TENDER DOCUMENT

NIT No: PAT/CON/721/01

FOR

Tender for “Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna”

ENGINEERING PROJECTS (INDIA) LIMITED
(A GOVT. OF INDIA ENTERPRISE)
202, R S Villa,
Behind Rajeshwar Hospital, Kankarbagh,
Patna- 800 020

TEL NO: 0612- 2366225 FAX NO. 0612- 2366225
Tender for “Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna”

VOLUME – 1
(NIT & Other Documents)
ADDENDUM TO “INSTRUCTIONS TO TENDERER (SUPPLIERS)”

1.0 CLAUSE NO. 3 of Instructions to Tenderers stands amended as below:

Tenders shall be submitted in sealed cover to

ENGINEERING PROJECTS (INDIA) LTD,
202, RS Villa, Behind Rajeshwar Hospital,
Kankarbagh, Patna
Mobile: 09771490306 / 7070099982
Landline/ Fax: 0612- 2366225

2.0 CLAUSE NO. 4 of Instructions to Tenderers (Suppliers) stands amended as below:

The tenderer is required to submit their offer in 2 separate sealed and superscribed envelopes indicating the following:

1st Envelope (Techno-Commercial Bid)

The tenderers are requested to furnish the documents as required in “Notice Inviting Tender” Clause No. 1.0 in respect of the credentials of the tenderer in this envelope.

In this envelope the tenderer should also keep the complete tender documents duly signed and stamped by them on each page as their acceptance, and unpriced copy of price bid and superscribe the envelope with “Techno-Commercial Bid”.

2nd Envelope (Price Bid)

The form of Price Bid duly filled in with the item rates both in words and figures in the same form as issued to tenderers should be submitted in this envelope, with superscription “Price Bid” No terms and conditions or deviations if any or any other thing should be kept in this envelope.

The sealed price bid of such tenderers who are found suitable on scrutiny of documents furnished by them i.e. pre-qualification and Technically acceptable shall only be opened. The tenders of all such parties, who are not found suitable shall not be considered and their earnest money deposit will be returned.

The two envelopes should be enclosed again in a sealed cover superscribed as mentioned in Para. -3
3.0 **CLAUSE NO. 7 of Instructions to Tenderers (Suppliers)** stands amended as below:

Tenders shall be accompanied by **Earnest Money deposit, if applicable.**

This must be submitted in 1st envelope super scribed as “Techno –Commercial”.

4.0 **CLAUSE NO. 15 of Instructions to Tenderers (Suppliers)** stands amended as below:

No deviation shall be allowed from the terms and conditions stipulated in the tender documents and tender containing deviations are liable to be rejected.

5.0 **CLAUSE NO. 17 of Instructions to Tenderers (Suppliers)** stands amended as below:

The tender shall remain open for acceptance for a period of 90 days from the opening of price bid of the tender by EPI. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of any other right or remedy shall be at liberty to forfeit the Earnest Money deposited.

6.0 **CLAUSE NO. 22 of Instructions to Tenderers (Suppliers)** stands deleted.

7.0 **CLAUSE NO. 25 of Instructions to Tenderers (Suppliers)** stands deleted.

All other provisions of “Instructions to Tenderers (Suppliers)” shall remain unchanged.
ADDITIONAL CONDITIONS OF CONTRACT

WORK: Setting up of Refrigeration plant for chilled water system for Ice-cream Mix section

1.0 Scope of work: The present scope of work includes but not limited to setting up of Refrigeration plant for chilled water system for Ice-cream mix section for 20 KLPD Ice-cream project at Phulwarisharif, Patna. Detailed scope shall be as per BOQ enclosed, however bidder is at liberty to suggest additional any item required for successful commissioning of the Ice-cream Project.

Refrigeration system for blast room and cold room is excluded from the present Scope of work.

2.0 The present tender is for setting up part of Refrigeration system for Ice-Cream project of 20 KLPD Ice-Cream Plant being set up inside existing dairy plant (Brand Name-SUDHA) of COMFED/VPMU at Phulwarisharif, Patna.

Milk, Cream, Steam and water will be supplied from existing plant of the Client at ambient temperature.

Complete scope of work as awarded by client to EPI is given in annexure ‘A’ only for reference purpose and for understanding the whole system. The tenderer has to study and ensure that the present tender BOQ(Annexure ‘B’) is sufficient replacement for items mentioned at s. no 31, 32, 33 & 34 of client’s BOQ (Annexure ‘A’).

2.1 The party shall give guarantee that system will fulfill the requirements for successful operation of 20 KLPD Ice-Cream Plant.

3.0 MODE OF PAYMENT:
Payment disbursement shall be as follows:

(A). For design and Supply of component Equipments:

a). 30 % of the total supply value without taxes & duties shall be paid in advance against bank guaranty of the equivalent amount issued by any nationalized / scheduled banks.

b). On receipt of goods at site – 60 % of the supply value including taxes & duties, freight, insurance P & F, ED unloading etc if any against detailed break up cost as furnished by you and accepted by COMFED/VPMU,PDP/EPIL & on safe receipt of goods at site / destinations within 30 days after inspection and approval of VPMU, PDP project on being satisfied with their specifications and conditions etc shall be paid.

C ). On Final Acceptance – Balance 10 % of the supply value of goods supplied shall be paid on continuous satisfactory running of the complete plant for one month on completion of the other ordered services by the COMFED/VPMU,PDP/EPIL within scope of this purchase order.

(B). For Payment of Installation, testing & commissioning:

a). On progress of work - 80 % of the total value of installation, testing & commissioning part of the PO, shall be paid on prorate basis on actual completion of installation/erection and after due inspection and approval by the purchaser against detailed cost break up accepted by EPIL.

b). On final commissioning of work – 10 % of the total value/price for installation & commissioning shall be paid on actual completion of commissioning and after due inspection and approval by purchaser against detailed breakup of cost.

C ). On Final Acceptance – Balance 10 % of the installation and commissioning shall be paid on continuous satisfactory running of the complete plant for one month on completion of the other ordered services by the COMFED/VPMU,PDP/EPIL within scope of this purchase order.
4.0 TERMS AND CONDITIONS

4.1 If at any time after award, the client decides to abandon or reduce the scope of work for any reason whatsoever and hence not requires the whole or any part of the works to be carried out, EPI shall give notice in writing to effect to the contractor and the contractor shall have no claim for any payment of compensation, or otherwise whatsoever, on account of any profit or advance which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the work.

4.2.1 The statutory deduction of income tax, or other taxes / dues shall be made from the payment released to Equipment supplier / Our Sub-Contractor from time to time and same are deemed to be included in the Equipment supplier / Our Sub-Contractor and nothing extra shall be payable to Equipment supplier / Our Sub-Contractor in this regard.

4.2.2 This agreement may be terminated at any time by EPI in writing being given to Equipment supplier / Our Sub-Contractor, if the Equipment supplier / Sub-Contractor’s work is not found to be satisfactory according to the terms of the agreement. In case the agreement is terminated on account of Equipment supplier / Sub-Contractor’s work not being satisfactory, EPI will get the work done at the risk and cost of the party.

4.3 In case rate quoted by two bidders are equal EPI will award the work to the party whose bid is assessed to be more responsive. Decision of EPI in this regard will be final and binding.

4.4 LIQUIDATED DAMAGES
   a) 0.5 % of the full supply value of mechanical work for delay of every completed week of 7 days including holidays and ignoring incomplete week.
   b) The total amount so deducted shall not exceed 10 % of the total supply, erection & commissioning. Once the maximum is reached, EPIL may consider termination of the order. Any incremental taxes & duties & levis on account of delay in performance of the contract by the supplier shall be to supplier’s account.

4.5 Necessary temporary water for carrying out installation / testing shall be supplied at only one point within the project site by the purchaser free of charge. All necessary distribution tapping from this point onward shall be the supplier’s responsibility.

4.6 If the power is provided by the purchaser, the recovery shall be @ 0.5 % of the total purchase order value (SITC). The charges will be deducted from the supplier’s bill. However, the supplier shall supply all the items such as switchgear, cabling required for getting temporary power.

4.7.1 FORCE MAJEURE CLAUSE
   EPI will not be responsible for any delay/ stoppage of work due to force majeure conditions like natural calamities, civil disturbances, strikes, war etc. and losses suffered, if any, by the consultant on this account. EPI shall not be liable in any way to bear such losses and no compensation of any kind whatsoever will be payable by EPI to the Associate consultant.

5.0 JURISDICTION
   The Courts in Delhi alone will have jurisdiction to deal with matters arising from the contract, to the exclusion of all other courts.

6.0 Road permit will be provided by VPU/EPIL.
ENGINEERING PROJECTS (INDIA) LIMITED
(A Govt. of India Enterprise)

INSTRUCTIONS TO TENDERERS
AND
GENERAL CONDITIONS OF CONTRACT
DECEMBER, 2007

VOLUME-I

Issued to: M/s. ________________________________________________________
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ENGINEERING PROJECTS (INDIA) LIMITED
(A Govt. of India Enterprise)

INSTRUCTIONS TO TENDERERS
ENGINEERING PROJECTS (INDIA) LIMITED
(A Govt. of India Enterprise)

INSTRUCTIONS TO TENDERERS

1.0 MODE OF SUBMISSION

The Tender is to be submitted in two separate sealed covers marked as under:

ENVELOPE-1 :-

This ENVELOPE shall contain the following:

i) Earnest Money Deposit as per clause 2.0 of ‘Instructions to Tenderers’ (ITT).
ii) Letter of Undertaking for un-conditional acceptance of the tender conditions as per proforma given in ITT.
iii) Pre-Qualification Documents and Credentials as per clause 19.0 of ITT.
iv) Volume-I (ITT, General Conditions of Contract), Volume-II (Notice Inviting Tender, Additional Conditions of Contract, Specifications, Drawings) and Corrigendum/ Addendum, if any, duly filled in, signed and stamped on each page by tenderer. Cutting or over-writing, if any, shall be signed and stamped by the person signing the Tender. All pro-forma forming part of Tender Documents shall be filled in, signed and stamped by the tenderer.
v) Copy of power of attorney / partnership deed, duly attested by Notary Public authorizing the person who signs the Tender.
v) Any other information as required to be submitted along-with the Tender.

This envelope shall be marked as:

ENVELOPE-1 “TECHNO-COMMERCIAL BID” FOR (Name of work as mentioned in “Notice Inviting Tender”)

NIT No. : ________________________________
DUE ON : ________________________________
FROM : (Name of the Contractor)

ENVELOPE-2 :-

This ENVELOPE shall contain only the Volume-III comprising of PRICE-BID.

This envelope shall be marked as:

ENVELOPE-2 ‘PRICE-BID’ FOR (Name of Work as mentioned in “Notice Inviting Tender”)

NIT No. : ________________________________
DUE ON : ________________________________
FROM : (Name of the Contractor)
Both the envelopes / packets shall be individually sealed and kept in an outer envelope marked as:

**TENDER FOR** (Name of Work as mentioned in “Notice Inviting Tender”)

**NIT No.** : __________________________

**DUE ON** : __________________________

**FROM** : (Name of the Contractor)

The outer envelope shall be duly sealed and shall be delivered at place of submission of Tender by the date and time fixed for receipt of Tender as mentioned in “Notice Inviting Tender”. The Tenders received after the date and time of Tender receipt shall not be considered and shall be returned to the tenderer unopened. EPI shall not be responsible for any postal or other delays, whatsoever and tenderer should take care to ensure the submission of Tender at place of receipt of Tender by due date and time fixed for Tender receipt. **All the envelopes shall be addressed to the** authority who has invited the Tender as mentioned in “Notice Inviting Tender”.

1.1 First the Envelope-1 of the tenderer shall be opened. Tenderers who unconditionally accept the tender conditions, deposit the required Earnest Money and whose Techno-Commercial Bid along with PQ Documents is found suitable shall be considered for the opening of their Price Bid and Envelope-2 of such tenderers shall only be opened. The Tenders not accompanied by requisite Earnest Money and / or not conveying un-conditional acceptance of tender conditions or whose Techno-Commercial Bid and PQ Documents are not found suitable, shall be rejected and such tenderer shall not be allowed to attend Price Bid opening i.e. opening of Envelope-2.

1.2 Once the tenderer has given an unconditional acceptance to the tender conditions in its entirety, he is not permitted to put any remark(s) / condition(s) (except unconditional rebate on price, if any) in / along with the ‘Price-Bid’ / Tender.

1.3 In case the condition 1.2 mentioned above is found violated at any time after opening of Tender, the Tender shall be summarily rejected and EPI shall, without prejudice to any other right or remedy, be at liberty to forfeit the full said Earnest Money absolutely.

2.0 **EARNEST MONEY DEPOSIT**

Earnest Money Deposit of amount as mentioned in “NIT/ITT/Memorandum” to “Form of Tender” required to be submitted alongwith the Tender shall be in the form of Demand Draft payable at place as mentioned in “NIT/ITT” in favour of EPI Limited from any Nationalized / Scheduled Bank or in the form of Bank Guarantee from any Nationalized / Scheduled Bank in enclosed format. The EMD Bank Guarantee shall be valid for a minimum period of 150 (One Hundred Fifty) days from last day of submission of Tender. The EMD shall be governed by Clause 7.0 of General Conditions of Contract.

3.0 EPI reserves the right to reject any or all the Tenders in part or full without assigning any reason whatsoever thereof. EPI does not bind themselves to
accept the lowest Tender. EPI reserves the right to award the work to a single party or to split the work amongst two or more parties as deemed necessary without assigning any reason thereof. The Contractor is bound to accept the portion of work as offered by EPI after split up at the quoted / negotiated rates.

4.1 FOR ITEM RATE TENDERS

4.1.1 The tenderers should quote the rates for items tendered by them in figures as well as in words and the amounts in figures only. The amount for each item should be worked out and the requisite totals and page totals given.

4.1.2 All corrections/cuttings should be signed by the tenderer. Each page of the Tender should be signed by the tenderer. In the event of discrepancy between rate in figures and words the rate quoted in words shall be treated as correct. In case there is discrepancy between rate and amount worked out, the rate quoted shall be taken as correct and not the amount.

4.1.3 Price shall be entered against each item in Bill of Quantities where quantities or LS (lump-sum) has been mentioned. The cost of item against which the Contractor has failed to enter a rate or price shall be deemed to be covered by rates and prices of other items in the Bill of Quantities and no payment shall be made for the quantities executed for items against which rate has not been quoted by Contractor. No rate is to be quoted against items for which no quantity is given. However, the Contractor has to quote rate against “LS” items.

4.2 FOR PERCENTAGE RATE TENDERS

4.2.1 In case of Percentage Rate Tenders, tenderer shall fill up in the Schedule / Bill of Quantities, percentage Below/Above/Par (in figures as well as in words) to total estimated cost given in Schedule / Bill of Quantities, he will be willing to execute the work. The tenderer should quote a unique single percentage plus / minus over the total estimated amount given in Schedule / Bill of Quantities. In case more than one schedule is given, stipulating quoting of separate percentages (plus or minus) over the estimated amount of each schedule, the tenderer can quote separate percentages for each such schedule. Under no circumstances, tenderer is allowed to quote separate percentages for individual items, trades or group of items. In case tenderer quotes separate percentages for individual items, trades or group of items instead of to the total amount of schedule(s), the Tender shall be rejected and earnest money of the tenderer shall be forfeited in totality.

4.2.2 In case of Percentage Rate Tenders, the tenderer shall also work out the total amount of his offer after adding percentage (plus or minus) over the total schedule amount and the same should be written in figures as well as in words in such a way that no interpolation is possible.

4.2.3 In case of Percentage Rate Tenders, only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the tenderer in Percentage Rate Tender shall be accurately filled in figures and words. All corrections/cuttings should be signed by the tenderer. Each page of the Tender should be signed by the tenderer. In the event of discrepancy between percentage rate in figures and words, the percentage rate
quoted in words shall be treated as correct. In case there is discrepancy between percentage rate and amount worked out the percentage rate quoted shall be taken as correct and not the amount. For any other discrepancy, the decision of Tender Scrutiny Committee of EPI shall be final & binding on the tenderer including rejection of Tender and forfeiture of EMD.

5.0 The Tenders shall be strictly as per the conditions of contract. Tenders with any additional condition(s)/modification(s) shall be rejected.

6.0 The witnesses to the Tender / Contract Agreement shall be other than the tenderer / tenderers competing for this work and must indicate full name, address, status/occupation with dated signatures.

7.0 The acceptance of Tender will rest with EPI. Tenders in which any of the prescribed conditions are not fulfilled or found incomplete in any respect are liable to be rejected.

8.0 Canvassing whether directly or indirectly in connection with Tenders is strictly prohibited and the Tenders submitted by the Contractors who resort to canvassing will be liable to rejection.

9.0 On acceptance of Tender, the name of the accredited representative(s) of the Contractor who would be responsible for taking instructions from Engineer-In-Charge or its authorised representative shall be intimated by the Contractor with in 07 days of issue date of telegram / letter / telex / fax of Intent by EPI.

10.0 The tenderer shall not be permitted to Tender for works if his near relative is posted as an Assistant Manager or any higher ranks in the concerned Regional Office of EPI. The Contractor shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any of the officers in EPI. Any breach of this condition by the tenderer would render him liable to the withdrawal of the work awarded to him and forfeiture of Earnest Money and Security Deposit. This may also debar the Contractor from tendering for future works under EPI.

11.0 No employee of EPI of the rank of Assistant Manager and above is allowed to work as a Contractor or as an employee of a Contractor having interest in EPI for a period of two years after his retirement/relief from the service of EPI, without the prior permission of EPI in writing. This contract is liable to be cancelled if either the Contractor or any of his employee is found at any time to be such a person who had not obtained the permission of EPI as aforesaid before submission of the Tender or engagement in the Contractor’s service.

12.0 The time of completion of the entire work, as contained in contract shall be as mentioned in “Memorandum” to “Form of Tender”, which shall be reckoned from the 10th day from issue of the Letter / Telex / Telegram / Fax of Intent by the EPI.

13.0 The Tender award, execution and completion of work shall be governed by Tender Documents consisting of (but not limited to) Letter of Intent / Letter of work Order, Bill of Quantities, Additional Conditions of Contract, General Conditions of Contract, Specifications, Drawings, etc. The tenderers shall be
deemed to have gone through the various conditions and clauses of the Tender and visited the Site and satisfied itself with Site conditions including sub-soil water conditions, topography of the land, drainage and accessibility etc. or any other condition which in the opinion of Contractor will affect his price / rates before quoting their rates. No claim whatsoever against the foregoing shall be entertained by EPI.

14.0 The Drawings given with the Tender Documents are TENDER DRAWINGS and are indicative only.

15.0 Transfer of bid documents purchased by one intending bidder to another is not permissible.

16.0 Tenders must be duly signed with date and sealed. An attested copy of power of attorney/affidavit/Board Resolution executed as under shall accompany the ‘Tender Documents’.

   a) In case of Sole Proprietorship, an affidavit of Sole Proprietorship and if the Tender is signed by any other person Power of Attorney by the Sole Proprietor in favour of signatory.

   b) In case of Partnership firm, if Tender is not signed by all the partners, Power of Attorney in favour of the Partner/person signing the tender/documents by all the partners authorizing him to sign the tender/documents.

   c) In case of Company, copy of the Board Resolution authorizing the signatory to sign on behalf of the Company.

17.0 Tenders with following discrepancies are liable for rejection:

   a) Tenders with over-written or erased rates, percentages, amounts or rates, percentages not written in both figures and words.

   b) Tender that is incomplete, ambiguous, and not accompanied by the documents asked for or submitted without EMD or with inadequate EMD.

   c) Tender received after specified date/time whether due to postal or other delays.

   d) Tender in respect of which canvassing in any form is resorted to by the tenderer whatsoever.

   e) If the tenderer deliberately gives wrong information in his tender or resorts to unfair methods in creating circumstances for the acceptance of his tender, EPI reserves the right to reject such tender at any stage.

18.0 Submission of a tender by the tenderer implies that he has read the complete contract documents and has made himself aware of the scope, terms & conditions and specifications of the work to be done and of conditions at which stores, tools, plant, etc. will be issued to him by EPI (if any), local conditions and
political situations and other factors having bearing on the execution of the works. No claim of Contractor whatsoever, within the purview of this clause, shall be entertained at any stage of the project.

19.0 Tenderer shall submit the following documents along with their Tenders in the first envelope (Techno-Commercial Bid) :-

a) List of works executed during the last 5 years indicating name of the Client, value, date of start and completion.
b) List of works under execution indicating name of the Client, Total Contract Value, Value of balance work in hand, date of start and completion.
c) Details of similar works executed.
d) Audited balance sheets and profit and loss accounts alongwith schedules for the last 3 years.
e) Copy of latest income-tax returns filed along with PAN.
f) Details of manpower available.
g) Details of equipments, tools and plant available.
h) Credentials and completion certificates.
i) Registration Certificate/Memorandum and Articles of Association/Partnership Deed/Affidavit.
j) Copy of Provident Fund Number allotted by PF authorities.
k) Copy of letters of registration with various authorities like CPWD, State PWD, MES and Public Sector Undertakings, etc.
l) Latest Solvency certificate from Nationalised/Scheduled Bank.
m) Latest Sales Tax Registratin and Clearance Certificate.
n) Any other document as stipulated above and in “Tender Documents’

20. Purchase Preference may be granted to the Central Public Sector Enterprises as per the applicable guidelines in force in this regard issued by the Government of India.
LETTER OF UNDERTAKING

(TO BE ENCLOSED IN ENVELOPE-1 ALONGWITH EMD)

ENGINEERING PROJECTS (INDIA) LIMITED
(Address of submission as mentioned in “Notice Inviting Tender”)

REF. : TENDER FOR (Name of Work as mentioned in “Notice Inviting Tender”)

NIT No. :

Sir,

UNDERTAKING FOR ACCEPTANCE OF TENDER CONDITIONS

1. The Tender Documents for the work as mentioned in “Memorandum” to “Form of Tender” have been issued to me / us by ENGINEERING PROJECTS (INDIA) LIMITED and I / We hereby unconditionally accept the tender conditions and Tender Documents in its entirety for the above work.

2. The contents of clause 1.2 and 1.3 of the Tender Documents (Instructions to Tenderers) have been noted wherein it is clarified that after unconditionally accepting the tender conditions in its entirety, it is not permissible to put any remark(s) / condition(s) (except unconditional rebate on price, if any) in the ‘Price-Bid’ enclosed in “Envelope-2” and the same has been followed in the present case. In case this provision of the Tender is found violated at any time after opening “Envelope-2”, I / We agree that my/our tender shall be summarily rejected and EPI shall, without prejudice to any other right or remedy be at liberty to forfeit the full said Earnest Money absolutely.

3. The required Earnest Money for this work is enclosed herewith.

Yours faithfully,

(Signature of the Tenderer)

Seal of Tenderer

Dated :___________________

Signature of Contractor

Page 7
FORM OF TENDER

To,

Engineering Projects (India) Limited
(Address of submission as mentioned in “Notice Inviting Tender”)

REF. : TENDER FOR (Name of Work as mentioned in “Notice Inviting Tender”)

NIT No. : __________________________

1. I/We hereby tender for execution of work as mentioned in “Memorandum” to this “Form of Tender” as per Tender Documents within the time schedule of completion of work as per separately signed and accepted rates in the Bill of Quantities quoted by me / us for the whole work in accordance with the Notice Inviting Tender, Conditions of Contract, Specifications of materials and workmanship, Bill of Quantities Drawings, Time Schedule for completion of jobs, and other documents and papers, all as detailed in Tender Documents.

2. It is agreed that the time stipulated for jobs and completion of works in all respects and in different stages mentioned in the “Time Schedule for completion of jobs” and signed and accepted by me/us is the essence of the contract. I/We agree that in case of failure on my/our part to strictly observe the time of completion mentioned for jobs and the final completion of works in all respects according to the schedule set out in the said “Time Schedule for completion of jobs” and stipulations contained in the contract, the recovery shall be made from me/us as specified therein. In exceptional circumstances extension of time which shall always be in writing may, however be granted by EPI at its entire discretion for some items, and I/We agree that such extension of time will not be counted for the final completion of work as stipulated in the said “Time schedule of completion of jobs”.

3. I/We agree to pay the Earnest Money, Security Deposit cum Performance Guarantee, Retention Money and accept the terms and conditions as laid down in the “Memorandum” to this “Form of Tender”.

4. Should this Tender be accepted, I/We agree to abide by and fulfill all terms and conditions referred to above and as contained in Tender Documents elsewhere and in default thereof, allow EPI to forfeit and pay EPI, or its successors or its authorized nominees such sums of money as are stipulated in the Tender Documents.

5. I/We hereby pay the earnest money amount as mentioned in the “Memorandum” to this “Form of Tender” in favour of Engineering Projects (India) Limited payable at place as mentioned in the “NIT/ITT”.

____________________________________________________________________________________

Signature of Contractor            EPI
Page 8
6. If I/we fail to commence the work within 10 days of the date of issue of Letter of Intent and / or I/We fail to sign the agreement as per Clause 84 of General Conditions of Contract and/or I/We fail to submit Security Deposit cum Performance Guarantee as per Clause 9.0 & 9.1 of General Conditions of Contract, I/We agree that EPI shall, without prejudice to any other right or remedy, be at liberty to cancel the Letter of Intent and to forfeit the said earnest money as specified above.

7. I/We are also enclosing herewith the Letter of Undertaking on the prescribed pro-forma as referred to in condition of NIT.

Date the __________________________ day of _______________________________

SIGNATURE OF TENDERER

NAME (CAPITAL LETTERS) : _________________________________________

OCCUPATION _________________________________________

ADDRESS  _______________________________________

_______________________________________

SEAL OF TENDERER
MEMORANDUM

(ENCLOSURE TO FORM OF TENDER)

REF. : TENDER FOR (Name of Work as mentioned in “Notice Inviting Tender”)

NIT No. : ____________________________

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<td>NIT</td>
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<td>5.00% (Five Percent only) of Contract Value within 10 days from the date of issue of telegram / letter / telex / FAX of Intent of acceptance of Tender.</td>
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Signature of Contractor

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xiii) **Retention Money** 10.0 5.00% (Five percent only) of the contract amount, which shall be deducted in the manner set out in this contract.

xiv) **Time allowed for starting the work** 43.0 The date of start of contract shall be reckoned 10 days from the date of issue of telegram / letter / telex / FAX of Intent of acceptance of Tender.

xv) **Defect Liability Period** 74.0 12 (Twelve) Months from the date of taking over of works.

xvi) **Arbitration** 76 Arbitration shall be as per provisions of Clause no.76 of GCC. The Venue of Arbitration shall be ………………………………

xvii) **Jurisdiction** 76.3 Courts in -------------------------------

SIGNATURE OF TENDERER

NAME (CAPITAL LETTERS) : _________________________________________

OCCUPATION _________________________________________

ADDRESS _________________________________________

________________________________________

SEAL OF TENDERER
ENGINEERING PROJECTS (INDIA) LIMITED
(A Govt. of India Enterprise)

GENERAL CONDITIONS OF CONTRACT
AND
LABOUR SAFETY PROVISIONS, MODEL RULES
CONTRACTOR’S LABOUR REGULATIONS
& PRESCRIBED PROFORMAS
GENERAL CONDITIONS OF CONTRACT

1.0 GENERAL

The Contract means the documents forming the Tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of EPI and the Contractor, together with the documents referred to therein including these conditions, the Specifications, Designs, Drawings and Instructions issued from time to time by the Engineer-In-Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

1.1 In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them.

1.2 Engineering Projects (India) Limited, hereinafter called 'EPI' proposes to get the works executed as mentioned in the Contract on behalf of Owner/Client.

1.3 The work will be executed as per Drawings “GOOD FOR CONSTRUCTION” to be released by EPI unless otherwise specified elsewhere in the Tender Documents.

1.4 OTHER DEFINITIONS

a) ENGINEER-IN-CHARGE means the Regional Office In-Charge of EPI himself or an engineer of EPI nominated by the Regional Office In-Charge for supervision and/or project management of the project from time to time.

b) WORKS OR WORK The expression works or work shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

c) CONTRACTOR The Contractor shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

d) DRAWINGS mean the Drawings referred to in the Bill of Quantities, specifications and any modifications of such Drawings or such other Drawings as may from time to time be approved or furnished by EPI.

e) SITE means the lands and other places on, under, in or through which the works are to be executed or carried out and any other lands or places provided by EPI or used for the purpose of the agreement.

f) APPROVAL means approved in writing including subsequent written confirmation of previous verbal approval.
g) WRITING means any manuscript typed, written or printed statement under or over signature and/or seal as the case may be.

h) MONTH means English Calendar month. ‘Day’ means a Calendar day of 24 Hrs each.

i) CONTRACT VALUE means the sum for which the Tender is accepted as per the Agreement/ Letter of Acceptance/ Letter of Intent.

j) LANGUAGE: All documents and correspondence in respect of this contract shall be in English Language. In case of any discrepancy between the English version and the Hindi version of these documents, the provisions contained in the English version shall be applicable.

k) BILL OF QUANTITIES or SCHEDULE OF QUANTITIES means the priced and completed Bill of Quantities or Schedule of Quantities forming part of the Tender.

l) OWNER/ CLIENT / EMPLOYER means the Government, Organization, Authority, Company, Ministry, Department, Society, Cooperative etc. who has awarded the work/ project to EPI and/ or appointed EPI as Implementing / Executing Agency/ Project Manager and/ or for whom EPI is acting as an agent and on whose behalf EPI is entering into the contract and getting the work executed.

m) IMPLEMENTING/ EXECUTING AGENCY means EPI

n) TENDER means the Contractor's priced offer to EPI for the execution and completion of the work and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Intent or Award letter. The word TENDER is synonymous with Bid and the word TENDER DOCUMENTS with “Bidding Documents” or “offer documents”.

o) The headings in the clauses/ conditions of Tender Documents are for convenience only and shall not be used for interpretation of the clause/ condition.

p) Words imparting the singular meaning only also include the plurals and vice versa where the context requires. Words imparting persons or parties shall include firms and corporations and organizations having legal capacities.

q) APPROVED INSURANCE COMPANY means any Insurance Company registered with ‘Insurance Regulatory & Development Authority’ (IRDA) of India and meeting insurance needs of the projects of EPI.

2.0 SITE VISIT AND COLLECTING LOCAL INFORMATION

Before tendering, the tenderer is advised to visit the Site, its surroundings to assess and satisfy themselves about the local conditions such as the working and other constraints at Site, approach roads to the Site, availability of water & power supply, applicability of taxes, duties and levies etc., nature of ground, soil and sub-soil condition, underground water table level, accommodations they may
require etc., river regime, river water levels, other details of river, streams & any other relevant information required by them to execute the complete scope of work. The tenderer may obtain all necessary information as to risks, weather conditions, contingencies & other circumstances (insurgencies etc.) which may influence or affect their tender prices. Tenderer shall be deemed to have considered Site conditions whether he has inspected it or not and to have satisfied himself in all respects before quoting his rates and no claim or extra charges whatsoever in this regard shall be entertained / payable by EPI at a later date.

2.1 **ACCESS BY ROAD**

Contractor, if necessary, shall build temporary access roads to the actual Site of construction for the works at his own cost to make the Site accessible. The Contractor shall maintain the same in motorable condition at all times as directed by Engineer-In-Charge at his own cost. The Contractor shall be required to permit the use of any roads so constructed by him for vehicles of EPI or any other agencies/ Contractors who may be engaged on the project Site, free of cost.

Non-availability of access roads or approach to Site, for the use of the Contractor shall in no case condone any delay in the execution of work nor be the cause for any claim for compensation.

2.2 **HANDING OVER & CLEARING OF SITE**

2.2.1 The Contractor should note that area for construction may be made available in phases as per availability and in conjunction with pace of actual progress of work at Site. The work may be required to be carried out in constrained situations. The work is to be carried out in such a way that the traffic, people movement, if any, is kept operative and nothing extra shall be payable to the Contractor due to this phasing / sequencing of the work. The Contractor is required to arrange the resources to complete the entire project within total stipulated time. Traffic diversion, if required, is to be done and maintained as per specification by the Contractor at his own cost and the Contractor shall not be entitled for any extra payment, whatsoever, in this regard.

2.2.2 Efforts will be made by EPI to handover the Site to the Contractor free of encumbrances. However, in case of any delay in handing over of the Site to the Contractor, EPI shall only consider suitable extension of time for the execution of the work. It should be clearly understood that EPI shall not consider any revision in contract price or any other compensation whatsoever viz. towards idleness of Contractor’s labour, equipment etc.

2.2.3 The Contractor shall be responsible for removal of all over-ground and under-ground structures (permanent, semi-permanent and temporary) and constructions from the Site. The cost to be incurred in this regard shall be deemed to be included in the quoted rates of Bill of Quantities items and Contractor shall not be entitled for any extra payment whatsoever, in this regard. Old structures on the proposed Site, if required, shall be demolished by the Contractor properly. The useful material obtained from demolition of structures &
services shall be the property of the Owner/EPI and these materials shall be stacked in workmanship like manner at the place specified by the Engineer-in-charge.

2.2.4 If required, the Contractor has to do site clearance, enabling work, barricading, diversion of Roads, shifting/ realignment of existing utility services, drains, nallahs etc. at his own cost as per direction of Engineer-In-Charge and the Contractor shall not be entitled for any extra payment whatsoever in this regard.

2.2.5 Necessary arrangements including its maintenance are to be made by the Contractor for temporary diversion of flow of existing drain and road, as the case may be. The existing drain, road would be demolished, wherever required, with the progress of work under the scope of proposed project. The existing Road and Drain, which are not in the alignment of the said project but are affected and/or need to be demolished during execution for smooth progress of the project, shall be restored to its original status and condition (including black topping) by the Contractor at his own. The cost to be incurred by Contractor in these regards shall be deemed to be included in the quoted rates of the Bill of Quantities items and Contractor shall not be entitled for any extra payment whatsoever, in these regards.

2.2.6 The Contractor shall be responsible to co-ordinate with service provider/concerned authorities for cutting of trees, shifting of utilities and removal of encroachments etc. and making the Site unhindered for completion of work. This shall include initial and frequent follow up meetings/actions/discussions with each involved service provider/concerned authorities. The Contractor shall not be entitled for any additional compensation for delay in cutting of trees, shifting of utilities and removal of encroachments by the service provider/concerned authorities.

2.2.7 The information about the public utilities (whether over ground or underground) like electrical/ telephone/ water supply lines, OFC Cables, sewer lines, open drains etc. is the responsibility of Contractor who has to ascertain the utilities that are to be affected by the works through the site investigation and collection of information from the concerned utility Owners.

2.2.8 The Contractor shall be responsible to obtain necessary approval from the respective authorities for shifting/ re-alignment of existing public utilities. EPI shall only provide necessary letters required for liaising by the Contractor in obtaining the approval from the concerned authorities.

2.2.9 Any services affected by the works must be temporarily supported by the Contractor who must also take all measures reasonably required by the various bodies to protect their services and property during the progress of works. It shall be deemed to be the part of the contract and no extra payment shall be made to the Contractor for the same. Shifting/ re-alignment of public utilities should be done without disturbing the existing one. New service lines should be laid and connected before dismantling the existing one.

2.2.10 Shifting/ re-alignment of existing public utilities shall be done by the Contractor as per technical requirement of respective bodies or as per direction of Engineer-In-Charge. Shifting/ re-alignment of public utilities includes all materials, labours,
tools and plants and any other expenses whatsoever for the same. The cost to be incurred in this regard shall be deemed to be included in his quoted rates of BOQ items and the Contractor shall not be entitled for any extra payment, whatsoever, in this regard. In case any of these services are shifted by the State Govt/ local authorities themselves for which deposit as per their estimates is to be made to them, the Contractor shall deposit the same and the Contractor shall be paid only at the rates quoted by him in BOQ for quantity specified in the BOQ, if such items are included in the BOQ irrespective of amount paid by him to the State Govt./ local authorities for execution of these works. In case such provision is not made in the BOQ or the quantity exceeds those specified in the BOQ, the same is deemed to be included in the rates quoted by him for other items in BOQ and nothing extra shall be payable to Contractor on this account.

3.0 SCOPE OF WORK

3.1 The scope of work covered in this Tender shall be as per the Bill of Quantities, Specifications, Drawings, Instructions, Orders issued to the Contractor from time to time during the pendency of work. The Drawings for this work, which may be referred for tendering, provide general idea only about the work to be performed under the scope of this contract. These may not be the final drawings and may not indicate the full range of the work under the scope of this contract. The work will be executed according to the Drawings to be released as “GOOD FOR CONSTRUCTION” from time to time by the Engineer-In-Charge of EPI and according to any additions/ modifications/ alterations/deletions made from time to time, as required by any other drawings that would be issued to the Contractor progressively during execution of work. It shall be the responsibility of the Contractor to incorporate the changes that may be in the scope of work, envisaged at the time of tendering and as actually required to be executed.

3.2 The quantities of various items as entered in the “BILL OF QUANTITIES” are indicative only and may vary depending upon the actual requirement. The Contractor shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items specified in the Bill of Quantities. The variation of quantities will be governed as per clause No.69 of GCC.

4.0 VALIDITY OF TENDER

The Tender for the works shall remain open for acceptance for a period of ninety days from the date of opening of Price Bid of Tenders. The earnest money will be forfeited without any prejudice to any right or remedy, in case the Contractor withdraws his Tender during the validity period or in case he changes his offer to his benefits, which are not acceptable to EPI. The validity period may be extended on mutual consent.

5.0 ACCEPTANCE OF TENDER

EPI reserves to itself the authority to reject any or all the Tenders received without assigning any reason. The acceptance of a Tender shall be effective w.e.f. the date on which the telegram/ letter of intent or acceptance of the Tender is put in the communication by EPI. EPI also reserves the right to split the work
among two or more parties at lowest negotiated rate without assigning any reason thereof. The Contractor is bound to accept the portion of work as offered by EPI after split up at the quoted/negotiated rates.

6.0 SET OF TENDER DOCUMENTS:

The following documents will complete a set of Tender Documents.

A) VOLUME I :
   a) Instructions to tenderers
   b) General Conditions of Contract

B) VOLUME II :
   a) Notice Inviting Tenders
   b) Additional Conditions of Contract
   c) Technical Specifications (General, Additional & Technical specifications)
   d) Tender Drawings

C) VOLUME III :
   a) Schedule of Rates/ Bills of quantities (Price-Bid)

7.0 EARNEST MONEY DEPOSIT

Earnest Money Deposit (EMD) of amount as mentioned in “Memorandum” to “Form of Tender” required to be submitted along with the Tender shall be in the form of Demand Draft payable at place as mentioned in “Notice Inviting Tender”/ “Instructions to Tenderers” in favour of ‘Engineering Projects (India) Limited’ from any Nationalised bank / Scheduled Bank or in the form of Bank Guarantee from any Nationalised bank / Scheduled Bank as per the enclosed format. The EMD shall be valid for minimum period of 150 days (One hundred fifty Days) from last day of submission of Tender.

7.1 EMD shall accompany the offer and placed in the sealed envelope cover of the offer as detailed in Instructions to Tenderer. Any tender not accompanied with the requisite Earnest Money Deposit alongwith ‘Letter of Undertaking’ shall be rejected and such tenderer(s) will not be allowed to attend the opening of bids.

7.2 The EMD of all unsuccessful tenderers (i.e. except evaluated lowest tenderer) shall be returned within Seven (7) days of the opening of price bids by EPI. Subject to clause 7.6 herein below, EMD of successful tenderer shall be refunded after submission of Security Deposit cum Performance Guarantee by him.

7.3 Once the tenderer has given an unconditional acceptance to the tender conditions in its entirety, he is not permitted to put any remark(s)/conditions(s) (except unconditional rebate on price, if any) in/ along-with the Tender.

7.4 In case the condition 7.3 mentioned above is found violated at any time after opening of Tender, the Tender shall be summarily rejected and EPI shall, without
7.5 No interest will be payable by EPI on the said amount covered under EMD/Other security documents.

7.6 EMD of successful tenderer, if deposited in the form of Demand Draft, shall be treated as part of Retention Money.

7.7 At any time after the due date of the Tender, if any tenderer alters /modifies/withdraws his tender within the validity period (or the extended validity period) of his tender or fails to furnish the “Security Deposit cum Performance Guarantee” or the “Additional Performance Guarantee” or fails to execute the “Contract Agreement” within the prescribed time period after the placement of LOI on him, EPI without prejudice to any other rights or remedies shall be at liberty to forfeit the Earnest Money deposited by the tenderer. In the event of re-tender, such tenderer shall not be allowed to submit tender.

8.0 MOBILIZATION ADVANCE

8.1 Mobilization advance up to maximum of amount as mentioned in the “Memorandum” to the “Form of Tender” shall be paid to the Contractor on submission of non-revocable and unconditional Bank Guarantee of an equivalent amount in case of interest free Mobilization Advance or for an amount equal to 110% of the Mobilization Advance in case of interest bearing Mobilization Advance, from a Nationalized Bank / Scheduled Bank as per the enclosed Performa subject to conditions given hereunder. The Mobilization Advance shall be at the Interest Rate as mentioned in the “Memorandum” to the “Form of Tender”. This advance shall be paid in three installments as follows:

i) First Installment of fifty percent of total mobilization advance shall be paid after fulfillment of the following conditions:
   a) Signing of the agreement.
   b) Submission of Security Deposit cum Performance Guarantee as per Clause No. 9.

ii) Second installment of twenty five percent of total mobilization advance will be paid after the setting up of site office and providing facilities to EPI as per contract, and completion of enabling works required for taking up the construction. These include construction of store, labour hutments, etc.

iii) The balance twenty five percent of total mobilization advance shall be paid on mobilization of manpower, plant & equipment etc. to the satisfaction of Engineer-In-Charge of EPI.

8.2 The Advance shall be recovered on monthly installment basis. The installments shall commence when 20% of the scheduled contract period has elapsed and fully recovered when 80% of the scheduled contract period is over, both from
date of start. (The month of start & completion of recovery of mobilization advance to be rounded off to nearest full month).

8.3 Part ‘Bank Guarantees’ (BGs) against mobilization advance shall be furnished in as many numbers as the number of recovery installments as given in “Memorandum” to the “Form of Tender” and should be equivalent to the amount of each recovery installment. At any point of time, if the Contractor's payable amount on account of work done is not available with EPI or the amount payable is less than the recovery installment, recovery of such advance shall be effected by encashing the BG of equivalent recovery amount. The decision of EPI in this regard shall be final and binding on the Contractor. The validity period for the part BGs shall be till three months after the end of the month in which instalment is due to be recovered with further three months claim period.

8.4 In case recovery of Mobilization Advance is delayed, interest shall be charged @12% (Twelve percent) per annum on delayed recoveries due to late submission of bills by the Contractor or due to delayed encashment of Bank Guarantee, as stated above or due to any other reasons whatsoever.

8.5 Contractor is required to furnish the Utilization Certificate for each installment of mobilization advance to the satisfaction of Engineer-In-Charge. Subsequent installments of mobilization advance shall be released only after getting satisfactory utilisation certificate from the Contractor for the earlier released installment.

8.6 Notwithstanding what is contained in aforesaid clauses, no mobilization advance whatsoever shall be payable, if payment of mobilization advance is not mentioned in the “Memorandum” to the “Form of Tender”.

9.0 SECURITY DEPOSIT CUM PERFORMANCE GUARANTEE

“Within 10 (ten) days from the date of issue of letter of Intent or within such extended time as may be granted by EPI in writing, the Contractor shall submit to EPI a Security Deposit cum Performance Bank Guarantee in the form appended, from any Nationalised bank / Scheduled Bank equivalent to 5% (five percent only) of the Contract Value for the due and proper execution of the contract. This bank guarantee shall remain valid up to 90 (ninety) days after the end of defects liability period.

In case the Contractor fails to submit the Security Deposit cum Performance Guarantee of the requisite amount within the stipulated period or extended period, letter of intent will stand withdrawn and EMD of Contractor shall be forfeited.

9.1 ADDITIONAL PERFORMANCE GUARANTEE FOR EXISTING CONTRACTORS

In case bidder is a working Contractor of EPI at the time of issuance of Letter of Intent (LOI) for the work, the bidder has to furnish an additional Performance Guarantee of 1% (One Percent) of the Contract Value of the work, in case working capacity of the bidder is less than the aggregate of balance work-load of all the works of the bidder with EPI as on date of placement of LOI for this work. The balance workload shall also include the value of work awarded but not yet
started and finally approved value of this work. This additional Performance Guarantee shall be in addition to the Security Deposit cum Performance Guarantee of the works to be furnished by the bidder as specified in the clause no. 9 of General Conditions of Contract. Further, no relaxation in Security Deposit cum Performance Guarantee as in clause no. 9 of General Conditions of Contract shall be made in case working capacity works-out to be more than the balance value of works as mentioned above. The working capacity of the Contractor shall be calculated as under:

\[
\text{WORKING CAPACITY} = 2.5 \times (\text{Average Turnover of the party as per latest three audited Balance Sheets}).
\]

**NOTE:** The decision of amount of additional Performance Guarantee as above shall be taken by EPI and shall be final & binding to the Contractor.

In case the Contractor fails to submit the additional performance guarantee of the requisite amount within 10 days from the date of issue of letter of Intent or within such extended time as may be granted by EPI in writing, the letter of intent will stand withdrawn and EMD of the Contractor shall be forfeited.

### 9.2 ABNORMALLY HIGH AND LOW RATED ITEMS

For item rate tenders if, the rates quoted by the lowest bidder for certain items of the Bill of Quantities of the Tender are found to be abnormally high or low in comparison to the Market Rate analysis of the item done by EPI and/or in comparison to EPI's method of working out market rate justification for the items, the same shall be governed as under: -

For Abnormally High Rated items (AHR), the progressive payment shall be 80% (Eighty percent) of the payment due to the Contractor against execution of the AHR items. The balance withheld 20% (twenty percent) payment shall be released after 80% of total value of the original contract is completed in financial terms in order to ensure that the Abnormally Low Rated (ALR) items identified at the time of Award of work have been executed as per requirement of project and as per terms of Contract. Further, deviation limit for AHR items shall be nil on plus side and 100% on minus side. The provision of deviation limit of clause 69.1(v) shall not apply to AHR items. In case of deviation of quantities given in schedule of quantities for AHR items on plus side, the same shall be governed by clause 69.2. The decision of Engineer-In-Charge of EPI in this regard shall be final and binding on the Contractor.

The provision of para 9.2 shall not be applicable on tenders invited on Percentage Rate/lump Sum basis.
The decision of EPI on identification/marking of AHR and ALR items is final and binding on the Contractor. In case the Contractor does not agree to the identified AHR and ALR items, at the time of award of works, the EMD/Security Deposit cum Performance Guarantee of the Contractor shall be forfeited and decision of EPI in this regard shall be final & binding on the Contractor.

10.0 RETENTION MONEY

The Retention Money shall be deducted from each running bill of the Contractor at 5% (five percent only) of the gross value of the Running Account bill. The Earnest Money Deposited by the tenderer in the form of Demand Draft will be treated as part of the Retention Money. The Retention Money shall be refunded to the Contractor after expiry of defects liability period (referred to in Clause No. 74) or on payment of the amount of the final bill whichever is later. If the amount of Retention Money deduction in cash is more than Rs.10.00 lakhs (Rupees Ten lakhs only), the excess amount can be refunded to Contractor against submission of Bank Guarantee of equivalent amount from a Nationalised bank / Scheduled Bank in the prescribed proforma of Performance Guarantee of EPI.

11.0 MOBILIZATION OF MEN, MATERIALS AND MACHINERY:

11.1 All expenses towards mobilization at Site and de-mobilization including bringing in equipment, work force, materials, dismantling the equipments, clearing the Site etc. shall be deemed to be included in prices quoted and no separate payment on account of such expenses shall be entertained.

11.2 It shall be entirely the Contractor’s responsibility to provide, operate and maintain all necessary construction equipments, scaffoldings and safety gadget, lifting tackles, tools and appliances to perform the work in a workman like and efficient manner and complete all jobs as per the specifications and within the schedule time of completion of work. Further, Contractor shall also be responsible for obtaining temporary electric and water connection for all purposes. The Contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply.

11.3 It shall be the responsibility of the Contractor to obtain the approval for any revision and/or modification desired by him from EPI before implementation. Also such revisions and/or modifications if accepted / approved by EPI shall be carried at no extra cost to EPI.

11.4 The procurement and supply in sequence and at the appropriate time of all materials and consumable shall be entirely the Contractor’s responsibility and his rates for execution of work shall be inclusive of supply of all these items.
11.5 It is mandatory for the Contractor to provide safety equipments and gadgets to its all workers, supervisory and Technical staff engaged in the execution of the work while working. The minimum requirement (but not limited to) shall be gumboots, safety helmets, Rubber hand gloves, facemasks, safety nets, belts, goggles etc. as per work requirements. Sufficient nos. of these equipments and gadgets shall also be provided to EPI by the Contractor at his own cost for use of EPI Officials and/or workforce while working/supervision at Site. No staff/worker shall be allowed to enter the Site without these equipments/gadgets. The cost of the above equipments/gadgets are deemed to be included in the rates quoted by the Contractor for the items & works as per Bill of Quantities and Contractor shall not be entitled for any extra cost in these regard. The above norm is to be strictly complied with at Site. In case the Contractor is found to be deficient in providing Safety Equipments/Gadgets in the opinion of Engineer-In-Charge, the Engineer-In-Charge at his option can procure the same at the risk & cost of Contractor and provide the same for the use of worksite and shall make the recoveries from the bills of the Contractor for the same. The decision of the Engineer-In-Charge shall be final and binding on Contractor in this regard.

11.6 All Designs, Drawings, Bill of Quantities, etc. (except Bar Bending Schedule, Shop & Fabrication Drawings) for all works shall be supplied to the Contractor for all buildings services and development works by EPI in phased manner as the works progress. However it shall be the duty and responsibility of the Contractor to bring to the notice of EPI in writing as to any variation, discrepancy or any other changes required and to obtain revised drawings and designs and/or approval of EPI in writing for the same.

11.7 One copy of contract documents including Drawings furnished to the Contractor shall be kept at the Site and the same shall at all reasonable times be available for inspection.

11.8 All materials, construction plants and equipments etc. once brought by the Contractor within the project area, will not be allowed to be removed from the premises without the written permission of EPI. Similarly all enabling works built by the Contractor for the main construction undertaken by him, shall not be dismantled and removed without the written authority of EPI.

11.9 Contractor shall have to prepare the Bar Bending Schedule, Shop and Fabrication Drawings free of cost, if required for any of the items of work. Five copies of these Drawings each including for revision will be submitted to EPI for approval. Before executing the item, Bar Bending Schedule, Shop & Fabrication Drawings should be got approved from EPI.

12.0 INCOME TAX DEDUCTION

Income tax deductions shall be made from all payments made to the Contractor including advances against work done, in accordance with the Income Tax act prevailing from time to time.
13.0 **TAXES AND DUTIES**

13.1 The Contractor shall be responsible for the payment, wherever payable, at his own cost of all taxes such as excise duty, custom duty, sales tax, including the purchase tax, consignment tax, work contract tax, service tax, VAT or any other similar tax in the state concerned, turnover tax, toll tax, octroi charges, royalty, cess, levy and other tax (es) or duty (ies) which may be specified by local/ state/ central government from time to time on all materials, articles which may be used for this work. The rates quoted by him in the Tender in Bill of Quantities shall be inclusive of all such taxes, duties, etc. The imposition of any new and/ or increase in the aforesaid taxes, duties, levies (including fresh imposition of Work Contract Tax, Turnover Tax, Sales Tax on Work Contract, VAT or any other similar Tax) etc. during the currency of the contract shall be borne by Contractor and shall not be paid or reimbursed to the Contractor by EPI. In the event of non-payment/default in payment of any octroi, royalty, cess, turnover tax, sales tax, including the purchase tax, consignment tax, work contract tax, VAT, Service Tax or any other similar tax in the state concerned, customs, excise or any other levy/tax including labour dues etc. by Contractor, EPI reserves the right to withhold the dues/ payments of Contractor and make payment to local/state/ Central Government authorities or to labourers as may be applicable. The Contractor should submit along with the Tender Registration Certificates with Sales Tax on works contract authority etc. other wise appropriate recovery shall be made from his bills.

13.2 The rate quoted by the Contractor shall be deemed to be inclusive of all Taxes and duties as mentioned in clause no.13.1 given above or any other tax as applicable and the same shall not be reimbursed by EPI. Tax deductions at source shall be made as per laws prevalent in the State.

13.3 The stamp duty and registration charges, if any, on the contract agreement levied by the Government or any other statutory body, shall be paid by the Contractor.

13.4 It will be incumbent upon the Contractor to obtain a registration certificate as a dealer under the Local Sales Tax Act and the Central Sales Tax Act, Service Tax, etc. and necessary evidence to this effect shall be furnished by the Contractor to EPI. Sales Tax on the transactions between the Contractor and his Sub-Contractor/Vendors etc. shall be borne by the Contractor. The Contractor shall be responsible for any taxes that may be levied hereunder on the transaction between Contractor and EPI.

13.5 The bidder shall quote his rates inclusive of Turnover Tax/ Sales Tax on Works Contract payable to State Govt. along-with other taxes, duties, levies etc. in conjunction with other terms and conditions. In case, the Turnover Tax/ Sales Tax on Works Contract on execution of works is waived off by the State Govt. at later stage for this project, the equivalent amount from the date of waiver of such tax (as per prevailing rate as on the date of waiver of Turnover Tax/ Sales Tax on Works Contract) shall be deducted from the amount payable to the Contractor from subsequent RA Bills.
13.6 VALUE ADDED TAX (VAT)

The consideration agreed for the execution of said contract shall include the taxes, duties, cess, etc. such as excise duty, service tax, VAT, which is leviable or may be levied in future under any State Law or the Central Law on execution of said contract, such taxes shall be borne by the Contractor and shall not be reimbursed by EPI. Further, if due to any variance in such tax, duties, cess etc. there is any increase in the taxes, the same shall also be borne by the Contractor. Where under any of the State or the Central Law, there is requirement of deduction of tax at source, the same shall be deducted from the amount paid or payable to the Contractor pursuant to this contract and shall be deposited to the Government authorities by EPI. EPI shall issue the documents/forms/ certificate as prescribed under the relevant law, in respect of the amount so deducted from the amount paid or payable to the Contractor. EPI shall have full rights to withhold the amount payable to the Contractor in pursuant to this contract, if Contractor does not fulfill his obligation under any State or Central Law relating to execution of said contract, in case the amount has already been paid by EPI, EPI has the right to recover such payments from the Contractor.

14.0 ROYALTY ON MATERIALS:

The Contractor shall deposit royalty and obtain necessary permit for supply of bajri, stone, kankar, sand, etc. from the local authorities and quoted rates shall be inclusive of royalty.

15.0 RATES TO BE FIRM

15.1 The rates quoted by the tenderer shall be firm and fixed for the entire period of completion and till handing over of the work. No revision to rates or any escalation shall be allowed on account of any increase in prices of materials, labour, POL and Overheads etc or any other statutory increase during the entire contract period or extended contract period.

15.2 The Contractor shall be deemed to have inspected the Site, its surrounding and acquainted itself with the nature of the ground, accessibility of the Site and full extent and nature of all operations necessary for the full and proper execution of the contract, space for storage of materials, construction plant, temporary works, restrictions of working time, restrictions on the plying of heavy vehicles in area, supply and use of labour, materials, plant, equipment and laws, rules and regulations, if any, imposed by the local authorities.

15.3 The rates and prices to be tendered in the Bill of Quantities are for completed and finished items of works complete in all respects. It will be deemed to include all construction plant, labour, supervision, materials, transport, all temporary works, erection, maintenance, Contractor’s profit and establishment/ overheads, together with preparation of designs & drawings pertaining to casting yard, shop drawing, fabrication drawing (if required), staging form work, stacking yard, etc. all general risk, taxes, royalty, duties, cess, octroi and other levies, insurance,
liabilities and obligations set out or implied in the Tender Documents and contract.

15.4 Unless otherwise specified in the Bill of Quantities (BOQ), the Contractor has to make his own arrangement for dewatering/ bailing out of water, effluent including strutting, shoring etc at every stage of work wherever required (including Tunnel work) including working under foul condition as per direction of Engineer-In-Charge at his own cost and the Contractor shall not be entitled for any extra payment, whatsoever, in this regard.

15.5 If required to make work site suitable for execution, Contractor shall have to clear jungle including of rank vegetation, grass, trees etc., clear & clean existing drains/ canals (including strutting, shoring and packing cavities) and dispose them out of the Site up-to any lead and lift as per direction of Engineer-In-Charge. The Contractor should inspect the Site of work from this point of view. Unless otherwise specified in the Bill of Quantities, the cost to be incurred in this regard shall be deemed to be included in his quoted rates of BOQ items and the Contractor shall not be entitled for any extra payment in this regard.

15.6 If any temporary/ permanent structure is encountered or safety of such structure in the vicinity is endangered due to execution of the project, the Contractor has to protect the structures by any means as per direction of Engineer - in – Charge. If any damage caused to any temporary or permanent structure(s) in the vicinity is caused due to execution of the project, the Contractor has to make good the same by any means as per direction of Engineer - in – Charge. The Contractor should inspect the Site of work from this point of view. The cost to be incurred in this regard shall be deemed to be included in his quoted rates of BOQ items and the Contractor shall not be entitled for any extra payment in this regard.

16.0 ESCALATION / PRICE VARIATION

No claim on account of any Price Variation / Escalation on whatsoever ground shall be entertained at any stage of works. All rates as per Bill of Quantities (BOQ)/Price-Bid quoted by Contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation/price variation clause shall be applicable on this contract.

17.0 INSURANCE OF WORKS ETC.

Contractor is required to take Contractor's All Risk Policy or Erection All Risk Policy (as the case may be) including Marine Insurance from an Approved Insurance Company in the joint name with EPI and bear all costs towards the same for the full period of execution of works including the defect liability period for the full amount of contract against all loss or damage from whatever cause arising for which he is responsible under the terms of the contract and in such manner that EPI and the Contractor are covered during the period of construction of works and/or also covered during the period of defect liability for the loss or damage as under:

a. The work and the temporary works to the full value of such works.
b. The materials, construction plant, centering, shuttering and scaffolding materials and other things brought to the Site for their full value. Whenever required by EPI, the Contractor shall produce the policy or the policies of insurance and the receipts for payment of the current premiums.

18.0 INSURANCE UNDER WORKMEN'S COMPENSATION ACT

Contractor is required to take insurance cover as per requirement of the Workmen’s Compensation Act, 1923 amended from time to time from an Approved Insurance Company and pay premium charges thereof. Wherever required by EPI the Contractor shall produce the policy or the policies of Insurance and the receipt of payment of the current premiums.

19.0 THIRD PARTY INSURANCE

Contractor is required to take third party insurance cover for an amount of 5% (five percent) of Contract Value from an Approved Insurance Company for insurance against any damage, injury or loss which may occur to any person or property including that of EPI, arising out of the execution of the works or temporary works. Wherever required by EPI the Contractor shall produce the policy or the policies of Insurance and the receipt of payment of the current premiums.

In case of failure of the Contractor to obtain insurance for works, insurance under Workman Compensation Act and Third Party insurance as described above within one month from the date of commencement of work, running account payments of the Contractor shall be withheld till such time the aforesaid insurance covers are obtained by the Contractor.

20.0 INDEMNITY AGAINST PATENT RIGHTS

The Contractor shall fully indemnify EPI from and against all claims and proceedings for or on account of any infringement of any patent rights, design, trademark or name or other protected rights in respect of any construction plant, machine, work or material used for in connection with the works or temporary works.

21.0 LABOUR LAWS TO BE COMPLIED WITH BY THE CONTRACTOR

The Contractor shall obtain a valid licence under the contract labour (Regulation & Abolition) Act 1970 and the Contract Labour Act (R&A) Central Rules 1971 and amended from time to time, and continue to have a valid licence until the completion of the work including defect liability period. The Contractor shall also abide by the provision of the child labour (Prohibition and Regulation) Act. 1986 and as amended from time to time. Any failure to fulfill this requirement shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.
The Contractor shall comply with the provisions of the payment of Wages Act, 1936, Minimum Wages Act, 1948, Employer's Liability Act, 1938, Workmen's Compensation Act, 1923, Maternity Benefit Act, 1961 and Mines Act -1932, Industrial Disputes Act, 1947 or any modifications thereof or any other law relating thereto and rules made there under from, time to time.

21.1 No labour below the age of 18 years shall be employed on the work.

22.0 LABOUR SAFETY PROVISION

The Contractor shall be fully responsible to observe the labour safety provisions.

23.0 OBSERVANCE OF LABOUR LAWS

23.1 The Contractor shall be fully responsible for observance of all labour laws applicable including local laws and other laws applicable in this matter and shall Indemnify and keep indemnified EPI against effect of non observance of any such laws. The Contractor shall be liable to make payment to all its employees, workers and sub-Contractors and make compliance with labour laws. If EPI or the Client/ Owner/ Employer is held liable as "Principal Employer" to pay any amount or contributions etc. under legislation of Govt. or Court decision in respect of the employees of the Contractor, then the Contractor would reimburse the amount of such payments, contribution etc. to EPI and/ or same shall be deducted from the payments, Retention Money etc. of the Contractor.

23.2 The Contractor shall submit proof of having valid EPF registration certificate. In absence of the said certificate payment to the extent of 4.70% (four point seven percent) of the value of all the Running Account bills may be withheld by EPI and shall be released only after the production of the EPF registration certificate from the concerned authorities. If it is incumbent upon EPI to deposit withheld amount with EPF authorities, the withheld amount shall be deposited by EPI with EPF authorities. In such a case EPI shall not refund this withheld amount to the Contractor even after the production of EPF registration certificate.

23.3 The Contractor shall be liable to pay cess levied under the Building and other Construction Workers Welfare Cess Act, 1996, at such rates as may be notified by the Government from time to time. EPI shall deduct at source from every Running Account Bill of the Contractor, the said cess, at such rates for the time being prevailing, which shall not exceed 2% (two percent) but not be less than 1% (one percent) of the cost of construction incurred by EPI.

24.0 LAWS GOVERNING THE CONTRACT

This contract shall be governed by the Indian Laws for the time being in force and amended from time to time.

25.0 LAWS, BYE LAWS RELATING TO THE WORK

The Contractor shall strictly abide by the provisions, for the time being in force, of law relating to works or any regulations and bye laws made by any local authority or any water & lighting agencies or any undertakings within the limits of the
jurisdiction of which the work is proposed to be executed. The Contractor shall be bound to give to the authorities concerned such notices and take all approvals as may be provided in the law, regulations or bye laws as aforesaid, and to pay all fees and taxes payable to such authorities in respect thereof.

26.0 EMPLOYMENT OF PERSONNEL

26.1 The Contractor shall employ only Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no personnel of doubtful antecedents & integrity and any other nationality in any way are associated with the works.

26.2 EPI shall have full power to get removed immediately any representative, agent, servant and workmen or employees of the Contractor on account of misconduct, negligence or incompetence or whose continued employment may in the opinion of the Engineer-In-Charge be undesirable without assigning any reason for the removal. The Contractor shall not be allowed any compensation on this account whatsoever.

27.0 TECHNICAL STAFF FOR WORK

27.1 The Contractor shall employ at his cost the adequate number of technical staff during the execution of this work depending upon the requirement of work. For this purpose the numbers to be deployed, their qualification, experience as decided by EPI shall be final and binding on Contractor. The Contractor shall not be entitled for any extra payment in this regard. The technical staff should be available at Site, whenever required by EPI to take instructions.

27.2 Within 15 days from the date of letter of intent, the Contractor shall submit a site organizational chart and Resume including details of experience of the Project-in-Charge and other staff proposed by him and shall depute them on the Project after getting approval from Engineer-In-Charge. If desired by the Contractor at later date, the Project-in-Charge and other staff whose resume is approved by EPI can be replaced with prior written approval of EPI and replacement shall be with equivalent or superior candidate only. Decision of Engineer-In-Charge shall be final and binding on the Contractor.

Even after approving the site organizational chart, the Engineer-In-Charge due to nature and exigency of work can direct the Contractor to depute such additional staff as in view of Engineer-In-Charge is necessary and having qualification and experience as approved by the Engineer-In-Charge. The removal of such additional staff from the Site shall only be with the prior written approval of Engineer-In-Charge. The Contractor shall not be paid anything extra whatsoever on account of deployment of additional staff and decision of the Engineer-In-Charge shall be final and binding on the Contractor.

27.3 In case the Contractor fails to employ the staff as aforesaid, he shall be liable to pay a reasonable amount not exceeding a sum of Rs. 25,000 (Rupees Twenty Five Thousand only) for each month of default in the case of each person. The
decision of the Engineer-In-Charge as to number of Technical Staff to be adequate for the project and the period for which the required technical staff was not employed by the Contractor and as to the reasonableness of the amount to be deducted on this account shall be final and binding on the Contractor.

28.0 LAND FOR LABOUR HUTS/ SITE OFFICE AND STORAGE ACCOMMODATION

28.1 The Contractor shall arrange the land for temporary office, storage accommodation and labour huts at his own cost and get the clearance of local authorities for setting up of labour camp and cost of same is deemed to be included in the rates quoted by the Contractor for the works. The Contractor shall ensure that the area of labour huts is kept clean and sanitary conditions are maintained as laid down by the local authorities controlling the area. The labour huts shall be so placed that it does not hinder the progress of work or access to the worksite. The vacant possession of the land used, for the purpose shall be given back by Contractor after completion of the work. The Retention Money of the Contractor shall be released only after Contractor demolishes all structures including foundations and gives back clear vacant possession of this land.

28.2 In the event the Contractor has to shift his labour camp at any time during execution of the work on the Instructions of local authorities or as per the requirement of the work progress or as may be required by EPI, he shall comply with such instructions at his cost and no claim whatsoever shall be entertained on this account.

28.3 FURNISHED OFFICE ACCOMMODATION & MOBILITY AND COMMUNICATION TO BE PROVIDED BY CONTRACTOR TO EPI

On acceptance of Tender, the Contractor at his own cost will construct a suitable furnished office at Site equipped with basic facilities such as telephone(s), fax, internet, photocopier, computer(s) & printer(s) alongwith operator(s), regular electricity & drinking water supply and vehicles for staff etc. as per the requirement of the project. The Contractor shall provide consumable as required and maintain the aforesaid facilities intact/operational during the currency of the contract including the defects liability period. The Contractor shall also make sufficient arrangement for photography/ videography preferably by maintaining a camera/video camera at Site so that photographs video can be taken of any specific activity at any point of time. The Contractor shall also provide software like MS Project etc. for the purpose of preparing progress report, etc.

28.4 The Contractor shall make all arrangements for ground breaking ceremony/ inaugural function etc for the project as required and the cost towards it is deemed to be included in his rates/offer. Any expenditure already incurred/to be incurred by EPI, shall be recovered from the Contractor.

28.5 PROTECTION OF TREES

Trees designated by the Engineer-In-Charge shall be protected from damage during the course of the works and earth level within one meter of each such tree shall not
be changed. Where necessary, such trees shall be protected by providing temporary fencing.

29.0 WATCH & WARD AND LIGHTING

The Contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, lights, watchmen etc. during the progress of work as directed by Engineer-In-Charge.

30.0 HEALTH & SANITARY ARRANGEMENTS

In case of all labour directly or indirectly employed in work for the performance on the Contractor’s part of this contract, the Contractor shall comply with all rules and regulations framed by Govt. from time to time for the protection of health and sanitary arrangements for workers.

31.0 WORKMEN’S COMPENSATION ACT

The Contractor shall at all times indemnify EPI and Owner against all claims for compensation under the provision of Workmen’s Compensation Act, 1923 or any other law in force, for any workmen employed by the Contractor or his sub- Contractor in carrying out the contract and against all costs and expenses incurred by EPI therewith.

32.0 MINIMUM WAGES ACT

The Contractor shall comply with all the provisions of the Minimum Wages Act, 1948, Contract Labour Act (R&A) 1970, and rules framed thereunder and other labour laws/local laws affecting contract labour that may be brought into force from time to time.

33.0 LABOUR RECORDS

The Contractor shall submit by the 4th & 19th of every month to the Engineer-In-Charge of EPI a true statement, showing in respect of the second half of the preceding month and the first half of the current month, respectively, of the following data :-

a) The number of the labour employed by him (category-wise).

b) Their working hours.

c) The wages paid to them.

d) The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused.
e) The number of female workers who have been allowed Maternity Benefits under the Maternity Benefit Act, 1962 and the amount paid to them.

f) Any other information required by Engineer-In-Charge.

34.0 RELEASE OF RETENTION MONEY AFTER LABOUR CLEARANCE

Retention Money of the work shall not be refunded till the Contractor produces a clearance certificate from the concerned Labour Officer. As soon as the work is virtually complete, the Contractor shall apply for the clearance certificate to the concerned Labour Officer under intimation to the Engineer-In-Charge. The Engineer-In-Charge, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the Contractor in respect of the work. If no complaint is pending, on record till three months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the Retention Money will be released if otherwise due.

35.0 SECURED ADVANCE AGAINST NON-PERISHABLE MATERIALS

Interest free secured advance up-to a maximum of 75 % (seventy five percent) of the Market Value of the materials or the cost of materials as derived from the tendered item rate of the Contractor, whichever is less, required for incorporation in the permanent works and brought to Site and duly certified by EPI Site Engineer shall be paid to the Contractor for all non-perishable items as per CPWD/MORTH (as the case may be) norms. The advance will be paid only on submission of Indemnity Bond in the prescribed pro-forma. The advance shall be recovered in full from next Running Account bill and fresh advance paid for the balance quantities of materials. The Contractor shall construct suitable godown at the Site of work for safe storage of the materials against any possible damages due to sun, rain, dampness, fire, theft etc. at his own cost. He shall also employ necessary watch & ward establishment for the purpose at his costs and risks. Such secured advance shall be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-In-Charge provided the Contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-In-Charge shall be final and binding on the Contractor in this matter. No secured advance shall however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel etc.

36.0 MEASUREMENTS OF WORKS

36.1 Unless otherwise mentioned in the Bill of Quantities the measurements of works shall be done as per CPWD/MORTH specifications (as specified in Technical Specification of the Tender) and if the same is not given in the CPWD/MORTH Specifications, the same shall be measured as per latest relevant BIS codes in force. The quantity of steel reinforcement and the structural steel sections incorporated in the work shall be measured & paid on the basis of standard coefficients of sections as per BIS Codes of practice.
36.2 The Engineer-In-Charge shall except as otherwise stated ascertain and
determine by measurement the value of work done in accordance with the
contract.

36.3 All items having financial value shall be entered in Measurement Book, level
book, etc. prescribed by EPI so that a complete record is obtained of all work
performed under the contract. Items of non-financial value (which are not
payable) may also be entered in Measurement Book at the sole discretion of the
Engineer-In-Charge.

36.4 Measurements shall be taken jointly by the Engineer-In-Charge or his authorized
representative and by the Contractor or his authorized representative.

36.5 Before taking measurements of any work the Engineer-In-Charge or the
authorized person deputed by him for the purpose shall give a reasonable notice
to the Contractor. If the Contractor fails to attend or send an authorized
representative for measurement after such a notice or fails to countersign or to
record the objection within a week from the date of measurement, then in any
such event measurement taken by the Engineer-In-Charge or by the person
deputed by him shall be taken to be correct measurements of the work.

36.6 The Contractor shall, without extra charge provide assistance with every
appliance, labour and other things necessary for measurement.

Measurements shall be signed and dated by both parties each day on the Site on
completion of measurement.

37.0 PAYMENTS

37.1 The bill shall be submitted by Contractor each month on or before the date fixed
by the ENGINEER-IN-CHARGE for all works executed in previous months. The
Contractor shall prepare computerized bills using the program as approved by
Engineer-In-Charge as per prescribed format/ pro-forma. The Contractor shall
submit five numbers of hard copies and one soft copy of floppy/ CD for all bills.
Subject to clause 37.3 herein below, the payment due to the Contractor shall be
made within fifteen days of getting the measurements verified from the Engineer-
In-Charge or his subordinate/ representative and certification of bill by the
Engineer-In-Charge.

37.2 All running payments shall be regarded as ‘on account’ payments against the
final payment only and not as payments for work actually done and completed and /
or accepted by EPI and shall not preclude the recovery for bad, unsound
and imperfect or unskilled work to be removed and taken away and
reconstructed or re-erected or be considered as an admission of the due
performance of the Contract, or any part thereof, in this respect, or the accruing
of any claim, nor shall it conclude, determine or affect in any way the powers of
EPI under these conditions or any of them as to the final settlement and
adjustments of the accounts or otherwise, or in any other way vary/ affect the
contract. The final bill shall be submitted by the Contractor within three months of
the completion of work, otherwise EPI’s certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on Contractor. Each Running Bill should be accompanied by two sets of at-least 20 (twenty) photographs as per direction of Engineer-In-Charge taken from various points depicting status of work as on Report/ Bill date along with Monthly Progress Report for the concerned month in the pro-forma to be given/ approved by Engineer-In-Charge. Intermittent progress photographs as and when required shall also be provided by the Contractor at his own cost as per direction of Engineer-In-Charge. No payment of running account bill shall be released unless it is accompanied by progress photographs and Monthly Progress Report as above.

37.3 It is clearly agreed and understood by the Contractor that notwithstanding anything to the contrary that may be stated in the agreement between EPI and the Contractor, the Contractor shall become entitled to payment only after EPI has received the corresponding payment(s) from the Client/ Owner for the work done by the Contractor. Any delay in the release of payment by the Client/ Owner to EPI leading to delay in the release of the corresponding payment by EPI to the Contractor shall not entitle the Contractor to any compensation/ interest from EPI.

37.4 All payments shall be released by EPI by Account Payee Cheque from any of its offices in India directly at the address notified by the Contractor (Postage charges shall be charged to the Contractor’s account). In case of Payments is made by Demand Draft at the request of the Contractor, Bank Commission charges shall be debited to the account of Contractor.

38.0 WORK ON SUNDAYS, HOLIDAYS AND DURING NIGHT

For carrying out work on Sunday and Holidays or during night, the Contractor will approach the Engineer-In-Charge or his representative at least two days in advance and obtain his permission. The Engineer-In-Charge at his discretion can refuse such permission. The Contractor shall have no claim on this account whatsoever. If work demand, the Contractor shall make arrangements to carry out the work on Sundays, Holidays and in two, three shifts with the approval of Engineer-in- Charge at no extra cost to EPI.

39.0 NO IDLE CHARGES TOWARDS LABOUR OR PLANT & MACHINERY ETC.

No idle charges or compensation shall be paid for idling of the Contractor’s labour, staff or Plant & Machinery etc. on any ground or due to any reason whatsoever. EPI will not entertain any claim in this respect.

40.0 WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS, ETC.

The Contractor shall execute the whole and every part of the work in the most substantial and workman like manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The Contractor shall also conform exactly, fully and faithfully to the Design, Drawings and Instructions
in writing in respect of the work assigned by the Engineer-In-Charge and the Contractor shall be furnished free of charge one copy of the Contract Documents together with Specifications, Designs, Drawings.

The Contractor shall comply with the provisions of the contract and execute the works with care and diligence and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

41.0 DIRECTION FOR WORKS

41.1 All works to be executed under the contract shall be executed under the direction and subject to approval in all respect of the Engineer-In-Charge of EPI who shall be entitled to direct at what point or points and in what manner works are to be commenced and executed.

41.2 The Engineer-In-Charge and his representative shall communicate or confirm their instructions to the Contractor in respect of the execution of work during their Site inspection in a ‘Works Site Order Book’ maintained at the site office of Engineer-In-Charge. The Contractor or his authorized representative shall confirm receipt of such instructions by signing against the relevant orders in the book. The Contractor shall be bound to sign the site order book as and when required by Engineer-In-Charge and carry out compliance of instructions promptly to the satisfaction of Engineer-In-Charge.

42.0 ORDER OF PRECEDENCE OF DOCUMENTS

42.1 In case of difference, contradiction, discrepancy, dispute with regard to Conditions of Contract, Specifications, Drawings, Bill of Quantities and Rates quoted by the Contractor and other documents forming part of the contract, the following shall prevail in order of precedence.

i) Contract Agreement
ii) Fax, Telegram or Letter of Intent, detailed letter of Work Order along with statement of agreed variations and its enclosures.
iii) Description in Bill of Quantity / Schedule of Quantities
iv) Additional Conditions of Contract.
v) Technical specifications (General / Special Technical Specification) as given in the Tender Documents.
vi) General Conditions of Contract.
vii) Drawings
viii) CPWD/ MORTH specifications (as specified in Technical Specification of the Tender) update with correction slips issued up to last date of receipt of Tenders.
ix) Relevant B.I.S. Codes.

42.2 If there are varying or conflicting provisions made in any one document forming part of the contract, the Engineer-In-Charge shall be the deciding authority with regard to the intention of the document which shall be final and binding on the Contractor.

42.3 Any error in description, quantity or rate in the Schedule of Quantities/items or Bill of Quantities or any omission there from shall not vitiate the contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to the Drawings and Specifications or from any of his obligations under the contract.

43.0 TIME SCHEDULE & PROGRESS

43.1 Time allowed for carrying out all the works as entered in the Tender shall be as mentioned in the “Memorandum” to the “Form of Tender” which shall be reckoned from the 10th day from the date on which the letter/telegram of Intent is issued to the Contractor. Time shall be the essence of the contract and Contractor shall ensure the completion of the entire work within the stipulated time of completion.

43.2 The Contractor shall also furnish within 10 days from the date of letter/telegram of Intent, a CPM network/PERT chart/Bar Chart for completion of work within stipulated time. This will be duly got approved from EPI. This approved Network/PERT Chart shall form a part of the agreement. Achievement of milestones as well as total completion has to be within the time period allowed.

43.3 Contractor shall mobilize and employ sufficient resources for completion of all the works as indicated in the agreed BAR CHART/Network. No additional payment will be made to the Contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the Engineer-In-Charge.

43.4 During the currency of the work the Contractor is expected to adhere to the time schedule on milestones and total completion and this adherence will be a part of Contractor’s performance under the contract. During the execution of the work Contractor is expected to participate in the review and updating of the Network/BAR CHART undertaken by EPI. These reviews may be undertaken at the discretion of EPI either as a periodical appraisal measure or when the quantum of work order on the Contractor is substantially changed through deviation orders or amendments. The review shall be held at Site or any of the offices of EPI/Owner or Consultant of EPI/Owner at the sole discretion of EPI.

43.5 If at any time, it appears to the Engineer-In-Charge that the actual progress of work does not conform to the approved programme referred above, the Contractor shall produce a revised programme showing the modifications to the approved programme by additional inputs to ensure completion of the work within the stipulated time. The Contractor will adhere to the revised schedule thereafter. The approval to the revised schedule resulting in a completion date beyond the
stipulated date of completion shall not automatically amount to a grant of extension of time to the Contractor.

43.6 Contractor shall submit fortnightly/ Monthly (as directed by Engineer-In-Charge) progress reports (5 copies) on a computer based program (program and software to be approved by Engineer-In-Charge) highlighting status of various activities and physical completion of work.

43.7 The Contractor shall send completion report along with as built drawings and maintenance schedule to the office of Engineer-In-Charge, of EPI in writing within a period of 30 days of completion of work.

44.0 WATER AND ELECTRICITY

The Contractor shall make his own arrangement for Water & Electrical power for construction and other purposes at his own cost and pay requisite electricity and water charges. The Contractor shall also make standby arrangement for water & electricity to ensure un-interrupted supply.

45.0 MATERIALS TO BE PROVIDED BY THE CONTRACTOR

The Contractor shall, at his own expense, provide all materials, required including Cement & Steel for the works.

The Contractor shall at his own expense and without delay, supply to the Engineer-in-Charge samples of materials to be used on the work and shall get the same approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The Contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-In-Charge that the materials so comply.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-In-Charge or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the Contractor shall afford every facility and every assistance and cost in obtaining the right and visit to such access.

The Engineer-In-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-In-Charge shall be at liberty to employ at the expense of the Contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-In-Charge shall also have full power to require other proper materials to be substituted thereof and in case of default, the Engineer-In-Charge may cause the same to the supplies and all
costs which may require such removal and substitution shall be borne by the Contractor.

45.1 CEMENT AND CEMENT GODOWN

Cement shall be procured by Contractor of 43 Grade conforming to BIS : 8112 Specification latest edition or higher Grade as directed by the Engineer-In-Charge. The cement shall be procured directly from the reputed manufacturers/stockist, which will have to be got approved from EPI in advance. Relevant vouchers and test certificates will be produced as and when required. The cement shall be stored by the Contractor in such suitable covered and lockable stores, well protected from climate and atmospheric effect. The cement godown shall be constructed by the Contractor as per CPWD specifications at his own cost. The cement will remain under double lock, one from EPI and other from Contractor. The cement in bags shall be stored in godowns in easy countable position. Cement bags shall be used on first in first out basis. Cement stored for beyond 90 days will be required to be tested at Contractors cost, before use in works.

45.2 STEEL & STEEL STOCKYARD

Steel conforming to BIS specifications (latest edition) shall be procured by the Contractor directly from reputed manufacturers/producers as approved by EPI. The manufacturer has to give a certificate that the material supplied is not a re-rolled product. Relevant vouchers & test certificates will be produced by the Contractor. Re-rolled sections will not be allowed.

Reinforcement steel, structural steel shall be stored and stacked in such manner so as to facilitate easy identification, removal etc. The Contractor shall take proper care to prevent direct contact between the steel and the ground/water for which he shall provide necessary arrangement at his own cost including ensuring proper drainage of area to prevent water logging as per directions of the Engineer-In-Charge. If required, the reinforcement steel shall also be protected, by applying a coat of neat cement slurry over the bars for which no extra payment shall be made.

Test certificates for each consignment of steel shall be furnished and tests to be got carried out by the Contractor at his own cost from the authorized laboratory as per the directions of Engineer-In-Charge, before incorporating the materials in the work.

46.0 SCHEDULE OF QUANTITIES / BILL OF QUANTITIES

46.1 The quantities shown against the various items of work are only approximate quantities, which may vary as per the actual requirement at Site.

46.2 All items of work in the Bill of Quantities/schedule of quantities shall be carried out as per the CPWD/MORTH (as the case may be) specifications, drawings and instructions of the ENGINEER-IN-CHARGE of EPI and the rates shall include for supply of required materials including proper storage, consumables, skilled & unskilled labour, supervision, tools, tackles, plant & machinery complete
as called for in the detailed specifications and conditions of the contract. No item, which is not covered in the Bill of Quantities, shall be executed by the Contractor without the approval of EPI. In case any Extra/Substituted item is carried out without specific-approval, the same will not be paid.

47.0 ANTI-TERMITE TREATMENT & WATER PROOF TREATMENT

47.1 Pre-construction treatment shall be carried out in co-ordination with the building work and shall be executed in such a manner that the civil works are not hampered or delayed by the anti-termite treatment. The treatment shall be carried out as detailed in BIS: 6313 (Part-II) latest revision. The waterproof treatment shall be of type and specifications as given in the schedule of quantities.

47.2 The treatment against water-proofing of basement, roofs, water retaining areas and termite infestation shall be and remain fully effective for a period of not less than 10(Ten) years to be reckoned from the date of expiry of the Defect Liability period, prescribed in the contract. At any time during the said guarantee period if EPI finds any defects in the said treatment or any evidence of re-infestation, dampness, leakage in any part of buildings or structure and notifies the Contractor of the same, the Contractor shall be liable to rectify the defect or give re-treatment at his own cost and shall commence the work or such rectification or re-treatment within seven days from the date of issue of such letter to him. If the Contractor fails to commence such work within the stipulated period, EPI may get the same done by another agency at the Contractor’s cost and risk and the decision of the Engineer-In-Charge of EPI for the cost payable by the Contractor shall be final and binding upon him.

47.3 Re-treatment if required shall be attended to and carried out by the Contractor within seven days of the notice from Engineer-In-Charge of EPI.

47.4 EPI reserves the right to get the quality of treatment checked in accordance with recognized test methods and in case it is found that the chemicals with the required concentration and rate of application have not been applied, or the water proof treatment is not done as per specifications, the Contractor will be required to do the re-treatment in accordance with the required concentration & specifications at no extra cost failing which no payment for such work will be made. The extent of work thus rejected shall be determined by EPI.

47.5 Water proofing and anti-termite treatment shall be got done through approved / specialized agencies only with prior approval of Engineer-In-Charge.

47.6 The Contractor shall make such arrangement as may be necessary to safeguard the workers and residents of the building against any poisonous effect of the chemicals used during the execution of the work.

47.7 During the execution of work, if any damage shall occur to the treatment already done, either due to rain or any other circumstances, the same shall be rectified and made good to the entire satisfaction of Engineer-In-Charge by the Contractor at his cost.
47.8 The Contractor shall make his own arrangement for all equipments required for the execution of the job.

47.9 The Contractor shall execute Guarantee Bond in the prescribed form as appended for guaranteeing the anti-termite treatment and waterproof treatment.

48.0 INDIAN STANDARDS

Wherever any reference is made to any IS in any particular specifications, Drawings or Bill of Quantities, it means the Indian Standards editions with the amendments current at the last date of receipt of Tender Documents.

49.0 CENTERING & SHUTTERING

Marine plywood only or steel plates of minimum thickness as approved by Engineer-In-Charge shall be used for formwork. The shuttering plates shall be cleaned and oiled after every repetition and shall be used only after obtaining approval of EPI's Engineers at Site. The number of repetitions allowed for plywood and steel shuttering shall be at the discretion of Engineer-In-Charge of EPI depending upon the condition of shuttering surface after each use and the decision of ENGINEER-IN-CHARGE in this regard shall be final and binding on the Contractor. No claim whatsoever on this account shall be admissible.

50.0 CONTROLLED MATERIALS

50.1 The following Controlled materials shall be brought to Site after the approval of EPI.
   a) Water proofing compound.
   b) Cement
   c) Steel
   d) Primer/ Paints/ Varnish etc.
   e) Bitumen
   f) Chemical for anti termite treatment
   g) Any other materials as per discretion of EPI.

50.2 The quantity of Controlled materials shall be measured and recorded in the Measurement books and signed by the Contractor and the Engineer-In-Charge as a check to ensure that the required quantities as required for execution of works as per specifications have been brought to Site for incorporation in the work.

50.3 Controlled materials brought at Site shall be stored as directed by EPI and those already recorded in Measurement book, shall be suitably marked for identification.

50.4 The Contractor shall ensure that the Controlled materials are brought to Site in original sealed containers or packing bearing manufacturer's markings and
brands (except where the quantity required is a fraction of the smallest packing). Materials not complying with this requirement shall be rejected. The empty containers of such Controlled materials shall not be destroyed/ disposed-off without the written permission of EPI.

50.5 The Contractor shall produce receipted vouchers showing quantities of the materials to satisfy Engineer-In-Charge that the materials comply with the specifications. These vouchers shall be endorsed, dated and initialed by Engineer-In-Charge giving the contract number and name of work and a certified copy of each such voucher signed both by EPI and the Contractor shall be kept on record.

50.6 When the cost of each category of materials is less than Rs.5000/- production of vouchers may not be insisted upon if EPI is otherwise satisfied with the quality and quantity of materials.

51.0 RECORDS OF CONSUMPTION OF CEMENT & STEEL

51.1 For the purpose of keeping a record of cement and steel received at Site and consumption in works, the Contractor shall maintain a properly bound register in the form approved by EPI, showing columns like quantity received and used in work and balance in hand etc. This register shall be signed daily by the Contractor's representative and EPI's representative.

51.2 The register of cement & steel shall be kept at Site in the safe custody of EPI's Engineer during progress of the work. This provision will not, however, absolve the Contractor from the quality of the final product.

51.3 In case cement or steel quantity consumed is lesser as compared to the theoretical requirement of the same as per CPWD/MORTH (as the case may be) specifications/ norms, the work will be devalued and/ or a penal rate (i.e. double the rate at which cement/ steel purchased last) recovery for lesser consumption of cement/ steel shall be made in the item rates of the work done subject to the condition that the tests results fall within the acceptable criteria as per CPWD/MORTH (as the case may be) specifications otherwise the work shall have to be dismantled and redone by the Contractor at no extra cost.

In case of cement, if actual consumption is less than 98% of the theoretical consumption, a recovery shall be effected from the Contractor's dues at the penal rate for the actual quantity that is lower than 98% of theoretical consumption.

52.0 MATERIALS AND SAMPLES

52.1 The materials/ products used on the works shall be one of the approved make/ brands out of list of manufacturers/ brands/ makes given in the Tender Documents. The Contractor shall submit samples/ specimens out of approved makes of materials/ products to the Engineer-In-Charge for prior approval. In
exceptional circumstances Engineer-In-Charge may allow alternate equivalent makes/brands of products/materials at his sole discretion. The final choice of brand/make shall remain with the Engineer-In-Charge, whose decision in this matter shall be final and binding and nothing extra on this account shall be payable to the Contractor.

In case single brand/make is mentioned, other equivalent makes/brands may be considered by the Engineer-In-Charge with prior approval. In case of variance in CPWD/IS/BIS Specifications from approved products/makes specification, the specification of approved product/make shall prevail for which nothing shall be paid extra to the Contractor.

In case no make or brand of any materials, articles, fittings and accessories etc. is specified, the same shall comply with the relevant Indian Standard Specifications and shall bear the ISI/BIS mark. The Engineer of EPI and the Owner shall have the discretion to check quality of materials and equipments to be incorporated in the work, at source of supply or site of work and even after incorporation in the work. They shall also have the discretion to check the workmanship of various items of work to be executed in this work. The Contractor shall provide the necessary facilities and assistance for this purpose.

52.2 The above provisions shall not absolve the Contractor from the quality of final product and in getting the material and workmanship quality checked and approved from the Engineer-In-Charge of EPI.

52.3 The Contractor shall well in advance, produce samples of all materials, articles, fittings, accessories etc. that he proposes to use and get them approved in writing by EPI. The materials articles etc. as approved shall be labelled as such and shall be signed by EPI and the Contractor’s representative.

52.4 The approved samples shall be kept in the custody of the Engineer-in-Charge of EPI till completion of the work. Thereafter the samples except those destroyed during testing shall be returned to the Contractor. No payment will be made to the Contractor for the samples or samples destroyed in testing.

52.5 The brands of all materials, articles fittings etc. approved together with the names of the manufacturers and firms from which supplies have been arranged shall be recorded in the Site Order Book.

52.6 The Contractor shall set up and maintain at his cost, a field testing laboratory for all day-to-day tests at his own cost to the satisfaction of the Engineer-In-Charge. This field testing laboratory shall be provided with equipment and facilities to carry out all mandatory field tests as per CPWD/MORTH (as the case may be) specifications. The laboratory building shall be constructed and installed with the appropriate facilities; Temperature and humidity controls shall be available wherever necessary during testing of samples.

All equipments shall be provided by the Contractor so as to be compatible with the testing requirements specified. The Contractor shall maintain all the equipments in good working condition for the duration of the contract.
The Contractor shall provide approved qualified personnel to run the laboratory for the duration of the Contract. The number of staff and equipment available must at all times be sufficient to keep pace with the sampling and testing programme as required by the Engineer-In-Charge.

The Contractor shall fully service the site laboratory and shall supply everything necessary for its proper functioning, including all transport needed to move equipment and samples to and from sampling points on the Site, etc.

The Contractor shall re-calibrate all measuring devices whenever so required by the Engineer-In-Charge and shall submit the results of such measurements without delay.

All field tests shall be carried out in the presence of EPI’s representative. All costs towards samples, materials, collection, transport, manpower, testing, including concrete mix-design etc. shall be borne by the Contractor and are deemed to be included in the rates quoted by him in the Bill of Quantities.

53.0 TESTS AND INSPECTION

53.1 The Contractor shall carry out the various mandatory tests as per specifications and the technical documents that will be furnished to him during the performance of the work. All the tests on materials, as recommended by CPWD, MORTH (as the case may be) and relevant Indian Standard Codes or other standard specifications (including all amendments current at the last date of submission of Tender Documents) shall be got carried out by the Contractor at the field testing laboratory or any other recognized institution/laboratory, at the direction of EPI. All testing charges, expenses etc. shall be borne by the Contractor. All the tests, either on the field or outside laboratories concerning the execution of the work and supply of materials shall be got carried out by the Contractor or EPI at the cost of the Contractor.

53.2 WORKS TO BE OPEN TO INSPECTION

All works executed or under the course of execution in pursuance of this contract shall at all times be open to inspection and supervision of EPI. The work during its progress or after its completion may also be inspected, by Chief Technical Examiner of Government of India (CTE) and/or an inspecting authority of State Government of State in which work is executed and/or by third party checks by Owner/ Clients. The compliance of observations/improvements as suggested by the inspecting officers of EPI/CTE/ State authorities/ Owners shall be obligatory on the part of the Contractor at the cost of Contractor.

54.0 BORROW AREAS

The Contractor shall make his own arrangements for borrow pits and borrow disposal areas including their approaches and space for movement of men, machinery, other equipments as required for carrying out the works. The Contractor shall be responsible for taking all safety measures, getting approval,
making payment of royalties, charges etc. and nothing extra shall be paid to the Contractor on this account and unit rates quoted by the Contractor for various items of Bill of Quantities shall be deemed to include the same.

55.0 BITUMEN WORK

The Contractor shall be responsible for arranging Bitumen/Tar of required grade from source to be approved by the Engineer-In-Charge. No Bitumen work shall be carried out on wet surface or in rainy conditions.

56.0 CARE OF WORKS

From the commencement to the completion of works and handing over, the Contractor shall take full responsibility for care of all the works and in case of any damage/loss to the works or to any part thereof or to any temporary works due to lack of precautions or due to negligence on part of Contractor, the same shall be made good by the Contractor at his own cost.

57.0 WORK IN MONSOON AND DEWATERING

The execution of the work may entail working in the monsoon also. The Contractor must maintain labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No special/ extra rate will be considered for such work in monsoon. The Contractor’s rate shall be considered inclusive of cost of dewatering required, if any and no extra rate shall be payable on this account.

58.0 NO COMPENSATION FOR FORECLOSURE/CANCELLATION/ REDUCTION OF WORKS

If at any time after the commencement of the work EPI shall for any reason whatsoever is required to abandon the work or does not require the whole work thereof as specified in the Tender to be carried out, the Engineer-In-Charge shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been carried out or on foreclosure, neither shall he have any claim for compensation by reason of any alterations having been made in the original Specifications, Drawings, Designs and Instructions which shall involve any curtailment of the work as originally contemplated.

Provided that the Contractor shall be paid the charges on the cartage only of materials actually and bonafide brought to the Site of the work by the Contractor and rendered surplus as a result of the abandonment or curtailment of the work or any portion thereof and then taken back by the Contractor, provided however, that the Engineer-In-Charge shall have in all such cases the option of taking over all or any such materials at their purchase price or at local current rates whichever may be less. In the case of such stores having been issued by EPI
and returned by the Contractor to EPI, credit will be given to him by the Engineer-
In-Charge at rates not exceeding those at which they were originally issued to
him after taking into consideration any deduction for claims on account of any
deterioration or damage while in the custody of the Contractor and in this respect
the decision of the Engineer-In-Charge shall be final.

59.0  RESTRICTION ON SUBLETTING

59.1  The Contractor shall not sublet or assign the whole or part of the works except
where otherwise provided, by the contract and even then only with the prior
written consent of EPI and such consent if given shall not relieve the Contractor
from any liability or obligation under the contract and he shall be responsible for
the acts, defaults or neglects of any sub-Contractor, his agents, servants or
workmen as full as if they were the acts, defaults or neglects of the Contractor,
his agent, servants or workmen provided always that the provision of labour on
piece work basis shall not be deemed to be a subletting under this clause.

59.2  The Contractor may entrust specialist items of works to the agencies specialized
in the specific trade. The Contractor shall give the names and details of such firm
whom he is going to employ for approval of EPI. These details shall include the
expertise, financial status, technical manpower, equipment, resources and list of
works executed and on hand of the specialist agency. Specialist agency shall be
engaged only after obtaining written approval of the Engineer-In-Charge.

60.0  PROHIBITION OF UNAUTHORISED CONSTRUCTION & OCCUPATION

No unauthorized buildings, structures should be put up by the Contractor
anywhere on the project Site, neither any building built by him shall be un-
authorizedly occupied by him or his staff.

61.0  CO-ORDINATION WITH OTHER AGENCIES

Work shall be carried out in such a manner that the work of other Agencies
operating at the Site is not hampered due to any action of the Contractor. Proper
Co-ordination with other Agencies will be Contractor’s responsibility. In case of
any dispute the decision of EPI shall be final and binding on the Contractor. No
claim whatsoever shall be admissible on this account.

62.0  SETTING OUT OF THE WORKS

62.1  The Contractor shall be responsible for the true and proper setting out of the
works and for the correctness of the position, levels, dimensions and alignment
of all parts of the works. If at any time during the progress of works, shall any
error appear or arise in the position, levels, dimensions or alignment of any part
of the works, the Contractor shall at his own expenses rectify such error to the
satisfaction of Engineer-in-charge. The checking of any setting out or of any line
or level by the engineers of EPI shall not in any way relieve the Contractor of his
responsibility for the correctness.
62.2 Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural, Plumbing and other services Drawings.

63.0 **NOTICE BEFORE COVERING UP THE WORK**

The Contractor shall give not less than seven days notice before covering up or otherwise placing beyond the reach of measurement any work, to the Engineer-In-Charge in order that the same may be inspected and measured. If any work is covered up or placed beyond the reach of Inspection/ measurement without such notice to the Engineer-In-Charge or his consent being obtained, the same shall be uncovered at the Contractors expenses and he shall have to make it good at his own expenses.

64.0 **SITE CLEARANCE**

64.1 The Contractor shall ensure that the working Site is kept clean and free of obstructions for easy access to job Site and also from safety point of view. Before handing over the work to EPI the Contractor shall remove all temporary structures like the site offices, cement godown, stores, labour hutments etc., scaffolding rubbish, left over materials tools and plants, equipments etc., clean and grade the Site to the entire satisfaction of the Engineer-In-Charge. If this is not done the same will be got done by EPI at his risk and cost.

64.2 The Contractor shall clean all floors, remove cement/ lime/ paint drops and deposits, clean joinery, glass panes etc., touching all painter’s works and carry out all other necessary items of works to make the premises clean and tidy before handing over the building, and the rates quoted by the Contractor shall be deemed to have included the same.

65.0 **VALUABLE ARTICLES FOUND AT SITE**

All gold, silver and other minerals of any description and all precious stones, coins, treasure, relics, antiques and all other similar things which shall be found in, under or upon the Site, shall be the property of the Owner/ Government and the Contractor shall duly preserve the same to the satisfaction of Engineer-In-Charge and shall from time to time deliver the same to such person or persons indicated by EPI.

66.0 **MATERIALS OBTAINED FROM DISMANTLEMENT TO BE OWNER’S PROPERTY**

All materials like stone, boulders and other materials obtained in the work of dismantling, excavation etc. will be considered Owner/ government property and may be issued to the Contractor by the Owner/ EPI, if required for use in this work at rates approved by EPI or the Contractor may be asked to dispose off these items at his cost.

67.0 **SET-OFF OF CONTRACTOR’S LIABILITIES**

EPI shall have the right to deduct or set off the expenses incurred or likely to be incurred by it in rectifying the defects and/or any claim under this agreement.
against the Contractor from any or against any amount payable to the Contractor under this agreement including Retention Money and proceeds of Security Deposit cum Performance Guarantee and from any other contract being executed by the Contractor for EPI.

68.0 MATERIALS PROCURED WITH THE ASSISTANCE OF EPI

If any material for the execution of this contract is procured with the assistance of EPI either by issue from its stores or purchase made under orders or permits or licences obtained by EPI, the Contractor shall hold and use the said materials economically and solely for the purpose of this contract and shall not dispose them without the written permission of Engineer-In-Charge. The Contractor, if required by EPI, shall return all such surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination on whatsoever reason, on being paid or credited such price as EPI shall determine having due regard to the conditions of materials.

69.0 ALTERATION IN SPECIFICATION, DESIGN & DRAWING

69.1 The Engineer-In-Charge shall have power to make any alterations in, omissions from, additions to or substitutions for, the original Specifications, Drawings, Designs and Instructions that may appear to him to be necessary during the progress of the work, and the Contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-In-Charge and such alterations, omissions, additions, or substitutions shall not invalidate the contract and any altered, additional or substituted work which the Contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work.

The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work price bears to the original contract work price, and the certificate of the Engineer-In-Charge shall be conclusive as to such proportion. Over and above this, a further period to the extent of 25 percent of such extension shall be allowed to the Contractor.

The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions in their respective order:

i) If the rates for the additional, altered or substituted work are specified in the contract for the work, the Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract for the work.

ii) If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for a nearest similar item of work as are specified in the contract for the work. In case of composite tenders where two or more
schedule of quantities/ Bill of Quantities form part of the contract, the rates shall be derived from the nearest similar item in the schedule of quantities/Bill of Quantities of the particular part of work in which the deviation is involved failing that from the lowest of the nearest similar item in other schedule of quantity. The opinion of the Engineer-In-Charge as to whether or not the rate can be reasonably so derived from the item in this contract will be final and binding on the Contractor.

iii) If the altered, additional or substituted work includes any work for which no rate is specified in the contract for the work and which cannot be derived in the manner specified in sub para (i) and (ii) above from the similar class of work in the contract then such work shall be carried out at the rates entered in the Schedule of Rates (as mentioned in “Memorandum” to the “Form of Tender” for Civil/ Sanitary Works) minus/plus the percentage which the tendered amount of scheduled items bears with the estimated amount of schedule items based on the Schedule of Rates (as mentioned in “Memorandum” to the “Form of Tender” for Civil/ Sanitary Works). The scheduled items mean the items appearing in the Schedule of Rates (as mentioned in “Memorandum” to the “Form of Tender” for Civil/ Sanitary Works), which shall be applicable in this clause. This clause will apply mutatis mutandis to electrical work except that Electrical Schedule of Rates as mentioned in “Memorandum” to the “Form of Tender” will be considered in place of Civil/ Sanitary works Schedule of rates as mentioned in “Memorandum” to the “Form of Tender”.

iv) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub-clauses (i) to (iii) above, then the Contractor shall, within 7 days of the date of receipt of order to carry out the work, inform the Engineer-In-Charge the rates which he intends to charge for such class of work, supported by analysis of the rate or rates claimed, and the Engineer-In-Charge shall determine the rate or rates on the basis of prevailing market rates of the material, Labour, T&P etc. plus 10% (Ten percent) to cover the Contractors supervision, overheads and profit and pay the Contractor accordingly. The opinion of the Engineer-In-Charge as to the current market rates of materials and quantum of labour involved per unit of measurements will be final and binding on the Contractor.

However, the Engineer-In-Charge, by notice in writing, will be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner, as he may consider advisable. But under no circumstances, the Contractor shall suspend the work on the plea of non-settlement of rates of items falling under the clause.

v) Except in case of items relating to foundations, provisions contained in sub-clauses (i) to (iv) above shall not apply to contract, altered or substituted items as individually exceed the ‘deviation limit’ of plus/minus 25% (Twenty Five Percent) subject to the following:-

(a) Deviation limit shall apply to individual items.
(b) The value of additions of items, of any individual trade not already included in the contract, shall not exceed 20% of the Tendered value of work, subject to overall deviation limit as given above.

Provided further that in case where the original item is substituted, the Substituted Item shall be deemed to have replaced the original item in the contract itself to that extent and above provisions pertaining to the deviations shall apply with respect to such Substituted Item and not the original item.

NOTE: Individual trade means the trade section to which Bill of Quantities annexed to the agreement has been divided or in the absence of any such division the individual section of the MORTH/C.P.W.D. (as the case may be) Scheduled of rates specified above, such as excavation and earthwork, Concrete, wood work and joinery, etc.

The rate of any such work except the items relating to foundations which is in excess of the deviation limit and deviation in quantities of AHR items on plus side as contained in Clause 9.2(i) shall be determined in accordance with the provisions contained in Clause 69.2.

69.2 In the case of contract items, substituted items, Contract cum substituted items or additional items which exceed the limits laid down in sub para (v) of condition 69.1 above (except the items relating to foundation work, which the Contractor is required to do under Clause 69.1 above and deviation in quantities of AHR items on plus side as contained in clause 9.2 (i) ), the Contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis, for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities or those derived in accordance with the provisions of sub para (i) to (iii) of conditions 69.1 by more than five percent, the Engineer-In-Charge shall within three months of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the Contractor, determine the rates on the basis of the market rates and if the rates so determined exceed the rates specified in the schedule of quantities or those derived in accordance with the provisions of sub paras (i) to (iii) of condition 69.1 by more than five percent, the contract shall be paid in accordance with the rates determined. In the event of the Contractor failing to claim revision of rates within the stipulated period, or if the rates determined by the Engineer-In-Charge within the period of three months of receipt of the claims supported by analysis are within five percent of the rates specified in the schedule of quantities or of those determined in accordance with the provisions of sub-para (i) to (iii) of condition 69.1, the Engineer-In-Charge shall make payment at the rates as specified in the schedule of quantities or those already determined under sub para (i) to (iii) of condition 69.1 for the quantities in excess of the limits laid down in sub para (v) of condition 69.1.

69.3 The provisions of the proceeding paragraph shall apply to the decrease in the rates of items for the work in excess of the limits laid down in sub para (v) of
condition 69.1 provided that such decrease is more than five percent of rates specified in the schedule of quantities or those derived in accordance with the provisions of sub para (i) to (iii) of condition 69.1 and the Engineer-In-Charge may after giving notice to the Contractor within two months of receipt of order by the Contractor or occurrence of the excess and after taking into consideration any reply received from him within fifteen days of receipt of the notice revise the rates for the work in question within two months of expiry of the said period of fifteen days having regard to the market rates.

69.4 The Contractor shall send to the Engineer-In-Charge once every three months an up to date account giving complete details of all claims for additional payments to which the Contractor may consider himself entitled and of all additional work ordered by the Engineer-In-Charge which he has executed during the preceding quarter failing which the Contractor shall be deemed to have waived his right.

69.5 For the purpose of operation of clause 69.1 (v) the following works shall be treated as works relating to foundation:-

   i) For buildings, compound walls plinth level or 1.2 meters (4 feet) above ground level whichever is lower excluding items of flooring and D.P.C. but including base concrete below the floors.

   ii) For abutments, piers, retaining walls of culverts and bridges, walls of water reservoirs the bed of floor level.

   iii) For retaining walls where floor level is not determinate 1.2 meters above the average ground level or bed level.

   iv) For Roads all items of excavation and filling including treatment of sub base and soiling work.

   v) For water supply lines, sewer lines, under-ground storm water drains and similar works. All items of work below ground level except items of pipe work, masonry work.

   vi) For open storm water drains, all items of work except lining of drains.

70.0 ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK

If it shall appear to the Engineer-In-Charge or his authorized subordinate in charge of the work or to the Chief Technical Examiner or to any other inspecting agency of Government/ State Government/ Owner where the work is being executed, that any work has been executed with unsound, imperfect, or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the Contractor shall on demand in writing which shall be made within six months of the completion of the work from the ENGINEER-IN-CHARGE specifying the work, materials or articles complained of notwithstanding that the same may have been passed, Certified and paid for forthwith rectify, or remove and
reconstruct the work so specified in whole or in part as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-In-Charge in his demand aforesaid, then the Contractor shall be liable to pay compensation at the rate of one percent of the estimated amount put to tender for every day not exceeding ten days, while his failure to do so shall continue and in the case of any such failure, the Engineer-In-Charge may rectify or remove and re-execute the work or remove and replace with others, the material or articles complained of as the case may be at the risk and expense in all respects of the Contractor.

71.0 POSSESSION PRIOR TO COMPLETION

71.1 EPI shall have the right to take possession of or use any completed or partially completed work or part of the work. Such possession or use shall not be deemed to be any acceptance of any work not completed in accordance with the contract agreement. If such prior possession or use by EPI delays the progress of work an equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly. The decision of EPI in this case shall be final binding and conclusive.

71.2 When the whole of the works or the items or the groups of items of work for which separate periods of completion have been specified have been completed the Contractor will give a notice to that effect to the Engineer in writing. The Engineer shall within 15 days of the date of receipt of such notice inspect the works and either the Engineer-In-Charge issues to the Contractor a completion certificate stating the date on which in his opinion the works were completed in accordance with the contract or gives instructions in writing to the Contractor specifying the balance items of work which are required to be done by the Contractor before completion certificate could be issued. The Engineer-In-Charge shall also notify the Contractor of any defect in the works affecting completion.

71.3 The Contractor shall during the course of execution prepare and keep updated a complete set of ‘as built’ drawings to show each and every change from the Contract Drawings, changes recorded shall be countersigned by the Engineer-In-Charge and the Contractor. Four copies of ‘as built’ drawings shall be supplied to EPI by the Contractor within 30 days of the completion. All costs incurred in this respect shall be borne by the Contractor only.

72.0 COMPENSATION FOR DELAY AND REMEDIES

72.1 If the Contractor fails to maintain the required progress in terms of clause 72.4 or relevant clause of Additional Conditions of Contract, to complete the work and clear the Site on or before the completion date or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to EPI on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below or such smaller amount as the Engineer in charge (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day / week (as
applicable) that the progress remains below that specified in Clause 72.4.1 or the relevant clause in Additional Conditions of Contract or that the work remains incomplete. This will also apply to items or group of items for which a separate period of completion has been specified.

i) For works with completion period not exceeding 3 month (as originally stipulated) @ 1% per day

ii) For works with completion period exceeding 3 months (as originally stipulated) @ 1% per week or part thereof

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the Tendered Value of work or of the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with EPI even after completion of the work.

### 72.2 CANCELLATION / DETERMINATION OF CONTRACT IN FULL OR PART

Subject to other provisions contained in this clause, the Engineer-In-Charge may, without prejudice to his any other rights or remedy against the Contract in respect of any delay, inferior workmanship, any claims for damages and / or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in full or in part in any of the following cases:

i) If the Contractor having been given by the Engineer-In-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workmanlike manner shall omit to comply with the requirement of such notice for a period of seven days thereafter; or

ii) If the Contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the ENGINEER-IN-CHARGE (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-In-Charge; or

iii) If the Contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that respect by the Engineer-In-Charge; or

iv) If the Contractor persistently neglects to carry out his obligations under the contract and / or commits default in complying with any of the terms
and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that respect by the Engineer-In-Charge; or

v) If the Contractor shall offer or give or agree to give to any person in EPI service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of this or any other contract for EPI; or

vi) If the Contractor shall enter into a contract with EPI in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the Engineer-In-Charge; or

vii) If the Contractor shall obtain a contract with EPI as a result of wrong tendering or other non-bona-fide methods of competitive tendering; or

viii) If the Contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or

ix) If the Contractor being a company, shall pass a resolution or the Court shall make an order for the winding up of the company, or a receiver or manager on behalf of the debenture holders or otherwise shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or

x) If the Contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or

xi) If the Contractor assigns, transfers, sublets (engagement of labour on a piece-work basis or of the labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer sublet or otherwise parts with the entire works or any portion thereof without and prior written approval of the Engineer-In-Charge.

When the Contractor has made himself liable for action under any of the clauses aforesaid, the Engineer-In-Charge may without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to EPI, by a notice in
writing to cancel the contract as a whole or only such items of work in default from the Contract.

The Engineer-In-Charge shall on such cancellation by EPI have powers to:

a) Take possession of Site and any materials, Construction Plant & machinery, implements, stores, etc. thereon; and/ or

b) Carry out the incomplete work by any means at the risk and cost of the Contractor; and/ or

c) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the Contractor under the hand of the Engineer-In-Charge shall be conclusive evidence). Upon such determination or rescission the full Retention Money recovered by EPI under the contract and Security Deposit cum Performance Guarantee shall be liable to be forfeited and un-used materials, construction plant & machinery, implements, temporary buildings, etc. shall be taken over and shall be absolutely at the disposal of EPI. If any portion of the Retention Money has not been received or recovered by EPI from RA Bills, it would be called for and forfeited; and/ or

d) To employ labour and to supply materials, equipment to carry out the work or any part of the work debiting the Contractor with the cost of the labour and the price of the materials, equipment rentals (of the amount of which cost and price certified by the Engineer-In-Charge shall be final and conclusive) against the Contractor and crediting him 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 provided always that action under the sub-clause shall only be taken after giving notice in writing to the Contractor. Provided also that if the expenses incurred by the EPI are less than the amount payable to the Contractor at his agreement rates, the difference shall not be paid to the Contractor; and/ or

e) After giving notice to the Contractor to measure up the work of the Contractor and to take such whole, or the balance or part thereof as shall be un-executed or delayed with reference to the General Conditions of Contract clause no. 72.4.1 and/ or relevant clause of Additional Conditions of Contract, out of his hands and to give it to another Contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of the Engineer-In-Charge shall be final and conclusive) shall be borne and paid by the original Contractor and may be deducted from any money due to him by EPI under his contract or on any other account whatsoever or from his Retention Money, Security Deposit cum Performance Guarantee or the proceeds of sales of unused materials, construction plants & machinery, implements temporary buildings etc. thereof or a sufficient part thereof as
the case may be. If the expenses incurred by EPI are less than the amount payable to the Contractor at his agreement rates, the difference shall not be paid to the Contractor; and/or

f) By a notice in writing to withdraw from the Contractor any items or items of work as the Engineer-In-Charge may determine in his absolute discretion and get the same executed at the risk and cost of the Contractor.

Any excess expenditure incurred or to be incurred by EPI in completing the works or part of the works or the excess loss or damages suffered or may be suffered by EPI as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to EPI in law be recovered from any moneys due to the Contractor on any account, and if such moneys are not sufficient the Contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the Contractor shall fail to pay the required sum within the aforesaid period of 30 days, the Engineer-In-Charge shall have the right to sell any or all of the Contractors unused materials, Construction Plant, machinery, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the contract and if thereafter there be any balance outstanding from the Contractor, it shall be recovered in accordance with the provisions of the contract and law.

Any sums in excess of the amounts due to EPI and unsold materials, Construction Plant etc. shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by EPI of the works or part of the works is less than the amount which the Contractor would have been paid had he completed the works or part of the works, such benefit shall not accrue to the Contractor.

In the event of anyone or more of the above courses being adopted by the Engineer-In-Charge the Contractor shall have no claim to compensation whatsoever for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid the Contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-In-Charge has certified 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. Provided further that if any of the recoveries to be made, while taking action as per (d) and/or (e) above, are in excess of the Retention Money & Security Deposit cum Performance Guarantee forfeited, these shall be limited to the amount by which the excess cost incurred by the EPI exceeds the Retention Money & Security Deposit cum Performance Guarantee so forfeited.
72.3 CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOT TAKEN

In any case in which any of the powers conferred upon the Engineer-In-Charge by relevant clause thereof, shall have become exercisable and the same are not 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 and the liability of the Contractor for compensation shall remain unaffected. In the event of the Engineer-In-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the Contractor, take possession of (or at the sole discretion of the Engineer-In-Charge which shall be final and binding on the Contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-In-Charge) all or any tools, plant, machinery, materials and stores, in or upon the works, or the site thereof belonging to the Contractor, or procured by the Contractor 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 the case of these not being applicable, at current market rates to be certified by the Engineer-In-Charge, whose certificate thereof shall be final, and binding on the Contractor and/or direct the Contractor, clerk of the works, foreman or other authorized agent to remove such tools, machinery, 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 his risk in all respects and the certificate of the Engineer-In-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the Contractor.

72.4 TIME ESSENCE OF CONTRACT & EXTENSION FOR DELAY

The time allowed for execution of the Works as specified in the terms of contract or the extended time in accordance with these conditions shall be the essence of the contract. The execution of the works shall commence from the 10th Day or such time period as mentioned in letter of Intent after the date on which the Engineer-In-Charge issues written orders to commence the work. If the Contractor commits default in commencing the execution of the work as aforesaid, the Executing Agency shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the earnest money absolutely.

72.4.1 Within 10 (Ten) days of Letter of Intent, the Contractor shall submit a Time and Progress Chart (CPM/PERT/Quantified Bar Chart) 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 the works. It shall indicate the forecast (milestones) of the dates of commencement and completion of various items, trades, sections of the work and may be amended as necessary by agreement between the Engineer-In-Charge and the Contractor within the limitations of time stipulated in the Contract documents, and further to ensure good progress during the execution of the work, the Contractor shall in all cases in which the time allowed for any work exceeds one month (save for
special jobs for which a separate program has been agreed upon) complete 1/8th of the whole of work before 1/4th of the whole time allowed in the contract has elapsed, 3/8th of the work before one half of such time has elapsed and 3/4th of the work before 3/4th of such time has elapsed. The physical report including photographs shall be submitted by the Contractor on the prescribed format & the intervals (not exceeding a month) as decided by the Engineer in Charge. The compensation for delay as per clause 72.1 shall be leviable at intermediate stages also, in case the required progress is not achieved to meet the above time deadlines of the completion period and/ or milestones of time and progress chart, provided always that the total amount of Compensation for delay to be paid under this condition shall not exceed 10% (Ten Percent) of the tendered value of work”.

72.4.2 If the work(s) be delayed by:

i) force-majeure or
ii) abnormally bad weather, or
iii) serious loss or damage by fire, or
iv) civil commotion of workmen, strike or lockout, affecting any or the trades employed on the work, or
v) delay on the part of other Contractors or tradesmen engaged by Engineer-In-Charge in executing work not forming part of the Contract, or
vi) non-availability of stores, which are responsibility of EPI or,
vii) non-availability or break down of tools and plant to be supplied or supplied by EPI or,
viii) any other cause which, in the absolute discretion of EPI, is beyond the Contractor’s control,

then, upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-In-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-In-Charge to proceed with the works.

72.4.3 Request for extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay on the prescribed form. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired. In any such case EPI may give a fair and reasonable extension of time for completion of work. Such extension shall be communicated to the Contractor by the Engineer-In-Charge in writing, within 3 months of the date of receipt of such request. Non-application by the Contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-In-Charge and the extension of time so given by the Engineer-In-Charge shall be binding on the Contractor.

73.0 WITHHOLDING AND LIEN IN RESPECT OF SUMS DUE FROM CONTRACTOR

73.1 Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the Contractor, EPI shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security,
if any, deposited by the Contractor and for the purpose aforesaid, EPI shall be entitled to withhold the Retention Money, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the Contractor, EPI shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the Contractor under the same contract or any other contracts pending finalization or adjudication of any such claim.

73.2 It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-In-Charge or EPI will be kept withheld or retained as such by the Engineer-In-Charge or EPI till the claim arising out of or under the contract is determined by the Arbitrator / Competent Court and that the Contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the Contractor. For the purpose of this clause, where the Contractor is a sole proprietor or a partnership firm or a limited company, etc. the Engineer-In-Charge or EPI shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to proprietor /partnership firm/limited company, as the case may be whether in his individual capacity or otherwise.

EPI shall have the right to cause an audit and technical examination of the works and the final bills of the Contractor including all supporting vouchers, abstract, etc, to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the Contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the Contractor shall be liable to refund the amount of over-payment and it shall be lawful for EPI to recover the same from him in the manner prescribed in sub-clause (I) of this clause or in any other manner legally permissible; and if it is found that the Contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by EPI to the Contractor, without any interest thereon whatsoever.

73.3 LIEN IN RESPECT OF CLAIMS IN OTHER CONTRACTS

Any sum of money due and payable to the Contractor (including the Retention Money & Security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-In-Charge or by EPI against any claim of the Engineer-In-Charge or EPI in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with the Engineer-In-Charge or EPI.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-In-Charge or EPI will be kept withheld or retained as such by the Engineer-In-Charge or EPI or till his claim arising out of the same contract or any other contract is either mutually settled or determined by the Arbitrator or Competent court as the case may be, and that the Contractor shall have no claim for interest or damages whatsoever on this account or on any
other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the Contractor.

74.0 DEFECTS LIABILITY PERIOD

The Contractor shall be responsible for the rectification of defects in the works for a period of twelve months from the date of taking over of the works by the Owner/Client. Any defects discovered and brought to the notice of the Contractor forthwith shall be attended to and rectified by him at his own cost and expense. In case the Contractor fails to carry out these rectifications, the same may without prejudice to any other right or remedy available, be got rectified by EPI at the cost and expense of the Contractor.

75.0 FORCE MAJEURE

Any delay or failure of the performance of either party hereto shall not constitute default hereunder to give rise to any claims for damages, if any to the Extent such delay or failure of performance is caused by occurrences such as Acts of God or the public enemy, expropriation, compliance with any order or request of Government authorities/Courts, acts of war, rebellions, sabotage fire, floods, illegal strikes, or riots (other than Contractor's employees). Only extension of time shall be considered for Force Majeure conditions as accepted by EPI. No adjustment in contract price shall be allowed for reasons of force majeure.

76.0 ARBITRATION

76.1 Before resorting to arbitration as per the clause given below, the parties if they so agree may explore the possibility of conciliation as per the provisions of Part-III of the Arbitration and Conciliation Act. 1996. When such conciliation has failed, the parties shall adopt the following procedure for arbitration:

i) Except where otherwise provided for in the contract, any disputes and differences relating to the meaning of the Specifications, Design, Drawings and Instructions herein before mentioned and as to the quality of workmanship or materials used in the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the Contract, Designs, Drawings, Specifications, Estimates, Instructions, or these conditions, or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the Sole Arbitration of the Chairman and Managing Director (CMD) of Engineering Projects (India) Limited (EPI), or any other person discharging the functions of CMD of EPI and if CMD or such person discharging the functions of CMD of EPI is unable to act, to the sole Arbitration of some other person appointed by CMD of EPI or such other person discharging the functions of CMD of EPI. There will be no objection if the arbitrator so appointed is an employee of Engineering Projects (I) Ltd. However, such an employee shall not have directly dealt with the said Contract or the works there under on behalf of EPI. Such Arbitrator shall be appointed within 30 days of the receipt of letter of invocation of arbitration duly satisfying the requirements of this clause.
ii) If the arbitrator so appointed resigns or is unable or unwilling to act due to any reason whatsoever, or dies, the Chairman & Managing Director aforesaid or in his absence the person discharging the duties of the CMD of EPI may appoint a new arbitrator in accordance with these terms and conditions of the contract, to act in his place and the new arbitrator so appointed may proceed from the stage at which it was left by his predecessor.

iii) It is a term of the contract that the party invoking the arbitration shall specify the dispute / differences or questions to be referred to the Arbitrator under this clause together with the amounts claimed in respect of each dispute.

iv) The Arbitrator may proceed with the arbitration ex-parte, if either party, in spite of a notice from the arbitrator, fails to take part in the proceedings.

v) The work under the contract shall continue as directed by the Engineer-In-Charge, during the arbitration proceedings.

vi) Unless otherwise agreed, the venue of arbitration proceedings shall be at the venue given in the ‘Memorandum’ to the ‘Form of Tender’.

vii) The award of the Arbitrator shall be final, conclusive and binding on both the parties.

viii) Subject to the aforesaid, the provisions of the Arbitration and Conciliation Act, 1996 or any statutory modifications or re-enactment thereof and the Rules made thereunder and for the time being in force shall apply to the arbitration proceedings and Arbitrator shall publish his Award accordingly.

NOTE

NOTWITHSTANDING ANYTHING CONTAINED HEREINABOVE, THIS CLAUSE SHALL NOT BE APPLICABLE WHERE THE DISPUTE IS BETWEEN EPI AND ANOTHER CENTRAL PUBLIC SECTOR ENTERPRISE OR GOVT. OF INDIA DEPARTMENT, FOR WHICH A SEPARATE ARBITRATION CLAUSE IS PROVIDED VIDE CLAUSE NO. 76.2 GIVEN BELOW :

76.2 ARBITRATION BETWEEN CENTRAL PUBLIC SECTOR ENTERPRISES INTER SE / GOVERNMENT OF INDIA DEPARTMENTS/ MINISTRIES

i) In the event of any dispute or difference relating to the interpretation and application of the provisions of the contract, such dispute or difference shall be referred by either party to the arbitration as per the instructions (Office Memorandums / Circulars) issued by Govt. of India from time to time with regard to arbitration between one Government Department and another, one Government Department and a Public Sector Enterprise and Public Sector Enterprise inter se.

ii) Subject to any amendment that may be carried out by the Government of India from to time, the procedure to be followed in the arbitration shall be as is
76.3 JURISDICTION

The courts mentioned in the ‘Memorandum’ to the ‘Form of Tender’ alone will have jurisdiction to deal with matters arising from the contract, to the exclusion of all other courts.

77.0 SUSPENSION OF WORKS

(a) The Contractor shall, on receipt of the order in writing of the Engineer-In-Charge, suspend the progress of the works or any part thereof for such time and in such manner, as the Engineer-In-Charge may consider necessary for any of the following reasons:

i) On account of any default on part of the Contractor, or

ii) For proper execution of the works or part thereof for reason other than the default of the Contractor, or

iii) For safety of the works or part thereof.

The Contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-In-Charge.

(b) If the suspension is ordered for reasons (ii) and (iii) in sub-para (a) above, the Contractor shall be entitled to an extension of the time equal to the period of every such suspension plus 25%. No adjustment of contract price will be allowed for reasons of such suspension.

(c) In the event of the Contractor treating the suspension as an abandonment of the contract by EPI, he shall have no claim to payment of any compensation on account of any profit or advantage which he may have derived from the execution of the work in full but which he could not derive in consequence of the abandonment.

(d) The Contractor shall resume work in all earnestness after suspension has been lifted by EPI.

78.0 TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR

If the Contractor is an individual or a proprietorship concern and the individual or the proprietor dies then unless the Engineer-In-Charge is satisfied that the legal representatives of the individual Contractor or of the proprietor of the proprietary concern and in the case of partnership firm, the surviving partners, are capable of carrying out and completing the contract, the Engineer-In-Charge shall be entitled to cancel the contract as to its incompleted part without EPI being in any
way liable to payment of any compensation to the estate of the deceased Contractor and/or to surviving partners of the Contractor’s firm on account of cancellation of the contract. Such cancellation of Contract shall be without prejudice to any of the rights & remedies available to the Engineer-In-Charge under the contract. The decision of the Engineer-In-Charge that the legal representatives of the deceased Contractor or the surviving partners of the Contractor’s firm cannot carry out and complete the contract shall be final and binding on the parties.

79.0 CLARIFICATION AFTER TENDER SUBMISSION

Tenderer’s attention is drawn to the fact that during the period, the bids are under consideration, the bidders are advised to refrain from contacting by any means, EPI and/or his employees/ representatives on matters related to the bid under consideration and that if necessary, EPI will obtain clarifications in writing or as may be necessary. The Tender evaluation and process of award of works is done by duly authorized Tender Scrutiny Committee and this committee is authorized to discuss and get clarification from the tenderers.

80.0 ADDENDA/ CORRIGENDA

Addenda/Corrigenda to the Tender Documents may be issued prior to the date of opening of the Tender to clarify or effect modification in specification and/or contract terms included in various Tender Documents. The tenderer shall suitably take into consideration such Addenda/Corrigenda while submitting his tender. The tenderer shall return such Addenda/ Corrigenda duly signed and stamped as confirmation of its receipt and submit alongwith the Tender Document. All Addenda/ Corrigenda shall be signed and stamped on each page by the tenderer and shall become part of the Tender and contract documents.

81.0 QUALITY ASSURANCE PROGRAMME

To ensure that the works/services under the scope of this contract are in accordance with the specifications, the Contractor shall adopt Quality Assurance Programme to control such activities at the necessary points. The Contractor shall prepare and finalize such Quality Assurance Programme within 15 days from letter of intent. EPI shall also carryout quality audit and quality surveillance of systems and procedures of Contractor’s quality control activities. A Quality Assurance Programme of Contractor shall generally cover the following:

a) His organization structure for the management and implementation of the proposed Quality Assurance Program.

b) Documentation control system.

c) The procedure for procurement of materials and source inspection.

d) System for site controls including process controls.

e) Control of non-conforming items and systems for corrective actions.

f) Inspection and test procedure for site activities.

g) System for indication and appraisal of inspection status.

h) System for maintenance of records.

i) System for handling, storage and delivery.
j) A quality plan detailing out quality practices and procedures, relevant standards and acceptance levels for all types of work under the scope of this contract.

All the quality reports shall be submitted by the Contractors in the formats appended hereto. Checklist enclosed here in this document shall be followed while carrying out Construction activities (items). If any item is not covered by the Checklist/ Formats appended hereto, the Format for the same may be developed and submitted to Engineer-In-Charge for approval and the same shall be adopted. These filled in formats shall be prepared in two copies and duly signed by representatives of Contractor and EPI. All the costs associated with printing of Formats and testing of materials required as per technical specifications or by Engineer-In-Charge shall deemed to be included in the Contractor’s quoted rates of various items of work in the Schedule/ Bill of Quantities.

82.0 APPROVAL OF TEMPORARY / ENABLING WORKS

The setting and nature of all offices, huts, access road to the work areas, and all other temporary works as may be required for the proper execution of the works shall be subject to the approval of the Engineer-In-Charge.

All the equipments, labour, material including cement, reinforcement and the structural steel required for the enabling/ temporary works associated with the entire Contract-shall have to be arranged by the Contractor only. Nothing extra shall be paid to the Contractor on this account and the unit rates quoted by the Contractor for various items in the Bill of Quantities shall be deemed to include the cost of enabling works.

83.0 CONTRACT COORDINATION PROCEDURES, COORDINATION MEETINGS AND PROGRESS REPORTING

The Contractor shall prepare and finalize in consultation with EPI, a detailed contract coordination procedure within 15 days from the date of issue of Letter of Intent for the purpose of execution of the Contract.

The Contractor shall have to attend all the meetings at any place in India at his own cost with EPI, Owners/ Clients or Consultants of EPI/ Owner/ Client during the currency of the Contract, as and when required and fully cooperate with such persons and agencies involved during these discussions. The Contractor shall not deal in any way directly with the Clients/ Owners or Consultants of EPI/ Owner/ Clients and any dealing/ correspondence if required at any time with Clients/ Owners/ Consultants shall be through EPI only.

During the execution of the work, Contractor shall submit at his own cost detailed Monthly progress report to the Engineer-In-Charge of EPI by 5th of every month. The format of monthly progress report shall be as approved by Engineer-In-Charge of EPI.

84.0 CONTRACT AGREEMENT
The Contractor shall enter into a Contract Agreement with EPI within 10 days of the date of Letter of Intent or within such extended time, as may be granted by EPI. The cost of stamp papers, stamp duty, registration, if applicable on the contract, shall be borne by the Contractor. In case, the Contractor does not sign the agreement as above or does not start the work within 10 days of the issue of letter/telegram of intent, his earnest money is liable to be forfeited and letter of intent consequently will stand withdrawn.

85.0  MANNER OF EXECUTION OF AGREEMENT

i.  The agreement as per prescribed Performa as enclosed to the Additional Conditions of Contract shall be signed at the office of EPI within 10 days from the date of issue of Letter of Intent. The Contractor shall provide for signing of the Contract, appropriate Power of Attorney in favour of the authorised representative duly attested by notary Public and the requisite documents/materials. Till a formal contract is prepared and executed, the Letter of Intent read in conjunction with the Bidding Documents will constitute a binding contract.

ii.  The agreement will be signed in two originals and three more copies, EPI shall retain the ‘Original’, the Contractor shall be provided with the other signed original and the remaining three copies will be retained by EPI. In case of a dispute of any kind whatsoever, the ‘Original’ retained by EPI alone shall be treated as the ‘Original Agreement’.

iii.  The Contractor shall provide free of cost to EPI all the Engineering data, drawings and descriptive materials submitted along with the bid, in at least five (5) copies to form an integral part of the Agreement within seven 7 days after issuing of Letter of Intent.

iv.  Subsequent to signing of the Agreement, the Contractor at his own cost shall provide to EPI with at least five (5) true hard bound copies of Agreement alongwith all the enclosures viz. letter of intent, Tender Documents etc. within thirty (30) days of its signing.

86.0  PURCHASE PREFERENCE TO PUBLIC SECTOR ENTERPRISES

EPI reserves its right to extend Purchase Preference to Central Public Sector Enterprises (CPSEs) as per policy of Government of India, if any, as applicable on this work. The tenderers are requested to go through latest instructions of Government of India on its Purchase Preference Policy for CPSEs before quoting for the Tender.

87.0  CHANGE IN FIRM’S CONSTITUTION TO BE INTIMATED

Where the Contractor is a partnership firm, prior approval in writing of EPI shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership agreement whereunder the partnership firm would have the right to carry out the works hereby undertaken by the Contractor. If prior approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in
contravention of Clause 59.1 hereof and EPI shall be entitled to take action under Clause 72.2 (xi).

88.0 COMPLIANCE WITH ISO PROCEDURES

EPI is an ISO-9001 and ISO-14001 Company. The conditions of the ISO as applicable shall be followed by the Contractor for implementation & maintaining the established procedures of EPI.
LABOUR SAFETY PROVISIONS

1.0 Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1/4 to 1 (1/4 horizontal and 1 vertical).

2.0 Scaffolding or staging more than 3.6m (12 feet) above the ground or floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3 feet) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3.0 Working platforms, gangways, and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6m (12 feet) above ground level or floor level, they should be closely boarded, should have adequate width & should be suitable fastened as described in (2.0) above.

4.0 Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3 feet).

5.0 Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30 feet) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. for ladder up to and including 3m (10 feet) in length. For longer ladders this width should be increased at least 1/4" for each additional 30 cm (1 ft.) of length. Uniform step spacing shall not exceed 30 cm (12"). Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of the work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defence of every suit, action or other proceeding at law that may be brought by an person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person or which may, with the consent of the Contractor, be paid to compensate any claim by any such person.

6.0 EXCAVATION AND TRENCHING

All trenches, 1.2mths.(four feet) or more in depth, shall at all times be supplied with at least one ladder for each 30m. (100 feet) in length or fraction thereof. Ladder shall be extended from bottom of the trench to at least 90 cm (3feet) above the surface of the ground. The sides of the trenches, which are 1.5m. (5feet) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger or sides to collapsing. The excavated materials shall not be placed within 1.5m (5 feet) of the edges of the
trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

7.0 Demolition - Before any demolition work is commenced and also during the progress of the work:

7.1 All roads and open areas adjacent to the work Site shall either be closed or suitably protected.

7.2 No electric cable or apparatus which is likely to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

7.3 All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be overloaded with debris or materials as to render it unsafe.

8.0 All necessary personal safety equipments as considered adequate by the Engineer-In-Charge should be kept available for the use of persons employed on the Site and maintained in a condition suitable for immediate use, and the Contractor should take adequate step to ensure proper use of equipment by those concerned- The following safety equipment shall be invariably provided.

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

8.2 Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eye shall be provided with protective goggles.

8.3 Those engaged in welding works shall be provided with welder’s protective eye shields.

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

8.5 When workers are employed in sewers and manholes, which are in active use, the Contractors shall ensure that the manhole covers are opened and ventilated at-least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident the public. In addition, the Contractor shall ensure that the following safety measures are adhered to:

a. Entry for workers into the line shall not be allowed except under supervision of the JE or any other higher officer.

b. At least 5 to 6 manholes upstream and down stream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manholes for working inside.

c. Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and gives indication of their presence.

d. Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.
e. Safety belt with rope should be provided to the workers. While working inside the manholes such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

f. The area should be barricaded or cordoned of by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

g. No smoking or open flames shall be allowed near the blocked manhole being cleaned.

h. The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

i. Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer In-charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

j. Gas masks with Oxygen Cylinder should be kept at Site for use in emergency.

k. Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air-blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non-sparking gas engines also could be used but they should be placed at-least 2 meters away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

l. The workers engaged for cleaning the manholes / sewers should be properly trained before allowing them to work in the manhole. They shall be provided with Gumboots or non-sparking shoes, bump helmets and gloves non-sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

m. Workmen descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

n. If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.

p. The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-In-Charge regarding the steps to be taken in this regard in an individual case will be final.

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

8.6.1 No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

8.6.2 Suitable facemasks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.
8.6.3 Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.

8.6.4.1 a. White lead, sulphate or lead work products containing those pigments shall not be used in painting operation except in the form of paste or of paints ready for use.

b. Measures shall be taken whenever required in order to prevent danger arising from the application of paint in the form of spray.

c. Measures shall be taken, whenever practicable to prevent danger arising out of dust caused by dry rubbing down and scrapping.

8.6.4.2 a. Adequate facilities shall be provided to enable working painter to wash during and on cessation of work.

b. Suitable arrangements shall be made to prevent clothing put off during working hours being spoiled by painting materials.

8.6.4.3 a) Cases of lead poisoning and of suspected lead poisoning shall be notified and shall be subsequently verified by a medical man appointed by the competent authorities of the Consultant.

b) EPI may require when necessary a medical examination of workers.

c) Instructions with regard to the special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

9.0 When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment of all injuries likely to be obtained during the course of the work.

10.0 Use of hoisting machines and tackle including their attachment encourage and supports shall conform to the following standard of conditions.

10.1 a. These shall be of good mechanical construction, sound material and adequate strength and free from patent, defects and shall be kept required in good working order.

b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

10.2 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 giving signals to operator.
10.3 In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

10.4 In case of EPI machines, the safe working load shall be notified by the Engineer-In-Charge. As regards Contractor’s machines the Contractor shall notify the safe working load of the machine to the Engineer-In-Charge whenever he brings any machinery to Site of work and get verified by the Engineer-In-Charge.

11.0 Motors gearing, transmission electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguard, hosting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel, such as gloves sleeves and boots as may be necessary, be provided. The worker should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

12.0 All scaffold, ladders, and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

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

14.0 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 or their representatives.

15.0 Notwithstanding the above Clauses from (i) to (xiv) there is nothing in these to exempt the Contractor from the operations of any other Act or Rule in force in the Republic of India.
MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

1.0  APPLICATION

These rules shall apply to all building and construction works in which 20 (twenty) or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the Contractor work is in progress.

2.0  DEFINITION

Work place means a place where twenty or more workers are ordinarily employed or are proposed to be employed in connection with construction work on any day during the period during which the Contractor work is in progress.

3.0  FIRST-AID FACILITIES

3.1  At every work place first aid facilities shall be provided and maintained, so as to be easily accessible during working hours, First-Aid boxes at the rate of not less than one box per 150 contract labour or part thereof ordinarily employed.

3.2  The First-Aid box shall be distinctly marked with a red cross on white ground and shall contain the following equipments:-

3.2.1  a)  For work places in which number of contract labour employed does not exceed 50, Each First-Aid box shall contain the following equipments:

i)  6 small sterilized dressings.
ii) 3 medium size sterilized dressings.
iii) large size sterilized dressings.
iv) 3 large sterilized burn dressings.
v) 1 (30 ml) bottle containing a two percent alcoholic solution of iodine.
vii) 1(30 ml) bottle containing salvolatile having the dose and mode of administration indicated on the label.
vii) 1 snake-bite lancet.
viiii) 1 (30 gms) bottle of potassium permanganate crystals.
ix) 1 pair of scissors.
x) 1 copy of the First-Aid leaf-let issued by the Director General, Factory Advise Service & Labour Institutes, Government of India.
xii) 1 bottle containing 100 tablets (each of 5 grams) of aspirin.
xii) Ointment for burns.
xiii) A bottle of suitable surgical antisepic solution.
3.2.2 For work places in which the number of contract labour exceed 50. Each First-Aid box shall contain the following equipments:

i) 12 small sterilized dressings.
ii) 6 medium size sterilized dressings.
iii) 6 large size sterilized dressings.
iv) 6 large size sterilized burn dressings.
v) 6 (15 gms) packet sterilized cotton wool.
vi) 1 (60 ml.) bottle containing a two percent iodine alcoholic solution.
vii) 1 (60 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
viii) 1 roll of adhesive plaster.
ix) 1 snake – bite lancet.
x) 1 (30 gms.) bottle of potassium permanganate crystals.
xi) 1 pair of scissors.
xii) 1 copy of the First-Aid leaf-let issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
xiii) A bottle containing 100 tablets (each of 5 grams) of aspirin.
xiv) Ointment for burns.
xv) A bottle of suitable surgical antiseptic solution.

3.3 Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

3.4 Nothing except the prescribed contents shall be kept in the First Aid box.

3.5 The First Aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

3.6 A person in charge of the First-Aid box shall be a person trained in First-Aid treatment, in work places where the number of labour employed is 150 or more.

3.7 In work places where the number of labour employed is 500 or more and hospital facilities are not available within easy distance of the works, first-Aid Posts shall be established and run by a trained Compounder. The Compounder shall be on duty and shall be available at all hours when the workers are at work.

3.8 Where work places are situated in places, which are not towns of cities, a suitable motor transport shall be kept readily available to carry injured person or persons suddenly taken ill to the nearest hospital.

4.0 DRINKING WATER

4.1 In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, a sufficient supply of cold water fit for drinking.

4.2 Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

4.3 Every water supply of storage shall be at a distance of not less than 50 feet from any latrines drain or other source of pollution, Where water has to be drawn from
an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap-door which shall be dust and waterproof.

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

5.0 WASHING FACILITIES

5.1 In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of labour employed herein.

5.2 Separate and adequate screening facilities shall be provided for the use of male and female workers.

5.3 Such facilities shall be conveniently accessible and shall be kept clean and hygienic condition.

6.0 LATRINES AND URINALS

6.1 Latrines shall be provided in every work place on the following scale, namely:

a) Where females are employed there shall be at least one latrine for every 25 females.

b) Where males are employed, there shall be at least one latrine for every 25 males.

Provided that where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females, as the case may be, up to the first 100, and one for every 50 thereafter.

6.2 Every latrine shall be under cover and so partitioned off as to secure privacy, and shall has a proper door and fastenings.

6.3 Construction of Latrines: The inside walls shall be constructed of masonry or some suitable heat resisting non-absorbent materials and shall be cement washed inside and outside at least once a year. Latrine shall not be a standard lower than borehole system.

6.4 (a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers “For Men only” or “For Women only” as the case may be.

(b) The notice shall also bear the figure of man or of a women, as the case may be.
6.5 There shall be at least one urinal for male workers up to 50 and one for female workers up to 50 employed at a time. Provided that where the number of male or female workmen, as the case may be, exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females up to the first 500 and one for every 100 or part thereof, thereafter.

6.6 a) The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

b) Latrines and urinals other than those connected with a flush sewerage system shall comply with the requirements of the Public Health Authorities.

6.7 Water shall be provided by means of a tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

6.8 DISPOSAL OF EXCRETA

Unless otherwise arranged for by the local sanitary authority arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternatively excreta may be disposed off by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm layer of waste or for refuse and then covering it with a layer of earth for fortnight (when it will turn into manure).

6.9 The Contractor shall, at his own expense, carry out all instruction issued to him by the Engineer-In-Charge to effect proper disposal of night soil and other conservancy work in respect of the Contractor’s workmen or employees on the Site. The Contractor shall be responsible for payment of any charges, which may be levied by Municipal or Cantonment Authority for execution of such work on his behalf.

7.0 PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost four suitable sheds, two for males and the other two for rest separately for the use of man and women labour. The height of each shelter shall not be less than 3 meters from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sqm. Per head.

Provided that the Engineer-In-Charges may permit, subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8.0 CRECHES

8.1 A every work place, at which 20 or more women workers are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room shall be used as a playroom for the children and the other as their bedrooms.

The rooms shall be constructed on standard not lower than the following:
8.2 The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

8.3 The Contractor shall supply adequate number of toys and games in the playroom and sufficient number of cots and beddings in the bedroom.

8.4 The Contractor shall provide one Ayaa to look after the children in the creche when the number of women workers does not exceed 50 and two when the number of women workers exceed 50.

8.5 The use of the rooms/earmarked as ealize shall be restricted to children, their attendant and mother of the children.

9.0 **CANTEENS**

9.1 In every work place where the work regarding the employment of contract labour is likely to continue for six months and wherein contract labour numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the Contractor for the use of such labour.

9.2 The canteen shall be maintained by the Contractor in an efficient manner.

9.3 The canteen shall consist of at least a dining hall, kitchen, storeroom, pantry and washing places separately for workers and utensils.

9.4 The canteen shall be sufficiently lighted at all times when any person has access to it.

9.5 The floor shall be made of smooth and impervious material and inside walls shall be lime washed or colour washed at least once in each year.

Provided that the inside walls of the kitchen shall be lime-washed every four months.

9.6 The premises of the canteen shall be maintained in a clean and sanitary condition.

9.7 Waste Water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

9.8 Suitable arrangements shall be made for the collection and disposal of garbage.

9.9 The dinning hall shall accommodate at a time 30 persons of the labour working at time.
9.10 The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs, shall not be less than one square meter per dinner to be accommodated.

9.11 a) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number.

b) Washing places for women shall be separate and screened to secure privacy.

9.12 Sufficient tables, stools, chairs or benches shall be available for the number of dinners to be accommodated.

9.13.1 a) There shall be provided and maintained sufficient utensils, crockery, furniture and any other equipment necessary for the efficient running of the canteen.

b) The furniture, utensils and other equipment shall be maintained in a clean and hygienic condition.

9.13.2 a) Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.

b) A service counter, if provided, shall have a top of smooth and impervious material.

c) Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment.

9.14 The foodstuffs and other items to be served in the canteen shall be in conformity with the normal habits of the labour.

9.15 The charge for foodstuffs, beverages and any other items served in the canteen shall be based on 'No profit No loss' and shall be conspicuously displayed in the canteen.

9.16 In arriving at the price of foodstuffs, and other articles served in the canteen, the following items shall not be taken into consideration as expenditure, namely:

a) The rent of land building.

b) The depreciation and maintenance charges for the building and equipment provided for the canteen.

c) The cost of purchase, repair and replacement of equipment including furniture, crockery, cutlery and utensils:

d) The water charges and other charges incurred for lighting and ventilation:

e) The interest and amounts spent on the provision and maintenance and equipment provided for in the canteen.
9.17 The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10.0 ANTI MALARIAL PRECAUTIONS

The Contractor shall at his own expense, conform to all anti-malarial instructions given to him by the Engineer-In-Charge including the filling up of any borrow pits which may have been dug by him.

11.0 AMENDMENTS

EPI may from time to time, add to or amend these rules and issue such directions as it may consider necessary for the purpose of removing any difficulty which may arise in the administration hereof.
CONTRACTOR’S LABOUR REGULATIONS

1.0 SHORT TITLE

These regulations may be called the Contractor “Labour Regulations”.

2.0 DEFINITIONS

2.1 “Workman” means any person employed by EPI or its Contractor directly or indirectly through a sub-Contractor, with or without the knowledge, of EPI to do any skilled, semi-skilled, unskilled, manual, supervisory, technical or clerical work for hire or reward, whether, the terms of employment are expressed or implied but does not include any person-

a) Who is employed mainly in a managerial or administrative capacity; or

b) Who being employed in a supervisory capacity draws wages exceeding Rupees Two thousand Five hundred per person or exercises either by the nature of the duties attached to the office or by reason of powers vested to him, functions mainly of managerial nature.

c) Who is an out worker, that is to say, a person to whom any articles or materials are given out by or on behalf of the principal Employer to be made up cleaned, washed, altered, ornamental finished, repaired, adopted or otherwise processed for sale for the purpose of the trade or business of the principal Employer and the process is to be carried out either in the home of the out worker or in some other premises, not being premises under the control and management of the principal Employer.

2.2 “Fair Wages” means wages whether for time or piecework fixed and notified under the provisions of the minimum Wages Act from time to time.

2.3 “Contractor” shall include every person who undertake to produce a given result other than a mere supply of goods or articles of manufacture through labour or who supplies labour for any work and includes a sub-Contractor.

2.4 “Wages” shall have the same meaning as defined in the Payment of Wages Act.

2.4.1 Normally working hours of an adult employee should not exceed 9 hours a day. The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

2.4.2 When an adult worker is made to work for more than 9 hours on any day or for more than 48 hours in any week he shall be paid overtime for the extra hours put in by him at double the ordinary rate of wages.
2.4.3.1 Every worker shall be given a weekly holiday on a Sunday, in accordance with the provisions of the Minimum Wages (Central) Rules 1960 as amended from time to time, irrespective of whether such worker is governed by the Minimum Wages Act or not.

2.4.3.2 Whether the Minimum Wages prescribed by the Government under the Minimum Wages Act are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages at the rate applicable to the next preceding day, provided he has worked under the same Contractor for a continuous period of not less than 6 days.

2.4.3.3 Here a Contractor is permitted by the Engineer-In-Charge to allow a worker to work on a normal weekly holiday, he shall grant a substitute holiday to him for the whole day on one of the five days immediately before or after the normal weekly holidays and pay wages to such worker for the work performed on the normal weekly holiday at overtime rate.

3.0 DISPLAY OF NOTICE REGARDING-WAGES, ETC.

The Contractor shall before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain in a clean and legible condition in conspicuous places on the work, notices in English and in the local Indian languages spoken by the majority of the workers, giving the minimum rates of wages fixed under the Minimum Wages Act, the actual wages being paid, the hours of work for which such wages are earned, wage period, dates of payment of wages and other relevant information as per Appendix ‘A’.

4.0 PAYMENT OF WAGES

4.1 The Contractor shall fix wage periods in respect of which wages shall be payable.

4.2 No wage period shall exceed one month.

4.3 The wages of every person employed as labour in an establishment or by a Contractor where less than one thousand, such persons are employed shall be paid before the expiry of the seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.

4.4 Where the employment of any worker is terminated by or on behalf of the Contractor the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.

4.5 All payments of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of the last working day.
4.6 Wages due to every worker shall be paid to him direct or to other person authorized by him in this behalf.

4.7 All wages shall be paid in current coin or currency or in both.

4.8 Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.

4.9 A notice showing the wage period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the Contractor to the Engineer-In-Charge under acknowledgment.

4.10 It shall be the duty of the Contractor to ensure the disbursement of wages in the presence of the Engineer or any other authorized representatives of the Engineer-In-Charge who will be required to be present at the place and time of disbursement of wages by the Contractor to workmen.

4.11 The Contractor shall obtain from the Engineer or any other authorized representative of the Engineer-In-Charge as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage-cum-Muster Roll" as the case may be in the following form:

"Certified that the amount shown in column No............ has been paid to the workmen concerned in my presence on............... at ............"

5.0 FINES AND DEDUCTIONS, WHICH MAY BE MADE FROM WAGES

5.1 The wages of a worker shall be paid to him without any deduction of any kind except the following:

a) Fines

b) Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

c) Deduction for damage to or loss of goods expressly entrusted to the employed persons for custody, or from loss of money or any other deduction which he is required to account where such damage or loss is directly attributable to his neglect or default.

d) Deduction for recovery of advances or for adjustment of over payment of wages, advances granted shall be entered in a register.

e) Any other deduction, which the Central Government may from time to time allow.

5.2 No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved by the Chief Labour Commissioner.
NOTE: An approved list of Acts and Omissions for which fines can be imposed is enclosed at Appendix-I.

5.3 No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

5.4 The total amount of fine which may be imposed in any one-wage period on a worker shall not exceed an amount equal to three paise in a Rupee of the total wages, payable to him in respect of that wage period.

5.5 No fine imposed on any worker shall be recovered from him in installment, or after the expiry of sixty days from the date on which it was imposed.

5.6 Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

6.0 LABOUR RECORDS

6.1 The Contractor shall maintain a “Register of persons employed” on work on contract in form XIII of the CL (R&A) Central Rules 1971 (Appendix-B).

6.2 The Contractor shall maintain a “Muster Roll” register in respect of all workmen employed by him on the work under contract in from XVI of the CL (R&A) Rules 1971 (Appendix-C).

6.3 The Contractor shall maintain a “Wage Register” in respect of all workmen employed by him on the work in form (Appendix-D).

6.4 Register of accidents – The Contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:

a) Full particulars of the labourers who met with accident.
b) Rate of wages
c) Sex
d) Age
e) Nature of accident and cause of accident.
f) Time and date of accident.
g) Date and time when he/she admitted in Hospital
h) Date of discharge from the Hospital
i) Period of treatment and result of treatment
j) Percentage of loss of earning capacity and disability as assessed by Medical Officer.
k) Claim required to be paid under Workmen’s Compensation Act.
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.
6.5 Register of Fines – The Contractor shall maintain a “Register of Fines” in the form (Appendix-H).

The Contractor shall display in a good condition and in a conspicuous place of work the approved list of Acts and Omission for which fines can be imposed (Appendix-I).

6.6 Register of Deductions-The Contractor shall maintain a “Register of Deductions” for damage or loss in form (Appendix-J).

6.7 Register of Advances-The Contractor shall maintain a “Register of Advances” in form (Appendix-K).

6.8 Register of Overtime-The Contractor shall maintain a “Register of Overtime” in form (Appendix-L).

7.0 ATTENDANCE CARD-CUM WAGE SLIP:

7.1 The Contractor shall issue an attendance card-cum-wage slip to each workman employed by him in the specimen form at (Appendix-E).

7.2 The card shall be valid for each wage period.

7.3 The Contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work.

7.4 The card shall remain in possession of the worker during the wage period under reference.

7.5 The Contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference.

7.6 The Contractor shall obtain the signature or thump impression of the worker on the wage slip at the time of disbursement of wages and retain the card with himself.

8.0 EMPLOYMENT CARD

The Contractor shall issue an Employment Card in form to each worker within three days of the employment of the worker (Appendix-F).

9.0 SERVICE CERTIFICATE

On termination of employment for any reason whatsoever the Contractor shall issue to the workman whose services have been terminated, a service certificate in from Appendix-G.
10.0 **PRESERVATION OF LABOUR RECORDS**

All records required to be maintained under Regulations Nos. 6 and 7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-In-Charge, Labour Officer.

11.0 **POWER OF LABOUR OFFICERS TO MAKE INVESTIGATIONS INQUIRY**

The Labour Officer or any other person authorized by EPI on its behalf shall have power to make inquires with a view to ascertaining and enforcing due and proper observance of the Fair Wage Clauses and the Provisions of Regulations. He shall investigate into any complaint regarding the default made by the Contractor or sub-Contractor in regard to such provision.

12.0 **INSPECTION OF BOOK AND SLIPS**

The Contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour officer or any other person, authorized by the Central Government on his behalf.

13.0 **SUBMISSION OF RETURNS**

The Contractor shall submit periodical returns as may be specified from time to time.

14.0 **AMENDMENTS**

EPI may from to time, add or amend the regulations and on any question as to the application, interpretation or effect of these regulations the decision of the Zonal Chief concerned shall be final.
Appendix – ‘A’

LABOUR BOARD

Name of work
Name of Contractor
Address of Contractor
Name and Address of Unit
Name of Labour Enforcement Officer
Address of Labour Enforcement Officer
Date:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Category</th>
<th>Minimum wage fixed</th>
<th>Actual wages paid</th>
<th>Number present</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Weekly Holiday
Wage Period
Date of Payment of wages
Working hours
Rest interval
FORM 13

SEE RULE 75

REGISTER OF WORKMEN EMPLOYED BY CONTRACTOR

Name and Address of Contractor

Name and Address of Establishment in/under which contract is carried on

Nature and location of work

Name & Address of Principal Employer

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name and surname of workman</th>
<th>Age &amp; sex</th>
<th>Father’s Husbands Name</th>
<th>Nature of employment / designation</th>
<th>Permanent home address of the workman (village and Tehsil Taluk and District)</th>
<th>Local address</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of commencement of employment</th>
<th>Signature or thumb impression of the workman</th>
<th>Date of termination of employment</th>
<th>Reasons for termination</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Signature of Contractor
FORM XVI

(See Rule 78(2) (193)

MUSTER ROLL

Name and address of Contractor

Name and address of establishment in/under which contract is carried on

Nature and location of work

Name and Address of Principal Employer

For the month / fortnight

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the workman</th>
<th>Sex</th>
<th>Father's / Husband's Name</th>
<th>Dates</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
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1 2 3 4 5
### Appendi – ‘D’

**FORM XVII**

[SEE RULE 78(2) (03)]

**REGISTER OF WAGES**

Name and address of Contractor

Name and address of establishment in/under which contract is carried on

Nature and location of work

Name and Address of Principal Employer

Wage period: per month/ fortnightly

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Workman</th>
<th>Serial No. in the register of workman</th>
<th>Designation nature of work done</th>
<th>Nos. of days worked</th>
<th>Units of work done</th>
<th>Daily rate of wages/ piece rate</th>
<th>Basic Wages</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

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<thead>
<tr>
<th>Dearness allowance</th>
<th>Overtime</th>
<th>Other cash payments (Nature of payments to be indicated)</th>
<th>Total</th>
<th>Duration if any (indicate)</th>
<th>Net Amt paid</th>
<th>Signature thumb impression of the workman</th>
<th>Initial Contractor or his representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
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</tr>
</tbody>
</table>

**Signature of Contractor**
FORM XIX

[SEE RULE 78 (2) (B)]

WAGESLIP

Name and address of Contractor

Name and Father’s/Husband’s Name of workman

Nature and location of work

For the Week/Fortnight/Month ending

1. No. of days worked

2. No. of Units worked in case of piece rate workers

3. Rate of daily wages/piece rate

4. Amount of overtime wages

5. Gross wages payable

6. Deductions if any

7. Net amount of wages paid

Sign of the Contractor
## Appendix – ‘E’

### WAGE CARD

<table>
<thead>
<tr>
<th>WAGE CARD NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME AND ADDRESS OF CONTRACTOR</td>
</tr>
<tr>
<td>NATURE OF WORK WITH LOCATION</td>
</tr>
<tr>
<td>NAME OF WORKMAN</td>
</tr>
</tbody>
</table>

### RATE OF WAGES

<table>
<thead>
<tr>
<th>MONTH/FORTNIGHT</th>
<th>MORNING</th>
<th>EVENING</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31</td>
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</tbody>
</table>

**INITIAL**

**RECEIVED FROM** | **THE SUM OF RS.** | **ON ACCOUNT OF MY WAGON.**

**SIGNATURE**

**THE WAGE CARD IS VALID FOR ONE MONTH FROM THE DATE OF ISSUE.**

---

**Signature of Contractor**

Page 88
FORM XIV

(SEE RULE 76)

EMPLOYMENT CARD

Name and address of Contractor

Name and address of establishment under which

The contract is carried out

Nature and location of work

Name and address of Principal Employer

1. Name of the workman

2. S. Name in the register of workman employed

3. Nature of Employment/Designation

4. Wage rate (with particulars of unit in case of piece work)

5. Wage Period

6. Tenure of employment

7. Remarks

Signature of Contractor
FORM XV

(SEE RULE 77)

SERVICE CERTIFICATE

Name and address of Contractor

Nature and location of work

Name and address of workman

Age or date of birth

Identification Marks

Father’s/Husband’s Name

Name and address of establishment in which contract is carried on

Name and address of Principal Employer

Total period of which employed

<table>
<thead>
<tr>
<th>S.No.</th>
<th>From</th>
<th>To</th>
<th>Nature of work</th>
<th>Rate of wages (with particular s of unit In case of piece work)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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Signature
FORM XII

[SEE RULE 78 (2) (D)]

REGISTER OF FINES

Name and address of Contractor

Name and address of establishment in/ under which contract is carried on

Nature and location of work

Name and address of workman

Name and address of Principal Employer

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of workman</th>
<th>Father’s/Husband Name</th>
<th>Designation/nature of employment</th>
<th>Act/Omission for which fine imposed</th>
<th>Date of offence</th>
</tr>
</thead>
<tbody>
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</table>

Whether workman showed causes against fine

Name of person in whose presence employees explanation was heard

Wage period and wages payable

Amount of fine imposed

Date on which fine realized

Remarks

<table>
<thead>
<tr>
<th>Whether workman showed causes against fine</th>
<th>Name of person in whose presence employees explanation was heard</th>
<th>Wage period and wages payable</th>
<th>Amount of fine imposed</th>
<th>Date on which fine realized</th>
<th>Remarks</th>
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</table>
Appendix – ‘I’

LIST OF ACTS AND OMISSIONS FOR WHICH FINES CAN BE IMPOSED

In accordance with rule of Labour Regulations, to be displayed prominently at the Site of work both in English and local language.

1. Willful insubordination or disobedience, whether alone or in combination with other.
2. Theft, fraud or dishonestly in connection with Contractors beside a business or property of EPI.
3. Taking or giving bribes or any illegal gratifications.
4. Habitual late attendance.
5. Drunk-ness fighting riotous or disorderly or indifferent behaviour.
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 EPI or of the Contractor.
10. Sleeping on duty.
11. Malingering or slowing down work.
12. Giving the false information regarding name, age, fathers name etc.
13. Habitual loss of wage cards supplied by the Employer.
14. Unauthorized use of Employers property or manufacturing or making of unauthorized articles at the work place.
15. Bad workmanship in construction and maintenance by skilled workers, which is not approved by EPI for which the Contractors are compelled to undertake rectifications.
16. Making false complaints and/or misleading statements.
17. Engaging on trade within the premises of the establishment.
18. Any unauthorized divulgence of business affairs of the employees.
19. Collection or canvassing for the collection of any money within the premises of an establishment unless authorized by the Employer.
20. Holding meeting inside the premises without previous sanction of the Employers.
21. Threatening or intimidating any workman or employee during the working hours within the premises.
## FORM XX

[SEE RULE 78 (2) (D)]

**REGISTER OF DEDUCTION FOR DAMAGES OR LOSS**

Name and address of Contractor

Name and address of establishment in/ under which contract is carried on

Nature and location of work

Name and address of Principal Employer

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of workman</th>
<th>Father’s/Husband Name</th>
<th>Designation/nature of employment</th>
<th>Particulars of damage or loss</th>
<th>Date of damage/loss</th>
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</thead>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Whether workman showed cause against deductions</th>
<th>Name of person in whose presence employees explanation was heard</th>
<th>Amount of deduction Imposed</th>
<th>No. of installment</th>
<th>First Installment</th>
<th>Last Installment</th>
<th>Remarks</th>
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</thead>
<tbody>
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<td>7</td>
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</tbody>
</table>

**Date of recovery**
### REGISTRATION OF ADVANCES

**Name and address of Contractor**

**Name and address of establishment in/ under which contract is carried on**

**Nature and location of work**

**Name and address of Principal Employer**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of workman</th>
<th>Father’s/Husband Name</th>
<th>Designation/nature of employment</th>
<th>Wages period and wages payable</th>
<th>Date and amount of advance given</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**Purpose / for which advance made**

<table>
<thead>
<tr>
<th>No. of installments by which advance is to be paid</th>
<th>Date and amount of each installment repaid</th>
<th>Date on which last installment was repaid</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
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</table>

*Signature of Contractor*
FORM XXIII

[See Rule 78(2) (E)]

REGISTER OF OVERTIME

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of workman</th>
<th>Father’s/Husband Name</th>
<th>Sex</th>
<th>Designation/ nature of employment</th>
<th>Date on which overtime worked</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Total overtime worked or production in case of piece rated</th>
<th>Normal rate of wages</th>
<th>Overtime rate of wages</th>
<th>Overtime earning</th>
<th>Rate on which overtime wages paid</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
APLICATION FOR EXTENSION OF TIME

(To be completed by the Contractor)

PART –I

1. Name of Contractor

2. Name of the work as given in the Agreement

3. Agreement No.

4. Estimated amount put to Tender

5. Date of commencement work as per agreement

6. Period allowed for completion of work as per agreement

7. Date of completion stipulated as per agreement

8. Period for which extension of time has been given previously

    Extension granted

    a) First extension vide Engineer-in-charge letter No… ……date
       Months Days

    b) 2nd extension vide Engineer-in-charge letter No………. date
       Months Days

    c) 3rd extension vide Engineer-in-charge letter No………. date
       Months Days

    d) 4th extension vide engineer-in-charge letter No………. date
       Months Days

    Total extension previously given

9. Reasons for which extension have been previously given (copies of the previous application should be attached)

10. Period for which extension is applied for:

11. Hindrances on account of which extension is applied for with dates on which hindrances occurred, and the period for which these are likely to last.

    a) Serial No.

    b) Nature of hindrance
c) Date of Occurrence

d) Period for which it is likely to last

e) Period for which extension required for this particular hindrance.

f) Overlapping period, if any, with reference to item

g) Net extension applied for

h) Remarks, if any

Total period for which extension is now applied for on account of hindrances mentioned above ............... Month/ days.

12. Extension of time required for extra work.

13. Details of extra work and on the amount involved:

   a) Total value of extra work
   b) Proportionate period of extension of time based on estimated amount put to tender on account of extra work.

14. Total extension of time required for 11 & 12
    Submitted to the Engineer-In-Charges office.

SIGNATURE OF CONTRACTOR

DATE
APPLICATION FOR EXTENSION OF TIME

(PART – II)

1. Date of receipt of application from Contractor for the work in the Engineer-In-Charge office.

2. Acknowledgement issued by Engineer-In-Charge vide his letter No dated

3. Engineer-In-Charge remarks regarding hindrances mentioned by the Contractor.
   i) Serial No.
   ii) Nature of hindrance
   iii) Date of occurrence of hindrance
   iv) Period for which hindrance, is likely to last
   v) Extension of time period applied for by the Contractor
   vi) Overlapping period, if any, giving reference to items which overlap
   vii) Net period for which extension is recommended.
   viii) Remarks as to why the hindrance occurred and justification for extension recommended.

4. Engineer-In-Charge recommendations.

   (The present progress of the work should be stated and whether the work is likely to be completed by the date upto which extension has been applied for. If extension of time is not recommended, what compensation is proposed to be levied under the agreement.)

SIGNATURE OF ENGINEER-IN-CHARGE

APPROVAL OF ZONAL HEAD
PROFORMA FOR EXTENSION OF TIME

PART –III

To

NAME

ADDRESS OF THE CONTRACTOR

SUBJECT:

Dear Sir(s)

Reference your letter No ___________ dated __________, in connection with the grant of extension of time for completion of the work…..

The date of completion for the above mentioned work, is ___________ as stipulated in the agreement, dated ___________.

Extension of time for completion of the above mentioned work is granted upto ___________, without prejudice to the right of EPI to recover compensation for delay in accordance with the provision made in the relevant Clause (s) of the said agreement dated the ___/___/_____. It is also clearly understood that EPI shall not consider any revision in contract price or any other compensation whatsoever due to grant of this extension.

Provided that notwithstanding the extension hereby granted, time is and shall still continue to be the essence of the said agreement.

Yours faithfully,

FOR EPI LTD.
PROFORMA FOR BANK GURANTEE IN LIEU OF
EARNEST MONEY DEPOSIT

In consideration of Chairman & managing Director, Engineering Projects (India) Limited,
(A Govt. of India Enterprise), Core-3, Scope Complex, Lodhi Road, New Delhi Pin-110003. (hereinafter called the EPI) having agreed to accept bank Guarantee of Rs .......... in lieu of EARNEST MONEY DEPOSIT from ................................................................. (hereinafter called the Supplier/ Contractor/Sub-Contractor, which expression shall include its heirs, successors and assignees) in respect of the Tender for .................................................................

We, ........................................ bank having its registered/head office at ................................... (hereinafter referred to as the Bank) do hereby agree and undertake to pay to EPI without demur or protest an amount not exceeding Rs....................... on demand by EPI.

We the above said Bank further agree and undertake to pay the said amount of Rs................. without any demur on demand within 48 hours. Any demand made on the Bank by EPI shall be conclusive as regards the amount due and payable by the Bank under this guarantee.

We the above said Bank further agree that the guarantee herein contained shall be in full force and in effect until ................................................................. date ................................

Unless a demand or claim under this guarantee is made on us in writing on or before ................................................................. date ................................ we shall be discharged from all liabilities under this guarantee thereafter.

We, the above said Bank, further agree that EPI shall have full liberty, without our consent and without affecting in any manner our obligation to verify, modify or delete any of the conditions.

We, the above said Bank, firstly undertake not to revoke this guarantee during its currency except with the prior consent of EPI in writing.

Dated..........................this day of..............200.

For and on behalf of the Bank

NOTE: on a Non-Judicial stamp paper of Rs. 100/- (Rupees One hundred only)
SECURITY DEPOSIT CUM PERFORMANCE BANK GUARANTEE

The Chairman & Managing Director  
(A Govt. of India Enterprise),  
Engineering Projects (India) Ltd.  
Core-3, SCOPE Complex  
7, Institutional Area, Lodhi road  
New Delhi –110 003  

Dear Sir,

In consideration of the Chairman & Managing Director, Engineering Projects (India) Ltd.  
(A Govt. of India Enterprise), Core-3, Scope Complex, 7 Institutional Area, Lodhi Road,  
New Delhi – 110 003 (hereinafter called ‘EPI’ which expression shall unless repugnant to  
the subject or context includes its successors and assigns) having agreed under the  
terms and conditions of Supply Contract/Contract/Sub-Contract  
no.____________________________________________________________________  
______Dated_______________________made between M/s  
________________________________________________________________  
_________________________ (hereinafter referred to as the said  
Supplier/Contractor/Sub-Contractor) which expression shall unless repugnant to the  
subject or context includes its successors and assigns) and EPI in connection with  
______________________________________________ (hereinafter called ‘The said  
Supply Contract/Contract/Sub-Contract) to accept a Deed Security Deposit-cum-  
Performance Bank Guarantee as herein provided for ________________________in  
lieu of :

a) The Security Deposit to be made by the said Supplier/Contractor/Sub-Contractor  
for the due fulfillment by the said Supplier/Contractor/Sub-Contractor of the terms  
and conditions contained in the said Supply Contract/Contract/Sub-contract, and

b) Fulfillment of the conditions of the said Supply Contract /Contract/Sub-Contract  
by furnishing a security for the performance of the works and/or  
equipment/materials supplied in accordance with conditions of the said Supply  
Contract/ Contract/ Sub-Contract.

1. We _____________________________(hereinafter referred to as “the said bank  
which expression shall unless repugnant to the subject or context includes its  
successors and assigns) and having our registered office at  
________________________ do hereby unconditionally and irrevocably undertake  
and agree to indemnify and keep indemnified EPI from time to time to the extent of  
_______________________________ Only against any loss, damages, costs,  
charges and expenses caused to or suffered by or that may be caused or suffered by  
EP I by reason of any breach or breaches by the said Supplier/Contractor/Sub-  
Contractor of any of the terms and conditions contained in the said Supply  
Contract/Contract/Sub-Contract and or any amount becoming due for non-
performance and/or penalty as assessed by EPI and top unconditionally pay the amount claimed by EPI on demand and without demur and protest.

2. We the said Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Supply Contract/Contract/Sub-Contract and till all the dues of EPI under the said Supply Contract/Contract/Sub-Contract or by virtue of any of the terms and conditions governing the said Supply Contract/Contract/Sub-Contract have been fully paid and its claims satisfied or discharged and till EPI certifies that the terms and conditions of the said Supply Contract/Contract/Sub-Contract have been fully and properly carried out by the said Supplier/Contractor/Sub-Contractor and accordingly discharge this guarantee subject, however, that EPI shall have no claim under this guarantee after 6 months from the date of expiry of the guarantee unless a notice of the claim under this guarantee has been served on the Bank before the expiry of the said period of 6 months.

3. EPI shall have the fullest liberty without affecting in any way the liability of the said Bank under this Guarantee or indemnity from time to time to vary any of the terms and conditions of the said Supply Contract/Contract/Sub-Contract to extend time of performance of the said Supply Contract/Contract/Sub-Contract or to postpone for any time and from time to time any power’s exercisable by it against the said Supplier/Contractor/Sub-Contractor and either to enforce or forbear from enforcing any of the terms and conditions governing the said Supply Contract/Contract/Sub-Contract or securities available to EPI and the said Bank shall not be released from its liability under these presents by any exercise by EPI of the liberty with reference to the matters aforesaid or by reason of time being given to the said Supplier/Contractor/Sub-Contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the said Bank from its such liability.

4. We, the said Bank, further agree that EPI shall be the sole judge of and as to whether the said Supplier/Contractor/Sub-Contractor has committed any breach or breaches of any of the terms and conditions of the said Supply Contract/Contract/Sub-Contract and the extent of loss, damage, cost, charges and expenses caused to or suffered by or that may be caused to or suffered by EPI on account thereof and the decision of EPI that the said Supplier/Contractor/Sub-Contractor has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges and expenses caused to or suffered by EPI from time to time shall be final and binding on the Bank.

5. This guarantee shall be a continuing guarantee and shall remain valid and irrevocable for all claims of EPI and liabilities of the said Supplier/Contractor/Sub-Contractor arising up to and until mid night of ________________________, subject the claim period as mentioned in para ______________.

6. This guarantee shall be in addition to any other guarantee or security whatsoever that EPI may now or at any time anywise may have in relation to the said Supplier/Contractor/Sub-Contractor obligation/liabilities under and/or in connection with the said Supply Contract/Contract/Sub-Contract and EPI shall have full authority to take recourse to or enforce this guarantee in preference to any other guarantee or
security which EPI may have or obtain and there shall be no forbearance on the part of EPI in enforcing or requiring enforcement of any other security and shall not have the effect of releasing the said Bank from its full liability hereunder.

7. EPI shall be at liberty without reference to the said Bank and without effecting the full liability of the said Bank hereunder to take any other security in respect of the said supplier's/Contractor's/sub-Contractor's obligations and/or liabilities under or in connection with the said Supply Contract/Contract/Sub-Contract.

8. This guarantee shall not be determined or affected by the liquidation or winding up, dissolution, or change of constitution or insolvency of the said Supplier/Contractor/Sub-Contractor, but shall in all respects and for all purposes be binding and operative until payment of all moneys paid to EPI in terms thereof.

9. The said Bank hereby waives all rights at any time inconsistent with the terms of this guarantee and the obligations of the said Bank in terms hereof shall not be anywise affected or suspended by reasons of any dispute or disputes having been raised by the said Supplier/Contractor/Sub-Contractor (whether or not pending before any arbitrator, tribunal or court) of any denial or liability by the said Supplier/Contractor/Sub-Contractor stopping or preventing or purporting to stop or prevent any payment by the said Bank to EPI in terms hereof. The amount stated in any notice of demand addressed by EPI to the Guarantor Bank as liable to be paid to EPI by the Supplier/Contractor/Sub-Contractor on account of any losses or damages or costs, charges and/or expenses shall as between the said bank and EPI be conclusive evidence of the amount so liable to be paid to EPI or suffered or incurred by EPI as the case may be and payable by the said Bank to EPI in terms hereof. We, the said Bank further undertake that we shall pay forthwith the amount stated in the notice of demand to EPI without demur and protest.

10. We, the said bank undertake not to revoke this guarantee during its currency except with the consent of EPI in writing and agree that any change in the constitution of the said Supplier/Contractor/Sub-Contractor or the said Bank shall not discharge our liabilities hereunder.

11. It shall not be necessary for EPI to proceed against the said Supplier/Contractor/Sub-Contractor before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank notwithstanding any security which EPI may have obtained or obtain from the Supplier/Contractor/Sub-Contractor shall at the time when proceedings are taken against the said Bank hereunder be outstanding or unrealized.

12. Our liability under this guarantee shall be restricted to _______________ and this guarantee shall remain in force until midnight of _______________ unless a claim to enforce this guarantee is filed with us within six months from _______________. (which is date of expiry of this guarantee), we shall be discharged from all liabilities under this guarantee thereafter.

DATED ----------------------------- THIS day of ------------------------ 200...

FOR AND ON BEHALF OF BANK
PROFORMA FOR ADVANCE BANK GUARANTEE

To

The Chairman & Managing Director,
Engineering Projects (India) Ltd.,
(A Govt. of India Enterprise),
Core-3, Scope Complex,
7, Institutional Area,
Lodhi Road,
New Delhi—110 003.

Dear Sir,

1. In consideration of the Chairman & Managing Director, Engineering Projects (India) Limited, (A Govt. of India Enterprise), Core-3, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi – 110 003 (hereinafter called 'EPI' which expression shall includes its successors and assigns) having agreed under the terms and conditions of Supply Contract/ Contract/ Sub-Contract No……………………………dated…(hereinafter referred to as the said Supply Contract/ Contract/ Sub-Contract) made between EPI and……………………….hereinafter called the Supplier/ Contractor/ Sub-Contractor) which expression shall include its successors and assigns to make at the request of the Supplier/ Contractor/ Sub-Contractor a lump sum advance of Rs…………..for utilising it only for the purposes of the said Supply Contract/ Contract/ Sub-Contract on his furnishing a guarantee acceptable to EPI.

2. We, the……………………Bank (hereinafter referred to as 'the said Bank) a Company under the Companies Act 1956 and having our registered office at……………………do hereby guarantee the recovery of the said advance and interest thereon as provided according to the terms and conditions of the said Supply Contract/ Contract/ Sub-Contract. If the Supplier/ Contractor/ Sub-Contractor fails to utilise the said advance for the purposes of the said Supply Contract/ Contract/ Sub-Contract and/or the said advance together with interest thereon as aforesaid is not fully recovered by EPI, we. ...............Bank hereby unconditionally and irrevocably undertake to pay the EPI on demand and without demur or protest to the extent of the said sum of Rs………………any claim made by EPI on us against non-utilisation / misutilisation of the said advance and/or by reason of EPI not being able to recover in full the sum of Rs………………with interest as aforesaid.

3. We……………………Bank further agree that EPI shall be the sole judge of and as to whether the said Supplier/ Contractor/ Sub-Contractor has utilised or not utilised the said advance or any part thereof for the purposes of the said Supply Contract/ Contract/ Sub-Contract and/or as to whether the advance or any part thereof with
interest has been recovered or not and the finding of the EPI in this regard shall be final and binding on us.

4. We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Supply Contract/ Contract/ Sub-Contract and till the said advance with interest has been fully recovered and its claims satisfied or discharged and till EPI certifies that the said advance with interest has been fully recovered from the Supplier/ Contractor/ Sub-Contractor.

5. EPI shall have the fullest liberty without affecting in any way the liability to the said Bank under this guarantee or indemnity from time to time to vary any of the terms and conditions of the said Supply Contract/ Contract/ Sub-Contract, or the advance or to extend time of performance by the said Supplier/ Contractor/ Sub-Contractor or to postpone for any time and from time to time any powers exercisable by it against the said Supplier/ Contractor/ Sub-Contractor and either to enforce or forbear from enforcing any of the terms and conditions governing the said Supply Contract/ Contract/ Sub-Contract or securities available to EPI and the said Bank shall not be released from its liability under these presents by any exercise by EPI of the liberty with reference to the matters aforesaid or by reason of time being given to the said Supplier/ Contractor/ Sub-Contractor or any other forbearance, act or omission on the part of the EPI or any indulgence by EPI to the said Supplier/ Contractor/ Sub-Contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the said Bank from its such liability.

6. The Bank hereby waives all rights at any time inconsistent with the terms of this guarantee/Undertaking and the obligations of the Bank in terms hereof shall not be anywise affected or suspended by reasons of any dispute or disputes having been raised by the Supplier/ Contractor/ Sub-Contractor (whether or not pending before any arbitrator, Tribunal or court) or any denial or liability by the Supplier/ Contractor/ Sub-Contractor stopping or preventing or purporting to stop or prevent any payment by the Bank to EPI in terms hereof.

7. The amount stated in any notice of demand addressed by EPI to Bank as liable to be paid to EPI by the Supplier/ Contractor/ Sub-Contractor, shall be conclusive evidence of the amount so liable to be paid to EPI by the Bank.

8. This guarantee/undertaking shall be in addition to any other guarantee or security whatsoever that EPI may now or any time anywise may have in relation to the Supplier's/ Contractor's/ Sub-Contractor's obligations of liabilities under and/or in connection with the said Supply Contract/ Contract/ Sub-Contract, and EPI shall have full authority to take recourse to or enforce this security in preference to any other guarantee or security which EPI may have or obtain and there shall be no forbearance on the part of EPI in enforcing or requiring enforcement of any other security and shall not have the effect of releasing the Bank from its full liability hereunder.

9. It shall not be necessary for EPI to proceed against the said Supplier/ Contractor/ Sub-Contractor before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank notwithstanding any security which EPI may have obtained or obtain from the Supplier/ Contractor/ Sub-Contractor, shall at the time...
when proceedings are taken against the said Bank hereunder be outstanding or unrealised.

10. We, ..................................... the said Bank further undertake that we shall pay forthwith the amount stated in the notice of demand without demur and protest notwithstanding any dispute/difference pending between the parties before the arbitrator Tribunal or Court and/or dispute is being referred to arbitrator.

11. We, the said Bank undertake not to revoke this Guarantee during its currency except with the consent of EPI in writing and agree that any change in the Constitution of the said Supplier/ Contractor/ Sub-Contractor or the said Bank shall not discharge our liability hereunder.

12. This guarantee/undertaking shall be a continuing guarantee/undertaking and shall remain valid and irrevocable for all claims of EPI and liabilities of the Supplier/ Contractor/ Sub-Contractor arising up to and until midnight of………

13. Notwithstanding anything contained herein above, our liability under this guarantee shall be restricted to Rs………………. (Rs……………………………….) and this guarantee shall remain in full force till……………. unless a claim is made on us within 3 months from the date of expiry of this guarantee i.e. before all the claims under this guarantee shall be forfeited and we shall be relieved of and discharged from our liabilities hereunder.

Dated.........................................................day of......................................... 200

For and on behalf of Bank
**PROFORMA FOR PERFORMANCE BANK GUARANTEE**

To

The Chairman & Managing Director,
Engineering Projects (India) Ltd.,
(A Govt. of India Enterprise),
Core-3, Scope Complex,
7, Institutional Area,
Lodhi Road,
New Delhi—110 003.

Dear Sir,

In consideration of the Chairman & Managing Director, Engineering Projects (India) Limited, (A Govt. of India Enterprise), Core-3, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi – 110 003 (hereinafter called ‘EPI’ which expression shall include its successors and assigns) having awarded to ……………… (hereinafter referred to as ‘the Supplier/ Contractor/ Sub-Contractor’ which expression shall wherever the subject or context so permits include its successors and assigns) a Supply Contract/Contract / Sub-Contract No. ……………… in terms inter alia, of EPI Letter No. ………………dated…and the General Conditions of Contract/ General Purchase Conditions of EPI and upon the condition of the Supplier’s/ Contractor’s/ Sub-Contractor’s furnishing security for the performance of the Supplier’s/ Contractor’s/ Sub-Contractor’s obligations and/or discharge of the Supplier’s/ Contractor’s/ Sub-Contractor’s liability under and/or in connection with the said Supply Contract/ Contract/ Sub-Contract up to a sum of Rs…………………(Rupees…………………………………….) only) amount to………..percent of the total Supply Contract/ Contract/ Sub-Contract Value.

1. We………………………………………………………………………………………….(hereinafter called ‘the Bank’ which expression shall include its successors and assigns) hereby jointly and severally undertake the guarantee to payment to EPI in rupees forthwith on demand in writing and without protest or demur or any and all monies anywise payable by the Supplier/ Contractor/ Sub-Contractor to EPI under in respect of or in connection with the said Supply Contract/ Contract/ Sub-Contract inclusive of all EPI’s losses and damages and costs, charges and expenses and other moneys anywise payable in respect to the above as specified in any notice of demand made by the EPI to the Bank with reference to this guarantee up to and aggregate limit of Rs…………………..(Rupees…………………………………………………………only).
2. We……………….. Bank further agree that EPI shall be sole judge of and as to whether the said Supplier/ Contractor/ Sub-Contractor has committed any breach or breaches of any of the terms and conditions of the said Supply Contract/ Contract/ Sub-Contract and the extent of loss, damage, cost, charges and expenses caused to or suffered by or that may be caused to or suffered by EPI on account thereof and the decision of EPI that the said Supplier/ Contractor/ Sub-Contractor has committed such breach or breaches and as to the amount or amounts of loss, damage, costs, charges and expenses caused to or suffered by EPI from time to time shall be final and binding on us.

3. EPI shall be at liberty without reference to the Bank and without effecting the full liability of the Bank hereunder to take any other security in respect of the Supplier’s/ Contractor’s/ Sub-Contractor’s obligations and/or liabilities under or in connection with the said Supply Contract/ Contract/ Sub-Contract and to vary the forms vis-à-vis the Supplier/ Contractor/ Sub-Contractor of the said Supply Contract/ Contract/ Sub-Contract or to grant time and/or indulgence to the Supplier/ Contractor/ Sub-Contractor or to reduce or to increase or otherwise vary the prices of the total Supply Contract/ Contract/ Sub-Contract Value or to release or to forbear from enforcement of all or any of the security and/or any other security(ies) now or hereafter held by the EPI and no such dealing(s) reduction(s) increase(s) or other indulgence(s) or arrangements with the Supplier/ Contractor/ Sub-Contractor or release or forbearance whatsoever shall absolve the bank of the full liability to EPI hereunder or prejudice rights of EPI against the bank.

4. The guarantee/undertaking shall not be determined or affected by the liquidation or winding up, dissolution, or change of constitution or insolvency of the Supplier/ Contractor/ Sub-Contractor but shall in all respects and for all purposes be binding and operative until payment of all moneys made to EPI in terms thereof.

5. The Bank hereby waives all rights at any time inconsistent with the terms of this guarantee/undertaking and the obligations of the Bank in terms hereof shall not be anywise affected or suspended by reasons of any dispute or disputes having been raised by the Supplier/ Contractor/ Sub-Contractor (whether or not pending before any arbitrator, Tribunal or Court) of any denial or liability by the Supplier/ Contractor/ Sub-Contractor stopping or preventing or purporting to stop or prevent any payment by the Bank to the EPI in terms hereof.

6. The amount stated in any notice of demand addressed by EPI to Bank as liable to be paid to EPI by the Supplier/ Contractor/ Sub-Contractor or as suffered or incurred by the EPI on account of any losses or damages or costs, charges and/or expenses shall be conclusive evidence of the amount so liable to be paid to EPI or suffered or incurred by EPI as the case may be and shall be payable by the Bank to EPI in terms hereof.
7. This guarantee/undertaking shall be a continuing guarantee/undertaking and shall remain valid and irrevocable for all claims of EPI and liabilities of the Supplier/ Contractor/ Sub-Contractor arising up to and until midnight of................

8. This guarantee/undertaking shall be in addition to any other guarantee or security whatsoever that EPI may now or any time anywise may have in relation to the Supplier’s/ Contractor’s/ Sub-Contractor’s obligations of liabilities under and/or in connection with the said Supply Contract/ Contract/ Sub-Contract, and EPI shall have full authority to take recourse to or enforce this security in preference to any other guarantee of security which EPI may have or obtain and here shall be no forbearance on the part of EPI in enforcing or requiring enforcement of any other security and shall not have the effect of releasing the Bank from its full liability hereunder.

9. It shall not be necessary for EPI to proceed against the said Supplier/ Contractor/ Sub-Contractor before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank notwithstanding any security which the EPI may have obtained or obtain from the Supplier/ Contractor/ Sub-Contractor, shall at the time when proceedings are taken against the said Bank hereunder be outstanding or unrealised.

10. We the said Bank undertake not to revoke this guarantee during its currency except with the consent of EPI in writing and agree that any change in the constitution of the said Supplier/ Contractor/ Sub-Contractor or the said bank shall not discharge our liability hereunder.

11. We ............the said Bank further undertake that we shall pay forthwith the amount stated in the notice of demand without demur and protest notwithstanding any dispute/difference pending between the parties before the arbitrator Tribunal or Court and/or any dispute is being referred to arbitrator.

12. Notwithstanding anything contained herein above, our liability under this guarantee shall be restricted to Rs. ...................(Rupees......................................) and this guarantee shall remain in force till.............. unless a claim is made on us within 3 months from that date, that is before all the claims under this guarantee shall be forfeited and we shall be relieved of and discharged from our liabilities thereunder.

Dated ........................................... day of .................................................200

For and on behalf of Bank
PROFORMA FOR INDEMNITY BOND TO BE EXECUTED BY
THE CONTRACTOR FOR SECURED ADVANCE
AGAINST MATERIALS SUPPLIED FOR THE PROJECT

(On non-judicial stamp paper of appropriate value)

INDEMNITY BOND

THIS INDEMNITY BOND is made this .............................................. day of..................... 20……….. by………………………… (Contractor’s Name) a Company registered under the Companies Act, 1956/Partnership firm/Proprietary concern having its Registered Office at ................. (hereinafter called as ‘Contractor’ which expression shall include its successors and permitted assigns) in favour of Engineering Projects (India) Limited, a Company incorporated under the Companies Act, 1956 having its Registered Office at Core-3, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi - 110 003 (hereinafter called “EPI” which expression shall include its successors and assigns) : 

WHEREAS EPI has awarded to the Contractor a Contract for the work of................. vide its letter of Intent/Work Order No.............. dated................... (hereinafter called the “Contract”) in terms of which EPI is required to give “Secured Advance” to the Contractor as per Clause no. 35 of the General Conditions of Contract against supply of materials by the Contractor for the project on the security of materials, the quantities, rates and other particulars of which are detailed in the Bill of Quantities for the said Contract.

And WHEREAS by virtue of Clause no. 35 of the General Conditions of Contract of the said Contract, the Contractor is required to execute an Indemnity Bond in favour of EPI for the amount of “Secured Advance” towards the materials actually supplied by the Contractor for the Contract Work from time to time to EPI for the purpose of performance of the Contract. (hereinafter called the “Materials”).

“AND WHEREAS the Contractor has applied to EPI that they may be allowed “Secured Advance” on the security of materials absolutely belonging to them and brought by them to the site of the works for use in construction of the work”.

NOW THEREFORE, This Indemnity Bond witnesseth as follows:

1. That in consideration of the “Secured Advance” being given to the Contractor as mentioned in the Contract, for the purpose of performance of the Contract, the Contractor hereby undertakes to indemnify and shall keep EPI indemnified, for the Actual Cumulative Amount of the “Secured Advance” given to the Contractor from time to time against the said Contract. The Contractor hereby acknowledges actual receipt of the materials etc. as per despatch title documents being /to be handed over to EPI from time to time. The Contractor shall hold such materials in trust as a “Trustee” for and on behalf of EPI.
2. That the Contractor is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the materials at EPI's project site against all risks whatsoever till the materials are duly used/erected in accordance with the terms of the Contract and the plant/package duly erected and commissioned in accordance with the terms of the Contract is taken over by EPI and the Secured Advance is fully adjusted/recovered as per terms of the Contract. The Contractor undertakes to keep EPI harmless against all losses, damages, deterioration and shortages that may be caused to the materials.

3. The Contractor undertakes that the materials shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions and no part of the materials shall be utilized for any other work or purpose whatsoever. It is clearly understood by the Contractor that non-observance of the obligations under this Indemnity Bond by the Contractor shall inter-alia constitute a criminal breach of trust on the part of the Contractor for all intents and purposes including legal/penal consequences.

4. That EPI is and shall remain the exclusive owner of the materials free from all encumbrances, charges or liens of any kind, whatsoever. The materials shall at all times be open to inspection and checking by the Engineer – In - Charge or other employees/agents authorized by him in this regard. Further, EPI shall always be free at all times to take possession of the materials in whatever form the materials may be, if in its opinion, the materials are likely to be endangered, misutilised or converted to uses other than those specified in the Contract, by any acts of omission or commission on the part of the Contractor or any other person or on account of any reason whatsoever and the Contractor binds himself and undertakes to comply with the directions of demand of EPI to handover the materials without any demur or reservation.

5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the materials or the same or any part thereof is mis-utilised in any manner whatsoever, then the Contractor hereby agrees that the decision of the Engineer-In-Charge of EPI as to assessment of loss or damage to the materials shall be final and binding on the Contractor. The Contractor binds itself and undertakes to replace the lost and/or damaged materials at its own cost and/or shall pay the amount of ‘Secured Advance’ to EPI without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to EPI against the Contractor to recover any amount or all the amounts of this Bond from any dues of the Contractor under the Contract or as per the law.

6. This Bond shall remain in force and effect till the completion of the work as per the aforesaid Contract and till all the amount recoverable under this Bond from the Contractor is fully recovered by EPI. The Bond can not be revoked by the Contractor without the written consent of EPI.

7. That Contractor also agrees that any change in the constitution of the Contractor shall not discharge them from their obligation and liability.

8. This Bond shall be treated as an additional addage to the Contract and nothing herein contained shall be construed to adversely affect the rights of EPI in the Contract.
IN WITNESS WHEREOF, the Contractor has signed this Indemnity Bond through its duly authorized representative on the date and place first above written.

For and on behalf of Contractor

(Contractor’s Name)

WITNESS:

1. 1. Signature ..........................  
    2. Name ..............................  
    3. Address ...........................  

2. 1. Signature ..........................  
    2. Name ..............................  
    3. Address ...........................  

Signature ..................................  
Name (Executant) ......................  
Designation .............................  
( Authorised representative )
FORM FOR GUARANTEE BOND

FOR ANTI-TERMITE TREATMENT

THIS AGREEMENT made this____ day of Two thousand _____ between M/s_______ (hereinafter called the guarantor of the one part and M/s Engineering Projects (India) Limited, hereinafter called EPI hereinafter called the OWNER of the other part.

Whereas this agreement is supplementary to the contract hereinafter called the contract dated_______ made between the guarantor of the one part and Engineering Projects (India) Ltd., of the other part whereby the Contractor inter-alia, understood to render the buildings and structures in the said contract recited, completed, 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 so reckoned from the date after the maintenance period prescribed in the contract expires.

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 member as may be damaged by termite 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 works of such rectification within seven days from date of issuing notice from the Engineer-In-Charge calling upon him to rectify the defects falling which the work shall be got done by EPI/ OWNER by some other Contractor at the guarantor’s cost and risk and in the later case the decision of the Engineer-In-Charge as to the cost recoverable from the guarantor shall be final and binding.

That if the Guarantor fails to execute the Anti-Termite treatment or commits breaches hereunder then the Guarantor will indemnify EPI against all losses damages, cost expenses or otherwise which may be incurred by him by reasons of any default on the part of the guarantor in performance and observance of this supplemental Agreement. As to the amount of loss and or damage and/or cost incurred by EPI/ OWNER, the decision of the Engineer-In-Charge will be final and binding on the parties.

In witness where of these presents have been executed by the Guarantor________ and by______________ for and on behalf of EPI on the day of month and year first above written.

Signed sealed and delivered by (Guarantor)

IN THE PRESENCE OF:

1.

2.

Signed for and on behalf of EPI by/ in presence of:

1.

2.
GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER PROOFING WORKS

The agreement made this ................. day of ................. Two thousand ................. between ................................ (hereinafter called Guarantor of the one part) and EPI (hereinafter called the Execution Agency of the other part).

WHEREAS this agreement is supplementary to a contract (hereinafter called the Contract), dated ............ and made between the GUARANTOR OF THE ONE part and EPI of the other part, whereby the Contractor, inter-alia, undertook to render the buildings and structures in the said contract recited completely water and leak proof.

AND WHEREAS the Guarantor agreed to give a guarantee to the effect that the said structures will remain water and leak proof for ten years from the date of handing over of the structure of water proofing treatment.

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 after the maintenance period prescribed in the contract.

Provided that the Guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof 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) Alternation 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 cause of leakage shall be final

During this period of guarantee, 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 notice from the Engineer-In-Charge calling upon him to rectify the defects failing which the work shall be got done by EPI by some other Contractor at the guarantor's cost and risk. The decision of Engineer-In-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if the Guarantor fails to execute the waterproofing or commits breach thereunder, then the Guarantor will indemnify the principal and his successors against all laws
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 EPI, the decision of the Engineer-In-Charge will final and binding on the
parties.

IN WITNESS WHEREOF these presents have been executed by the Obligat...er,......
and by ............ And for and on behalf of EPI on the day, month and year first above
written.

Signed, sealed and delivered by Obligato... in the presence of-

1.

2.

Signed for and on behalf of EPI by __________

In presence of:

1.

2.
AGREEMENT FORM

This agreement made this day of (Month) (Year), between THE ENGINEERING PROJECTS (INDIA) LIMITED (EPI), (A Govt. of India enterprise) a company incorporated under the Companies Act, 1956 having its Registered and Corporate Office at Core-3, Scope Complex, 7, Institutional area, Lodhi Road, New Delhi – 110003 (hereinafter referred to as the “EPI” which expression shall include its administrators, successors, executors and assigns) of the one part and M/s (NAME OF CONTRACTOR) (hereinafter referred to as the ‘Contractor’ which expression shall unless the context requires otherwise include its administrators, successors, executors and permitted assigns) of the other part.

WHEREAS, EPI, is desirous of construction of (NAME OF WORK) (hereinafter referred to as the “PROJECT”) on behalf of the (NAME OF OWNER/MINISTRY) (hereinafter referred to as “OWNER”), and had invited Tenders as per Tender Documents vide NIT No. _____.

AND WHEREAS (NAME OF CONTRACTOR) had participated in the above referred Tender vide their tender dated _____ and EPI has accepted their aforesaid Tender and award the contract for (NAME OF PROJECT) on the terms and conditions contained in its Letter of Intent No. ________ dated ________ and the documents referred to therein, which have been unequivocally and unconditionally accepted by (NAME OF CONTRACTOR) vide their Letter of Undertaking dated _______ resulting into a contract.

NOW THEREFORE THIS DEED WITNESSETH AS UNDER:

ARTICLE 1.0 – AWARD OF CONTRACT

1.1 SCOPE OF WORK

EPI has awarded the contract to (NAME OF CONTRACTOR) for the work of (NAME OF WORK) on the terms and conditions in its Letter of intent No. ________ dated ________ and the documents referred to therein. The award of work has taken effect from (DATE) i.e. the date of issue of aforesaid letter of intent. The terms and expressions used in this agreement shall have the same meanings as are assigned to them in the “Contract Documents” referred to in the succeeding Article.

ARTICLE 2.0 – CONTRACT DOCUMENTS

2.1 The contract shall be performed strictly as per the terms and conditions stipulated herein and in the following documents attached herewith (hereinafter referred to as “Contract Documents”).

   a) EPI Notice Inviting Tender vide No. ________ date ________and EPI’s Tender Documents consisting of:

      i) Instructions to Tenderers and General Conditions of Contract (GCC) alongwith amendments/errata to GCC (if any) issued (Volume-I).
ii) Additional Conditions of Contract including Appendices & Annexures, Volume-II.

iii) Bill of Quantities alongwith amendments/corrigendum of schedule items, if any (Volume-III).

iv) Technical Specifications

v) Drawings

vi) ______________________________________________

b) (NAME OF CONTRACTOR) letter/proposal no._________________ dated ________ and their subsequent communication:

i) Letter of Undertaking of Tender Conditions dated ______________

ii) _____________________________________________________

iii) _____________________________________________________

2.2 EPI’s detailed Letter of Intent No. __________ dated ____ including Bill of Quantities. Agreed time schedule, Contractor’s Organisation Chart and list of Plant and Equipments submitted by Contractor.

2.3 All the aforesaid contract documents referred to in Para 2.1 and 2.2 above shall form an integral part of this Agreement, in so far as the same or any part thereof conform, to the Tender Documents and what has been specifically agreed to by EPI in its Letter of Intent. Any matter inconsistent therewith, contrary or repugnant thereto or deviations taken by the Contractor in its “TENDER” but not agreed to specifically by EPI in its Letter of Intent, shall be deemed to have been withdrawn by the Contractor without any cost implication to EPI. For the sake of brevity, this Agreement alongwith its aforesaid contract documents and Letter of Intent shall be referred to as the “Contract”.

ARTICLE 3.0 – CONDITIONS & CONVENANTS

3.1 The scope of Contract, Consideration, Terms of Payments, Advance, Retention Moneys, Taxes wherever applicable, Insurance, Agreed Time Schedule, Compensation for delay and all other terms and conditions contained in EPI’s Letter of Intent No. __________ dated ____ are to be read in conjunction with other aforesaid Contract Documents. The contract shall be duly performed by the Contractor strictly and faithfully in accordance with the terms of this contract.

3.2 The scope of work shall also include all such items which are not specifically mentioned in the Contract Documents but which are reasonably implied for the satisfactory completion of the entire scope of work envisaged under this contract unless otherwise specifically excluded from the scope of work in the Letter of Intent.

3.3 Contractor shall adhere to all requirements stipulated in the Contract documents.

3.4 Time is the essence of the Contract and it shall be strictly adhered to. The progress of work shall conform to agreed works schedule/contract documents and Letter of Intent.

3.5 This agreement constitutes full and complete understanding between the parties and terms of the presents. It shall supersede all prior correspondence to the extent of inconsistency or repugnancy to the terms and conditions contained in
Agreement. Any modification of the Agreement shall be effected only by a written instrument signed by the authorized representative of both the parties.

3.6 The total contract price for the entire scope of this contract as detailed in Letter of Intent is Rs. _______________ (Rupees _____________________________ only), which shall be governed by the stipulations of the contract documents.

ARTICLE 4.0 – NO WAIVER OF RIGHTS

4.1 Neither the inspection by EPI or the Engineer-In-Charge or Owner or any of their officials, employees or agents nor order by EPI or the Engineer-In-Charge for payment of money or any payment for or acceptance of, the whole or any part of the work by EPI or the Engineer-In-Charge nor any extension of time nor any possession taken by the Engineer-In-Charge shall operate as waiver of any provisions of the contract, or of any power herein reserved to EPI, or any right to damage herein provided, nor shall any waiver of any breach in the contract be held to be a waiver of any other or subsequent breach.

ARTICLE 5.0 – GOVERNING LAWS AND JURISDICTION

5.1 The Laws applicable to this contract shall be the laws in force in India and as amended from time to time.

Jurisdiction shall be of the Court (s) stated in the 'Memorandum' to the “Form of Tender” only.

5.2 Notice of Default

Notice of default given by either party to the other party under the Agreement shall be in writing and shall be deemed to have been duly and properly served upon the parties hereto, if delivered against acknowledgment due or by FAX or by registered mail duly addressed to the signatories at the address mentioned herein above.

IN WITNESS WHEREOF, the parties through their duly authorized representatives have executed these presents (execution whereof has been approved by the Competent Authorities of both the parties) on the day, month and year first above mentioned at New Delhi.

For and on behalf of: M/s. Engineering Projects (I) Ltd.

(NAME OF CONTRACTOR)

WITNESS: WITNESS:

1.

2.
QUALITY CONTROL FORMATS AND CHECKLISTS
<table>
<thead>
<tr>
<th>LAYOUT</th>
<th>Alignment</th>
<th>Checked</th>
<th>Level of base</th>
<th>Dimensional Check (edges &amp; diagonals)</th>
<th>Starers</th>
<th>Location of cutouts &amp; services</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAGING / SCAFFOLDING</td>
<td>Adequacy &amp; rigidity of Props, stays, bracings, conformity to scheme drgs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FORMWORK</td>
<td>Qty. of forms and support Props adequate</td>
<td>Vertical form surface in alignment &amp; plumb</td>
<td>Even Surface Oil sprayed</td>
<td>Gaps between shuttering are properly closed</td>
<td>No space for sagging of Form work</td>
<td></td>
</tr>
<tr>
<td>REINFORCEMENT</td>
<td>Cutting &amp; bending as per Bar bending schedule (Schedules attached)</td>
<td>Adequate laps welds</td>
<td>Chair / cover blocks Placed as per scheme</td>
<td>Binding wire not Touching shuttering</td>
<td>Fixtures, inserts Cables in position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dowels &amp; positioning Provided as per drg.</td>
<td>Walkway for Labour provided</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRE-CONCRETING</td>
<td>Concreting Arrangements</td>
<td>Approval of Construction joint</td>
<td>Mixer / vibrator Condition &amp; mixing Top level of Concrete marked</td>
<td>Transporting &amp; Placing arrangement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POST-CONCRETING</td>
<td>Compaction Checked</td>
<td>Removal of Laitance Post Concreting Level/Dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DESHUTTERING &amp; CLEARING</td>
<td>Curing days .......... Water / compound</td>
<td>Surface finish Ok</td>
<td>Concrete Test Results Ok</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNATURE</th>
<th>DATE</th>
<th>SITE ENGR</th>
<th>DATE</th>
<th>SITE INCHARGE</th>
<th>DATE</th>
<th>CONSULTANT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTOR</td>
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<td></td>
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</tbody>
</table>

120
<table>
<thead>
<tr>
<th>CONTRACT</th>
<th>CHECK LIST FOR MASONRY WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF DRAWING No. ____________________________</td>
<td></td>
</tr>
<tr>
<td>CONTRACT No. ____________________________</td>
<td></td>
</tr>
<tr>
<td>LOCATION BLOCK _________________________ FLOOR __________ AREA __________</td>
<td></td>
</tr>
</tbody>
</table>

| LAYOUT | Alignment & wall Thickness Checked | Brick on edge (top course) |
| SCAFFOLDING | Adequacy of props, Stays, platform | Rigidity of base | Movement Space | Approach to height |
| PRE-LAYING | Working arrangements & service provisions checked | Bricks as per specification | Mortar grade & mix As specified | Bricks moistened |
| LAYING | Joint thickness & course Ht. As specified | Joint alignment Checked | Vertical joints Properly mortar filled from top |
| | Raking of joints Done (if applicable) | Bearing plaster for Concrete |
| CURING AND CLEARING | Proper curing of const. Joint | Scaffolding removed (if required) |

| W.O. ITEM | UNIT | QTY. | SIGNATURE | CONTRACTOR DATE | SITE ENGR DATE | SITE INCHARGE DATE | CONSULTANT DATE | 121 |
## NAME OF PROJECT

<table>
<thead>
<tr>
<th>CONTRACT</th>
<th>CHECK LIST FOR PLASTERING WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF DRAWING No.</td>
<td>LOCATION BLOCK _____________________________ FLOOR ______________ AREA ________</td>
</tr>
<tr>
<td>CONTRACT No.</td>
<td>LOCATION BLOCK _____________________________ FLOOR ______________ AREA ________</td>
</tr>
</tbody>
</table>

### SCAFFOLDING
- Platform
  - Stability
  - Movement space
  - Approach to Height

### SERVICE
- All chasing work
  - Complete
  - Fixing in position
  - Work complete
  - All door / window frames fixed in position
  - Skirting to floors marked

### SURFACE PREPARATION
- Clearing & raking of surface
  - Roughening
  - Hacking done
  - Fixing metal / lathe
  - Mortar level
  - Chicken mesh
  - Guides made
  - Cement slurry

### PLASTERING
- Mix & W/P compound
  - Checked as per specification
  - Coating / thickness
  - As specified
  - Groove at Joints
  - Provided
  - Corners & edges sharp
  - Surface leved at right Angles lines & levels maintained

### FINISHING
- Texture
  - Curing
  - Site cleared
  - Days .............

### CLEARANCE from Elect. In-charge

<table>
<thead>
<tr>
<th>W.O. ITEM</th>
<th>UNIT</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGNATURE</td>
<td>DATE</td>
<td>SITE ENGR</td>
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NAME OF PROJECT ____________________________

<table>
<thead>
<tr>
<th>CONTRACT</th>
<th>CHECK LIST FOR LAYING OF EXTERNAL SEWER</th>
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<tbody>
<tr>
<td>REF DRAWING No.__________________________</td>
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</tr>
<tr>
<td>CONTRACT No. ____________________________</td>
<td></td>
</tr>
<tr>
<td>LOCATION BLOCK _________________________ FLOOR ___________ AREA ________</td>
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</tr>
</tbody>
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<table>
<thead>
<tr>
<th>EXCAVATION</th>
<th>LAYING/RCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout</td>
<td>Bed concrete as per Specifications</td>
</tr>
<tr>
<td></td>
<td>RCC pipes as per Requirement</td>
</tr>
<tr>
<td></td>
<td>Jointing of Pipes</td>
</tr>
<tr>
<td></td>
<td>Boxing</td>
</tr>
<tr>
<td></td>
<td>Strata bore Dewatering (wherever required)</td>
</tr>
<tr>
<td></td>
<td>Manholes</td>
</tr>
<tr>
<td></td>
<td>Bricks as per specifications</td>
</tr>
<tr>
<td></td>
<td>Mortar as per specifications</td>
</tr>
<tr>
<td></td>
<td>Plastering</td>
</tr>
<tr>
<td></td>
<td>End of pipes plugged</td>
</tr>
<tr>
<td></td>
<td>Back fillings In layers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNATURE</th>
<th>W.O. ITEM</th>
<th>UNIT</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTOR DATE</td>
<td>SITE ENGR DATE</td>
<td>SITE INCHARGE DATE</td>
<td>CONSULTANT DATE</td>
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</tbody>
</table>

123
<table>
<thead>
<tr>
<th>SCAFFOLDING</th>
<th>Platform</th>
<th>Stability</th>
<th>Movement space</th>
<th>Approach to Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE PROVISIONS</td>
<td>All chasing work complete</td>
<td>All door / window frames fixed in position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SURFACE PREPARATION</td>
<td>Roughening / hacking of surface done</td>
<td>Fixing metal / lathe</td>
<td>Mortar level</td>
<td>Surface moistened / cement slurry</td>
</tr>
<tr>
<td>BASE PLASTER</td>
<td>Mix &amp; W/P compound</td>
<td>Coating / thickness</td>
<td>Mortar level</td>
<td>Surface moistened / cement slurry</td>
</tr>
<tr>
<td>CHECK LIST FOR GRIT WASH</td>
<td>Checked against specs</td>
<td>As specified</td>
<td>Corners &amp; edges sharp &amp; at right Angles lines &amp; levels maintained</td>
<td></td>
</tr>
<tr>
<td>TOP LAYER</td>
<td>Fixing of beading for grooves as per drawing</td>
<td>Lines and levels of grooves maintained</td>
<td>Mix as per specification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Washing of top layer</td>
<td>Washing with Acid (light)</td>
<td>Curing day</td>
<td>Texture of final surface</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>W.O. ITEM</th>
<th>UNIT</th>
<th>QTY.</th>
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<thead>
<tr>
<th>SIGNATURE</th>
<th>W.O. ITEM</th>
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<tr>
<th>CONTRACTOR</th>
<th>DATE</th>
<th>SITE ENGR</th>
<th>DATE</th>
<th>SITE INCHARGE</th>
<th>DATE</th>
<th>CONSULTANT</th>
<th>DATE</th>
</tr>
</thead>
</table>

124
<table>
<thead>
<tr>
<th>CONTRACT No.</th>
<th>CHECK LIST FOR WASTE/SOIL/VENT PIPES ETC.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>REF DRAWING No.</td>
<td>LOCATION BLOCK _______________ FLOOR _______ AREA ______</td>
<td></td>
</tr>
<tr>
<td>MATERIAL</td>
<td>Make as specified</td>
<td>Thickness / class as specified</td>
</tr>
<tr>
<td>LAYOUT</td>
<td>Space distribution &amp; Alignment as spec.</td>
<td>Plumb of vertical line checked</td>
</tr>
<tr>
<td>FIXING PIPE &amp; FITTINGS</td>
<td>Qty available for pipes fittings &amp; jointing material as per size &amp; fixing</td>
<td>Cutting &amp; jointing as specified</td>
</tr>
<tr>
<td>SMOKE TEST</td>
<td>Open ends plugged</td>
<td>Injection of smoke Pressure</td>
</tr>
<tr>
<td>SIGNATURE</td>
<td>CONTRACTOR DATE</td>
<td>SITE ENGR DATE</td>
</tr>
</tbody>
</table>

NAME OF PROJECT _____________________________

125
# CHECK LIST FOR MOSAIC FLOORING

<table>
<thead>
<tr>
<th>CONTRACT No.</th>
<th>LOCATION BLOCK</th>
<th>FLOOR</th>
<th>AREA</th>
</tr>
</thead>
</table>

## LAYOUT
- Sub base
  - Prepared
  - Provision of Services checked
  - Panelling (max size)
  - Level of Sub base checked
  - Separator strips
  - Slope
  - Provision checked

## BASE LAYER
- Mix
  - As specified
  - Water / cement
  - Slurry applied
  - Cement concrete
  - Thickness checked
  - Ramming / leveling
  - Compaction done
  - Joints treatment
  - If any, provided

## TOP LAYER
- Mix
  - As specified
  - Proper leveling
  - Done
  - Trowelling finish proper
  - Curing done

## FINISHING
- Grinding
  - Final grinding
  - Repair applied at grinding stages
  - Polishing

<table>
<thead>
<tr>
<th>W.O. ITEM</th>
<th>UNIT</th>
<th>QTY.</th>
</tr>
</thead>
</table>

**SIGNATURE**

<table>
<thead>
<tr>
<th>CONTRACTOR</th>
<th>DATE</th>
<th>SITE ENGR</th>
<th>DATE</th>
<th>SITE INCHARGE</th>
<th>DATE</th>
<th>CONSULTANT</th>
<th>DATE</th>
</tr>
</thead>
</table>

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NAME OF PROJECT ___________________________

<table>
<thead>
<tr>
<th>CONTRACT No.</th>
<th>CHECK LIST FOR GLAZED TILE FLOORING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REF DRAWING No.____________________</td>
</tr>
<tr>
<td></td>
<td>LOCATION BLOCK ____________________</td>
</tr>
<tr>
<td></td>
<td>FLOOR________ AREA________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAYOUT</th>
<th>Fixing pattern</th>
<th>Level of base &amp; dadc</th>
<th>Finish level</th>
<th>Door &amp; window frames in position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service provisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary, electrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BASE</th>
<th>Thickness Layer</th>
<th>Watering / Cement slurry</th>
<th>Evenness</th>
<th>Verticality, corners At right angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAYING</th>
<th>Plan position of cut pieces at corner</th>
<th>Cut to size Smooth edge</th>
<th>Chamfering of edges &amp; edge matching proper</th>
<th>Raking / jointing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moistening of tiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cement slurry adhesive</th>
<th>Level &amp; plumb checked</th>
<th>No hollow sound on tapping</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FINISHING</th>
<th>Grounding of joints Curing of joints</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>W.O. ITEM</th>
<th>UNIT</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>SIGNATURE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTOR DATE</td>
<td>SITE ENGR DATE</td>
<td>SITE INCHARGE DATE</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>CONTRACT No.</th>
<th>CHECK LIST FOR WATER BOUND MACADAM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOCATION ____________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATERIAL AGGREGATE</th>
<th>Gradation as specified</th>
<th>Crushing strength as specified</th>
<th>No of layers</th>
<th>Thickness of layers starting from subgrad</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCREENINGS</td>
<td>Gradation as specified</td>
<td>Crushing strength as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As specified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOORUM</td>
<td>Gradation as specified</td>
<td>Silt content as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td>LAYOUT</td>
<td>Alignment of central line as per drawings and reference points</td>
<td>Marking of Carriage way edges as per drawings</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td>WATER BOUND MACADAM</td>
<td>Templates placed of specified thickness</td>
<td>Placing, leveling of stone aggregate</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stone Screening spread as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dry rolling as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Top cross section lands layer recorded</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application of moorum as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wet rolling / compaction as specified</td>
<td>No of layers</td>
<td>Thickness of layers starting from subgrad</td>
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</table>

<table>
<thead>
<tr>
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<th>DATE</th>
<th>SITE INCHARGE</th>
<th>DATE</th>
<th>CONSULTANT</th>
<th>DATE</th>
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<tbody>
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</tr>
</tbody>
</table>

128
ENGINEERING PROJECTS (INDIA) LTD.
(A GOVT OF INDIA ENTERPRISE)

MATERIALS MANAGEMENT DIVISION

GENERAL PURCHASE CONDITIONS

**Special Remarks:**

The above General Purchase Condition (GPC) shall be read in conjunction with General Conditions of Contract (Main) and Special condition of Contract, Whenever there is a conflict, GCC (main) and Special Condition of Contract shall prevail.

1. **DEFINITION**

1.1 The Buyer means Engineering Projects (India) Limited, a Company incorporated in India and having its registered office and Corporate Office at Core 3, Scope Complex, Lodi Road, New Delhi-110003.

1.2 Supplier' means the tenderer whose tender has been accepted and shall include his its/their heirs, executors, administrators or successors and permitted agents as the case may be.

1.3 'Purchase Order' means the letter of memorandum, communicating to the supplier, the acceptance of his tender and includes an advance acceptance of his tender.

1.4 'Consignee' means where the stores are required by the purchase order to be despatched by rail, road, air or steamer, the person specified in the Purchase Order to whom they are to be delivered at the destination, where the stores are required by the Purchase Order to be delivered to a person as an interim consignee for the purpose of despatch to another person, such other person and in any other case the person to whom the stores are required by the Purchase Order to be delivered in the manner specified therein.

1.5 'Inspectors' : Inspectors deputed by BUYER.

2. **TERMS & EXPRESSIONS**

Terms & expressions not herein defined shall have the same meanings as assigned to them in the Indian Sales of Goods Act, 1930, Indian Contract Act, 1872 and General Clause Act, 1897.

3. **PRICES**

Prices accepted by the BUYER shall be considered as firm and not subject to escalation due to any variations in the prices of materials, labour and/or any
other reasons whosoever which may occur while the order is being carried out.

4. **Payment Terms**

Unless otherwise agreed upon between the parties, payment for delivery of the stores will be made on submission of bills in accordance with instruction given in the purchase order by a cheque or demand draft in accordance with the following procedure.

4.1 90% of the price of the equipment/material shall be paid on proof of despatch to the consignee through bank or delivery to an interim consignee, if any, and on production of Inspection Note issued by the Inspector, Maker's Test Certificate, the number- and date of the Railway receipt, postal receipt, bill of lading or consignment note under which the goods charged for in the bill are despatched by rail, post, sea or air respectively and the number and date of the letter with which such railway receipt, post receipt, bill of lading shall also be attached to the bill and in the case of stores despatched by post, the postal receipt shall be attached in original to the bill. The bank charges shall be borne by the supplier.

4.2 Balance 10% of price of equipment/material shall be released within 30 days after expiry of the warranty period as per Clause No. 17.

5. **Insurance to be arranged by BUYER.**

6. **Inspection, Checking, Testing**

The stores covered by the Purchase Order shall be subject to preliminary inspection and testing at any time prior to shipment and/or despatch and final inspection within a reasonable time after arrival at the place of delivery. The Inspector shall have the right to carry out the inspection and testing which include raw materials at manufacturer's work and at the time of actual despatch before and after completion of packing.

The supplier shall inform the BUYER at least 21 days in advance of the exact place, date and time of rendering the stores for required inspection, provide free access to Inspectors during normal working hours at supplier's or his/its sub-supplier's works and places at their disposal, internal test reports, material/component test certificates, approved drawings and all useful means of performing, checking, marking, testing, inspection and final stamping at his own expenses. Stores offered without internal testing shall be treated as a lapse on the part of supplier.

If, after receiving inspection call from the supplier/manufacturer the inspector on reaching the works finds that the equipment/materials offered for inspection is not fully ready or fails to meet vital requirements, it will be deemed to be a fake inspection call. Issue of a fake inspection call shall be treated as a serious lapse on the part of the supplier.

In the event of rejection of stores due to defective workmanship/material/design or fake inspection call, the stores would be offered for re-inspection at the earliest. The BUYER shall have the right to deduct the cost of re-inspection from the supplier's invoices.
Even if inspections and tests are fully carried out, supplier shall not be absolved to any degree from their responsibilities to ensure that stores supplied, comply strictly with requirements, of the purchase order at the time of delivery, inspection on arrival at site, after its erection or start-up and guarantee period.

In any case, the stores must be strictly in accordance with the Purchase order failing which the BUYER shall have the right to reject goods and hold the supplier liable for non-performance of contract.

7. **Maker’s Test Certificate:**

Maker’s Test Certificate shall be supplied by the supplier at the time of inspection. Failure to comply may cause delay in the issue of certificate of inspection and consequent delay in delivery and payment.

8. **Packing, Marking and Painting :**

A. The stores shall be despatched by the supplier adequately packed in appropriate packing which should be suitable for sea and inland carriage and ensure complete safety of goods from any kind of damage in transport both on sea and land and all equipment should be properly lubricated.

B. Each package shall contain packing list in English. Each packing shall bear the following marking in English, in indelible paint:

(i) Address of the Ultimate Consignee (ii) Address of the Interim Consignee, if any (iii) Name of Railway Station for ultimate and interim consignee, (iv) Supplier’s name (v) Name of Equipment (vi) Railway Station from where despatched (vii) Purchase Order No. & Date (viii) Package Number (ix) Gross Weight in Kg (x) Net Weight in Kg. (xi) Outer Dimension in Cms. (xii) TOP ‘Do NOT TURN OVER’ ‘HANDLE WITH CARE’ etc.

The package shall indicate the centre of gravity with a red vertical line, wherever required, together with marking for slings.

The package which cannot be so marked shall have metal tags with the above marking on them.

As far as possible, size of packings shall remain within the permissible limit allowed by the Indian Railways. If this is not possible, timely information will be given and necessary over dimension sanction obtained.

9. **Security Deposit :**

The successful tenderer shall be required to furnish security deposit equal to 5% of the value of the contract within 7 days from the date of intimation of the acceptance of Purchase Order for due and proper fulfilment of the contract. The security deposit is to be deposited in the form of unconditional irrevocable bank guarantee from a Nationalised Bank (if from any other bank the bank guarantee should be duly countersigned by State Bank/Reserve Bank). The bank guarantee should remain valid till completion of supplies.
10. **Despatch Instructions :**

Despatches of stores will be arranged by Public Tariff rates. In case of FOR Station of Despatch stores shall be booked at full wagon rates whenever available and by the most economical route or by most economical tariff available. Failure to do so will render the supplier liable for any avoidable expenditure caused to the BUYER.

11. **Assembly, after sales service and training :**

If required by the BUYER the supplier shall be fully responsible for the assembly of the equipment at destination site and completeness of the machinery from the angle of its end use.

The supplier shall provide necessary "After Sales Service" and also impart training to the Consignee's staff in the operation and maintenance of the equipment free of cost to the satisfaction of the consignee. Furthermore, all tools and plants particularly heavy cranes, which are generally used as well as semi-skilled and unskilled labour for the assembly of such machinery will be provided by the BUYER free of cost to the supplier with consumable stores, like fuel, oil, lubricants, battery acids, cotton waste, grease etc., free of cost for the purpose of starting the machines, testing and putting them into good working order.

12. **Respect of Delivery Date :**

The time and delivery date as agreed to between the BUYER and Supplier shall be the essence of the contract. No variation shall be permitted, except with prior authorisation in writing from the Buyer. Goods should be delivered securely packed and in good order and conditions at the place and within the time specified for their delivery.

13. **Penalty for late deliveries :**

The time and date of delivery of stores, materials, equipment as agreed to shall be deemed to be the essence of the contract. In case of delay in execution of the order beyond the date of delivery as agreed to for any reason, the BUYER shall recover from the supplier as penalty a sum equivalent to 0.5% of the value of the entire contract for every week of delay or part thereof limited to an aggregate of 5%.

14. **Risk Purchase on Default**

In case of default on the part of the supplier to supply all the stores or part thereof covered by the contract upto the standard/specifications within the contractual delivery period stipulated in the contract, the BUYER shall have the right to purchase such stores or other of similar description at the risk and cost of the supplier. However, supplier shall be liable to pay penalty under clause 13 above for resultant delay.

15. **Delay due to force majeure**

If any time during the continuance of the contract the performance in whole or part by either party on any obligation under the contract shall be prevented or delayed by reason of any war, hostility, explosions, epidemics, quarantine restrictions, or other acts of God, then provided, notice of the happening of any such event is given by either party to the other within twenty one days from the date of occurrence thereof, neither party shall be reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against the other in
respect of such non-performance and delay in performance and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist and the decision of the Chairman and Managing Director, EPI, New Delhi as to whether the deliveries so resumed shall be final and binding on both the parties. In case Force Majeure Condition persists for a period exceeding sixty (60) days, either party may at its option terminate the contract.

BUYER shall be at liberty to take over from the supplier at a price to be fixed by the Chairman and Managing Director, EPI, New Delhi which shall be the final, all unused, undamaged and acceptable material, bought out components and stores in course of manufacture in the possession of the supplier at the time of such termination or portion thereof as the BUYER may deem fit.

16. Rejection, Removal of Rejected Goods and Replacement

In case the testing and inspection at any stage by inspectors reveal that the equipment, material and workmanship do not comply with the specifications and requirements, the same shall be removed by the Supplier at his/its own expenses and risk within the time allowed by the BUYER. The BUYER shall be at liberty to dispose of such rejected goods in such manner as he may think appropriate, in the event the supplier fails to remove the rejected goods within the period as aforesaid.

All expenses incurred by the BUYER for such disposal shall be to the account of the supplier. The freight paid by the BUYER, if any, on the inward journey of the rejected material shall be reimbursed by the supplier to the BUYER before the rejected materials are removed by the Supplier. The supplier will have to proceed with the replacement of that equipment or part of equipment without claiming any extra payment if so required by the BUYER. The time taken for replacement in such event will not be added to the contractual delivery period.

17. Warranty

The supplier shall warrant that every material/plant, machinery and equipment to be supplied be new and free from all defects and faults in design, material, workmanship and manufacture and shall be of the highest quality.

The items should be consistent with the established, recognised or stipulated standards for material of the type usually used for the purpose and in full conformity with the specifications and drawings or samples, if any. Equipment offered must be capable, during operation, of withstanding extreme dusty, wet, humid and sultry conditions. The warranty shall continue not withstanding inspection, payment, acceptance of tendered equipment and shall expire except in respect of complaints notified to supplier prior to such date within 12 months from the date of commissioning or 18 months from the date of despatch whichever is earlier.

18. Performance Guarantee

The supplier shall guarantee that any/all material used in execution of the Purchase Order shall be in strict compliance with characteristics requirements and specifications agreed upon and that same shall be free from any defects.

The supplier shall guarantee that all material and equipment shall be repaired or replaced as the case may be at his own expense in case the same have been found to be defective in respect of material, workmanship or smooth and rated operation within a period of 12 months after the same has been put in service or 18 months from the date of despatch of last consignment, whichever is earlier. The guarantee period for the replacement parts shall be 12 months starting from the date on which the replacement parts are commissioned. Acceptance by the BUYER or his inspectors
of any equipment and materials or their replacement will not relieve the supplier of his/its responsibility concerning the above guarantee.

19. Indemnity

The supplier shall at all times indemnify the BUYER against all claims which may be made in respect of stores for infringement of any right protected by patent, registration of design or trade mark. Provided always that in the event of any claim in respect of alleged breach of patent, registered designs or trade mark being made against the BUYER, the BUYER shall notify the supplier of the same and the supplier shall at his own expense either settle any such dispute or conduct any litigation that may arise therefrom.

The supplier shall not be liable for payment of any royalty, licence fee or other expenses in respect of or for making of patents or designs with respect to which he is, according to the terms of the contract, to be treated as an agent of the Government for the purpose of making use of the patent or trade mark of fulfilment of the contract.

20. Spare Parts

The supplier shall furnish itemised and priced list of spare parts required for two years normal operation of the equipment alongwith the quotation.

21. Drawings

The supplier shall furnish the general arrangements and dimensional drawings in three sets within four weeks from date of placement of order.

22. Literature of Equipment

Following literature and documents for the equipment shall be supplied in five copies each free of cost alongwith the equipment,
(a) Operator's instructions (b) Service Manual (c) Illustrated and detailed parts catalogues (d) Specifications (e) A list of service tools required for routine servicing of the equipment.

23. Arbitration

Except where otherwise provided for in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other questions, claim, right matter or thing whatsoever if any, arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or any contradictions or otherwise concerning the purchase order or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the Chairman and Managing Director/General Manager (accepting authority) of Engineering Projects (India) Ltd. and if the Chairman and Managing Director/General Manager is unable or unwilling to act to the sole arbitration some other person shall be appointed by the Chairman and Managing Director/General Manager willing to act as such arbitrator. There will be no objection if the arbitrator so appointed is an employee of Engineering Projects (India) Ltd., and that he had to deal with matters to which the contract relates and that in the course of his duties as such he had expressed views on all or any of the matters in disputes or difference. The arbitrator to whom the matter is originally
referred being transferred or vacating his office or being unable to act for any reason, such Chairman and Managing Director/General Manager as aforesaid at the time of such transfer, vacation of office or inability to act, shall appoint another person to act as an arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Chairman and Managing Director/General Manager as aforesaid should act as arbitrator and if for any reason, that is not possible, the matter is not to be referred to arbitration at all.

Cases where the amount of award in claim is Rs. 50,000/- (Rupees fifty thousand only) and above, the arbitrator shall give reasons for the award.

Subject as aforesaid the provisions of the arbitration act 1940 or any statutory modification or re-enactment thereof and the rules made thereunder and for time being in force shall apply to the arbitration proceedings under this clause.

It is a term of the contract that the party invoking arbitration shall specify the disputes or dispute to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

The arbitrator may from time to time with consent of the parties enlarge the time, for making and publishing the award.

The work under the contract shall, if reasonably possible continue during the arbitration proceedings.

The arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of the first hearing.

The arbitrator shall give a separate award in respect of each disputes or difference referred to him.

The avenue of arbitration shall be such place as maybe fixed by the Arbitrator in his sole discretion.

The award of the arbitrator shall be final, conclusive and binding on all parties to the contract.

24. **Court Jurisdiction**

Disputes of any nature that may arise in connection with the execution of the contract shall be subjected to the jurisdiction of courts situated in Delhi/New Delhi only.
Check List for Evaluation & Selection of Suppliers / Vendors

1. Name

2. Address

3. Contact Person

4. Proprietor

5. a) Phone Nos.

   b) Fax Nos.

6. Items / Products

7. Manufacturer
   Distributor
   Dealer
   Stockist

8. Facilities Available
   In House
   Through External Agency

   a) Testing Facilities
      i) For Incoming materials
      ii) For In process
      iii) For Final Product

   b) Can Issue Test Certificate
      Yes     No

   c) Details of Manufacturing Facilities

   d) Products being manufactured
      (Product Catalogues)

9. Annual Turn Over

10. Whether ISO 9000 certified or not
11. Whether IS certified or not

12. Reference list of important customers during last five years

13. Ability to give after sales service

14. Sample sent or not

To Incharge MMD
EPI

Signature of Vendor / Supplier
Name
Designation
Date

For use in EPI

Data has been collected over phone verbally.

Signature of person collecting data

Evaluation & Review

Yes  No

Reviewed the details of vendor Product is suitable

If Yes basis

Sample checked
Specification checked
Suppliers details reviewed
Enjoys goodwill / Reputation

Testing facilities adequate
Enquiries from customers of sub suppliers

Past performance with EPI

Approved  Reviewed

Signature  Signature
INSTRUCTIONS TO TENDERERS (Suppliers)

1. Sealed tenders in the prescribed form are invited by Engineering Projects (India) Limited, Sub-Regional Office, Patna.

2. The tenderer is requested to sign each page of tender document and return the complete tender documents.

3. Tenders shall be submitted in sealed envelope marked with ‘Title’, ‘Number’ and ‘Last Date of receipt of Tender’ for the items as given in the ‘Covering Letter inviting Tender’ at the following address by Registered Post or through messenger with in the last date of receipt of tender given in the letter inviting Tender:

   Shri J N Sharma, GGM / Shri Kumar Jivesh, Manager Gr.-I (T)
   ENGINEERING PROJECTS (INDIA) LTD,
   202, RS Villa, Behind Rajeshwar Hospital,
   Kankarbagh, Patna
   Mobile: 09771490306 / 7070099982
   Landline 0612- 2366225

4. The tenderer is required to submit their offer in 2 separate sealed and superscribed envelopes indicating the following:-

   1st Envelope (Techno-Commercial Bid)

   The tenderers are requested to furnish the documents as required in clause no. 25 in respect of the credentials of the tenderer in this envelope.

   In this envelope the tenderer should also keep the complete tender documents duly signed and stamped by them on each page as their acceptance, deviation sheet and unpriced copy of price bid and super scribe the envelope with “Techno-Commercial Bid”.

   2nd Envelope (Price Bid)

   The form of Price Bid duly filled in with the item rates both in words and figures in the same form as issued to tenderers should be submitted in this envelope, with superscription “Price Bid” No terms and conditions or deviations if any or any other thing should be kept in this envelope.

   The sealed price bid of such tenderers who are found suitable on scrutiny of documents furnished by them i.e. pre-qualification and Technically acceptable shall only be opened. The tenders of all such parties, who are not found suitable shall not be considered and their earnest money deposit will be returned.

   The two envelopes should be enclosed again in a sealed cover super scribed as mentioned in Para. -3.
5. The bidders should quote in words as well as in figures the item rates quoted by them. In absence of which the bids may not be considered and are likely to be rejected. The amount of each item should be worked out and requisite totals given.

All corrections / cuttings should be signed by the tenderer. Each page of the tender should be signed by the tenderer. In the event of discrepancy between rate in figures and words the rate quoted in words shall be treated as correct. In case there is discrepancy between rate and amount worked out the rate quoted shall be taken as correct and not the amount.

6. EPI takes no responsibility for tenders lost / delayed in postal transit and therefore, tenderers should lodge their tenders sufficiently in advance.

7. Tenders shall be accompanied by Earnest Money deposit, if applicable.

This must be submitted in 1st envelope super scribed as “Techno –Commercial”.

8. The EPI’s format for Bank Guarantee towards ‘Earnest Money Deposit’ and “Security Deposit cum Performance Guarantee” is enclosed herewith.

9. EPI reserves the right to postpone the tender due date and issue required amendment, if any. There will be no public tender opening. However, selected tenderers may be called for discussions / clarifications after the tenders have been scrutinized.

10. Earnest Money shall be returned to the unsuccessful tenderer after decision has been taken on award of the contract.

11. Earnest Money of the successful tenderer shall be converted in to a part of the security deposit / returned on receipt of Security Deposit and unconditional acceptance of the order.

12. Tenders must be duly signed with date and sealed. An attested copy of power of attorney / affidavit / Board Resolution executed as under shall accompany the tender documents.

a) In case of Sole Proprietorship, an affidavit of Sole Proprietorship and if the tender is signed by any other person Power of Attorney by the Sole Proprietor in favour of signatory.

b) In case of Partnership, if document is not signed by all the partners, Power of Attorney in favour of the Partner / person signing the documents authorizing him to sign the documents. The person signing the documents should also have a specific authority to refer disputes with the partnership firm to arbitration.

c) In case of Company, copy of the Board Resolution authorizing the signatory to sign on behalf of the Company.
13. The tenderer shall furnish the name(s) and designation of relative(s) if any, employed by EPI.

14. Tenders with following discrepancies are liable for rejections:
   
a) Tenders with over-written or erased rates or rates and amounts not written in both figures and words.
   
b) Tender that is incomplete, ambiguous, and not accompanied by the documents asked for.
   
c) Tender received after specified date/time whether due to postal or other delays.
   
d) Tender in respect of which canvassing in any form is resorted to by the tenderer.
   
e) If the tenderer deliberately gives wrong information in his tender or resorts to unfair methods in creating circumstances for the acceptance of his tender, EPI reserves the right to reject such tender at any stage.

15. No deviation shall be allowed from the terms and conditions stipulated in the tender documents and tender containing deviations are liable to be rejected. Deviations, if insisted upon must be specified in a separate ‘Deviation Sheet’ and kept in 1st envelope along with techno-commercial bid, otherwise, the tenderer shall be deemed to have accepted all conditions specified in these tender documents. Normally no deviation is accepted.

16. EPI reserves the right to split the order.

17. The tender shall remain open for acceptance for a period of 90 days from the due date for receiving the tender by EPI. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of any other right or remedy shall be at liberty to forfeit the Earnest Money deposited.

18. These instructions to tenderers shall form part of the tender documents.

19. Successful tenderer must furnish Security Deposit as specified in tender documents within the time specified in the letter-communicating acceptance of his offer failing which the Earnest Money will be forfeited. The successful tenderer may also be required to enter into a contract agreement with EPI.

20. Submission of a tender by the tenderer implies that he has read the complete contract documents and has made himself aware of the scope, terms & condition and specifications etc. No claim within the purview of this clause shall be entertained at any stage.
21. EPI reserves the right to reject any or all tenders without assigning any reasons thereof and does not bind itself to accept the lowest tender.

22. In case the tender cannot be submitted for any reasons the complete set of Tender Documents in full shall be returned promptly but not later than 15 days from the due date to the address mentioned above for submitting the tender failing which the defaulting tenderer may not be considered for issue of future enquiries by EPI.

23. The order shall be governed by the Indian Laws for the time being in force.

24. Jurisdiction: All disputes shall be subject to Delhi Courts alone.

25. Tenderer shall submit the following documents in respect of their credentials along with their tender in the ‘first envelope’.

a) List of orders of similar items executed during the last 5 years indicating name of the client, value, date of order and delivery.

b) List of order under execution indicating name of the client, value, date of order and delivery.

c) Audited balance sheet and profit and loss account for the last 3 years (2011-12,2012-13,2013-14)

d) Registration Certificate / Memorandum of Association / Partnership Deed.

e) Copy of letters of registration with various authorities like CPWD, State PWD, MES and Public Sector Undertakings, etc.

f) Sales Tax Clearance Certificate, if applicable.

Seal and signature of the Tenderer
MEMORANDUM

REF: Tender for “Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna.

NIT No: PAT/CON/721/001

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>ITEMS</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>i)</td>
<td>Name of work</td>
<td>Tender for “Supply, Erection &amp; Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna”</td>
</tr>
<tr>
<td>ii)</td>
<td>Owner/Client / Employer</td>
<td>Vaishal Patliputra Dugdh Utpadak Sahkari Sangh Limited, Patna Dairy Project, Patna (Vaishal Patliputra Milk Union, VPMU) Bihar State Milk Cooperative Federation Limited (COMFED)</td>
</tr>
<tr>
<td>iii)</td>
<td>Type of Tender</td>
<td>Item rate basis</td>
</tr>
<tr>
<td>iv)</td>
<td>Earnest Money Deposit</td>
<td>NA</td>
</tr>
<tr>
<td>v)</td>
<td>Estimated Cost</td>
<td>60.00 lakhs</td>
</tr>
<tr>
<td>vi)</td>
<td>Time for completion of work</td>
<td>3 Months from the date of LOI</td>
</tr>
<tr>
<td>vii)</td>
<td>Mobilization Advance</td>
<td>NIL</td>
</tr>
<tr>
<td>viii)</td>
<td>Interest Rate on Mobilization Advance</td>
<td>NA</td>
</tr>
<tr>
<td>ix)</td>
<td>Number of Instalments for recovery of Mobilisation Advance</td>
<td>NA</td>
</tr>
<tr>
<td>x)</td>
<td>Validity of Tender</td>
<td>90 (Ninety) Days from the opening of Price Bid</td>
</tr>
</tbody>
</table>
xi) Security Deposit cum Performance Guarantee
10.00% (Ten Percent only) of contract value in the form of Bank Guarantee within 30 days from the date of issue of telegram / letter / telex / FAX of Intent of acceptance of tender and validity of Bank Guarantee upto 30 days from the date of expiry of defects liability period. Alternatively equivalent amount will be deducted from RA bills.

xii) Time allowed for starting the work
The date of start of contract shall be reckoned 7 (seven) days from the date of issue of telegram / letter / telex / FAX of Intent of acceptance of tender.

xiii) Defect Liability Period
12 (Twelve) Months from the date of taking over by the Client

xiv) Arbitration
Amended arbitration clause of EPI

xv) Jurisdiction
Courts in DELHI / NEW DELHI

SIGNATURE OF TENDERER

NAME (CAPITAL LETTERS) : _______________________________________

OCCUPATION ___________________________________________________

ADDRESS _______________________________________________________

_________________________________________________________________

SEAL OF TENDERER
ENGINEERING PROJECTS (INDIA) LTD.  
(A. Govt. of India Enterprise)  

NOTICE INVITING TENDER  

Tender for “Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna”.

PAT/CON/721/01 Date : 13/05/2016

1.0 Engineering Projects (India) Ltd. invites Sealed offer for “Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna”

<table>
<thead>
<tr>
<th>SI no.</th>
<th>Name of work</th>
<th>Estimated Cost (in lakhs)</th>
<th>Period of Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Supply, Erection &amp; Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section complete for 20 KLPD Ice Cream Plant at Phulwarisharif, Patna</td>
<td>60.00</td>
<td>3 months from date of LOI</td>
</tr>
</tbody>
</table>

The brief scope of work included in this tender shall include (but not limited to) **Supply, Erection & Commissioning of Refrigeration Plant for chilled water system for Ice-Cream mix section, its manufacture, shop fabrication, assembly, testing & inspection at manufacturer’s works, packing, dispatch, transportation, delivery to site, required fabrication & assembly at site, Installation, Testing & Commissioning, completion of facilities, performance guarantee testing, final painting and handing over to Vaishal Patliputra Dugdh Utpadak Sahkari Sangh Limited, Patna Dairy Project, Patna (Vaishal Patliputra Milk Union, VPMU) / Bihar State Milk Co-operative Federation Limited, Patna of 20 KLPD Ice Cream Plant at Patna.**

The detailed scope of work is given in the tender document.

Time schedule of tender activities:

(i) Date of availability of tender documents on EPI website www.epi.gov.in/ CPP Portal } 14.05.2016

(ii) Last Date & Time of Submission of Tenders } 29.05.2016 upto 2 PM

(iii) Date & Time of Opening Envelope-1 } 29.05.2016 upto 3.30 PM

2.0 **Qualification Criteria:**

The firms should meet the following minimum qualifying criteria:

The bidder shall have minimum one year experience of Supply, Erection & Commissioning of Refrigeration System of Dairy / Ice-Cream Plant/Food industry.
b). Average annual turnover during last three years ending 31.03.15: 30% of estimated cost.

d). The following documents are required to be submitted along with offer

(i) Valid PAN (Permanent Account Number of Income Tax).

(ii) Valid PF registration no.

3.0 Tender documents comprising of the following are available on the website of EPI: www.epi.gov.in

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Volume</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Vol - 1</td>
<td>Notice Inviting Tender (NIT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Memorandum</td>
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<tr>
<td></td>
<td></td>
<td>Instructions to Tenderers (Suppliers)</td>
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4.0 a) The complete Tender documents are available on the website and the same can be downloaded by the intending bidders directly from EPI website. Documents as mentioned above S.No. 2.0 duly attested by competent Officer not below the rank of Executive Engineer or equivalent or Notary Public fulfilling the qualifying criteria shall also be enclosed in Envelope-1. Completion Certificates from clients shall be in the name of the Company who is submitting the tender. The bidder has to produce original documents for verification at the time of opening of tender or as and when demanded. The Tender of any tenderer shall be rejected if on detailed scrutiny, documents submitted along with the tender are found to be unsatisfactory. The decision of EPI in this regard shall be final and binding on the tenderer.

b) Alternatively, Tender documents can be obtained from the Group General Manager, Engineering Projects (India) Ltd., 202, R S Villa, Kankarbagh, Patna-800 020 (Bihar) from 11.00 AM to 04.00 PM on all working days (Monday to Friday) except Public Holidays, on submission of request letter along with copies of relevant documents as mentioned above S.No. 2.0

Issuance of Tender Documents to any tenderer shall, however, not construe that the tenderer is considered qualified for the tender work and the same may be rejected if on detailed scrutiny, the documents submitted along with the tender are found to be unsatisfactory.

5.0 EMD is not applicable for this tender.

6.0 The Terms & Conditions contained in this NIT and tender documents shall be applicable.
7.0 EPI reserves the right to accept any tender or reject any or all tenders or annul this tendering process without assigning any reason and liability whatsoever and to re-invite tender at its sole discretion. The corrigendum, addendum, extension, cancellation of this NIT, if any, shall be given on the EPI’s website www.epi.gov.in only. The intending tenderers are requested to visit the EPI’s website regularly for this purpose.

The tender documents shall be issued by and submitted to:

**Shri J N Sharma, GGM / Shri Kumar Jivesh, Manager Gr.-I (T)**
ENGINEERING PROJECTS (INDIA) LTD,  
202, RS Villa, Behind Rajeshwar Hospital,  
Kankarbagh, Patna  
Mobile: 09771490306 / 7070099982  
Landline 0612- 2366225
## SPECIAL CONDITIONS OF CONTRACT FOR ERECTION
### PART - II

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SPECIAL CONDITIONS OF CONTRACT FOR INSTALLATION / ERECTION

PART II

1.0 SUFFICIENCY OF TENDER

The Supplier by biddings shall be deemed to have satisfied himself of all the conditions and circumstances affecting the Contract Price, as to the possibility of executing the works as shown and described in the Contract, as to the general circumstances at the site of the works, as to the general labour positions at the site and to have determined the prices accordingly.

2.0 PROGRAMME OF INSTALLATION AND COMMISSIONING

As soon as practicable after the acceptance of the bid, the Supplier shall submit to the Purchaser for his approval a comprehensive programme in the form of PERT network/bar chart and any other form as maybe required by the Purchaser showing the sequence of order in which the Supplier proposes to carry-out the works including the design, manufacture, delivery to site, erection and commissioning thereof. After submission to and approval by the Purchaser of such programme, the Supplier shall adhere to the sequence of order and method stated therein. The submission to and approval by the Purchaser of such programme shall not relieve the Supplier of any of his duties or responsibilities under the Contract. The programme approved by the Purchaser shall form the basis of evaluating the pace of all works to be performed by the supplier.

3.0 PREPARATION OF DRAWINGS FOR APPROVAL

The Supplier should visit the site to acquaint himself in respect of existing site conditions and to know the details/information required for understanding the nature and type of civil construction works involved in the project. The Supplier shall submit to the Purchaser for approval:

a. Within the time given in the specification or in the program, such drawings, samples, patterns and models as may be called for therein, and in numbers therein required.

b. During the progress of works and within such reasonable times as the Purchaser may require, such drawings of the general arrangement and details of the works as the Purchaser may require.

The specifications/conditions concerning the submission of drawings by the Supplier are detailed as under:

3.1 Within four weeks from the date of receipt of the Notification of Award, Supplier shall furnish a list of all necessary drawings as briefly described below which the Supplier shall submit for approval, identifying each drawing by a serial number and descriptive title and expected date of submission. This list shall be revised and extended if necessary, during the progress of work depending on the nature of the contract also.

The Purchaser shall signify his approval or disapproval of all drawings or such drawings that would affect progress of the contract as per the agreed programme.

Brief list of drawings:

I. Equipment drawings for fabricated items.

II. Equipment layout form main feed plant, storage silo system and steam generation plant.

III. Flow diagrams for main processing plant, storage silo system and various services.
IV. Service piping layouts in production, storagesilosystem and service blocks.

V. Electrical cable, conduit/cable tray/cable trench layout.

VI. Other miscellaneous drawings as required for erection work.

VII. Electrical single line diagram, PCC and MCC general arrangement drawing and wiring diagrams.

VIII. Automations systems scheme, controls and network diagrams.

3.2 Drawings showing fabrication details, dimensions, layouts and bill of materials submitted for approval shall be signed by responsible representative of Supplier and shall be sent to any one of the following sizes in accordance with Indian Standards: A0, A1, A2, A3 and A4.

3.3 All drawings shall show the following particulars in the lower right hand corner in addition to Supplier's name:

i. Name of the Purchaser.
ii. Project Title.
iii. Title of drawing.
iv. Scale.
v. Date of drawing.
vi. Drawing number.
vii. Space for Purchaser reference or drawing number.

3.4 In addition to the information provided on drawings, each drawing shall carry a revision number, date of revision and brief description of revision carried out. Whenever any revision is carried out, correspondingly, the revision number must be updated.

3.5 All dimensions on drawings shall be in metric units.

3.6 Drawings (three sets) submitted by the Supplier for approval will be checked, reviewed by the Purchaser, and comments, if any, on the same will be conveyed to the Supplier. It is the responsibility of the Supplier to incorporate correctly all the comments conveyed by the Purchaser on the Supplier's drawings. The drawings, which are approved with comments, are to be submitted in quadruplicate to the Purchaser for purpose of records. Such drawings will not be checked/reviewed by the Purchaser to verify whether all the comments have been incorporated by the Supplier.

3.7 If the Supplier is unable to incorporate any comments in the revised drawings, Suppliers shall clearly state in his forwarding letters such non-compliance along with the valid reasons.

3.8 If at anytime before completion of the work, changes are made necessitating revision of approved drawings, the Suppliers shall make such revisions and proceed in the same routine as for the original approval.

3.9 Date of submission

In the event, the drawings submitted for approval require many revisions amounting to re-drawing of the same then the date of submission of the revised drawings would be considered as the date of submission for approval. Four sets of all the drawings finally approved for fabrication / execution of works, along with the original set, will be submitted to the Purchaser.

3.10 The Supplier shall furnish to the Purchaser before the works are taken over, Operating and Maintenance instructions together with four sets of hard and soft copy (on CD/DVD) of drawings of the works as completed, insufficient detail to enable the Purchasertomaintain, dismantle, reassemble and adjust all parts of the works. Unless otherwise agreed, the works shall
not be considered to be completed for the purposes of taking over until such instructions and drawings have been supplied to the Purchaser.

4.0 SUPPLIER'S SUPERINTENDENCE (AND) DEPLOYMENT OF ERECTION TEAM AND CONDUCT OF PERSONNEL

The Supplier shall employ one or more competent representatives, whose names or names shall have previously been communicated in writing to the Purchaser by the Supplier, to superintend the carrying out of the works on the site. The said representative or more than one shall be employed, the one of such representatives shall be present on the site during all times and any order or instructions which the Purchaser may give to the said representative of the Supplier shall be deemed to have been given to the Supplier. The said representative shall have full technical capabilities and complete administrative and financial powers to expeditiously and efficiently execute the work under the contract.

4.1 The Supplier shall, execute the work with due care and diligence within the time for completion and employ Supplier's team comprising qualified and experienced engineers together with adequate skilled, semi-skilled and unskilled workmen in the site for carrying out the works. The Supplier shall ensure that a work force to keep the required pace at all times as per the schedule of completion. The Supplier shall also ensure availability of competent engineers during commissioning/start up, trial runs, operation of the plant/equipment till handing over of the plant.

4.2 The Supplier shall furnish the details of qualifications and experience of their senior supervisors and engineers assigned to the work site, including their experience in supervising erection and commissioning of plant and equipment to the Purchaser.

4.3 When the Supplier or the Supplier's representative is not present on any part of the work where it may be desired to give directions in the event of emergencies, orders may be given by the Purchaser and shall be received and observed by the Supervisor or foreman to whom may have charge of the particular part of the work in reference to which orders are given. Any such instructions, directions or notices given by the Purchaser shall be deemed to have been given to the Supplier.

4.4 The Supplier's employment records shall include any reasonable information as may be required by the Purchaser. The Supplier should also display necessary information as may be required by statutory regulations.

4.5 None of the Supplier's supervisors, engineers, or laborers may be withdrawn from the work without notice to the Purchaser and further no such withdrawal shall be made if in the opinion of the Purchaser, it will adversely affect the required pace of progress and/or the successful completion of the work.

4.6 The Purchaser shall be at liberty to object to any representative or person, skilled or semi-skilled or unskilled, worker employed by the Supplier in the execution of the works unless it is otherwise about the work which shall, in the opinion of the Purchaser, misconduct itself for being incompetent, or negligent or unsuitable, and the Supplier shall remove the person so objected to, upon receipt of notice in writing from the Purchaser and shall provide in that place a competent representative of the Supplier's own expense within a reasonable time.

4.7 In the execution of the works no persons other than the Supplier, sub-Supplier and their employees shall be allowed on the site except by the written permission of the Purchaser.

5.0 PURCHASER'S INSTRUCTIONS

The Purchaser may in his absolute discretion, issue from time to time drawings and/or instructions, directions and clarifications which are collectively referred to as Purchaser's instructions in regard to:
5.1 Anyadditionaldrawingand clarifications to exhibitordescribeldetails.

5.2 Variations or modifications of the design, quality or quantity of work or theadditionstor omissionsor substitutionof any work.

5.3 Anydiscrepancyinthe drawingsor between the schedule of quantities and/or specifications.

5.4 Removalfrom the site of any material broughtthereby the Supplier, which are unacceptablene to the PURCHASER and the substitution of anyother materialthereof.

5.5 Removaland/orre-execution of any work erectedby the Supplier, which are unacceptablene to the Purchaser.

5.6 Dismissal from the work of any person employed thereupon who shall in the opinion of the Purchaser, misconducthimself, or beincompetent or negligent.

5.7 Opening up for inspection of any work covered up.

5.8 Amending and making good of any defects

6.0 RIGHT OF THE PURCHASER

6.1 Rightto directworks:

6.1.1 The Purchaser shall have the right to direct the manner in which all worksunder this Contractshall be conducted, insofar as it may be necessary to secure the safe and proper progress and specified quality of the works. All work shall bedone and all materials shall be furnished to the satisfaction and approval of the Purchaser.

6.1.2 Whenever in the opinion of the Purchaser, the Supplier has mademarked departures from the schedule of completion or when circumstances or requirements force such departure from the schedule, the Purchaser, in order to ensure compliance with the schedule, shall direct the order, pace and method of conducting the work, which shall be adhered to by the Supplier.

6.1.3 If in the judgment of the Purchaser, it becomes necessary at any time to accelerate the overall pace of the plant erection work, the Supplier, when directed by the Purchaser, shall cease work at any particular point and transfer Supplier's men to other points and execute such works, as may be directed by the Purchaser and at the discretion of the Purchaser.

6.2 Rightto order modifications of methods and equipment

If at any time the Supplier's methods, materials or equipment appear to the Purchasertobe unsafe, inefficient or inadequate for securing the safety of workmen or the public, the quality of work or the rate of progress required, the Purchaser may direct the Supplier to ensure safety, and increase their efficiency and adequacy and the Supplier shall promptly comply with such directives. If at any time the Supplier's working force and equipment are inadequate in the opinion of the Purchaser, for securing the necessary progress as stipulated, the Suppliers shall be directed, increased the working force and equipment to such an extent as to give reasonable assurance of compliance with the schedule of completion. The absence of such demands from the Purchaser shall not relieve the Supplier of Supplier's obligation to secure the quality, the safe conducting of the work and the rate of progress required by the contract. The Supplier alone shall be and remain liable and responsible for the safety, efficiency and adequacy of Supplier's methods, materials, working force and equipment, irrespective of whether or not the Supplier makes any changes as a result of any order or orders received from the Purchaser.

6.3 Rightto inspect the work
6.3.1 The Purchaser's representatives shall be given full assistance in the form of the necessary tools, instruments, equipment and qualified operators to facilitate inspection.

6.3.2 The Purchaser reserves the right to call for the original test certificates for all the materials used in the erection work.

6.3.3 In the event the Purchaser's inspection reveals poor quality of work/materials, the Purchaser shall be at liberty to specify additional inspection procedures if required, to ascertain Supplier's compliance with the specifications of erection work.

6.3.4 Even though inspection is carried out by the Purchaser or Purchaser's representatives, such inspection shall not, however, relieve the Supplier of any or all responsibilities as per the contract, nor prejudice any claim, right or privilege which the Purchaser may have because of the use of defective or unsatisfactory materials or bad workmanship.

7.0 SUPPLIER'S FUNCTIONS

7.1 The Supplier shall provide everything necessary for proper execution of the works, according to the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred therefrom and if the Supplier finds any discrepancy therein, Supplier shall immediately refer the same to the Purchaser whose decision shall be final and binding on the Supplier.

7.2 The Supplier shall proceed with the work to be performed under this Contract in the best workman like manner by engaging qualified and efficient workers and finish the work in strict conformance with the drawings and specifications and any changes/modifications thereof made by the Purchaser.

7.3 VARIATIONS

7.3.1.1 The Purchaser shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose or if for any other reason shall, in his opinion, be desirable, have power to order the Supplier to do and the Supplier shall do any of the following:

a. Increase or decrease the quantity of any work included in the contract,

b. Omit any such work,

c. Change the character or quality of any kind of any such work,

d. Change the levels, lines, positions and dimensions of any part of the works, and

e. Execute additional work of any kind necessary for the completion of the works and so such variations shall not be rejected or invalidated at the Contract price, but the value, if any, of all such variations shall be taken into account in ascertaining the amount of the Contract price.

7.3.1.2 No such variations shall be made by the Supplier without an order in writing of the Purchaser. Provided that no order in writing shall be required for an increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this clause, but the result of the quantities exceeding or being less than those stated in the Contract/Bill of Quantities. Provided further that if the Supplier shall within seven days confirm in writing to the Purchaser and such confirmation shall not be contradicted in writing by the Purchaser within 14 days, it shall be deemed to be an order in writing by the Purchaser.

7.3.2.1 All extra or additional work done or work committed by order of the Purchaser shall be valued at the rates and prices set out in the contract in the opinion of the Purchaser, the same shall be applicable. If the contract does not contain any rates or prices applicable to the extra or additional work, then suitable rates or prices shall be agreed upon between the Purchaser and the Supplier. In the event of disagreement, the Purchaser shall fix such rates or prices as shall, in his opinion, be reasonable and proper.
7.3.2.2 Provided that if the nature or amount of any omission or addition relative to the nature or amount of the whole of the works or any part thereof shall be such that, in the opinion of the Purchaser, the rate or price contained in the Contract for any item of the works, is by reason of such omission or addition, rendered unreasonable or unapplicable, then a suitable rate or price shall be agreed upon between the Purchaser and the Supplier. In the event of disagreement the Purchaser shall fix such other rate or price as shall, in his opinion, be reasonable and proper having regard to the circumstances.

Provided also that no increase or decrease under sub-clause 7.3.2.1 of this clause or variation of rate or price under sub-clause 7.3.2.2 of this clause shall be made unless, as soon after the date of the order as is practicable and, in the case of extra or additional work, before the commencement of the work or as soon thereafter as practicable, notices shall have been given in writing:

a. By the Supplier to the Purchaser of his intention to claim an extra payment or a varied rate or price, or

b. By the Purchaser to the Supplier of his intention to vary rate or price.

7.3.2.3 If, on certified completion of the whole of the works, it shall be found that a reduction or increase greater than 15% of the sum named in the Letter of Acceptance results from the aggregate effect of all Variation Orders but not from any other cause, the amount or the Contract Price shall be adjusted by such sum as may be agreed between the Supplier and the Purchaser, failing agreement, fixed by the Purchaser having regard to all material and relevant factors, including the Supplier's site and general overhead costs of the contract.

7.3.2.4 The Suppliers shall send to the Purchaser's representative once in every month an account giving particulars, as full and detailed as possible, of all claims for any additional payment to which the Supplier may consider himself entitled and of all extra or additional work ordered by the Purchaser which he has executed during the preceding month.

No final or interim claim for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the PURCHASER shall be entitled to authorize payment to any such work or expense, notwithstanding the Supplier's failure to comply with this condition, if the Supplier has, at the earliest practicable opportunity, notified the Purchaser in writing that the intending to make a claim for such work.

7.4 The work shall be carried out as approved by the Purchaser or his authorized representative(s) from time to time, keeping in view the overall schedule of completion of the project. The Supplier's job schedule must not disturb or interfere with the Purchaser's or other Suppliers' or Contractors' schedules of day-to-day work. The Purchaser will provide all reasonable assistance for carrying out the jobs.

7.5 Night work will be permitted only with prior approval of the Purchaser. The Purchaser may also direct the Supplier to cooperate or extrahshift or to work on normal day shift to ensure completion of contract as per schedule. Adequate lighting wherever required should be provided by the Supplier at his own expense. The Suppliers should employ qualified electricians and engineers for these facilities. In case of Supplier's failure to provide these facilities and personnel, the Purchaser has the right to arrange such facilities and personnel and to charge the cost thereof to the Supplier.

7.6 The Supplier shall, in the joint names of the Supplier and the Purchaser naming Purchaser as the beneficiary, insure the received goods and equipment and so far as reasonably practicable to the Works and keep each part thereof insured for the 110% of the Contract Sum or such other value as may be mutually agreed between the Purchaser and the Supplier against all loss or damage from whatever cause arising, other than the excepted risks, from the date of shipment or the date on which it becomes the property of the
Purchaser, whicheveristheearlier, until tit is taken over by the Purchaser. The Supplier shall, in the event of any damage occurring whilst the Supplier is on site for the purpose of making good a defect or carrying out the Tests on completion.

7.7 The Purchaser shall not be liable for or in respect of any damages or omissions attributable to law or in respect of any consequence of any accident or injury to any workman or other person in the employment of the Supplier or any sub-Supplier, save and except any accident or injury resulting from any act or default of the Purchaser, his agents, or servants. The Supplier shall indemnify and keep indemnified the Purchaser against all such damages and compensation, save and except as aforesaid, and all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

7.8 The Supplier shall insure against such liability with an insurer approved by the Purchaser, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any person is employed by him on the work. In any event, when required, produce to the Purchaser or Purchaser's representative such policy of insurance and the receipt for payment of the current premium.

Provided always that in respect of any persons employed by any sub-supplier, the Supplier's obligations to ensure as aforesaid under this sub-clause shall be satisfied if the sub-supplier shall have insured against the liability of such persons in such manner that the PURCHASER is indemnified under the policy, but the Supplier shall require such sub-supplier to produce to the Purchaser or Purchaser's representative, when required, such policy of insurance and the receipt for the payment of the current premium.

7.9 Whenever proper execution of the work under the Contract dependent on the jobscarrid by some other supplier, in such cases the Supplier should inspect all such erection and installation works and report to the Purchaser regarding any defects or discrepancies. The Supplier's failure to do so shall constitute a acceptance of the other supplier's installation/ job as fit and proper for reception of Supplier's works except those defects which may develop after execution. Suppliers should also report any discrepancy between the executed work and the drawings.

The Supplier shall extend all necessary help to the Purchaser or to other suppliers or working at the site in the interest of the work.

7.10 The Supplier shall keep a check on deliveries of the Goods covered in the scope of work and shall advise the Purchaser well in advance regarding possible hold-up in Supplier's work due to delay in delivery of such Goods to enable him to take remedial actions.

7.11 The Supplier shall be permitted to substitute equipment of equal or better performance subject to approval by the Purchaser, which approval shall not be unreasonably withheld, provided that the Supplier establishes to the Purchaser's satisfaction that the performance of the substituted equipment is equal to or better than the performance of the equipment specified in the contract and without any increase in the contract price.

8.0 DUTIES OF THE PURCHASER:

8.1 The Goods, if any, to be supplied by the Purchaser for erection, testing and commissioning by the Supplier, shall be listed in the Contract.

8.2 Necessary temporary water for carrying out the installation/testing shall be supplied by the Purchaser. Any one point within the project site by which the Purchaser is free of charge. All necessary distribution tapping from this point onwards shall be the Supplier's responsibility.

8.2.1 Necessary temporary power for carrying out the installations shall be arranged by the Supplier at Supplier's own cost. The necessary authorization letter will be issued by the Purchaser on written request by the Supplier.
8.2.2 If the powers provided by the Purchaser, there recovery shall be @0.5% of the total purchase order value (design, supply, installation, testing & commissioning). The charges will be deducted from the Supplier’s bills. However, the Supplier shall supply all the items such as switchgear, cabling etc. required for getting temporary power.

8.3 These details of temporary water and power requirements shall be furnished on month in advance by the Supplier to enable the Purchaser to make timely arrangements.

8.4 If the Supplier suffers delay from failure on the part of the Purchaser to give possession of the civil works in accordance with the mutually agreed schedule, the Purchaser shall determine any extension of time to which the Supplier is entitled under Clause 21 of GCC.

9.0 SUPPLY OF TOOLS, TACKLES AND MATERIALS

The Supplier shall, at his own expense, provide all the necessary equipment, tools and tackles, haulage power, consumables necessary for effective execution and completion of the works during erection and commissioning.

10.0 PROTECTION OF PLANT

10.1 The Purchaser shall not be responsible or held liable for any damage to persons or property consequent upon the use, misuse or failure of any equipment used by the Supplier or any of its sub-suppliers. The acceptance and use of any such equipment by the Supplier or Supplier's sub-suppliers shall be construed to mean that the Supplier accepts all responsibility for and agrees to indemnify and save the Purchaser from any and all claims for said damages resulting from the said use, misuse or failure of such tools and equipment.

10.2 The Supplier and its sub-supplier shall be responsible, during the work, for protection of work, which has been completed by other Suppliers. Necessary care must be taken so that the Supplier's men cause no damage to the work of others and the same is reported to the Purchaser.

10.3 All other works completed in progress as well as machinery and equipment that are liable to be damaged by the Supplier's work shall be protected by the Supplier, and protection shall remain in place until its removal is directed by the Purchaser.

10.4 The Supplier shall effectively protect from the effects of weather and from damages or defacement and shall not be responsible for any work or damage caused by weather or any other cause.

10.5 The work shall be carried out by the Supplier without damage to any work and property adjacent to the area of the Supplier's work to whomsoever it may belong and without interference with the operation of existing machines or equipment.

10.6 Adequate lighting, guarding and watching at and near all the storage handling, fabrication, pre-assembly and erection sites for properly carrying out the work and for safety and security shall be provided by the Supplier at Supplier's cost. The Supplier should adequately light the work area during night time also. The Supplier should also engage adequate electricians, wiremen, helper etc. to carry out and maintain these lighting facilities. If the Supplier fails in this regard, the Purchaser may provide lighting facilities as he deems necessary and charge the cost thereof to the Supplier.

10.7 The Supplier shall take full responsibility for the care of the works or any section or portions thereof until the date stated in the contract and taking over certificate issued in respect thereof and in case any damage or loss shall happen to any portion of the work not taken over as aforesaid, from any cause whatsoever, the same shall be made good by the Supplier at the sole cost of the Supplier and to the satisfaction of the Purchaser. The Supplier shall also provide for any
11.0 UNLOADING, TRANSPORTATION AND INSPECTION

11.1 The Suppliers shall be required to unload all the Goods from the carriers, received at site after Supplier’s team arrives at site. The Supplier shall plan in advance, based on the information received from the Purchaser, Supplier's requirement of various tools, tackles, jacks, cranes, sleepers etc. required to unload the material/equipment promptly and efficiently. The Supplier shall ensure that adequate and all measures necessary to avoid any damage whatsoever to the equipment at the time of unloading are taken. Any demurrage/detention charges incurred due to the delay in unloading the material/equipment and releasing the carriers shall be charged to the Supplier's account. The Supplier shall be responsible for receipt at site of all Goods and Supplier's equipment delivered for the purpose of the Contract.

11.2 The Supplier shall safely transport/shift the unloaded Goods and equipment to the storage area.

11.3 In case of turnkey contracts, the cost incurred on unloading of all the Goods received by the Purchaser prior to arrival of the Supplier at site shall be debited to the Supplier and all such goods shall be handed over to the Supplier when reported at site and thereupon the Supplier shall inspect the same and furnish a receipt to the Purchaser. The manner in which the inspection shall be carried out is enumerated below:

11.3.1 The materials/equipment would be carefully unpacked by opening the woodencases/other modes of packings as the case may be.

11.3.2 Detailed inventory of various items would be prepared clearly listing out the shortages, breakages/damages after checking the contents with respect to the Supplier’s packing list, the Purchaser’s contract and approved equipment drawings. The Supplier shall also check every equipment for any shortage/shortcoming that may eventually create difficulty at the time of installation or commissioning.

11.3.3 All the information and observations by the Supplier shall be furnished in the form of “INSPECTION REPORT” to the Purchaser with specific mention/suggestions which in the opinion of the Supplier should be given due consideration and immediate necessary actions, taken able to the Purchaser to arrange repair or replacement well in time and avoid delays due to non-availability of equipment and parts at the time of their actual need.

11.3.4 The inspection for all the Goods handed over to the Supplier shall be completed within the period.

11.4 The protection, safety and security of the Goods so taken over from the Purchaser shall be the responsibility of the Supplier, until they are handed over to the Purchaser after erection, commissioning and testing as per the terms of the Contract.

12.0 STORAGE OF GOODS

The Suppliers shall be responsible for the proper storage and maintenance of all Goods under Supplier’s custody. Supplier shall take all required steps to carry out frequent inspection of equipment/materials stored as well as erected equipment until the same are taken over by the Purchaser. The following procedures shall apply for the same.

12.1 The Supplier’s inspector shall check stored and installed Goods to observe signs of corrosion, damage to protective coating to parts, open ends in pipes, vessels and equipment, insulation resistance of electrical equipment etc. The Supplier shall immediately arrange coating
of protective painting whenever required. A record of all observations made on Goods, defects noticed shall be promptly communicated to the Purchaser and Purchaser’s advice taken regarding the repairs/rectifications. The Supplier shall thereupon carry out such repairs/rectifications at Supplier’s own cost. In case the Supplier is not competent to carry out such repairs/rectifications, the Purchaser reserves the right to have this done by other competent agencies at the Supplier’s responsibility and risk and the entire cost for the same shall be covered from the Supplier’s bills.

12.2 The Supplier’s inspector shall also inspect and provide lubrication to the assembled Goods. The shafts of such equipment shall be periodically rotated to prevent rusting as well as to check freeness of the same.

12.3 The Inspector shall check for any signs of moisture or rusting in any Goods.

12.4 If the commissioning of Goods is delayed after installation of the Goods, the Supplier shall carry out all protective measures suggested by the Purchaser during such period.

12.5 Adequate security measures shall be taken by the Supplier to prevent the theft and loss of Goods handed over to the Supplier by the Purchaser. The Supplier shall carry out periodical inventory checks of the Goods received, stored and installed by the Supplier and any loss noticed shall be immediately reported to the Purchaser. A proper record of the inventory shall be maintained by the Supplier. The Supplier should not sell, assign, mortgage, hypothecate or remove Goods which have been installed or which may be necessary for completion of the work without written consent of the Purchaser.

12.6 A suitable grease recommended for protection of surfaces against rusting (refined from petroleum oil with aniline number 70 deg C) and water intraces shall be applied overall Goods as required once in every six months.

12.7 All Goodsshall be stored inside a closed shed or in the open depending on whether they are of indoor or outdoor design. The space heaters wherever provided into the electrical equipment shall be kept connected with powersupply irrespective of their type of storage. Where space heaters are not provided adequate heating with bulb is recommended. For transformers heating oil shall be done by giving 440V supply and short-circuiting the LT terminals. Frequent checks on insulation resistance are essential for all electrical equipment and record of the inspection reports and megger readings shall be maintained equipmentwise. Such records shall be presented to the Purchaser whenever demanded.

12.8 All the necessary Goods required for protection as described above shall be arranged by the Supplier and such costs shall be included in the Contract Price.

Should the amount of extraordinary work of any kind or any cause of delay referred to in these conditions, or exceptional or adverse climatic conditions, or other special circumstances of any kind whatsoever which may occur, as described in Clause 25 of the General Conditions of Contract, other than through default of the Supplier, besuchasfairlyto
entitle the Supplier to an extension of time for the completion of the works, the Purchaser shall determine the amount of such extension and shall notify the Supplier accordingly. Provided that the Purchaser is not bound to take into account any extra or additional work or other special circumstances unless the Supplier has within twenty-eight days after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, submitted to the Purchaser full and detailed particular of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.

13.0 APPROVALS

13.1 The Supplier shall obtain the necessary approvals of the Factory Inspector, Boiler Inspector, Electrical Inspector, Weights & Measures Inspector, Explosive Inspector and any other state and local authorities as may be required and the cost of obtaining such approvals shall be included.
in the Contract Price. All the necessary details, drawings, submission of application and proformas will be furnished by the Supplier to the Purchaser for verification/signature. The necessary application duly filled-in, together with the prescribed fees shall be submitted to the appropriate authorities by the Supplier on behalf of the Purchaser. However, all the actual statutory prescribed fees paid by the Supplier shall be reimbursed by the Purchaser upon production of the receipt/ vouchers.

13.2 Wherever necessary or required, the Supplier shall furnish the necessary test and/or inspection certificates etc. from the appropriate authorities as per the statutory regulations and the cost for obtaining these certificates shall be included in the Contract Price.

14.0 REVIEW AND CO-ORDINATION OF ERECTION WORK

The Supplier shall depute senior and competent personnel to attend the site co-ordination meetings that would generally be held at the site every month. The Supplier shall take necessary action to implement the decisions arrived at such meetings and shall also update the erection schedule.

15.0 EXTENSION OF TIME FOR COMPLETION

Should the amount of extra or additional work of any kind or any cause of delay referred to in these conditions, or exceptional or adverse climatic conditions, or other special circumstances of any kind whatsoever which may occur, as described in Clause 24 of the General Conditions of Contract, other than through default of the Supplier, be such as fairly to entitle the Supplier to an extension of time for the completion of the works, the Purchaser shall determine the amount of such extension and shall notify the Supplier accordingly. Provided that the Purchaser is not bound to take into account any extra or additional work or other special circumstances unless the Supplier has within twenty-eight days after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, submitted to the Purchaser full and detailed particulars of any extension of time which he may consider himself entitled in order that such submission may be investigated at the time.
**SPECIAL CONDITION OF CONTRACT**

*For Plant Works*

**PART - I**

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SPECIAL CONDITIONS OF CONTRACT

PART – 1

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses.

Definitions (Clause 1)

(a) The Project Authority is Bihar State Milk Co-Operative Federation Limited and would include the term “Owner”.

(b) The Supplier is 
(Name of Supplier).

2. Country of Origin (Clause 3)

The place where the goods were mined, grown or produced from which the services are supplied.

3. Equivalency of Standards and Codes (Clause 4)

Wherever reference is made in the contract to the respective standards and codes in accordance with which goods and materials are to be furnished, and work is to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly set forth in the Contract. Where such standards and codes are national in character, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Purchaser’s prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Supplier and submitted to the Purchaser at least 30 days prior to the date when the Supplier desires the Purchaser’s approval. In the event the Purchaser determines that such proposed deviations do not ensure equal or higher quality, the Supplier shall comply with the standards set forth in the documents.

4.0 Performance Security (Clause 7)

4.1 The Performance Security shall be in the amount of 10% of the Contract price.

4.2 Additional Performance Security, if deemed necessary, shall be submitted as mutually agreed by the Purchaser and the successful bidder at the time of acceptance of the contract/ Purchase order.

5.0 Inspection and Tests (Clause 8)

5.1 The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the purchase order form and shall be in line with the inspection/test procedures laid down in the Schedule of Specifications and the Contract conditions.

5.2 Manufacturer must have suitable facilities at their works for carrying out various performance tests on the equipment. The bidder should clearly confirm that all the facilities exist for inspection and shall be made available to the inspecting Authority.

5.3 A load and functional tests as indicated in the specifications must be carried out at the manufacturer’s works. Reliability of the equipment shall be demonstrated to the satisfaction of the appointed inspector or inspecting Agency.
5.4 Approved supplier's drawings shall not be departed from except as provided in the Bidding Document.

5.5 The Purchaser shall have the right at all reasonable times to inspect, at the Supplier’s premises all Supplier’s drawings of any part of the work.

5.6 The supplier shall provide, within the time stated in the contract or in the programme, drawings showing how the plant is to be designed and any other information required for-

a) Preparing suitable foundations or other means of support.

b) Providing suitable access on the site for the plant and any necessary equipment to the place where the plant is to be erected and

c) Making necessary electrical connections from the panel board provided in the individual sections to the machines.

5.7 Before the goods and equipment are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals together with drawings of the goods and equipment as built. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

The manuals and drawings shall be in the ruling language (English) and in such form and numbers as stated in the contract.

Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawings have been supplied to the Purchaser.

5.8 The goods will be accepted after inspection by the Purchaser, his representative or any inspection agency appointed by Purchaser and the costs for such Inspector/Agency shall be borne by the Purchaser.

6. Delivery and Documents (Clause 10)

Upon shipment/dispatch, the supplier shall notify to the Purchaser by cable or email or fax the full details of dispatch including Purchaser order no., description of the goods, quantity, mode of transport, place of loading, date of dispatch etc. The supplier will mail the following documents to the Purchaser with a copy to the Insurance Company:

The Supplier's invoice showing purchase order no. Goods description, quantity, unit price, total amount;

Delivery note/case-wise detailed packing list identifying contents of each package/ lorry receipt;

Manufacturer's/Supplier's guarantee certificate;

Inspection Certificate issued by the nominated inspection agency, and the Supplier's factory inspection report;

Certificate of origin;

Insurance policy;

Excise gate pass / octroi receipts wherever applicable, duly sealed indicating payments made; and

Any other document evidencing payment of statutory levies.

The supplier's certificate certifying that the defects pointed out during inspection have been rectified.
Note: The nomenclature used for the item description in the invoice/s, packing list/s and delivery note/s etc. Should be identical to that used in the purchase order. The dispatch particulars including name of transporter, LR no. And date should also be mentioned in the invoice/s.

7. Insurance (clause 11)

The “marine / transit” insurance to be taken by the contractor / supplier shall be in an amount equal to 110% of the FOR Destination value of the goods from “warehouse to warehouse” on "All Risks" basis including Strike. Natural calamities but exclusive of War Risks valid for a period not less than 3 months after the date of arrival of Goods at final destination

“Storage-cum-erection ALL Risks” insurance for an amount equal to 110% of the contract value valid for a period not less than 3 months after installation, including one month for testing and commissioning, shall be taken by the contractor / supplier.

OR

As an alternative to (a) & (b) above, “Marine-cum-erection ALL Risks” insurance policy, covering storage of equipment and other erection materials at site, for an amount equal to 110% of the contract value of supply, installation & commissioning and valid for a period not less than 3 months after installation, including one month for testing and commissioning, shall be taken by the contractor / supplier.

(c) Third Party Insurance : Before commencing the erection work the contractor / supplier without limiting his obligations and responsibilities, shall insure against his liability for any material or physical damage, loss or injury which may occur to any property including that of the Owner / Purchaser, or to any person including any employee of the Owner / Purchaser.

Such insurances shall be for an amount not less than Rs. 10.00 lakhs per occurrence with the number of occurrence limited to five.

8. Incidental services (Clause 12)

8.1 The incidental services for supply, installation and commissioning contract, as follows shall be provided by the Supplier:

(a) Furnishing of tools required for assembly and maintenance of the supplied goods;
(b) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
(c) On-site assembly and start-up of the supplied Goods;
(d) Conduct of training of the Purchaser's personnel (approx. for 4 man-weeks); at the Supplier's plant and/or on-site, in assembly, start-up operation, maintenance and/or repair of the supplied Goods.
(e) Furnishing of layout drawing etc. as specified in clause 3 of Special Conditions of Contract Part II.

9. Spare Parts (Clause 13)

Supplier shall carry sufficient inventories to assure ex-spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order.

10. Warranty/Guarantee (Clause 14)

The warranty/guarantee shall be as per provision under Clause 14 of General Conditions.

11.0 Payment (Clause 15)

11.1.1 Payment for design and supply component:
a) 30% (Thirty Percent) of the total supply may be paid in advance against Bank Guarantee of the equivalent amount valid till completion of the project work.

(b) **On receipt of goods**: 60% of the contract price of the goods (against detailed break up cost to be furnished by the Supplier in advance and accepted by the Purchaser) on safe receipt of goods at destination/site within 30 days after inspection and approval of the Purchaser.

(c) On final acceptance:

The balance 10% of the contract price of the goods shall be paid on continuous satisfactory running of the complete plant for one month, on completion of other contracted services and accepted by the Purchaser’s representative, within the scope of this contract.

11.1.2 Payment for installation, testing and commissioning component:

(a) On progress of work: 80% of the contract price for installation and commissioning shall be paid on prorate basis on actual completion of installation/erection and after due inspection and approval by the Purchaser (against detailed break up cost to be furnished by the Supplier in advance and accepted by the Purchaser).

(b) On commissioning: 10% of the contract price for installation and commissioning shall be paid on actual completion of commissioning and after due inspection and approval by the Purchaser (against detailed break up cost to be furnished by the Supplier in advance and accepted by the Purchaser).

(c) On final acceptance:

The balance 10% shall be paid on continuous satisfactory running of the complete plant for one month, on completion of other contracted services and accepted by the Purchaser’s representative, within the scope of this contract.

**NOTE:**

(i) All bank guarantees should be issued by Nationalized Banks/other banks like IDBI Bank treated/approved by RBI to be at par with Nationalized Banks for the limited purpose of acceptance of guarantee.

(ii) The successful bidder may raise running bills for supply as soon as supply is completed as per the schedule and bills for labour job shall be raised once in a month.

(iii) Retention money shall be deducted @ 10% of the Contract Price (excluding taxes) wherever tax break-up is available separately in the Purchase Order/Contract.

(iv) The Purchaser shall issue Material Transfer Challan (MTC) after safe receipt of equipment.

(v) No cost escalation will be granted towards the supply of Plant equipments & allied accessories.

12. Resolution of Disputes (Clause 27)

In the event of any dispute in the interpretation of the terms of the order/contract or difference of opinion between the parties on any point in the order/contract arising out of or in connection with the agreement accepted order/contract or with regard to performance of any obligation hereunder by either party, the parties hereto shall use their best efforts to settle such disputes or difference of opinion amicably by mutual negotiations. In case no agreement is reached, either party may forthwith give to the other, a notice in writing of the existence of such question, dispute or difference of opinion and the same shall be referred to the adjudication of sole arbitrator to be appointed by Purchaser whose decision in the matter shall be final and binding on the parties.

The Arbitration proceedings shall be governed under the provisions of the Indian Arbitration and Conciliation Act, 1996 and the rules there under or any statutory modifications thereof for the time being in force. In the order/contract, the venue of such Arbitration shall be
Patna, Bihar and Courts at Patna alone shall have jurisdiction regarding any matter arising out of order/contract.

Performance under the Contract shall, if reasonably possible, continue during the arbitration proceedings and payments due to the Supplier by the Purchaser shall not be withheld, unless they are the subjects of the Arbitration proceedings.

All awards for claims equivalent to Rupees thirty thousand or more shall be in writing and state the reasons for the amounts awarded.

13 Notices (Clause 30)

For the purpose of all the notices, the following shall be the address of the Purchaser and Supplier.

Purchaser – Bihar State Milk Co-Operative Federation Limited, Patna-800014

Supplier (To be filled in at the time of Contract signature.)
SPECIAL CONDITIONS OF CONTRACT FOR INSTALLATION  
PART – III - B  
ELECTRICAL INSTALLATION

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SPECIAL CONDITION OF CONTRACT

PART III – B

ELECTRICAL INSTALLATION

1.0 SCOPE

The intent of this specification is to define the requirements for the installation, testing and commissioning of the electrical system like high tension switchyard, transformers, HT panel vessels, L T panel vessels and power control centres, motor control centers, distribution boards, capacitor banks & panels, power, control & instrumentation cables, remote push button stations, motors, earthing network, etc. Requirement of a particular project shall be as specified in schedule of quantities/approved drawings or as per the battery limits fixed in the contract.

2.0 STANDARDS

2.1 The work shall be carried out in the best workmanlike manner in conformity with this specification, the relevant specification/codes of practice of the Bureau of Indian Standards, approved drawings and the instructions issued by the Engineer-in-charge or his authorized representative, from time to time. Some of the relevant Indian Standards are listed in Annexure- III.

2.2 In addition to the standards as mentioned in 2.1, all works shall also confirm to the requirements of the following:

a). Indian Electricity Act and Rules framed there under. b).

Fire Insurance Regulations.

c). Regulations laid down by the Chief Electrical Inspector of the State / State Electricity Board. d).

Regulations laid down by the Factory Inspector of the State.

e). Any other regulations laid down by the local authorities.

f). Installation & operating manuals of original manufacturers of equipment.

3.0 EQUIPMENT AND ACCESSORIES – SPECIFICATIONS

This defines specifications and requirements mainly for the equipment and accessories which are generally supplied by the erection agency and do not cover the specification of main electrical equipment such as Transformers, HT and LT panels, switch boards and motors etc., which may be supplied by the Owner.

All materials, fittings and appliances to be supplied by the Supplier shall be of best quality and shall conform to the specification given hereunder. The equipment shall be manufactured in accordance with current Bureau of Indian Standard Specifications wherever they exist or with the BS or NMA specifications, if no such BIS are available. In the absence of any specification, the materials shall be as approved by the Owner or his authorized representative.

All similar materials and removable parts shall be uniform and interchangeable with one another.

Makes of bought out items selected by the Supplier must be furnished by him.

3.1 Power Cables (HT)

Three core, Aluminium conductor, screened, XLPE insulated, armored shielded and PVC sheathed cables suitable for 11 / 22 / 33 KV, earthed system, conforming to IS 7098 (Part II) - 1988 amended upto date.
3.2 Power Cables (LT)

Power cables for use on 415 V system shall be of 1100 volt grade, aluminum conductor, XLPE insulated, PVC sheathed, armoured and overall PVC sheathed, strictly as per IS: 7098 (Part I) / 88. Conductor of cable shall be solid type for sizes upto 6 sq.mm and stranded for sizes above 6 sq.mm. Unarmoured cable to be used only if specifically mentioned in schedule of quantities.

The size of these cables shall be as specified in schedule of quantities or as per erection drawings. If neither of these are available, the size of cable shall be as specified in cable selection chart enclosed at Annexure-IV. NO CABLE OF SIZE LESS THAN 4 SQ. MM. with aluminum conductor or 2.5 SQ. MM with copper conductor SHALL BE USED.

3.3 Control Cables

3.3.1 Control cables for power

Control cables for use on 415 V. system shall be of 1100 volts grade, copper conductor, PVC insulated, PVC sheathed, armoured and overall PVC sheathed, strictly as per IS: 1554 (Part I) - 1976 amended upto date. Conductor of cable shall be solid type for sizes upto 2.5 sq. mm and stranded for higher sizes. Unarmoured cables to be used only if specifically mentioned in schedule of quantities.

The size of these cables shall be as specified in schedule of quantities or as per erection drawing. The minimum size of conductor shall be 1.5 sq. mm.

3.3.2 Screened control cables for Analogue signals:

These shall be used for carrying out analogue signals. Multi-stranded base annealed copper conductor, PVC insulated, cores colour coded, laid up, screened by braiding with ATC copper wire and finally overall PVC sheathed. Sizes of their cable shall be as specified in schedule of quantities/approved drawings. These cables shall be with armouring unless specified otherwise in Schedule of qualities/approved drawings.

3.4 Cable Trays

Functional requirement: Cable trays are used (based on the site condition) for laying the power and control cables inside the plant from PCC to the MCC & MCC to all motors/sub panels and wherever required.

Fabrication: These shall be perforated type, heavy duty, return flange or inward bend shape, manufactured from mild steel conforming to IS-2062 and hot dip galvanized as per IS 2629/BS-729. Width of cable tray shall be as per the requirement. Height to be minimum 50 mm and thickness of plate to be 1.5 mm up to 300 mm cable tray width. For cable trays having width more than 300 mm, height to be 75mm and thickness of plate to be 2.0 mm. Cable trays to be supplied to site in standard lengths of 2.5 M. Necessary accessories of cable trays such as coupler side plates for joining cable trays, bends, riser, inside riser, tee etc. must also be factory fabricated. Plain cable tray covers 1.5 mm thick to be supplied if specially required. Sample of cable tray to be got approved from Purchaser before supply. Cable tray for automation network /instrument /signal cables shall be separate from power & control cables.

3.5 Cable Glands

These shall be provided at both ends of armoured/ unarmoured electrical cables. Cable glands to be manufactured as per performance requirements of BS-6121 & IP 65 as per IS 13947 (Part I) amended as on date, with BRASS material accurately machined and NICKEL finish. These shall be of heavy-duty single compression type for cable conductor sizes above 35 sq.mm and weather proof double compression type for cable conductor sizes upto 35
sq.mm. Single compression cable glands to be complete with checknut, gland body, 3 nos. metal washers, and outer seal rubber ring and compression nut. Double compression glands to be complete with checknut, gland body, neoprene inner ring, armour clamping cone, armour clamping nut, neoprene outer ring, skid washer & outer seal nut. Sample of cable gland to be got approved from the Site in charge before supply.

3.6 Cable Connectors

Cable connectors, lugs/sockets, shall be of copper/aluminum alloy, suitably tinned solderless, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control or connection to instruments, etc.). The current rating of the lugs shall be the same as that of the respective cable conductors. If the aluminum lug is terminated on a brass stud or copper bus bar then bimetallic washer shall be used.

3.7 Cable Route Markers

These shall be galvanized Cast Iron plate with marking (LT/HT) and of diameter 150 mm with 600 mm long 25x25 mm MS angle riveted/bolted with this plate. Sample to be got approved before use.

3.8 Cable Indicators

These shall be self-sticking type and of 2 mm thick lead Strap for overall cable. PVC identification numbers, Ferrule shall be used for each wire.

3.9 Pipes for Cables

For laying of cables under RCC floor, GI class ‘A’ pipes shall be used. For laying cable in air where cable trays are not being used, GI ‘A’ class pipe shall be used. Size of pipe shall depend upon the overall outer diameter of cable to be drawn through pipe. NO PIPE LESS THAN 40 MM DIA SHALL BE USED FOR THIS PURPOSE. To determine the size of pipe, assume that 40% area of pipe shall be free after drawing of cable. If length of pipe is more than 30 M, free area may be increased to 50%. All cable (power / control / instrument / signal) drops shall be in conduit pipe. The open ends of power/control cables at termination shall be protected through suitable conduit. Instrument/signal cable/wire drops upto termination point shall be also routed through conduits. The automation cables (plant/system/field bus, instrument/signal cables/wires shall be laid in cable trays through GI conduit.

3.10 Motor Isolators

These shall be in Aluminum cast housing, completely dust, vermin and weather proof (IP 65), suitable for 30/25 A, 415 volts, 50 Hz with rotary type switch complete with cable gland for incoming and outgoing cables. Final finish of housing to be buffer mirror or powder coated grey. Instead of AL cast housing, thermoplastic housing with IP 55 / 65 protection can also be used. From isolator to motor, adequately sized flexible copper wire in suitable heavy duty (wire ribbed) PVC flexible conduit to be used. Sample of isolator housing and conduit to be got approved before supply. Isolators shall be used for all on line started motors receiving single cable.

3.11 Motor Junction Box/Control Junction Box

These shall be in Aluminum cast housing or unbreakable, self extinguishing thermoplastics of high quality, completely dust, vermin and weather proof (conforming to minimum IP 65 class of protection), suitable for 25A, 415 volts, 50 Hz, with heavy duty bakelite /equivalent connector, complete with cable/conduit gland. These junction boxes are required on all floors near equipment for final connection of multi core control cables/signal cables to various field devices. They may also be used for star delta started motors for final connection to motor, through adequately sized flexible copper wire in suitable heavy duty (wire ribbed) PVC flexible conduit. Sample to be got approved before supply.
3.12 Remote Push Button Stations

These shall be used for remote ON-OFF for motors, away from MCC. These shall be suitable for surface/structure mounting in Cast Aluminum housing having IP-65 class of protection i.e., completely weather proof. For each motor, one ON, one OFF red mushroom half turn to lock button, one LED type indication lamp to be provided with a heavy duty connector inside the housing to receive control cables. If more than one motor is nearby, a common ON-OFF station can be used of suitable size made from SS 304 2thk. Indication lamp can be combined with ‘ON’ (Green) push button in place of providing separate indication lamp and push button. Riveted type plastic nameplate to be provided for each feeder. If functionally required Ammeter also can be located in such ON-OFF station.

4.0 ERECTION OF EQUIPMENT

The cases containing the equipment (being supplied by the Purchaser) shall be handed over to the supplier. The Supplier shall make his own arrangements for safe transportation of all the items to the erection site and also carry out complete loading/unloading during transportation. Equipment shall not be removed from packing cases unless the floor has been made ready for installing them. The cases shall be opened in presence of the Engineer-in-charge or his authorized representative. These empty packing cases shall be returned to the stores and any document if found with the equipment shall be handed over to the Engineer-in-charge. Any damage or shortage noticed shall be reported to the Engineer-in-charge in writing immediately after opening of packing cases.

4.1 Transformer

4.1.1 Erection

Transformer complete with radiators, bushings, conservator and miscellaneous accessories shall be thoroughly inspected and any damage noticed shall be reported to the Engineer-in-charge. Before erection of transformer the level of rails on foundation shall be checked and minor corrections if necessary shall be carried out. After the completion of erection, necessary stoppers shall be provided at the wheels. All loosely supplied fittings/accessories shall be cleaned and mounted on the transformer and connections made. If the transformer oil is supplied in drums by the manufacturer, the same shall be tested for dielectric strength etc. and only approved oil “on test” shall be filled into the tank through filtration system. While filling in transformer with oil, samples shall be taken from the bottom and conservator and tested for dielectric strength. Fresh silica gel shall be filled in the breather. After complete assembling installation, filling and topping the transformer with oil, the transformer shall be cleaned and touch-up paint supplied by the manufacturer applied wherever necessary. All tank cover bolts shall be checked for proper tightness.

The foundation of transformer and rail fixing will be made by some other agency.

4.1.2 Testing

For testing of the dielectric strength of insulating oil in oil-immersed equipment, test samples of oil shall be drawn from equipment after filling. In case oil is supplied in separate containers for filling or topping up at the site, a test also shall be made with samples drawn from such oil container before the equipment is filled.

Minimum acceptable values for each test will be indicated by the Engineer- in-charge. However, dielectric strength of oil should be about 40 KV (RMS) for one minute.

By measuring the dielectric strength of the oil in the transformers, if tests indicate the presence of undue amount of moisture, the insulation oil shall be filtered by steam line filter. No extra charges shall be paid for filtration and the supplier shall arrange his own filtration machine, oil testing kit and other accessories.
Winding insulation resistance shall be measured from primary and secondary to ground and between primary and secondary.

Test the operation of Buchholz relay in accordance with the manufacturer’s instructions.

Test the operation of the tap changer. Measure primary and secondary voltage ratios are as per nameplates.

Check the polarity of terminals and the phase’s sequence.

4.1.3 Performa for Transformer Tests

1. Transformer nameplate
2. Insulation resistance test with 1000 V Megger
   a. between primary to earth .... Mega ohm
   b. Between secondary to earth .... Mega ohm
   c. Between primary and secondary .... Mega ohm
3. Dielectric strength of oil in the transformer (test Voltage 40 KV for one minute).
4. Operation of Buchholz relay as per manufacturers Instructions.
5. Operation of the tap changer
   Operation of the tap at tap no.1
   tap no.2
   tap no.3
   tap no.4
   tap no.5
6. Polarity marking and phase sequence.
7. Condition of silicated crystals.
8. Earth resistance: Neutral / tank
   (This proforma shall be jointly signed by the Engineer-in-charge and the supplier).

4.2 Power control centres, MCC, Distribution Boards, Control Panels & Bus Ducts

4.2.1 Erection

Electrical panels and bus duct shall be delivered in convenient shipping section by the manufacturers. The Supplier shall be responsible for final assembly and inter-connection of busbars/wiring. Foundation channel shall be grouted in the flooring by the Supplier. Switchgear Panels shall be aligned and leveled on their base channels and bolted or tack welded to them as per the instructions of the Engineer-in-charge.

The earth bus shall be made continuous throughout the length. Loosely supplied relays and instruments shall be mounted and connected on the switchgear. The contacts of the draw-out circuit breakers shall be checked for proper alignment and inter-changeability.

After erection the switchboard shall be inspected for dust and vermin proof. Any hole, which might allow dust or vermin etc. to enter the panel, shall be plugged suitably at no extra cost.

If the instrument transformers are supplied separately they shall be erected as per the direction of the Engineer-in-charge. The Supplier shall fix the cable glands after drilling the bottom / top plates of all switchboards with suitable holes at no extra cost.
Range of overload relays/timers etc. shall be checked with requirement of motor systems actually to be connected at site and if the same is under-sized/over-sized, it shall be brought to the notice of Engineer-in-charge, who shall arrange procurement of correct rated components. However, the supplier shall not charge anything extra for labour for such replacements.

The bus duct shall be suitably supported between Power Control Centre and transformer. The opening in the wall where the duct enters the switchgear room shall be sealed to avoid rainwater entry. The foundation of the Power Control Centre shall be raised suitably for minor adjustment to ensure proper alignment and connection of the bus duct at no extra cost. Expansion joints, flexible connection, etc. supplied by the manufacturer of the bus duct shall be properly connected.

4.2.2 Testing

Before electrical panel is energized, the insulation resistance of each bus shall be measured from phase to ground. Measurement shall be repeated with circuit breakers in operating positions and contact open.

Before switchgear is energized, the insulation resistance of all DC control circuits shall be measured from line to ground.

Before switchgear is energized, the test covered above shall be repeated with each breaker in its normal operating position.

Capacitor banks in capacitor control panel shall be tested as per manufacturer’s instructions. In addition test for output and/or capacitance, insulation resistance test and test for efficiency of discharge device shall be carried out.

All electrical equipment alarms shall be tested for proper operation by causing alarms to sound under simulated abnormal conditions.

The Supplier shall arrange testing and calibrations of relays. The testing equipment including primary and secondary injection sets (if required) etc. shall also have to be arranged by the Supplier. Payment for above work shall be deemed to have been included in the erection of switch boards/control panels.

4.2.3 Proforma for PCC, DB, Motor Control Centers test

1. Circuit (breaker or Supplier module designation/ bus no.).

2. Insulation resistance test  (contacts open, breaker racked in position).

   a. Between each phase of bus -----------: Mega ohm
   b. Between each phase and earth -----------: Mega ohm
   c. DC and AC control & auxiliary Circuits -----------: Mega ohm
   d. Between each phase of CT/PT & between CT & PT circuit, if any -----------: Mega ohm

3. CT checks:
   a. CT ratio
   b. CT secondary resistance
   c. CT polarity check

4. Check for contact alignment and wipe.

5. Check/test all releases/relays.

6. Check mechanical interlocks.
7. Check electrical interlocks.
8. Check switchgear/control panel wiring.
9. Checking breaker/Supplier circuits for
   a. Closing- local and remote (wherever applicable)
   b. Tripping-local and remote (wherever applicable)
10. Opening time of breaker/contactor.
11. Closing time of breaker/contactor.

(The Engineer-in-charge and the Supplier shall jointly sign this proforma.)

4.3 Sealed Maintenance Free Batteries & Battery Charger

Batteries shall be erected on powder coated MS stands and insulators supplied by the manufacturer of the batteries. Inter connectors shall be made with leads supplied by the manufacturer. Charging discharging and recharging shall be carried out under the supervision of the Engineer-in-charge or his authorized representative. Erection of battery charger and DC board will be carried out by the Supplier under the supervision of the Engineer-in-charge or his authorized representative. The Supplier shall also offer such facilities as may be required for carrying out tests on the complete battery charger and DC board/AC board.

Battery charger shall be tested for proper operation and to verify the charger delivers its maximum rated output. The Supplier shall supply skilled/unskilled labour for carrying out the test by the engineer-in-charge.

Batteries shall be given a boost charge in accordance with the manufacturer’s instructions and adjusted for float operation before being placed in regular service.

4.4 GEARED MOTORS AND GEAR BOXES:

These are required in feed plant for driving various slow speed machines. All slow speed machines to be run by geared motors only unless gear boxes have been specified in individual machines specification. The geared motor should use helical gears. The electric motor and helical gear box should be built as one unit. The geared motors / gear boxes should be suitable for minimum 15 start/stops per hour without undue heating, for continuous duty and minimum safety factor of 1.4.

The electric motors used for geared motors / gear boxes should be TEFC, degree of protection IP-55, squirrel cage, induction type, with class ‘F’ insulation suitable for 415 V, 50 Hz, 3 phase AC supply.

Geared motors / boxes to be complete including key in the driven shaft, oil level indicator, oil filling plug, oil breather and drain plug. Suitable grade gear oil for first charge of geared motor / boxes should not be filled but should be packed separately in a drum and sent along with geared motor/boxes. Gear oil would be filled at site.

4.5 Electric Motors
All electric motors shall be energy efficient motors and shall comply with the following:
   a) All poly phase motors of 0.375 kW or more shall have a minimum acceptable nominal full load motor efficiency not less than shown in Table below or as per the IS 12615 – 2004(Rev 1) for Eff1 energy efficient motors.
Table for Minimum Acceptable Motor Efficiencies

<table>
<thead>
<tr>
<th>Motor Size (KW)</th>
<th>2 Pole</th>
<th>4 Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.37 (0.5 hp)</td>
<td>70.2</td>
<td>69.4</td>
</tr>
<tr>
<td>0.55. (0.75 hp)</td>
<td>74</td>
<td>72</td>
</tr>
<tr>
<td>0.75. (1 hp)</td>
<td>78.5</td>
<td>74.6</td>
</tr>
<tr>
<td>1.1(1.5 hp)</td>
<td>82.2</td>
<td>83.8</td>
</tr>
<tr>
<td>1.5 (2 hp)</td>
<td>84.1</td>
<td>85.0</td>
</tr>
<tr>
<td>2.2 (3 hp)</td>
<td>85.6</td>
<td>86.4</td>
</tr>
<tr>
<td>3.0(4 hp)</td>
<td>86.7</td>
<td>87.4</td>
</tr>
<tr>
<td>4.0(5.5 hp)</td>
<td>87.6</td>
<td>88.3</td>
</tr>
<tr>
<td>5.5 (7.5 hp)</td>
<td>88.6</td>
<td>89.2</td>
</tr>
<tr>
<td>7.5(10 hp)</td>
<td>89.5</td>
<td>90.1</td>
</tr>
<tr>
<td>11.0 (15 hp)</td>
<td>90.6</td>
<td>91.0</td>
</tr>
<tr>
<td>15.0 (20 hp)</td>
<td>91.3</td>
<td>91.8</td>
</tr>
<tr>
<td>18.5 (25 hp)</td>
<td>91.8</td>
<td>92.2</td>
</tr>
<tr>
<td>22.0 (30 hp)</td>
<td>92.2</td>
<td>92.6</td>
</tr>
<tr>
<td>30.0 (40 hp)</td>
<td>92.9</td>
<td>93.2</td>
</tr>
<tr>
<td>37.0 (50 hp)</td>
<td>93.3</td>
<td>93.6</td>
</tr>
<tr>
<td>45.0(60 hp)</td>
<td>93.7</td>
<td>93.9</td>
</tr>
<tr>
<td>50.0 (75 hp)</td>
<td>94.0</td>
<td>94.2</td>
</tr>
<tr>
<td>75.0 (100 hp)</td>
<td>94.6</td>
<td>94.7</td>
</tr>
<tr>
<td>90.0 (120 hp)</td>
<td>95.0</td>
<td>95.0</td>
</tr>
<tr>
<td>110.0 (150 hp)</td>
<td>95.0</td>
<td>95.0</td>
</tr>
<tr>
<td>132.0 (180 hp)</td>
<td>95.3</td>
<td>95.5</td>
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<tr>
<td>160.0 (215 hp)</td>
<td>95.5</td>
<td>95.8</td>
</tr>
<tr>
<td>180.0 (240 hp)</td>
<td>95.5</td>
<td>95.8</td>
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<tr>
<td>200.0</td>
<td>95.8</td>
<td>96.0</td>
</tr>
<tr>
<td>225.0</td>
<td></td>
<td>96.0</td>
</tr>
<tr>
<td>250.0</td>
<td></td>
<td>96.0</td>
</tr>
</tbody>
</table>

b) Motor nameplates shall list the nominal full-load motor efficiencies and the full-load power factor.

c) Certificates shall be obtained and kept on record indicating the motor efficiency.

4.5.1 Erection and testing

Erection and coupling of motors with machines will be done under the mechanical erection. However, earthing, cable termination, testing and commissioning are covered under this section. Before starting the alignment and coupling of motors with machines, the insulation resistance of the motors will be measured and recorded by the Supplier. Wipe, brush or blow accumulated dirt from the frame and air passages of the motor. Feel for air being discharged from the cooling air ports. If the flow is weak or unsteady then clean it. Dry the motor before installation if it motor has been lying in the store for a long time. Motors having low meager readings because of contamination by moisture, oil or conductive dust should be thoroughly cleaned and dried. The direction of the rotation of the motor shall also be checked before the driven equipment is finally coupled. Motor bearings are to be checked and rectified including supply and changing of grease (if required), checking of fans coupling with bodies etc. The Supplier shall take adequate precaution and care while executing the work.

For all damage due to negligence etc. the Supplier shall be responsible to replace/repair at his own cost.
Before connecting power cables to motors the insulation resistance of all motor windings shall be measured. Measurement shall be repeated after power cable terminations are completed and before first charging.

Motors shall be operationally tested together with the starting gear and auxiliary apparatus such as push button stations, the contactors, level and pressure controls, signal and alarm apparatus, power and control circuits etc.

- Check the anti-condensation heater and its circuit (if installed)
- Check the setting of the thermal overload protection / single-phase preventer. Testing of these devices is to be done wherever required as per the instructions of the Engineer-in-charge.

All motors shall run uncoupled for a maximum period of 4 hours before the driven equipment is placed in regular service.

4.5.2 Proforma for motor testing

1. Name plate details: Voltage.... HP.... KW.... Mounting.... Current.... RPM.... Frame size.. Make.... S No..... Others.........

2. Insulation test (before cable connection).
   a. Between phase and earth ... Mega ohms.
   b. Between each phase ... Mega ohms.

3. Insulation test (after cable connection).
   a. Between phase and earth .. Mega ohms.
   b. Between each phase ... Mega ohms.

4. No load current: R Phase .....Amps.
   Y Phase .....Amps.
   B Phase .....Amps.

5. Full load current: R Phase .....Amps.
   Y Phase .....Amps.
   B Phase .....Amps.

6. Temperature rise after 4 hours run: On no load0°C. On full load 0°C. Ambient temperature during test 0°C.

7. Operation of thermal overload relay:
   i. At normal FL current of motor
   ii. At twice FL current of motor : trip in Seconds.

(This proforma shall be jointly signed by the Engineer-in-charge and the Supplier.)

4.6 DG Sets
4.6.1 Erection & Testing

The preassembled DG Set shall be placed over the foundation and aligned properly. Before termination of cable to the alternator, the insulation resistance of the alternator will be measured and bearings shall be checked. All pipe connections etc of the engine shall also be checked.

Also, the level of lubricant & coolant in the engine. The setting of various protection & releases, power and control circuits of the DG set panel shall be checked before switching on the DG Set.

4.6.2 Proforma for Alternator testing

1. Name plate details: Voltage..... HP.... KW....
   Mounting.... Current.... RPM.... Frame size... Make.... SNo.....
   Others ........

2. Insulation test (before cable connection).
   a. Between phase and earth ... Mega ohms.
   b. Between each phase ... Mega ohms.

3. Insulation test (after cable connection).
   a. Between phase and earth ... Mega ohms.
   b. Between each phase ... Mega ohms.

4. No load current: R Phase ......Amps.
   Y Phase ......Amps. B Phase ......Amps.

5. Full load current: R Phase ......Amps.
   Y Phase ......Amps. B Phase ......Amps.

6. Temperature rise after 4 hours run: On no load 0°C. On full load 0°C. Ambient temperature during test 0°C.

7. Operation of thermal overload relay: At normal FL current of motor

8. No load & full load regulation :

4.6.3 Proforma for Diesel Engine testing

1. Speed regulation from no load to full load
2. Frequency at no load, 50% load & 100% load
3. Safety controls & protective devices
4. Specific fuel consumption :

5.0 INSTALLATION OF CABLE NETWORK

Cable network shall include power, control, signal & instrumentation and lighting cables which shall be laid in underground trenches, Hume pipes, open trenches, cable trays, GI/SS pipes, or on building structure surfaces as detailed in the relevant drawings, Cable schedules or as per the Engineer-in-charge's instructions. Supply & installation of cable trays, GI/SS pipes/ conduits, cable glands sockets at both ends, isolators, junction boxes, remote push buttons stations, etc. shall be under the scope of the Supplier.

5.1 General requirements for handling of cables.
5.1.1 Before laying cables, these shall be tested for physical damage, continuity, absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500/1000 volt Megger.

5.1.2 The cables shall be supplied at site, wound on wooden drum as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall be laid by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on, as it produces kinks, which may damage the conductor.

5.1.3 Sharp bending and kinking of cables shall be avoided. The bending radius for PVC insulated and sheath armoured cable shall be as per IS 1255-1983 and shall not be less than 10 D Where ‘D’ is overall diameter of the cable.

5.1.4 While drawing cables through GI / SS pipes, conduits, RCC pipe, ensure that size of pipe is such that, after drawing cables, 40 % area is free. After drawing cable, the end of pipe shall be sealed with cotton/bituminous compound.

5.1.5 High voltage (11 KV and above), medium voltage (230 V and above) and other control cables shall be separated from each other by adequate spacing or running through independent pipes/trays.

5.1.6 Armoured cables shall never be concealed in walls /floors /roads without GI pipes, conduits / RCC pipes.

5.1.7 Joints in the cable throughout its length of laying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin type joint shall be made, without any additional cost.

5.1.8 A minimum loop of 3 M shall be provided on both ends of the cable, or after every 50 M of unjointed length of cable and on both ends of straight through cable joint. This additional length shall be used for fresh termination in future. Cable for this loop shall be paid for supply and laying if the contract awarded is on item rate basis.

5.1.9 Cable shall be neatly arranged in the trenches/trays in such a manner so that crossing is avoided and final take off to the motor/switchgear is facilitated. Arrangement of cables within the trenches/trays shall be the responsibility of the Supplier.

5.1.10 All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided. The routes indicated in the drawings are indicative only and the same may be rechecked with the Engineer-in-charge before cutting of cables. While selecting cable routes, interference with structures, foundations, pipeline, future expansion of buildings, etc. should be avoided.

5.1.11 All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tape. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.

5.1.12 Wherever cable rises from underground/concrete trenches to motors/switchgears/push buttons, these shall be taken in G.I. Pipes of suitable size, for mechanical protection up to 300 mm distance of concerned cable gland or as instructed by the Engineer-in-charge.

5.1.13 Where cables pass through foundation/walls of other underground structures, the necessary ducts or openings will be provided in advance for the same. However, should it become necessary to cut holes in existing foundations or structures the electrical Supplier shall determine their location and obtain approval of the Engineer-in-charge before cutting is done.

5.2 Laying of Cables (underground system)
5.2.1 Cables shall be so laid in ground that these will not interfere with other underground structures. All water pipes, sewage lines or other structures, which become exposed by excavation, shall be properly supported and protection from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded / diverted as directed by the Owner.

5.2.2 Cables shall be laid at minimum depth of 750 mm in case of LT & 1200 mm in case of HT, from ground level. Excavation will be generally in ordinary alluvial soil. The width of the trench shall be sufficient for laying of required number of cables.

5.2.3 Sand bedding 75 mm thick shall be made below and above the cables. A layer of bricks (full size) shall be laid on the edge, above sand bedding on the sides of cables and a flat brick to cover cable completely. More than one cable can be laid in the same trench by providing a brick on edge between two cables. However the relating location of cables in trench shall be maintained till termination. The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounded ground and to the entire satisfaction to the Engineer-in-charge.

5.2.4 For all underground cables, route markers should be used.
   a. Separate cable route markers should be used for LT, HT and telephone cables.
   b. Route markers should be grouted in ground with 1:2:4 cement concrete pedestal size 230 x 230 x 300 mm
   c. Cable markers should be installed at an interval not exceeding 50 M along the straight routes of cables at a distance of 0.5 M away from centre of cable with the arrow marked on the cable markers plate indicating the location of cable. Cable markers should also be used to identify change in direction of cable route and for location of every joint in underground cable.

5.2.5 RCC Hume pipe for crossing road in cable laying shall be provided by Owner. No deduction shall be made for cable laying in Hume pipe for not providing bricks, sand and excavation. RCC Hume pipe at the ends shall be sealed by bituminous compound after laying and testing of cable by electrical Supplier without any extra charge.

5.3 Laying of Cables Under Floors

5.3.1 GI class ‘A’ pipe shall be used for laying of outgoing cables from distribution boards to motors, isolators/junction boxes of motors, starter of motors and push button stations under floors. Preferably one cable shall be drawn through one pipe. Size of pipe shall be such that after drawing of cable 40% area is free. If length of pipe is more than 30 M, free area may be increased to 50%.

5.3.2 Uses of elbows are not allowed at all and number of bends shall be kept minimum. Instead of using bends with sockets, pipe-bending machine shall be used for making long radius smooth bends at site.

5.3.3 Ends of pipe shall be sealed temporarily while laying with cotton/jute/rubber stopper etc. to avoid entry of building material.

5.3.4 Exact location of equipment motor/isolator/push buttons etc. shall be ascertained prior to laying of pipe.

5.4 Laying of Cable in Masonry Trenches

5.4.1 Masonry/concrete trenches for laying of cable shall be provided by Owner.

However steel members such as MS angles/flats etc. shall be provided & grouted by electrical Supplier to support the cables without any extra charge. Cables shall be clamped to these supports with aluminum saddles/clamps. More than one tier of cables can be
provided in the same trench if the numbers of cables are more. If required, cable trays can also be provided in trenches.

5.4.2 Entry of cables in trenches shall be sealed with bituminous MASTIC compound to stop entry of water in trenches.

5.5 Laying of Cables in Cable Trays

5.5.1 Cable trays and supporting steel members such as MS angle/channel/flats etc. shall be provided and fixed by the Supplier.

5.5.2 Cables shall be laid in cable trays in single tier formation and cables shall be clamped with aluminum flat clamps and galvanized bolts & nuts. Cables from cable tray to individual drive, control panel, remote push button station and other miscellaneous equipment shall be dropped in GI /SS conduit.

5.5.3 Earthing flat/wire can also be laid in cable tray along with cables.

5.5.4 After laying of cables minimum 20 % area shall be spare.

5.6 Laying of Cables on Building Surface/Structure

5.6.1 Such type of cable laying shall be avoided as far as possible and will be allowed only for individual cables or small group of cables, which run along structure.

5.6.2 Cables shall be rigidly supported on structural steel/ masonry using individual cast/ malleable iron galvanized saddles and these supports shall be approximately 400 to 500 mm for cables upto 25 mm overall diameter and maximum 1000 mm for cables larger than 25 mm. Unsightly sagging of cables shall be prevented. Only aluminum/GI clamps with GI bolts/nuts shall be used.

5.6.3 If drilling of steel structure must be resorted to, approval must be secured from the Engineer-in-charge and steel must be drilled where the minimum weakening of the structure will result.

5.7 Termination and Jointing of Cables

5.7.1 Use of Glands

All PVC cable upto 1.1 KV grade, armoured or unarmoured shall be terminated at the equipment / junction boxb/isolators/push buttons / control accessories/instruments, etc by means of suitable size compression type cable glands. Armour of cable shall be connected to earth point. The Supplier shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanized threaded reducing bushing shall be used for approved type.

In case of termination of cables at the bottom of the panel over a cable trench having no access from the bottom, close-fit holes should be drilled in the bottom plate for all the cables in one line, then bottom plate should be split in two parts along the centre line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.

5.7.2 Use of Lugs/Sockets

All cable leads shall be terminated at the equipment terminals, by means of crimped type solder less connectors unless the terminals at the equipment ends are suitable for direct jointing without lugs/sockets.

The following is the recommended procedure for crimped joints and the same shall be followed:
a. Strip off the insulation of the cable ends with every precaution so as not to severe or damage any strand. All insulations to be removed from the stripped portion of the conductor and ends of the insulation should be clean and square.

b. The cable should be kept clean as far as possible before assembling it with the terminal/socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminum conductors, the socket should be filled with corrosion inhibiting compound. This compound should also be applied over the stripped portion of the conductor and the palm surface of socket.

c. Correct size and type of socket/ferrule/lug should be selected depending on size of conductor, and type of connection to be made.

d. Make the crimped joint by suitable crimping tool.

e. If after crimping the conductor in socket/lug, some portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

5.7.3 Dressing of Cable Inside the Equipment

After fixing of cable glands, the individual cores of cable shall be dressed and taken along the cable alleys/wiring trough (if provided) or shall be fixed to the panels with polyethylene straps. Cable shall be dressed in such a manner that small loop of each core is available inside the panel.

For motors of 20 HP and above, terminal box if found not suitable for proper dressing of aluminum cables, the Supplier shall modify the same without any additional cost.

Cables inside the equipment shall be measured and paid for if the contract awarded is on item rate basis.

5.7.4 Identification of Cables/Wires/Cores

After laying & pulling cable, the contractor shall provide the cable identification tags to be tied by GI wire at each end of the cable. Power cables shall be identified with red, yellow & blue PVC tapes for trip circuits identification, additional red ferrules shall be used only in the particular cores of control cable at the termination points in the switchgear/control panels and control switches.

In case of control cables all cores shall be identified at both ends by their wire numbers by means of PVC ferrules or self-sticking cable markers, wire numbers shall be as per schematic/connection drawing. For power circuit also wire numbers shall be provided if required as per the drawings of switchgear manufacturer.

5.7.5 Cable between Isolators/Junction Box & Motors/Controls.

Wherever possible Copper Conductor Armoured cables with glands shall be used between isolator/junction box (installed near motor/controls) and motors/controls. However, if terminal box of the motor or control switch is not suitable for accepting armoured cable or it is difficult to lay, multi strand copper conductor, multi-core, unarmoured flexible cable in PVC flexible conduit (steel reinforced) with flexible conduit glands shall be used.

5.7.6 Termination of cables of 6.6 kV and above shall be carried out using heat shrinkable sleeves. This termination must be no-tracking and weather resistant.

5.8 Testing of Cables

5.8.1 Before energizing, the insulation resistance of every circuit shall be measured between conductors and between each conductor and ground. This requires 3 measurements if one
side is grounded and 6 measurements for 3 phase circuits. Continuity test on each lead of cable shall also be tested.

5.8.2 Where splices or terminations are required in circuits rated above 650 volts, measure insulation resistance of each length of cable before splicing and/or terminating. Report measurements after splices and/or terminations are complete.

5.8.3 DC High Voltage test shall be made after installation on the following:

All 1100 Volts grade cables in which straight through joints have been made. All cables above 1100 V grade.

For record purposes test data shall include the measured values of leakage current versus time.

The DC High Voltage test shall be performed as detailed below:

Cables shall be installed in final position with the entire straight through joints complete. Terminations shall be kept unfinished so that motors, switchgear transformer etc. are not subjected to test voltage.

The test voltage and duration shall be as per relevant codes and practices of Indian Standards Institution.

5.9 Proforma for Testing Cables DATE OF TEST

a. Drum No. From which cable taken b. Cable from to c. Length of run of this table meter d. Insulation resistance test:

<table>
<thead>
<tr>
<th>Voltage of Megger</th>
<th>...............</th>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>between core-1 to earth.............. Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core-2 to earth.............. Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core-3 to earth.............. Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core 4 (neutral) to earth...Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core-1 to core-2............ Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core-2 to core-3............ Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core-3 to core-1............ Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core 4(neutral) to core 1..Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core 4(neutral) to core 2..Mega-ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>between core 4(neutral) to core 3..Mega-ohm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. High voltage test VoltageDuration

between cores and earth
between individual cores

(This proforma shall be jointly signed by the Engineer-in-charge and the Supplier).

6.0 Earthing Network

The entire earthing installation shall be done in accordance with the earthing drawings, specification and instructions of the Engineer-in-charge. The entire earthing system shall fully comply with the Indian Electricity Act and Rules framed thereunder. The Supplier shall carry out any changes desired by the electrical inspector or the Owner in order to make the installation conform to the Indian Electricity Rules, at no extra cost. The exact location of the
earth pits, earth electrode and conductors and earthing points of the equipments shall be determined at site, in consultation with the Engineer-in-charge. Any change in the methods, routing, size of conductor etc shall be subject to approval of the owner/engineer-in-charge before execution.

6.1 Earth Pit with Electrode

Plate or pipe type earth electrode with earth pit shall be provided for this work unless otherwise advised by the Engineer-in-charge due to typical site conditions. Earthing electrode and pit shall be as per IS: 3043-1987 (reaffirmed 2001) - code of practice for Earthing. All earth electrodes shall preferably be driven to a sufficient depth to reach permanent moist soil.

For plate type earth pit, size of earth electrode for body earthing of equipment/ electrical panels (LT/MCC/ Switch Board ) shall be 600 mm X 600 mm X 6 mm GI plate whereas that for the neutral earthing of transformer, DG Set, PLC & instrumentation earthing shall be 600 mm X 600 mm X 3 mm Copper plate. For pipe type earth pit, size of earth electrode shall be 100 mm NB GI pipe. For ready reference, sketches for pipe and plate type earth electrode earthing pits have been shown in Annexure – III.

PRIOR APPROVAL OF THE ENGINEER-IN-CHARGE SHALL BE TAKEN FOR SELECTING TYPE OF EARTH ELECTRODE (PIPE OR PLATE).

6.1.2 Earth pit centre shall be at a minimum distance of 3 m from nearest building, unless otherwise advised. The minimum 3 m distance shall be maintained between centres of 2 earth pits.

6.1.3 Earthing electrodes for Main plant lighting panel shall be plate type with double earthing.

6.2 Earth Bus, Earthing Lead and Earth Wire/Strip

6.2.1 All electrical equipment is to be doubly earthed by connecting two-earth strip/wire conductor from the frame of the equipment to an earthing pit/main earthing ring. The earthing ring will be connected via links to several earth electrodes. The cable armoured will be earthed through the cable glands. Conductor size for connection to various equipment shall be as specified in the drawing / as instructed by the Engineer-in-charge. However, the length of the branch leads from equipment to earthing grid/ring shall not be more than 10 to 15 meters.

6.2.2 All hardware for earthing installation shall be hot dip galvanized. Spring washers shall be used for all earthing connections of equipment having vibrations.

6.2.3 Size of earthing lead / wire shall be as specified in schedule of quantities/drawings.

Following may be considered as general guidelines: Sizing of earthing lead/wire

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control switches/ glands PVC insulated</td>
<td>4 sq. mm copper conductor wire</td>
</tr>
<tr>
<td>2</td>
<td>Motor /Isolators up to 10 HP</td>
<td>PVC insulated 4 sq. mm copper conductor wire</td>
</tr>
<tr>
<td>3</td>
<td>Motor /Isolators above 10 HP</td>
<td>PVC insulated 4 sq. mm copper up to 40 HP conductor wire</td>
</tr>
<tr>
<td></td>
<td>Cable tray &amp; GI strip 25 X 3 mm</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Motor above 50 HP upto 125 HP</td>
<td>GI strip 40 X 3 mm</td>
</tr>
<tr>
<td>5</td>
<td>Motor above 125 HP</td>
<td>GI strip 25 X 6 mm</td>
</tr>
<tr>
<td>6</td>
<td>Switch Board / Motor Control Centre</td>
<td>GI strip 50 X 6 mm</td>
</tr>
<tr>
<td>7</td>
<td>Earthing main in trenches</td>
<td>GI strip 50 X 6 mm</td>
</tr>
<tr>
<td>8</td>
<td>Power Control Centre / LT Panel Of Sub Station</td>
<td>GI strip 50 X 6 mm</td>
</tr>
</tbody>
</table>
When earthing wire is to be drawn under floor / in underground, Copper conductor wire of 4 sq mm with PVC insulation shall be used.

However, while deciding type & size of earth lead, the resistance between the earthing system and the general mass of the earth shall be as per IS code of practice. The earth loop impedance to any point in the electrical system shall not be in excess of 1.0 ohm in order to ensure satisfactory operation of protective devices.

6.2.4 Copper wire shall be connected to the equipment by providing crimping type socket / lug.

6.2.6 Wherever earthing strip to be provided in cable tray, it shall be suitably clamped on cable tray and electrically bonded to the cable tray at regular interval.

6.2.6 Excavating & refilling of earth, necessary for laying underground earth bus loops, shall be responsibility of the Supplier.

6.2.7 Wherever earth leads/stripes/wire are laid in cable trenches, these shall be firmly and suitably cleated to the walls/supporting steel structure on which cable is clamped.

6.2.8 The neutral of the transformer shall be connected to earth pit independently and earth pit shall have copper earth plate of 600 mm X 600 mm X 3 mm.

6.2.9 Long runs of GI strip shall be connected at each end with lap type welding to ensure continuity.

6.2.10 The following selection table shall be followed for starters of motor feeders unless otherwise specified:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>415 V Motor HP</th>
<th>Contactor Rating Amps</th>
<th>MCCB Rating Amp.</th>
<th>MPCB Rating Amp.</th>
<th>Type of Starter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Up to 3 HP</td>
<td>9</td>
<td>-</td>
<td>9</td>
<td>DOL</td>
</tr>
<tr>
<td>2</td>
<td>5 to 10 HP</td>
<td>16</td>
<td>-</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>12.5 to 15 HP</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>Star Delta</td>
</tr>
<tr>
<td>4</td>
<td>20 to 25 HP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>30 to 35 HP</td>
<td>-</td>
<td>40</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>40 HP</td>
<td>-</td>
<td>50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>45 HP</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>50 to 60 HP</td>
<td>125</td>
<td>-</td>
<td>-</td>
<td>Soft Starter</td>
</tr>
<tr>
<td>9</td>
<td>65 to 70 HP</td>
<td>200</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>75 to 90 HP</td>
<td>200</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>100 to 125 HP</td>
<td>250</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>150 to 180 HP</td>
<td>400</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>200 to 250 HP</td>
<td>400</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>275 to 400 HP</td>
<td>630</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

For capacitors, either special capacitor duty contactors shall be used or the rating of contactors / MCCB shall be double of rated current of capacitor.

- The above selection table provides the general guideline. However, technical requirement / specifications, if any mentioned under Section V, will supersede the table given above.

7.0 TWO / FOUR POLE STRUCTURE

7.1 ISMB 200 x 100 mm to be grounded in concrete 1:2:4 for at least 1/5th length i.e. 2 meters size of concrete pedestal 500x500mm. All necessary civil works such as excavation, centering, concreting and back filling is included in supplier’s scope of work.

7.2 Interconnecting by aluminum conductor jumpers with connectors/PG clamps etc.
7.3 Installation, testing and commissioning of complete two/four pole structure including ISMB & cross channels, G.O. switch, insulators and other items mentioned under equipment supplied for two pole structure.

7.3 Complete structure to be provided with two coats of aluminum paint.
# BUREAU OF INDIAN STANDARDS TO BE FOLLOWED FOR ELECTRICAL ERECTION

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PVC insulated cables (light duty) for Working voltage up to 1100 V</td>
<td>694-1990</td>
</tr>
<tr>
<td>2.</td>
<td>PVC insulated cables (heavy duty) for Voltage up to 1100 volts Part I</td>
<td>1554-1988</td>
</tr>
<tr>
<td>3.</td>
<td>-- do -- for voltage 3.3 KV to 11 KV Part II</td>
<td>1554-1988</td>
</tr>
<tr>
<td>4.</td>
<td>Specification for polyethylene insulated PVC - Sheathed heavy duty electric cables, voltage not exceeding 1100 V</td>
<td>5959-1970</td>
</tr>
<tr>
<td>5.</td>
<td>-- do -- voltage 3.3 KV to 11 KV Part II</td>
<td>5959-1970</td>
</tr>
<tr>
<td>7.</td>
<td>Code of practice for installation and Maintenance of power cables up to 33 kV</td>
<td>1255-1983</td>
</tr>
<tr>
<td>15.</td>
<td>Code of practice for electrical wiring Installation (system voltage exceeding 650 V)</td>
<td>2274-1963</td>
</tr>
</tbody>
</table>

Guide for testing three-phase induction - 4029-1967

Motor


18. XLPE Cables for working voltage up to And including 1100 Volts - 7098 1988 Part I
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>--- Do --- up to 33 kV</td>
</tr>
<tr>
<td>20.</td>
<td>Boxes for enclosures of electrical accessories</td>
</tr>
<tr>
<td>21.</td>
<td>Electric Power connectors</td>
</tr>
<tr>
<td>22.</td>
<td>HRC Cartridge Fuse Link up to 650 V</td>
</tr>
<tr>
<td>23.</td>
<td>Code of Practice for Selection, Installation &amp; Maintenance of Fuse up to 650 V</td>
</tr>
<tr>
<td>24.</td>
<td>Cables methods of testing</td>
</tr>
<tr>
<td>25.</td>
<td>Danger / Lattice Boards</td>
</tr>
</tbody>
</table>
### RECOMMENDED CABLES SIZES FOR INDUSTRIAL WIRING

The following selection table shall be followed for cables of motors unless otherwise specified:

#### 3 Phase 415 V Motor H.P

<table>
<thead>
<tr>
<th>3 Phase 415 V Motor H.P</th>
<th>Aluminum Conductor Cable Size- Sq. mm</th>
<th>Copper Conductor Cable Size- Sq. mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DOL Starter/Soft starter</td>
<td>Star- Delta Starter</td>
</tr>
<tr>
<td></td>
<td>Supply side Motor side</td>
<td>Supply side Motor side</td>
</tr>
<tr>
<td>Up to 7.5</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>16</td>
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<tr>
<td>25</td>
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<td>30</td>
<td>25</td>
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<tr>
<td>40</td>
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<td>50</td>
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<td>60</td>
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<td>75</td>
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<td>125</td>
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<tr>
<td>150</td>
<td>240</td>
<td>240</td>
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<tr>
<td>180</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>200</td>
<td>2X150</td>
<td>2X150</td>
</tr>
<tr>
<td>250</td>
<td>2X185</td>
<td>2X185</td>
</tr>
<tr>
<td>275</td>
<td>2X240</td>
<td>2X240</td>
</tr>
<tr>
<td>300</td>
<td>2X240</td>
<td>2X240</td>
</tr>
<tr>
<td>425</td>
<td>2X400</td>
<td>2X400</td>
</tr>
</tbody>
</table>

#### 3 Phase 415 V Motor H.P

<table>
<thead>
<tr>
<th>3 Phase 415 V Motor H.P</th>
<th>DOL Starter/Soft starter</th>
<th>Star- Delta Starter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supply side Motor side</td>
<td>Supply side Motor side</td>
</tr>
<tr>
<td>Up to 7.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
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<td>25</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>30</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>40</td>
<td>25</td>
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</tr>
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<td>75</td>
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<td>95</td>
</tr>
<tr>
<td>100</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>150</td>
<td>185</td>
<td>185</td>
</tr>
<tr>
<td>180</td>
<td>240</td>
<td>2X120</td>
</tr>
<tr>
<td>200</td>
<td>2X120</td>
<td>2X120</td>
</tr>
<tr>
<td>250</td>
<td>2X150</td>
<td>2X150</td>
</tr>
<tr>
<td>275</td>
<td>2X185</td>
<td>2X185</td>
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<tr>
<td>300</td>
<td>2X185</td>
<td>2X185</td>
</tr>
<tr>
<td>425</td>
<td>2X240</td>
<td>2X240</td>
</tr>
</tbody>
</table>

**In case LAPP/Concab / Equi design of steel braided Copper Cables are used then Minimum size for various rating of motors to be laid between MCC & motors shall be as given in the table below**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Motor ratubg HP</th>
<th>Full Load Current (Amp.)</th>
<th>Type of Starter</th>
<th>Power cable rating (At Amb. Temp. of 45 sq.mm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5</td>
<td>1</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>HP</td>
<td>Cables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>--------</td>
<td>--------</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td>2</td>
<td>0.75</td>
<td>1.3</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1.9</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>4</td>
<td>1.5</td>
<td>2.6</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>3.7</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>4.8</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>5.2</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>7.8</td>
<td>DOL</td>
<td>3 C or 4 C x 1.5 sq. mm</td>
</tr>
<tr>
<td>9</td>
<td>7.5</td>
<td>11.2</td>
<td>DOL</td>
<td>3 C or 4 C x 2.5 sq. mm</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>16</td>
<td>DOL</td>
<td>3 C or 4 C x 2.5 sq. mm</td>
</tr>
<tr>
<td>11</td>
<td>12.5</td>
<td>19</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 4 sq. mm (2 runs)</td>
</tr>
<tr>
<td>12</td>
<td>15</td>
<td>20.8</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 4 sq. mm (2 runs)</td>
</tr>
<tr>
<td>13</td>
<td>20</td>
<td>28</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 6 sq. mm (2 runs)</td>
</tr>
<tr>
<td>14</td>
<td>25</td>
<td>34</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 10 sq. mm (2 runs)</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>40</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 10 sq. mm (2 runs)</td>
</tr>
<tr>
<td>16</td>
<td>40</td>
<td>53</td>
<td>Star delta starter</td>
<td>3 C pr 4 C x 16 sq. mm (2 runs)</td>
</tr>
<tr>
<td>17</td>
<td>50</td>
<td>65</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 25 sq. mm</td>
</tr>
<tr>
<td>18</td>
<td>60</td>
<td>78</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 35 sq. mm</td>
</tr>
<tr>
<td>19</td>
<td>75</td>
<td>96</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 50 sq. mm</td>
</tr>
<tr>
<td>20</td>
<td>100</td>
<td>131</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 70 sq. mm</td>
</tr>
<tr>
<td>21</td>
<td>125</td>
<td>156</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 120 sq. mm</td>
</tr>
<tr>
<td>22</td>
<td>150</td>
<td>189</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 150 sq. mm</td>
</tr>
<tr>
<td>23</td>
<td>180</td>
<td>227</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 185 sq. mm</td>
</tr>
<tr>
<td>24</td>
<td>215</td>
<td>271</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 240 sq. mm</td>
</tr>
<tr>
<td>25</td>
<td>250</td>
<td>325</td>
<td>Soft starter</td>
<td>3 C pr 4 C x 300 sq. mm</td>
</tr>
<tr>
<td>26</td>
<td>275</td>
<td>360</td>
<td>Soft starter</td>
<td>3 C or 4 x 185 sq. mm-2 runs</td>
</tr>
<tr>
<td>27</td>
<td>300</td>
<td>390</td>
<td>Soft starter</td>
<td>3 C or 4 C x 185 sq. mm- 2 runs</td>
</tr>
<tr>
<td>28</td>
<td>335</td>
<td>400</td>
<td>Soft starter</td>
<td>3 C or 4 C x 240 sq. mm- 2 runs</td>
</tr>
<tr>
<td>29</td>
<td>375</td>
<td>NA</td>
<td>Soft starter</td>
<td>3 C or 4 C x 300 sq. mm- 2 runs</td>
</tr>
</tbody>
</table>

Note: Cables for motors above 20 HP have been indicated considering soft starters.

For motor rating, 200 HP and above, suitable rating of Bus Duct shall have to be provided depending upon the site requirement / as per the Site Engineer's direction.
### SPECIAL CONDITIONS OF CONTRACT FOR INSTALLATION

**PART – III - A**

**MECHANICAL INSTALLATION**

#### TABLE OF CLAUSES

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Installation</td>
</tr>
<tr>
<td>General Installation</td>
</tr>
<tr>
<td>Service Piping Installation</td>
</tr>
<tr>
<td>Special Instructions and specifications</td>
</tr>
<tr>
<td>Insulation of Piping and Equipment</td>
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<tr>
<td>Interconnections of Service and Electricals with equipment</td>
</tr>
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<td>Guidelines for expansion work</td>
</tr>
<tr>
<td>Clean up of Works Site</td>
</tr>
<tr>
<td>Cleaning chemicals and lubricants</td>
</tr>
<tr>
<td>Testing, commissioning and start-up</td>
</tr>
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<td>Painting</td>
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<tr>
<td>Training of personnel</td>
</tr>
<tr>
<td>General specifications for pipes and fittings</td>
</tr>
<tr>
<td>Annexure-1 Format of makes for bought out items</td>
</tr>
<tr>
<td>Code of practice for painting (Annexure-II)</td>
</tr>
</tbody>
</table>
**SPECIAL CONDITIONS OF CONTRACT**

**PART III - A**

*(MECHANICAL INSTALLATION)*

1.0 MECHANICAL INSTALLATION

The installation work would comprise:

a. General installation i.e. positioning and installing all the processing, miscellaneous and service equipment as per approved layout drawings and as per the contract.

b. Supply and installation of structural platforms and tables.

c. Supply and installation of all service and product piping including ancillary items.

d. Insulation and cladding of piping and equipment including supply of materials.

e. Interconnections of services and electrical with equipment.

f. Guide line for expansion work.

g. Clean up of work site.

h. Supply of all cleaning chemicals and lubricants.

i. Testing, commissioning and start-up.

j. Painting including supply of paints as approved by the Owner.

k. Training of personnel.

Detailed specifications are given in the subsequent clauses.

2.0 GENERAL INSTALLATION

2.1 Positioning of Equipment

The work involves preparation of access for moving of the plant and equipment including their fittings from the work site godown or from the place within the site where they have been unloaded, to the place of erection, decorating and placing on the foundation wherever required. All the civil foundations as per the manufacturer/supplier’s drawings shall be arranged by the Supplier. The Supplier shall place the equipment and carry out final adjustment of the foundations including alignment and dressing of foundation surface, embedding and grouting of anchor bolts and bedplates. The Supplier shall be responsible for obtaining correct reference lines for purpose of fixing the alignment of various equipment from master benchmarks provided by the Owner.

Tolerances shall be as specified in equipment manufacturers drawings or as stipulated by the Owner’s Engineer. No equipment shall be permanently bolted down to foundations or structure until the alignment has been checked by the Supplier and witnessed by the Purchaser. The Supplier shall carry out minor alterations in the anchor bolts, pockets etc., at no extra cost and set the equipment properly as per approved layout drawings and manufacturer’s instructions. The Supplier shall supply all the necessary foundation/anchor bolts and bedplates if required without extra cost.

The Supplier shall supply, fix and maintain, at his own cost, during the erection work, all the necessary centering, scaffolding, staging required not only for proper execution and
protection of the said work but also for protection of the surrounding plant and equipment. The Supplier shall take out and remove any or all such centering, scaffolding, staging planking etc., as occasion shall require or when ordered to do so and shall fully reinstate and make good all things disturbed during execution of the work, to the satisfaction of the Owner. The Supplier shall be paid no additional amount for the above.

2.2 Structural Platforms, Service Pipe Bridge and Tables

Box type structural platforms shall be required to provide access for various equipments. Pipe support bridges/gantry shall be required for supporting the pipes from the ground, including road crossings outside the buildings. These platforms, bridges / gantry shall be fabricated keeping stability and other functional as well as aesthetic requirements into consideration as approved by the Owner. The payment shall be made on the basis of the actual weight executed and the unit rates agreed upon or as per provisions made in the contract for such items.

The Purchaser shall arrange for any civil works required for the above works based on the drawings and load details provided by the bidder. Necessary templates and other accessories required by the civil contractor shall be provided by the bidder.

3.0 SERVICE PIPING INSTALLATION

3.1 General Guidelines

All piping systems shall comply with the latest editions of the following regulations wherever applicable.

3.1.1 Regulations of explosives inspectorate.

3.1.2 Indian Boiler Regulations

3.1.3 All applicable Indian Standards.

3.1.4 All applicable State Government/ Central Government laws /acts.

3.1.5 The Supplier has to prepare all erection drawings of the proposed plant including equipment positions and service-piping positions (Isometric), spacing between pipes, all other relevant details and submit these drawings to Purchaser for approval.

3.2 Scope of Supply

The Supplier shall supply all piping materials like pipes, fittings, flanges measuring instruments and all other items as shown in the flow diagram/specifications and schedule of quantities. All the pipes & fittings and insulation material etc. should be of class and make as approved by the Owner. Prior approval of the Owner must be obtained by the supplier for the class and make of all materials. The Supplier should furnish the details of makes selected by him, in the proforma given in Annexure I.

3.3 Scope of Piping Erection

This to be performed by the Supplier as outlined below:

3.3.1 The scope of erection for piping, includes all system covered in the flow diagrams and specifications.

3.3.2 The Supplier’s work commences / terminates at the pipe connections with valves or flanges as specified in flow diagrams / battery limits.

3.3.3 The Supplier shall also install necessary piping and any specialties furnished with or for equipment such as relief valves, built-in-pass and other items of this type.
3.3.4 The Supplier shall install primary elements for flow measurements, control valves and on-line metering equipment.

3.3.5 The Supplier shall perform necessary internal machining of pipes for installing orifices, flow nozzles, control valves etc.

3.3.6 The Supplier shall install all pipes, valves and specialties being procured from other sources.

3.4 Testing of Piping

3.4.1 The Supplier shall test all piping systems mentioned below including valves and specialties and instruments as per procedure mentioned under 3.4.4.

   a) H.P. & L.P. Steam piping
   b) Furnace oil & diesel piping
   c) Soft and raw water
   d) Compressed Air Piping

3.4.2 All piping shall be internally cleaned and flushed by the Supplier after erection in a manner suited to the service and as directed by the Owner.

3.4.3 For hydrostatic testing and water flushing, the Supplier shall furnish necessary pumps, equipment, instruments and piping etc.

3.4.4 The details of testing pressures for various pipelines are mentioned below:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name</th>
<th>Test Pressure Kg/cm²</th>
<th>Test Medium</th>
<th>Duration of Test (Hour)</th>
<th>Allowable Pressure Drop (Kg/cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Steam Pipelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a</td>
<td>H.P. Steam</td>
<td>27</td>
<td>Water</td>
<td>½</td>
<td>0</td>
</tr>
<tr>
<td>1b</td>
<td>L.P. Steam</td>
<td>8</td>
<td>Water</td>
<td>½</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Water Pipelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a</td>
<td>Raw Water, Soft Water</td>
<td>8</td>
<td>Water</td>
<td>½</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Furnace Oil/LSHS Pipelines</td>
<td>16</td>
<td>Water</td>
<td>½</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Air Pipelines</td>
<td>12</td>
<td>Air</td>
<td>½</td>
<td>0.1</td>
</tr>
</tbody>
</table>

3.5 Other Guidelines

3.5.1 Colour code shall be used to identify pipe material. The Supplier shall be able to identify on request all random piping prior to field fabrication.

3.5.2 The Supplier shall be responsible for the quality of welding done by them and shall conduct tests to determine the suitability of the welding procedure by him.

3.5.3 All piping supports, guides, anchors, hangers, rollers with structural framework shall be supplied and erected by the Supplier. Only anchor fasteners of adequate size shall be provided for anchoring supports from RCC structures and Hilti Gun shall be used for fastening the anchors. The kinds of pipe supports like Cl clamps, PUF/wooden saddles, roller supports and support framework shall be as per the design approved by the Owner prior to taking up the work.
3.5.4 All piping shall be suspended, guided and anchored with due regard to general requirements and to avoid interference with other pipes, hangers, electrical conduits and their supports, structural members and equipment and to accommodate insulation and conform to buildings structural limitations. It is the responsibility to the piping Supplier to avoid all interference while locating hangers and supports.

3.5.5 Anchors and/or guides for pipelines or for other purposes shall be furnished, when specified, for holding the pipeline in position for alignment. Hangers shall be designed fabricated and assembled in such a manner that they cannot become disengaged by any movement of the support pipes.

3.5.6 All piping shall be wire brushed and purged with air blast to remove all rust, mill scale from inner surface. The method of cleaning shall be such that no material is left on the inner or on outer surfaces, which will affect the serviceability of the pipes. A thin coat of any lubricating oil shall be applied on entire inner surface of steel pipes (black) to prevent rusting.

3.5.7 Effective precautions such as capping and sealing shall be taken to protect all pipe ends against ingress of dirt and damage during transit or storage.

The outside of the steel pipes (black) shall be painted with two coats of red oxide paint or as directed by the Owner.

3.5.8 All pipes in the corridor shall be supported from the sidewall.

3.5.9 MS box section pipe supports for services / process equipment shall be provided by the supplier. Box section pipe supports for services and cable trays in other areas shall be of steel of suitable thickness coated with rust preventive paints and finish coated with dark admiral grey of approved shade. Where pipes and clamps are of dissimilar material, gaskets shall be provided in between. Spacing of utilities pipe supports shall not exceed the following:

<table>
<thead>
<tr>
<th>Pipe size</th>
<th>Spacing between supports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 12mm</td>
<td>1.5m</td>
</tr>
<tr>
<td>15 to 25mm</td>
<td>2.0m</td>
</tr>
<tr>
<td>30 to 150mm</td>
<td>2.0m</td>
</tr>
<tr>
<td>Over 150mm</td>
<td>2.5m</td>
</tr>
</tbody>
</table>

3.5.10 Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb. Risers passing from floor to floor shall be supported at each floor slab by clamps or collars attached to pipe and with a 15 mm thick rubber pad or any resilient material. Where pipes pass through the terrace floor, suitable flashing shall be provided to prevent water leakage. Risers shall have a suitable clean out at a lower point and air vent at the highest point.

3.5.11 Pipe sleeves at least 3 mm thick, 50 mm / 100 mm larger in diameter than the pipes shall be provided wherever pipe passes through walls and slabs. Annular space shall be filled with fibre glass and finished with retainer rings. No extra payment shall be made on account of providing the sleeves.

3.5.12 All piping works shall be carried out in a workman like manner, causing minimum disturbance to the services, buildings, roads and structures. The entire piping work shall be organized, in consultation with other agencies work, so that laying of pipe support, pipes and pressure testing for each area shall be carried out in one stretch.

3.5.13 Cutouts details in the floors and slabs for installing various pipes are to be provided by the contractor immediately after receipt of the purchase order, so as to make the cutouts ready by civil contractor.
3.5.14 The contractor shall make sure that the clamps, brackets, clamp saddles and hangers provided for pipe supports are adequate. Piping layout shall take due care for expansion and contraction in pipes and include expansion joints wherever required.

3.5.15 All pipes shall be accurately cut to the required size in accordance with the relevant BIS code and burrs removed before lying. Open ends of the piping shall be closed as the pipe is installed to avoid ingress of foreign matters. Where reducers are to be made in horizontal runs, eccentric reducers shall be used for piping to drain fully. In other locations concentric reducers may be used.

3.5.16 All buried pipes shall be cleaned and coated with zinc chromate primer and bitumen paint, then wrapped with three layers of fibre glass tissue, each layer laid in bitumen.

3.5.17 Tee-off connections shall be through equal or reducing tees. Otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

4.0 SPECIAL INSTRUCTIONS AND SPECIFICATIONS

4.1 Steam Piping

4.1.1 Steam piping work can be classified into two categories:

a) High-pressure steam piping when the working pressure of steam is more than 3.1 kg/sq.cm (50 psi).
b) Low-pressure steam piping when the working pressure of steam is below 3.1 kg/sq.cm (50 psi).

All the pipes and fittings used for high pressure steam piping work should conform to IBR and they should be IBR certified and also to be identified with number and mark showing that they are tested by the Boiler Inspector and supported with duly authentic certificates to this effect. ALL HIGH PRESSURE STEAM PIPES SHALL BE SEAMLESS TYPE, SCHEDULE 40.

4.1.2 The high pressure steam piping after installation should be hydraulically tested in presence of the Boiler Inspector for his approval.

4.1.3 The high-pressure steam piping work should also include fabrication and installation of pressure reducing stations strictly conforming to IBR.

4.2 Water Piping:

All the piping for water, soft & raw water, steam & condensate, furnace oil, and air shall be generally of welded construction. Whenever welding is done for pipes of smaller size special care should be exercised to avoid clogging of flow area with the welding material.

5.0 INSULATION OF PIPING AND EQUIPMENT

5.1 Insulation of Steam, condensate and Hot Water Pipe Lines

All the steam and hot water pipelines shall be insulated with mineral wool or equivalent resin bonded pipe section of specified thickness. The insulation shall be carried out in the following manner and should be supplied in the form of properly required sizes.

5.1.1 Clean the surfaces to be insulated. Apply a coat of red oxide primer and fix glass wool / mineral wool / resin bonded pipe section of specified thickness, tightly to the pipes, butting all joints and tie with lacing wire.

5.1.2 It should then be covered with GI wire netting of 20 mm x 24 SWG.

5.1.3 In case the insulation does not have the desired insulation properties, the entire insulation will have to be redone at the Supplier's cost to give the desired results.
5.1.4 In case of condensate return piping all the steps mentioned above shall be executed except that thickness of the insulation shall be 25 mm.

5.2 Aluminum / GI Cladding

5.2.1 The ammonia accumulators, chilled water, ammonia, water, steam & hot water lines after insulations shall be covered by Aluminum / GI cladding as per the requirement and the payment will be made as per the executed items.

5.2.2 Aluminum cladding will be done with 22-gauge aluminum sheet with proper grooves and overlaps and screwed in position with 12 mm. self-tapping parker screws.

5.2.3 GI sheet cladding will be done with 22 gauge sheet with proper grooves and overlaps and screwed in position with 12 mm self tapping parker screw. The GI sheet cladding will finally painted with 2 coats of approved shade and quality of paint.

5.2.4 All the necessary materials of quantity and make approved by the Owner, required for carrying out insulation, cladding and other works mentioned above, shall be supplied by the Supplier.

6.0 INTER CONNECTIONS OF SERVICE AND ELECTRICALS WITH EQUIPMENT

6.1 The Supplier shall lay service piping and provide connections with the equipment complying strictly with the equipment manufacturers’ instructions. The Supplier shall also carry out all the interconnecting service piping with the various items of plant/system. The work shall be complete with capillary piping if required and connections with instruments and controls supplied with the equipment.

6.2 The Supplier shall also carry out electrical connections for equipment with the control panels including equipment lighting as per the wiring diagrams of the equipment suppliers.

Connection shall be made for small electrically operated devices on equipment installed as accessories to, or assembled with equipment. Connections regarding instruments, float switches, limit switches, pressure switches, thermostats and other miscellaneous equipment shall be done as per manufacturers’ drawings & instructions.

7.0 CLEAN UP OF WORKS SITE

7.1 All soils, filth or other matters of an offensive nature taken out of any trench, drain or other places shall not be deposited on the surfaces, but shall at once be carted away by the Supplier from the site of work for proper disposal.

7.2 The Supplier shall not store or place the equipment, materials or erection tools on the drive ways and passages and shall take care that his work in no way restricts or impedes traffic or passage of men and materials during erection. The Supplier shall without any additional payment, at all time keep the working and storage area used by him free from accumulation of dust or combustible materials, waste materials rubbish packing, wooden planks to avoid fire hazards and hindrance to other works.

7.3 If the Supplier fails to comply with these requirements in spite of written instructions from the Owner, the Owner will proceed to clear these areas and the expenses incurred by the Owner in this regard shall be payable by the Supplier. Before completion of the work, the Supplier shall remove or dispose off in a satisfactory manner all scaffolding, temporary structures, waste and debris and leave the premises in a condition satisfactory to the Owner. Any packing materials received with the equipment shall remain as the property of the owner and may be used by the Supplier on payment of standard charges to the Owner and with prior approval of the Owner. At the completion of his work and before final payment, the Supplier shall remove and shall restore the site to neat workman like conditions at his cost.
8.0 CLEANING CHEMICALS AND LUBRICANTS

The necessary quantities of cleaning chemicals and the first charge of oil and lubricants required for the installation, commissioning, testing and start-up of all the equipment till handing over are to be supplied by the Supplier and nothing extra would be paid for these.

9.0 TESTING, COMMISSIONING AND START-UP

9.1 The Supplier shall operate, maintain and give satisfactory trial run of the plant in such manner and for such periods as has been specified in Section IV (Technical Specifications). All rectification of damages / defects during the trial period should be carried out by the Supplier.

9.2 The commissioning shall also include the following for each equipment:

9.2.1 Field disassembly and assembly of equipment, instruments and controls where required for access to fixing or adjustment.

9.2.2 Clean out of lubrication system including chemical cleaning wherever required.

9.2.3 Circulation of lubricant to check flow.

9.2.4 Clean out and check out of all the service lines.

9.2.5 Check out and commissioning of instruments, equipment and plants, filtering of transformer and other oils so that if deteriorated, they shall attain the required properties /standards, specified tests in this regard must be carried out by approved authorities and their satisfactory reports submitted to the Owner before start-up.

9.2.6 Recharging or make-up filling of lubricant oil up to the desired level in the lubrication system of individual machine.

9.2.7 Operation in empty condition to check general operation details wherever required and wherever possible.

9.2.8 Closed loop dynamic testing with water wherever required.

9.2.9 Operation under load and gradual load increase to attain maximum rated output.

9.2.10 Trouble shooting during the trial period.

9.3 The Supplier shall demonstrate proper working of all mechanical and electrical controls; safety and protective device, in presence of the Owner’s engineer and the same should be duly recorded.

Commissioning of automation system:

The supplier should provide a detailed schedule of testing all automation and control systems.

All controlled or monitoring devices on the plant should be tested from the relevant control centre and recorded to be operating as designed, including feedback detection.

A log of these operations is to be maintained, and each completed group of tests to be signed by the supplier’s commissioning engineer.

The Purchaser reserves the right to witness as much of these test procedures, as he may feel necessary.

Testing procedures and commissioning period will be as specified in Section IV.
9.4 After conducting testing, in case, a particular equipment is not working properly or not giving rated output the Supplier will furnish a detailed report to the Owner stating therein the detailed account on the performance of the equipment with possible reasons for improper or not working of the same and will arrange the visit of the representative of original manufacturers to get the same commissioned satisfactorily.

9.5 After satisfactory commissioning and start-up, the Supplier shall keep/depute his representatives at the plant in the manner, for the duration and for the performance of such tasks as specified in Section III. During this period the Supplier shall ensure proper working of complete plant and equipment and attend any works required to be done for proper operation of the complete plant and equipment.

10.0 PAINTING

All the equipment / machineries like motors, pumps, HT / LT panel, transformer, switch boards, starters, junction boxes, isolators, storage tanks, supporting structures, pipe supports and MS/GI pipes and all exposed and visible iron parts included in the scope of erection / commissioning shall be given double coat of paint of approved shade over a double coat of anti-corrosive primer wherever necessary irrespective of the condition of original paint of equipment/machineries/ structures/supports. All surfaces, wherever required, must be properly cleaned from scale, dirt and grease prior to painting. Spray painting must preferably be used on all the equipment /machineries and wherever practicable. Suitable and necessary cleaning / wiping of sight / dial glasses, other non-metallic parts, flooring, walls and other surfaces which have been spoiled by paint during painting must also be carried out by the Supplier.

Lettering and other markings, including capacity and flow direction markings, shall also be carried out by the Supplier on the tanks, pipe lines, starters and wherever else necessary, as directed and as per the standard practice of installation. BIS colour codes and colour charts as mentioned in Annexure - II must be adhered to.

Supply of all paints and all other materials required for painting is included in the scope of supply of the Supplier under this contract/order.

11.0 TRAINING OF PERSONNEL

Necessary staff as may be deputed by the Owner shall be trained by the Supplier for operating the plant. The personnel will be associated for the training during the installation; testing, commissioning and start-up period and the training tenure shall be extended for a minimum period of one month from the date of commissioning and start-up. This training will be a continuous process during commissioning and stand by period and as described in the Technical Specifications.

- GENERAL SPECIFICATIONS FOR PIPES AND FITTINGS

- Flanges shall be of good make. The supply of flanges shall also include supply of bolts, nuts, washers and suitable asbestos fibre /rubber insertion food grade gaskets (minimum 3mm thick).

- The above specifications for valves are general specifications. However, pipes and valves shall be required to be supplied as per details mentioned in Section III - the technical specifications of plant and equipment.

- LIST OF APPROVED MAKES FOR MAJOR COMPONENTS

A table of makes of various major components is given under Technical Specifications Section III. The supplier will adhere to makes of items as per this list only. For an item not mentioned in the table or item having more than one preferred / approved make, supplier will obtain approval of the Purchaser for the make before initiating actual procurement.
<table>
<thead>
<tr>
<th>Service</th>
<th>Material</th>
<th>Specification</th>
<th>Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP Steam (IBR Approved)</td>
<td>Heavy duty, seamless Cast Steel</td>
<td>Schedule 40, ASTM A53</td>
<td>Piping to be welded type</td>
</tr>
<tr>
<td>LP Steam</td>
<td>ERW, Heavy duty (C-class)</td>
<td>BIS: 1239, 3601</td>
<td>Piping to be welded type</td>
</tr>
<tr>
<td>Air</td>
<td>ERW, Heavy duty (C-class)</td>
<td>BIS: 1239, 3601</td>
<td>Piping to be welded type</td>
</tr>
<tr>
<td>Water Supply, bleeds, drains, etc.</td>
<td>Galvanized steel (ERW) medium duty class B</td>
<td>BIS: 1239/BIS: 3589</td>
<td>Piping to be welded type</td>
</tr>
<tr>
<td>SS Duct</td>
<td>TIG welded, annealed and decaled, outside mirror polished &amp; inside pickled per dairy standards</td>
<td>AISI 304</td>
<td>Welded; core;ar During with Flanged joints</td>
</tr>
<tr>
<td>MANUALLY OPERATED VALVES:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP Steam (IBR Approved)</td>
<td>Cast steel body Globe / Piston Valve &amp; NRY with SS working parts</td>
<td></td>
<td>Flanged &gt; 25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Screwed &lt; 25 NB</td>
</tr>
<tr>
<td>LP Steam</td>
<td>Cast steel/GM body Globe/ Piston Valve &amp; NRV with SS working parts</td>
<td></td>
<td>Flanged &gt; 25 NB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Screwed &lt; 25 NB</td>
</tr>
<tr>
<td>Air</td>
<td>Cast steel / GM body Globe/ Piston Valve &amp; NRV with SS working parts rubber (Inert to moisture &amp; oil traces)</td>
<td></td>
<td>Flanged &gt; 25 NB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Screwed &lt; 25 NB</td>
</tr>
<tr>
<td>Soft / Raw water: Over 75 mm Upto 75 mm</td>
<td>CI, butterfly</td>
<td>IS: 778, 1703</td>
<td>Flanged &gt; 25 NB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weldable up to 25 NB</td>
</tr>
<tr>
<td>Water supply, bleeds, And drain</td>
<td>Cast steel ball valve</td>
<td>IS: 778</td>
<td>Flanged &gt; 25 NB</td>
</tr>
</tbody>
</table>
FORMAT OF MAKES OF BOUGHT OUT ITEMS SELECTED BY SUPPLIER:

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Name of the item</th>
<th>Make Selected by Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Preference</td>
</tr>
<tr>
<td>1</td>
<td>Steam Piping</td>
<td></td>
</tr>
<tr>
<td>1 a</td>
<td>MS C class pipes (Seamless)</td>
<td></td>
</tr>
<tr>
<td>1 b</td>
<td>Cast Steel globe valves</td>
<td></td>
</tr>
<tr>
<td>1 c</td>
<td>Bronze globe valves</td>
<td></td>
</tr>
<tr>
<td>1 d</td>
<td>Cast Steel Non- return valves</td>
<td></td>
</tr>
<tr>
<td>1 e</td>
<td>Gun metal Non- return valves</td>
<td></td>
</tr>
<tr>
<td>1 f</td>
<td>Pressure reducing valves, safety valves, strainer, moisture separator, steam trap, expansion joints &amp; other steam fittings.</td>
<td></td>
</tr>
<tr>
<td>1 g</td>
<td>Pressure &amp; temp. gauges</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Furnace oil piping/air piping</td>
<td></td>
</tr>
<tr>
<td>2 a</td>
<td>MS C class pipes (Seamless)</td>
<td></td>
</tr>
<tr>
<td>2 b</td>
<td>Cast Steel globe/ Bronze globe valves/ Gun metal gate valves</td>
<td></td>
</tr>
<tr>
<td>2 c</td>
<td>Gun metal NRV</td>
<td></td>
</tr>
<tr>
<td>2 d</td>
<td>Pressure gauges</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Water piping</td>
<td></td>
</tr>
<tr>
<td>3 a</td>
<td>GI ‘B’ Class Pipe</td>
<td></td>
</tr>
<tr>
<td>3 b</td>
<td>CI globe valve</td>
<td></td>
</tr>
<tr>
<td>3 c</td>
<td>Gun metal gate valve</td>
<td></td>
</tr>
<tr>
<td>3 d</td>
<td>Gun metal globe valves/ strainers / non- return valves</td>
<td></td>
</tr>
<tr>
<td>3 e</td>
<td>Water Pump</td>
<td></td>
</tr>
<tr>
<td>3 f</td>
<td>Foot valve</td>
<td></td>
</tr>
<tr>
<td>3 g</td>
<td>Water meter</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Insulation materials</td>
<td></td>
</tr>
<tr>
<td>4 a</td>
<td>Expanded polystyrene</td>
<td></td>
</tr>
<tr>
<td>4 b</td>
<td>Glass/ mineral wool</td>
<td></td>
</tr>
<tr>
<td>4 c</td>
<td>Resin bonded mineral wool</td>
<td></td>
</tr>
<tr>
<td>4 d</td>
<td>Polyurethane foam</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Cables</td>
<td></td>
</tr>
<tr>
<td>5 a</td>
<td>Powder Cables</td>
<td></td>
</tr>
<tr>
<td>5 b</td>
<td>Control Cables</td>
<td></td>
</tr>
<tr>
<td>5 c</td>
<td>Instrumentation &amp; Signal cables</td>
<td></td>
</tr>
</tbody>
</table>

Important note:

The make of all bought out items / components should be got approved at one instance only and the makes thus approved shall only be supplied.
CODE OF PRACTICE FOR PAINTING OF SERVICE PIPE LINES, EQUIPMENT AND STRUCTURAL WORK

1.0 PAINTING OF SERVICE PIPE LINES

1.1 On Non-insulated Pipe Line

1.1.1 Ground colour to be applied throughout the length of the pipeline.

1.1.2 Colour bands to be applied, over the ground colour, near every valve and branch connections as well as in every room near the entry.

1.1.3 The relative proportional widths of the 1st colour band to the subsequent bands shall be 4:1. The minimum width of colour band shall confirm to the following table:

<table>
<thead>
<tr>
<th>Nominal Pipes Size</th>
<th>Width of 1st Colour Band</th>
<th>Width of 2nd Colour Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 NB and below</td>
<td>100 mm</td>
<td>25 mm</td>
</tr>
<tr>
<td>100 NB to 150 NB</td>
<td>200 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td>200 NB to 300 NB</td>
<td>300 mm</td>
<td>75 mm</td>
</tr>
<tr>
<td>350 NB and above</td>
<td>400 mm</td>
<td>100 mm</td>
</tr>
</tbody>
</table>

1.1.4 On the 1st band a white arrow to be put to indicate the direction of flow.

1.1.5 The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

1.1.6 The valves should be painted with the same colour as the ground colour of the pipeline.

1.2 On Insulated Pipeline but without Aluminum Cladding Procedure same as above.

1.3 On Insulated Pipeline with Aluminum Cladding

1.3.1 Ground colour to be applied in a minimum length of 1000 mm of the pipe all round near every valve and branch connections as well as in every room near the entry. The complete length of the pipeline should not be painted.

Colour bands should be applied in the middle of every ground colour strip. The relative proportional widths of the 1st colour band to the subsequent bands shall be 4:1. The minimum width of colour band shall confirm to the following table:

<table>
<thead>
<tr>
<th>Nominal Pipes Size</th>
<th>Width of 1st Colour Band</th>
<th>Width of 2nd Colour Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 NB and below</td>
<td>100 mm</td>
<td>25 mm</td>
</tr>
<tr>
<td>100 NB to 150 NB</td>
<td>200 mm</td>
<td>50 mm</td>
</tr>
<tr>
<td>200 NB to 300 NB</td>
<td>300 mm</td>
<td>75 mm</td>
</tr>
<tr>
<td>350 NB and above</td>
<td>400 mm</td>
<td>100 mm</td>
</tr>
</tbody>
</table>

For insulated pipes, nominal pipe size means the outside diameter of pipe with insulation.

1.3.3 On the 1st band a white arrow is to be put to indicate the direction of flow of the fluid.
1.3.4 The arrows should be put on the bottom of the pipelines, so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

1.3.5 The valves should be painted with the same colour as the ground colour.

1.4 The ground colours and the colours of the 1st and 2nd colour bands have been indicated on the enclosed list for the pipe lines carrying various types of fluids and gases. The list also indicates the shade nos. of the colours to be used. In case the exact shade is not available, the nearest possible shade in the same colour may be selected.

1.5 Only synthetic enamel paint should be used for the painting and band markings on the pipelines and it should be ensured that the finish should be glossy.

1.6 Where no colour bands have been recommended, only the ground colour is to be applied as per the above procedure. If only one colour band is recommended the width of the same should be as per the first band and applied on the ground colour. In case of 2 nos. colour bands, the 1st band and second band of width as per above table should be applied on the ground colour.

1.7 To avoid mixing of colours, it is recommended to apply the bands only after the ground colour paint is dry and subsequently to apply the arrow only after the 1st band paint is dry.

2.0 PAINTING OF EQUIPMENT & STRUCTURAL WORK

2.1 M.S. platforms/pipe supports/ Pipe bridges and any oth Structures Dark admiral grey shade No. 632 of BSI

2.2 Feed water tank, Water softening plant. Dark admiral grey shade no. 632 of BIS

Hot water set, vacuum heating set,
Water pumps, geared motor of
Tanks and vats, Gearbox and supports

Original colour

2.3 Coal handling equipment Black

2.4 HWG chimney and Generator exhaust Aluminum paint

2.5 Air Compressors Original colour

2.6 Weigh scales Original colour

2.7 HT & LT panels Original colour

2.8 LT distribution switchboards Original colour

COLOUR CODE FOR PIPELINES AS PER IS 2379-1963

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Services</th>
<th>Application</th>
<th>Ground Colour Shade No. as per BSI</th>
<th>First Band Colour Shade No. as per BSI</th>
<th>Second Band Colour Shade No. as per BSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HWG Feed Water</td>
<td>HWG feed water piping</td>
<td>Sea Green 217</td>
<td>French 166 Blue</td>
<td>Signal 537 Red</td>
</tr>
<tr>
<td>2</td>
<td>Drinking Water</td>
<td>Water lines for water coolers</td>
<td>Sea Green 217</td>
<td>French 166 Blue</td>
<td>Signal 537 Red</td>
</tr>
<tr>
<td>3</td>
<td>Treated Water</td>
<td>Soft water lines</td>
<td>Sea Green 217</td>
<td>Light 557 Orange</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cold Water</td>
<td>Chilled Water supply &amp; return lines</td>
<td>Sea Green 217</td>
<td>French 166 Blue</td>
<td>Canary 309 Yellow</td>
</tr>
<tr>
<td>5</td>
<td>Untreated</td>
<td>Raw water lines</td>
<td>Sea</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>Green 217</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>------------------------------</td>
<td>--------------------------</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Boiler Feed Water</td>
<td>Sea Green 217</td>
<td>Gulf - Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Condensate</td>
<td>Sea Green 217</td>
<td>Light 410 Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Compressed Air</td>
<td>All compressed pipelines</td>
<td>Sky Blue 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Instrument air</td>
<td>Sky Blue 101</td>
<td>French 166 Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Soft Water Equipment</td>
<td>All plant and</td>
<td>Sea Green 217</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Light 410 Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Signal 537 Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Steam</td>
<td>HP steam lines</td>
<td>Aluminum to IS 2339</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>French 166 Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LP steam lines</td>
<td>Aluminum to IS 2339</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Canary 309 Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Furnace Oil</td>
<td>Boiler &amp; Furnaces</td>
<td>Light 410 Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>French 166 Blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Diesel</td>
<td>Diesel generating set</td>
<td>Light 410 Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Light Diesel Oil</td>
<td>Hot Water Generator &amp;</td>
<td>Light 410 Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boiler</td>
<td>Brilliant 221 Green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Drainage</td>
<td>All drain lines from</td>
<td>Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Equipment building &amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OH water Tank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>