b>Condensate Drain Piping</b>				
	Supply, installation, testing and commissioning of condensate drain water piping of GI 'Medium' class pre-insulated complete with fittings like elbows, tees, reducers, bends, MS flanges, supports, welding, painting etc. as required conforming to particular specifications and of following sizes.				
	32 mm dia pipe	102	metre	276	28,152
21.17	Supply, fixing, testing and commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.				
a)	<b>Pressure Independent Balancing Cum Two Way Control Valve</b>				
i)	65 mm Dia,	3	each	25,349	76,047
ii)	80 mm Dia,	4	each	32,485	129,940
iii)	125 mm Dia,	6	each	43,386	260,316
b)	<b>Butterfly Valves(Manual)</b> with CI body SS disc, Nitrile rubber seal & O-ring PN 16 pressure rating for chilled water/hot water circulation as specified.				
i)	50 mm dia	4	each	2,891	11,564
ii)	65 mm dia	10	each	3,309	33,090
iii)	80 mm dia	12	each	3,690	44,280
iv)	125 mm dia	8	each	5,719	45,752
v)	200 mm dia	2	each	11,415	22,830
vi)	250 mm dia	6	each	13,885	83,310
c)	<b>Motorised Butterfly Valves</b> duly insulated as per specification.				
	250mm dia	6	each	65,119	390,714
d)	<b>Y-strainer</b> of Ductile CI Body flanged end with stainless steel stainer for chilled/hot water circulation including insulation as specified.				
i)	65 mm dia	4	each	5,351	21,404
ii)	80 mm dia	4	each	6,423	25,692
iii)	125 mm dia	6	each	10,374	62,244
iv)	200 mm dia	2	each	19,136	38,272
v)	250 mm dia	3	each	26,683	80,049
e)	<b>Ball Valves for drainage of chilled water lines.</b>				
i)	25 mm dia	47	each	758	35,626
ii)	32 mm dia	4	each	878	3,512

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
<b>f)</b>	<b>Balancing Valve with built in measuring facility</b> with CI body flanged construction with EPDM coated Disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled/hot water circulation as specified.				
i)	65 mm dia	4	each	6,519	26,076
ii)	80 mm dia	4	each	7,872	31,488
iii)	125 mm dia	5	each	19,538	97,690
iv)	200 mm dia	2	each	51,735	103,470
v)	250 mm dia	2	each	57,348	114,696
<b>g)</b>	<b>Non-Return Vaves</b> , with duel plates, of CI body,SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled/hot water circulation including insulation as specified.				
	250 mm	3	each	14,049	42,147
21.18	<b>Acoustic Insulation Of AHU Rooms</b>				
	Supplying & fixing of acoustic insulation on four walls & ceiling of AHU Rooms with 50 mm thick fiber glass of density 32 Kg/m <sup>3</sup> fixed in square frame box of size 610 x 610 mm, frame made of 24 G GI sheet of size (25 - 50 - 50 - 50 - 25 mm) covered with fiber glass tissue paper and finally finished with 0.8mm thick perforated aluminium sheet & conforming specification. All vertical & horizontal joints to be sealed with 25 mm wide 1.0 mm thick aluminium beading.	946	sqm	769	727,474
21.19	Supply, installation,balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets,elbows,splitter dampers,vanes,hangers,supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
a)	Thickness 0.63 mm sheet (24G)	2982	sqm	669	1,994,958
b)	Thickness 0.80 mm sheet (22G)	2464	sqm	787	1,939,168
c)	Thickness 1.25 mm sheet (18G)	148	sqm	1,122	166,056
21.20	SITC of chemically cross linked closed cell polythelene(XLPE) fire retardent grade insulation of density not less than 30kg per cumtr, 13mm thick in a singler with factory lamination of 30 micron aluminium foil, as per specifications.				
	SA Duct 13 mm thick	4700	sqm	544	2,556,800

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
21.21	SITC of Duct accoustic linig with 30 kg per cumtr density glss wool, 10 mm thicknes,covered with 26G aluminium perforated sheet with fixing arrangement/accessories as required.	1300	sqm	882	1,146,600
<b>Fire Dampers &amp; Actuator</b>					
21.22	Supply, installation & testing commissioning of fir dempers in supply air Duct / main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorised and spring return so as to close the damper in the event of power failure autometrically and open the same in case of power being restored.The spring return action shall be inbuilt mechanism and not externally mounted.the demper shallalso be closed in the event of fire signal complete as required and as per specification.				
a)	Fire Damper	17	sqm	7,207	122,519
b)	Damper Actuator	85	each	6,843	581,655
21.23	Supply& fixing of Powder coated extruded Aluminium supply air grills with aluminium volume control dampers as per specifications.	93	sqm	6,642	617,706
21.24	Supply& fixing of Powder coated extruded Aluminium return air grills with louvers but without volume control dampers complete as required.	93	sqm	3,929	365,397
21.25	Supply,fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removeable core complete as per specifcator.	102	sqm	8,862	903,924
21.26	Supply,fixing,testing & commissioning Fresh / Exhaust air louvers with bird screen & volume control damper complete as per specification.	8	sqm	9,309	74,472
<b>GSS Duct Damper</b>					
21.27	Supply, installation , testing and commissionind of GI volume control duct damper complete with neoprene rubber gaskets,nuts,bolts,screws linkages,flanges etc. asper specifications.	12	sqm	4,907	58,884
<b>Expansion Tank for Chilled Water</b>					

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
21.28	Closed Expansion tank for chilled water application duly pressurized and duly insulated complete with piping connections, safety relief valve, drain valve, pressure gauge, automatic air purging arrangement, etc. complete as per specifications. The system shall be complete with self sufficient pressurization system complete with pressure switches and power distribution and control panel for 1+1 pressurization pumps. The tank shall be duly painted in approved color. Safety working pressure : 3.5 bar	1	set	619,271	619,271
<b>ELECTRICAL WORKS FOR HVAC SYSTEM:</b>					
21.29	Supply, installation , testing and commissioning of front operated , front / back access , cubicle type , indoor duty , floor/ wall/ recess/ surface mounted ( as specified) , totally enclosed dust and vermin proof switchboards / panels with minimum ingress protection classification of IP 54, fabricated from 2 mm thick CRCA sheets with dip coat priming and epoxy powder coated finish . The panels must be suitable for 415 volts 3 phase , 4 wire , 50 Hz , system , must be able to withstand symmetrical fault level of 65 KA ( as specified for panels) (for) 1 sec at 415 V and must include all interconnections , earthing and bonding requirements etc. The relevant specifications. The switch board shall be as per CPWD specifications , STD and as required .				
	All Sub- main LV Switchboards must conform to the specifications .				
	All the items mentioned in relevant clauses of the specifications and not specifically mentioned in BOQ shall be deemed to be included in the quoted rates				
	In case of any contradiction between BOQ/ specification and drawings , the most stringent conditions of the above will apply.				
	The Switchboards shall be provided with detachable gland plate for entry of cables from the top / bottom as required				
	All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The busbars shall be insulated with heat shrinkable sleeves . SMC/DMC/ shrouds and busbar supports suitably spaced shall be used . Hinged doors with padlocking facility shall be provided on all outgoing feeders with switch handlers lockable in OFF position .				
	The panel shall have copper busbars as specified in the specification with bar type feeder connectors , spacers etc. with full sized neutral.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Earthing all components, frame etc. to a common internal earth bar of size 50x6mm cu. Or higher , as required by the fault withstand level specified for the board				
	All accessorie & supporting structures such as channels, ISMC- base frame , mounthing brackets, lifting lugs, panel heaters , ventilaation arrangement etc shall be provided as required.				
	Each incomer and outgoing feeder shall be provided with Led type staut indication lamps suitable for 240 V, AC, as approved				
	Space provision as specified in Specifications for future expansion				
	Components and sccessorise shall be same for switchboards and panles for uniformity, standardistaion and replaceability and shall be applicable to all pnles / bords under the scope of work				
	All interconnection , labering earthing , assocaiated foundation /masonry work & reection etc. complete shall be executed as required.				
	MCCBs shall be as per the Specifications and shall be current limiting type with front adjustable electronic releases for required protections against fulult, suitable for isolation as per Annexure 7.1.2 of IEC 60947-2 , with lcs and icu values as specified in relevent clauses of specifications and conforming to least IEC 60947 . The operating voltage (Ue) shall be 415 V and insulation voltage (Ui) 690V with trip free mechanism , handle indicating ON/OFF/ tripped postion . The breaking capcity as mentioned below shall be lcs = 100% lcu. Electonic trip units shall comply with the requirements as spified in Appendix F (EMC/EMI Compatibility) of IEC 60947-2 EN 60947-2.				
	ACBs /MCCBs shall be <b>compact</b> , suitably designed to provide prttection of motors, cables, busbars to suit rated current , unbalanced power distribution, as required .				
	Panle/ Switchboard board desgin shall be compact and componets v/ accessorise of compact sizes shall be used to enconomise the room space available . Employer resrve the right to seek compact items inplace og large ones.				
	Incomer ACB'S / MCCBs of Switchboards / panles shall be provied with NO/Nc contacts as specified in spcifications for interface with SCADA& for manual / auto opertaion aand local / remote operation .				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	Voltage rating of shunt trip coil and closing shall be confirmed from BMS contractor during Working preparations.				
	Over load relay for motor feeder shall finally be selected according to motor name plate full load current by contactor .				
	All motor feeder with thermal over load relay shall be provided with reset push button ( to reset in case of over load trip) .				
	Even though , ratings of MPCB/Contactors for Motor Feeders are mentioned in BOQ? Drawing on the basis of a particular make of Switchgear , the contractor shall check the rating with the driven equipment rating and select the the rating of these items accordingly without any cost implications to the departments .				
	<b>Central Plant Panel</b> as per Specification & Drawing Complete & as per brief description given below 1 NO. 2500 A, 415V, 50kA, 4 pole, Electrically operated sDraw Out ACB complete with safety shutters, 240V AC shunt trip coil & closing coil and having microprocessor based relays with (1) Communication capability (2) Provision for measurements of three phase current (3) Protection for measurements of three phase current (3) protection against long time+ short time = earth fault (all With adjustable time delays) =instantaneous (4) Zone Selective interlocking Unit for Total Discrimination (5) Communication options to remotely read and set parameters for the protection functions , transmission of ammeter measurements (6) Signaling of the TNC switch				
	Auto/ Local /Remote Selector Switch key operated.				
	R-Y-B.				
	1 No Digital Voltmeter with in built Selector Switch .				
	1 No Digital Ammeter with in built Selector Switch .				
	3 Nos . CTs 2500/ 5a, 15VA , CI-1 for metering				
	1 Nos . CTs 2500/ 5a , 15 A, 15 Va, CL-1 for APFCRelay				
	<b>BUS- BARS</b>				
	Electrolytic high conductivity TP & N copper conductor bus- bars (as specifications ) rated 3000 Amps, suitable to withstand symmetrical fault level of 50 KA for 1				
	<b>OUT GOING FEEDERS</b>				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>1 nos outgoing feeders</b> for Chiler motors of each shall be equipped with the followings but not limited to				
	1 No 1250 A, 415V , 50A, 4 pole , electrically operated Draw Out type , ACB complete with safety shutters , 240 V Ac shunt trip coil and having microprocessor releases with (1) Protection anainst long time = short time = earth fault (all with sdjustable time delays) = instantaneous (2) No / NC				
	Auto/ Local/ Remote Selector Switch Key operated .				
	Led indication lamp for ON, OFF & TRIP.				
	1 No Digital Ammeter with inbuilt Selector Switch				
	3 Nos. cTs 1250/5A,15VA , CL-1 for metering .				
	Power and Control terminals for cable connection .				
	<b>1 Sets of star - Delta Stater feeders</b> for peimary Chilled Water pump Motor of and each shall be equirpped with the followings but limited to :				
	1 No . 3 pole 100 A, 415V , 3p Motor Duty MCCB (with inbilt over load and short circuit proection and having add- on type earth leakage protection) over load range 30-50 A, and auxiliary Contacts.				
	1 No. Digital Ammetre , CT operated.				
	3 Nos. CT 100/5A, 10VA , class -1 for metering .				
	1 No s. Contactors				
	1 No overload realy				
	1 Lot interconnnrctions , lugs and cable glands v as required				
	LED indiaction lamp for ON, Off Trip .				
	1 No 3 pole 100 A , 50KA at 415V, Motor Duty MCCB ( with inbuilt over load and short circuit protection and having add- on type earth leakage protection ) over load range 30-50 A, and auxiliary Contacts.				
	1 No Digital Ammetre , Ct operated .				
	1 NO. CT 100/5A, 10, class-1 for metering .				
	3 Nosz. Contactors.				
	1 No. overload realy				
	1 Lot interconnections , lugs and cable hlands as required.				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>1 stets of Star - Deta Stater feeders</b> feeders for Condenser Water pump Motor of and each shall be equipped with the followings but limited to :				
	1 No . 3 pole 160 A, 50KA at 415V, 3p Motor Duty MCCB ( with inbulit over load and short circuit protection and having add-on type earth leakage proection) over load range 100-125 A, and auxiliary				
	1 No Digital Ammetre , CT operated.				
	1 NO CT 100/5A, 10 10A, class -1 for metering .				
	Auto / Local/Remote Selector Switch Key operated .				
	Working / Standly Selector Swtich Key operated				
	Door mounted push buttons for start and stop fundction .				
	Emergency stop push button lockable type.				
	LED indication lamp for ON, OFF , Trip				
	3 No . 80A, AC Duty , 3 - pole Contactor with AUXiliary Contacts and Operating Coil of v230 VAC.				
	one no star delta timer.				
	Auxiliary Contactors for Auto / Local/Remote Operation .				
	power & control terminals for cables connection				
	<b>1 Setes of star - Delta Stater unit for Colling Tower Fan Motors</b> of and each shall be equipped with the followings but not limited to following :				
	1 No . 3 Pole 100 A, 50kA at 415V, 3p Motor Duty MCCB (with inbulit over load and short circuit protection and having add- on type earth leakage protection ) over load range v 25-30 A, and auxiliary Contacts.				
	1 NO . Digital Ammeter, CT operated.				
	1 No CT 100/5A , 10VA , class - I for metering .				
	Working / Standly Selector Swtich Key operated				
	Door mounted push buttons for start and stop fundction .				
	LED indication lamp for ON, OFF , Trip				
	1 No . 80A, AC Duty , 3 - pole Contactor with AUXiliary Contacts and Operating Coil of v230 VAC.				
	Auxiliary Contactors for Auto / Local/Remote Operation .				
	power & control terminals for cables connection				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	2 Nos. 100 A, MCCB 4p , 25 KA Thermal Magnrtic Based O/C S/C Release , RHOM	1	set	1,088,263	1,088,263
21.30	SITC & Handing over of Wall mounted FCU panel board of Cubical type fabricated from 2.0 mm thick CRCA Sheet having necessary cable alleys , powder coated through seven tank process factlity for picking and degreasing , including connections as per specifications for AHU motors only, including starttrers , contactors as per drawing approved by the department. and and controls where applicable) . Bus- Bar shell of copper , and the incomoing will have face indication lamps, and volt meter / ammeter with selector switch .	15	each	9,129	136,935
21.31	SITC & Handing over of Wall mounted AHU panel board of cubical type fabricated from 2.0 mm thick CRCA Sheet having necessary cable alleys. Powder coated through seven tank connections and interconnections as per specifications for Strip Heaters only including contactors for strip heaters as per darawing approved by the deparment . and and controal where applicable	12	each	19,453	233,436
	<b>For Water Chilling Machine</b>				
21.32	A Bus Trucking ( sand- which tipe, 65 ka/second IP-55, C&S, L&T & GE make) arrangement in convenient sections with Aluminium Bus Bars designed for a current density of 130 Amps per mm2 for use on 3phase 4 wire , 415 Volts, 50 Hz., A. C. supply including joints of sections , flexible joints , expansion joints , bends and earthing with 2 runs of G.I. strip etc as per CPWD specifications and as required.	15	metre	15,750	236,250
	<b>For all Pumps and motors</b>				-
21.33	SITC of cupper Conductor cable of suitable size and grade for inter connection of Electrical panel with all the motors including their termination in to required cable end boxes , laid in ground / in trench / cable tray, required . Cables Size will be as per CPWD specification.	1	Job	736,075	736,075

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>Control cabling (PVC insulated Copper conductor of 1.1 KV Grade armoured cable),Excluding BMS</b>				
21.34	Providing & Fixing of Multicore armored control (1.5 mm <sup>2</sup> copper) cabling as required, for control and inter locking between electrical panels and all field mounted controls.	1	Job	266,897	266,897
21.35	SITc of earthing station with copper plate of size 600 mm x 600 mm X 3 mm including accessories like 40 mm dia pipe, masonry enclosure with cover plate having locking arrangement, watering pipe, charcoal and slat complete as per CPWD specifications and as required	2	Set	9,386	18,772
21.36	Supply & laying of 25x5 mm copper strip recess / surface as strip earth lead including soldering etc. as required.	20	metre	750	15,000
21.37	Providing and fixing of 25 mm X 5 mm copper strip on surface or in recess for earth connections per CPWD specifications etc complete as required.	20	metre	750	15,000
21.38	Supply & laying of 6 swg dia. G.I. wire or in recess for loop earthing as required.	150	metre	36	5,400
21.39	Supply & installation of ladder type 2 mm thick MS 'U' shaped channel tray (including horizontal & Vertical bends, reducers tees, cross member & other accessories as required & duly suspended from the ceiling with M.S suspenders) of following sizes.				
a)	150 mm wide x 50 mm x 2 mm	105	metre	549	57,645
b)	300 mm wide x 50 mm x 2 mm	26	metre	794	20,644
c)	600 mm wide x 50 mm x 2 mm	6	metre	1,405	8,430
	<b>Total of Sub Head</b>				<b>38,702,068</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD XXII - Passenger and Goods Lifts</b>				
22.1	Supply ,Installation , testing & commissioning of Passenger lift of capacity 10 Passengers (680 Kg) having contract speed of 1.5 MPS serving 8 floors in the lift shaft as per detailed specifications enclosed and as under :-				
<b>A</b>	<b>Location of lift :</b> Housing Blocks - 2 Lifts in each block				
a(i)	Speed : 1.5 MPS				
(ii)	Floor :Stilt & 1st to 7th. Floor ( 8 Floors )				
(iii)	Travel : 21.5 mtrs (approx)				
(iv)	Stops & Openings : 8 / 8 on same side				
(v)	Controller : A.C. variable voltage & variable frequency.				
(vi)	Automatic rescue device complete with dry, maintenance free batteries as reqd.				
(vii)	Operation: Micro processor based, duplex collective selective with / without attendant.				
(viii)	Power : 415v, 3 phase, 50HZ, 4 wire system.				
(ix)	Type of doors : (a) Car: Power operated, Centre opening, Horizontal sliding,Stainless steel , scratch proof(Moon rock / Hair Line finish) (b)Landing doors: Power operated, centre opening, horizontal sliding ,stainless steel, scratch proof (Moon rock/Hairline finish)				
b	Stainless steel hand rail not less than 600 mm long at 900 mm above floor level to be fixed on both the side panels and rear panel in the lift car.				
c	Button in car operating panel & landing operating panel shall be having Braille Inscription & shall be fixed for the handicaped.				
d	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.				
e	Flooring:-PVC / vinyl tile flooring				
f	Lift installation shall include all safety & control features as specified in the specifications.				
g	The features required for use of the lift by handicapped persons eg hand rail, braile signage closing speed of doors etc	4	each	2,415,000	9,660,000
<b>B</b>	<b>Location of lift : Guest House - 2 Lift</b>				
a(i)	Speed : 1.0 MPS				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
(ii)	Floor :LGF,UGF & 1st to 3rd Floor (5 Floors)				
(iii)	Travel :14.0 mtrs (approx)				
(iv)	Stops & Openings :5/5 on same side				
(v)	Controller : A.C. variable voltage & variable frequency.				
(vi)	Automatic rescue device complete with dry, maintenance free batteries as reqd.				
(vii)	Operation: Micro processor based, duplex collective selective with / without attendant.				
(viii)	Power : 415v, 3 phase, 50HZ, 4 wire system.				
(ix)	Type of doors : (a) Car: Power operated, Centre opening,Horizontal sliding,Stainless steel, scratch proof(Moon rock/Hair Line finish) (b) Landing doors: Power operated, centre opening, horizontal sliding , stainless steel, scratch proof (Moon rock/Hairline finish)				
b	Stainless steel hand rail not less than 600 mm long at 900 mm above floor level to be fixed on both the side panels and rear panel in the lift car.				
c	Button in car operating panel & landing operating panel shall be having Braille Inscription & shall be fixed for the handicaped.				
d	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.				
e	Flooring:-PVC / vinyl tile flooring				
f	Lift installation shall include all safety & control features as specified in the specifications.				
g	The features required for use of the lift by handicapped persons eg hand rail, braile signage closing speed of doors etc	2	each	2,205,000	4,410,000
22.2	Supply ,Installation , testing & commissioning of Goods / Freight Lift (2000 Kg) having contract speed of 1.0 MPS serving 3 floors in the lift shaft complete as required as per detailed specifications enclosed and as under :-				
	<b>Location of lifts :ATPC BLOCK - 2 Lifts</b>				
a(i)	Speed : 0.5 MPS				
(ii)	Floor : LGF,UGF & 1st floor (3 Floors)				
(iii)	Travel : 9.0 mtrs (approx)				
(iv)	Stops & Openings : 3 / 3 on same side				

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
(v)	Controller : A.C. variable voltage & variable frequency.				
(vi)	Automatic rescue device complete with dry, maintenance free batteries as reqd.				
(vii)	Operation: Micro processor based, simplex collective selective with / without attendant.				
(viii)	Power : 415v, 3 phase, 50HZ, 4 wire system.				
(ix)	Type of doors : (a) Car: Power operated, Centre opening,Horizontal sliding,Stainless steel, scratch proof (Moon rock/Hair Line finish) (b)Landing doors: Power operated, centre opening, horizontal sliding , stainless steel , scratch proof (Moon rock/Hairline finish)				
b	Stainless steel hand rail not less than 600 mm long at 900 mm above floor level to be fixed on both the side panels and rear panel in the lift car.				
c	Button in car operating panel & landing operating panel shall be having Braille Inscription & shall be fixed for the handicaped.				
d	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.				
e	Flooring:-PVC / vinyl tile flooring				
f	Lift installation shall include all safety & control features as specified in the specifications.	2	each	4,725,000	9,450,000
	<b>Total of Sub Head</b>				<b>23,520,000</b>

S.No.	Description	Qty	Unit	Rate	Amount
				in Figure	
	<b>SUB HEAD XXIII - CCTV System</b>				
23.1	Supply Installation testing commissioning of Outdoor IP PTZ having 540 TV lines resolution ( 704 x578 - 4CIF) Low light colour cameras with sensitivity of minimum 0.00015 lux. The cameras shall use the 1/4 inch format CCD imager and shall have a 3.4 to 119 mm ( 35 X optical and 12 X digital ) motorised zoom lens. Electronic Shutter range of 1/1.5- 1 / 30,000 . The cameras shall have a wide dymanic range ( WDR ) of upto 128 db with inbuilt motion detction .he Camera shall have Electronic Image stablization and Image Enhancement features The cameras shall be pendent mount . The Cameras shall be UL Listed having Ingress Protection - IP 66 complete in dome enclosure, .The operating temperature of camera should be from -10 deg centigrade to 50 deg centigrade.	10	each	130,600	1,306,000
23.2	Network Video Recorders/Video Management Servers to take care upto 57 cameras monitoring and recording having storage minimum 18Tb storage	1	lot	529,491	529,491
23.3	Supply Installation testing commissioning of following :				
a	PC machine with dual graphic card ,2nd Generation Intel® Core™ I7 processor or better and minimum 4 GB of RAM	1	each	90,637	90,637
b	32" LCD Screens	1	each	71,785	71,785
c	PTZ Joystick	1	each	95,915	95,915
d	Power Supplies for PTZ Cameras	10	each	1,312	13,120
e	Media Converters for cameras beyond 90 meters from switch	10	each	5,309	53,090
f	19 inch 24U rack mount console unit for control room	1	each	58,971	58,971
g	2C X 1.5sqmm Armoured Cable for Powering up PTZ cameras	1000	metre	115	115,000
h	6 Core Single mode Armoured fiber optic cable	2000	metre	98	196,000
i	MS Conduit for CAT6 cable	3000	metre	147	441,000
j	Digging and Laying of fiber optic and hdpe pipe	2000	metre	210	420,000
k	32mm HDPE conduit	100	metre	63	6,300
	<b>Total of Sub Head</b>				<b>3,397,309</b>
	<b>Grand Total</b>				<b>692,746,995</b>