# GENERAL CONDITIONS OF CONTRACT

<table>
<thead>
<tr>
<th>Clause</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. DEFINITIONS AND INTERPRETATION</strong></td>
<td></td>
</tr>
<tr>
<td>Abbreviations</td>
<td>40</td>
</tr>
<tr>
<td>1) Definitions</td>
<td></td>
</tr>
<tr>
<td>2) Singular and Plural</td>
<td>40</td>
</tr>
<tr>
<td>3) Headings or Notes</td>
<td>41-42</td>
</tr>
<tr>
<td><strong>2. CONSULTANT &amp; CONSULTANTS REPRESENTATIVE</strong></td>
<td></td>
</tr>
<tr>
<td>Duties of Consultant</td>
<td>43</td>
</tr>
<tr>
<td><strong>3. ASSIGNMENT AND SUB-LETTING</strong></td>
<td>43</td>
</tr>
<tr>
<td>1) Assignment</td>
<td>43</td>
</tr>
<tr>
<td>2) Sub-Letting</td>
<td>43</td>
</tr>
<tr>
<td><strong>4. CONTRACT DOCUMENTS</strong></td>
<td>44</td>
</tr>
<tr>
<td>1) Language’s and Law</td>
<td>44</td>
</tr>
<tr>
<td>2) Priority of contract documents</td>
<td>44</td>
</tr>
<tr>
<td><strong>5. DRAWINGS</strong></td>
<td>44</td>
</tr>
<tr>
<td>1) Custody of Drawings</td>
<td>44</td>
</tr>
<tr>
<td>2) Drawings to be kept on site</td>
<td>45</td>
</tr>
<tr>
<td>3) Further drawings &amp; instructions</td>
<td>45</td>
</tr>
<tr>
<td>4) Disruption / Delay in Progress</td>
<td>45</td>
</tr>
<tr>
<td><strong>6. GENERAL OBLIGATIONS</strong></td>
<td>45</td>
</tr>
<tr>
<td>1) Contractor’s General Responsibilities</td>
<td>45</td>
</tr>
<tr>
<td>2) Site operations and methods of constructions.</td>
<td>45</td>
</tr>
<tr>
<td>3) Contract Agreement</td>
<td>45</td>
</tr>
<tr>
<td>4) Performance Guarantee / Bond</td>
<td>46</td>
</tr>
<tr>
<td>5) Inspection of Site</td>
<td>47</td>
</tr>
<tr>
<td>6) Sufficiency of Tender</td>
<td>47</td>
</tr>
<tr>
<td>7) Possession of site, Additional works, /Taking over/prohibition of photography etc.</td>
<td>47</td>
</tr>
<tr>
<td>8) Work to be to the Satisfaction of EIC / Employer/ Consultant</td>
<td>47</td>
</tr>
<tr>
<td>9) Programme, Method Statement, Manuals to be furnished</td>
<td>47</td>
</tr>
<tr>
<td>10) Revised programme</td>
<td>48</td>
</tr>
<tr>
<td>11) Contractor’s Superintendence</td>
<td>48</td>
</tr>
<tr>
<td>12) Contractor’s Employees</td>
<td>48</td>
</tr>
<tr>
<td>13) Secrecy</td>
<td>48</td>
</tr>
<tr>
<td>14) Passing of works &amp; site orders</td>
<td>49</td>
</tr>
<tr>
<td>15) Setting-out</td>
<td>49</td>
</tr>
<tr>
<td>16) Boreholes, exploratory excavation , core cutting etc, 49</td>
<td></td>
</tr>
<tr>
<td>17) Safety Security and protection of environment, 49</td>
<td></td>
</tr>
<tr>
<td>18) Care of Works</td>
<td>49</td>
</tr>
<tr>
<td>19) Blank</td>
<td></td>
</tr>
</tbody>
</table>
7. INSURANCE, INDEMNITY ETC.

1) Insurance of Works, etc.
2) Damage to persons and Property
3) Third Party Insurance
4) Minimum Amount of Third Party Insurance
5) Provisions to indemnify Employer
6) Accident or Injury to Workmen
7) Insurance against Accident, etc. to Workmen
8) Remedy on Contractor’s Failure to Insure
9) Submission of Policies & certificates

8. MISCELLANEOUS ITEMS.

1) Fossils, antiquities etc.
2) Patent Rights and Royalties
3) Interference with Traffic and adjoining properties
4) Selection of route.
5) Transportation & damages to highway
6) Waterborne Traffic
7) Opportunities for other Contractors
8) Contractor to keep site clear
9) Clearance of site on Completion

9. LABOUR

1) Engagement of labour
2) Supply of Water
3) Alcoholic Liquor or Drugs
4) Arms and Ammunition
5) Festivals and Religious Customs
6) Epidemics
7) Disorderly Conduct, etc.
8) Observance by Sub-Contractors
9) Labour law & provisions
10) Return of labour etc.
11) Labour laws

10. MATERIALS, PLANT AND WORKMANSHIP

1) Quality of Materials and Workmanship and Tests
2) Cost of Samples
3) Cost of Test
4) Cost of Tests not provided for, etc.
5) Inspection of Operations
6) Examination of Work before covering up
7) Uncovering and Making openings
8) Removal of Improper Work and Materials
9) Default of Contractor in Compliance
10) Laboratory for testing of materials
11) Batching plant
11. COMMENCEMENT, DELAYS AND SUSPENSION

1) Suspension of Work
2) Suspension of lasting more than 90 days
3) Commencement of Works
4) Possession of Site
5) Right of way and facilities.
6) Time of Completion
7) Extension of Time for Completion
8) No Night or Sunday Work
9) Rate of Progress
10) Liquidated Damages for Delay
11) Certification of Completion of Works
12) Certification of Completion by stages

12. DEFECTS LIABILITY

1) Definition of Defects Liability Period
2) Execution of Work of Repair, etc.
3) Cost of Execution of Work of Repair, etc.
4) Remedy on Contractor’s Failure to carry out Work Required
5) Contractor to Search
6) Periodical survey report on defect and recoveries on non-compliance

13 A. ALTERATIONS, ADDITIONS AND OMISSIONS

14. PROCEDURE OF CLAIMS

13. B DEVIATIONS

1) Deviations
2) Orders for Variations.
3) Valuation of Variations

14. PROCEDURE OF CLAIMS

1) Notice of claims
2) Approval of claims

15. PLANT, TEMPORARY WORKS AND MATERIALS

1) Plant, etc., Exclusive use for the works
2) Removal of Plant, etc.
3) Employer not liable for damage to Plant, etc.
4) Approval of Materials, etc., not implied

16. VALUATION OF PAYMENT

1) Quantities
  1.a – Submission of measurements
  2.a – Certification of measurements
  3.a & 3.b – Computerized billing
  4) Payment of material advance

17. ENTRUSTING SPECIAISED WORKS TO OTHER AGENCIES

SIGNATURE OF TENDERER WITH SEAL
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex)

1) Seeking permission to entrust specialized agencies 66
2) Submission of credentials 66
3) Approval by EIC 66
4) 6
5) Undertaking by the contractor and indemnity from the specialized agency 66

18. CERTIFICATES AND PAYMENT

1) Certificates and Payment 66
2) Advances on constructional plant & materials 67
3) Approval only by Certificate of Final Completion 67
4) Certificate of Final Completion 67
5) Cessation of Employer’s Liability 67
6) Unfulfilled Obligations 67

19. REMEDIES AND POWERS

1) Default of Contractor 67
2) Valuation on Date of Forfeiture 68
3) Payment after Forfeiture 68
4) Urgent Repairs 68

20. REMEDIES AND POWERS

1) Default of Contractor 67
2) Valuation on Date of Forfeiture 68
3) Payment after Forfeiture 68
4) Urgent Repairs 68
5) Cessation of Employer’s Liability 67

21. Blank 69

22. SETTLEMENT OF DISPUTES

1) Expected Matters 69
2) Settlement of Disputes and Arbitration 69

23. NOTICES

1) Service of Notices on Contractor 70
2) Service of Notices on Employer or EIC 70
3) Change of Address 70

24. CHANGES IN COSTS

1) Increase or Decrease of Costs 70

25. REVIEW MEETINGS

26. CANCELLATION OF CONTRACT

1) Cancellation of contract on corrupt practices 70
2) Cancellation of contract for insolvency assignment, transfer, or subletting of contract 71
3) Cancellation of contract for default of contractor 71
4) Special powers of cancellation of contract /foreclosure 72
5) Recording of final measurement after cancellation of works 72

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
INTERPRETATIONS

ASTM – American Society for testing and materials material code
A/C – Air conditioning
AWS – American welding society
AHU – Air handling unit BOQ – Bill of quantities C/C – Center
to Center CD/DVD – Compact disc / Digital video disc

DG U/S EOT crane – Double girder underslung electric overhead traveling crane DL – Dead load

DFT – Dry film thickness EIC – Engineer-in-charge FFL – Finished floor level IS –

Indian standards, presently Bureau of Indian standards (BIS)

LL – Live load
Mt. – Meter

MT - Metric tonne
PEB – Pre-Engineered Buildings
RCC – Reinforced Cement concrete

SG U/S EOT crane – Single girder underslung electric overhead traveling crane SL – Seismic load

TCT – Total coat thickness

UPVC pipe – Un-plastisized poly vinyl chloride

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
1. Definitions and Interpretations

1) In the Contract, as hereinafter defined, the following words and expressions shall have the meanings hereby assigned to them, except where the context otherwise requires:

   a) "Employer" or “Owner” means M/S HINDUSTAN AERONAUTICS LTD., AIRCRAFT DIVISION, NASIK, who will employ the Contractor and the legal successors in title to the Employer, but not, except with the consent of the contractor, any assignee of the Employer.

   b) HINDUSTAN AERONAUTICS LIMITED, AIRCRAFT DIVISION, NASIK, hereinafter referred to as “HAL” shall means the Board of Directors, General Manager or other Administration Officers of the said company. The Chief Manager (Works & Services), Sr. Manager (Works & Services) are authorized to invite tenders and enter into contract for works on behalf of the company.

   c) "Contractor" means the persons, firm or company whose tender has been accepted by the Employer & includes the Contractor's personal, representative’s successors and permitted assigns.

   d) Consultant means M/s SEMAC Limited, Conjeevaram House, 2nd Floor, 6-1 - 276, Padmaram Nagar, Secunderabad, 500 025 (India), its permitted assigns or its successors who shall act through it’s accredited representatives as the Agents of the Employer for the Contract.

   e) “THE ENGINEER IN CHARGE” (EIC) means the Officer deputed by the Senior / Chief Manager (Works) to supervise the work or part of the work.

   f) "Engineer In Charge’s Representative" means any engineer or assistant of the EIC or any person appointed from time to time by the EIC to perform the duties set forth in the tender document on behalf of the Engineer In Charge.

   g) "Consultant's Representative" means any Project Manager, resident engineer or assistant of the Engineer or any clerk of works appointed from time to time by the Consultant to perform the duties set forth in the tender whose authority shall be notified in writing to the Employer by the "Consultant.

   h) The 'Work' or 'Works' means the work described in the Tender Documents, Drawings and Specifications as may be issued from time to time to the Contractor by the Engineer In Charge, Consultants or the Engineer, including all modifications, extra and additional works and obligations to be carried out either on site or at any factory, or workshop or any other place for subsequent incorporation, as required for performance of the Contract.

   i) "Contract” means the contract between the Employer and the Contractor to execute, complete and maintain the work / works and shall consist of Tender Notice, Form of Tender, Appendices to Form of Tender, other Appendices / Annexures / Formats of Bank Guarantee etc. as included in the Tender Document, General Conditions of Contract, Special Conditions, Specifications, Drawings, priced Bill of Quantities / Schedule of Rates, “Common set of Deviations” / Addendum / Corrigendum etc. as issued by the Employer before or after Pre-bid meeting but before last date of submission of tender, Contract Data and any other document as may be listed in the Tender as part of the contract, Letter of Intent / Acceptance, Contract Agreement between the Employer and the Contractor and Works order.
j) "PROVISIONAL SUM" means a lump sum included by HAL in the tender documents and represents the estimated value of the work for which details are not available at the time of inviting the tender.

k) "Contract Sum" means the sum named in the letter of Intent / Acceptance subject to such additions thereto or deductions there from as may be made under the provisions of the Contract during execution.

l) The “FINAL SUM” means the actual amount payable under the contract by HAL to the contractor for the entire execution on full completion of the work.

m) "Constructional Plant” means all appliances or things of whatsoever nature required for the execution or maintenance of the Works but does not include consumable materials or other things intended to form or forming part of the Works.

n) "Specifications" means the specification included and referred to in the Tender and any modification thereof or addition thereto as may from time to time be furnished or approved in writing by the Engineer In Charge.

o) "Drawings" means the drawings referred to in the specification and any modification of such drawings approved in writing by the Consultant and Engineer In Charge and such other drawings as may, from time to time, be furnished and approved in writing by the Engineer In Charge and Consultant.

p) "Site' means the land and/or other places on, in, into, under or through which the Work/(s) are to be executed under the contract or any adjacent or any nearby land, path or street which may be allotted or used for the purpose of carrying out the Contract.

q) "Approved" means approved in writing, including subsequent written confirmation of previous verbal approval and "approval" means approval in writing, including as aforesaid.

r) "I.S." means `Indian Standards' issued by the Bureau of Indian Standards.


t) A “Week” means seven days without regard to the number of hours worked or not worked in any day in that week.

u) A “Day” means a day of 24 hours irrespective of number of hours worked or not worked in that day.

v) A “WORKING DAY” means a day other than prescribed by the Negotiable Instruments Act as being holiday and consists of the number of hours of labour as commonly recognized by good employers in the trade in the Nashik District where the work is carried out or as laid down in the HAL Regulations.

w) “DEVIATION ORDER” means an order given by the Manager (Works) or Sr. Manager (Works & Services) or Chief Manager (Works & Services) or Engineer-in-charge which become necessary to effect an alteration, addition or deduction or deletion, which does not radically affect the scope of nature of the contract.
v) “EMERGENCY WORKS” means any urgent measures, which in the opinion of the Engineer-in-charge become necessary during the progress of the work to obviate any risk or accident or for security.

w) “ACCEPTING OFFICER” means the Chairman, HAL or any other officer nominated by him.

x) ENGINEER-IN-CHARGE” or “MANAGER (WORKS), or “SENIOR MANAGER (WORKS AND SERVICES)” or “CHIEF MANAGER (WORKS & SERVICES)” means the Engineer-in-charge, Manager (Works), Sr. Manager (Works & Services) or Chief Manager (Works & Services) of HAL Aircraft Division, Nasik.


z) The “APPROVAL” and “DIRECTED” means the approval or direction of the Engineer in Charge / Employer.

a) The “DATE” of completion is the date or dates for completion of the whole or any part of the work as set out in or ascertained in accordance with the individual work order or any subsequent agreed amendments thereto.

2) Words imparting the singular only also include the plural and vice versa where the context requires. Male also means Female or neuter and the other way around where context so requires.

3) The headings and marginal notes in these Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the Contract.

2. CONSULTANT AND CONSULTANT’S REPRESENTATIVE

1) The Consultant and his representative shall carry out such duties as are specified in the Contract like giving instructions regarding execution of entire work as per Engineering standards, issue of working drawings, providing clarifications on the drawings and specifications, quality control measures, guidance on all technical matters, scrutiny of claims, suggestion of modifications/changes as per the requirement of owner, all documentation works whatsoever required and connected with the execution of the subject work.

The consultant shall have no authority to relieve the Contractor of any of his obligations under the Contract.

3. ASSIGNMENT AND SUB-LETTING

1) The contractor shall not, assign or transfer the contract or any part thereof or any share, or interest therein to any other persons without the prior written approval of the employer.

No sum of money which may become payable under the contract shall be payable to any person other than the contractor.
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex) circumstance.

The contractor shall carry out the work directly by themselves and shall not sub-let any part of the Work/(s) without the prior written consent of the Employer 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 and neglects of any sub-contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents, servants or workmen. Sub letting of the contract will be allowed only for specialized items at the discretion of HAL. The contractor shall co-ordinate and shall be responsible for all aspects of his sub-contractor(s), without being relieved of any of his obligation under the contract.

4. CONTRACT DOCUMENTS

1) (a) The ruling language for the contract and related aspects shall be English. Language’s and Law

The contract shall be Governed by and construed in accordance with the law of India and no suit or other proceeding relating to the Contract shall be filed or taken by the Contractor in any Court of Law which shall not have exclusive jurisdiction to hear and determine all actions and proceeding in connection with and arising out of the Contract, and the Contractor shall not submit to the jurisdiction of the aforesaid Court of Law for the purpose of any such action and proceedings.

2) The several documents forming the Contract are to be taken as mutually Priority of Contract explanatory of one another, but in case of ambiguity or discrepancy same shall be explained and adjusted by the Consultants who shall there upon issue to the contractor instructions thereon through the Consultant’s representative. In such event, unless other wise provided in the contract, the priority of documents for execution of works shall be as follows:

- Description of items of work given in Bill of Quantities.
- Drawing
- Detailed Technical specifications.

5. DRAWINGS

1) The Drawings shall remain in the sole custody of the Engineer In Charge, but two copies thereof shall be provided to the Contractor free of charge. The contractor shall not use the said drawings for any purpose other than execution of the work till completion of the work in all respect.

2) One copy of the Drawings, furnished to the Contractor as aforesaid, shall be One copy of Drawings to be available for inspection and use by the Engineer In Charge, his Site representative and the consultant or consultant’s representative and by any other person authorised by the Engineer In Charge in writing. The drawing shall be protected, preserved and safely kept at site office.

3) The Engineer In Charge or his representative and the Consultants shall have Further Drawings and the means to supply the necessary drawings and instructions the progress of the Works, such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the Works. The Contractor shall carry out the work according to the drawings and instructions issued by the Engineer In Charge and Consultant from time to time and the contractor is bound by the same.
4) The Contractor shall give written notice to the Consultant and Engineer In Disruption Charge whenever the planning or progress of the Works is likely to be delayed or / Delay of Progress disrupted unless any further drawing or order, including a direction, instruction or approval, is issued by the Engineer In Charge or consultant within a reasonable time. The notices shall include details of the drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

6. GENERAL OBLIGATIONS

1) The Contractor shall, subject to the provisions of the Contract, and with due care Contractor’s General and diligence, execute, complete and maintain the Works and provide all labour, including the supervision thereof, materials, Constructional Plant and all other Responsibilities things, whether of temporary or permanent nature, required in and for such execution, and maintenance, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

2) The Contractor shall take full responsibility for the adequacy, stability and safety Site operations and methods of all site operations and methods of construction. Provided that the Contractor shall not be responsible, except as may be expressly provided in the Contract, for the design or specification of the Permanent Works, or for the design or construction specification of any Temporary Works prepared by the Consultant. If the works contract expressly provides that any of the Permanent works shall be designed by the Contractor, he shall be fully responsible for such works, notwithstanding any approval given by the Consultant.

The contractor shall promptly inform the Consultant of any error, omission, fault and other defects in design, drawing or specifications for the Works which are discovered while reviewing the contract documents or in the process of execution of Works.

3) The Contractor shall, when called upon to do so, enter into and execute a Contract Contract Agreement; to be prepared and completed in the form annexed with the Agreement Tender document and with modification as may be necessary by the Employer.

4) If, for the due performance of the Contract, the Tender shall contain an Performance undertaking that the Contractor to obtain, when required, a bond or a guarantee of Guarantee / a scheduled and/or nationalized bank to be bound with the Contractor to the Bond Employer in a sum not exceeding that stated in the clause 24 of Instructions to Tenderers and agreed to as per the Letter of Acceptance or Letter of Intent / Work Order for such bond or guarantee, the said bank and the terms of the said bond or guarantee shall be such, as approved by the Employer. Obtaining of such bond or guarantee or the provision of such sureties and the cost of the bond or guarantee to be so entered into, shall be borne in all respects by the Contractor. Performance Guarantee shall be valid upto the completion of works (including time for extension if granted) plus three months. During defects liability period 50 % of the Security Deposit i.e. Retention money shall be retained till the Defect liability period is over.
5) The Contractor shall be deemed to have inspected and examined the Site and its surrounding and information available in connection therewith including the prevailing security environment and incumbent requirements of the employer and to have satisfied himself, before submitting his Tender, as to the form and nature thereof, including the subsurface conditions, the hydrological and climatic conditions, the extent and nature of the work, accommodation & facilities he may require and, in general, shall be deemed to have obtained all necessary information as mentioned above, as to risks, contingencies and all other circumstances which may influence or affect his Tender.

The Contractor is further deemed to have taken particular notice of approaches and way leaves etc. connecting the site. The Employer does not undertake to improve the same any further & the Contractor will have to improve the same or make new approaches and way leaves, at his own cost, if the existing approaches & way leaves are considered inadequate and unsuitable by the Contractor. Use of such new or improved approaches and way leaves shall be afforded to the Employer, the Engineer, the Consultants and any other concerned person, without any restrictions or compensation.

6) The Contractor shall be deemed to have satisfied himself before tendering as to the prevailing site conditions, the correctness and sufficiency of his Tender for the Works and of the rates and prices stated in the priced Bill of Quantities and the Schedule of Rates and Prices, if any, which Tender rates and prices shall, exception, so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and maintenance of the Works, risks, contingencies and all other circumstances which may influence or affect his Tender. No claim in this regard shall be entertained at any point of time.

7) Contractor shall not enter or take possession of the site (other than for inspection purposes) unless permitted to do so by the Engineer In Charge. Contractor may provide temporary access to the site if necessary or required, at his cost. After completion of the work or after determination of the contract for whatsoever reasons it may be, the contractor shall remove and clear away the access route restoring the area to its original conditions as directed by the Engineer In Charge failing which the Employer shall clear the temporary access and the expenses incurred by Employer shall be borne by the contractor. Also Employer shall not be responsible nor is liable to account for any materials / property of the contractor in such an event. Employer shall have right to order execution of other works (whether or not Additional connected with the work in the contract) on the site contemporaneously with the execution of the original work and the contractor shall give reasonable facilities for this purpose and execute those items. Employer reserves the right of taking over at any time any portion of site, which Taking over it may required and the contractor shall at his own expense clear such portion forthwith.

No photographs, diagram etc. of the site or of the work or any part of thereof shall be taken, published or otherwise circulated without the prior written approval of the Employer. Employer’s officials connected with the contract will have the right of entry to the site at all times. The Employer shall have the power to exclude from the site any person whose admission or presence thereto may lead to threat, in his opinion, be undesirable for any reasons whatsoever

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex)

VOLUME I. CONTRACT CONDITIONS FOR TENDER NO.NK/FW/CAP-ROH-577/2010-11

8) The Contractor shall execute and maintain the Works in strict accordance with the Contract, to the entire satisfaction of the Employer and shall comply with and adhere strictly to the consultant’s and Engineer In Charges instructions and directions, or any matter whether mentioned in the contract or not, touching or concerning the works. Instructions and directions given by the consultant or the Engineer in Charge, if any, will be acted upon, on the same forwarded to the Contractor, in writing by the Engineer in Charge

9) Within 15 days of award of the Contract, Contractor shall, submit to the Engineer for his approval, the following:
   - Organization chart detailing the responsibilities of individuals at site.
   - “CPM / PERT” chart showing all activities, their interdependence and resource allocation.
   - Construction and Execution, commissioning Procedure, inspection, test plans with various formats for the works to be executed.
   - Quality Control Manual & Quality plan.
   - Safety and Environment management procedures.
   - Warehousing procedures.

10) The Contractor shall whenever required by the consultant and Engineer in Charge, submit a revised programme showing the modifications to the approved programme necessary to ensure completion of the Works within the time for completion as defined in contract conditions. The Contractor may have to revise the programme depending upon the requirements of the Employer. It must be clearly understood that the Contractor may have to induct additional resources contingent to the requirement of the Employer so as to enable the Employer to meet his target of commissioning the project. Nothing extra shall be paid to the Contractor on account of such contingencies.

If at any time the Engineer in Charge and the consultants observe that the actual progress of the works does not conform to the approved programme referred to above, the Contractor shall produce, a further revised programme showing modifications to the approved programme (including additional resource allocation schedule) necessary to ensure completion of the works within the time for completion.

The submission of revised programmes as detailed above shall neither relieve the Contractor of any of his duties or responsibilities under the Contract, nor entitle the Contractor to any enhancement of the Contract Sum on this account.

11) The Contractor shall give or provide all necessary superintendence during the execution of the Works that may be considered necessary for due fulfillment of the Contractor's obligations under the Contract. The Contractor or a competent and authorized representative approved by the consultant and Engineer In Charge is to be constantly on the Works and shall give his whole time to the superintendence of the same. If such approval is withdrawn owing to whatsoever reasons, and after receiving written notices of such withdrawal, the Contractor shall remove the representative from the Works and shall not thereafter employ him again on the Works in any capacity and shall replace him by another representative approved by the Engineer in Charge, as soon as is practicable. Such authorized representative shall receive, direction, and instructions from the consultant and Engineer In Charge on behalf of the Contractor.
12) The Contractor shall provide and employ:
   a) Sufficient & qualified technical staff on Site in connection with the
      execution and maintenance of the Works and
   b) Only such technical assistants who are skilled and experienced in their
      respective fields, foremen and leading hands who are competent to give
      proper supervision to the work and they are required to supervise, and
   c) Such skilled, semiskilled and unskilled labour as necessary for proper and
      timely execution and maintenance of the works.

   The Engineer In Charge shall be at liberty to object to and ask the Contractor to
   remove forthwith from the Works any person employed by the Contractor in or
   about the execution or maintenance of the Works who, in the opinion of the
   Engineer in Charge, misconducts himself, or is incompetent or negligent in the
   proper performance of his duties, or whose employment is otherwise considered
   by the Engineer in Charge to be undesirable and such person shall not be again
   employed upon the Works without the written permission of the Engineer In
   Charge. Any person so removed from the Works shall be replaced as soon as
   possible by a competent substitute approved by the Engineer In Charge.

13) As the works are being executed in a sensitive and restricted defence services
   layout, the contractor shall thoroughly screen the work force to be deployed and
   check their antecedents, if required through police verification before deploying
   them at site. Every effort shall be taken by the contractor that persons having
   bonafide character only is employed in connection with the above work and the
   contractor shall be responsible to vouch for the character of the persons
   employed by them in connection with the subject contract.

   The Contractor, shall take all steps necessary to ensure that the persons employed
   on any work in connection with the contract have noticed that the Indian Official
   Secrets Act 1923 (XIX 1923) applies to them and will continue to apply even after
   the execution of such works under the contract.

14) The work shall be executed in a workman like manner and to the satisfaction, in
    all respects to the Consultant and Engineer In Charge. The contractor is entitled
    for payment of any work or items of works executed by him only after passing
    the said executed works by the consultant and Engineer-in-charge and upon
    entering the measurements of such passed work in the measurement book and
    accepted by the contractor. The consultant/ Engineer-in-charge will
    communicate or confirm his instructions to the contractor in respect of the
    execution of the work in a site order book maintained at his office and the
    contractor shall visit his office daily and shall confirm receipt of such
    instructions by signing the relevant entries in the said book. Such entries will
    rank as orders or notices in writing within the intent and meaning of those
    conditions. Failure or refusal to sign the said book does not absolve the
    contractor of his responsibilities to give effect to any orders noted therein.
    Signature made on subsequent pages of the site order book or any of the registers
    maintained in connection with the contract shall be considered that he has in
    full knowledge of all the entries made till that place and deemed to have accepted
    the content therein.

15) The Contractor shall be responsible for the true and proper setting-out of the
    Works in relation to original points, lines and levels or reference given by the
    consultant or EIC in writing and for the correctness, subject as above mentioned,
    of the position, levels, dimensions and alignment of all parts of works and for the
    provision of all necessary instruments, appliances and labour in connection
    therewith. If, at any time during the progress of the works, any error appears or
arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do by the Engineer in Charge, shall at his own cost, rectify such error(s) to the satisfaction of the Consultant or the Engineer In Charge. The checking of any setting out or of any line or level by the consultant or EIC shall not in any way relieve the Contractor of his responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all bench marks, sight-rails, pegs and other markings, points, things used in setting-out the Works. Any rectification works required to be done by the Contractor shall be at the Contractor's own cost.

16) If, at any time during the execution of the Works, the consultant or EIC require the Contractor to make boreholes to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an addition ordered under the provisions, unless a provisional sum in respect of such anticipated work shall have been included in the Bill of Quantities. Core cutting of concrete pavement is required to be performed to ascertain the strength of the concrete minimum to the extent specified in the BOQ and no additional payment will be admissible for the same. The contractor shall perform this action at any point of time till expiry of defect liability period.

17) The Contractor shall in connection with the Works shall provide and maintain at his own cost all lights, guards, fencing and watching when and wherever necessary or required and also as directed by the Consultant or EIC, or by any duly constituted authority, for the execution and for the protection of the Works/environment, and/or for the safety and convenience of the public or others. The contractor shall have full regard for the safety of all persons entitled to be on the site and keep the site, which is under his control and the works, which are not completed and taken over by the Employer in an orderly state appropriate to avoidance of any danger to such persons.

18) From the commencement of the Works, until the date stated in the Certificate of Completion for the whole of the Works pursuant to Clause 11-sub clause 12 hereof, the Contractor shall take full responsibility for the care thereof. If the Engineer In Charge issue a Certificate of Completion in respect of any part of the Works, the Contractor shall cease to be liable for the care of that part of works from the date stated in the Certificate of Completion in respect of that part and the responsibility for the care of that part shall pass to the Employer.

19) Blank

20) The contractor shall, within 15 days after the date of the Letter of Acceptance, provide to the Engineer In Charge for his information, a detailed cash flow estimate, in quarterly period, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates, if required. The submission to and consent by the Engineer In Charge of such flow estimates shall not relieve the contractor of any of his duties or responsibilities under the contract.

21) The Contractor shall give all notices and to pay all fees required to be given or paid by any National or State Statute, ordinance, or other Law, or any regulation, or bye law or any local or other duly constituted authority in relation to the execution of the Works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works during the currency of contract or after completion of the work.
22) The Contractor shall conform in all respects with the provisions of any such statute, ordinance or Law as aforesaid and the regulations or bye laws of any local or other duly constituted authority which may be applicable to the Works and with such rules and regulation of public bodies and companies as aforesaid and shall keep the Employer indemnified against all penalties and liability of every kind for breach of any such Statute, Ordinance or Law, regulation or bye-law during the currency of contract or after completion of the work.

7. INSURANCE, INDEMNITY ETC.

1) Without limiting his obligations and responsibilities under Clause 6 sub clause 17 above, the Contractor shall insure in the joint names of the Employer and Contractor against all loss or damage from whatever cause arising, for which he is responsible under the terms of the Contract and in such a manner that the Employer and Contractor are covered for the period till completion of the work in all respect, for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations in execution of the work in all respect:-

a) The Works executed or being executed to the estimated contract value thereof plus 10% (to allow for any additional costs resulting from the loss or damage) which includes the value of materials required for incorporation in the work.

Such insurance shall be affected with an insurer and in terms approved by the Employer, and the Contractor shall submit the insurance policy or policies along with receipts for payment of premiums to the Engineer in Charge and the contractor shall keep the policy current and effective till completion of the work in all respect.

Alterations to the terms of insurance shall not be made without the approval of the Engineer In Charge.

Both the parties shall comply with all conditions of the insurance policies as may be applicable to the parties.

2) The Contractor shall, except if and so far as the Contract provides otherwise, indemnify the Employer against all losses and claims in respect of injuries or damage to any person or material or physical damage to any property whatsoever which may arise out of or in consequence to the execution of the Works and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

3) Before commencing the execution of the Works the Contractor, but without limiting his obligations and responsibilities under sub clause 2 of this Clause, shall insure against his liability for any material or physical damage, loss or injury which may occur to any property, including that of the Employer, or to any person, including any employee of the Employer and of the Consultant, by or arising out of the execution of the Works or in the carrying out of the Contract.

4) Such insurance shall be made with an insurer and in terms approved by the Employer, and for the amount stated in the contract data of tender. The Contractor shall, whenever required, submit to the Employer, the policy or policies of insurance and the receipts for payment of the premiums. The contractor shall keep the policy current and effective till completion of the work.
5) The terms shall include a provision whereby, in the event of any claim in respect of which the Contractor would be entitled to receive and be indemnified under the policy being brought or made against the Employer, the insurer will indemnify the Employer against such claims and any cost, charges and expenses in respect thereof.

6) The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Contractor, save and except an accident or injury resulting from any act or default of the Employer, his agents, or servants. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

7) The Contractor shall insure against such liability of the nature referred to in sub clause 6 of this Clause with an insurer approved by the Employer, and shall continue such insurance during the whole of the time that any persons are employed by him on the Works and shall when required, produce to the Employer, such policy of insurance and the receipt for payment of the current premiums. Provided always that, in respect of any persons employed by any sub-contractor (if approved by HAL) the Contractor's obligation to insure as aforesaid under this sub-clause shall be satisfied if that sub-contractor shall have insured against the liability in respect of such persons in such a manner that the Employer is indemnified under the policy, but the Contractor shall require such sub-contractor to produce to the Employer, such policy of insurance and the receipt for the payment of the current premium. The contractor shall keep the policy current and effective till completion of the work.

The insurances shall be generally covered but not limited to the following:

1. Workmen’s Compensation policy at the work site.

2. Personal Accident Policy for Supervisors, Engineers, and other employees who are not workers, working at site. This policy should also cover all liability at common Law and under the amendments thereof.

3. Third party insurance as detailed at contract data.

4. Contractor’s All Risk Insurance, insuring Employers, Contractor and its sub-contractors (if approved by HAL) against physical loss and damage to the materials, equipment, apparatus and machinery and all work to be performed. The insurance coverage shall be of the amount equivalent to contract-sum plus 10% of contract price including fully insuring properties and works.

The contractor shall keep all the policies current and effective till completion of the work handing over to employer

Each of the above policies shall cover Employer and Contractor as their interest may appear and all policies of insurance affecting the Works shall provide that there shall be no subrogation as against consultant and Employer.
8) If the Contractor fail to effect and keep in force the insurances referred to in this Clause above, or any other insurance which he is required to effect under the terms of the Contract, and statutory provisions, then and in any such case the Employer may effect and keep in force any such insurance and pay such premiums as may be necessary for that purpose and from time to time deduct the amount so paid and any other expenses incurred by the employer as aforesaid from any monies due or which may become due to the Contractor, or recover the same as a debt due from the Contractor. The Contractor shall however, be fully responsible for any consequence arising out of his failure to effect and keep in force the insurances irrespective of whether the Employer effects the insurance as above or not.

9) Policies and certificates of insurance shall be delivered by the Contractor to the Engineer in Charge before commencing the execution of works commencing the insurance coverage from the date of commencement of the work or otherwise specified. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

8. MISCELLANEOUS ITEMS.

1) All gold, silver, oil and other minerals of any description and all precious stones, coins, treasures, relics, antiquities and other similar items, all fossils, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall as between the Employer and the Contractor be deemed to be the absolute property of the Employer. The Contractor shall not take any such article or thing and shall immediately upon discovery thereof and, before removal, acquaint the Engineer in Charge of such discovery and carry out his orders as to the disposal of the same. Whole of the excavated materials shall be the property of the Owner and shall be used or disposed off only as directed by the consultant and the Engineer in Charge in accordance with the related provisions in the Contract.

2) The Contractor shall save harmless and indemnify the Employer from and keep the Employer indemnified against all claims and proceedings for or account of infringement or any patent rights, design trademark or name or other protected rights in respect of any Constructional Plant, machine, work, or material used for or in connection with the Works or any of them and from and against all claims, proceedings, damages, cost charges and expenses whatsoever in respect thereof or in relation thereto Except where otherwise specified, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials whatsoever required for execution of the Work.

It shall be the responsibility of the contractor to pay all royalties whatsoever whether / arising out of the deeds and actions on the part of the contractor either on HAL’s property or otherwise to the authorities concerned. In case HAL is required to pay such royalties due to failure on the part of the contractor in paying the same, HAL shall recover the same from the contractor in a manner as deemed fit by it.

3) All operations necessary for the execution of the Works shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the public Convenience, or the access to use and occupation of public or private roads and foot paths or to or of properties whether in the possession of the Employer or of any other person. The Contractor shall save harmless and indemnify the Employer in respect of all claims, proceedings damages, cost, charges and expenses whatsoever arising out of, or in relation to any such matter in
so far as the Contractor is responsible therefore.

4) The Contractor shall use every reasonable means to prevent any of the routes communicating with or on the routes to the Site from being damaged by any traffic of the Contractor or any of his sub-contractors (if approved by HAL) and in particular, shall select routes, choose and use any such extraordinary traffic as will inevitably arise from moving of plant and material from and to the Site shall be limited, as far as reasonably possible, and so that no unnecessary damage or injury may be occasioned to such routes.

5) In case any damages are caused to pathway/road/highway or bridges consequent to unsafe and unusual method of transportation to move Constructional Plant, machinery or pre-constructed units or any other material required for the execution of the work and is reported by the appropriate authority, the contractor shall make good the damages as per the requirement of respective authorities or pay the charges or penalties imposed by them. In case the contractor fails to do so and on advice of the respective authorities HAL will deduct such charges or penalties from the contractors bill and paid to the respective govt. bodies.

6) Where the nature of the Works is such as to require the use by the Contractor of waterborne transport, the foregoing provisions of this clause shall be construed as though "Road / highway" including a dock, sea wall or other structure related to a water way and "vehicle" included craft, ferry or any transport related to water borne traffic and shall have to effect accordingly.

7) The Contractor shall, in accordance with the requirements of the Engineer In Charge, afford all reasonable opportunities for carrying out their work to:

a) Any other contractor(s) or agencies employed by the Employer and their workmen

b) The workmen of the Employer and of any other duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the Works. The Contractor will not be paid any compensation on this account.

8) During the progress of the Works the Contractor shall keep the Site reasonably free from unnecessary stores or dispose off any Constructional Plant not in use and surplus material and clear away and remove from the Site any wreckage, rubbish or Temporary Works no longer required. The contractor shall ensure that none of the materials of the contractor or excavated materials or plant shall be stacked / placed on or in such vicinity of existing Roads, Pavement, access to buildings/hangars, runway or taxiway that it will affect the movement vehicles, aircrafts or aircraft parts or damage any assets of the Employer.

9) On the completion of the works or from time to time as may be directed during execution of works, the Contractor shall clear away and remove from the site, all constructional plant, surplus materials, rubbish and Temporary Works of every kind, and leave the whole of the Site and Works clean and in a workmanlike condition to the satisfaction of the consultant and Engineer In Charge. However during execution, the plant and equipment brought by the Contractor cannot be withdrawn / taken away from the site without the permission of the Engineer In Charge. In the event of completion of the work part by part or building/hangar wise, such area of the work or buildings completed shall be cleared off all debris and surplus materials and give peaceful vacant possession to Employer for use.

9. LABOUR

1) The Contractor shall make his own arrangements for the engagement of all labour and workmen, local or otherwise, and save, in so far as the Contract
The Contractor shall strictly comply with all the labour laws, regulations, etc. in force and applicable to the labour employed by him or his sub-contractors (if approved by HAL) including those working on labour-rate basis on the Works. The contractor shall obtain the labour licence and maintain all records and documents in compliance to various provisions of labour laws.

2) The Contractor shall provide potable drinking water for the use of the Contractor's staff and workers. The contractor shall provide water both for domestic and works purpose.

3) The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders, for the time being in force, consume, import, sell, give, barter or dispose any alcoholic liquor or drugs by himself or his sub-contractors (If approved by HAL), or employees.

4) The Contractor shall not give, barter or otherwise dispose off to any person or persons, any arms or ammunition of any kind or permit or occupy the same as aforesaid.

5) The Contractor shall in all dealings with labour and workmen in his employment, have due regard to all recognized festivals, day of rest and religious or other customs.

6) In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government, or the Local medical or sanitary authorities for the purpose of dealing with and overcoming the same at his own cost.

7) The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or against his employees and for the preservation of peace and protection of persons and property in the neighborhood of the Works against the same.

8) The Contractor shall be responsible for observance by his sub-contractors (if approved by HAL) of the foregoing provisions.

9) The contractor shall employ labour in sufficient number to maintain the required rate of progress and of the quality required to ensure workmanship of the degree required by the specifications, Engineering standards and to the satisfaction of the Engineer-in-charge.

The contractor shall remain liable for the payment of all wages or other moneys to his work people or employees under the payment of wages Act, 1936, Employer’s liability Act, 1938, workman’s Compensation Act, 1923, or any other Act or enactment relating there to and rules framed there under from time to time. The contractor shall work only on and during the hours of working day, unless he obtains the prior written approval of the Engineer-in-charge to do otherwise. Even if such approval is given, there shall be no liability in respect of any excess cost arising thereof upon the Employer and the contractor shall follow all provisions of labour law.

10) The Contractor shall, always maintain all labour records as per statutory provisions and, furnish a return in detail in such form and at such intervals as the Engineer in Charge may prescribe showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information regarding Constructional Plant.

Further the contractor shall be promptly in attendance and submit all records and
11) The salient features of some labour laws applicable to establishments engaged in Labour laws building and other construction works are mentioned in SP 34 for contractor’s general guidance. However the contractor shall comply all the provisions covered in the labour law.

10. MATERIALS, PLANT AND WORKMANSHIP

1) All materials and workmanship shall be of the respective kinds described in Quality of the contract and testing of the same shall be in accordance with relevant Materials and standard prescribed including the method of testing. The contractor shall also Workmanship perform such tests as may be required and as directed by the Engineer In Charge from time to time at the place of manufacture or fabrication or on the Site or at such other place or places as maybe specified in the Contract, or at all or any of such places. The consultant shall witness / attend the tests, interpret the results and recommend to the Employer for acceptance. The Contractor shall provide such assistance, instruments, machines, labour and materials as normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Consultant and Engineer In Charge.

2) The Contractor shall supply samples of all the materials and the approved Cost of Samples shall be kept at site office for verification on bulk supply. The cost all samples and the expenditure for sampling for testing shall be borne by the contractor.

3) The cost of making any test shall be borne by the Contractor if such test is clearly intended by or provided for in the Contract or is necessary for ascertaining the quality of materials intended to be used by the Contractor in the Works, and any other test to establish compliance of the design parameters.

   The testing shall be conducted by or from authorized Govt. laboratories only. In case the Govt. laboratories at Nasik-Pune-Mumbai area do not conduct the specified test, such tests shall be carried out at laboratories having NABL accreditation.

4) If any test is ordered by the Engineer In Charge which is either

   a) not so intended by or provided for, or   
   b) is additional or repetition to that specified in the preceding para for re-confirmation

   In such case the cost of such test shall be borne by the Contractor, if the test result shows that the workmanship or materials are not in accordance with the provisions of the Contract or as per the instructions of Consultant’s or Engineer In Charges, otherwise (if the test result found to be in accordance with the requirement) the cost shall be borne by the Employer.

5) The Consultant, the Employer and any person authorized by them 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 for and every assistance in obtaining the right to such access.

6) No part of the Works shall be covered up or put out of view without the approval Examination
of the Consultant or the Engineer In Charge and the Contractor shall afford full opportunity for the Consultant or the Engineer In Charge to examine and measure any work which is about to be covered up or put out of view and to examine foundation strata before permanent work is placed thereon. The Contractor shall give due notice to the Consultant or the Engineer In Charge whenever any such work such as foundation, service lines, pipes etc. are ready or about to be ready for examination and the Consultant shall, attend for purpose of examining and measuring such works.

7) The Contractor shall uncover any part or parts of the Works or make openings in or through the same or take out cores from the same as the Consultant / Employer may from time to time direct and shall reinstate and make good such part or parts, openings to the satisfaction of the Consultant / Employer. If any such part or parts have been covered up or put off view after compliance with the requirements of sub clause 6 above and are found to be executed in accordance with the Contract, the expenses of uncovering, making, openings in or through, reinstating and making good the same shall be borne by the Employer (Paid under respective items in BOQ). In the event of detection that the material or work is not conforming to the specifications the costs for uncovering shall be borne by the Contractor including the rectifications.

8) The Consultant and the Engineer In Charge shall during the progress of the Works have power to order in writing from time to time for:

a) the removal from the Site, of any materials, which, in the opinion of the Consultant or the Engineer In Charge, are not in accordance with the Contract, within such time or times as may be specified in the order,

b) the substitution of proper and suitable materials,

c) the removal and proper re-execution, not-withstanding any previous test thereof or interim payment therefore, of any work which in respect of materials or workmanship is not, in accordance with the Contract, in the opinion of the Consultant or the Engineer In Charge.

9) In case of default on the part of the contractor in carrying out such order as specified in preceding para, the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be recoverable from the contractor by the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor.

10) The contractor shall for the purpose of testing the materials establish a field laboratory.

11) The contractor shall for the purpose of making concrete for the works has to set up a centralised batching plant with computerised controls of capacity of approx. 30 cum. per hour, at a location approved by the consultant / Employer. The contractor shall have to make arrangements for any development or access to the said location or from the said location to the site of works entirely at his own cost. Such land made available by the Employer will be free of rent.

11. COMMENCEMENT, DELAYS AND SUSPENSION

1) The Contractor shall, on the written order of upon being so required by the Employer, suspend the progress of the Works or any part thereof for such time or times and in such manner as the Employer may consider necessary and shall during such suspension properly protect and secure the work, so far as it is necessary in the opinion of the Engineer in Charge. The extra cost incurred by the Contractor in giving effect to the above Employer’s instructions under this Clause
VOLUME I. CONTRACT CONDITIONS FOR TENDER NO.NK/FW/CAP-ROH-577/2010-11

shall be borne by the employer except in following cases:-

a) if not provided for in the Contract, or (i.e. staggered period specified in the contract or due to technical reasons etc)

b) necessary by reason of some default on the part of the Contractor, or

c) necessary by reason of climatic conditions on the Site, or

d) necessary for the proper execution of the Works or for the safety of the Works or any part thereof in so far as such necessity does not arise from any act or default by the Employer and in cases where insurance cover exists.

Provided that the Contractor shall not be entitled to any such extra cost unless he gives written notice of his intention to claim to the Engineer In Charge within fifteen days of the Employer’s order. The Employer shall settle and determine such extra payment and/or extension of time to be made to the Contractor in respect of such claim as shall, in the opinion of the Employer be fair and reasonable, and provided the Contractor has taken all steps to mitigate the losses.

2) If the progress of the Works or any part thereof is suspended on the written order of the Employer and if permission to resume work is not given by the Employer within a period of ninety days from the date of suspension thereof, unless such suspension is within paragraph a), b), c) and d) of sub clause 1 of this Clause, the Contractor may serve a written notice to the Employer requiring permission within fifteen days from the receipt thereof to proceed with the Works or that part thereof in regard to which progress is suspended.

3) The Contractor shall commence the works physically on site within 15 days from the receipt by him of a written order to this effect from the Employer and shall proceed with the same with due expedition and without delay. The Contractor shall complete the construction of temporary offices, stores, laboratory, labour establishment etc. and mobilise required resources substantially during this period.

4) Save in so far as the Contract may prescribe, the extent of portions of the Site of which the Contractor is to be given permission from time to time and the order in which such portions shall be made available to him and subject to any requirement in the Contract as to the order in which the Works shall be executed, the Employer will along with the written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the programme or revised programmes referred to in the Clause 6, if any, and otherwise in accordance with such reasonable proposals of the Contractor as he shall, by written notice to the Engineer in Charge, make and will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works in accordance with the said programme or proposals, as the case may be. If giving possession of the work site is delayed by the Employer due to any reasons, the Employer shall consider grant of extension of time for the completion of the work. However, the contractor will not be entitled for any monetary compensation or other concessions other than grant of extension of time.

5) The Contractor shall bear all costs and charges for special or temporary right of way required by him in connection with access to the Site. The Contractor shall make arrangements at his own cost for any additional accommodation outside the Site as required by him for the purposes of the Works.
6) Subject to any requirement in the Contract as to completion of any section of the Works before completion of the work as a whole, the whole of the Works shall be completed, in accordance with the provisions of the Clause 11 sub clause 12 hereof, within the time period specified in the tender notice and Price bid from the stipulated date of commencement specified in the letter of acceptance. Time is the Essence of the Contract.

7) Should the amount of extra or additional work of any kind or any cause of delay referred to in these Conditions or exceptional adverse climatic conditions or other special circumstances of any kind whatsoever which may occur, other than through a default of the Contractor, which entitle the Contractor to an extension of time for the completion of the Works, the contractor shall make a written request detailing all facts and data to the Employer and the Employer shall determine the amount of such extension and shall notify the Contractor accordingly. However the employer may not account any extra or additional work or other special circumstances unless the contractor had notified with detailed particulars regarding such circumstances to the Consultant and Engineer In Charge from time to time and such submissions may be investigated at that point of time.

<table>
<thead>
<tr>
<th>Time for Completion</th>
<th>Extension of Time for Completion</th>
<th>No Night or Sunday Work</th>
<th>Rate of Progress</th>
<th>Liquidated Damages for Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>6) Subject to any requirement in the Contract as to completion of any section of the Works before completion of the work as a whole, the whole of the Works shall be completed, in accordance with the provisions of the Clause 11 sub clause 12 hereof, within the time period specified in the tender notice and Price bid from the stipulated date of commencement specified in the letter of acceptance. Time is the Essence of the Contract.</td>
<td>Should the amount of extra or additional work of any kind or any cause of delay referred to in these Conditions or exceptional adverse climatic conditions or other special circumstances of any kind whatsoever which may occur, other than through a default of the Contractor, which entitle the Contractor to an extension of time for the completion of the Works, the contractor shall make a written request detailing all facts and data to the Employer and the Employer shall determine the amount of such extension and shall notify the Contractor accordingly. However the employer may not account any extra or additional work or other special circumstances unless the contractor had notified with detailed particulars regarding such circumstances to the Consultant and Engineer In Charge from time to time and such submissions may be investigated at that point of time.</td>
<td>Subject to any provision to the contrary contained in the Contract, none of the Permanent Works shall, save as hereinafter provided, be carried on during the night or on Sundays, if locally recognized as days of rest or their locally recognized equivalent days, without the permission in writing of the Engineer In Charge except when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Works, in which case the Contractor shall immediately intimate the Consultant or Engineer In Charge. The provisions of this Clause shall not be applicable in the case of any work, which it is customary to carry out by rotary or double shifts.</td>
<td>If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Works or any section is at anytime, in the opinion of the Engineer In Charge, too slow to ensure completion by the prescribed time or extended time for completion, the consultant or Engineer In Charge shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as are necessary and the Engineer in Charge may approve to expedite progress so as to complete the Works or such section by the prescribed time or extended time. The Contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the Engineer in Charge under this Clause, the Contractor shall seek his permission to do any work at night or on Sundays, if locally recognised as days of rest or their locally recognised equivalent days which may be considered by the Engineer In Charge considering the project schedule, progress schedule and other factors.</td>
<td>If the Contractor fails to achieve completion of the Works within the time prescribed in the sub clause 6 of Clause 11 then the Contractor shall pay to the Employer the sum stated in Part II Special Conditions as liquidated damages for such default and not as a penalty for every day or part of a day which shall elapse between the time prescribed in sub clause 6 of Clause 11 hereof and the date of certified completion of the Works. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies in his hands, due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligations under the contract to complete the Works or from any other obligations and liabilities under the Contract.</td>
</tr>
</tbody>
</table>
11) When the whole of the Works have been substantially completed and have satisfactorily passed all the tests that maybe prescribed in the Contract, the Contractor may give a notice to that effect to the Employer through the Consultant accompanied by an undertaking to finish any outstanding work within a time frame. Such notice and undertaking shall be in writing and shall be deemed to be a request by the Contractor to the Employer to issue a Certificate of Completion in respect of the works. Thereafter the contractor shall be present by himself for inspection of the entire work along with the consultant and Engineer in charge on the specified time notified by the Engineer In Charge. The Employer on recommendation of the consultant shall, within twenty-one days of the date of delivery of such notice either issue to the Contractor, with a copy to the Consultant, a Certificate of Completion stating the date on which, in his opinion, the Works were substantially completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the work which, in the Employer’s and consultant’s opinion, requires to be done by the Contractor before the issue of such Certificate. The Employer shall also notify the Contractor of any defects in the works affecting substantial completion that may appear after such instructions and before completion of the Works specified therein. The Contractor shall be entitled to receive such Certificate only on making good of any defects so notified.

12) Similarly, in accordance with the procedure set out in sub clause 11 above, the Contractor may request and the Employer shall issue a Certificate of Completion (for part of the work) in respect of:

a) any section of the Works in respect of which a separate time for completion is provided in the Contract: and

b) any substantial part of the Works or buildings which has been both, completed to the satisfaction of the Engineer in Charge and occupied or used by the Employer.

Provided always that a Certificate of Completion given in respect of any section or part of the Works before completion of the whole of the work shall not be deemed to certify completion of any ground or surfaces requiring reinstatement, unless such Certificate shall expressly so state.

By issuing completion certificate building wise (Part work) does not relieve the contractor in fulfilling the obligations under the contract as a whole. The defect liability period will be reckoned from the date on which the final completion dates of the contract as whole.

12. DEFECTS LIABILITY

1) The defect liability period for the works executed under this contract shall be 18 months from the date of completion of the work as a whole. However for specialized items like water proofing, antitermite treatment etc. will have longer defect liability period as specifically indicated against respective items in the BOQ or Technical specifications or other parts of the tender documents. Even in case of part completion of work and taking over by employer, the defect liability period (18 months or longer periods in case of specialized items as specified in the tender) will be reckoned from the date of completion of the work as a whole.

2) Any defects, shrinkage, settlement, cracks or any other faults which may appear or be noticed within the Defect Liability Period, and arising in the opinion of the consultant and Engineer in Charge, shall be rectified and
made good by the contractor at his own cost within reasonable time as informed to the contractor.

3) All such work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer In Charge, be due to the use of materials or workmanship not in accordance with the Contract, or due to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

4) If the Contractor fails to do any such work as aforesaid required by the Employer or Consultant, the Employer shall be entitled to employ and pay other persons to carry out the same and if such work which, in the opinion of the Engineer, the Contractor was liable to do at his own expense under the Contract, then all expenses consequent thereon or incidental thereto shall be recoverable from the Contractor by the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor.

5) The Contractor shall, search under the directions of the Consultant or Engineer Contractor In Charge for the cause of any defect, imperfection or fault appearing during the progress of the Works or during the Defects Liability Period. If such defect, imperfection or fault shall be one for which the Contractor is liable as aforesaid, the cost of the work carried out in searching as aforesaid shall be borne by the Contractor and he shall in such case, repair, rectify and make good such defect, imperfection or fault at his own expense in accordance with the provision of this Clause.

6) During defect liability period, The contractor shall arrange for site inspection of Periodical entire work (Civil, Electrical and entire utility services) on a quarterly basis. The Survey Report contractor shall depute minimum 2 Engineers, one of Civil and allied works and the other for Electrical and utility services, having adequate experience in attending maintenance works. After inspection a detailed list of items needs rectifications or repairs is to be listed out and make immediate arrangement to attend the repairs and maintenance satisfactorily. On attending the repairs and maintenance the contractor shall submit a detailed compliance report and shall be in attendance for joint verification with the consultant or Engineer in Charge. If the contractor fails to depute suitable persons for periodic survey as detailed above and the defects noticed are not attended in time a penalty of Rs. 50,000.00 will be recovered towards inspection charges for each quarter. This Rs.50,000.00 per quarter will be in addition to the expenditure whatsoever may be incurred by Employer for getting the rectifications done through other sources.

13. A ALTERATIONS/ADDITIONS/OMMISIONS

The EIC shall make any variation of the form, quality & quantity of the work or Omissions/ any part thereof that may in his opinion, be necessary and for that purpose of if for additions/ any other reason it shall in his opinion be desirable, he shall have power to order alterations the contractor to do and the contractor shall do any of the following:
a) Increase or decrease any work included in the work
b) Omit any such work
c) Change the character or quality or 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 no such variation shall in any way vitiate or invalidate the contract, but the price, if any of all such variations shall be taken into account in ascertaining the amount of the contract sum. The contractor shall not be entitled to any
compensation on account of omission or decrease in work under this clause.

13 B DEVIATIONS

1) The contractor shall carry out the deviations as may be ordered up to a maximum of +10% of the contract sum at the same terms, conditions and rates. There will not be any lower deviation limit. The Engineer-in-charge may delete or reduce any items of work at his sole discretion and the contractor will not have any claim whatsoever on this issue and the contractor shall be entitled for payment against the actual work done at the contract rates only.

Ordering of the deviations will be subject to the following conditions

a) The net sum of all deviations is less than the permissible deviations limit

b) The arithmetical sum of all additions and deletions should not exceed twice the deviation limit.

c) Deviation ordered in respect of any individual trade item included in the contract shall not exceed 50 percent of the value of that trade item in the contract as a whole or half of the deviation limits for the contract whichever is less.

d) The value of additions of items of any individual trade item not already in the contract shall not exceed 10 percent of the deviations limit.

The contractor shall not make alternations, additions or omissions from the works as described in the contract except with written instructions of the Engineer-in-charge. No such deviations from the work described in the tender documents be valid unless the same has been specifically confirmed and accepted by the Engineer-in-charge in writing and incorporated in the contract.

Variations shall include additions (extra items), alterations which shall be included in the updated programme of execution of works.

2) The Engineer-in-charge may deviate either by way of addition or deduction from the work so described provided that the contract sum be not thereby varied on whole by more than the percentage set out in the contract. The value of all additions and deletions will be added to or deducted from the contract sum. Whenever the Accepting Officer intends to exercise such a right, his intention shall specify the deviation which are to be made, lump sum assessment or the proposed basis of payment, the extra time allowed, if any and the date for completion of the entire contract. Any objection by the contractor to any matter concerning the order shall be notified by him in writing to the Engineer-in-charge, within seven days from the date of such order but under no circumstances, shall the work be stopped unless so ordered by the Engineer-in-charge owing to differences or controversy that may arise from such objection. In the absence of such modifications of objection by the contractor, he shall be deemed to have accepted the order and the condition stated therein. In the event of the contractor failing to agree with the Engineer-in-charge regarding the items of the proposed deviations, the objection shall be referred to the Engineer-in-charge whose decision shall be final and conclusive and binding on the contractor.

3) All extra or additional work done by the order of the Consultant or Engineer in Charge shall be priced at the rates and prices set out in Part II Special Condition
14. PROCEDURES OF CLAIMS

1) Notwithstanding any other provision of the contract, if the contractor intends to claim any additional payment pursuant to any clause of these conditions or otherwise, he shall give notice of his intention to the consultant, with a copy to the Employer, within one month after the event giving rise to the claim has first arisen.

The Contractor shall submit to the Consultant (with a copy to the Engineer in Charge) once in every month a full and detailed account of all claims for any additional payment to which the Contractor may consider himself entitled and of all extra or additional work ordered by the Engineer in Charge 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 account of claim, provided always that the Consultant shall be entitled to recommend payment for any such work or expense, notwithstanding the Contractor's failure to comply with this condition if the Contractor has, at the earliest practicable opportunity, notified the Consultant and Engineer In Charge in writing that he intends to make a claim for such work.

2) All the claims are to be approved by the Employer before releasing payment. No payment will be released till the time Employer approves the matter.

15. PLANT, TEMPORARY WORKS AND MATERIALS

1) All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof except for the purpose of moving it from one part of the Site to another, without the consent, in writing of the Consultant, which shall not be unreasonably withheld. Upon receiving the consent of the Consultant, the Contractor shall apply for issue of Gate Pass etc. to the Employer so as to observe the administrative and security procedures, set by the Employer.

2) Upon completion of the Works, the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor.

3) The Employer shall not at any time be liable for the loss or damage to any of the said Constructional Plant and temporary works or materials.

4) The operation of sub clause 1 to 3 above shall not be deemed to imply any approval by the Consultant, of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Consultant/Employer.

16. VALUATION OF PAYMENT

1) The quantities set out in the Bill of Quantities are the estimated quantities of the Work but they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract. The quantities are likely to be reduced/increased/deleted and the contractor shall not have any claim on such variation in quantity.
The contractor is required to submit the detailed measurements of all the works executed under the contract. This submission of measurements shall be based on physical measurements taken jointly with the consultant, of the actual work performed or executed by the contractor. The authorised representative of the contractor shall be in attendance for taking the measurements and shall provide all assistance, appliances required in taking the measurements.

2) The Consultant shall, except as otherwise stated, ascertain and determine by measurement the value in terms of the Contract of work done in accordance with the Contract. He shall, when he requires any part or parts of the Works to be check measured, give notice to the Contractor’s authorised agent or representative, who shall forthwith attend or send a qualified agent to assist the Consultant in making such measurement and shall furnish all particulars required by them. Should the Contractor not attend or neglect or omit to send such billing Engineer, then the measurements checked by the Consultant or approved by him shall be taken to be the correct measurement of the work. For the purpose of measuring such permanent work as is to be measured by records and drawings, the Consultant’s Representative shall prepare records and drawings month by month of such work and the Contractor, as and when called upon to do so in writing shall, within five days, attend to examine and agree such records and drawings with the Consultant’s Representative and shall sign the same when so agreed. If the Contractor does not so attend to examine and agree such records and drawings, they shall be taken to be correct. If, after examinations of such records and drawings, the Contractor does not agree the same or does not sign the same as agreed, they shall nevertheless be taken to be correct, unless the Contractor shall, within five days of such examination, lodge with the Engineer In Charge, notice in writing of the respects in which such records and drawings are claimed by him to be incorrect.

2.a) The measurements will be further verified and certified by the Engineer In Charge. The contractor’s representative shall attend immediately for verification of the measurements whenever called for. Taking of measurements, recording and certification by the consultant shall be carried out regularly as the work progresses and all hidden items shall be measured, recorded and certified before covering the same. The measurements taken shall be signed and dated by the authorized representative of the contractor and consultant and the same day. It will be the responsibility of the contractor to have regular measurements, certification and billing. If the contractor or contractor’s representative fails to attend when required the Engineer-in-charge shall have power to proceed by himself to the measurements, and in that case these measurements shall be deemed to have been accepted by the contractors as final and no further claim will be entertained.

3) The Works shall be measured net, notwithstanding any general or local custom except where otherwise specifically described or prescribed in the Contract. The mode of measurements specified in the bill of quantities, technical specifications, MES SSR and IS codes will be followed. The MES SSR and IS codes to be followed in case there is no specific mention in the BOQ or Technical specifications.

For expedition of recording of measurements & billing, contractor shall adopt Computerised billing. Latest computer software packages and shall provide such packages to the Consultant and Engineer In Charge for their approval and implementation.

The contractor will be entitled for payment of the work done after fulfilling the requirement of recording the measurements in MB and submission of his bill.
n HAL prescribed proforma. Running bills will be paid for the work completed to the entire satisfaction of the Engineer-in-charge, after making the following deductions, if any:

a) **All previous running account payments**

b) Cost of entire stores issued by HAL whether incorporated in the work or not

c) Full value of the advances paid against the materials whether incorporated in the work or not

d) **Mobilisation advance**

e) Hire charges, for electricity and water supplied by HAL

f) **All statutory deductions**

g) Any other dues recoverable by HAL from the contractor under the present contract or any other contract.

### Material advances to an extent of 75% of the cost of material (other than perishable items) which in the opinion of the Engineer-in-charge which are reasonably required for incorporation in the work and which are actually brought to the site, will be considered for payment subject to the following conditions.

a) No material advance will be paid on such materials which will not go into the work such as shuttering, centering, scaffolding, plant, tools and equipments, etc.

b) No material advance against self-life items will be paid

c) For the purpose of evaluating the cost of the materials the contractor’s bills towards the purchase of the materials will be compared with the derived rate of those materials from the item rates under the contract and 75% of the cost as per the bills or such derived rates whichever is less, will be considered for payment of materials advance.

d) The contractor shall execute an indenture bond/hypothecation deed on required stamp paper in favour of HAL in the format prescribed under this contract for claiming advance on materials.

e) All such materials shall be insured against theft, loss fire, damages, etc. as may be prescribed by the Engineer-in-charge and endorsed in favour of HAL.

f) Payment in respect of materials collected at site will be made only upon giving a certificate by the Engineer-in-charge stating that:

- The stores have been physically brought to site and have not been incorporated in the work.

- The stores are required for the work

- The stores have been stored satisfactorily and are not likely to deteriorate in stock

- The quantities of stores tally with the quantities of the contract items

- They have been valued as stated in Clause No. (c) above

- The materials conform to the specifications and are of the tested quality.
The contractor shall be responsible for the safe custody of the materials and shall not remove them from site without written permission of Engineer IN Charge.

The contractor shall once in every month submit to the Engineer-in-charge of his claim in detail for the work done by him upto and including the previous months which are not covered by his contract agreement in any of the following respect.

5) Deviation from the items and specification provided in the contract documents.
   a) Extra items/new items of work
   b) Quantities in excess of those provided in the contract schedule
   c) Items in respect of which rates have not been settled.

He should in addition, furnish a clear certificate to the effect that the claims submitted by him as aforesaid cover all his claims and that no further claims shall be raised by him in respect of the work done upto and including the period under report.

17 ENTRUSTING SPECIALIZED WORKS TO OTHER AGENCIES.

17.1) The contractors shall execute the work directly by themselves. However for execution of specialized items, the contractor may seek the assistance of such parties who are having expertise in the respective field and their services will help the contractor to execute those items to the best quality and standards specified. In such cases the contractor shall seek permission from Employer specifically indicating the nature and items of work for which the services of specialized firm is proposed to be availed.

17.2) The contractor shall submit the Credentials, to the Consultant and Engineer In Charge, of the specialized parties covering their technical know how and expertise in the respective field, experience having performed similar nature of work of value nearer to that of the item. The contractor shall then furnish all the documents whatsoever required to ascertain the technical capability of those firms to take up the specified part of the work, as called for by the Consultant or Engineer in Charge.

17.3) On verification of the data and documents submitted by the contractor as described in the preceding para, by the Consultant or adopting any other means for verification of the technical capability of the party, the Engineer In Charge, will communicate the approval or otherwise.

17.4) The engagement of specialized party and communicating the approval by the Employer for the same shall in no way relieve the contractor from his responsibilities for completing the work as per the terms of contract. The liabilities whatsoever may arise in executing that specified part of the work by the specialized agencies should be borne by the contractor.

17.5) The contractor shall submit an undertaking on a stamp paper of Rs. 100.00 value stating that all liabilities or issues whatsoever may arise in execution of the specified part of the work entrusted to specialized firms will be absolved by the contractor and at any point of time HAL will not be made a party to whatsoever issues, claims arising thereof. The contractor shall also be

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
required to obtain a bond from those parties who have been entrusted with the execution of specialized works, indemnifying the employer from any liability or claim whatsoever may arise during execution or thereafter in connection with that part of work or any other consequential issues. The bond in original shall be submitted to the Engineer In Charge before commencement of the work and the party shall be allowed to perform the work only after obtaining the requisite bond.

17.6) For all purpose, the work got executed from the specialized agencies as described in the preceding paras will be deemed to have been executed by the contractor and the contractor will be responsible for any defects arising in the work during the defect liability period.

18. CERTIFICATES AND PAYMENT

1) The contractor may submit Running Account bills at an interval not less than seven days subject to a maximum of four bills in a month in order to expedite the progress of work. The contractor shall ensure that the bill submitted shall be based on the measurements taken jointly at site, recommended by the consultant and certified by the Engineer in Charge and shall also comply with all contract provisions regarding submission of documents, registers, test results etc. in connection with the same.

2) Where advances are to be made by the Employer to the Contractor in respect of Constructional Plant and Materials, the conditions of payment and repayment shall be as set out in the Special Conditions of Contract.

3) No certificate other than the Certificate of Final Completion referred to in sub clause 4 of this Clause shall be deemed to constitute approval of the works.

4) The Contract shall not be considered as complete until a Certificate of Final Completion shall have been signed by the Employer stating that the Works have been completed and maintained to his satisfaction.

5) The Employer shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract or the execution of the works, unless the Contractor shall have made a claim in writing in respect thereof as per sub clause 1 of Clause 14, before giving of Certificate of Final Completion.

6) Notwithstanding the issue of the Certificate of Final Completion, the Contractor and, subject to sub clause 5 of this Clause, the Employer shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issue of the Certificate of Final Completion which remains unperformed, at the time such certificate is issued and, for the purposes of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force between the parties hereto.

19. REMEDIES AND POWERS

1) If the Contractor shall become bankrupt or have a receiving order made against him, or shall present his petition in bankruptcy, or shall make an arrangement with or assignment in favour of his creditors, or shall agree to carry out the contract under a committee of inspection of his creditors or, being a corporation, shall go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or if the Contractor shall assign the Contract, without the consent in writing of the Employer first obtained, or shall have an execution levied on his goods, or if the Consultant shall certify in writing to the
Employer that in his opinion, the Contractor:-

a) Has abandoned the Contract, or

b) Without reasonable excuse, has failed to commence the Works or has suspended the progress of the Works for twenty-eight days after receiving from the Consultant’s/Engineer In Charge’s written notice to proceed, or

c) Has failed to remove materials from the site or to pull down and replace work for twenty eight days after receiving notice from the Consultant/Engineer In Charge that the said materials or work had been condemned and rejected by the Consultant or Engineer In Charge under these conditions, or

d) Despite previous warnings by the Consultant, in writing, is not executing the Works in accordance with the Contract, or is persistently or flagrantly neglecting to carry out his obligations under the Contract, or

e) Has, to the detriment of good workmanship, or in defiance of the Consultant’s or Engineer In Charge’s instructions to the contrary, sublet any part of the Contract

f) In the opinion of the Consultant, the progress of work achieved by the contractor is so poor that the contractor shall not be able to complete the work within the specified time.

Then the Employer may, after giving fourteen days notice in writing to the Contractor, enter upon the site and the Works and expel the Contractor there from without thereby voiding the Contract, or releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Consultant or Employer by the Contract, and may himself complete the Works or may employ any other agency to complete the Works. The Employer or such other agency, may use for such completion, so much of the Constructional Plant, amenities and materials, which have been deemed to be reserved exclusively for the execution of the Works, under the provisions of the Contract, as he or they may think proper. The Employer, at his option, may sell or choose to return to the Contractor, without prejudice to any of his rights under the Contract, the said Constructional Plant, amenities and unused materials. In case of sale, the sale proceeds shall be applied towards the satisfaction of any sums due or which may become due from the Contractor under the Contract. The Employer, at his option, may sell or choose to return to the Contractor, without prejudice to any of his rights under the Contract, the said Constructional Plant, amenities and unused materials. In case of sale, the sale proceeds shall be applied towards the satisfaction of any sums due or which may become due from the Contractor under the Contract.

2) The Engineer shall, as soon as may be practicable, after any such entry and expulsion by the Employer, fix and determine ex party, or by or after reference to the parties, or after such investigation or inquiries as he may think fit to make or institute and shall certify what amount, if any, had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work actually done by him under the Contract and the value of any of the said unused or partially used materials, any Constructional Plant and any amenities brought into existence exclusively for execution of the Works.

3) If the Employer shall enter and expel the Contractor under this Clause, he shall not be liable to pay to the Contractor any money on account of the Contract, until the expiration of the Defects Liability Period and thereafter until the costs of execution, damages for delay in completion, if any, and all other expenses incurred by the Employer have been ascertained and the amount thereof certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums, if any, as the Consultant may certify would have been payable to him upon due completion by him after deducting the said amount. If such amount shall exceed the sum which would have been payable to the Contractor on due
Wherever, in any of the documents forming part of the Contract, the Engineer In Charge has been vested with the final powers, his decision, opinion, certificate or any other discretion shall be final conclusive and binding on the parties and shall be without appeal. All other matters shall be subject to the right of arbitration.

Except for matters stated above all other disputes and difference arising out of or in connection with the contract, whether during the progress of work or after completion, shall be referred to and settled by Arbitration by Arbitrator to be nominated by the Employer. Arbitration shall be as per provisions of sub-clause 15 of SP 32 (Misc.).

All notices to be given to the Employer or to the Consultant under the terms of the Contract shall be served by sending by registered post or by Courier or delivering the same to the respective addresses nominated for that purpose in respective conditions.

Either party may change a nominated address to another address in the country by prior written notice to the other party and the Consultant may do so by prior written notice to both parties.

It is a fixed price contract and hence there will not be any adjustments to the Contract Sum consequent to rise or fall in the cost of labour and / or materials, taxes or any other matters affecting the cost of the execution of the Works.
25. MEETINGS

The Contractor is required to attend all the management meetings as called for. The business of shall be to review the progress of work and plans for remaining work and to deal with matters rose in accordance with the early warning procedure. The Consultant shall record the business of management meetings and shall provide copies of the said record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Consultant in consultation with Engineer-in-charge.

26. CANCELLATION CONTRACTS

The Accepting Officer, whose decision shall be final and conclusive shall without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to HAL, cancel the contract in any of the following cases and the contractor shall be liable to make payment to HAL for any loss or damage resulting from any such cancellation to the same extent as provided in the case of cancellation for default.

If the contractor:

a) Offer or give or agree to give to any person in HAL service any gift or consideration of any kind as an inducement or reward for doing or for bearing to do or for having done or for borne to do any act in relation to the obtaining or execution of this or any other contract for HAL service or

b) Enter into a contract with HAL in connection with which commission has been paid or agreed to be paid by his or with his knowledge unless the particulars of any such commission and the terms of payment thereof have previously been disclosed in writing to the Accepting Officer.

c) Obtain a contract with HAL as a result of ring tendering or by non-bonafied methods of competitive tendering without first disclosing the fact in writing to the Accepting Officer.

d) Misrepresent any fact while tendering for any work or create conditions favourable for acceptance of his tender.
The Accepting Officer may without prejudice to any other right or remedy which shall have accrued or shall accrue there after HAL, shall cancel the contract in any of the following cases:

Being an individual, or if a firm, any partner thereof shall at any time be adjudged bankrupt or have a receiving order or order for administration of his estate made against him or shall take any proceeding for liquidation of compensation under any Bankruptcy 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 propose to do so, or if any application be made under any Bankruptcy Act for the time being in force for the sequestration of his estate or if a trust deed be rented by him on behalf of his creditors of.

a) Being a company shall pass a resolution or the court shall make an order for the liquidation on its affairs, or a receiver or Manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the court or debenture holders to appoint a receiver or Manager or.

b) Assigns, transfers, sublets or attempts to assign, transfer or sublet any portion of the work without the prior written approval of the Accepting Officer. Whenever the Accepting Officer exercises his authority to cancel the contract under this condition, he may complete the work by any means at the contractor’s risk and expense provided always that in the event of cost of completion (as certified by the Engineer In Charge which is final & conclusive) being less than the contract cost, the advantage shall accrue to the HAL and that if the cost of completion exceeds the moneys due to the contractor the contractor shall either pay the excess amount ordered by the Engineer In Charge or the same shall be recovered from the contractor by other means.

a) In case the HAL completes the work under the provisions of this conditions, the cost of such completion to be taken into account in determining the excess cost to be charged to the contractor under this condition shall consist of the cost of material purchased and labour provided by the HAL with an addition of such percentage to cover superintendence and establishment charges, as decided by the Engineer In Charge whose decision shall be final and conclusive.

a) If the contractor makes default in commencing the work within a reasonable time or within the time specified, or having taken over the site does not commence the work within a reasonable time, or if the contractor, in the opinion of the Manager (Works)/Sr. Manager (Works & Services) during the currency of the contract makes default in proceeding with the work, or progress of work is slow, or in the opinion of the Manager (Works)/Sr. Manager (Works & Services) the workmanship is poor, or if the contractor fails to comply with any of the terms and condition of the contract, or fails to complete the work in full or part and clears the site on or before the date of completion, or fails to achieve the progress as set out under the contract or fails to carry out the orders issued by the Engineer-in-charge/Manager (Works)/Sr. Manager (Works & Services) or Deputies or abandons the contract or otherwise commits any breach of contract, the Accepting Officer or Sr. Manager (Works & Services)/Manager (Works) or any other officer nominated by the Accepting Officer shall cancel the contract.
contract as a whole or in part or any items of work under the contract without any prior notice to the contractor at the sole cost, risk and expense of the contractor and get the balance work executed either by HAL itself, or by another contract or through any other agency as deemed fit. In such an event, the contractor shall be liable to make to make good and compensate all losses, expenses whatsoever, incurred or to be incurred, by the HAL.

b) In case HAL completes the work by itself, the cost of such completion to be taken into account in determining the excess cost to be charged to the contractor shall consist of cost of all materials and labour provided by HAL with an addition of such percentage to cover superintendence and establishment charges, as may be decided by the Manager (Works)/Sr. Manager (Works & Services) of HAL, whose decision shall be final, conclusive, and binding on the contractor.

c) In the event of completion of the work either by HAL or by another contractor or through any other agency, if the cost of completion works out less than the cost under this contract, advantage shall accrue to the HAL.

If at any time after acceptance of the tender HAL feels that for any reasons whatsoever, if the whose or any part of the work is not required to be carried out, the Engineer In Charge shall give notice in writing of the fact to the contractor and upon receipt of such notice the contractor shall stop the execution of such work as indicated in the notice forthwith. The contractor shall have no claim to any payment of compensation or otherwise 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 foreclosing of the work. He shall be paid at contract rates for the full amount of the work executed including such additional work (e.g. clearing of site etc) as may be rendered necessary by said foreclosing. He shall also be allowed a reasonable payment (as decided by the Accepting Officer, which shall be final and binding on the contractor) for any expenses sustained on account of labour and materials collected, brought to site or for which the contractor is legally bound to accept delivery from the supplies, but which could not be utilised for the work as verified by the Engineer In Charge.

4) In the event of cancellation of the work under the terms of the contract, the contractor shall, within 10 days from the date of receipt of such cancellation order, come forward and complete measurements and recording thereof of unmeasured work and also recording of list of materials unused, jointly with the Engineer-in-Charge or his authorised representative, failing which, Engineer-in-charge shall complete the aforesaid work in the absence of the contractor in the presence of any person unconnected with the work, which shall be final, conclusive and binding on the contractor.
PART - II – SPECIAL CONDITIONS

(Reference of the Clause of Part-I- General Conditions is mentioned against clauses of this part.)

SP1 SPECIAL CONDITIONS of this PART-II shall be read in conjunction with GENERAL CONDITIONS (PART-I), and both shall form an integral part of the contract. Where these are at variance, the conditions stipulated in this PART, as Special Conditions shall supersede the relevant provision in the General Conditions.

ENGINEER

SP2 The Consultant shall be:
M/s SEMAC LIMITED, 6-1-276, 2nd Floor, CONJEEVARAM HOUSE”, Padmaraonagar, Secundrabad

SP3 The Consultant has been appointed by and duly authorized by the Employer to supervise, test, examine any materials and/or works, to order, cancel, alter, modify, any of the materials, items or works within the framework of the Contract. To approve / reject requests for modifications in works or schedule whether or not such orders, approvals, rejections, etc
The Consultant is further authorized to administer the Contract, check, correct, modify and certify or reject any bill or requests for payment for the materials, items or works in accordance with the terms of contract.

SP4 The Ruling language for the Contract and related aspects shall be ENGLISH.
The Contract shall be governed by and construed in accordance with Laws of India.

The Contractor shall on his own and at his own expense obtain all necessary permits, permissions, certifications under the statutory provisions and to complete the execution of various items and the contract as a whole , including required registrations, certifications, and shall indemnify the Employer in all related matters.

SP5 CONTRACTOR'S RESPONSIBILITY

SP5.1 The Contractor shall furnish to the Consultant full particulars, drawings, etc. of all temporary works necessary for the execution of the works and shall allow sufficient time for Consultant to consider the same. The Consultant reserves the right to comment on the Contractor's proposals if they consider that modifications should be made. The Contractor shall be solely responsible for the stability and safety of all temporary works including obtaining statutory approvals and payment of statutory fees, if any. The Consultant will indicate the site(s) for such temporary works and the Contractor will have to restrict his requirements to the same. Should it be necessary to shift the temporary works to some other allotted place during the executions of the works, the Contractor shall do so, when informed by the Consultant, at his own cost and without delay or demur. Such shifting of temporary works may be in part or in full.

SP5.2 The Contractor shall be responsible for the clearance of the site of all scrub, debris, rubbish, etc. to be removed off site to allocation to be provided by the Consultant. However, no trees shall be removed without the prior permission of the Engineer In Charge. The structures, services and works required to be demolished and removed shall also be removed off site to a location as mentioned above. The Contractor shall obtain necessary
permissions and approvals from local authorities for such disposals. The demolition shall include digging, excavating and removal of substructures, foundations and buried works. The cost of all this shall be borne by the Contractor.

The above is applicable for all site offices, labour camps, and godowns etc., which are not required after the Work is finally completed.

**SP 5.3** The Contractor shall at all the times during construction keep the Site clean and free from all debris and unwanted materials as per instructions of the Consultant. Storage of materials shall be in an organised manner and in proper compartments.

Storage on suspended floors shall not be permitted unless specifically approved in writing by the Engineer In Charge for specific materials in specific locations and in approved manner. The Engineer IN Charge shall be furnished with load details, if requested, before seeking approval for storage.

Regular cleaning operations shall be undertaken to remove all dust, debris, waste materials, etc. A cleaning schedule shall be maintained.

Contractor shall make his own arrangement for storage of those materials, which cannot be accommodated at site. Contractor shall be fully responsible for safe custody of the same. Materials shall be considered as the Consultant verifies “Delivered at Site” only after the physical presence of materials at site. Stores elsewhere shall not be eligible for being considered as "Delivered at Site”.

Contractor shall be responsible to keep entire site free from water due to water coming from any source at any level and shall protect all materials and works from being damaged by the water from any source. Contractor shall make proper arrangements for drainage prior to use of water for curing, testing, cleaning etc.

Any expenditure incurred by the Contractor in fulfilment of his obligations under this sub-clause shall be deemed to have been included in the Contract Sum.

**SP54** The contractor shall co-ordinate with the activities of other agencies appointed by or permitted by the Employer, which may be simultaneously working in the working area of the contractor. The contractor shall not shift, remove / disturb, demolish any work or plant / equipment / material of any such agency without prior approval of Engineer-in-charge.

**S6** Within 15 days of the Award of Contract, the contractor shall submit to the Consultant and Engineer In Charge for approval a Programme showing the order of procedure in which he proposes to carry out the works and other documents as set out in **Clause 6 sub clause 9 of Part I.**

The Programme shall be prepared taking into account the activities of various other agencies involved in the project and shall be submitted for the Approval of the Consultant and Engineer In Charge. The Programme shall be reviewed by the Engineer in Charge from time to time and revisions if necessary shall be made for well co-ordinated and expedient implementation of the project. A separate Programme shall be prepared for each building/structure. The Employer will have the right to indicate priorities for execution of various items included in the Works. The Contractor will mobilize or re-mobilize or adjust his resources according to the priorities set by the Employer at no extra cost to the Employer. Even though overall period of the Contract shall be as stated in the CONTRACT DATA; the Consultant or the Employer may have to fix different periods of phase
wise completion keeping in view the targeted date for commissioning.

The Contractor shall abide by such different dates of completion, which shall be within the overall stipulated period of completion and will provide the contractor with a shorter duration within which the Contractor will have to complete such works. The Contractor will not be entitled any extra payment on this account.

All the Insurance shall be arranged by Contractor directly from any first class Insurance Company having a branch at Ojhar or Nasik and can deal with all matters pertaining to the subject. The insurance policies shall be in the joint names of the Employer and the contractor.

The following policies shall be maintained for the duration of the contract, or the extended period if required.

Contractor's All-risk Insurance Policy covering loss, damage, theft, burglary etc. of all materials and equipment, temporary works and the Works shall be insured for a total sum equal to the value of all such items plus ten percent of such value.

The Contractor shall make available the insurance policy in original before the commencement of work, and shall notify any change in the nature or extent of the works and also make available Additional Insurance of works if required in Special Circumstances.

Third Party Insurance shall be for a minimum amount upto Rs.5.00 lakhs per occurrence for 4 occurrences in contract period.

Contractor shall provide for adequate cover to his employees as per provisions of Workmen’s Compensation Act.

Contractor shall indemnify the consultant and Employer from all claims that may arise on account of Contractor's operations at Site.

The Contractor shall comply with all rules, regulations and laws including safety of workmen for labour directly or indirectly engaged by the Contractor, his representative and sub-contractors if any approved by HAL. The Contractor at their own cost shall register themselves wherever and whomsoever required in this connection at local and state level.

The Contractors shall at their cost provide samples of all the materials for the approval of the Consultant and Engineer In Charge and shall provide alternative samples until the sample provided is as per the specifications and standards specified and an approval has been conveyed.

The Contractor shall at his cost provide one set of approved standards and codes to which the Proposed materials, items and works to be executed shall conform. Such a set shall be handed over to the Engineer In Charge for ready reference. All materials, items and works, when submitted for approval shall have reference of Tender Specifications and drawings and of clauses of relevant standard and codes for acceptance criteria.
The Contractor shall, at his own cost, provide testing facilities at site and also arrange and bear the cost of testing from outside laboratories as stipulated in the tender and as directed by the Engineer in Charge.

**SP 10** The whole of the Works shall be completed within the contract period specified in the contract data and tender notice.

**SP 11** The contractor shall pay at the rate of 1/2% of the contract price per week of delay to the Employer as liquidated damages for the time, which shall lapse between the time prescribed in the tender notice and contract data, and the date of certificate of final completion of the works. Such liquidated damages shall be subject to a maximum limit of 10% of contract value or final sum.

**SP 12** The Employer shall issue Certificate of Completion of Works upon request from the Contractor as per Clause 11 sub clause 11 and 12, only if in the opinion of the Employer and the consultant the work is satisfactorily completed.

**SP 13** The Defects Liability Period shall be as specified in the contract data.

**SP 14** The Works shall be measured as given in the technical specifications or Bill of Quantities. If for a particular item of work, the mode of measurement is not given in the technical specifications or in the bill of quantities, then such work shall be measured as per the latest edition of Indian Standards IS : 1200. sub clause 3.

**SP 15** The contractors shall execute the work directly by themselves. However for execution of specialized items, the contractor may seek the assistance of such parties who are having expertise in the respective field and their services will help the contractor to execute those items to the best quality and standards specified. However approval for engagement of such agencies will be at the discretion of the Engineer In Charge.

**SP 16 CERTIFICATES & PAYMENTS**

**SP 16.1** The Contractor may submit weekly running bills in approved format for materials and works along with required details and measurements as directed by the Engineer in Charge. The Contractor shall submit Monthly Progress Report in triplicate in approved format. Failure to submit reports may result in holding up of Payment Certificate.

The bills shall be checked/verified and certified by the Consultant and the Engineer In Charge for Interim Payments for amounts, which in the opinion of the Consultant are due to the Contractor, based on actual executed quantities. Only the quantities of work executed, which correspond to the full description stated in the Bill of Quantities, shall be considered for payment. No part-rated items of work will be considered for payment in the bills.

All interim payments made to the Contractor during the progress of the works and thereafter against various running bills shall deem to be on account payments to be adjusted in the Pre-final or final bill submitted after the issue of Completion Certificate and handing-over of the Works to the Employer and further adjusted, if necessary at final account stage after the completion of Defects Liability Period and before release of the defect liability deposit.

Pre-final Bill shall be submitted within one month of issue of the Completion Certificate.
SP TERMS OF PAYMENT

16.2 Interest bearing Mobilisation advance as stipulated in CONTRACT DATA

16.2.1 excluding sums of contingencies shall be payable to the Contractor against an irrevocable Bank Guarantee of like amount in the same currency, ie amount of advance and estimated interest liability as detailed at contract data, from a scheduled and/or Nationalized Bank.

Recovery of Advance shall be:

i). A percentage (as stipulated in the CONTRACT DATA applicable on the gross Interim Certificate amount.

PLUS

The interest (as specified in CONTRACT DATA).

16.2.2 Payment as stipulated in CONTRACT DATA for the value of the materials delivered at site for incorporation in the Works shall be included in Running Bills after due certificate by the consultant and Engineer in Charge. The Engineer In Charge’s assessment on the value shall be taken as final. Material advance will be recovered from next immediate running bill in full. In each running account bill material advance will be allowed based on the assessment of actual quantity of material available at site and actually required for incorporation in the work as certified by the Consultant and Engineer In Charge.

16.2.3 The Contractor may be paid weekly on the certificate of the Engineer in Charge, such sum or the price of the Works executed up to the end of the previous week after adjusting payments made in earlier bills and recovery of advances etc.

Pre-final bill will be certified after verification by the consultant and Engineer In Charge of all the required details, 'as-built' drawings and duly checked the final measurements.

The contractor may submit the final bill after completion of the entire works and services, certification of all the items of works executed, completion of all measurements of works actually executed at site and certified by the consultant and Engineer In Charge, completion of all testing and inspections, submission of all required documents, statements, registers, approval of all deviations and additional items, approval of extensions etc. by the Employer.

The contractor shall consider and include all his claims whatsoever in the final bill which shall construe and mean that the contractor shall not have any other claims whatsoever against HAL under this contract other than those indicated in the final bill. For this purpose the contractor shall enclose to the final bill a No demand Certificate, stating that he has no any other claims whatsoever against the company under this contract except the claims indicated in the final bill and defect liability amount if any.

On receipt of the final bill duly signed by the contractor with all the aforesaid enclosures, the same will be scrutinised by the Engineer-in-charge to see whether the claims are in order. He will also examine the cost recovered and to be recovered, total material advances paid, recovered any to be recovered, mobilisation advances paid, amount, recovered with interest and yet to be recovered total hire charges, electricity and water charges, already recovered and yet to be recovered & other particulars as may be necessary.

No claims of the contractor whatsoever shall be entertained after payment of the final bill.

16.2.4 Percentage of Retention Money and the Security Deposit, shall be as detailed in Sr. No. 5 and 6 of Contract Data.
Notwithstanding anything contained elsewhere in this contract, the security deposit will be adjusted /refunded as follows:

a) The Performance Guarantee of 5% of contract sum will be returned to the contractor, along with the final bill only, duly discharged if necessary.

b) The Retention Money will be retained as defect liability deposit, which will be refunded on receipt of claim from the contractor after completion of the defect liability period and on rectification of all the defects (if any) pointed out during the defect liability period satisfactory and on certification by the consultant and Engineer In Charge.

c) In case of any of the defects are not attended by the contractor and as such the same are rectified by the Employer, the cost towards the rectification of those defects same will be recovered from the contractor from the defect liability deposit along with any other dues.

d) The security deposit i.e. Performance Guarantee & Retention Money shall be forfeited if the work is not completed in all respects by the contractor or the contractor withdraws or abandons the work during the course of execution.

SP 16.2.5 On submission of RA bills 75% of net value of work done will be paid on certification by Engineer In Charge along with recommendation of head of works department with in 2 days and balance 25% payment shall be effected after detailed scrutiny within a week. Payment will be made through Account Payee cheques or Credited to the specified banks at HAL Township Ojhar or through RTGS.

SP 17 APPROVAL AND ACCEPTANCE

The work shall deem to have been accepted after fulfillment of all the following by the Contractor.

1. Obtaining certification from the competent and regulatory agencies, departments regarding completion of items wherever required for occupation and use of the Works and services and on handing over such certificates to the Employer.

2. Submitting As-Built Drawings, Catalogues, Brochures, Data Sheets, manuals as directed by the Engineer.

3. Submission of all registers, documents, and test results and all other documents as required to be maintained as per contract terms.

4. Completion of all measurements, verification and certification by the Consultant and the Engineer In Charge.

5. Obtaining Certificate of Completion, from the Employer.

6. Handing over of all the Works and services to the Employer.
Notwithstanding anything contained elsewhere in any of the clauses of the tender, the prices/rates quoted for each item/work in the Bills of Quantities shall be firm and fixed and shall be inclusive of all direct and indirect costs, duties, taxes, sales tax, consignment tax, Octroi / local tax, work contract tax, service tax, over heads, profits etc. on any of inputs, royalty on quarried items, incidental expenses for obtaining approvals etc. that may be involved in completing the item/work as required in the fulfillment of all obligations under the contract and to the satisfaction of the Engineer In Charge. Any variation in taxes, duties, levies, fees, charges etc. during the tenure of the contract shall be borne by the contractor and no claim for increase in prices / rates shall be accepted by the Employer. No additional expenses on this account shall be borne by the Employer.

Sales Tax on Works Contract shall be borne by the Contractor but the Employer has the right to deduct equivalent amount from running bill of Contractor and deposit the same directly with competent authority. The Contractor ought to be registered with Sales Tax Department.

The Employer has further right to deduct any and all of the Taxes deductible at

The Contractor shall supply, erect and satisfactorily maintain in good repair until final completion of works, well lighted, temporary, burglar proof two Site Offices of 25 sq.m. Carpet area each viz. one for Employer and one for Consultant as per approved layout for use at all times. The contractor shall provide adequate access to the offices. The Contractor shall be responsible during the continuance of the contract for the security of the offices and for all plans, documents and papers etc. contained therein. The offices shall be constructed to approved standards, well ventilated and adequately weather proofed and with sufficient general office furniture, fans and lockable steel cup-board in each office. The Contractor shall provide uninterrupted electric power and water to the Offices as directed for 24 hours. Contractor shall provide one brand new Computer of latest version of Compaq or Lenovo make along with required soft wares & accessories, as decided by EIC, one laser printer of Brother or HP make, along with computer trolley, UPS etc. On completion of the work, the computer and printers shall become HAL property.

The Contractor shall provide at all times for the duration of the contract all staff men, workmen and survey instruments for the exclusive use of the consultant and Engineer In Charge as directed by the Engineer in Charge for carrying out of his duties in connection with the contract. The contractor shall ensure that his survey team possesses the adequate knowledge and experience in their field to perform the work.

Such survey and distance measuring instruments, which must be approved by the Engineer in Charge shall include but not be limited to the following:

1. One Levelling instrument/Theodolite with horizontal circle and tripod.
2. Two metric levelling staffs not less than 3.5 metres high.
3. Two 100-metre (Freemans brand) rust less steel tape, three 30 meter (Freemans brand) rust-less steel tapes, two 30 metre linen tapes and three 5 metres rustles steel tapes of Freemans brand.
4. Adequate number of ranging rods, drop arrows, wooden setting-out pegs, etc.
The contractor shall be solely responsible for all such instruments and equipments and shall ensure that they are at all times in good repair and adjustment.

On final completion of works, the entire offices along with all facilities provided by the Contractor except computers and printers and its connected units, as stipulated in clause SP 19 in Vol.I of tender documents shall be taken back by the Contractor at his own cost. The cost of providing the facilities stated in SP 19 and SP 19.1 are to be borne by the Contractor.

SP 20 The Contractor shall arrange accommodation for his staff and labour outside the HAL factory premises. No accommodation / labour hutments can be allowed within the Factory premises. Necessary land for Labour colony / camp for the construction work will be given outside the factory premises free of charges. The contractor’s maintaining labour camp by providing fencing, security, sanitation, water and lighting arrangements etc, will be the responsibility of the contractor. Labour

Residential accommodation contractors Engineers may be provided as per the availability and as per the terms of HAL, In Township area.

SP 21 All staff and labour shall be given Identity badges of approved design by the contractor and these shall be worn whenever the person is moving on the Site.

SP 22 The Contractor shall arrange for power for construction of temporary buildings / works at his own cost and nothing extra shall be payable on this account.

Alternatively, the Employer may, at his sole discretion, provide construction power at one point at site. Contractor shall arrange and install all distribution cabling / wiring etc. Power shall be metered at the point of supply by Employer. Cost of power supply (single & three phase) shall be recovered by the Employer from bills of the contractor @ Rs 4.20 for units 0-200, Rs 5.90 for units above 200, Rs 6.20 for units 20KW-50KW, Rs 8.10 for units above 50KW, or Current rate prevailing as decided by CM (Maint.). Providing of construction power point under this clause by the Employer is entirely at the option of the Employer’s and is subject to availability.

The Contractor shall also install a set of mobile Diesel Generators of suitable capacity for construction, temporary buildings and temporary lighting in order to take care of power failure and in adequate / fluctuating supply of power. These shall be provided from the date of mobilization up to the commissioning. This will act as stand by power.

The contractor shall provide all accessories and cabling as required along with Gen-sets. The contractor shall provide the installation and shall maintain the same in good order for entire duration of work.

The contractor shall then remove and take away all the equipments and accessories and the likes.

The Contractor at his own cost shall arrange water for construction and the same is deemed to be included in the quoted rates.

Alternatively, the Employer may at his sole discretion provide water for construction at one or more point at site at absolute discretion of the Engineer in Charge. Contractor shall arrange and install all taping and distribution piping, water meter etc. The cost of taping, piping network and the cost of water meter shall be borne by the contractor. The water used will be metered and charged @ Rs. 20.60 per 1000 litres or Current rate prevailing as decided by SM(works)/EIC. Recovery will be made from the RA bills or any amount due to
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex)
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex) the contractor. Providing of water under this clause is at the option of the Employer and is subject to availability.

SP 23 The Contractor shall provide sanitation and drainage facilities on the Site as stated subsequently, at his own cost.

Sanitation and Drainage During Construction

The Contractor shall strictly control the labour so that the Site is not polluted, made dirty or littered with debris, wastes or the likes.

Any person found creating mess or litter or pollution should be removed from the Site immediately at Contractor's cost.

The Contractor shall provide sanitation facilities at convenient locations on Site top reserve the cleanliness of the Site. The effluent shall be directed as follows:

1. Waste Water: Collection and pumping out and disposal off the Site in approved manner.

   Sewage $s$

   Septic tank provision sludge to be collected and disposed off at intervals as directed.

   The locations of the above provisions shall be as marked on the Site Mobilization Scheme drawing to be submitted by the Contractor for approval by the consultant and Engineer in Charge.

SP 24 The Contractor shall take note of the Site conditions and shall obtain any further details about ambient conditions on his own and take into account while pricing his tender.

Ambient Conditions

All items and equipments quoted shall be suitable for satisfactory working under the ambient conditions.

SP 25 The Contractor shall provide at his own cost, two Site sign Boards, of overall size 1 Sign Boards meter wide and 2 meters height and of approved design at directed location. The names of the Project, Employer, Consultants, and Contractor etc. shall be exhibited as directed.

SP 26 DRAWINGS AND DOCUMENTS

SP The drawings and documents prepared for the project shall be treated as General

26.1 Confidential without the express permission of the Engineer/employer.

26.2 are intended as a guide to the Contractor and give general layout of buildings and Drawings Tender

SP The tender drawings furnished by the Consultant are for Tender Purpose only and structures and general positions of utilities, services and equipment only and in measuring from these drawings and preparing tender quotes the contractor must make due and proper allowance for all necessary diversions from the straight line, rises or falls as may be required for the proper execution of the works.

Detail drawings in all cases shall be worked to in preference to those of a more general nature and figured dimensions where indicated shall be followed in preference to scaled dimensions. Should any item of equipment, materials or labour which would reasonably and obviously be inferred as necessary for the complete, safe and satisfactory usage of the Works or part thereof, not be expressly specified, the contractor shall provide and execute such work as a part of the contract at no extra cost to the Employer.

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
The consultant shall issue from time to time free of charge two sets of Contract Drawings, Approved for Construction, to the Contractor and one copy thereof to the Employer. Additional copies as and when required shall be supplied by the Consultant and costs shall be reimbursed by the Contractor. In case the issue of drawings does not conform to the Programme as planned and approved, the contractor shall immediately submit a revised Programme so that; by deployment of adequate resources, the Work is completed within the stipulated time period.

The Consultant may from time to time during the course of contract issue the Contractor with revised contract drawings and the Contractor shall ensure that all superseded drawings are removed from site and stored in a lockable cabinet as directed by the Consultant and replaced by revised contract drawings.

The Contractor shall ensure that a complete up to date Register of Drawing is maintained at Site indicating the date of receipt, the title of drawing, revisions etc. All Contract Drawings shall be properly filed and indexed for ready reference.

The Contractor shall ensure that only the valid up to date contract drawings are used for preparation of working drawings, setting out, construction etc.

Working drawings shall mean any or all drawings, required for satisfactory execution of the work, in addition to the contract drawings and shall be prepared and got approved by the contractor at his own cost.

Working drawings shall include Shop and Fabrication Drawings for Wood work, Steel / Metalwork, False ceiling, partitions, clamping and fastenings, all utility and services, Bar Bending Schedules etc. as required by the consultant and Engineer In Charge.

The Contractor shall be entirely responsible for co-ordination of entire work at site including the work carried out by Sub-Contractors (if approved by HAL) and shall ensure that all necessary working drawings are properly prepared by the Contractor and are submitted to the Consultant for approval in sufficient time so as not to cause any delay in the expeditious execution of the works as per the Programme. Such approval shall not absolve the contractor from his responsibility.

Working drawings to be prepared by the Contractor and his Sub-contractor(if approved by HAL) shall be such that all details are included as required by the Consultant at an appropriate scale to ensure that the Works are properly executed, co-ordinated, fabricated and installed in accordance with contract drawings and specifications.

The Contractor shall make a general check of all physical sizes and details of plant and equipment required and/or specified for the project and shall inform the Consultant of any matter that may come to his notice with which he disagrees. Any comments by the Contractor on the difficulty in incorporating the plant, materials and equipment in the project and the time required for the completion of the work shall be made to the Consultant.
The Contractor shall bring to the notice of the Consultant any discrepancies within or between contract drawings and/or the other contract documents prior to preparation of working drawings and commencement of work and shall not proceed with work until the Consultant gives clarifications and instructions to proceed.

"As Built Drawings" shall be provided by Contractor at the time of Pre-final bill and shall be prepared by the Contractor at his own cost.

As-built drawings shall be under preparation from the onset of the contract, in order that all minor amendments and discrepancies from the "Working Drawings" are incorporated. To ensure that this requirement is complied with, the Consultant shall inspect the drawings on his request as the Works proceed. 3 sets of "As-Built" drawings shall be submitted by the Contractor along with soft copy in CD or DVD.

At the discretion of the Consultant and subject only to his express agreement certain working drawings may be modified and submitted to the Consultant as the "As Built" drawings.

The Contractor shall also provide the Engineer in Charge through the consultant with two copies in a durable plastic case of the operating and Maintenance Instruction Manuals in respect of all equipments, machines etc.. The arrangement of these manuals shall be as follows:

SECTION A : Index

SECTION B : Description and details of materials, items, fittings and fixtures used for the project along with Catalogues & Addresses of the Suppliers.

SECTION C : Planned maintenance instruction and dates for order replacements.

SECTION D : List of recommended consumables.

SECTION E : List of "As-Built" Drawings

Until the Record Drawings, prints, transparencies and manuals referred to above have been received and approved by the Consultant, the Contract shall not be considered as complete and payment of monies will be withheld until such drawings, etc. have been submitted to and approved by the Consultant and the cost of providing such records including proper submission thereof is deemed to be included in the Contract Sum quoted by the Contractor.
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex)"

20) Time is the essence of the contract and the contractor shall be required to complete the work in all respects within the time stipulated in the contract, since the contractor’s tender depends upon the time allowed. However, if in the opinion of the Engineer In Charge, the work is delayed by reasons of:

   a) Abnormally bad weather, or
   b) By reasons of serious loss or damage by fire, or
   c) By reason of Civil commotion, local combination of workmen strike or lock out affecting any of the trades employed on the work, or
   d) By delay on the part of the agency or tradesmen engaged by HAL in executing the work not forming part of this contractor, or
   e) By reason of any other cause which is the absolute discretion of the Engineer In Charge is beyond the contractor’s control, then in such case the Accepting Officer on the recommendations of the Engineer-in-charge, may make fair and reasonable extension of time in the completion date of the individual items of work or the contract as a whole, and such extension which will be communicated to the contractor by the Employer in writing shall be final and binding on the contractor. No claim whatsoever in this respects either for compensation or otherwise shall be admissible.

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 endeavor to prevent or make good the delay and shall do all that may reasonably be required to the satisfaction of the Engineer in Charge.

21) Contractor shall submit all check lists, pour cards etc. as per the format approved by the consultant/Engineer in Charge before commencement of the works. The formats are to be submitted along with the Quality plan, which shall also include methodology.

22) Reconciliation of materials for Cement & Steel is to be made by the Contractor on monthly basis.

SP 33 PROTECTION OF ENVIRONMENT

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or other resulting from pollution, noise or other cause arising as a consequence of his method of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Ensure that all lights provided by the contractor shall be screened so as not to interfere with signal light on the railways or with any traffic or signal lights of any local or other authority.

Take all reasonable steps to implement the environmental mitigation measures

SIGNATURE OF TENDERER WITH SEAL

EMPLOYER
provided for in the “Environmental Management Plan” to be submitted by the contractor in accordance with objectives, procedures and other provisions set forth therein and shall not take any action, which would prevent or interfere with such implementation.

Salient features of some of the major laws that are applicable are given below

a) **The water (Prevention and Control of Pollution) Act, 1974**, This provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. “Pollution” means such contamination of water or such alteration of the Physical, Chemical or Biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

b) **The Air (Prevention and Control of Pollution) Act 1981**, This provides for prevention, control and abatement of air pollution, “Air Pollution” means the presence in the atmosphere of any “air pollutant”, which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

c) **The Environment (Protection) Act, 1986**, This provides for the protection and improvement of environment and for matters connected therewith, and the prevention hazards to human beings, other living creatures, plants and property. “Environment” includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

d) **The public Liability Insurance Act, 1991**, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matter connected herewith or incidental thereto. Hazardous substance means any substance or preparation, which is, defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

**SP. SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORKS.**

a) **Workmen Compensation Act 1923**: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

b) **Payment of Gratuity Act 1972**: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
c) **Employees P.F. and Miscellaneous Provision Act 1952:** The Act provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:

   i) Pension or family pension on retirement or death, as the case may be.
   ii) Deposit linked insurance on the death in harness of the worker.
   iii) Payment of P.F. accumulation on retirement / death etc.

d) **Maternity Benefit Act 1951:** The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

e) **Contract Labour (Regulation & Abolition) Act 1970:** The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.

f) **Minimum Wages Act 1948:** The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are schedule employments.

g) **Payment of Wages Act 1948:** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

h) **Equal Remuneration Act 1979:** The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.

i) **Payment of Bonus Act 1965:** The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs. 3500/- per month or less. The bonus to be paid to employees getting Rs. 2500/- per month or above upto Rs. 3500/- per month shall be worked out by taking wages as Rs. 2500/- per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

j) **Industrial Disputes Act 1947:** The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

k) **Industrial Employment (Standing Orders) Act 1946:** It is applicable to all establishment employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act
provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

1) **Trade Unions Act 1926:** The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

m) **Child Labour (Prohibition & Regulation) Act 1986:** The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and process. Employment of Child Labour is prohibited in Building and construction Industry.

n) **Inter-State Migrant workmen’s (Regulation of Employment & Conditions of Service Act 1979):** The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.

o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996:** All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

p) **Factories Act 1948:** The Act lays down the procedure for approval at plans before setting up a factory, health and safety provisions, welfare provisions working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

**SP -35 CONTRACTOR’S SUPERVISION**

The contractor shall appoint a responsible and Competent Engineer holding a Power of Attorney to act on his behalf in execution of the contract.

If the contractor fails to appoint suitable Engineer as aforesaid the EIC shall have full powers to suspend the execution of work and stop payment of any advances / bills that may have become due until such date a suitable Engineer is appointed and the contractor shall be held responsible for the delay caused to the work and no extension of time on this account shall be
Project: “Civil, Electrical and other utility services for package -Civil- II (Rotable complex) given to him.

Orders given to the contractor’s authorized Engineer shall be considered to have the same force, as if they had been given to the contractor himself. The authorized Engineer of the contractor shall be in attendance at the site during all working hours and shall monitor the execution of work with such additional assistance in each trade as detailed hereinafter or as the Engineer In charge may consider necessary.

The contractor or his accredited Engineer shall attend when required and without making any claim for doing so, either the office of the Engineer-in-Charge or the work site to receive instructions.

The Engineer In Charge shall have full power and without assigning any reasons, advice the contractor immediately to cease to employ in connection with the contract if any agent/servant or employee whose continued employment is in his opinion is undesirable. The contractor shall not be allowed any compensation on this account.

The contractor shall deploy an accredited representative holding power of attorney to monitor the work. The qualification and experience of the Engineers shall be as detailed below to receive instructions from the Engineer-in-Charge.
Additional Special Conditions.

ASP-1: Contractor shall obtain entry permits from the Employer for his staff, labour, sub-agencies and vehicles.

ASP-2: The work at flight hangar area may interrupt due to testing schedule of Aircrafts and the Contractor should prepare his schedule taking into consideration the obstruction during such period and arrange working in different shifts. Contractor will not be paid anything extra on this Account, but

ASP-3: Contractor should take into consideration that he may be required to work in split shift basis in Morning and evening hours avoiding noon peak temperature period for concreting of pavement.

ASP-4: Employer, in his absolute discretion upon the request of the contractor may permit the contractor to work during night hours if the employer is satisfied with the working arrangement made and the methodology proposed by the contractor.

ASP-5: The Employer may spare some suitable piece of land to the contractor free of any charges for installing his establishment and concrete weigh batching plant. The decision with regard to the location of land shall be exclusively that of the employer and shall be final, conclusive and binding upon the contractor.

ASP-6: Since the work is in a high security zone, the contractor will have to ensure that his representatives and the specialized agencies engaged by him do not have any criminal background and the authorized representative of the contractor shall produce an affidavit attested by notary public confirming his harmlessness and produce the particulars as may be required by the security department of the Employer and shall comply with all the requirements as may be directed.

The tenderer should get himself acquainted with all the formalities and procedures in this regard prior to submission of tender.

ASP-7: The contractor shall not be permitted to change the Technical staff designated for the project without prior approval of Engineer-in-charge. The permission shall not be withheld without valid reasons. In the event such permission is requested, the request shall be made at least 15 days prior to effecting such a change and the contractor shall depute a person of equal qualification and experience as a replacement as may be approved by the Engineer-in-charge. In case, the contractor replaces the technical staff without permission or is unable to comply with the other provisions of this clause, a penalty of Rs. 25,000/- per replacement shall be imposed upon the Contractor in addition to the penalties specified in SP_35.

ASP-8: The cut trees, if any shall be the property of HAL. The contractor shall have to stack the same neatly within the HAL premises, at his cost.

ASP-9: For blasting operations if required the contractor shall obtain approval from HAL authorities as well as from statutory bodies. Blasting is not permitted for dismantling. The contractor has to demolish the same carefully without disturbing foundation and adjoining structure.

ASP-10: The hard rock obtained from excavation will have to be stacked at locations as directed by the Engineer In Charge.

ASP-11: The contractor has to directly pay the royalties / fees / rents as may be applicable for the work, to concerned authorities and produce proof of the same on demand. If the authorities make any demand of the same to HAL and if the contractor does not produce satisfactory documentary proof to establish that the payment as stipulated in the demand is made by the Contractor shall obtain entry permits from the Employer for his staff, labour, sub-agencies and vehicles.

VOLUME I. CONTRACT CONDITIONS FOR TENDER NO.NK/FW/CAP-ROH-577/2010-11
contractor, HAL shall have the liberty to make the payment directly to the concerned authority and recover the same from the contractor.

**ASP-12:** The contractor may be allowed to bring Ready Mix Concrete from outside RMC plants in extreme emergencies, due to failure of plant erected at site and the progress of work is substantially affected and the consultant and EIC is satisfied about the arrangements especially in respect of infrastructure, location, lead etc. However, the contractor shall be responsible for the quality of the product. The consultant and Engineer In Charge including their representatives shall be given all the opportunities and facilities to inspect the said plant and infrastructure as and when required. The permission to bring RMC from outside RMC plant shall be exclusively at the discretion of EIC to attend emergencies.

**ASP-13** The specifications and technical details in MES SSR PART-I, Specifications and the relevant IS codes or in the absence of IS codes the respective international codes shall be followed for all the materials, workmanship, sampling, testing, quality control measures irrespective of the fact that those are specified in the technical specifications or BOQ. The MES SSR, IS codes or any other codes wherever specified shall be the latest version.

**ASP-14** The work is to be carried out in close co-ordination with Pre-Engineered Building contractor who has been engaged by HAL for the PEB structure. The Civil /Electrical and utility services activities shall be well planned and coordinated considering the PEB structure work.

**ASP-15** The contractor shall follows environmental friendly activities, waste management, and energy saving measures, green building concepts in execution of the work.
HINDUSTAN AERONAUTICS LIMITED, AIRCRAFT DIVISION, NASIK

NAME OF WORK

CIVIL, ELECTRICAL AND OTHER UTILITY SERVICES FOR CONSTRUCTION OF HANGARS, UTILITY BUILDINGS AND ALLIED FACILITIES FOR PACKAGE -CIVIL- II (ROTABLE COMPLEX) IN FACTORY [EXCLUDING PRE-ENGINEERED BUILDING STRUCTURES (PEB)]

TENDER NO.NK/FW-CAP-ROH/577/10-11

VOLUME II

TECHNICAL SPECIFICATION
### CRANE:

<table>
<thead>
<tr>
<th>Description of the Equipment</th>
<th>Electrically Operated Traveling Cranes (SG /DG Under slung EOT Cranes / Monorail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Single Under slung, double Girder over head and Monorail</td>
</tr>
<tr>
<td>Design criterion and function</td>
<td>Crane must be designed to lift 110% of the rated capacity and function normally i.e., according to its regular functions.</td>
</tr>
<tr>
<td>Scope of Supply</td>
<td>Design engineering, manufacture, fabricate, assembly, testing, packing, delivery, installation and commissioning of the equipment at site as per this specification along with the down shop lead system. The constructions, its components, design, testing and commissioning of the crane shall confirm to IS 3177 class II medium. The crane must be equipped with adequate safety devices.</td>
</tr>
<tr>
<td>Crane Bridge</td>
<td>Steel conforming to IS: 2062 or equivalent should be used in the manufacture of the above Box / RSJ with capping channel type Bridge Girder. In case, test certificates are not available, test pieces should be taken out at random from the lots and should be tested for chemical composition /properties and submission of reports. 100% reliability of the main butt-welded joints is to be ensured. All Butt welds for main girders for load bearing to be D.P. inspected. Girders are to be cambered for smooth running of trolley. Crane Girders of box type construction, made out of IS: 2062 plates, minimum plate thickness is to be 5 mm for Indoor duty and 1 mm corrosion allowance will be provided for outdoor duty cranes. The tension joints of the Bridge Girder should be 100% radio graphed and other butt welds should be checked for dye penetration check. The box girders should be constructed in a way to eliminate accumulation of water or oil inside them.</td>
</tr>
<tr>
<td>Gantry Girders</td>
<td>Gantry Girders / Rails (or both gantry girders and rails) should be Supplied, erected and aligned by the PEB Vendor in co-ordination with the Architect and or Crane vendor.</td>
</tr>
</tbody>
</table>

**Note:**

(x) Gantry Girders / Rails or both (as applicable depending on the type of crane): The PEB vendor to fabricate the Gantry Girders/ Rails from required size of EN8 / M.S. bright steel should be supplied, fixed and should be aligned and welded to ensure the smooth running of the cranes. The gantry girders / rails (as applicable) must be mounted such that the span does not vary with more than plus minus 3 mm for cranes up to 15 m span and plus minus 5 mm for larger spans. The difference in height along the runway should be less than 0.3 % of runway length. The difference in height between two rails (measuring points opposite each other should be less than 0.15 % of span. The PEB vendor may be required to take the co-ordination from the crane vendor for proper size and alignment.

(y) Catwalk: PEB Vendor shall supply, fabricate, and erect the cat walk along the gantry (crane runway) as per requirement including the access ladder from ground to catwalk. The material shall conform to IS:2062 or equivalent.

End Carriage                  | End carriages shall be manufactured from heavy structural steel or
welded from high tensile steel plates. The carriages are to be of sturdy design and robust construction fabricated from steel plates confirming to IS: 2062. Safety lugs, rail sweeper, jacking pad and safety buffers to be provided.

Platform

a). Small platform for Cranes on LT drive side is to be provided on one side of the Crane girder. Minimum width of the platform to be 600mm. The platform should have two-tier hand railing in tubular construction complete with toe guards.

b). Full length platform along the side of the crane girder for the cranes having type construction & span above - m

c). Platform at both ends for the cranes having height of above 6m and span less than - m

Maintenance cage / compartment for Hoist & DSL to be provided on both side of the crane. Or any arrangement like a single person can sit and can do maintenance activity of hoist.

Variable frequency drive & Load display not required.

**SINGLE GIRDER UNDER SLUNG EOT CRANE:**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Capacity in Tons (according Dwg)</th>
<th>Qty in No's</th>
<th>Speed (Micro Speed control) in M/min</th>
<th>Span Max in M</th>
<th>H.t of lift (approx in m)</th>
<th>Long travel (Appr ox) in m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building (1 9/1 )Shop 206</td>
<td>Hoist</td>
<td>Cross Travel</td>
<td>Long travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section for testing of beam holders launching and catapulting devices</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>Section for Overhaul of beam holders, launching and catapulting devices</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>23.5</td>
</tr>
<tr>
<td>Section for vibration testing</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>Section of Overhaul of artillery armament</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>Section of Preservation and Packing</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>Section for de preservation and washing</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td>Shop 204</td>
<td>Specifications</td>
<td>TENDERER VOLUME – II.</td>
<td>TENDERER VOLUME – II.</td>
<td>TENDERER VOLUME – II.</td>
<td>TENDERER VOLUME – II.</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>Section for depreservation and preliminary washing by benzene and kerosene</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td>Section for dismantling of aggregates</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td>Section for acceptance of aggregate in overhaul</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>12</td>
<td>7.5</td>
</tr>
<tr>
<td>Building - (21/1) Shop 204</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premises for vacuum pumps</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td>Section for Preservation</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>8.5</td>
</tr>
<tr>
<td>Section for Packing</td>
<td>0.5</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>5.5</td>
</tr>
<tr>
<td>Building - (22/1) Shop 205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section for preliminary washing</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Section for preservation and packing</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Section for final washing</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Store of articles, received for overhaul</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>17.5</td>
</tr>
<tr>
<td>Section of testing of struts</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>17.5</td>
</tr>
</tbody>
</table>

**DOUBLE GIRDER OVERHEAD EOT CRANE:**
### Specifications for Tender

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Capacity in Tons (according Dwg)</th>
<th>Qty in No's</th>
<th>Speed (Micro Speed control in M/min)</th>
<th>Span Max in M</th>
<th>H.1 of lift (approx) x in m</th>
<th>Long travel (approx) x in m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building (25/1)</td>
<td>Hoist</td>
<td>Cross Travel</td>
<td>Long travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>20</td>
<td>19.5</td>
</tr>
</tbody>
</table>

### Monorail Under Slung EOT Crane:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Capacity in Tons (according Dwg)</th>
<th>Qty in No's</th>
<th>Speed (Micro Speed control in M/min)</th>
<th>Span Max in M</th>
<th>H.1 of lift (approx) x in m</th>
<th>Long travel (approx) x in m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building (21/1)</td>
<td>Hoist</td>
<td>Cross Travel</td>
<td>Long travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHOP - 204</td>
<td>Box - 5</td>
<td>0.25</td>
<td>1</td>
<td>5</td>
<td>--</td>
<td>10</td>
</tr>
</tbody>
</table>

### Common Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Class / Duty</td>
<td>Class II medium duty as per IS 3177 / 807 / 3938</td>
</tr>
<tr>
<td>2</td>
<td>Service</td>
<td>INDOOR</td>
</tr>
<tr>
<td>3</td>
<td>Installation</td>
<td>The tracks designed to hung from roof structure</td>
</tr>
<tr>
<td>4</td>
<td>Permissible deflection (mm)</td>
<td>1/900 of the span</td>
</tr>
<tr>
<td>5</td>
<td>Bridge girder construction</td>
<td>RSJ with capping channel / BOX type as per design. Trolley shall run on top of the girders.</td>
</tr>
<tr>
<td>6</td>
<td>Finished Floor level to top of Rail (mm)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>End Clearance (mm)</td>
<td>300</td>
</tr>
<tr>
<td>8</td>
<td>Head Room from rail top to bottom of roof truss (mm) / RC Cross Beam (mm)</td>
<td>1500 (minimum)</td>
</tr>
<tr>
<td>9</td>
<td>Environment</td>
<td>Clean</td>
</tr>
<tr>
<td>10</td>
<td>Ambient temperature in the building</td>
<td>15 to 40º C</td>
</tr>
<tr>
<td>11</td>
<td>Material Handled</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Method of Control</td>
<td>Pendent movable along the span / Pendent push button movable along the span / Pendent push button movable along the span</td>
</tr>
<tr>
<td>13</td>
<td>Location of Control</td>
<td>End of Crane and on Hoist</td>
</tr>
<tr>
<td>14</td>
<td>Type of Control</td>
<td>2 speed All motions</td>
</tr>
<tr>
<td>15</td>
<td>Runway Conductors</td>
<td>Figure eight insulated type</td>
</tr>
<tr>
<td>S/n</td>
<td>Description</td>
<td>Technical Specification</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>------------------------</td>
</tr>
</tbody>
</table>
| 1   | Motors      | i) The motors should be crane duty motors of reputed makes like Crompton Greaves/ Bharat Bijlee etc. Electric motors for all the motions are to be totally enclosed, TEFC / TESC Sq. Cage induction crane duty motors with Class-F insulation and protected with IP-54 /55 protection. All the motors will be S4 duty with 40% C.D.F; 3 Phase, 415V; 50 Hz for A.C. Supply.  
  ii) For travel motions, standard geared brake motors/ conical rotor motors may be provided.  
  iii) The motor should generally conform to IS: 325 – 78 (latest). The supplier should specify the Horse Power of Hoist, Cross Travel and Long Travel Motors, indicating the safety margin included.  
  iv) The winding should be copper wire spec impregnated to withstand moist tropical climate.  
  (v) Horse Power for the motors should be computed as per Appendix D of IS: 3177. The ratings of the motors in HP/KW should be specified. The frame size of motor should be indicated in the offer and it should take into account 45°C ambient temperature and voltage of 415 + 10%.  
  vi) All motors should be provided with insulation of class “F” for stator and class “F” for rotor. The maximum permissible winding temperature measured by resistance method should not exceed 115°C and 135°C respectively.  
  vii) The pull out torque of the motors at rated voltage and frequency range should be as per IS: 3177-77.  
  viii) Type and routine test charts of the motors selected should be submitted with the equipment.  
  ix) The terminal box should be provided on the top or side of the motor for easy accessibility. The terminals should be large enough with spaces to accommodate aluminium conductor cables if necessary. The cable sizes should be decided after considering de-rating due to grouping and ambient temperature of 45°C.  |
| 2   | Brakes      | (i) Electromagnetic fail safe D.C operated brake or conical brake shall be provided for the Hoist. For the travel, electromechanical centrifugal brakes / conical brakes / disc brakes may be provided for smooth operation.  
  ii) All brakes should be capable of braking the respective movements effectively at various speeds and conditions. The brakes shall be of reputed makes like Pethe / Speed O control / Electromag or equivalent.  |
### Wheels

1. The Crane wheels shall be single flanged or suitable as per safe design with straight tread and shall be of Solid forged carbon steel wheels having the rolling surface and flanges hardened to a minimum hardness of 280-300 BHN / or spheroidal graphite cast iron with hardness of 250-300 BHN or alloyed steel with hardness of 45-55 HRC. Wheels are to be fitted with anti friction bearings. Minimum clearance on each side of wheels shall be 5 mm for C.T. and L.T. Wheels. and shall be mounted in anti friction roller bearings housed in 'L' shaped bearing brackets. The bearing housing shall be designed for easy removal of wheels and bearings for maintenance.

2. The wheels shall be capable of taking up mis-alignments in span as specified. Wheel rim shall be heat treated to have a hardness of as given above on the rolling surface and flanges to a depth not less than 10 mm with a smooth pass to the non-hardness zone. The supplier should specify the diameter of wheels.

### Rope Drum

1. Rope drums shall be designed to withstand the compressive stresses caused by the wound-on rope and the bending stress due to beam action of the drum.

2. The hoisting rope drums are to be welded construction, duly fabricated from M. S. plate and stress relieved or from heavy walled seamless tubing. The rope drum shall be double-flanged type. The rope drum having left and right hand spiral grooves duly machined to the correct depth, radius and angle to ensure smooth rolling of the wire rope. The steel shall be IS: 2062-1996 quality. The rope drum shall be stress relieved after fabrication. "T " joint shall be radio graphically tested.

3. The rope drum shall be designed to take the entire length of the rope in single layer and should have machined grooves for winding the rope.

4. The length of the drum shall be such that it will have minimum two full turns of rope at the lowest position of the hook and at least one spare groove for each lead of rope with the hook at its highest position. Each rope end shall be clamped with minimum two clamping wedges with at least 2 numbers of bolts on each clamping arrangement.
### Wire Rope & Rope Guide

Hoisting wire ropes should be extra flexible type, made from improved best plough steel, 6 x 36 FMC or suitable construction. The wire rope should confirm to IS: 2266 / 1970. High tensile hemp cored and galvanized of required diameter and construction with right hand lay should be provided. Rope guide shall be precision machined, wear resistant, heavy duty to suit rope drum grooves and maintain the rope in the grooves. No. of falls for 1 to 0.5T CRANE is 2 and for 2 to 5T CRANE is 4.

### Gearing

All the gears shall be machine cut hardened and profile ground and shall confirm to relevant Indian Standard. All the gears shall be of cast or wrought steel or forged from medium carbon alloy steel and suitably heat-treated. Teeth shall be machine cut, suitably hardened and tempered and shall conform to AGMA or IS 4460. Difference of hardness of pinion and gear must not be less than 20 BHN. The gearboxes to be made out of M.S. Fabricated body, CI body duly stress relieved, enclosed type, oil tight, dust proof. The boxes should be generally provided with lifting lugs, location dowels, breather vent, drain plug, deep stick/oil level indicator. All gearboxes shall be in totally enclosed construction. The gearboxes are splash lubricated and balance crane components with independent lubrication system, with provision of grease nipples at suitable places or advance lubrication system as per latest trend if any.

**BEARINGS:**

All the bearings provided shall be anti-friction ball/roller bearings. Life of the bearings shall conform to Clause 7.3 of IS: 3177. Bearings shall be of reputed makes like SKF / FAG/ TATA / ZNL / ZKL / URB or equivalent.

**COUPLINGS:**

For efficient power and torque transmission and to compensate all type of miss-alignments to compensate end and axial movement of the coupled shafts, there should be a provision of geared flexible coupling for all couplings at all coupled up connections.

### Buffers

Suitable buffers shall be fitted on the four corners of the Crane. Buffers shall be rigidly bolted in the place, preferably along with center line of the Gantry rail.

All buffers shall have sufficient energy absorbing capacity to stop the crane in either direction when Traveling at a speed of at least 40% full load rated speed. Crane buffers shall have a contact surface or not less than 125 mm in diameter.
### Contactors

1. **Rating of contactors** shall be at least 50% higher than the respective motor full load current at the specified duty cycle. The ratings of the contactors have to be specified in Amps. The contactor should be of reputed makes like Siemens/ L&T / Havells/ Telemecanique / BCH or equivalent.

2. Number of NO & NC contacts has to be specified for each contact. Spare quantity in case of each of contact may be considered.

### Limit Switches

1. Hoist, Long Travel and Cross Travel motion should be provided with the Limit Switches to prevent over hoisting, over lowering and over traveling. For cross travel and long travel shall be of lever type with self-resetting feature and incorporated in the Control circuit of the drive motor. Hoisting should have 2 Nos. limit switches i.e. gravity type and rotary type for crane having SWL 2T & above. <= 1T Cranes having Rotary limit switches & Additional Roller type limit switches.

2. Limit Switches for Travel motion shall be of self-resetting lever type incorporated in the control circuit of the drive motor.

### Overload Protection

Each hoist should be equipped with overload protector, which shall prevent the lifting of load beyond the capacity of the each hoist on the crane.

### Control Panel

1. All power and auxiliary contactors, individual overload relays, time relays etc., should be mounted in CRCA 14swg sheet steel cubicles with lockable-hinged doors. The door hinges should be of such type during repair works inside the panel, the entire door can be lifted out and placed away enabling better access inside the panel. Interior of the panel should be dust and vermin proof. Cables shall be of reputed makes like Finolex / Polycab / Skytone / Gloster etc.

2. Panels should be front wired with readily accessible terminal blocks for making connection to the external equipment. Panels should be pre-wired up to terminal strip. Multi core copper conductor should be used for control circuit wiring in the panel.

3. All contactors etc., should be mounted securely in a vertical arrangement with the due consideration to the vibration encountered in the operation of Crane. The bottom most of row of equipment mounted in the panel, except terminal strips should be atleast 200 mm above the panel bottom cover to facilitate inspection and repair.

4. All the equipment should be so mounted in the panel as to enable its easy removal / replacement from the front.
v) Terminal strips should be fixed inside with ferrule the panel preferably in horizontal manner, leaving enough space underneath the panel for termination of cables in a convenient manner. Power and Control terminal should be segregated. Power terminal block should be operated from each other by means of replaceable insulated spacers. Terminal block should have enough clearance to avoid tracking. A minimum of 20% spare terminal should be provided in terminal strips.

vi) All equipments inside the panel should have permanent identification labels in accordance with circuit diagram as also the power and control terminal. Terminal blocks should be robust and of such construction as to preclude possibility of cable connections getting loose due to vibration of Crane.

Control Panel:

vii) Panels should be mounted such that bottom of panel is at least 150mm above the floor.

viii) The electrical clearance in air between all live parts of different polarity and voltage and between live parts and earth should not be less than 75 mm.

ix) The control panel for Hoist, Cross Travel and Long Travel, shall be provided on the short platform near to end carriage or over the End carriage.

x) Circuits of all the travel motions of the crane i.e. hoisting / CT / LT shall be protected with individual MCB’s. The rating of MCB’s shall be selected according to the load curves of the individual motors.

xi) Power and control circuit diagrams to be attached inside the control panel doors in proper manner.

Main Switch:

1 No. independent MCCB main switch with in sheet metal enclosure type should be provided for each Crane near to the Control panel. (MCCB Should up based O/C, S/C, S/F, E/F)

Power Supply:

415 + 10% V. 3 Phase, 50 + 3% cycles AC.

Earthing:

Earthing of all electrical gadgets in the crane confirming to IS 3043 (Indian Electricity rules) shall be in the scope of crane supplier whereas excavation of pit, piping and other necessary works shall be in the scope of Electrical contractor. The crane structure, frames and metal cases of all the electrical equipment including metal conduits shall be effectively connected to earth through copper conductors, complying with Indian Electricity Rules.
**Control Voltage**:  
- i) 110 + 10% V. AC single phase.  
- ii) The control voltage shall be obtained through individual separate transformer connected to 3 phase, 415 Volts AC supply.

**Control**:  
- i) All the three motions (Hoist, Cross travel & Long travel) should be with two speeds (normal and micro speed).  
  
  This system has to be provided in the control panel of reputed make.  
  
  The make of the control should be specified by crane supplier for the approval of the Client / Architect.  
  
  Speed variation has to be proposed as an option.  
  
  ii) One indication lamp has to be provided in the crane control box. It shall be ON when the crane is ON.

**Pendant station**:  
- Control Pendent Push Button Station for controlling all the motions movable along the span for cable support suitable guide rings /wire rope track and associated hardware for ensuring smooth movement of pendent to be suspended by suitable multistrand wire rope. The switches shall be capable of withstanding rough handling without being damaged and the cover shall be effectively secured.  
  
  If the control is by push buttons or switches, they shall automatically return to the ‘OFF’ position immediately after they are released.  
  
  A digital load display unit with 100 mm display shall be quoted as an optional.

**Current Collection for Hoist**:  
- Festooned cable current collection system with PVC flexible cable shall be provided for Cross Travel motion as current collection system for Electric Hoist.

**Down shop Lead System**:  
- Down shop Lead system to feed power supply to the Crane will have 4 line shrouded galvanized of Insulated Conductor SAFE TRACK/ SAFE LINE shall be provided for the full length of the travel supported at intervals with brackets. 4 Nos. Pentagraph current collectors of fully articulated sliding type should be provided for each Crane to have spring loaded pressurized electrical contact with the shrouded bus bar. The galvanized bus bar rating shall be 100 Amps minimum. A switch fuse of required capacity will be provided by the **electrical contractor** at 1.5 M height from floor level at one end of the shop free of cost to crane supplier to tap the power supply for the Cranes.  
  
  A system has to be provided in order to isolate a particular crane for maintenance without disturbing the others.  
  
  Indication lamps to be provided for each DSL power supplies.

**Paint**:  
- All structural parts shall be thoroughly scrapped, cleaned, two coats of red oxide primer and two coats of synthetic enamel golden yellow (IS 5 2004 shade code 356) shall be applied before delivery. Touch up to be done after commissioning wherever it is necessary.

**Anti fall & anti derailing arrangement required.**
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| **21** Test Certificate | : | The supplier shall submit test certificates for the following: Copy of following test certificates of bought out components will be submitted:
|   |   |   |
|   | a. | Test certificates for electric motors. |
|   | b. | Test Certificates for Brakes. |
|   | c. | Test certificates for Limit Switches. |
|   | d. | Test certificates for Wire Ropes. |
|   | e. | Chemical analysis of raw materials |
|   | f. | Mechanical properties. |
|   | g. | Hardness tests. |
|   | h. | Radiographic inspection, if any. |
|   | i. | Test certificate for hook. |
|   | j. | The supplier shall also submit test certificates for all the bought out items. |
| **22** Quality Plan | : | Manufacturing Quality Plan for each type of crane should be submitted for approval before commencing the fabrication. |
| **23** Inspection and Dispatch (Pre-Dispatch Inspection) | : | Inspection after complete assembly at floor level for dimensional check and idle test run to be carried out for each crane before dispatch from the manufacturer’s works / sub contractor’s premises. However, assembly and load test should be carried out for each electric hoist before dispatch from the manufacturer’s works. Purchaser’s representative should carry out the inspection of the above. Final acceptance shall be after successful erection, commissioning, load testing at HAL site and submitting the certificate for safe use of the crane. |
| **24** Packing & unloading at site | : | The hoist shall be packed in waterproof packing. Unloading at site shall be in the supplier scope |
| **25** Erection & Load Test | : | Erection, testing and commissioning of the Crane at site should be carried out as per IS: 3177. Test loads and slings for conducting the full load and 25% overload test will be Crane supplier scope at the site of erection. Load testing of the crane, which shall be carried out as per current Factory rules by a competent person authorized by statutory authority shall be in the scope of crane supplier/vendor. Safety during erection must be followed strictly. |
| **26** Spare parts | : | Spares for 2 years normal operation after the warranty for all the cranes and hoists to be separately indicated with price schedule as optional. The list of spares has to be given by the supplier and validated by HAL maintenance department. |
| **27** Guarantee | : | Guarantee against use of defective materials and bad workmanship for 12 months from the date of commissioning or 18 months from the date of delivery whichever is earlier. In case any defect is noticed under normal use during the guarantee period the supplier shall arrange replacement / rectification free of cost on return of defective parts to the purchaser on freight paid basis. |
Annual maintenance contract: An AMC offer after warranty period shall be provided separately with a number and frequency of visits (1 visit in every 2 months).

Drawing: General arrangement drawing showing clearances and wiring diagram to be sent for approval within 4 weeks of receipt of the order. The drawing shall be approved by Consultant and or coordinated by the HAL. The scope of coordination will only cover the general arrangement of the crane. Hence even if some specific details are mentioned in the approved GA drawing, the liability of performance w.r. to these specific details in accordance with tender specifications lies with the vendor who has entered in the contract with HAL.

Manuals: Erection, operation and maintenance manual for the crane should include the following:
* Purchasers purchase order number & crane Sr. No.
* General arrgt. Drg. Electrical wiring diagram (Power and Control) * General information regarding equipment commissioning & maintenance inspection
* Description of components with part lists.
* Sub assembly drawings.
* Recommendations for lubrications and lubricants.
* L.T. machinery sub-assembly (L.T. Mechanism).
* C.T. Mechanism.
* Hoist Mechanism.
* Hook block assembly.
* Trolley current collection system.
* Rope drum assly.
* Wheel assembly drawings (LT & CT).
* Anchoring arrangement.
* Sectional details of gearboxes.
One set of soft copy for all the approved drawings along with maintenance manual to be submitted.

Authority Approval: Vendor has to get the Approval from appropriate statutory authority for the crane related works.
Certificate from crane vendor / statutory authority for the safe use of the crane to be provided.
Warranty certificate to be provided.

IS Standards: APPLICABLE STANDARDS AND CODES:
8. IS: 3815:1969 : Point hooks with shanks for general engineering purpose
## Accepted Make of Materials

<table>
<thead>
<tr>
<th>S.NO</th>
<th>ITEM</th>
<th>MAKE</th>
<th>OTHER DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearings</td>
<td>SKF / FAG / Timken / RHP or</td>
<td>Reputed - reputed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>equivalent - reputed</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cables</td>
<td>ISI approved</td>
<td>Cables with copper conductors only, Flex CL5</td>
</tr>
<tr>
<td>3</td>
<td>Connectors</td>
<td>Elmex / Wago</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Contactors</td>
<td>SIEMENS / ABB /</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telemecanique</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Master Controller</td>
<td>Siemens / SOC / WMI / EMM</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Couplings</td>
<td>Hi-Cliff / WMI / OEM</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Fuse / Fuse holders</td>
<td>English Electric / SIEMENS</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Hooks</td>
<td>Herman Mohatta / Hercules /</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steel Forgings / Smriti</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forgings / EE Karachiwala</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Isolator Switch</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Isolators</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Limit Switches</td>
<td>Siemens / SOC / OMEGA</td>
<td>IP54 or better</td>
</tr>
<tr>
<td>12</td>
<td>MCB</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>MCCB</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Motors</td>
<td>BBL / CROMPTON / GREAVES /</td>
<td>IEC Frame sizes, IP54 or better</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ALSTOM / SIEMENS / ABB</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Overload relay</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>(Electrical)</td>
<td>ELECTROGEAR</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Panels</td>
<td>SIEMENS / GODAVARI ELECTRICALS / DAN DAPANI / Original equipment manufacturer</td>
<td>Should be made from 18 G sheet steel, Powder coated and should be provided with panel locking facility.</td>
</tr>
<tr>
<td>18</td>
<td>Pendent pushbutton</td>
<td>HANSU</td>
<td>With colour coded pushbuttons and name plates</td>
</tr>
<tr>
<td></td>
<td>station</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Pneumatic timers</td>
<td>Bharatia Cutler Hammer</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Push Buttons</td>
<td>SIEMENS</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Rails</td>
<td>CR-80 / CR-100 / CR-120 /</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Square bar as per IS-3443</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Supplier(s)</td>
<td>Specification</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------</td>
<td>--------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>22</td>
<td>Resistance Box</td>
<td>BCH / SOC / WMI / OMEGA</td>
<td>IP1 1 or better</td>
</tr>
<tr>
<td>23</td>
<td>Thruster Brakes</td>
<td>SOC / WMI / OMEGA / SNS</td>
<td>IP54 or better</td>
</tr>
<tr>
<td>24</td>
<td>Wire Rope</td>
<td>Usha Martin / Fort William / Bharat wire ropes / Desh wire products</td>
<td></td>
</tr>
</tbody>
</table>

The party has to comply all the makes as given above, in case of deviation only reputed makes as approved by consultant and/or HAL shall be acceptable.

Note:
Refer drawings no's
(g) HAL-AAS-AR-1 01(19/1) HAL-MAA-AR-1 01(20/1) HAL-TSFA-AR-1 01(21/1) HAL-LGS-AR-1 01(22/1) HAL-CMR-AR-1 01(25/1)