



**बामर लॉरी एंड क. लिमिटेड**

(भारत सरकार का एक उधम)

**BALMER LAWRIE & CO. LTD.**

(A Government of India Enterprise)

**Multi-Modal Logistics Hub (MMLH)**

**SBU – Logistics**

**30-15-154/4F2, 5th Floor, GKP Heavenue,**

**Dabagardens Main Road, Visakhapatnam - 530020**

**TENDER DOCUMENT**

**for**

**Illumination System of Buildings & Sheds**

**for**

**Multi-Modal Logistics Hub at Visakhapatnam, Andhra Pradesh**

**Tender No. MMLH /ILLU/ PT/26**

**Date: 14.12.2017**

**Due Date: 29.12.2017, 16:00 Hrs**

**PART – I (UN-PRICED)**

**TENDERER'S CHECKLIST POINTS** (Tenderer must fill in the table below appropriately):

Sl. No.	Check list points	Bidder's Confirmation /Submission (Yes / No)
<b><u>PQ Criteria</u></b>		
1	Demand Draft for Tender Fees of <b>Rs 5,000/-</b> in favour of <b>Visakhapatnam Port Logistics Park Ltd.</b>	
2	Demand Draft or Bank Guarantee for Earnest Money Deposit of <b>Rs 73,000/-</b> in favour of <b>Visakhapatnam Port Logistics Park Ltd.</b>	
3	Attested/Notarized copy of valid NSIC certificate or "Micro and Small" industry certificate (In case of "Micro & Small" industries), if SC/ST please specify	
4	Audited Annual Reports for Last 3 financial years ending 31 <sup>st</sup> March,2017	
4.1	Turnover in FY 2014-15	.....
	Turnover in FY 2015-16	.....
	Turnover in FY 2016-17	.....
5	Valid Electrical License from Electricity Board of Andhra Pradesh/Other Sates/Union Territories.	
6	Work Orders with detailed Schedule of Work/BOQ and Completion Certificates for similar work as per required pre-qualification criteria	
7	Original Solvency certificate of <b>58 Lakh value</b> ( not older than 6 months)	
8	PAN	
9	GST Registration Certificate	
10	Provident Fund Registration	
11	ESI Registration	
12	IT Return for Last Three Financial Years ending March 16	
13	HSE Compliance as per Appendix-A & B under HSE Compliance	
14	Original Power of Attorney of the Signatory signing the tender document duly notarized	
<b><u>Other Conditions</u></b>		
15	List of Work Executed for the past 7 years as per Attachment –VI under General Conditions of Contract	
16	List of Work in Progress as per Attachment –VII under General Conditions of Contract	
17	Confirmation on Time of Completion of job within <b>16 (Sixteen) weeks</b>	
18	Confirmation on inclusion of Building Labour Welfare Cess in the quoted price for Installation (as applicable)	

19	Stamped and Signed Tender Document (with blanked out Schedule of Works) along with addendum/corrigendum	
20	Confirmation of 'NO DEVIATION' from Tender	
21	Confirmation of Bid Validity of <b>90 days</b>	
22	Whether the tenderer is a relative of any of the Directors of Balmer Lawrie & Co. Ltd. If the tenderer is a firm, is any of BL's Directors or any of their relatives partners in the tenderer's firm. If the tenderer is a company registered under company's Act, 1956, whether any of BL's Directors is a member of Director of the company.	

**Hard copies (2 sets in hard bound/spiral bound- 1 original +1 photocopy with Index/Table of Contents and page nos) of the above confirmatory documents (UNPRICED BID ONLY) must be sent before or on due date of submission of online tenders failing which the bid may be rejected.**

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## Tender No. MMLH /ILLU/ PT/ 26

### 1.0 TENDER INVITATION

Balmer Lawrie & Co Ltd (BL) invite ONLINE BIDS from experienced, competent and resourceful contractors with sound technical and financial capabilities for **Illumination System for Buildings & Sheds** for Multi-modal Logistics Hub at Visakhapatnam, Andhra Pradesh being set up by Visakhapatnam Port Logistics Park Limited (VPLPL), a Joint Venture Company between Balmer Lawrie & Co. Ltd. and Visakhapatnam Port Trust in India and having its registered office at 21, Netaji Subhas Road, Kolkata - 700 001.

The prospective bidders must note that BL is involved only to the extent of tendering & finalization of the order. The order on the successful bidder would be placed by Visakhapatnam Port Logistics Park Limited, having its registered office at 21, Netaji Subhas Road, Kolkata -700001 and Correspondence address at 30-15-154/4F2, 5th Floor, GKP Heavenu, Dabagardens Main Road, Visakhapatnam - 530020, India, Tel: + 91 891 2564933.

The intending bidders shall be deemed to have visited the site and familiarise thoroughly with the prevailing site conditions before submission of the tender. Non familiarity with the site conditions and non visit to site will not be considered reason either for extra claim or for not carrying out the work in strict conformity with the drawing, specification and time schedule.

### 2.0 SCOPE OF WORK

The scope of the tender covers Illumination System for Buildings & Sheds (i.e. Supply, Installation, Testing and Commissioning of Internal Electrification of Buildings & Sheds ) for Multi Modal Logistic Hub at Visakhapatnam as mentioned in Schedule of Work, General Conditions of Contract, Special Conditions of Contract, Technical Specifications and Drawings.

- 2.1 The quoted rates shall include Supply (including packing and forwarding, freight, loading, unloading at site and transit insurance), Installation, Testing and Commissioning of all equipment/items as per description provided in Schedule of Works.
- 2.2 The successful bidder shall prepare the wiring diagram, circuiting drawings, cable schedule, lighting layout as required and obtain owner's approval before procurement and execution.
- 2.3 While submitting price bid, the bidders shall upload all the Schedule of Works with their quoted rates and amounts along with Summary Sheet (Annexures 1 to 21) in e-procurement portal. If any bidder fails to upload any annexure/ Schedule of Works, their bid will be rejected. Any changes/modification in the item description, unit or quantity of Schedule of Work/Annexure will lead to disqualification of bid.

### 3.0 COMPLETION PERIOD

Time is the essence of the contract. The total work shall be completed within **16 (Sixteen) weeks** from the date of LOI/PO or within **3 weeks** from the date of handing over of the last building/shed at site whichever is later.

### 4.0 TENDER FEE

Tender fee of **Rs 5,000/- (Rupees Five Thousand Only)**, which is non-refundable, by means of a demand draft drawn in favour of M/s Visakhapatnam Port Logistics Park Ltd. on any Scheduled Bank payable at par at Kolkata should be submitted by the tenderer along with the un-priced part (Part-I) of the tender.

## 5.0 EARNEST MONEY DEPOSIT

- 5.1 Unpriced Part of the Bid should be accompanied by a Demand Draft or Bank Guarantee of **Rs 73,000.00 (Rupees Seventy Three Thousand Only)** towards Earnest Money Deposit (EMD) executed by any scheduled bank drawn in favour of M/s Visakhapatnam Port Logistics Park Ltd. payable at Kolkata as per format enclosed. EMD submitted by way of Bank Guarantee should be valid for a minimum period of **120 days** after the due date of tender submission.
- 5.2 Earnest Money deposit (EMD) and Tender fee are exempted for bidders registered under NSIC or coming under the definition of Micro and Small Industries and holding valid registration certificates covering the tendered items/services. However, attested/Notarized copy of valid NSIC certificate or "Micro and Small" industry certificate must be submitted along with the tender. The certificate must cover the scope/supply/services for which the Tender is invited.
- 5.3 For the successful bidder, the EMD will be refunded only after they submit the necessary Security Deposit against the work order placed on them.
- 5.4 For the unsuccessful bidders, the EMD will be refunded only after the successful bidder has accepted the Purchase order and the acknowledgment of the same has been received by BL.
- 5.5 EMD is liable to forfeiture in the event of:
- Withdrawal of offers during validity period of the offer
  - Non acceptance of orders by the bidder within the stipulated time after placement of order.
  - Any unilateral revision made by the bidder during the validity period of the offer.
  - Non submission of Security Deposit.
  - Bidders submitting false/fabricated/bogus documents in support of their credentials

## 6.0 PRE-QUALIFICATION CRITERIA

The prospective tenderers shall fulfill the following pre-qualification criterion -

### 6.1 Tender Fee, EMD or NSIC/MSME Registration Certificate

Submission of Tender Fee & EMD or Original Notarized Copy of valid NSIC/MSME Certificate along with the Unpriced Bid as mentioned above. Tender Fee & EMD in original shall reach to our office on or before the due date of submission of offer failing which bid will be rejected.

### 6.2 Turnover Criteria

Average annual turnover of the tenderer shall be minimum of **Rs 142 Lakh** during last 3 (three) financial years ending 31<sup>st</sup> March, 2017. Audited Annual Reports for Last 3 financial years ending 31<sup>st</sup> March, 2017 shall be submitted in support of that.

### 6.3 Past experience

The tenderer should have successfully executed electrical works of the following minimum values during past seven (7) years ending last day of month previous to the one in which tenders are invited:-.

- 3 jobs each of value not less than **Rs 58 Lakh** or

- b. 2 jobs each of value not less than **Rs 73 Lakh** or
- c. 1 job of value not less than **Rs 116 Lakh**

Copy of work orders and satisfactory completion certificates/commissioning report from the owner or from their consultant should be enclosed as supportive documents. In the event the consultant issued completion certificate on owners' behalf for a particular job, copy of order issued by the owner to the consultant shall also require to be furnished. In case of non-availability of completion certificate the bidder shall submit bank statement on release of payment towards final bill.

The bidder should be in possession of valid Electrical License from Electricity Board of Andhra Pradesh/Other States/Union Territories.

#### **6.4 Solvency Certificate**

The tenderer must submit along with the unpriced Bid **Original Solvency Certificate** for **Rs 58 Lakh** from any Scheduled Bank not older than 6 (six) months from the date of opening of bid. Solvency Certificate addressed to third party will not be accepted. If photocopy of Solvency submitted along with the bid, the bidder shall produce the original for verification.

#### **6.5 PAN, GST Registration, ESI & PF Registration**

Tenderers are required to submit attested photocopies of PAN, GST Regn., ESI Registration, Provident Fund registration along with Un-priced part of their offer, failing which their offer may be liable to be rejected. The tenderer shall necessarily submit GST registration of Andhra Pradesh. Tenderers with GST registration of other states shall submit declaration stating if owner/VPLPL fails to get Input Tax Credit, same amount shall be recovered from their bill.

#### **6.6 Income Tax Return**

Tenderers are required to submit Income Tax Return for Last 3 financial years ending March 2016.

#### **6.7 Compliance with HSE Standards**

Tenderers are required to comply HSE standards as mentioned in **Appendix – A & Appendix – B** of this tender document. Compliance of HSE shall be considered as one of the pre-qualification criteria of the bidder.

#### **6.8 Power of Attorney**

The Power of Attorney or authorisation letter or any other document consisting of adequate proof of the ability of the signatory to bind the bidder, in original, when the Power of Attorney or authorisation or any other document is issued relating to the specific tender of Balmer Lawrie & Co. Ltd only. However, a notarized true copy of the 'Power of Attorney' shall also be accepted in lieu of the original, if the Power of Attorney is a general "Power of Attorney". But photocopy of such notarized true copy shall not be accepted.

#### **7.0 PRE- BID QUERIES**

To understand the scope of work and to get clarifications on the queries, if any, tenderers are requested to send communication to **Mr. Sk Abu Jafor (Landline no. 08912564933, e-mail : jafor.a@balmerlawrie.com)**. However, the prospective bidders are requested to follow our website for clarifications / updates.



## 8.0 TENDER DOCUMENTS

Tender Documents comprises two parts viz. Part-I (Un-priced) and Part-II (Priced).

The Un-priced Part consists of Notice Inviting Tender, General & Special Conditions of Contract, and Technical Specification & Drawings. The Priced Part consists of Priced Schedule.

Bidders are requested to download the tender document and read all the terms and conditions mentioned therein and seek clarification, if any, from **Sk Abu Jafor**.

## 9.0 TENDER SUBMISSION

The bidder would be required to register on the e-procurement site <https://balmerlawrie.eproc.in> and submit their bids online.

For registration and online bid submission tenderer may contact the following officials at the HELP DESK of M/s C1 India on browsing to the website <https://balmerlawrie.eproc.in> during business hours (10:00 a.m. to 06:30 p.m.) from Monday to Friday (Excluding holidays of the Company):

Name	E-mails	Phone Numbers
1. Mr. Tirtha Das(Kolkata)	<a href="mailto:tirtha[dot]das[at]c1india[dot]com">tirtha[dot]das[at]c1india[dot]com</a>	+91-9163254290
2. Mr. Tuhin Ghosh(Kolkata)	<a href="mailto:tuhin[dot]ghosh[at]c1india[dot]com">tuhin[dot]ghosh[at]c1india[dot]com</a>	+91-8981165071
3. Mr. Partha Ghosh(Kolkata)	<a href="mailto:partha[dot]ghosh[at]c1india[dot]com">partha[dot]ghosh[at]c1india[dot]com</a>	+91-8811093299
4. Mr. CH.Mani Sankar (Chennai)	<a href="mailto:chikkavarapu[dot]manisankar[at]c1india[dot]com">chikkavarapu[dot]manisankar[at]c1india[dot]com</a>	+91-8939284159
5. Ms. Ujwala Shimpi (Mumbai)	<a href="mailto:ujwala[dot]shimpi[at]c1india[dot]com">ujwala[dot]shimpi[at]c1india[dot]com</a>	+91-022- 66865608

The tenderer shall authenticate the bid with his Digital Certificate for submitting the bid electronically on e-procurement platform and the bids not authenticated by digital certificate of the tenderer will not be accepted on the e-procurement platform. All the tenderers who do not have digital certificates need to obtain Digital Certificate **(with both Signing and Encryption Components)**. They may contact help desk of M/s C1 India.

The tenderer shall invariably furnish the original Demand Draft in case of Tender fee and Demand Draft /BG for EMD and other relevant documents to the tender inviting authority so as to reach on or before the due date and time of the Tender either personally or through courier or by post and the receipt of the same within the stipulated time shall be the responsibility of tenderer. The Company shall not take any responsibility for any delay or non-receipt. **If any of the documents furnished by the tenderer is found to be false/fabricated/bogus, the tenderer is liable for black listing, forfeiture of the EMD, cancellation of work and criminal prosecution.** The tenderer is requested to get a confirmed acknowledgement from the Tender Inviting Authority as a proof of hardcopies submission to avoid any discrepancy.

The bidders found defaulting in submission of hard copies of original Demand Draft in case of Tender fees and Demand Draft / BG for EMD and other documents to the Tender Inviting Authority on or before the stipulated time in the Tender will not be permitted to participate in the Tender.

The bidder is requested to download the tender document and read all the terms and conditions mentioned therein and seek clarification if in doubt from **Sk Abu Jafor**.

The bidder must keep track of the Addendum / Corrigendum / Amendment/Time Extension, if any, issued by the Tender Inviting Authority by visiting the Company's website ([www.balmerlawrie.com](http://www.balmerlawrie.com)) and e-procurement site (<https://balmerlawrie.eproc.in>) from time to time. No separate newspaper advertisement shall be published for such Addendum / Corrigendum / Amendment etc. The Company shall not be responsible for any claims/problems arising out of this.

The tenderer should complete all the processes and steps required for bid submission. The successful bid submission can be ascertained once acknowledgement is given by the system through bid submission number after completing all the process and steps. **M/s C1 India is not responsible for incomplete bid submission by bidders.** Tenderers may also note that the incomplete bids will not be saved by the system and are not available for the Tender Inviting Authority for processing. Tenderers are advised to upload their documents and price bid well in time to avoid last minute rush on the server or complications in uploading.

**Neither the Company (Balmer Lawrie & Co. Ltd.) nor the service provider (M/s C1 India) is responsible for any failure or non-submission of bids due to failure of internet or other connectivity problems or system problems of bidder or reasons thereof.**

#### 10. ADDRESS FOR SUBMISSION OF HARD COPIES OF THE TENDER (UNPRICED : PART-I)

The hardcopies (**2 sets in hardbound/spiral bound/box file, 1 Original + 1 Photocopy**) as explained above and also defined in clause no. 3.05 of GCC under sealed envelope should reach our office located at 30-15-154 / 4F2, 5<sup>th</sup> Floor, GKP Heavenue, Dabagarden Main Road, Visakhapatnam 530020. Loose papers/documents shall be avoided. The bid document shall have Index/Table of Contents with page nos of items/sections for ease of identification. The Bidders who are submitting the Bids in person are requested to drop the same in our tender box located at the entrance of 5<sup>th</sup> floor at the above address during business hours (between 9.30 am and 6.30 pm). **The Price Schedules/Schedules of Works (Annexure-1 to 21) in .xls format shall be downloaded from the website, bidders to fill in their rates & amount, print, stamp, sign, scan and upload the same. If any Schedule of Work is missed out by bidder, their bid will be rejected. Total Contract Price with GST shall be entered as 'Project Contract Total' while uploading price bid. Hard copy of price bid shall not be submitted. Submission of Price Bid in hardcopy by any bidder will lead to cancellation of their bid.** Any hardcopy of unpriced bid submitted to any other office of Balmer Lawrie other than above mentioned address shall not be considered under any circumstances.

#### 11.0 SUPPLY OF MATERIAL

All materials required for the work shall be supplied by the contractor.

#### 12.0 TERMS OF PAYMENT

12.1 No advance shall be paid.

12.2 **85%** of running account bill shall be paid after supply of materials & installation and verification/certification of work by engineer-in-charge.

12.3 Balance **15%** of running account bill shall be paid after testing, commissioning and handing over to owner upon certification by engineer-in-charge.

12.4 On each running account bill **10% of basic bill value** will be withheld as retention money. The Contractor shall, within fifteen (15) days, submit to the Owner/VPLPL Initial Security Deposit equivalent to **5%** of the total contract value. During payment of monthly running account bills, the initial security deposit will be adjusted first against 'Retention Money', but in no case total retention including initial security deposit shall exceed 10% of the executed value of work at any stage. The retention money will be released after completion and acceptance of work against issue of Bank Guarantee of the equal amount for defect liability and performance maintenance period, which shall be twelve (12) months from the date of completion of job or eighteen (18) months from the date of site delivery, whichever is earlier. Performance Bank Guarantee shall be issued by any Nationalized /Scheduled Bank on basic value of material supplied and shall remain valid for above guarantee period.

### 13.0 TAXES & DUTIES

GST (IGST or CGST & SGST, as applicable) as indicated in the Summary of Schedule of Work shall be mentioned while submitting Price Bids. The bidders must pass on 'Input Tax Credit' to VPLPL. Any other taxes except GST shall be included in the basic rate. GST shall be quoted separately in the summary sheet of Price Schedule.

### 14.0 NON-CONFORMANCE

Tenders not conforming to the above mentioned requirements are liable to be rejected.

### 15.0 VALIDITY OF OFFER

Tendered shall keep their offer valid for a period of **90 days** from the date of opening of Unpriced bid.

### 16.0 QUANTITY VARIATION

The quantity as mentioned in the Schedule of Work/ Price Bid is indicative. The selected bidder/Contractor shall however ascertain the exact quantity required at site and supply and install accordingly. As the work progresses, it is possible that there will be quantity variations to any extent & omission of items. Under all such circumstances, the rates should be firm.

### 17.0 FIRM PRICE

The price should be firm and irrevocable and not subject to any change till the completion of Scope of Work.

### 18.0 RATES AND OTHER ENTRIES

- (a) The tenderer should quote for all items in the Schedule of Work. If bidder does not quote for any item, it will be considered that rate/cost for the same is included in some other items. If there is any discrepancy between unit rate and total amount, the unit rate will prevail.
- (b) The rates should be quoted in the same units as mentioned in the tender schedule of quantities.
- (c) All entries in the tender documents should be in ink / type. Corrections if any should be attested by full signature of the tenderer.
- (d) Every page of the tender document including annexures / enclosures shall be stamped and signed by the tenderer or his authorized representative thereby indicating that each and every page has been read and the points noted.

## 19.0 LANGUAGE OF BIDS

The Bid prepared by the bidder, all documents attached to and/or relating to the bid and all correspondence exchanged by the Bidder and BL shall be written in English language only. Any printed literature furnished by the bidder may be written in any other language provided that this literature is accompanied by an authenticated English translation, in which case, for purpose of interpreting the Bid, the English translation shall govern.

## 20.0 LATE BIDS

Bids received after the due date shall not be accepted under any circumstances, bidders are requested to send their bids considering the holidays. Office of Balmer Lawrie is closed on Sunday and national holidays as per the company policy.

## 21.0 BID REJECTION CRITERIA

A bid may be rejected

- 21.1 If the bidder fails to send the Earnest Money Deposit (EMD) and Tender Fee amount along with the Unpriced Bid within the due date.
- 21.2 If the bidder does not meet the pre-qualification / technical criteria and /or non-submission of documents specified. Bids of those bidders who are not meeting the pre-qualification criteria will not be considered for further techno-commercial evaluation.
- 21.3 The deviations from the terms mentioned in the document is likely to affect in any way the scope, quality and performance of the work.
- 21.4 If the bidder submit price bid in hardcopy.
- 21.5 If a conflict of interest between the bidder and the company is detected at any stage.
- 21.6 If the bidders fails to produce all the original documents/credentials, photo copy of which has been submitted along with bid.
- 21.7 BL /VPLPL reserves the right to verify the particulars furnished by the bidder independently and to obtain feedback from clients/ other concerned agencies. Falsification/suppression of information shall lead to disqualification of the bidder / cancellation of contract even after award of work during the contract.

However, BL/VPLPL reserves the right to accept or reject any tender either in part or in full without assigning any reason whatsoever.

## 22.0 OPENING OF BIDS

The bids will be opened online only in E-procurement portal <https://balmerlawrie.eproc.in>.

## 23.0 DEVIATIONS

It is expected that bidders will submit their bid strictly based on the terms and conditions and specifications contained in the bidding documents and will not stipulate any deviations. Should it, however, become unavoidable, deviations (in the form of Deviation Sheet) should be submitted along with the Bid.

## 24.0 RIGHT TO ACCEPT OR REJECT TENDER

The bidders qualifying as per Pre-Qualification Criteria will be qualified for opening of their price bids and qualified bidder based on over all L-1 value (landed cost to BL/VPLPL i.e. net of Input tax Credit/GST) for Price Bid shall be

considered as successful bidder. In the event of receipt of lowest price from more than one (1) bidders, fresh price bids shall be invited from the lowest bidders only to determine final lowest bidder for placement of order.

## 25.0 CONTACT DETAILS

For any Technical clarifications / queries Tenderers are requested to contact **Sk Abu Jafor, Deputy Manager-MMLH (Landline no. 08912564933, e-mail: jafor.a@balmerlawrie.com)** (from 10.00AM to 06.00PM Monday – Friday and Saturday 10.00 AM 3.30 PM).

For **Balmer Lawrie & Co. Ltd.**

**M K GANGULY**  
**COO (L)**

# GENERAL CONDITIONS OF CONTRACT

**Article I           DEFINITIONS****Article II           INTERPRETATION OF GENERAL CONDITIONS OF CONTRACT**

- 2.00    General
- 2.01    Discrepancy in Tender Document
- 2.02    Headings / Titles
- 2.03    Singular and Plural

**Article III          GENERAL INSTRUCTIONS TO TENDERERS**

- 3.01    Non-transferability of Tender Documents
- 3.02    Tenderers responsibility to collect all required data
- 3.03    Complete & Competitive Offer
- 3.04    Submission of tender
- 3.05    Details to be submitted along with the tender
- 3.06    Rates and other entries
- 3.07    Right to accept or reject tender
- 3.08    Contract agreement
- 3.09    Earnest Money
- 3.10    Security deposit
- 3.11    Validity of offer
- 3.12    Time for completion of work

**Article IV          GENERAL INFORMATION**

- 4.01    Site information, climatic condition etc.
- 4.02    Construction water
- 4.03    Construction power
- 4.04    Accommodation for labour & supervisory staff
- 4.05    Deployment of Workmen
- 4.06    Contractor's field office, godown and stores
- 4.07    Temporary roads and drains
- 4.08    Issuing Gate Pass

**Article V           GENERAL OBLIGATION AND PERFORMANCE OF WORK**

- 5.01    Execution of work
- 5.02    Co-ordination and inspection of work
- 5.03    General conditions for construction and erection work
- 5.04    Work in Monsoon & Summer
- 5.05    Drawing to be supplied by the Owner
- 5.06    Drawings to be supplied by the Contractor
- 5.07    Setting out work
- 5.08    Reports & Records
- 5.09    Issue of materials
- 5.10    Storage
- 5.11    Audit
- 5.12    Damage to Property
- 5.13    Articles of value found
- 5.14    Discrepancies between instructions

- 5.15 Liquidated Damage
- 5.16 Force Majeure
- 5.17 Period of liability
- 5.18 Right of owner to terminate the contract
- 5.19 Sub-letting of work
- 5.20 Patents and royalties
- 5.21 Performance guarantee & warranty
- 5.22 Contractor's responsibility with other agencies
- 5.23 Arbitration

**Article VI INSPECTION, CERTIFICATION AND PAYMENT**

- 6.01 Inspection & testing
- 6.02 Schedule of rates and payments
- 6.03 Procedure for measurement/billing of work in progress
- 6.04 Secured Advance
- 6.05 Notice of claim for additional payment
- 6.06 Completion certificate
- 6.07 Final Certificate
- 6.08 Certificate and payments on evidence of completion

**Article VII RULES, REGULATIONS & INSURANCE COVERAGE**

- 7.01 Observance of rules/acts in force
- 7.02 Taxes, duties & other statutory payments
- 7.03 Labour Laws
- 7.04 Implementation of Apprentice Act 1964
- 7.05 Insurance

**Article VIII SAFETY CODES & PRACTICES**

- 8.01 General
- 8.02 First aid and Industrial injuries
- 8.03 General Rules
- 8.04 Contractors barricades
- 8.05 Safety equipment
- 8.06 Hoisting equipment
- 8.07 Electrical equipment

**ATTACHMENTS**

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I	Agreement	4
II	BG Verification Check List	2
Ila	BG for Earnest Money Deposit	2
III	BG against Performance	2
IV	BG for Security Deposit	2
V	Information about Tenderer	1
VI	Details of Experience	1
VII	Concurrent Commitment	1
VIII	Indemnity Bond	3



**ARTICLE – I**  
**DEFINITIONS**

1.00 **GENERAL**

The following expressions hereunder and elsewhere in the contract documents used shall have the following meanings hereunder respectively assigned to them except where the context otherwise requires:

- 1.01 The "Owner / "Purchaser"/ "Employer" shall mean Visakhapatnam Port Logistics Park Limited (VPLPL)., a Joint Venture Company between Balmer Lawrie & Co Ltd and Visakhapatnam Port Trust in India and having its registered office at 21, Netaji Subhas Road, Kolkata - 700 001 and shall include its successors and assigns.
- 1.02 "Tenderers" or "Bidders" shall mean such parties who have been issued Tender Document by the Owner and those parties who have submitted these offers to the Owner in response to the Tender Document issued to them.
- 1.03 "Tender Document" shall mean the Tender Documents comprising Part I (Un-priced Bid) –Notice inviting tender, General Conditions of contract, Special Conditions of Contract, Technical Specification, Schedule of Quantities, Drawings / Sketches, Data Sheets, Addenda / Corrigenda to the tender document issued by the Owner, Form of Tender and Part II (Priced Bid) - Price Schedule.
- 1.04 The "Contractor / Successful tenderer/Supplier" shall mean the tenderer selected by the Owner for the performance of the work and shall include the successors and Owner permitted assigns of the Contractor.
- 1.05 The "Sub-contractor" shall mean any person or firm or company (other than the Contractor) to whom any part of work has been entrusted by the Contractor with the written consent of the Engineer-in-Charge, and the legal representatives, Successors and permitted assigns of such person, firm or company.
- 1.06 **The "Project" shall mean Illumination System for Buildings & Sheds for Multi Modal Logistics Hub at Visakhapatnam, Andhra Pradesh.**
- 1.07 The "Project Manager" shall mean the Officer nominated by Owner to co-ordinate and supervise all the activities connected with the implementation of project on their behalf. "Project Manager" may at his discretion depute Owner's officers to co-ordinate / supervise the work of Contractor / Consultants at site.
- 1.08 The "Engineer-in-Charge" shall mean the Engineer/Agency authorised by the Owner for the purpose of the Contract for overall supervision and co-ordination of site activity and certification of billing.
- 1.09 The "Project Management Consultant (PMC) or Consultant" shall mean M/s. Aarvee Associates, Architects, Engineers & Consultants Pvt Ltd, having it's registered office at Ravula Residency, Srinagar Colony main Road, Hyderabad – 82.
- 1.10 "Site" shall mean all such land, waters and other places on, under, in or through which the works for the Project are to be performed under the Contract.

- 1.11 The "Site Engineer" shall mean the Engineer(s) for the time being deputed by the Engineer-in-Charge as Site Engineer for the work to be performed by the Contractor at any and/or all job sites and to co-ordinate all activities of all parties at site.
- 1.12 "Inspecting Authority" means Third Party Inspection Agency (TPIA) as specified by the Owner/Consultant or Owner's authorised representative or Consultant's representative.
- 1.13 The "Work" and "Scope of Work" shall mean the totality of the work by expression or implication envisaged in the contract and shall include all material, equipment and labour required for or relative or incidental to or in connection with the commencement, performance or completion of any work and/or for incorporation in the work.
- 1.14 The "Works" shall mean the product(s) of the work and shall include all extras, additions, alterations or substitution as required for the purpose of the contract.
- 1.15 The "Works Contract" or "Contract" shall mean the totality of the agreements between the parties as derived from the Contract Documents for the entire work.
- 1.16 The "Contract Documents" shall mean collectively Tender Documents and the Contract Documents as laid out in the Owner's Standard Contract Format which is based on the General & Special Conditions of Contract.
- 1.17 The "Specification(s)" shall mean the various specifications as set out in the specifications forming part of the tender documents and as referred to and derived from the contract and any order(s) or instruction(s) thereunder, and the absence of any specifications as aforesaid covering any particular work or part of portion thereof, shall mean the relevant Indian Standard Institution Specifications for or relative to the particular work or part thereof, and in the absence of any Indian Standard Institution Specifications covering the relative work or part or portion thereof, shall mean the standards or specifications of any other country applied in India as a matter of standard engineering practice and approved in writing by the Engineer-in-Charge or Site Engineer with or without modifications.
- 1.18 "Order" and "Instruction" shall respectively mean any written Order or Instruction given by the Engineer-in-Charge or Site Engineer within the scope of their respective powers in terms of the Contract and shall include alteration / variation order to effect additions to or deletion from and / or alteration in the work detailed in the contract.
- 1.19 "Plans" and "Drawings" shall mean maps, plans, drawings, sketches, tracings and prints forming part of the tender documents and any details or working drawings, amendments and/or modifications thereof approved in writing by the Engineer-in-Charge, Site Engineer or any agency notified by the Engineer-in-Charge to the Contractor for the purpose and shall include any other drawings or plans in connection with the work as may from time to time be furnished by or approved in writing by the Engineer-in-Charge or Site Engineer or any other agency nominated by the Engineer-in-Charge on his behalf in connection with the work.
- 1.20 "Temporary Work" / "Enabling Work" shall mean all such works which are required in or about the execution, completion or maintenance of the work and if not provided for specifically in the Schedule of rates shall be deemed to be done by the Contractor at his own cost in fulfilment of the contract.

- 1.21 "Constructional Plant" shall mean all such Plant & Machineries, appliances, aids or things of whatsoever nature other than materials intended to form part of the permanent works which are required in or about the execution, completion for maintenance of temporary and permanent work.
- 1.22 "Completion Certificate" shall mean the Certificate to be issued by the Engineer-in-Charge after the work has been completed to his satisfaction.
- 1.23 "The Final Certificate" in relation to the work shall mean the certificate to be issued after the period of liability is over by the Owner regarding satisfactory compliance of various provisions of the contract by the contractor.
- 1.24 "Period of Liability" or "Defect Liability Period" refers to the specified period from the date of completion of the entire work as indicated in the completion certificate up to the date of issue of Final Certificate during which the contractor is responsible for rectifying all defects "free of cost" to the satisfaction of Owner.
- 1.25 "Schedule of Rates"/ "Schedule of Quantities" shall mean the schedule of rates incorporated in the contract and shall also include supply rates for labour, material etc. as well as payments for all such work determined in accordance with the contract conditions.
- 1.26 "Running Account Bill" shall mean a Bill for the payment of "On Account" to the Contractor.
- 1.27 "Agreed Variation" shall mean the statement of Agreed Variation annexed to the Acceptance of Tender or a further Amendment to the Contract forming part thereof.
- 1.28 "Acceptance of Tender" shall mean the Acceptance of Tender issued by the Owner to the Contractor.
- 1.29 The "Total Contract Value" means the value of original work order issued and duly accepted by the Contractor. The remuneration due to the Contractor in terms of the Contract on successful completion of the work shall mean the value of job actually executed by the Contractor within the original time schedule or within the approved extended time.
- 1.30 "Written Notice" or "Notice" in writing shall mean all hand written, typed / printed /e\_mail form sent (unless delivered personally) or proved to have been received by registered post to the last known address / private / business or registered office, of the contractor and shall be deemed to have been received in the ordinary course of post it would have been delivered.
- 1.31 "Letter of Intent" shall mean intimation by a letter to the successful tenderer that the tender has been accepted in accordance with the provisions contained therein.
- 1.32 "Progress Schedule" shall mean the time schedule of Progress of Work.
- 1.33 The "Alteration Order or Variation Order" means Order given in writing by the Owner to effect additions to or deletions from and alterations in the work.
- 1.34 "Measurement book(s) / Sheet(s)" shall mean the register preserved by the Engineer-in-Charge, where all measurements taken at site are neatly recorded by the Engineer-in-Charge or his authorised representative and signed in token of acceptance by the Contractor or his authorised representative.

## **ARTICLE - II**

**INTERPRETATION OF GENERAL CONDITIONS OF CONTRACT****2.00 GENERAL**

The following general conditions shall be read in conjunction with the other conditions of contract, special conditions of contract, Technical Specifications etc. and shall be considered as an extension and not in limitation of the obligations of the Contractor. In case of discrepancy, if any, between these conditions the precedence shall be as stated elsewhere in the special conditions of contract.

**2.01 DISCREPANCY IN TENDER DOCUMENT**

Should there be any discrepancy, inconsistency, error or omission in the Tender Documents, the Tenderer shall bring it to the notice of the Owner / Engineer-in-Charge for necessary clarification / action. In the event such matters are referred to later the decision of the Owner / Engineer-in-Charge directing the manner in which the work is to be carried out shall be final & conclusive and the contractor shall carry out work in accordance with this decision.

**2.02 HEADINGS / TITLES**

All headings & Titles/Notices to the clauses, specifications /drawings are solely for the purpose of indicative reference and not as summary of the contents and thus shall not be deemed to be part of the clauses of the contract.

**2.03 SINGULAR AND PLURAL**

Unless otherwise stated or repugnant to the context the singular shall include plural and vice-versa.

**ARTICLE - III****GENERAL INSTRUCTIONS TO TENDERERS****3.01 NON-TRANSFERABILITY OF TENDER DOCUMENTS**

Tender documents shall remain the property of the Owner and if obtained by one intending tenderer, shall not be utilisable by another without the consent of the Owner.

**3.02 TENDERERS RESPONSIBILITY TO COLLECT ALL REQUIRED DATA**

- (i) The tenderer should study all tender documents, carefully, understand the condition / drawing / specification etc. before quoting. If there are any doubts about tender conditions he should obtain clarification from **Sk Abu Jafor**(from 10.00 a.m. to 06.00 PM Monday – Friday and Saturday till 3.30 PM). This shall not be the justification for late submission or extension, compensating date or time to the tender. All tender documents shall govern the contract, shall form part of the contract and shall be binding during the execution till completion of work.
- (ii) The tenderer should visit the site and acquaint himself with the site conditions, all factors which are likely to be relevant for the works, availability and rates for various things including construction materials as per specification, shelter for staff etc. since these are to be provided / arranged by the tenderer (unless otherwise specified) at his own cost. In any case it will be deemed that tenderer as done so and no claim

whatsoever will be entertained on the plea of ignorance of any factor or difficulties involved in fulfilling the tender conditions.

- (iii) Under no circumstances, Tenders may be withdrawn or modified after it's submission to the Owner. Negligence on the part of the Tenderer in preparing his tender confers no right for withdrawal or modification of his tender after the tender has been opened.

### **3.03 COMPLETE & COMPETITIVE OFFER**

- (i) Tenderers are required to make the lowest offer for the work as per the enclosed specification and details available therein. The estimated quantities given in the schedule of Quantities are approximate. As the work progresses, it is possible that there are variations & omission of items.
- (ii) The rates quoted should be inclusive of all materials, labour, incidental expenses, equipment, Tools / Tackles, Transportation of materials and Labour, all taxes except GST. All materials are to be supplied by the Tenderer unless otherwise stated.
- (iii) Incomplete / Conditional tender quotation or those received late and / or not conforming to the terms and conditions in the tender documents will be liable to get rejected.
- (iv) It is in the Tenderer's interest to adhere to the Owner's tender conditions, specifications and Tender Schedule. However, if the tenderer considers it unavoidable, deviations should be clearly spelt out with reference to tender conditions. Owner reserves the right to determine / evaluate financial implication of such deviations without any reference to the tenderer or at his discretion consider such tenders liable for disqualification.
- (v) After "Un-priced" bids are evaluated, tenderers whose bids are found acceptable may be invited for discussions for exchange of clarifications, if any, required. At that stage, depending on the merits of the case, opportunity may be given to amend the "Priced" bids already received along with the un-priced bids, but not opened until then. Revised price bids shall be submitted online in e-procurement portal within 7 days from the date of such intimation by owner. Tenders indicating counter proposals or deviations are liable to be rejected.
- (vi) Tenderers are expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all Specifications and conditions of Contract. This will avoid loss of profit or gain in case of curtailment or change of Specification for any item. In case it is noticed that the rates quoted by the Tenderer for any item are unusually high or unusually low it will be sufficient cause for the rejection of the Tender unless the Owner is convinced about the reasonableness of the rates on scrutiny of the analysis for such rate to be furnished by the Tenderer on demand.

### **3.04 SUBMISSION OF TENDER**

The mode of tender submission shall be strictly as defined in the Notice Inviting Tender.

### **3.05 DETAILS TO BE SUBMITTED ALONG WITH THE TENDER**

The tenderer shall submit the following along with the following:

- (i) Hard copy (**1 set original and 1 set photocopy, total 2 sets**) of Un-priced Tender Document duly filled in, stamped and signed by the Tenderer as prescribed in different clauses of Tender documents. **No hard copy of priced bid shall be submitted.**
- (ii) Stipulated Tender Fee & Earnest Money Deposit
- (iii) The Power of Attorney or authorisation letter or any other document consisting of adequate proof of the ability of the signatory to bind the bidder, in original, when the Power of Attorney or authorisation or any other document is issued relating to the specific tender of Balmer Lawrie & Co. Ltd only. However, a notarized true copy of the 'Power of Attorney' shall also be accepted in lieu of the original, if the Power of Attorney is a general "Power of Attorney". But photocopy of such notarized true copy shall not be accepted.
- (iv) Details in proforma wherever prescribed regarding the following:
  - a) Similar work done in past seven years by the tenderer.
  - b) Work in progress and booked along with details of original schedule of completion progress status, likely completion etc.
  - e) Solvency certificate, Income Tax Returns for the last 3 years, PF/ESI registration, Annual Reports for the last 3 years, etc.
  - f) Any other documents required in terms of this tender.

### **3.06 RATES AND OTHER ENTRIES**

- (i) The tenderer should quote for all items in the Schedule of Rates. The rate should be expressed in English both in figures and words. Where discrepancy exists between the two, the rates expressed in words will prevail. Similarly if there is any discrepancy between unit rate and total amount, the unit rate will prevail.
- (ii) The rates should be quoted in the same units as mentioned in the tender schedule of quantities.
- (iii) All entries in the tender documents should be in ink / typed Corrections if any should be attested by full signature of the tenderer.
- (iv) Every page of the tender document including annexure / enclosures shall be stamped and signed by the tenderer or his authorised representative thereby indicating that each and every page has been read and the points noted.

### **3.07 RIGHT TO ACCEPT OR REJECT TENDER**

The Owner reserves the right to accept or reject any or every tender without assigning any reason whatsoever / or to negotiate with the tenderer(s) in the manner the Owner considers suitable. The work may be split up amongst two or more tenderers if considered expedient.

### **3.08 CONTRACT AGREEMENT**

The successful tenderer shall within **15 days** of the Owner's communication to him of the Acceptance of the Tender, execute formal agreement with the Owner in the proforma attached to the Tender Document.

In the event of failure on the part of the successful Tenderer to sign the agreement within the stipulated time period, the Earnest Money Deposit will be forfeited and the Acceptance of the Tender shall be considered as cancelled.

### 3.09 EARNEST MONEY DEPOSIT

- (i) The Tenderer shall be required to submit an Earnest Money of **specified value as mentioned in NIT** along with the un-priced part of the tender and the same shall be returned to the unsuccessful tenderers after acceptance of order by the successful tenderer. Earnest money of successful bidder shall be released after submission of initial security deposit by them

The permissible forms of deposit are:

- a) Bank draft drawn in favour of M/s Visakhapatnam Port Logistics Park Limited on a Kolkata branch of any Scheduled Bank
- b) Bank Guarantee executed by any Scheduled Bank as per proforma enclosed and shall be valid for a minimum period of **120 days** after the due date of tender submission.
- (ii) If the successful tenderer is unable to accept or execute orders when placed upon him or fails to deposit the Initial Security Deposit or withdraws / revises his quoted prices and quantities offered, within the validity period of the tender or after placement of the Order / Letter of Acceptance, the his Earnest Money Deposit shall be forfeited.
- (iii) No interest is payable against Earnest Money Deposit.

### 3.10 SECURITY DEPOSIT

- (i) On acceptance of the Bid, Contractor shall within **fifteen (15) days**, deposit with Owner an initial Security Deposit of **5% of the Contract value** and the same shall be in any of the following:
- a) Bank draft drawn on a Kolkata Branch of any Schedule Bank in favour of M/s Visakhapatnam Port Logistics Park Limited.
- b) Bank Guarantee executed by any Scheduled Bank as per proforma enclosed and shall be valid at least 60 days after completion of work.
- (ii) If Contractor fails to provide the Security Deposit within the period specified, such failure will constitute a breach of the Contract and Owner shall be entitled to award the Work elsewhere at Contractor's risk and cost. The EMD of the bidder to whom Contract was awarded shall be forfeited.
- (iii) No interest shall be payable against Security Deposit.
- (iv) As and by way of additional security, from every progress bill of Contractor, Security Deposit in the form of Retention Money (interest free) at the rate of 10% of the Gross value of such bill as determined before payment shall be retained by the Owner. At any point of time such deduction shall not exceed 10% of

executed value. Owner can permit Contractor to replace the Security Deposit / Retention Money so retained by Bank Guarantee at his discretion after successful completion of the work.

- (v) Wherever the Security Deposit / Retention Money is furnished by Contractor in any form other than in cash or Demand Draft, Contractor shall be entirely responsible to keep such form of security deposit enforceable by extending the validity thereof before one month of date of expiry and keep them enforceable, until released by Owner after the Defect Liability Period.
- (vi) The Security Deposit / Retention Money shall remain at the entire disposal of Owner as a security for satisfactory execution and completion of the Work(s). Owner shall be at liberty to deduct and appropriate from the Security Deposit / Retention Money such damages (liquidated or otherwise) and other dues and recoveries from Contractor under this Contract and the amount by which Security Deposit / Retention Money is reduced by such appropriations, will be made by further deductions from Contractor's subsequent bills to that extent as to make up the Security Deposit / Retention Money.
- (vii) Notwithstanding anything to contrary, in as much as the Security Deposit is to be in cash with Owner, Owner shall be entitled to enforce any of the approved forms of Security Deposit furnished by Contractor at any time and realise cash thereof irrespective of whether or not Contractor disputes such right. However, if Contractor obtains the extension of the time limit, if any, for the enforceability of such form of Security Deposit and intimates Owner of such extension within one month before expiry, Owner may not enforce such form of Security Deposit, unless it has otherwise become enforceable.
- (viii) On due and satisfactory performance of all the obligations of Contractor under this Contract including completion of work in all respects, carrying out the obligations of Contractor during Defect Liability Period, Retention Money shall be released by Owner subject to recoveries, deductions and retentions therefrom as provided under the Contract.

### 3.11 VALIDITY OF OFFER

As per clause 15 of NIT.

### 3.12 Time for Completion of Work

Time is the essence of the contract. The tenderer shall submit their plan to complete the whole work according to the overall time allowed for the execution of work as given in the Tender Documents and NIT. **The allowed time for completion of the work as per the NIT includes contract agreement signing and mobilisation of manpower and equipment at site.**

- 3.12.1 The Contractor shall complete in all respects in accordance with the Contract, the entire work at each job site within the time specified in this behalf in the Time Schedule.
- 3.12.2 It is the contractor's responsibility to prepare and submit to the Owner / EIC, a Progress Schedule the dates of progress as fixed by the Engineer in Charge being final and binding upon the contractor except as herein otherwise expressed provided and shall then be the Approved Progress Schedule.
- 3.12.3 The application for extension of time made by the Contractor to the Engineer in Charge should contain full details of
  - a. The activity for the Progress Schedule affected.



- b. The bottlenecks or obstructions perceived/ experienced, and the reasons therefor,
- c. Extension required/ necessitated on account of above
- d. Extension required/ necessitated on account of reasons attributable to the Owner,
- e. Extension required/ necessitated on account of force majeure reasons, and
- f. The total extension of time if any required/ necessitated for completion, taking the above into account and after eliminating all overlaps.
- g. The contractor must maintain Hindrance Register at site which shall be updated regularly by Contractor and approved by EIC.

3.12.4 The opinion/ decision of the Engineer in Charge in this behalf and as to the extension of time necessary shall.

3.12.5 The term "Force Majeure" as employed in this contract shall mean wars declared or undeclared or revolutions, civil wars, tidal waves, fires, major floods, earthquakes, epidemics, quarantine restrictions and freight embargoes and transporters strikes affecting the country as a whole.

#### **4.0 GENERAL INFORMATION**

##### **4.01 Site Information, Climatic Condition Etc.**

The details relating to above are given separately to the best of Owners knowledge. The tenderer shall be deemed to have satisfied themselves regarding site condition, access, communication facilities, local conditions, climatic conditions including wind, monsoon period, rainfall, temperatures etc. and shall be deemed to have included the impact of these factors within their quoted rates.

Contractor should visit the site and familiarise themselves thoroughly before submitting the tender. For the purpose the contractors are required to contact **Sk Abu Jafor /Sri Dhritiman Nandi**.

##### **4.02 Construction Water**

The contractor has to make his own arrangement for both construction water and drinking water. The Owner does not undertake to supply water to the contractor. The contractor shall not dig any wells on owners land without specific permission on writing from Engineer-in-Charge of Owner. Ground water in and around the project site is contaminate and is not suitable for construction purpose.

All temporary arrangements for distribution of construction water shall be removed forthwith after completion of the work or if there is any hindrance caused to the other works, the contractor will re-route or remove the temporary lines at his own cost in a manner so as to continue his (contractor's) work in an uninterrupted manner.

##### **4.03 Construction Power**

The contractor has to make his own arrangement for construction power.

All temporary arrangements for distribution of construction power shall be removed forthwith after completion of the work or if there is any hindrance caused to the other works, the contractor will re-route

or remove the temporary lines at his own cost in a manner so as to continue his (contractor's) work in an uninterrupted manner.

#### **4.04 Accommodation for Labour & Supervisory Staff**

The Contractor shall make his own arrangements for accommodation of his labour and supervisory personnel. No accommodation for labour & supervisory staff shall be provided within the site premises.

#### **4.05 Deployment of Workmen**

The workers of the contractor must require proper identification and permission; otherwise they will not be allowed to enter the premises. Necessary assistance in this regard may please be obtained from local administration department.

#### **4.06 Contractor's Field Office, Godown and Workshop**

Owner will at his own discretion and convenience and for the duration of the execution of the work make available near the Site, land for construction of Contractor's field office, godowns, stores, workshops and assembly yard required for the execution of the Contract. The Contractor shall at his own cost construct all temporary Buildings and provide suitable water supply and sanitary arrangement approved by the Engineer-in-Charge.

#### **4.07 Temporary Roads & Drains**

Contractor shall provide service road/roads for movement of materials as per direction of Engineer-in-Charge. Contractor shall also maintain these service roads in safe and fit conditions at his own cost. He shall however have no authority to prevent use of such roads by Owner and other bonafide contractors working at site. Contractor shall also construct temporary drain as may be required while construction.

#### **4.08 Issuing Gate Pass**

The contractor will have to submit the details of the persons to be employed at site (before starting of the work) in a specified format along with photocopy of valid photo identity card based on which gate pass will be issued for each person. Before issue of gate pass, the contractor shall ensure for PPE, health check-up & safety induction training of the persons to be deployed at site. No person will be allowed to work without valid gate pass. The contractor shall surrender to the Pass Issuing authority all the gate passes issued for a particular job after completion of the job.

### **5.0 GENERAL OBLIGATION AND PERFORMANCE OF WORK**

#### **5.01 Execution of Work**

All the work shall be executed in strict conformity with the provisions of the Contract Document and with such explanatory detailed Drawings, Specifications and Instructions as may be furnished from time to time to the Contractor by the Engineer-in-Charge, whether mentioned in the Contract or not. The Contractor shall be responsible for ensuring that Work throughout are executed in the most substantial proper and workmanlike manner with the quality of material and workmanship in strict accordance with the Specifications and to the entire satisfaction of the Engineer-in-Charge.

**5.02 Co-ordination and Inspection of Work**

- (i) The co-ordination and inspection of the day-to-day Work under the Contract shall be the responsibility of the Engineer-in-Charge but this will not detract the contractor's full responsibility. The written instructions regarding any particular work will normally be passed by the Engineer-in-Charge or his Authorised Representative. A work order book will be maintained by the Contractor for each sector in which the aforesaid written instructions will be entered. These will be signed by the Contractor or his authorised representative by way of acknowledgement within Twelve (12) hours. The pages in the work order book shall be machine numbered.
- (ii) The Engineer-in-Charge will have full power and authority to inspect the Work at any time wherever in progress either on the Site or at the Contractor's Premises / Workshops wherever situated, Premises / Workshops of any person, firm or corporation where work in connection with the Contract may be in hand or where materials are being or are to be supplied, and Contractor shall afford or procure for the Engineer-in-Charge, every facility and assistance to carry out such inspection. Contractor shall, at all time during the usual working hours and all other times at which reasonable notice of the intention of the Engineer-in-Charge or his representative to visit the Work shall have been given to Contractor, either himself be present to receive orders and instructions, or have a responsible agent duly accredited in writing present for the purpose.

**5.03 General Conditions for Construction Work**

- (i) The working time is forty eight (48) hours per week per person. Overtime of work is permitted in cases of need and the Contractor will compensate the same. Shift working at two (2) or three shifts per day will become necessary and the contractor should take this aspect into consideration for formulating his rates for quotation. No extra claims will be entertained by the Owner on this account.
- (ii) For carrying out work on Sundays, and Holidays, the Contractor will approach the Engineer-in-Charge or representative and obtain prior permission in writing.
- (iii) The Contractor must arrange for the placement of workers in such a way that the delayed completion of the Work or any part thereof for any reason whatsoever will not affect their proper employment. The Owner will not entertain any claim for idle labour payment whatsoever.
- (iv) The Contractor shall submit to the Owner reports at regular intervals regarding the state and progress of work. The details and proforma of the report will mutually be agreed after the award of Contract.
- (v) The Contractor shall arrange for required number of competent Engineer Supervisor to be present at site at all times during the progress of the work, who shall be duly authorised to take instructions and execute them on his behalf.

**5.04 Work in Monsoon & Summer**

The completion of the work may entail working in the monsoon also. The Contractor must maintain a minimum labour force as may be required for the Work and plan and execute the construction and erection according to the prescribed schedule. No extra payment will be considered for such work in monsoon. During monsoon and other period, it shall be the responsibility of the Contractor to keep the construction work site free from water at his own cost.

Adequate precautions have to be taken while working in summer. The working hours for the workers may be rescheduled so as to avoid work during heat hours in the noon. Effective arrangements for supply of sufficient cold drinking water shall be made available and maintained at suitable points conveniently located for use by all workers employed and the water points be legibly marked as "DRINKING WATER". Rest room/Shed to be provided wherever & must be functionally for taking tiffin's/meals and rest by the workers. Oral re-hydration solution should be supplied to all workers during heat hours.

#### **5.05 Drawing to be Supplied by the Owner**

- (i) Where drawings are attached with Tender, these shall be for the general guidance of the Contractor to enable him to visualise the type of Work contemplated and Scope of Work involved. The Contractor will be deemed to have studied the Drawings and formed an idea about the work involved.
- (ii) Detailed working drawings on the basis of which actual execution of work is to proceed, shall be prepared by the contractor and same shall be approved by the Owner. Contractor shall be deemed to have gone through the Drawings supplied to him thoroughly and carefully and in conjunction with all other connected drawings and bring to the notice of the Engineer-in-Charge, discrepancies if any, therein before actually carrying out the work.
- (iii) Copies of all detailed working drawing relating to Work shall be kept at the Contractor's office at the Site and shall be made available to the Engineer-in-Charge at any time during the Contract. The drawings and other documents issued by the Owner shall be returned to the Owner on completion of the Work.

#### **5.06 Drawings to be Supplied by the Contractor**

- (i) The successful bidder shall prepare the wiring diagram, circuiting drawings, cable schedule, lighting layout as required and obtain owner's approval before procurement and execution.
- (ii) Where approval of Drawings for Procurement/execution has been specified, it shall be Contractor's responsibility to have these drawings prepared as per the directions of Engineer-in-Charge and got approved before proceeding with Procurement/execution as the case may be. Any changes that may have become necessary in these drawings during the execution of work shall have to be carried out by the Contractor to the satisfaction of Engineer-in-Charge at no extra cost. All final drawings shall bear certification stamp as duly signed by the Engineer-in-Charge.

#### **5.07 Setting out Work**

- (i) Contractor shall establish and clearly mark a reference base line at the site and will establish bench marks at regular interval and other points, lines, elevations, etc. as he may require for the proper execution of the work from reference pillars indicated by Engineer-in-Charge
- (ii) Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the positions, levels, dimensions and alignments of all the parts of the works and for the provisions of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of the works, any error appears or arises in the position, levels, dimensions or alignments of any part of the works, Contractor, on being required to do so by Engineer-in-Charge, shall, at his own expense, rectify such error to the satisfaction of Engineer-in-Charge unless such error is based on incorrect data supplied in writing by Engineer-in-Charge / Owner. The checking of any setting out or any line or level by Engineer-in-Charge shall not in any way relieve Contractor of his responsibility for the correctness thereof and

Contractor shall carefully protect and preserve all the bench marks, side rails, pegs and other things used in setting out of the work.

#### **5.08 Reports and Records**

- (i) Within fifteen (15) days of the Award, Contractor shall submit to Engineer-in-Charge the detailed programme, the content and form of which shall be satisfactory to Engineer-in-Charge showing the order to procedure and method in which he proposes to carry out the work and the time limit and sequence of carrying out the work and shall, whenever required by Engineer-in-Charge, furnish for his information particulars in writing of Contractor's arrangements for the carrying out of the work and of constructional plant and temporary works which contractor intends to supply, use or construct as the case may be. The approval by Engineer-in-Charge of such programme or the furnishing of such particulars shall not relieve Contractor of any of his duties or responsibilities under this Contract.
- (ii) Contractor shall submit to Engineer-in-Charge by the fifth (5th) day of each month for each part of his work under this Contract and in summary.
  - a) A month by month forecast and a historical record up to completion of his requirements and actual use of:
    - Manpower by craft, type and position or other description.
    - Materials and supplies including quantity on hand and delivery status.
    - Construction equipment and plant furnished by Contractor.
  - b) A month by month forecast up to completion of the amount of Work done and the amount remaining to be completed and all historical record of the Work performed.
  - c) Such other reports as Engineer-in-Charge may from time to time specify.

#### **5.09 Issue of Materials**

- (i) All materials required for the work shall be supplied by the contractor. Payment shall be made against finished items of work as specified in the schedule.
- (ii) All material, as required to complete the work in all respects according to the contract rates shall be inclusive of all freights, sales tax and other taxes, duties, royalties, loading, unloading, transporting, handling and storage charges etc.
- (iii) Contractor shall bear all incidental charges for the storage and safe custody of materials at Site.
- (iv) Contractor shall construct suitable godowns at Site for storing his own materials, safe against damage by rain, dampness, fire, theft etc. He shall also employ necessary watch and ward establishment for the purpose.
- (v) It shall be the responsibility of Contractor to arrange in time all materials required for Work. If, however, in the opinion of the Engineer-in-Charge the execution of Work is likely to be delayed due to Contractor's inability to make arrangements for supply of materials which normally he has to arrange for, the Engineer-in-Charge shall have the right at his own discretion to issue such materials if available with Owner or

procure the materials from the market or elsewhere and Contractor will be bound to take such materials at the rates decided by the Engineer-in-Charge. This, however, does not in any way absolve Contractor from his responsibility of making arrangements for the supply of such materials in part or in full should such a situation occur nor shall this constitute reason for the delay in the execution of Work.

- (vi) In the event of Materials / Equipment supplied by Owner, the same shall not be utilised for other purpose(s) than issued for.

#### **5.10 Storage**

Contractor shall provide or cause to be provided all storage yards, transit sheds and warehouses necessary for the performance of his work at locations approved by Engineer-in- Charge. Material supplies, equipment and plant stored by Contractor shall be effectively protected against pilferage and against damage by the elements. Contractor shall adopt all procedures, maintain all personnel and keep all records so that, at all times Contractor can account for

- Stores receipt
- Storage locations
- Inventories
- Disbursements
- Final destinations of all stored items received for Contractor's Work on the Project or any portion thereof.

#### **5.11 Audit**

- (i) Contractor's accounts, related to the Project or any portion thereof, shall be available for audit by designated representatives of Owner at all reasonable times.
- (ii) Such representatives shall at all times be afforded proper facilities for inspection of Contractor's accounts and shall have access to Contractor's premises, work and materials, records, ledgers and vouchers of every description pertaining to Contractor's performance of this Agreement.

#### **5.12 Damage to Property**

- (i) Contractor shall be responsible for making good to the satisfaction of Owner any loss of and any damage to all structures and properties belonging to Owner or being executed or procured or being procured by Owner/Owner or of other Agencies within the premises of all Work of Owner/Owner if such loss or damage is due to fault and / or the negligence or wilful acts or omission of Contractor, his employees, agents, representatives or Sub-Contractors.
- (ii) Contractor shall indemnify and keeps Owner harmless of all claims for damage to property other than Owner's property arising under or by reason of this agreement if such claims result from the fault and/or negligence or wilful acts or omissions of Contractor, his employees, agents, representative or Sub-Contractors.

### 5.13 Articles of Value Found

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

### 5.14 Discrepancies between Instructions

Should any discrepancy occur between the various instructions furnished to Contractor, his agents or staff or any doubt arise as to the meaning of any such instructions or should there be any misunderstanding between Contractor's staff and the Engineer-in-Charge's staff, Contractor shall refer the matter immediately in writing to the Engineer-in-Charge whose decision thereon shall be final and conclusive and no claim for losses alleged to have been caused by such discrepancies between instructions, doubts, or misunderstanding shall in any event be admissible.

### 5.15 Liquidated Damage

- i) If the contractor is unable to complete the jobs specified in the scope of work within the period specified in NIT, it may request owner for extension of the time with unconditionally agreeing for payment of LD. Upon receipt of such a request, owner may at its discretion extend the period of completion and shall recover from the contractor's running account bill, as an ascertained and agreed Liquidated Damages, a sum equivalent to **0.5% of contract value** for each week of delay or part thereof. The LD shall be limited to **5%** of the total contract value.

The parties agree that the sum specified above is not a penalty but a genuine pre-estimate of the loss/damage which will be suffered by the owner on account of delay/ breach on the part of the CONTRACTOR and the said amount will be payable to the Owner without proof of actual loss or damage caused by such delay/breach by the Owner.

- (ii) Notwithstanding what is stated in Clause above, the Owner shall have the right to employ any other agency to complete the remaining work at the risk and cost of the Contractor, in the event of his failing to complete the work within the stipulated time or in the even progress of Contractor's work is behind schedule, as judged by the engineer-in-charge.
- (iii) Then the Engineer-in-Charge upon receiving necessary approval from competent Authority may in writing make a fair and reasonable extension of time for completion of the works as per provision of clause no. 3.12, provided further that the Contractor shall constantly use his best endeavour to the satisfaction of the Engineer-in-Charge to proceed with the works. Nothing herein shall prejudice the rights of the Contractor under clause herein above.
- (iv) The contractor may seek time extension for delay or anticipated delay for reasons not attributable to them and in such case time extension may be given without imposition of LD.

### 5.16 Force Majeure

Any delay in or failure of the performance of either party hereto shall not constitute default hereunder or give rise to any claims for damages, if any, to the extent such delays failure of performance is caused by occurrences such as Acts of God or the public enemy expropriation or confiscation of facilities by

Government Authorities, compliance with any order or request of any Governmental Authorities, was fires, floods, riots or illegal strikes. Refer clause no 3.12 in this regard.

#### 5.17 Period of Liability

- (i) Contractor shall be responsible for maintaining the quality of the awarded Work for a period of Twelve (12) months from the date of issue of completion certificate without any extra cost. Any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate, connected in any way with the Equipment or materials supplied by him or in the workmanship shall be rectified or replaced by Contractor at his own expense as deemed necessary by the Engineer-in-Charge or in default, the Engineer-in-Charge may cause the same to be made good by other workmen and deduct expenses (of which the certificate of Engineer-in-Charge shall be final) from any sums that may be then or at any time thereafter, become due to Contractor or from his Security Deposit, or the proceeds of sale thereof, or of a sufficient portion thereof.
- (ii) If Contractor feels that any variation in work or in quality of materials or proportions would be beneficial or necessary to fulfil guarantees called for, he shall bring this to the notice of the Engineer-in-Charge in writing.
- (iii) From the commencement of completion of Work, Contractor shall take full responsibility for the care for Work including all temporary work and in case any damages, loss or injury shall happen to Work or to any part thereof or to any temporary work from any cause whatsoever, shall at his own cost repair and make good the same so that at completion Work shall be in good order and in conformity, in every respects, with the requirements of Contract and the Engineer-in-Charge's instructions.
- (iv) If at any time, before Work is taken over, the Engineer-in-Charge shall: -
  - a) Decide that any work done or materials used by Contractor or any Sub-Contractor is defective or not in accordance with Contract, or that Work or any portion thereof are defective, or do not fulfil the requirements of Contract (all such materials being hereinafter, called 'Defects' in this clause), and as soon as reasonably practicable gives to Contractor notice in writing of the said decision, specifying particulars of the defects alleged to exist or to have occurred, then Contractor shall at his own expenses and with all speed make good the defects so specified.

In the case Contractor shall fail to do so, Owner may take, at the cost of Contractor, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by Owner will be recovered from the amount due to Contractor. The decision of the Engineer-in-Charge with regard to the amount to be recovered from Contractor will be final and binding on Contractor.

As soon as Work have been completed in accordance with Contract (except in minor respects that do not effect their use for the purpose for which they are intended and except for maintenance thereof provided in the General Conditions of the Contract) and have passed the tests on completion, the Engineer-in-Charge shall issue a certificate (hereinafter called Completion Certificate) in which he shall certify the date on which Work have been so completed and have passed the said tests and Owner shall be deemed to have taken over Work on the date so certified. If Work has been divided into various groups in Contract, Owner shall be entitled to take over any group or groups before the other or others and thereupon the Engineer-in-Charge shall issue a Completion Certificate which will, however, be for such group or groups so taken over only.



- b) In order that Contractor could obtain a completion Certificate he shall make good, with all possible speed any defect arising from the defective materials supplied by Contractor or workmanship or any act or omission of Contract that may have been noticed or developed, after the Work or group of Works has been taken over, the period allowed for carrying out such Work will be normally one (1) month. If any defect be not remedied within a reasonable time. Owner may proceed to do Work at Contractor's risk and expense and deduct from the Final Bill such amount as may be decided by Owner.

If by reason of any default on the part of Contractor a completion Certificate has not been issued in respect of every portion of Work within one (1) month after the date fixed by Contract for the completion of Work, Owner shall be at liberty to use Work or any portion thereof in respect of which a Completion Certificate has been issued, provided that Work of the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completing these Work for the issue of Completion Certificate.

#### 5.18 Right of Owner to Terminate the Contract

- (i) If the Contractor being an individual or a firm commits any 'Act of Insolvency' or shall be adjudged as insolvent or being an Incorporated Company shall have an order for compulsory winding up made against it, or pass an effective resolution for winding up voluntarily or subject to the supervision of the Court or shall be unable to carry out and fulfil the contract and to give security therefore, is so required by the Engineer-in-Charge.

Or if the Contractor (whether an individual, firm or incorporated company) shall suffer execution to be issued.

Or shall suffer any payment under this Contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or charge, encumber or sublet this contract without the consent in writing of the Engineer-in-Charge first obtained.

Or shall charge or encumber this contract or any payments due or which may become due to the Contractor thereunder.

Or if the Engineer-in-Charge shall certify in writing to the Owner that the Contractor -

- a) has abandoned the Contract or
- b) has failed to commence the works, or has without any lawful excuse under these conditions, suspended the progress of the works for 7 days after receiving from the Engineer-in-Charge written notice to proceed or
- c) has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon or
- d) has failed to remove materials from the site or to pull down and replace work for seven days after receiving materials or work were condemned and rejected by the Engineer-in-Charge under these conditions or
- e) has used sub-standard or inferior material or materials not conforming to the specifications or has employed inferior workmanship in carrying out the works or part thereof or has not exercised due diligence in execution of the said work, or

- f) has neglected or failed persistently to observe and perform all or any of the acts, deeds, matters or things by this Contract to be observed and performed by the Contractor requiring the Contractor to observe or perform the same, or
- g) has to the detriment of good workmanship or in defiance of the Engineer-in-Charge's instructions to the contrary, sub-let or sub-contracted any part of the contract, or
- h) has failed to comply with the Engineer-in-Charge's instructions, or
- i) has in the opinion of the Engineer-in-Charge committed any breach of this Contract, then and in any of the said cases the Owner with the written consent of the Engineer-in-Charge may notwithstanding any previous waiver, after giving seven day's notice in writing to the Contractor terminate the Contract, but without hereby affecting the right of the Owner of the powers of the Engineer-in-Charge or the obligations and liabilities of the Contractor in respect of work, the contract shall continue enforce as fully as if the contract has not been so determined and the obligations of the contractor in respect of work subsequently executed shall continue as if the works subsequently executed has been executed by or on behalf of the Contractor. And further, the Owner by its agents or servants shall be titled forthwith to enter upon and take possession of the works and all plants, tools, scaffoldings, sheds, machinery, steam and other power implements, machinery equipment and materials lying upon the site or the adjoining lands or roads and use the same as its own property and to employ the same by means of its own servants and workmen in carrying on and completing the work or by employing any other contractor and the Contractor shall not in any way interrupt or do any act, matter or things to prevent, intimidate or hinder such other contractor or other person or persons employed for completing and finishing or using the materials and plant for the work. When the works shall be completed or as soon thereafter as convenient, the Engineer-in-Charge shall give a notice in writing to the Contractor to remove his surplus materials and plant and should the Contractor fail to do so within the period of 7 days after receipt thereof by him, the Owner shall sell the same either by public auction or a private sale and shall be given credit to the contractor for the amount realised. The Engineer-in-Charge shall thereafter ascertain and certify in writing under this hand what (if anything) shall be due or payable to or by the owner, the expense or loss which the owner shall have been put to in procuring the works to be completed and the amount, if any, owing to the contractor and the amount which shall be so certified, shall thereupon be paid by the owner to the Contractor or by the Contractor to the Owner, as the case may be and the Certificate of the Engineer-in-Charge shall be final and conclusive and binding on the parties hereto. In the event of termination under this Clause, the Owner shall not be bound by any provision of this Contract to make any further payment to the Contractor until the said works are completed.
- (j) Owner shall, at any time, be entitled to determine and terminate the Contract, if in the opinion of the Owner the cessation of the Work becomes necessary owing to paucity of funds or for any other cause whatsoever, in which case the cost of approved materials at the Site at current market rates as verified and approved by Engineer-in-Charge and of the value of the Work done to date by the Contractor shall be paid for in full at the specified in the Contract. A notice in writing from the Owner to the Contractor of such determination and termination and the reason therefore shall be the conclusive proof of the fact that the Contract has been so determined and terminated by the Owner.
- (k) Should the Contract be determined under sub-clause of this clause and the Contractor claims payment to compensate expenditure incurred by him in the expectation of completing the Work, the Owner shall consider and admit such claim as are deemed fair and reasonable and are supported by the vouchers to

the satisfaction of the Engineer-in-Charge. The Owner's decision on the necessity and propriety of such expenditure shall be final and conclusive and binding on the Contractor.

#### 5.19 Sub-Letting Of Work

- (i) No part of the Contract nor any share or interest therein shall in any manner or degree be transferred, assigned or sublet by the Contractor directly or indirectly to any person, firm, or corporation whatsoever except as provided for in the succeeding sub-clause, without the consent in writing, of the Owner.
- (ii) The Owner may give written consent to sub-contract for the execution of any part of the Work at the Site, being entered into by the Contractor provided each individual sub-contract is submitted to the Engineer-in-Charge before being entered into and is approved by him.
- (iii) Notwithstanding any sub-letting with such approval as aforesaid and notwithstanding that the Engineer-in-Charge shall have received copies of any sub-contracts, the Contractor shall be and shall remain solely responsible for the quality and proper and expeditious execution of the WORK and the performance of all the conditions of the Contract in all respects as if such sub-letting or sub-contracting had not taken place, and as if such Work had been done directly by the Contractor.
- (iv) If any Sub-Contractor engaged upon the Work at the Site executes any Work which in the opinion of the Engineer-in-Charge is not in accordance with the Contract Document, the Owner may by written notice to the Contractor request him to terminate such contract and the Contractor upon the receipt of such notice shall terminate such sub-contract and dismiss the Sub-Contractors and the latter shall forthwith leave the Work failing which the Owner shall have the right to remove such sub-contractors from the Site.
- (v) No action taken by the Owner under the clause shall relieve the Contractor of any of his liabilities under the Contract or give rise to any right to compensation, extension of time or otherwise.

#### 5.20 Patents and Royalties

Contractor, if licensed under any patent covering, Equipment, Machinery, Materials or compositions of matter to be used or supplied or methods and process to be practiced or employed in the performance of this Contract, agrees to pay all royalties and license fees which may be due with respect thereto. If any Equipment, Machinery, Materials, Composition matters, to be used or supplied or methods and process to be practiced or employed in the performance of this Contract, is covered by a patent under which the Contractor is not licensed then the Contractor before supplying or using the Equipment, Machinery, Materials, compositions method or processes shall obtain such licenses, and pay such royalties and license fees as may be necessary for performance of the Contract. In the event the Contractor fails to pay any such royalty or obtain any such license any suit for infringement of such patents which is brought against the Contractor or the Owner as a result of such failure will be defended by the Contractor at his own expense and the Contractor will pay any damages and costs awarded in such suit.

#### 5.21 Performance Guarantee & Warranty

- (i) Performance Guarantee:
  - a) The contractor shall guarantee that the material of construction and workmanship of work done and any fittings designed / manufactured / supplied by him are as specified in the tender schedule and wherever

there is nothing specifically mentioned shall correspond to the best available grade and quality as required for the application.

- b) The contractor shall also guarantee that the work done and any fittings designed, manufactured, supplied, erected shall be as per prevailing relevant standard, codes and statutory practices / stipulations.
- c) The contractor shall guarantee the work done and any fittings designed, manufactured, supplied, erected and tested by him against defective materials, poor workmanship, improper design, operation inadequacies & problems and failure from normal usage, for a period of twelve (12) months from the date of completion of job or eighteen (18) months from the date of site delivery, whichever is earlier.

(ii) Warranty:

The Contractor will repair and/or replace all defective parts, components / fittings, accessories etc. which shall be notified to him in writing within the Defect Liability Period provided that such defective parts, components, fittings, accessories etc. are promptly rectified and replaced by him free of cost. The contractor will provide similar warranty on the parts, components, fittings, accessories etc. repaired and/or replaced.

## 5.22 Contractor's Responsibility with Other Agencies

Without repugnance to any other condition, it shall be the responsibility of the Contractor to work in close cooperation and co-ordinate the other contractors and other Agencies or their authorised representatives if any working at the site in providing the necessary grooves, recesses, cuts and opening etc., in walls, slabs, beams and columns etc. and making good the same to the desired finish as per Specifications where required. For at the above said requirements, the Contractor before starting up the works shall in consultation with other contractors and other Agencies or their authorised representatives if any prepare and put up a joint scheme to the Engineer-in-Charge and get the approval. The Engineer-in-Charge, before communicating his approval to the scheme, with any required modifications, shall get the final agreement of all the Agencies, which shall be binding. No claim shall be entertained on account of the above.

## 5.23 Arbitration

Any dispute or difference arising under this Contract shall be referred for adjudication at Kolkata to a sole arbitrator to be appointed by the Director, Visakhapatnam Port Logistics Park Ltd. and the provisions of Arbitration Act, 1996 including any statutory modifications or enactment thereof shall apply to the Arbitration proceedings. The fees of the arbitrator, if any, shall be paid equally by both the parties. The award shall be a speaking award stating reason therefor and is final & binding on the parties. The proceeding shall be conducted in English language and courts at Kolkata will have exclusive jurisdiction to settle any dispute arising out of this contract.

## 6.0 INSPECTION, CERTIFICATION AND PAYMENT

### 6.01 Inspection & Testing

- (i) All materials required for the execution of the work should conform to the standard specification and approved by the Engineer-in-Charge before actually put to use. Commencement of work without prior approval shall be entirely at the risk and cost of the Contractor. No delay due to non-availability of the Materials, tools, equipment etc. will be entertained by the Owner. In the case of certain Machinery / Equipment, the Engineer-in-Charge may inspect the item for approval, before they are brought to site.

- (ii) The Owner shall be entitled at all times at the risk of the Contractor to inspect and / or test by themselves or through any independent person(s) or agency (ies) appointed by the owner and/or to direct the contractor to inspect and/or test all material(s), items and components whatsoever supplied or proposed for supply, for incorporation in the work inclusive, during the course of manufacture or fabrication by the Contractor and/or at the Contractors work or otherwise, such materials or items or components. The inspection and/or test shall be conducted at the expense of the Contractor and if conducted by the Contractor may be directed by the Owner to be conducted by agency (ies) nominated by Owner and/or in the presence of witness (ess) nominated by the Owner.
- (iii) The Contractor shall furnish to the Engineer-in-Charge for approval when requested or as required by the specification or other contract documents, adequate samples of material intended for incorporation in the works. Such samples to be submitted before the work are commenced permitting sufficient time for tests, examination(s) thereto by the Engineer-in-Charge. All materials furnished and incorporated in the work shall conform to the sample(s) in all respects.
- (iv) The Engineer-in-Charge shall be entitled to reject at any time any defective materials, item or components, (including special manufactured or fabricated items or components) supplied by the Contractor for incorporation in the works.
- (v) The Contractor shall at all times ensure highest standard of workmanship, relating to the work to the satisfaction of the Engineer-in-Charge. The Engineer-in-Charge shall have the power to inspect the work as also to test or instruct the contractor to test the works or any structure, material or component thereto at the risk and cost of the Contractor, either by the Contractor or by any agency(ies) nominated by the Engineer-in-Charge or Site Engineer on his behalf.
- (vi) The Contractor shall provide all facilities, instruments material / labour and accommodation required for testing the works (including checking the set time out of work) and shall provide Engineer-in-Charge all assistance necessary to conduct the test whenever and wherever required.
- (vii) The Engineer-in-Charge on inspection or test be not satisfied with the quality or workmanship of any work, structure, material, component (decision of the Engineer-in-Charge being final in this behalf), the Contractor shall re-perform, replace, re-install and / or re-erect as the case may be such work, structure material or component, as no such rejected work, structure, material, item or component shall be re-used without the prior permission of Engineer-in-Charge.
- (viii) Notwithstanding any provided in the foregoing clauses hereto and notwithstanding the Engineer-in-Charge/ or his representative has inspected tested and/or approved any particular work, structure, material or component, such inspection, test or approval shall not absolve the Contractor of his full responsibilities under the contract inclusive or relative to the specification, performance guarantee. The said inspection and test procedure being intended basically for satisfaction of the Owner / prima-facie erection and/or material and equipment supplied for incorporation in the work is in order.
- (ix) On no account shall the Contractor proceed with the concreting or other work in foundations and superstructure by covering up or otherwise placing beyond reach of inspection or measurement any work before necessary inspection, entries are filled in the Site Inspection Register by the Engineer-in-Charge or his authorised representative. Should the contractor do so the same shall be uncovered at the contractor's risk and expense for carrying out the inspection and measurement.

- (x) If any tests are required to be carried out in connection with the work or materials or workmanship not supplied by the Contractor, such tests shall be carried out by the Contractor as per the instructions of Engineer-in-Charge and cost of such tests shall be reimbursed by the Owner.

## 6.02 Schedule of Rates and Payments

- (i) The price to be paid by Owner to Contractor for the work to be done and for the performance of all the obligations undertaken by Contractor under Contract shall be ascertained by the application of the respective Schedule of Rates (there of application but not of limitation, with the succeeding sub-clause of this clause) and payment to be made accordingly for the work actually executed and approved by the Engineer-in-Charge. The sum so ascertained shall (excepting only as and to the extent expressly provided herein) constitute the sole and inclusive remuneration of Contractor under Contract and no further or other payment whatsoever shall be or become due or payable to the Contractor under Contract.
- (ii) The prices/rates quoted by Contractor shall remain firm till the issue of final certificate and shall not be subject to escalation. Schedule of Rates shall be deemed to include and cover all costs, expenses and liabilities of every description and all risks of every kind to be taken in executing, completing and handing over Work to Owner by Contractor. Contractor shall be deemed to have known the nature, scope, magnitude and the extent of Work and materials required though Contract Document may not fully and precisely furnish them. He shall make such provision in the Schedule of Rates as he may consider necessary to cover the cost of such items of Work and materials as may be reasonable and necessary to complete the Work. The opinion of the Engineer-in-Charge as to the items of work which are necessary and reasonable for completion of Work shall be final and binding on Contractor, although the same may not be shown on or described specifically in Contract Document.

Generality of this present provision shall not be deemed to cut down or limit in any way Contractor's obligation under the Contract, because in certain cases it may and in other cases it may not be expressly stated that Contractor shall do or perform a work or supply articles or perform, services at his own cost or without additional payment or without extra charge or work to the same effect or that it may be stated or not stated that the same are included in and covered by the Schedule of Rates.

- (iii) Without in any way limited the provisions of the preceding sub-clause the Schedule of Rates shall be deemed to include and cover the cost of all Constructional Plant and Equipment, Temporary Work (except as provided for herein), Pumps, Materials, Labour, Insurance, Fuel, Stores, and Appliances to be supplied by Contractor and all other matters in connection with each item in the Schedule of Rates and the execution of Work or any portion thereof finished, complete in every respect and maintained as shown described in the Contract Document or as may be ordered in writing during the continuance of Contract.
- (iv) Unless specifically mentioned otherwise in the contract, all payments shall be made against finished items of work only as defined and included in the schedule of rates. However, Engineer-in-Charge may grant part payment, in certain cases, against partially completed work at his own discretion after proper checking and measurement of the portion of the work completed by the contractor. All such payment shall be regarded merely as an advance payment against the amounts due to the contractor in terms of the contract and any such payment shall not be regarded as an acceptance of any work paid for.
- (v) No exemption or reduction of Customs Duties, applicable taxes, cess, quay or any port dues, Royalties, transport charges, stamp duties or Government or Local Body or Municipal Taxes or Duties, Taxes or Charges (from or of any other body), whatsoever, will be granted or obtained, all of which expenses shall

be deemed to be included in and covered by the Schedule of Rates. Contractor shall also obtain and pay for all permits, or other privileges necessary to complete work.

- (vi) For Work under Unit Rate Basis, no alteration will be allowed in the Schedule of Rates by reason of Work or any part of them being modified, altered, extended, diminished or omitted. The Schedule of Rates are fully inclusive rates which have been fixed by Contractor and agreed to by Owner and cannot be altered.
- (vii) No Escalation on account of any increase in price index in the price of materials, imposition of sales tax or other tax etc. or imposition of levies etc. will be payable. No price escalation shall be applicable even during the extended period.

### 6.03 Procedure for Measurement / Billing of Work in Progress

- (i) All measurement shall be in metric system. All the Work in progress will be jointly measured by the representative of the Engineer-in-Charge and Contractor's authorised agent progressively. Such measurement will be got recorded in the Measurement Book /Sheet by the Engineer-in-Charge or his authorised representative and signed in token of acceptance by Contractor or his authorised representative.
- (ii) For the purpose of taking joint measurement Contractor's representative shall be bound to be present whenever required by the Engineer-in-Charge. If, however, he absents for any reason whatsoever the measurements will be taken by the Engineer-in-Charge or his representative and this will be deemed to be correct and binding on Contractor.
- (iii) The mode of measurement shall be in accordance with Indian Standard Specifications as laid down unless otherwise specified to the contrary.
- (iv) All measurements shall be neatly written on the measurement books / sheets. Each set of measurements, shall commence with entries stating:
  - a) Full name of work as given in estimate
  - b) Situation of work
  - c) Name of Contractor
  - d) Date of agreement entered into with Contractor
  - e) Date of Commencement of Work
  - f) Date of completion of work
  - g) Date of measurement

At the end of measurements, dated signature and designation of the person, who recorded the measurements, shall be made.

- (v) All pages of measurement sheets shall be machine numbered. All receipts and issues of measurement sheets shall be recorded in a register. The eventual return of all measurement sheets shall be recorded and carefully preserved by the Engineer-in-Charge.
- (vi) Contractor will submit a Bill in approved proforma in quadruplicate to the Engineer-in-Charge of Work giving abstract and detailed measurements for the various items executed during a month, before the expiry of the first week of the succeeding month. The Engineer-in-Charge shall take or cause to be taken

the requisite measurements for the purpose of having the same verified and the claim, as far as admissible.

Engineer-in-Charge shall review such bills and shall either:

- a) Approve such bills and certify the same for payment; or
- b) Approve part of the bill(s) and certify that part for payment, request further clarifications / revisions from Contractor as to the balance and upon receipt of satisfactory clarification / revisions from Contractor, certify the balance for payment; or
- c) Reject the entire bill subject to further clarification / revisions from Contractor, upon receipt by Engineer-in-Charge of satisfactory clarification / revisions to such rejected bill, Engineer-in-Charge shall approve and certify the clarified / revised bill for payment.

#### **6.04 Secured Advance**

No secured advance is payable.

#### **6.05 Notice of Claim for Additional Payment**

Should Contractor consider that he is entitled to any extra payment or compensation or to make any claims whatsoever in respect of Work he shall forthwith give notice in writing to the Engineer-in-Charge that he claims extra payment and/or compensation. Such notice shall be given to the Engineer-in-Charge within ten (10) days from the ordering of any Work or happening of any event upon which Contractor bases such claims and such notice shall contain full particulars of the nature of such claim with full details and amount claimed. Failure on the part of Contractor to put forward any claim with necessary particulars as above within the time above specified shall be an absolute waiver thereof. No omission by Owner to reject any such claim and no delay in dealing therewith shall be waiver by Owner of any rights in respect thereof.

#### **6.06 Completion Certificate**

- (i) When Contractor fulfils his obligation under clauses he shall be eligible to apply for Completion Certificate. Contractor may apply for separate Completion Certificate in respect of each such portion of Work by submitting the completion Documents along with such application for Completion Certificate.

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

Contractor, after obtaining the Completion Certificate, is eligible to present the Final Bill for Work executed by him under the terms of Contract.

- (ii) Within one (1) month of completion of work in all respects, Contractor shall be furnished with a certificate by the Engineer-in-Charge, of such completion, but no certificate shall be given nor shall work be deemed to have been executed until all scaffolding, surplus materials and rubbish is cleared off Site completely nor until work shall have been measured by the Engineer-in-Charge whose measurement shall be binding and conclusive. Work will not be considered as complete and taken over by Owner, until all the temporary works, constructed, are removed and the worksite cleaned to the satisfaction of the Engineer-in-Charge.



If Contractor shall fail to comply with the requirements of this clause on or before the date fixed for the completion of Work, Engineer-in-Charge may at the expenses of Contractor remove such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realised by the sale thereof.

- (iii) For the purpose of clause, the following Documents will be deemed to form the completion Documents:
- (a) The technical documents according to which Work was carried out.
  - (b) Three (3) sets of Construction Drawings showing therein the modification and corrections made during the course of execution signed by the Engineer-in-Charge.
  - (c) Completion Certificate for 'embedded' and 'covered' up Work.
  - (d) Certificates of final levels as set out of various work.
  - (e) Material appropriation Statement for the materials issued by Owner for Work and list of surplus materials returned to Owner's store duly supported by necessary Documents. Contractor should also submit the necessary documents before taking out their own materials/equipment from the site. No material/equipment can be taken out from site without prior approval of Engineer-in-Charge.

#### **6.07 Final Certificate**

Upon expire of the period of liability and subject to the Engineer-in-Charge being satisfied that work have been duly maintained by Contractor, during such period as hereinbefore mentioned and that Contract has in all respect duly made up any subsidence and performed all his obligations under Contract, the Engineer-in-Charge shall (without prejudice to the rights of Owner to retain the provisions of relevant clause hereof) otherwise give a certificate herein referred to as the final certificate to that effect and Contractor shall not be considered to have fulfilled the whole of his obligations until Final Certificate shall have been given by the Engineer-in-Charge notwithstanding any previous entry upon Work and taking possession, working or using of the same or any part thereof by Owner. Contractor shall provide Owner with a certified satisfactory to both that all privileges, liens, claims, obligations and liabilities against or chargeable to the Owner have been fully paid, satisfied and released and that Contractor has no claim(s) against Owner.

#### **6.08 Certificate and Payments on Evidence of Completion**

Except the final certificates no other certificate or payments against a certificate or on general account shall be taken to be an admission by Owner of the due performance of Contract or any part thereof or occupancy or validity of any claim by Contractor.

### **7.0 RULES, REGULATIONS & INSURANCE COVERAGE**

**7.01 Observance of Rules/ Acts in Force**

- (i) The successful tenderer and his man shall abide by all rules/regulations in force at a location and the laws, by-laws and statutes of Government / Semi-Government and other local authorities such as requirements / liability under enactments, Contract Labour Act etc. and the Company shall stand indemnified against by claims on these scores.
- (ii) The Contractor shall conform to the provisions of Acts, rules, orders or notifications of any Governments, Municipal or local authority for the time being in force affecting the work undertaken by him and will give all necessary notices to and obtain requisite sanction and permits of and from the Municipal and any other authority in respect of the said work or the materials to be used there at and generally will comply with the building and other regulations of such authorities and will keep the Company indemnified against all claims, penalties and losses that may be incurred by it by reason of any breach by the Contractor of any statutes by-laws, rules, regulations, notifications etc.
- (iii) The Contractor and sub-contractor(s) of the Contractor shall obtain authority (ies) designated in this behalf under any applicable laws, rule or regulation (including) but not limited to Contract Labour (in so far as applicable) any and all such license(s) consent(s), registration(s) and/or other authorisation(s) as shall from time to time be or become necessary for or relative to the execution of the work or any part or portion thereof or the storage or supply or any material(s) or otherwise in connection with the performance of the contract and shall at all times observe and ensure due observance by the sub-contractors, servants and agents of all terms and conditions of the said license(s) consent(s) regulation(s) and other authorisation(s) and laws, rules and regulations applicable thereto.
- (iv) The Contractor undertakes to ensure due and complete compliance with all laws, regulations, rules, etc., applicable to the workmen employed or whose services are otherwise availed of by the Contractor, whether in connection with the construction work at the site or otherwise. The Owner shall have the right to inspect the records maintained by the contractor, Contractor shall whenever required by the Owner, produce such records and as and when the Owner may call upon the Contractor, ascertain whether or not the requirements of all such laws, regulations, rules etc. coming to light whether as a result of such inspection or otherwise, the Owner shall have the right to require the contractor to effect such compliance within such time, as the Owner may prescribe in that behalf and in the event of the Contractor failing to effect such compliance within the time prescribed by the Owner, then the Owner shall without prejudice to his other rights, be entitled to withhold from the amount payable to the workmen under any such laws, regulations or rules and to make payment thereof to the workmen. The Owner shall also have in that event the right to terminate the contract with immediate effect and to exercise powers reserved to the Owner under the contract as a result of termination.

**7.02 Taxes, Duties & Other Statutory Payments**

Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes, duties etc. now or hereafter imposed, increased, or modified and all the taxes and duties now enforce and hereafter increased, imposed or modified from time to time in respect of Work and materials and all contributions and taxes for unemployment compensation insurance and old age pensions or annuities now or hereafter imposed by any Central or State Governmental Authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to the persons employed by Contractor and Contractor shall be responsible for compliance with obligations and restrictions imposed by the Labour Law or another law affecting employer employee relationship and Contractor

further agrees to comply, and to secure the compliance of all Sub-contractors, with applicable Central, State Municipal and local laws and regulations and requirements of any Central, State or Local Employment Agency or authority, Contractor further agrees to defend, indemnify and hold harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason of any violation by contractor or Sub-contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against Owner arising under, growing out of, or by reason of work provided for by this Contract, by third parties, or by / central or State Government Authority or any administrative sub-division thereof.

### 7.03 Labour Laws

- (i) No Labour below the age of eighteen (18) years shall be employed on Work. In case female workers are engaged, requisite provisions shall be made as per the statute.
- (ii) Contractor shall not pay less than what is provided under law to labourers engaged by him on Work.
- (iii) Contractor shall at his expense comply with all labour laws and keep Owner indemnified in respect thereof.
- (iv) In addition to above, rules and regulations as contained in Contract Labour (Regulation and Abolition) Act, 1970 will also be applicable for this contract. For the purpose of registration as per the above Act, Contractor may contact Owner for further details.
- (v) Contractor shall secure full safety of the workers / employees engaged by him in the Site premises and shall take at his own cost, insurances and such other safety regulations for the said purpose.
- (vi) Contractor shall submit the filled-up **Statutory Compliance Check List** as per the specified format to the owner on monthly basis. All the registers with regards to statutory compliance must be maintained at site.

### 7.04 Implementation of Apprentices Act 1964

Contractor shall comply with the provisions of the Apprentices Act, 1964 and the Rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of Contract and the Engineer-in-Charge may, at his discretion, cancel Contract. Contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provision of the Act.

### 7.05 Insurance

Contractor shall at his own expense carry out and maintain insurance with reputable companies to the satisfaction of the Owner as follows:

(i) **Workmen's Compensation and Employees' Liability Insurance:**

Insurance shall effect for all contractors' employees engaged in the performance of this Contract. If any of the work is sublet, after necessary approval by the Owner, the contractor shall require the Sub-contractor to provide Workmen's Compensation and Employees' Liability Insurance for the Sub-contractor's employees, if such employees are not covered under the Contractor's Insurance.

(ii) **Contractors All Risk Insurance:**

Contractor shall take out an All Risk Insurance policy in the Joint names of the Owner and the Contractor (owner as the first beneficiary) including third party liability, against loss or damage from any cause covering the work executed to the estimated current contract value together with the material for incorporation in the work. Such insurance shall be in such a manner that Owner and the Contractor are covered from the date of commencement of work.

The contractor shall indemnify the Owner against all losses and claims in respect of injuries or damage to any person, including any employee of the Owner, material or physical damage to any property whatsoever including that of the owner arising out of the execution of the works or in the carrying out of the contract, and shall insure against his liability with an insurer until the completion of this contract in terms approved by the owner. Whenever required, the contractor shall produce the insurance policy and the current premium receipts to the Owner.

In addition to what it is stipulated above the successful contractor shall execute **Indemnity Bond (as per Attachment –VIII)** to indemnify and hold harmless the Owner for complying with the provision of the following:

- i) Provident Fund Act for P.F. Scheme for labourers engaged by the Contractor / Subcontractors.
- ii) Interstate Migrant Workmen ("Regulation of Employment and Conditions of Services) Act - 1979.
- iii) Minimum Wages Act - 1948.
- iv) Equal Remuneration Act - 1976.
- v) Workman's Compensation Act - 1923.
- vi) Contract Labour (Regulation & Abolition) Act – 1970
- vii) The Building & Other Construction Works (Regulation of employment & Conditions of Service) Act 1996.

## **8.0 SAFETY CODES & PRACTICES**

### **8.01 General**

The Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with Owner's safety rules as set forth herein.

### **8.02 First Aid and Industrial Injuries**

Contractor shall maintain first aid facilities for its employees and those of its sub-contractors -

- (i) Contractor shall make outside arrangements for ambulance or suitable service and for the treatment of industrial injuries. Names of those providing these services shall be furnished to Engineer-in-Charge prior to start of construction, and their telephone numbers shall prominently be posted in Contractor's field office.
- (ii) All critical industrial injuries shall be reported promptly to Engineer-in-Charge, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to Owner.

### 8.03 General Rules

Carrying/Striking of matches, lighters and smokers inside the hazardous areas is strictly prohibited. Violations of "No SMOKING" rules will be discharged immediately. Within the operation area, no hot work shall be permitted without valid gas/safety/fire permits issued by Owner.

### 8.04 Contractors Barricades

- (i) Contractor shall erect and maintain barricades required in connection with his operations to guard or protect:
  - a) Excavations
  - b) Hoisting Areas
  - c) Areas adjudged by Contractor or Owner's inspectors.
  - d) Owner's existing property liable to damage by contractor's operations, in the opinion of Engineer-in-Charge.
- (ii) Contractor's employees and those of its sub-contractors shall become acquainted with Owner's barricading practice and shall respect the provisions thereof.
- (iii) Barricades and hazardous areas shall be marked by red falser lanterns at nights.

### 8.05 Safety Equipment

- (i) All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be made available for the use to the persons employed at the site and maintained in a condition suitable for immediate use, and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.
- (ii) Workers engaged in white washing and mixing or stacking of cement bags or any materials, which are injurious to the eyes, shall be provided with protective goggles.
- (iii) Those engaged in welding and cutting works shall be provided with protective face & eye-shields, hand gloves etc.
- (iv) To ensure that workers use Personnel Protective equipment like safety helmet, safety shoes, gloves etc.
- (v) (When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes, and manholes, so opened, shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accidents to the public.
- (v) The Contractor shall not employ men below the age of 18 years and women on the work of painting or products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.
  - a) No paint containing lead product shall be used, except in the form of paste or ready-made paint.

- b) Suitable facemasks shall be supplied for use by the workers when paint is applied in the form of spray on a surface having lead paint dry, rubbed and scrapped.
- (vi) Hot work should be carried out only in the areas earmarked for the purpose after required safety precautions have been taken and only after obtaining written permission from the Engineer-in-Charge. Any provision required to be made e.g. windscreens of G.I sheets etc. to make the area safe for hot work, will be made by the successful tenderer at his own cost.

#### **8.06 Hoisting Equipment**

- (i) Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions.
  - a) These shall be of good mechanical construction, sound materials, adequate strength and free from patent defect and shall be kept in good condition and in good working order.
  - b) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding, winch or indicating signals to the operator.
- (ii) In case of Owner's machine, the safe working load shall be notified by the Engineer-in-Charge. As regards Contractor's machines, the Contractor shall notify the safe working load of the machine to the Engineer-in-Charge, whenever he brings any machinery to site of work and get it verified by the Engineer-in-Charge, concerned.

#### **8.07 Electrical Equipment**

Motors, Gear Transmission, Electric Wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load; adequate precautions shall be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energised, insulating mats, wearing apparel, such as gloves and boots as may be necessary shall be provided.



may be reasonably necessary for completion of Work and at the said times and in the manner and subject to the terms and conditions or stipulations mentioned in Contract.

(2) In consideration of the due provision, execution and completion of work, Owner does hereby agree with Contractor that Owner will pay to Contractor the respective amounts for the work actually done by him and approved by Owner at the Scheduled Rate and such other sum payable to Contractor under provision of Contract such payment to be made at such time and in such manner as provided for in Contract.

AND

(3) In consideration of the award of the work, Contractor does hereby agree to pay such sums as may be due to Owner for the services rendered by Owner to Contractor such as power supply, water supply and others as set forth in Contract and such other sums as may become payable to Owner towards the controlled items of consumable materials or towards loss, damage to the Owner's Equipment, materials, construction plant and machinery, such payments to be made at such time and in such manner as is provided in Contract.

It is specifically and distinctly understood and agreed between Owner and Contractor that Contractor shall have no right, title or interest in the Site made available by Owner executed on Site by Contractor or in the goods, articles, materials, etc. brought on Site (Unless the same specifically belongs to Contractor) and Contractor shall not have or deemed to have any lien whatsoever charge for unpaid bills nor will be entitled to assume or retain possession or control of Site or structures and Owner shall have an absolute and unfettered right to take full possession of the Site and to remove the Contractor, their servants, agents and materials belonging to Contractor and lying on Site.

Contractor shall be allowed to enter upon Site for execution of work only as a licensee simpliciter and shall not have any claim, right, title or interest in Site or the structures erected thereon equipment, plant and machinery installed, and Owner shall be entitled to terminate such license at any time without assigning any reason.

The Equipment, plant and machinery, materials including sand, gravel, stone, loose, earth, rock etc., dug up or excavated from Site shall unless otherwise expressly agreed under this Contract, exclusively belong to Owner and Contractor shall have no right to claim over the same and such excavations and materials should be disposed of on account of owner according to the instructions in writing issued from time to time by the Engineer-in-Charge.

Contractor shall affect the payment of wages to its / his labours directly without the intervention of any intermediary and no amount by way of commission or otherwise shall be deducted or recovered from the wages of workmen.

The parties hereto hereby agree to submit to the jurisdiction of the courts situated at Kolkata for the purpose of actions and proceedings arising out of contract and the court at Kolkata\_only will have the jurisdiction to hear and decide such actions and proceedings.

The contractor shall take adequate insurance cover at his/its properties etc. used in the work against all risks and the Owner shall not in any way be liable for the damages or loss caused to such properties etc., due to whatever causes.

Wrongful appropriation, or proven attempt of wrong appropriation, of materials belonging to the Owner or to any other Contractor working within the Site premises, or commission of any other criminal act by the Contractor, or his agents, or employees or workers shall be deemed to be a breach of contract on the part of the Contractor, and the Owner shall, in addition to the remedies available under the Agreement, be entitled to terminate the Contract forthwith at the risk and cost of the Contractor.



Terms and conditions, if any, stipulated by the Contractor while submitting his tender, or otherwise, shall be applicable only to the extent such terms and conditions are specifically accepted by the Owner in writing.

In witness whereof the parties have executed these presents on the day and the year first above written.

Signed and Delivered for  
and on behalf of

Signed and Delivered for  
and on behalf of

**OWNER**

**CONTRACTOR**

**In presence of Two Witnesses**

1. -----

1. -----

2. -----

2. -----

**Appendix referred to in Clause 'C' of the Agreement**

Dated:

<b>Item No.</b>	<b>Description of Documents</b>
1.	Tender Document for the work of "-----" marked: Attachment - I, which contains, inter alias
a)	Tender Notice dated ----- for the work of "-----", and
b)	Special Conditions of Contract.
2.	General Conditions of Contract, marked: ----- Attachment - II: and ----- ----
3.	Letter of Acceptance vide No. ----- dated ----- marked: Attachment - III, along with Tender Schedule "-----" which is marked: Annexure - I to Letter of Acceptance No.----- dated ----- -----

## ATTACHMENT – II

**BANK GUARANTEE VERIFICATION CHECK LIST****CHECK LIST****YES****NO**

- |         |  |       |       |
|---------|--|-------|-------|
| I.      | Does bank guarantee compare verbatim with standard<br>Balmer Lawrie & Co Ltd proforma for BG   | _____ | _____ |
| II. a.  | Has the executing officer of the BG indicated his name,<br>designation & power of attorney No./ Signing Power No.<br>etc. on BG  | _____ | _____ |
| b.      | Is each page of BG duly signed/initialled by the executant<br>& last page is signed with full particulars as required in<br>the Balmer Lawrie's standard proforma of BG & under<br>the seal of the Bank. | _____ | _____ |
| c.      | Does the last page of the BG carry the signature of two<br>witnesses along side the signature of the<br>executing Bank Manager   | _____ | _____ |
| III. a. | Does the non judicial stamp paper for BG purchase in the<br>name of BG issuing Bank  | _____ | _____ |
| b.      | Is the BG on non-judicial Stamp paper of value<br>Rs. 100/- (Rupees One Hundred only)  | _____ | _____ |
| d.      | Is the date of sale of non-judicial stamp paper shown on the<br>BG and the stamp paper is issued not more than six months<br>prior to date of execution of BG  | _____ | _____ |
| IV. a.  | Are the factual details such as bid specifications No.,<br>LOI No., Contract price etc. correct.   | _____ | _____ |

b.	Whether over-writing/ cutting, if any on the BG authenticated under signature and seal of executant	_____	_____
V. a.	Is the amount of BG in line with contract provisions/agreement/tender	_____	_____
b.	Is the validity of BG in line with contract provisions/agreement/tender	_____	_____
VI.	Covering letter from bank enclosed with the BG	_____	_____
VII.	BG shall be from a Nationalised/ Scheduled Bank only	_____	_____

**ATTACHMENT - IIa****PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY DEPOSIT**

(ON NON-JUDICIAL PAPER OF APPROPRIATE VALUE)

To

Visakhapatnam Port Logistics Park Ltd.

21, Netaji Subhas Road

Kolkata – 700 001

Whereas ..... (Name of the bidder) (hereinafter called “the Bidder”) has submitted its bid for the ..... (purpose) (hereinafter called “the Bid”) against Tender reference No. .... dated ..... M/S. VISAKHAPATNAM PORT LOGISTICS PARK LTD., 21 Netaji Subhas Road, Kolkata – 700 001.

The conditions of Tender provide that the Bidder shall pay a sum of Rs..... (Rupees ..... only) (hereinafter called “the said amount”) as full Earnest Money Deposit in the forms therein mentioned. The forms of payment of Earnest Money Deposit include guarantee to be executed by a Scheduled Bank.

The said ..... (name and address of the Bidder) have approached us and at their request and in consideration of the premises we, ..... (Name of the Bank) having our office at .....(address of the Bank) have agreed to give such guarantee as herein after mentioned.

Know All Men by these presents, we, .....(name of the Bank) of .....(address of the Bank) having our office, inter alia, at ..... (hereinafter called “the Bank”) are bound unto VISAKHAPATNAM PORT LOGISTICS PARK LTD .....(address) (hereinafter called “the Purchaser”) in the sum of Rs. .... (Rupees ..... only) for which payment will truly be made to the Purchaser, the Bank binds itself, its successors and assigns by these presents this ..... day of .....

THE CONDITIONS of this obligation are :

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the bid form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity;
  - i) fails or refuses to execute the Contract Form if required; or
  - ii) fails or refuses to furnish the Performance Security, in accordance with the instructions to Bidders.

We undertake to pay the Purchaser up to the said amount upon receipt of its first written demand, without the Purchaser having to substantiate their demand, provided that in their demand the Purchaser shall mention that the amount claimed by them is due owing to the occurrence of one or both of the two conditions

This guarantee will remain in force upto ..... (date of expiry) including the ..... days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

Notwithstanding anything contained herein :

- i) Our liability under the Bank Guarantee shall not exceed Rs. .... (Rupees ..... only)
- ii) This Bank Guarantee shall be valid upto .....
- iii) We are liable to pay the guaranteed amount or pay part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before ..... (last date of validity)

We, ..... (name of the Bank) undertake not to revoke this guarantee during its currency except with your previous consent in writing.

We have power to issue this guarantee in your favour under our Memorandum and Articles of Association and the undersigned has full power to do and execute this Guarantee under the Power of Attorney dated ..... day of ..... granted to him by the Bank.

Your faithfully,

(Specimen Signature)

**ATTACHMENT - III****BANK GUARANTEE AGAINST PERFORMANCE**

(ON NON-JUDICIAL PAPER OF APPROPRIATE VALUE)

Letter of Guarantee No.

Dated : the            day of

THE GUARANTEE is executed at Kolkata on the            day of            by            (set out full name and address of the Bank) (hereinafter referred to as "the Bank" which expression shall unless expressly executed or repugnant to the context or meaning thereof mean and include its successors and assigns).

WHEREAS Visakhapatnam Port Logistics Park Limited. (local address),            an existing company within the meaning of the Companies Act, 1956 and having its Registered Office at 21, Netaji Subhas Road, Kolkata – 700 001 (hereinafter referred to as "the Company") issued a Tender being No. dated            (hereinafter referred to as "the said Tender") for (set out purpose of the job) and pursuant thereto Messrs/ Mr.            (set out full name and address of the Contractor) (hereinafter referred to as "the Contractor" which term or expression wherever the context so requires shall mean and include the            partner            or            partners            of            the Contractor for the time being/his/its heirs, executors, administrators, successors and assigns) (delete which are not applicable) has accepted the said Tender and field its quotation.

AND WHEREAS the quotation of the Contractor had been accepted by the Company and in pursuance thereof an Order being No.            dated            (hereinafter referred to as "the said Order") has been placed by the Company on the Contractor for (set out purpose of the job).

AND WHEREAS under the terms of the said Order the Contractor is required to furnish the Company at their/his/its own costs and expenses a Bank Guarantee for Rs.            (Rupees            only) as performance guarantee for the fulfilment of the terms and conditions of the said Tender and to do execute and perform the obligations of the Contractor under the Agreement dated the            day of            (hereinafter referred to as "the Agreement") entered into by and between the Company of the one part and the Contractor of the other part, the terms of the said Tender and the terms contained in the said Order which expression shall include all amendments and/or modifications/or variation thereto.

AND WHEREAS the Contractor had agreed to provide to the Company a Bank Guarantee as security for the due performance of their/his/its obligations truly and faithfully as hereinbefore mentioned.

NOW THIS GUARANTEE WITNESSETH as follows :

1. In consideration of the aforesaid premises at the request of the Contractor, we            (set out the full name of the Bank) the Bankers of the Contractor shall perform fully and faithfully their/his/its contractual obligations under the Agreement dated the            day of            entered into by and between the Company of the one part and the Contractor of the other part, the terms and conditions of the said Tender and the said Order

2. We, ..... (set out full name of the Bank) do hereby undertake to pay to the Company without any deduction whatsoever a sum not exceeding Rs..... (Rupees ..... only) without any protest, demur or proof or condition on receipt of a written demand from the Company stating that the amount claimed is due by way of loss and damage caused to or would be caused to or suffered by the Company due to bad workmanship or by reason of breach of any of the terms and conditions of the Agreement, the said Tender and the said Order hereinbefore mentioned.

3. The Guarantee is issued as security against due performance of the obligations of the Contractor or under the Agreement aforesaid and the said Tender and the said Order hereinbefore mentioned and subject to the conditions that our liabilities under this Guarantee is limited to a maximum sum of Rs..... (Rupees ..... only) or the amount of loss or damage suffered or to be suffered by the Company in its opinion at any period of time, whichever is lower.

4. We, ..... (set out full name of the Bank) further agree that the undertaking herein contained shall remain in full force for a period of months from the date of the satisfactory execution of the Contract.

5. This Guarantee shall not be affected by any amendment or change in the Agreement or change in the constitution of the Bank and/or the Company and/or the Contractor.

6. We ..... (set out full name of the Bank) undertake not to revoke this Agreement during its currency except with the previous consent of the Company in writing.

7. All claim under this Guarantee must be presented to us within the time stipulated after which date the Company's claim/right under this Guarantee shall be forfeited and we, .....(set out full name of the Bank) shall be released and discharged from all liabilities hereunder.

8. This instrument shall be returned upon its expiry or settlement of claim(s) if any, thereunder.

9. Notwithstanding anything contained hereinbefore our total liabilities under this Guarantee shall not exceed a sum of Rs..... (Rupees ..... only) and unless a demand or claim in writing under this Guarantee reaches us on or before the date of ..... (last date of claim) and if no claim is received by us by that date all rights and claims of the Company under this Guarantee shall be forfeited and we, .....(set out full name of the Bank) shall be released and discharged of all our liabilities under this Guarantee thereafter.

10. We have power to issue this guarantee in your favour under our Memorandum and Articles of Association and the undersigned has full power to execute this Guarantee under Power of Attorney dated the ..... day of ..... granted to him by the Bank.

Place :

Date :



**ATTACHMENT – IV****PROFORMA OF BANK GUARANTEE FOR SECURITY DEPOSIT**

Visakhapatnam Port Logistics Park Limited.

21, Netaji Subhas Road

Kolkata – 700 001

Dear Sir,

That Messrs/Mr. ....(set out full name and address and constitution of the Contractor) (hereinafter referred to as “the Contractor”) filed their/his/its quotation against your Tender being Tender No. .... dated ..... (hereinafter referred as “the said Tender”) for the work ..... (set out the purpose of the job) and in pursuance thereto an Order being No. .... dated ..... (hereinafter to as “the Order”) was issued by you to the Contractor.

The conditions of the said Tender, inter alia, requires that the Contractor shall pay a sum of Rs..... only) as full security deposit (hereinafter referred to as “the security deposit”) in the form therein mentioned. The form of payment of security deposit includes a guarantee to be executed by a Scheduled Bank.

The said Messrs/Mr. .... (set out full name of the Contractor) have/has approached us and at their/his/its request and in consideration of the premises We ..... (set out full name of the Bank) having our office, inter alia at ..... (state the address of the Bank) have agreed to give such guarantee in the manner following :

1. We, ..... (set out full name of the Bank), hereby undertake with you if default is made by Messrs/Mr. .... (set out full name of the Contractor) in performing any of the terms and conditions of the Tender and/or in payment of the security deposit or any other or in payment of money payable to you. We, ..... (set out full name of the Bank) shall merely on demand from you without demur or protest shall pay you the said amount of Rs..... (Rupees ..... only) or such portion thereof not exceeding the said sum as you may demand from time to time.

2. We, ..... (set out full name of the Bank), further agree with you that you hereunder to adopt any mode for realisation of your dues from the Contractor and/or to vary any of the Terms and Conditions of your Contract with the said Messrs/Mr. .... (set out full name of the Contractor), or to extend time of performance by Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by you against Contractor and to forbear or enforce any of the terms and conditions relating to the Contract and we, ..... (set out full name of the Bank) shall not be relieved from our liability by reason of any such variation, or any indulgence to be given by you to the Contractor or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so releasing us.

3. Your right to recover the said sum of Rs..... (Rupees ..... only) from us in the manner aforesaid will not be affected or suspended by reason of the fact that any dispute or disputes is/are pending before any Officer, tribunal, court or any other authority or authorities.

4. The guarantee herein contained shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the said Messrs/Mr. .... (set out the full name of the Contractors), but shall in all respect, and for all purposes be binding and operative until payment of all the money due to you in respect of such liabilities is paid,

5. Our liability under this guarantee is restricted to Rs. .... (Rupees ..... only).

6. Our guarantee shall remain in force and effect until ..... (set out the date of expiry) and unless a claim or demand in writing is made against us under this guarantee before the expiry of six months from the aforesaid date i.e. .... (set out last date of Claim period), the said Guarantee all your rights under this guarantee shall be forfeited and we, ..... (set out full name of the Bank) shall be relieved and discharged from all liabilities thereunder.

7. We , ..... (set out full name of the Bank) undertake not to revoke this Guarantee during its currency except with your previous consent in writing.

8. We, ..... (set out full name of the Bank) have power to issue this Guarantee in your favour under our Memorandum and Articles of Association and the undersigned has full power to execute/sign this Guarantee under the Power of the Attorney dated the ..... day of ..... granted by the Bank.

Yours faithfully,

Dated : ..... (Place) .....

(Signature of Officer on

.....(Date) behalf of .....

(Set out name of the Bank)

**ATTACHMENT - V**

**INFORMATION ABOUT TENDERER**

**A. IN CASE OF INDIVIDUAL**

- (i) Name of Business: His age and Father's name:
- (ii) Whether his business is registered:
- (iii) Date of commencement of business:
- (iv) Whether he pays Income Tax over Rs. 10,000/- per year:

**B. IN CASE OF PARTNERSHIP**

- (i) Name of Partners:
- (ii) Whether the partnership is registered:
- (iii) Date of establishment of firm:
- (iv) If each of the partners of the firm pays Income Tax over Rs. 10,000/- a year and if not which of them pays the same:
- (v) Copies of partnership deed, if any:

**C. IN CASE OF COMPANY LIMITED BY SHARES OR  
COMPANY LIMITED BY GUARANTEE**

- (i) Amount of paid up Capital:
- (ii) Names of Directors:
- (iii) Date of Registration of Company:
- (iv) Copies of the last two (2) years balance sheet of the company:
- (v) Certified copies of Memorandum and Articles of Association of Company:

---

(SIGNATURE OF TENDERER)

**ATTACHMENT - VI****DETAILS OF EXPERIENCE**

Tenderer shall give information of similar Works done during past seven (7) years strictly as per the proforma given below.

Sl.No.	Full particulars of similar work carried out by the Contractor	Value of Contract	Completion time as stated in Tender (Months)	Actual Completion time (Months) with date of commencement of work	Year of completion	Name & Postal address of Client with Telex / Telephone No.
1	2	3	4	5	6	7

Certified that the above information is correct.

\_\_\_\_\_  
SIGNATURE OF TENDERER

**ATTACHMENT - VII****CONCURRENT COMMITMENTS**

Tenderer shall give information about his present commitments as per proforma.

S. No.	Full Postal Address of Client & Name of Officer-in-Charge with Telex/ Telephone No	Description of the Work	Value of Contract	Date of commencement of Work	Scheduled completion period (months)	% age completion as on date	Expected date of completion	Remark if any

---

Certified that the above information is correct.

SIGNATURE OF TENDERER

## ATTACHEMENT VIII

## INDEMNITY BOND (To be executed on Non Judicial Stamp Paper)

Date: \_\_\_\_\_

THIS DEED OF INDEMNITY made at M/s \_\_\_\_\_ having their Registered Office at \_\_\_\_\_ (hereinafter referred to as "Contractor" which expression shall unless it be repugnant to the context or meaning thereof, be deemed to mean and include their respective heirs, assigns, successors, executors and/or administrators) of the ONE PART in favour of Balmer Lawrie & Co Ltd, a Company Registered under Indian Companies Act, VII of 1913, having its Registered Office at 21, Netaji Subhas Road, Kolkata-700001, (India) (hereinafter referred to as the "Company", which expression shall unless it be repugnant to the context or meaning thereof be deemed to mean and include its successors, administrators and assigns) of the OTHER PART.

WHEREAS the Company has awarded to the Contractor, a contract for the \_\_\_\_\_ in \_\_\_\_\_ project (hereinafter called the "Contract");

AND WHEREAS it is one of the conditions of the Contract that the Contractor shall comply with all the provisions of the Labour & Industrial Laws, as may be applicable from time to time for the discharge and completion of the said contract by the Contractor including but not limited to the observance and compliance of The Contract Labour (R & A) Act, 1970, Child Labour (Prohibition and Regulation) Act 1986, The Employees Provident Funds & Miscellaneous Provisions Act, 1952, Industrial Disputes Act, 1947, Minimum Wages Act, 1948, Payment of Bonus Act, 1965, Payment of Gratuity Act, 1972, Payment of Wages Act, 1936, Workmen's Compensation Act, 1923 The Maternity Benefit Act, 1961; Inter State Migrant Workmen (RECS), 1979 and The Employee's Deposit Linked Insurance Scheme, 1976, and other Labour Laws (hereinafter referred as the 'Laws').

And whereas to safeguard the Company from any kind of claim and / or demand in the event of failure in observance or non-compliance of any such laws by the Contractor, the said Contractor is executing this Deed of Indemnity.

NOW THIS DEED WITNESSETH AS UNDER:

1. THAT in the event of any liability arising out of failure to observe or non-compliance of any such 'Laws' by the Contractor in discharge of the said contract, the contractor shall bear all the resultant whatsoever liability(ies), if any arising out thereof and that the Company shall not be liable for any such liability(ies). The Contractor indemnifies and keeps harmless the Company at all times from and against any and all such liabilities, costs, damages, claims, penalties, interest, expenses, losses, demands, fines, legal liability, causes of action, injury to persons, etc which may be suffered, incurred, undergone and / or sustained by the Company including the costs and expenses that may be incurred in defending any such liability(ies) claim(s), proceeding(s) etc. that may be made or taken or arise on the same by any person, body, authority, government, judicial / quasi-judicial authority due to the failure or non-compliance of any such laws and rules there under (including any amendments in acts, laws, statutes & rules there under) of whatsoever kind and nature arising out of or in any way connected with, whether or not such acts or omissions are actual or alleged, active or passive with regard to the discharge of the said contract.
2. In addition to that mentioned in the above para that coverage to all workmen under all extant social security schemes like Provident Fund, ESIC, WC, Labour Welfare Fund or any other payments of any nature incidental by extant laws, bylaws, statutes etc. enforceable at the place of work of the "Company" be provided by the "Contractor" without fail and agreed by the "Contractor". Hence the Registrations/ Codes etc under which such compliance is required shall be of the "Contractor" and not the "Company".
3. Further that in the event of any nature of nonpayment or non-compliance in payment of dues for which Company may incur a liability to pay for any non-complying act shall empower company to recover and pay from Contractor by way of deductions retention, bills or due payments.
4. This indemnity shall be in accordance with the laws of India and any dispute between the parties as regards the contract of indemnity shall be settled in accordance with the provisions of Indian Arbitration and Conciliation Act, 1996, including the method and manner of appointment of the Arbitrators. The place of Arbitration shall be at Kolkata and the Courts of Kolkata shall have the proper jurisdiction.

IN WITNESS WHEREOF, the said Contractor has hereunto set their hand the day and year first herein above written.

SIGNED SEALED AND DELIVERED by the within named "CONTRACTOR" )

\_\_\_\_\_

(Authorized Signatory)

Name:

Designation:

\_\_\_\_\_

Rubber Stamp of Firm/Company

In presence of

Witness

Name & Address of Witness

Signature

1.

\_\_\_\_\_

2.

\_\_\_\_\_



# **SPECIAL CONDITION OF CONTRACT**

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**1.00 GENERAL**

- 1.01 Special conditions of contract shall be read in conjunction with the General Conditions of Contract, Specifications of work, Drawings and any other document forming part of this contract wherever the contract so requires.
- 1.02 Notwithstanding the sub-division of the document into three separate sections, every part of each shall be deemed to be supplementary of every other part and shall be read with and into the contract as far as it may be practicable to do so.
- 1.03 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provision of the Special Conditions of Contract, then unless different intention appears, the provision of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract only to the extent of such repugnancy or variations in the Special Conditions of Contract are not possible of being reconciled with the provisions of General Conditions of Contract.
- 1.04 Whenever it is mentioned in the specifications that the contractor shall perform certain work or provide certain facilities, it is understood that the contractor shall do so at his own cost.
- 1.05 The materials, design and workmanship shall satisfy the relevant Indian Standards, the job specifications contained herein and codes referred to. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any standards/specifications / code(s) of practice for any part of the work covered in this tender, the instructions/directions of Engineer-in-Charge will be binding on the contractor.
- 1.06 In case of contradictions between Indian Standards, specifications, General Conditions of Contract, Special conditions of Contract, drawings, Schedule of Rates, the following shall be the order of precedence: -
- a) Detailed Letter of Intent along with statement of agreed variations and its enclosures.
  - b) Fax no., e\_mail address, mobile no. of Intent.
  - c) Special Conditions of Contract
  - d) Drawings
  - e) General Conditions of Contract & its Annexure.
  - f) Indian Standards / Technical Specifications.
  - g) Schedule of quantities and rates.

**2.00 LOCATION OF SITE**

The Location of site is at Visakhapatnam near Muladaga Village and adjacent to Mindi Railway Sidings of Visakhapatnam Port Trust. The site is about 4.0 km away from Sheela Nagar Junction at NH-5 and 8 km from Airport. The nearest land mark is Visakhapatnam Port Mindi railway siding. Please refer the Vicinity Plan of MMLH Site enclosed herewith as Exhibit –I.

**3.00 DRAWINGS VIS-A-VIS SCHEDULE OF WORK**

All drawings herein enclosed are for the purpose of furnishing basic information to the tenderers so as to enable them to quote their price. Upon receiving order, contractor shall design and prepare all working drawings and get approval from the Engineer. However, such approval does not relieve the contractor from his responsibility of correctness and safety of the work. Contractor shall remain responsible to submit the design and drawings for obtaining necessary approval from the statutory bodies.

**4.00 SCRAP AND SERVICEABLE MATERIAL**

Scrap materials and wastage will not be accepted back by the Owner and shall be considered as a property of the contractor. The Contractor shall take away all such materials, wastage and remove them from the site to the satisfaction of the Engineer-in-Charge.

**5.00 TESTS & TEST PROCEDURES FOR MATERIALS SUPPLIED BY CONTRACTOR**

Contractor shall submit quality assurance plan mentioning frequency of testing to the owner for their review and approval. Only on approved QAP work shall be executed.

It is necessary to test the materials supplied by the Contractor to ensure that they conform to relevant clauses in the technical specification. All materials of Contractor shall be inspected and passed by the Engineer-in-Charge from time to time at the source of supplies, for which inspection facilities shall be provided by the Contractor.

Notwithstanding inspection at sources, the Engineer-in-Charge shall have the right to reject any material brought to Site, which does not conform to the specification, without being liable for any compensation whatsoever.

**6.00 MEASUREMENT & BILLING OF WORK**

All measurements shall be in the metric system and shall be taken in accordance with the procedure set forth in the Schedule of quantities, Specifications, relevant IS, IEC Standards and other contract documents.

All measurements shall be taken jointly by the Engineer-in-Charge or his representative and representative of PMC on the one hand and the Contractor or his representative on the other hand. Cables shall be measured from lug to lug.

**7.00 ON ACCOUNT PAYMENTS**

- 7.01 All on account payments shall be subjected to deduction therefrom of all dues to the Owner, advance, retention money and other money deductible within the provisions of this contract and as per Section 194-C of Income Tax Act, or any other Law, Rule or Regulation for the time being in force along with the recovery towards the adjustment of secured advance if any.
- 7.02 All lawful payments as provided under ESI Act, Workmen's Compensation Act, PF Act etc. not made by the Contractor / Sub-contractor, Owner reserves the right to deduct from the Contractor's bills and remitted to the concerned Authority / Department or Body on Contractor's /Sub-contractor's behalf until sufficient proof is furnished by the Contractor / Sub-Contractor to the contrary.
- 7.03 All "On Account" Payments shall be regarded merely as an advance payment against the amounts due to the Contractor in terms of the contract and any such payments shall not be regarded as an acceptance or completion of any works paid for.
- 7.05 The payment against running accounts bills will be made as per 'Terms of Payment' within 30 (Thirty) days from the date of receipt of bill in the accounts department duly certified by our PMC and Engineer-in-Charge.

**8.00 TERMS OF PAYMENT**

As per NIT

**9.00 SCHEDULE OF RATES**

All the items of work mentioned in the Schedule of Rates and covered by the Contract shall be carried out as per the Drawings, Specifications and directions of Engineer-in-Charge and shall include all labour, materials, tools, plants, tackle, testing, if any, with Contractor's testing appliance etc. required to complete the work.

**10.00 EXTRA ITEMS OF WORK**

During the course of execution of the work, should the contractor come across items of work which are not covered under the Schedule of Rate or not included therein, the Contractor shall draw the attention of the Site-in Charge of PMC and Engineer-in-Charge of Owner to the same and such items of work shall be treated as extra only with the prior approval of Site-in Charge of PMC/ Engineer-in-Charge in writing. Contractor shall submit a quotation along with the rate analysis for approval of Site-in Charge of PMC and EIC for such accepted extra items before he commences work or purchases the materials in connection with such items.

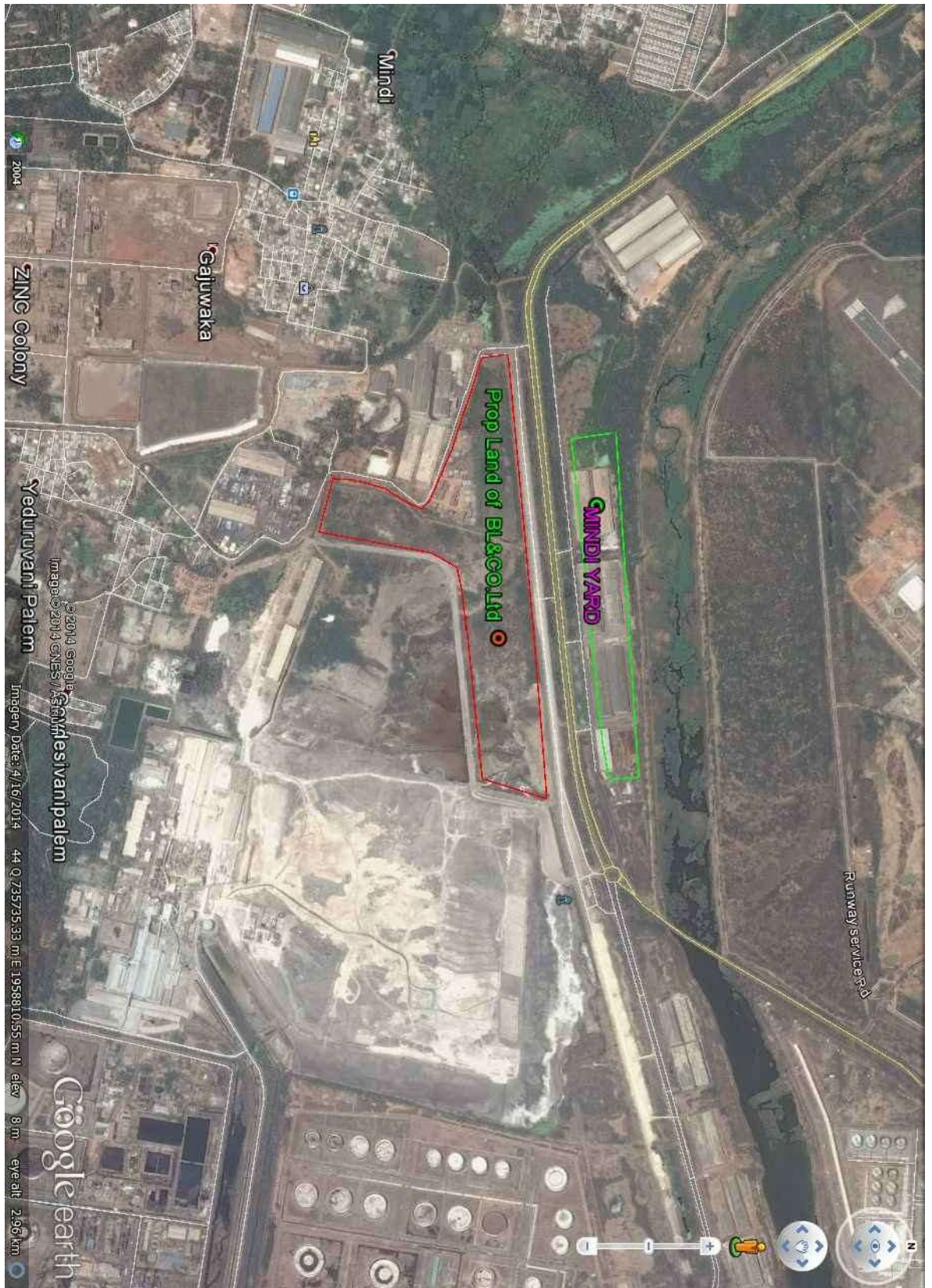
For extra items, rates shall be derived from similar item rates included in the schedule of work. Where there is no such similar item available in the schedule, rate shall be analysed as follows:

Rate for extra item = Cost of material (a) + cost of labour inclusive of all necessary tools, tackles, equipment, machinery and consumable (b) required to carry out the work + 15% of (a+b) towards profit and overhead + taxes, duties etc. as applicable.

**11.00 STRICT ADHERENCE TO SPECIFICATION & CTE INSPECTION**

The entire work shall require to be carried out strictly as per specifications, quality assurance plan, drawing etc. intended in the tender backed up with proper test report, manufacturers' test certificates etc. The Chief Technical Examiner of Central Vigilance Commission may inspect the work during the course of execution and also during the defect liability period. The contractor has to maintain all documents in acceptable form duly reviewed and approved by the Engineer-in-Charge for any such/ similar inspection.

EXHIBIT-1-VICINITY PLAN OF MMLH SITE



**EXIHIBIT -2-BANK DETAILS FOR SUBMISSION OF BANK GUARATEE**

Name of the Bank : Indusind Bank  
Bank account no. No : 650001891093  
Swift Code : NDBINBBCAP.  
MICR Code : 700234002.  
IFSC Code : INDB0000015.  
Branch Address : IndusInd Bank Limited,  
Savitri Towers, 3A, Upper Wood Street,  
Kolkata – 700 017.

# HSE COMPLIANCE



**IN RESPECT OF HSE REQUIREMENTS, CONTRACTORS ARE REQUIRED TO FULFIL THE FOLLOWING****Appendix-A****Pre-Qualification Questionnaire for Contractor****Guidelines for Completion of Questionnaire**

- The potential bidder is to ensure that the answers provided are focussed against the activities indicated in the pre-tender document.
- The information is supplied in the same format and sequence in which they appear in the questionnaire. A minimum of 12 has to be obtained in the HSE pre-qualification questionnaire.
- Failure to supply information that accurately and fully covers the material requested may result in an individual Contractor failing to meet minimum expectations and therefore being disqualified.
- Contractor shall provide information that is authentic and documentary evidence.
- Even after getting pre-qualified, if it comes to the notice that non-authentic documents are provided, the Contractor may be disqualified and if any Contract is in place, it may be terminated immediately.
- BL shall have right to audit Contractors records to verify the authenticity of the documents, during any phase of the Contract.

**Questionnaire for HSE Pre-Qualifications of contractors:**

Contractor Details	
Company Name	
Contact Person for HSE	
Name	
Telephone Number	
E-Mail Address	

	Question	Response		Evidence Required at bidding Stage	Weightage if complied
		Yes	No		
1	Do you have a signed and dated HSE Policy?			Attach HSE Policy	1
2	Do you confirm that you will comply with HSE Policy <b>as per Appendix</b> in as much as it is applicable to your scope of work?			None	1
3	Do you have a Health and Safety System certified by an accredited body to a recognized standard? (Eg : OHSAS 18001)			Provide Current Certificate	3

	Question	Response		Evidence Required at bidding Stage	Weightage if complied
		Yes	No		
4	Do you have an Environmental Management System Certified by an accredited body to a recognized standard? (Eg : ISO 14001 )			Provide Current Certificate	3
5	Have you identified, documented and maintained your Health and Safety risk assessment of your activities?			None	3
6	Have you identified, documented and maintained your Environmental Impact Assessment of your activities?			None	3
7	If you use subcontractors, will you assess them in terms of HSE?			None	2
8	Have you produced project/contract HSE plans for recently completed work?			None	2
9	Is HSE Covered in your company's organization chart?			Provide Current Org Chart.	2
10	Have HSE roles and responsibilities been defined in your company?			None	2
11	Have your employees received documented HSE training appropriate to the task they will undertake?			None	2
12	Do you identify and monitor compliance with HSE Legislation?			None	2
13	Do you carry out regular medical examination for your employees?			None	1
14	Is your company free from any charges or notices served by the regulatory authorities in relation to HSE in the last 3 years?			None	1
15	Do you have any procedure of reporting HSE Incident and investigation?			None	2

Please provide your accident data for the current year and the last 2 calendar years	Current Year	Current Year -1	Current Year -2	Period Average

	<b>Note: this must include the data of any contractors working for your organization.</b>				(Three years average)
16	Number of Fatalities				
17	Number of Environmental Incidents reported to Pollution Control Board				
18	Number of accidents with 2 or more days lost time.( LTI)				
19	Man Days Lost				
20	Total Hours Worked				

I confirm that the above information is correct and that further evidence to support this will be provided to BL on request.

Name	Position	Company	Date	Signature

## Appendix-B

### HSE REQUIREMENTS BY CONTRACTORS (To be a part of contract documents)

#### **1.0 Housekeeping**

Contractors shall ensure that their work area is kept clean tidy and free from debris. The work areas must be cleaned on a daily basis. Any disposal of waste shall be done by the Contractor.

All equipment, materials and vehicles shall be stored in an orderly manner. Access to emergency equipment, exits, telephones, safety showers, eye washes, fire extinguishers, pull boxes, fire hoses, etc. shall not be blocked or disturbed.

#### **2.0 Confined Space**

Before commencing Work in a confined space the Contractor must obtain from Owner a Permit to Work, the Permit to Work will define the requirements to be followed.

As minimum Contractors must ensure the following:

- 2.1 Confined spaces are kept identified and marked by a sign near the entrance(s).
- 2.2 Adequate ventilation is provided
- 2.3 Adequate emergency provisions are in place
- 2.4 Appropriate air monitoring is performed to ensure oxygen is above 20%.
- 2.5 Persons are provided with Confined Space training.
- 2.6 All necessary equipment and support personnel required to enter a Confined Space is provided.

#### **3.0 Tools, Equipment and Machinery**

The Contractor must ensure that all tools & equipment provided for use during the Work is:

- suitable for its intended use;
- safe for use, maintained in a safe condition and where necessary inspected to ensure this remains the case (any inspection must be carried out by a competent person and records shall be available);
- Used only by people who have received adequate information, instruction and training to use the tool or equipment.
- Provided with Earth leakage circuit breaker (ELCBs) at all times when using electric power cords. Use of electrical tape for temporary repairs is prohibited.

#### **4.0 Working at Height**

Any Work undertaken where there is a risk of fall and injury is considered to be working at height.

For any Contractor Personnel working at height, Contractors shall provide fall prevention whenever possible and fall protection only when fall prevention is not practicable. Before commencing Work in a height the Contractor

must obtain from Owner a Permit to Work, the Permit to Work will define the requirements to be followed. Supervisor must be present at all point of time, to ensure no deviation occur during the course of work.

#### Fall Prevention System

Fall prevention systems (e.g. fixed guardrails, scaffolds, elevated work platforms) must provide protection for areas with open sides, including exposed floor openings.

#### Fall Protection Systems

Where fall protection systems are used then the Contractor must ensure the following is applied:

- i) Only approved full body harness and two shock-absorbing lanyards are used,
- ii) Prior establishment of a rescue plan for the immediate rescue of an employee in the event they experience a fall while using the system,
- iii) Anchorage points must be at waist level or higher; and capable of supporting at least the attached weight,
- iv) Lifeline systems must be approved by Owner before use.
- v) Use of ISI marked industrial helmet at all point of time.

### **5.0 Scaffolding**

All scaffolds shall subject to a documented inspection by a competent person and clearly marked prior to use. The footings or anchorage for scaffolds shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement. All scaffolding materials should be of MS tubular type.

Guardrails and toe-boards shall be installed on all open sides and ends of scaffold platforms. Scaffolds shall be provided with an access ladder or equivalent safe access. Contractor Personnel shall not climb or work from scaffold handrails, mid-rails or brace members.

### **6.0 Stairways and Ladders**

Ladders should only be used for light duty, short-term work or access in line with the below and the Site Requirements.

- i) Fabricated ladders are prohibited.
- ii) Ladders will be secured to keep them from shifting, slipping, being knocked or blown over.
- iii) Ladders will never be tied to facility services piping, conduits, or ventilation ducting.
- iv) Ladders will be lowered and securely stored at the end of each workday.
- v) Ladders shall be maintained free of oil, grease and other slipping hazards
- vi) Ladders will be visually inspected by a competent person and approved for use before being put into service. Each user shall inspect ladders visually before using.
- vii) Ladders with structural defects shall be tagged "Do Not Use," immediately taken out of service, and removed from the Site by the end of the day.

## 7.0 Lifting Operations

### 7.1 Cranes and Hoisting Equipment

Contractors shall operate and maintain cranes and hoisting equipment in accordance with manufacturer's specifications and legal requirements.

Only Contractor Personnel trained in the use of cranes and hoists are permitted to use them.

### 7.2 Lifting Equipment and Accessories

All lifting equipment / accessories e.g., slings, chains, webbing, chain blocks, winches, jacks etc shall be indicated with their safe working load have an identification number visible on the unit and be inspected and tested in accordance with legal requirements.

Damaged equipment / accessories and equipment shall be tagged "out of use" and immediately removed from Site.

## 8.0 Lockout Tag out ("LOTO")

Prior to performing work on machines or equipment, the Contractor shall ensure that it is familiar with LOTO and Permit to Work procedures and that all of its affected Contractor Personnel receive the necessary training.

## 9.0 Barricades

Floor openings, stairwells, platforms and walkways, and trenching where a person can fall any distance shall be adequately barricaded and where necessary, well lit. Where there is a risk of injury from a fall then rigid barriers must be used.

Barricades must also be used to prevent personnel entering an area where risk of injury is high e.g., during overhead work activity or electrical testing etc. Such barricading must provide clear visual warning.

## 10.0 Compressed Gas Cylinders

Gas cylinder shall be securely stored and transported, and identified and used in line with the local requirements. Hose lines shall be inspected and tested for leaks in line with local requirements. Flash Back arrestor to be used to prevent any explosion due to back fire.

## 11.0 Electrical Safety

Prior to undertaking any work on live electrical equipment the Contractor must obtain a Permit to Work from Owner. Where ever possible live work should be avoided. Any control measures highlighted shall be implemented prior to work commencing.

The below measures will be taken:

- i) Work practices must protect against direct or indirect body contact by means of tools or materials and be suitable for work conditions and the exposed voltage level.
- ii) Energized panels will be closed after normal working hours and whenever they are unattended. Temporary wiring will be de-energized when not in use.
- iii) Only qualified electrical Contractor Personnel may enter substations and/or transformer and only after being specifically authorized by Owner.

## 12.0 Hot Works

A Permit to Work must be obtained from Owner prior to any hot works (welding, grinding, open flame work). Suitable fire extinguishing equipment shall be immediately available. Objects to be welded, cut or heated shall be moved to a designated safe location, or, if they cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place. Personnel working around or below the hot works shall be protected from falling or flying objects.

Prior to the use of temporary propane or resistance heating devices approval must be obtained from Owner.

## 13.0 Trenching, Excavating, Drilling and Concreting

A Permit to Work must be obtained from Owner and all underground lines, equipment and electrical cables shall be identified and located prior to beginning the work. The Contractor shall assign a competent Contractor Personnel to all trenching and excavation work.

Safe means of access and egress shall be located in trench excavations. Daily inspections shall be conducted by a competent Contractor Personnel for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems or other hazardous conditions.

Physical barriers shall be placed around or over trenches and excavations. Flashing light barriers shall be provided at night.

## 14.0 Environmental Requirements

### 14.1 Waste Management

The Contractor is responsible to remove any waste generated by the work being done on the Site. The Contractor must dispose of the waste in line with the relevant local legislative requirements. The waste disposal route shall be documented and made available for Owner to review at any time and may be subject to BL's prior approval.

Wastes (includes rinse from washing of equipment, PPE, tools, etc) are not to be poured into sinks, drains, toilets, or storm sewers, or onto the ground. Solid or liquid wastes that are hazardous or regulated in any way are not to be disposed of in general site waste receptacles.

### 14.2 Spills

The Contractor is responsible for the provision of adequate spill kits/protection and the clean up and disposal costs arising from such spills.

### 14.3 Emissions

The Contractor shall identify and quantify any emission sources associated with the Works. The control measures associated with these emission shall be subject to the approval of Owner. Emissions include but are not limited to noise, dust, fumes, vapours.

# **TECHNICAL SPECIFICATION**

**ARTICLE-I GENERAL SPECIFICATION OF ELECTRICAL WORKS**

**ARTICLE-II TECHNICAL SPECIFICATION FOR ELECTRICAL ERECTION**

**ARTICLE-III TECHNICAL SPECIFICATION FOR PLANT ILLUMINATION**

**ARTICLE-IV LIST OF APPROVED MAKES**



## ARTICLE-I GENERAL SPECIFICATION OF ELECTRICAL WORKS

### 1. SCOPE:

- 1.1. This specification covers the Supply, Installation, Testing and Commissioning of all electrical equipment/items required for Illumination System of Buildings & Sheds for Multi Modal Logistics Hub at Visakhapatnam, Andhra Pradesh being set up by Visakhapatnam Port Logistics Park Ltd.
- 1.2. Any item not specifically mentioned in this specification but considered essential for satisfactory operation of the system shall be included by the Bided in his offer.
- 1.3. The installation shall be carried out in accordance with Indian Electricity Rules, relevant statutory requirements, design drawings and applicable Engineering Standards. Any variations or changes to be carried out at site shall be done with the prior approval of the Consultant/Employers representative.

### 2. SITE CONDITIONS:

S. No.	Description	Conditions
2.1.	Ambient Temperature	Maximum 50°C Minimum 7°C
2.2.	Relative Humidity	Around 60% at maximum temperature
2.3.	Altitude	Around 554mm above SL
2.4.	Atmosphere	Polluted with industrial vapors

### 3. ELECTRICAL SUPPLY PARTICULARS:

S. No.	Description	Electrical Supply Particulars
3.1.	System Voltage	LT 415V $\pm$ 10%
3.2.	Frequency	50 c/s
3.3.	Frequency variation limits	$\pm$ 3%
3.4.	Neutral earthing on LV side	Solidly earthed

### 4. STANDARDS:

- 4.1. All equipment and installation shall generally conform to the requirements of relevant India Standards and Codes of Practice.
- 4.2. All the materials shall preferably carry ISI mark.
- 4.3. The installation shall conform to the requirement of latest editions of Indian Electricity Rules and supplementary regulations of local Authorities and State Electricity Board.
- 4.4. The installation shall meet with the requirements of Fire Insurance Regulations and good engineering

practice.

4.5. The standards shall include but not be limited to the following.

4.5.1. Indian Electricity Rules (1956) amended up to date.

4.5.2. National Electrical Code.

4.5.3. Indian Electricity Act 2003.

IS: 375	Marking and arrangement of switchgear, Busbars, main connection and auxiliary
IS: 722	AC electricity meters
IS: 1248	Direct acting indicating analogue electrical measuring Instruments and their accessories.
IS: 2208	HRC cartridge fuse links for voltage up to 650V
IS: 2705	Current transformers
IS: 3202	Code of practice for climate proofing of electrical Equipment.
IS: 3231	Electrical relays for power system protection.
IEC: 44	Instrument Transformers.
IEC: 185	Current Transformers
IEC: 225	Electrical Relays
IEC: 269	LV Fuses.
IEC: 1036	Static Meters
IS: 732	Code of practice for Electrical Wiring Installation (System Voltage below 650V)
IS: 2274	Code of practice for Electrical Wiring Installation (System voltage above 650V)
IS: 2309	Protection of buildings against lightning
IS: 3043	Code of Practice for earthing.

## 5. DRAWINGS:

The following drawings will form a part of this specification:

5.1. Illumination layouts of Buildings & Sheds

## 6. APPROVAL OF SAMPLES:

The Contractor shall submit samples of all discrete materials/components, like street poles, lighting fixtures, conduits, switches, wires, cables etc., for the approval of Employer/ Consultant. The samples submitted shall confirm to the relevant specifications and makes specified.

## 7. TESTING AND INSTALLATION:

All materials and equipments which included in the Contractor's scope shall be tested, before delivery and necessary Test Certificates shall be submitted to Engineer-in-Charge for approval.

- 7.1. The Contractor shall carry out all performance tests after installation, in the presence of the Engineer-in-Charge, as per specification. The Contractor shall bear all expenses for such tests.
- 7.2. The Contractor shall be responsible for executing the Contract as per Indian Electricity Rules, Rules and Regulations of Power Supply authorities and the Rules of the local Electrical Inspectorate. It shall be the Contractor's responsibility to execute all works within the framework laid down by these Authorities. Any changes/ modifications pointed out by the authorities shall be carried out immediately. The works shall be deemed to be complete only after the receipt of all-statutory approvals and approval of the Engineer-in-Charge.
- 7.3. The Contractor shall assist the Employer in testing and commissioning of the various controls and instrumentation systems associated with the process Plant Machinery.

#### **8. TAKING OVER OF INSTALLATION:**

- 8.1. The Equipment & Installation shall be deemed to have been taken over by the Employer, when concerned authority has certified that all Contractual obligations have been fulfilled by the Contractor.
- 8.2. All performance tests shall be carried out and the contractor shall furnish Test Certificates.
- 8.3. The taking over of the installation shall be deemed to be complete, only when the contractor has carried out all tests in the presence of the Engineer-in-Charge and when the Contractor has submitted the 'As Built' Drawings.

#### **9. SPECIFICATION FOR ELECTRICAL EQUIPMENT:**

All Equipment and Materials shall conform to relevant IS specifications. Where specifications do not exist or the materials specified by the Engineer-in-Charge do not comply with the IS specification, the same shall be procured with prior approval of the Engineer-in-Charge.

## ARTICLE-II TECHNICAL SPECIFICATION FOR ELECTRICAL ERECTION

### 1.0.0 SCOPE OF WORK

#### 1.1.0 Scope of Supply

The work involves timely procurement and transportation to site in properly packed condition of all materials and miscellaneous items required to complete the erection work. The quantum of each item shall be as indicated elsewhere in this document.

These materials and miscellaneous items shall include but will not be limited to the followings:

Pre fabricated cable trays and supports painted with two coats of primer followed by two coats of epoxy-based paints of approved shade. However, steel section shall supplied by the Owner.

Galvanised steel rigid/flexible conduits and accessories, ferrules, lugs, glands, terminal blocks, galvanised sheet steel / Aluminium junction boxes, cubicle fixing clamps, nuts & bolts etc. as required.

Cable termination and jointing kits as necessary.

GI wires and galvanised steel flats as required for grounding.

Fire seals for cable penetration and fire retardant coating.

The scope of supply shall include but will not be limited to all necessary erection materials, consumables and sundry items to complete the installation for satisfactory and trouble free operation. Any material or accessory, which may not have been specifically mentioned but which is usual and / or necessary shall be supplied free of cost to the Purchaser.

All materials and accessories to be supplied by the Bidder shall be brand new ones of reputed make.

Data sheets and Technical leaflets on each piece of material.

#### 1.2.0 Scope of Services

The work includes but is not limited to the followings :

- 1.2.1 Supply of all labour (skilled, semi-skilled and unskilled), supervisory and administrative personnel, all erection tools including crane, trailer, trucks, filter machine, vacuum pump, welding machine, testing equipment as mentioned elsewhere in this specification etc.
- 1.2.2 Broadly the work shall included receipt and unloading from transporters vehicle, storage and safe custody at the Contractor/Owner's store, transportation from Contractor/Owner's store to erection site, unpacking and carrying out inspection, erection as per drawings/Owner's instructions, providing assistance to the Owner for testing and commissioning of all electrical equipment and accessories related to the plant.
- 1.2.3 The items of cabling and grounding work shall be performed with respect to the following equipment/materials.

Power, Control, instrument and special cables to be laid on cable trays/laid directly buried in ground/laid in embedded conduits as per the respective cable tray layout drawings and cable schedule.

Entire cable tray and cable shaft arrangements inside and outside Plant.

Supply, erection and painting of cable trays, cable shaft, supports, brackets and accessories.

Excavation of earth, providing sand both below and above cables, placing protective concrete slabs, back filling, compaction, providing cable route markers and joint markers, removal of excess earth to a location allocated by owner and pumping out of accumulated water within excavation.

For fixing of cable tray in concrete, insert plates will be provided in most of the places. In the event of non-availability of insert plates. The same shall be fabricated and fixed to concrete by fastening gun by the Contractor for further fixing and rouging of cable trays.

Grounding of all equipment, cable tray and cabling system to be installed by Contractor.

Filling of sand in trenches in specified areas shown in the drawing.

Providing assistance to the Owner while Testing & Commissioning of H.T./L.T. Motors installed by others (at the option of the Owner).

1.2.4 The Bidder shall also carry out the following services which shall include but will not be limited to :

- a) Receipt and unloading the equipment/cable from transporters vehicle.
- b) Storage and safe custody of equipment at the Contractor/Owner's store or, under protective custody of the Contractor with all weather protection and requisite watch at the erection site.
- c) Safe transportation of the equipment and materials from Contractor/Owner's store up to the site of erection and of the excess materials back to the Owner's store.
- d) Opening of Packing Cases and inspecting the equipment and materials at site and reporting damages, if any observed immediately after opening, to the Owner.
- e) Proper storing arrangement at Plant Site with suitable enclosure for weather protection.
- f) Repair of all minor damages such as removal of paint, loosening of components of the assembly etc.
- g) Taking delivery of cables and other materials from the Owner's stores (if any) and safe transportation up to the place of erection.
- h) Reconciliation of cables and other free issue items whenever desired by the Owner.
- i) Returning to Owner's stores unused material after final reconciliation on completion of the job.
- j) Dewatering of cable trenches and excavations for laying of buried cables.
- k) Installations of temporary light for installation and commissioning of equipment.
- l) Assemblies, Erection and complete Installation.
- m) Checking of foundation/inserts with reference to the erection drawings and their rectification. If necessary.
- n) Necessary co-ordination between work done by other contractors(if any).
- o) Final check-up, testing and commissioning in presence of Owner's representative.

- p) Obtaining approval of electrical inspector.
- q) Trial run for seven (7) days, rectification of defects, if any and adjustments as necessary.
- r) Re rolling of cables on new drums if so required by the Engineer.
- s) Obtaining Engineer's approval and Owner's written acceptance of satisfactory performance.
- t) Handing over of installation for commercial operations.
- u) If the contractor fails to carry out any of the above-mentioned work within the due time, the owner will have full liberty to get the work carried out by any other agency and the actual cost will be deducted from the contractor.

1.2.5 Field modification carried out shall be marked-up in red on one (1) set of erection drawings.

1.2.6 Submission of "AS BUILT" drawings in three hard copies and two soft copy in CD. Drawings should be done using AUTOCAD 2004.

### 1.3.0 Key Information

The Contractor shall be given reasonable space (Open land) depending upon the availability of same for Storage/Fabrication within 0.5KM of the site to construct stores, shed etc. A small place for office may be given to him at site for office work subject to availability of Space. The Contractor shall have to construct his own office building/storage shed.

The Contractor should mobilise the resources at site considering the project schedule after considering the period required by him for establishing site office, shed etc. so as to enable him to start the work accordingly.

The Contractor should also plan to erect trays, supports, cable laying etc. to commission the part as per project schedule.

The date of handing-over to the Purchaser shall be considered as the date of completion of all work at site duly certified by the Purchaser and the date on which the Contractor vacates the site after clearing all the temporary installations done by him for the execution of contract.

The Contractor shall have to re-arrange from time to time the schedule of work if needed so as to give priorities to work as informed by the Purchaser in the interest of the whole project.

## 2.0.0 GENERAL REQUIREMENTS

### Codes and Standards

All equipment and materials shall be designed, manufactured and tested in accordance with the latest applicable Indian Standards (IS) except where modified and/or supplemented by this specification.

Equipment and materials conforming to any other standard which ensures equal or better quality may be accepted. In such case, copies of the English version of the standard adopted shall be submitted along with the bid.

The electrical installation shall meet the requirements of Indian Electricity Rules as amended upto date and relevant IS Codes of Practice. In addition, other rules or regulations applicable to the work shall be followed. In case of any discrepancy, the more restrictive rule shall be binding.

### 3.0.0 DESIGN CRITERIA

Electrical equipment will be used for power supply for both normal and emergency operation of generating unit.

As such all erection work of those equipment shall be carried out in a neat and efficient way so as not to impair their normal functioning in any way.

The pre-commissioning checks as well as commissioning of different equipment shall be carried out as per guidance of actual manufacturer's supervisor, if available at site or as per written instructions in Erection manuals. In case of any site related problem in commissioning activities, contractor shall seek advice of owner's Engineers.

Erection of cabling work shall be carried out in such a way as to provide a reliable and assured electric power supply system to all electrical loads.

Erection of grounding system similarly shall ensure an effective and efficient system for quick dissipation of short circuit current to grounding system in case of faults in H.V./L.V. systems thereby ensuring personnel safety and reducing risk of damages to important equipment.

Entire erection of grounding work shall be carried out in such a way as to be capable of withstanding the intended services of carrying full short circuit level currents to ground mat without any damage/deformation.

Erection of cabling work shall be executed keeping in view all necessities and requirements of fire fighting codes for the Plant.

Suitable embedded steel inserts shall be kept on wall/floor/ceiling surfaces for welding of cable tray brackets. The Contractor shall carefully examine those inserts and if necessary shall provide extra anchoring in order to make the cable tray system withstand horizontal/vertical accelerations due to seismic forces for indoor trays and also wind load for outdoor trays in addition to normal cable loadings of the trays.

The assistance to testing and commissioning of HV/LV motors shall be provided as per the directives of the Motor Manufacturer.

### 4.0.0 SPECIFIC REQUIREMENT - SUPPLY

Equipment and materials furnished shall be complete and operative in all details.

Equipment and material shall comply with description, rating, type and size as detailed in this specification, drawings and annexure.

All accessories, fittings, supports, anchor bolts etc. which form part of the equipment or which are necessary for safe and satisfactory installation and operation of the equipment shall be furnished.

After the treatment of steel surface damaged during transit, sufficient quantity of anti-corrosive paint shall be applied and subsequently finished with two coats of final paint of approved shade.

#### **Cable Trays & Cable Tray Supports**

Cable trays shall be pre fabricated in line with drawings / technical details enclosed with this specification.

Fabricated trays and supports shall be free from all burrs and sharp cutting edges. Trays and supports shall be made free of scale, grease, rust and welding slags.

Supports shall be provided with two coats high quality primer and two coats of epoxy based paint.

### **Conduits and Accessories**

Conduits shall be of rigid steel, hot-dip galvanised, furnished in standard length of 3 metres and threaded at both ends.

Conduit diameter up to and including 25mm size shall be of 16 SWG and conduits above 25 mm diameter shall be of 14 SWG. Minimum diameter of conduits shall be 19mm.

Each price of conduit shall be straight, free from blister and other defects, internal surface shall be of smooth finish and covered with capped bushings at both ends.

Flexible conduits shall be made with bright, cold rolled, annealed and electro-galvanised mild steel strips coated internally with epoxy or steel wire reinforced PVC.

### **Junction Boxes**

Junction boxes shall be of 16 SWG sheet or of cast iron and shall be hot dip galvanised, out-door type, dust and damp proof, generally conforming to IP-55.

Junction boxes shall be complete with gasketed inspection cover, conduit knock out/threaded hub and terminal blocks.

Junction boxes for outdoor use shall be weather proof IPW-55 and those for hazardous locations shall be flame-proof type.

Junction boxes shall be of two types viz one suitable for control wiring and the other with terminals for power cable terminations. Junction boxes for power cable terminations shall have minimum nine (9) nos. of terminals.

The junction boxes shall have the following identifiable markings :

1. Circuit nos. on top by white stenciled paint at site.
2. Circuit nos. with ferrules (inside) as per approved drawings.
3. Danger sign in case of 415 V circuit.

### **Terminals**

Multi way terminal blocks of approved type, complete with screws, nuts, washers and marking strips shall be furnished for connection of incoming/outgoing wires.

Each control cable terminal shall be suitable for connection of 2 nos. 2.5 sq. mm. stranded copper conductors without any damage to the conductor or looseness of conductors.

### **Cable Termination & Jointing Kits**

The Bidder shall supply cable termination and jointing kits for HV. Power Cables, L.V. Power and Control Cables along with all accessories (if necessary).

The cable termination kits of HV. cable and straight through joints including necessary boxes, if any, shall be preferably of RAYCHEM make using either heat shrinkable/prefab push-fit type kits. Cable end



terminations on H.V. Electrical equipment shall be suitable for Indoor & Outdoor uses, as the case may be.

The Bidder, in some cases, may have to carry out modification work/provide extension chamber for Motor cable end boxes in order to make them suitable for termination of cable with termination kit being supplied under this specification. The Contractor shall carry out the necessary modification work with the approval of Engineer at site.

For the cable termination and straight through joints for both L.V. Power and control cables, supply of items of jointing kit such as necessary boxes, if any, sealing compounds, ferrules, tapes, lugs, glands shall preferably of reputable make such as Raychem/M-Seal/3 M or equal.

Supply of straight through ferrules shall be included in the supply of straight through jointing kits for both HV and LV cables.

### **Cable Glands**

Cable glands shall preferably be tinned brass gland, double compression type complete with necessary armour clamp and tapered washer etc. Cable glands shall match with the sizes of different HV/LV Control cables.

### **Cable Lugs**

Cable lugs and straight through ferrules shall preferably be tinned copper/aluminum suitable for termination of different cross-sections of HV/LV/Control cables. Lugs for power cables shall be compression type whereas lugs for Control/Instrumentation/Signaling cables shall be crimping type. Supply of lugs for end termination of control cables shall be included in the end termination charges.

### **Cable Opening Sealing Compound**

Sealing compound shall have adequate fire protection rating and shall be fire seal type or approved equivalent suitable for sealing both vertical & horizontal cable penetrations. The sealing compound in conjunction with mineral wool shall form effective fire seals and thickness of coating shall be at least 2 mm. The sealing compound shall have special property to allow for thermal expansion of cables both under normal and short circuit conditions.

### **Cable Clamps**

Cable clamps fabricated out of 25mm x 3mm aluminum strips sheathed in PVC or preferably self locking type cable clamps/ties of nylon/FRP material of requisite lengths shall be used for clamping of multi core control cable and multi core HV/LV power cables.

Trefoil cable clamps (Nylon/FRP) suitable for single core HV/LV cables of size 630/500/185 Sq. mm. shall be used for clamping in trefoil formation at intervals of 1500 mm for horizontal tray and 900 mm for vertical tray. Necessary cable clamping hardware shall also be supplied for fixing the same to the cable trays.

### **Grounding Wires and Galvanised Steel Flats**

Specified quantity of 8 SWG GF ground wire and galvanised steel flats shall be supplied.

## **5.0.0 SPECIFIC REQUIREMENTS - SERVICES**

### **Responsibility of Erection**

The Contractor shall be fully and finally responsible for proper erection, safe and satisfactory operation of plant and equipment under his scope of work to the entire satisfaction of the Engineer.

The work shall be executed in accordance with the directions, instructions, drawings and specifications which shall be supplied to the Contractor by the Engineer from time to time.

If in the opinion of the Contractor any work is insufficiently specified or require modification, the Contractor shall refer the same in writing to the Engineer and obtain his instruction/approval before proceeding with the work.

If the Contractor fails to refer such instances, any excuse for the faulty erection, poor workmanship or delay in completion shall not be entertained.

Equipment and material which are wrongly installed shall be remolded an re-installed to comply with the design requirement at the Contractor's expense, to the satisfaction of the Engineer.

### **Supervision**

The Engineer shall have the overall responsibility for coordination of Contractor's work and his direction shall be final.

Such direction and supervision however shall not relieve the Contractor of his responsibility of correctness and quality of workmanship and of other obligation under the contract.

### **Drawings**

Drawings and schedules enclosed with this specification are for general guidance of the Bidder to assess the type and volume of work involved.

These drawings and schedules will be revised to suit the actual requirement in related systems. Additional drawings and schedules will also be furnished to Contractor if/when necessary.

Such revisions, corrections, additions to drawings and schedules shall not be considered to change the scope of work.

The Contractor shall mark in red on one (1) set of drawings all deviations/alterations, not shown on drawings but carried out at field. After completion of work the Contractor shall furnish a set of "As Built" drawings to the Owner as specified elsewhere.

### **Methods and Workmanship**

All work shall be installed in a first class, near workmanlike manner by mechanics / electricians skilled in the trade involved.

The Erection work shall be supervised by competent supervisors holding relevant supervisory license for the Government.

All details on installation shall be electrically and mechanically correct.

The installation shall be carried out in such a manner as to preserve access to other equipment installed.

### **Protection of Work**

The Contractor shall effectively protect his work, equipment and materials under his custody from theft, damage or tampering.

Finished work where required shall be suitably covered to keep it clean and free from defacement or injury.

For protection of his work Contractor shall provide fencing and lighting arrangement, connect up space heaters and provide heating arrangement as necessary or directed by the Engineer.

Contractor shall be held responsible for any loss or damage to equipment and material issued to him until the same is taken over by the Owner according to contract. The Contractor shall have to make good all losses/damages to material when in the contractor's custody until taken over formally by the Owner.

The Contractor shall insure all his workmen against accidental injury/death. The contractor shall also take out insurance policies which would cover the risk of losses/damage of his tools and tackles and Owner's material/equipment while in his custody.

### **Safety Measures**

All safety rules and codes as, applicable to work shall be followed without exception.

All safety appliance and protective devices including belts, hand gloves, aprons, helmets, shields, goggles etc. shall be provided by the Contractor for his personnel.

The Contractor shall provide guards and prominently display caution notices if access to any equipment/area is considered unsafe and hazardous.

### **Consumables and Hardware**

The Contractor shall furnish all erection materials, hardware and consumables required to complete the installation.

The materials shall include but will not be limited to the following :

- a) Consumables : Welding rods & gas, oil and grease, anti-oxide grease, cleaning fluids, paints, electrical tape, soldering materials etc.
- b) Hardware : Bolts, nuts, washers, screws, brackets, supports, clamps, hangers, saddles, cleats, sills, shims etc.

Supply of cement, sand, stone etc, required for the execution of the contract shall be the responsibility of the Contractor.

### **Erection Tools and Tackle**

The Contractor shall provide all tools, tackle, implements, mobile equipment such as crane, trailers, scaffoldings, ladders, etc. which are required for transportation, handling and erection of the plant and equipment.

Special erection tools, if any, furnished by the manufacturer along with the equipment may be used by the Contractor. Such tools shall be returned in good conditions to the Owner on completion of work.

Owner's tools and equipment may be made available on payment of charges if and when available.

The contractor should be prepared to make his own arrangement for crane.

### **Testing Equipment**

- a) Power operated Megger of 5,000 V and 1,000 V grade for Insulation testing.
- b) Hand operated megger of 1,000 V grade for Insulation testing.
- c) Hand driven earth resistance Megger of range 0-1/3/30 ohms.
- d) Tong testers of suitable ranges.
- e) High potential test set suitable for 660V and 400V systems.
- f) Contact Resistance measuring set for Micro-ohms.
- g) Torque Wrench.
- h) Current Transformer Primary injection set.
- i) Relay testing and checking bench.
- j) Multimeter, test lamp, buzzer, spirit level, db-meter, different gauges etc.

Other testing equipment as required will be arranged by the Owner. Alternatively, the contractor may be asked to provide the same at a mutually agreed rate.

#### Installation

Installation work shall be carried out in accordance with good engineering practices and also manufacturer's instructions/recommendations where the same are available.

Equipment shall be installed in a neat workmanlike manner so that it is level, plumb, square and properly aligned and oriented.

Equipment will be furnished in a dis-assembled condition as received at site. The contractor shall assemble all these parts, mount and wire-up loose equipment, fittings and accessories and complete with all connections.

Equipment will be generally supplied with necessary floor/support steel, holding down bolts, nuts anchors etc. In case of non-supply of these items with the equipment, following procedure shall be followed :

Arrange for floor/support steel as necessary and fabricate and install them.

Contractor shall furnish and install all bolts, nuts, screws and anchors as required to complete the installation.

Any internal wiring of the equipment which has been left incomplete because of shipping split or which requires minor modifications shall be carried out by the Contractor.

#### **LV Switchgear, Control Panels, MCCs, Distribution Boards, VFDs, Soft Starters**

Switchgear, Control Panels, motor control centers, distribution boards, etc, will be split up in sections for ease of transportation and handling. All breakers, busbars, relays, meters and control switches will be supplied loose to be mounted and connected at site as per the relevant drawings which shall be supplied to the Contractor for necessary mounting, wiring and connection work at site.

All alignment, leveling, grouting, anchoring, tack welding, adjustments and oil conditioning shall be carried out in accordance with manufacturer's instructions and/or as directed by the Engineer.

All connections in the switchgear, control boards, distribution boards, etc. shall be completed, checked and adjusted to ensure safety and satisfactory operation of the equipment.

In some cases, some modifications may have to be carried out at site in the wiring of a equipment to meet the requirements of the desired control scheme and the contractor shall have to do same at no extra cost.

### **Battery and Battery Charger**

All the cells of lead acid batteries will be furnished in dry and uncharged containers. These batteries will be used for control and monitoring of electrical system, instrumentation etc.

Battery cells shall be installed on wooden stand and insulator. Electrolyte supplied in a separate container shall be filled as per manufacturer's instruction. The contractor shall install the lead coated copper bus for inter-row and recharging shall also be carried out by the contractor as per manufacturer's instruction. Lamp bank for discharging shall be provided by the contractor.

The Battery charger, D.C. distribution board will be housed in a sheet steel cabinet and located in separate rooms.

After erection and connection of the Battery Charger, the contractor shall complete the charging and discharging cycles recommended by the manufacturer. The contractor shall rig up a suitable discharge resistor for this purpose.

Connection from Battery, terminals will be made by means of cables. Lead coated terminal connector shall be furnished for this purpose.

### **Cable installation work shall consist of**

- a) For laying on trays/racks and vertical cable shafts :
  - i) Erection of cable trays/racks, supports, hangers.
  - ii) Laying of cables, dressing, clamping and fixing of cable tags including supply of tags.
- b) For laying in ground :
  - i) Excavation of earth upto 1000 mm for power & control cable and 600 mm for lighting cable only.
  - ii) Providing riddle earth of 150 mm depth.
  - lii) Laying of cables, fixing of cable tags, dressing of cables, covering with 150 mm of riddle earth and placing protective concrete slab/tiles to be provided by the owner.
  - iv) Back filling of earth, compaction and removal of excess earth, installation of cable route and joint markers.
  - v) The cable route marker shall be placed at a distance of 30 mtrs. in case of straight run and at every bend of cable route.
  - vi) The supply of cable tags, route and joint markers as well as pumping out of accumulated water within excavation are included in scope of the Contractor.

- c) For laying in conduit/GI pipes/hume pipes :
  - i) Installation of conduits/pipes with accessories wherever required.
  - ii) Laying of cables in conduit/pipes, fixing of conduit tags including supply of tags.
- d) For laying on surface :
  - i) Laying of cables on surface of walls/beams/soffit/structures including supply of saddles, cleats, cable tags as required to complete the erection.
  - ii) Fixing of lugs including crimping.
  - iii) Termination and connection using termination kits wherever required including splicing, soldering, taping, compound filling, putting ferrules etc. as required for the complete job including supply of consumable materials such as ferrules, soldering materials, electrical tape, compound/resin etc.
- e) Straight through cable jointing inclusive of supply of consumables as required.
- f) Fire sealing of openings and anti fire propagation compound coating.
- g) Filling of sand in trenches in specified areas shown in the drawing.
- h) In licensed area all lugs shall be flameproof type.

### **Cable Trays**

The Contractor shall supply and install all prefabricated cable trays, racks, risers, shafts and supports.

Overhead cable trays in outdoor areas, cable trays either inside concrete trenches or inside buildings and racks inside cable shafts shall be aligned and leveled properly. All tray runs shall be installed parallel to the trench/building walls and floors except otherwise noted in the drawings.

Embedded steel inserts in wall/floor/ceiling surfaces shall be provided. The Contractor shall have to secure rack/tray supports by welding to those inserts or other available building steel surface. Outdoor trays shall be installed by welding on the steel/concrete structures with inserts.

In case of non-availability of embedded steel inserts in certain tray routes, the Contractor shall have to secure the supports on wall/floor/ceiling surfaces by suitable anchoring system having adequate load bearing capability.

As far as practicable, cable trays shall be supported from one side only in order to facilitate installation and maintenance of cables from the other side.

The cable trays shall be supported in general at a span of 1.5 metres horizontally and at a distance of 1.0 meter vertically.

Sufficient spacing of not less than 250 mm shall be provided between trays and maintained to permit adequate access, for installing and maintaining the cables.

### **Cable and Conduits**

The Contractor shall install, terminate and connect up all cable and conduits as per drawings and cable schedules.

The drawings shall be strictly followed except where obvious interference occurs. In such cases, the routing shall be changed as directed and/or approved by the Engineer.

Approximate lengths of cable and conduit will be given in the cable schedule for guidance only. Before commencement of work the Contractor shall take actual measurements and prepare his own cable cutting schedule to reduce wastage to a minimum. The cable cutting schedule will have to be approved by the Engineer.

The Contractor shall also maintain and submit when requested, a record of cable insulation value when from store, after laying, before and after termination / jointing.

### **Conduit and Accessories**

Conduit/pipes shall be used only in short lengths in certain areas where required and/or as directed by the Engineer.

The Contractor shall furnish all conduits complete with accessories as required such as tees, bends, adapters, locknut, bush, pull boxes, straps, brackets etc.

Exposed conduits shall be run in straight lines parallel to column, wall or beam and supported at a distance not exceeding 500mm.

Embedded conduits shall be coated with an asphalt base compound to be supplied by contractor and anchored securely in position to preclude movement.

Conduits shall be installed in such a manner as to avoid unnecessary bending and crossing and also entrapment of moisture.

Conduit connection to general purpose enclosure shall be made with double lock nuts and bushing. Conduit connection to equipment where movement may occur or which may be disconnected for servicing shall be made with flexible conduit.

Conduit ends shall be plugged or capped at all times during erection so as to prevent entry of foreign materials.

Conduit and duct runs shall be thoroughly cleaned before pulling in the cables.

Except for inside an enclosure wherever the cable enters or leaves the conduit, the conduit end shall be sealed by suitable sealing compound, having fire withstand capability.

### **Cable - Storage and Handling**

Cable drums shall be stored on hard and well drained surface so that they may not sink. In so case shall the drum be stored on the flat, i.e., with flange horizontal.

Rolling of drums shall be avoided as far as practicable, for short distance, the drums may be rolled provided they are rolled slowly and in proper direction as marked on the drum.

In absence of any indication, the drums may be rolled in the same direction as it was rolled during taking up the cable.

For unreeling the cable, the drum shall be mounted on jacks or on cable wheel. The spindle shall be strong enough to carry the weight without bending.

The drum shall be rolled on the spindle slowly so that the cable should come out over the drum and not below the drum.

While laying cable, cable rollers shall be used at an interval of 200 m. The cables shall be pushed over the roller by a gang of people positioned in between rollers over a suitable distance.

Cable shall not be pulled from the end without having intermediate pushing arrangement. Bending radius of the cable during installation shall not be less than what is specified by the manufacturer.

Where cables are cut from the drums the ends of the cables at the drums shall be properly sealed. Whenever necessary the cable shall be re-rolled on drums as advised by Engineer of Owner. Cost of the same are deemed to be included in the quoted rates. Unused/empty drums are to be returned to the owner in good condition.

### **Cable Laying**

Cable shall generally be installed in ladder type site fabricated trays except for some short run in rigid/flexible conduit for protection or crossings.

Cables laid on trays and risers shall be neatly dressed and clamped at an interval of 1500mm and 900 mm for horizontal and vertical cable runs.

Clamps for multi core cables shall be fabricated out of 25 x 3 mm PVC sheathed aluminum flats. All power cables shall be clamped individually and control cables shall be clamped in groups of three or four cables.

All single core power cables shall be laid in tri-foil formation and suitably clamped with nylon/fiber glass molded pieces of appropriate quality and sizes.

Prior to laying of cables inside both indoor and outdoor trenches, the Contractor shall properly clean inside those trenches.

In outdoor areas, buried cables shall be laid and covered with riddled earth and protected from damage by precast slab at top.

When buried cables cross road/railway track, additional protection shall be provided in the form of hume/galvanised iron pipes of adequate strength.

For power cables exceeding 100 metres an underground cable loop of diameter 2.5 metres shall be provided near each terminating ends.

The power and control cables shall be laid with a provision of extra length at one end. The exact length shall be confirmed by the Owner/Consultant's site engineer before laying.

After completion of installation of cables on trays inside concrete trenches, the portion of the trench located in the vicinity of oil filled transformers/areas shown in the drawings shall be filled up with sand.

Proper cable supporting arrangement with necessary clamps shall be installed by the bidder to hold the cables entering the equipment e.g. switchboards/transformers and the like from cable trays.

After completion of installation and prior to connection, all power cables shall be subjected to a high potential test. All necessary assistance to testing shall be provided by the contractor.



**Cable Tags and Markers**

Each cable and conduit run shall be tagged with numbers that appear in the cable and conduit schedules, Cables and conduits shall be tagged at their entrance, every 30.0M and exit from any equipment, junction box.

The tags shall be of aluminum (minimum 2 mm thick) with the number punched on it and securely attached to the cable by not less than two turns of 16 SWG G.I. wire. Alternatively, PVC/Nylon tags with embossed cable number secured to the cable with PVC/Nylon bands may be used.

Routing of cables laid directly under ground shall be indicated clearly by cable marker of galvanised iron.

The location of cable joints, if any, shall be clearly indicated with cable marker with an additional inscription "cable-joint".

The Contractor shall furnish and install all tags and markers stated above.

For buried cable, the marker shall project 150 mm above ground and shall be spaced at an interval of 30 meters and at every change of direction.

**Cable Termination and Connection**

The termination and connection of cables shall be done strictly in accordance with manufacturer's instruction, drawings and/or as directed by the Engineer.

The work shall include all clamping, fitting, fixing, soldering, tapping, compound filling, cable jointing, crimping, shorting and grounding as required for the complete job. All equipment required for all such operations shall be of Contractor's procurement under this specification.

Furnishing of all consumable materials such as soldering material, electrical tape, sealing material as well as cable jointing kits shall be included in the offer.

Cable joint kits for all cables shall be supplied by Contractor under this specification. Responsibility for proper terminating shall lie on the Contractor, Guarantee for termination shall also have to be given by Contractor.

The equipment will be generally provided with blank bottom plates for cable/conduit entry and cable end box for power cables.

The Contractor shall perform all drilling, cutting on the blank plate and any minor modification work required to complete the job, Gas cutting will not be allowed.

If the cable end box or terminal enclosure provided on the equipment is found unsuitable and requires major modification, the same shall be carried out by the Contractor at the discretion of Engineer.

Control cable cores entering control panel/switchgear/MCC etc. shall be neatly bunched and served with PVC perforated tape to keep it in position at the terminal block. Alternatively, the neatly bunched control cable cores may be secured by Nylon self-locking cable securing bands.

The Contractor shall put ferrules on all control cable cores in all junction boxes and at all terminations. The ferrules shall carry terminal numbers as per drawings. All ferrules shall be coloured, plastic and interlocked type.

Spare cores shall be similarly ferruled, crimped with lug and taped on the ends. Spare cores shall be ferruled with individual cable number.

Termination and connection shall be carried out in such a manner as to avoid strain on the terminals.

All cable entry Points shall be properly sealed and made vermin and dust proof. Unusual opening, if any, shall be effectively closed. Sealing work shall be carried out with approved sealing compound having fire withstand capability for at least three hours.

Power and control cables near their terminations at cable end box/marshalling box of transformers may require to be supported by clamping arrangement. The Contractor shall fabricate all such supports and provide clams as required to complete the job.

### **Cable Joints**

Cables shall be installed without joints as far as practicable.

If however jointing becomes necessary, it shall be made only by qualified cable jointer and strictly in accordance with manufacturer's recommendation.

Jointing rates shall be inclusive of supply of splicing materials, jointing compound, tape, connectors etc., if not covered within supply price of jointing kits.

### **Junction Box**

The Contractor shall install junction boxes wherever required for power/control cables at suitable as per direction of engineer.

### **Fire seal and anti-flame propagation compound coating.**

In order to prevent fire propagation through cable penetration of wall/floor/ceiling as well as through cable shaft openings, after laying, dressing and clamping of cables, all the openings shall be properly sealed by using pieces of mineral wool butted to one another and spraying with out fire propagation liquid. Also the cable runs both before and after fire seals shall be suitably sprayed with anti fire propagation compound at least for 1 M length on each side.

Except for inside an enclosure, wherever cables enter or leave conduits, the conduit end shall be sealed by suitable sealing compound having fire withstand capability.

### **Grounding of Electrical System**

The Contractor is to carry out the grounding of the entire electrical installation under the scope of this specification as directed by the Owner's representative. MV Swgr., Transformer, MCCs, all drive motors, junction boxes, joint boxes, switch boards, lighting fixtures, receptacles, conduits, cable, armours etc. and all non-current carrying metallic parts shall be earthed at two separate points. The equipment grounding shall be carried out by GI flat / wire of specified sizes and the same shall be connected to the risers of plant earth mat. In any case, the earth resistance of the grounding system shall be less than 1 ohm.

The method adopted for system earthing as well as equipment earthing shall be in accordance with the Indian Standards Rules and Regulations of Practice for earthing.

The main ground grid shall be buried in earth at a minimum depth of 600 mm. below finished grade level unless stated otherwise. The size of the ground grid conductor shall be bare 50 x 6 mm GI flat and are connected to ground electrodes.

Earth grid for normal electrical earthing, earth grid for earthing, earth grid for lightning protection and earth grid for electronic equipment earthing shall be all isolated and independent from each other.

All risers from the ground grid shall be 50 x 6 mm GI flat and shall be projected 300 mm above grade level / concrete floor level unless otherwise shown.

All ground conductor connections shall be made by electric arc welding unless otherwise specified. Ground connections shall be made from nearest available plant ground grid risers. All ground conductors above ground shall be painted black for easy identification.

In case of site fabricated cable tray/ladder, the runner angles shall be used as ground conductors and shall be made electrically continuous. Such grounding continuity work on runner angles of cable tray is to be included in erection price of cable trays/racks. Cable screens and armours shall be bonded to earthing system. Also metal pipes and conduits carrying cables shall be bonded and effectively earthed.

In office buildings, laboratories etc. where concealed wiring is adopted, flats or wires for earthing shall be run along the pipes carrying lighting cables. In case where the earth conductors are to be taken through embedded pipe carrying cables, the same shall comprise aluminium conductor insulated cables of green colour for easy identification.

The earthing shall be done by GI Flat or, GI wire of sizes as laid down in earthing drawings and the same shall be connected to the risers of main earth grid.

The minimum size of galvanized MS flat earthing leads for various equipment shall generally be as given below unless a higher size is required from the view point of higher available fault current :

<u>Equipment</u>	<u>Size of GS Flat/Wire</u>	
Cable Tray	1 x 50 x 6 mm	1 no (continuous run)
Emergency trip Push Button/ Receptacle / Ventilation Fan/LPBs	16 SWG wire (twisted pair)	2 nos.
PDB/LDB	1x 25 x 6 mm	2 nos.
PMCC/DCDB	1 x 50 x 6 mm	2 nos.

### **Lightning Protection System**

The method adopted for protection of buildings and allied structures against lightning shall be in accordance with relevant Indian standard.

Generally the plant building shall be adequately earthed to ensure free conducting path for lightning stroke.

### **Painting**

The Contractor shall paint steel fabrications at site with two (2) coats of primer and two (2) coats of battleship gray epoxy-based paint.

All damaged parts shall be cleaned and coated with two (2) coats red oxide primer paint followed by a finishing coat of approved colour.

All damaged galvanised surfaces shall be coated with cold galvanising paint (minimum thickness 1 mm).

All equipment after erection shall be touched-up where required with coats of finishing paint.

All primer & paint including touch-up paints shall be supplied by the Bidder.

### **Excavation and Back Filling**

The Contractor shall perform all excavation and backfilling as required for buried cable and ground connections.

Excavation shall be performed upto the required depth. Such sheeting and shoring shall be done as may be necessary for protection of the work.

The Contractor shall make use his own arrangements for pumping out any water that may be accumulated in the excavation.

All excavation shall be backfilled to the original level with good consolidation.

### **Steel Fabrication**

All racks, supports, hangers and brackets wherever necessary shall be fabricated by the Contractor. Necessary steel shall be supplied by the Contractor.

Steel for fabrication shall be straightened and cleaned of rust and grease. All fabrication shall be free of sharp edge.

The Contractor shall maintain a register showing account of receipt of steel in the work and records shall be kept to the satisfaction of the Owner.

For the purpose of certification and accounting the theoretical weights on the basis of relevant Indian Standards will be binding.

### **Cleaning up of Work Site**

The Contractor shall, from time to time, remove all rubbish resulting from execution of his work. No material shall be stored or placed on passage or drive ways.

Upon completion of work the Contractor shall remove all rubbish, tools, scaffoldings, temporary structures and surplus materials etc. to leave the premises clean and fit for use.

### **Inspection & Testing**

On completion of erection works, the Contractor shall request the Engineer for inspection and tests with minimum fourteen (14) days advance notice.

The Engineer shall arrange for joint inspection of the installation for completeness and correctness of the work. Any defect pointed out during such inspection shall be promptly rectified by the Contractor.

The installation shall be then tested and commissioned in presence of the Engineer and put on trial run for stipulated contract period.

All rectification, repair or adjustment work found necessary during inspection, testing, commissioning and trial run shall be carried out by the Contractor without any extra cost.

### **Commissioning the Trial Run**

Following successful inspection and testing, the equipment shall be commissioned and put on trial run along with the main plant in a manner mutually agreed upon based on the commissioning schedule of main plant.

The contractor shall assist the purchaser in commissioning and trial run with men and material as required and/or as directed by the Engineer.

### **Taking over of Installation**

On successful testing, commissioning and trial run, the Contractor shall request Engineer in writing for taking over the installation.

The Engineer, on receipt of the request, shall arrange to take over the installation either wholly or in part as the case may be after a final inspection.

Till such taking over, the responsibility of the whole installation against theft or damage of any kind shall remain with the Contractor. In the event of any theft/damage to the plant prior to the complete taking over of the installation the contractor shall arrange to lodge necessary F.I.R. with the local police authorities and provide all necessary help to the owner such that the owner may raise suitable claims from its underwriters.

**Guarantee**

In the installation if any trouble arises due to the use of defective or faulty material and/or bad workmanship within a period of 12 months from the date of taking over, the Contractor shall guarantee to replace or repair the defective part or parts at site to the entire satisfaction of the Engineer free of charge.

**6.0.0 TESTS****Site Tests**

All site tests on erected equipments will be carried out. The contractor shall provide suitable manpower for conducting all tests on equipments erected by them.

Through testing and meggering of all cables, wires and equipment to prove the same are free from ground and short circuit fault after erection and installation at site.

Rectification or, replacement of cable and/or, equipment, if any ground or short circuit is found.

All power cables after installation and prior to connection shall be subjected to High-Potential tests. Also the insulation resistance values shall be measured both before and after Hi-pot test for comparison. The leakage current shall also be measured during the Hi-pot test at site.

All equipment shall be demonstrated to operate in accordance with the requirements of this specification.

All equipment shall be subjected to High Potential test.

All protective relays shall be checked for correctness of operations.

All current transformers shall be subjected to Primary Injection test.

Pre-commissioning tests of transformers and other equipments shall include but will not be limited to all necessary tests as per relevant standards for satisfactory operation of the same.

**Test Witness**

All tests shall be performed in presence of Owner's representatives, if so desired by the Owner.

The Contractor shall give at least fourteen (14) days advance notice of shop tests and seven (7) days advance notice of site tests.

Certified copies of all tests carried out at works and at site shall be furnished in three (3) copies for approval of the Owner.

The equipment and accessories shall be dispatched from works only after receipts of Owner's written approval of shop test reports.

Type test certificate on any equipment and accessories if so desired by the Owner, shall be furnished. Otherwise the equipment and accessories shall have to be type tested, free of charge, to prove the design.

**7.0.0 SPECIAL TOOLS & TACKLES**

A set of special tools & tackles supplied by different manufacturers of Equipment which are necessary or convenient for erection, commissioning, maintenance and overhauling of the equipment may be made available to the Contractor at the discretion of Engineer.

#### **8.0.0 DRAWINGS, DATA AND MANUALS**

Drawings, data and manuals shall be submitted in triplicate with the bid and in quantities and procedures as specified in the General Conditions of Contract and/or elsewhere in this specification for approval and subsequent distribution after the issue of Letter of Intent.

##### **To be submitted with the Bid**

Make, type and catalog number of different electrical items and accessories along with technical leaflets, data sheets etc.

Typical General arrangement drawings showing constructional features, fixing arrangement of pre-fabricated cable trays.

Bill of Materials for cable trays and accessories, conduits and accessories.

##### **To be submitted for Approval and Distribution**

Make, type and catalog number of cable termination kits, joints and accessories.  
Detail dimensional drawings showing constructional features, grounding, fixing arrangement etc.

Bill of Materials for Pre-fabricated cable tray and accessories, Conduits and accessories.

Dimensional G.A. drawings and data sheets for different equipment and items supplied under this specification.

## Article-III TECHNICAL SPECIFICATION FOR PLANT ILLUMINATION

### 1.00.00 ILLUMINATION SYSTEM

#### 1.1.0 Design Basis

The Lighting Panels (LP) for distribution of illumination power shall receive power from the Main Electrical Panel at 415V. It shall be sheet steel enclosed, dust and vermin proof. Lighting Panels for individual areas shall be wall-mounting type. For hazardous areas flameproof type panels shall be used. Adequate nos. of spare feeders shall be provided in Lighting Panels.

Lighting fixtures either can be controlled in a group, directly from the lighting panels or from local switches provided for individual fixture, fan, socket etc.

Outdoor lighting viz., yard lighting, street lighting shall be automatically controlled through photocells and suitable no. of photocells shall be provided in strategic locations for this purpose, if the same is shown in the drawing or, appeared in the Bill of Materials.

The lighting system inside and outside plant units shall be designed taking into consideration the desired illumination level, architectural arrangement, building dimensions including mounting height, environmental considerations, ease of maintenance and reliability of the lighting distribution network.

The fittings shall be selected to suit the specific environmental requirement. In areas having inflammable vapour, the fittings shall be of vapour-proof design. In hazardous locations, the fittings shall be of flameproof or increased safety design, tested and approved by Central Mining Research Station, Dhanbad.

#### Outdoor Lighting Fittings

All outdoor flood light / road lighting fittings shall be mounted on steel tubular poles / self-supporting steel towers / building wall with single or double outreach brackets. The fittings shall be cut-off/semi cut-off distribution and integral type.

#### Lighting Power Supply And Distribution

Power shall be fed to LDB. Each outgoing feeder of LDB will feed to lighting fixture/lighting switchboard. Each LP shall have 12 / 6 nos. 240 volt 16A SP MCB as outgoing feeders and one no. 63A / 32A TPN RCCB with inbuilt thermal trip release as incomer. Each circuit taken from LP shall control a group of fittings with the loads distributed on all the three phases to the extent possible.

Wiring shall be done with armoured cable in shed area.

Cable sizes for lighting circuits shall be as indicated in drawings / Bill Of Materials.

The lighting installation shall be carried out in accordance with IS : 732 Codes of practice for electrical wiring installations and National Electrical Code as applicable.

All supporting steel fabrication, fittings, and cabling shall be painted in accordance with approved standard.

The Bidder shall carefully consider these lighting levels and layouts in the offer and shall clearly indicate if any change is required to achieve the design lighting levels with the equipment offered.



**2.0.0 General Requirements - Supply**

The lighting installation shall be carried out in accordance with relevant standard for electrical wiring installations and National Electrical Code as applicable.

**2.1.0 Lighting Panel (LPs)**

The Lighting Panels (LP) with MCB shall be suitable for 415/240 Volt, 3 phase & neutral system. Each outgoing feeder of lighting panel (LP) will feed fixtures/ Local Switchboards, Receptacles with the loads equally distributed on all the three phases to the extent possible.

LPs shall have 12 / 6 nos. 240 volt 16A SP MCB as outgoing feeders and one no. 63A / 32A TPN RCCB with inbuilt thermal trip release as incomer and adequately rated copper busbar. The MCBs shall be suitable for snap fitting on mounting channel by suitable spring loaded clamping arrangement.

The LPs shall be as per IS 8623. Suitable for Flush mounting and surface mounting. With 100A copper busbar for each phase. With Neutral busbar, earth bar and cable ties for cable management. Fully insulated busbar and neutral bar. Door earthing. Supplied with wire set.

MCBs shall be of high breaking capacity (9 KA) and suitable for control & protection of lighting feeders.

**2.2.0 Power Distribution Board (TPNDB)**

Supply, installation, testing and commissioning of 415 V LT non-compartmentalised, fixed type, vertical, front opening, surface mounting, double door, IP-43 with metal door, door earthing, wall mounted, top and bottom cable entry Power Distribution Board

Incomer shall be of 415V, 4P MCB with inbuilt thermal magnetic trip release. Bus Bar rating shall be 415V, 3 ph, 4w, Cu busbar, fully insulated.

Outgoing MCBs shall be three phase TP 32A, 10KA MCBs

**2.3.0 Receptacles**

Receptacle shall be of as detailed in the Scope of Work.

Receptacle shall be mounted in a sheet steel enclosure of thickness not less than 16 SWG.

**2.4.0 Lighting Fixtures**

The lighting fixtures shall be complete with lamp and accessories like control gears, ballasts, starter, capacitor, terminal block etc.

The accessories shall be mounted as far as possible in the fitting assembly. In case of accommodation problem a separate metal enclosed box shall be provided for housing the accessories with provision for loop-in and loop-out connection of wires.

Each fixture shall be provided with an earthing terminal. All metal or metal enclosed parts or the housing shall be connected to the earthing terminal so as to ensure satisfactory earthing continuity throughout the fixture.

Each fixture shall be provided with an earthing terminal suitable for connection with 1/C 2.5 sq mm PVC insulated copper 1100 V wire.

### 2.5.0 LED Lighting Fixtures

LED Light Fitting shall have cluster of LEDs of proper rating; high power & high efficiency LED chips with Lumen output >100 lumens per W; Colour Temperature : W : 6000-6500 K; Driver included; with properly designed Heat Management System by using MCPCB for faster heat transfer from LEDs; high efficiency 3 stage Driver with efficiency of more than 75% and power factor should be minimum 0.95 (APFC)

### 2.6.0 Lamps

General Lighting Service (GLS) lamps shall be with clear glass and screwed caps.

All fluorescent lamp shall be bi-pin rotary type and either cool daylight or white.

Lamp shall be suitable for use in position and capable of withstanding small vibrations. Restrictions and special features, if any, shall be clearly indicated in the bid.

LED Lights

Lamp shall be suitable for use in position and capable of withstanding small vibrations. Restrictions and special features, if any, shall be clearly indicated in the bid.

### 2.7.0 Ballast

Ballast shall be heavy duty, low loss, polyester-filled type with copper winding.

Ballast for Mercury/Sodium vapour lamp shall be provided with suitable tapping to set the voltage within the range specified.

Ballast shall be free from hum. The Contractor shall replace ballast, which produces humming sound, free of cost.

In multilamp fixture each lamp shall be provided with individual Ballast.

### 2.8.0 Lighting Cables/Wires

Lighting wires shall be 650 V grade, PVC insulated, stranded, copper conductor, single core wire conforming to IS 694 with latest amendment with colour coded as below :

RED	for	R-Phase
YELLOW	for	Y-Phase
BLUE	for	B-Phase
BLACK	for	NEUTRAL
GREEN	for	Earthing

All 16/6 A, 5 pin sockets shall be connected directly to Lighting Panel (LP) by 2 runs of PVC insulated, single core stranded 2.5 mm sq. Copper wire for phase and one run of PVC insulated, single core stranded 1.5 mm sq. Copper wire for earthing.

Wiring to individual light/fan points shall be carried out by 3 runs of PVC insulated, single core stranded 1.5 mm sq. Copper wire.

LV Power Cable shall be designed, manufactured and tested in accordance with IS: 7098, IS: 8130, IS: 5831, IS: 3975. The cable shall be 1.1KV grade, 90 Deg.C rating heavy duty XLPE power cable with Stranded and compacted electrical grade Aluminium / Cu conductor, extruded cross-linked polyethylene insulated, ST2 PVC Taping inner sheathed, steel wire / strip armoured, extruded PVC compound conforming to ST2 outer sheathed.

### **2.9.0 Fans and Regulator**

All ceiling fan shall be 1200 mm (48") sweep & 1400 mm sweep, capacitor type, complete with blades, double ball bearings, canopy, minimum 300 mm down-rod, hanging device with electronic regulator etc. and suitable for 1ph., 240V, 50Hz AC supply.

All exhaust fans shall be wall mounted type, axial flow of 300 mm sweep, 900 rpm suitable for 1ph, 240V, 50Hz, AC supply and complete with fan wheel, motors and complying, protection guards, switches etc.

### **2.10.0 Switch and Switch Board**

All switch boards/boxes shall be of bent steel construction, fabricated of 16 SWG M.S. sheet with 6mm thick Perspex cover.

Switch boards / boxes/ Receptacles located in Buildings shall be flush mounted type on brick wall with only the switch knob projecting outside.

Switch boards/boxes shall have conduit knock outs on the sides. Adequate provision shall be made for ventilation of these boxes.

Flush type receptacles where provided shall be so located that only the plug projects outside.

Switches shall have quick-make and quick-break mechanism operated by a suitable external handle complete with position indicator.

All switches for light, fans and receptacle shall be of 240V, 6A, Piano type similar to Anchor make.

### **2.11.0 Flood Light Tower**

Flood light tower shall be a lattice structure with maintenance platform and approach ladder. All structural members and hardware shall be hot-dip galvanised.

Structures shall be designed for an additional load of 1500 Kg. for maintenance crew. Deflection under maximum wind pressure shall not exceed 1 in 360. Structural design shall be as per IS-800 and subject to Owner's approval.

### **2.12.0 Post Top Lantern**

The fittings shall be weatherproof and made of 3 mm aluminium sheet and finished with stove enameled white inside and epoxy gray outside. The fittings shall be provided with high transparency clear acrylic/glass bowl with a neoprene rubber gasket for protecting against entry of water, insects, etc. The control gear shall be provided on top portion and the bottom of partition shall be used as reflector finished in white stove enamel. The control gear housing shall be provided with ballast, condenser fuse, terminal block and cable gland suitable for terminating 3c x 2.5 sq mm copper cable. The mounting

arrangement shall be suitable for direct mounting on poles having OD varying from 65 mm to 85 mm and also provision for holding the pipe inside by means of clamps/brackets. The fitting shall be suitable for 70 Watt HPSV lamps.

### 2.13.0 Street Lighting Pole

Street lighting pole shall be of overall length of 9M/11M as per requirement. It shall be constructed from MS sheet as per IS:2713 (part - III). The pole shall be hot deep galvanized. All sections shall be factory welded.

The pole shall have one / two / three / four outreach arm (arm length 1.5 mtr) for mounting Street lighting fitting as per Indian Standards bill of materials; provision for foundation (including supply of sand, cement etc.); provision of all hardware for mounting and other associated work; supply & fixing of marshalling box with 16A TPN MCB isolator for loop in and loop out of 4c-16 sq mm al cable; automatic ON/OFF time switch of L&T make for dusk to dawn operation; including wiring of lighting fixture ( with 3c-2.5 sq mm cable) from the TPN Isolater located at the bottom of the lighting pole to light fixture; two nos. double compression brass glands for 4/c-16 sq mm al cable and one no. 3/c-2.5 sq mm al cable; bracket etc for mounting the marshalling box; grounding of pole including 1.2 mtr long, 25 mm dia. Cu earth electrode directly driven into the ground; provision of 25 mm dia PVC pipe for cable entry / exit and complete with all accessories as per Indian Standards & technical specification

### 3.0.0 INSTALLATION-GENERAL

3.1.0 Installation work shall be carried out in accordance with good engineering practices and also manufacturer's instructions/recommendations where the same are available.

Equipment shall be installed in a neat workmanlike manner so that it is level, plumb, square and properly aligned and oriented.

Unless otherwise shown, the mounting heights of lighting fixtures and accessories shall be generally as follows:

- a) Lighting fixtures in general areas of plant buildings etc. :
  - i) Low bay type : 3000 mm to bottom
  - ii) Medium bay type : Between 3500 mm & 8000 mm to bottom
  - iii) High bay type : Above 8000 mm to bottom
- b) Bracket lights over door : 300 mm bottom of fixture above opening
- c) Receptacles : 500 mm floor to centre
- d) Local switches : 1500 mm floor to center
- e) Lighting panels : 1500 mm floor to top

All outdoor lighting fixture, unless it is fed from photo cell/time switch controlled lighting panel, shall be provided with outdoor type local switch.

For cable/wire numbering, PVC sleeve with cable/wire of number of different colour code shall be used.

Flameproof installation shall be carried out with flameproof G.I. conduits and flameproof accessories and junction boxes.

Unless otherwise noted the size of PVC / GI conduits & junction box shall be as below :

a) Conduits

Cable size Conduit size

	<u>20mm</u>	<u>25mm</u>	<u>32mm</u>	<u>40mm</u>	<u>50mm</u>	Maximum no. of conductors Admissible for conduit
i) 10 mm <sup>2</sup> AL	-	2	5	7	8	
ii) 2.5 / 1.5 mm <sup>2</sup> CU	3	5	9	-	-	

b) Junction boxes

Conduit size (MM)	4-way	3-way	junction box size (mm) straight	90°
i) 20/25	150x150x100	150x100x100	88	88
ii) 32/40	254x200x127	254x200x127	150x150x100	-
iii) 50	254x200x127	254x200x127	254x200x127	-

### 3.2.0 Lighting Fixture

Continuous rows of fluorescent tubes shall be mounted on a continuous M.S. angle for each row of lights.

In pump houses, fixtures shall be mounted to maintain sufficient clearance from the overhead traveling crane trolley.

In plant area where necessary bracket are required for fixture shall be fabricated at site from 38 mm conduits with a reducing socket to suit the fixtures and clamped on to the handrails. The fixing shall be strong enough to with stand vibration and high wind velocity.

If a roof over the plant area is available, the fixture can be pendant mounted.

Floodlights shall be mounted on steel base. Fixing holes shall be provided with slot to turn the fixture about 5 deg. in both the direction. Bolts shall be finally tightened with spring washer.

The Contractor shall supply and install the steel base for fixing the floodlight on the flood light towers.

Terminal connection of the floodlight shall be made through PVC coated flexible metal conduits.

Fixture shall be mounted on plant structures with suitable clamps. No cutting or drilling or plant structure shall be permitted.

The fixture after erection shall be marked up indelibly with corresponding circuit number for easy identification of lamp circuit.

For wall mounted type fluorescent fixture for internal illumination, the same shall be installed at a height of 2.6 meters (8'-6") from the finished floor level unless mentioned otherwise. For ceiling mounted type, each fixture shall be suspended by two (2) down rods capable of sustaining the weight of fixture & sufficient length for achieving the mounting height mentioned herein above. The down rod shall be painted without involving any extra cost.

**3.3.0 Lighting Panels**

Lighting Panels shall be erected at locations indicated in drawings / schedule.

Suitable provisions of foundations for boards needs to be provided. The Contractor shall have to fabricate and erect the necessary support brackets of erection of panels wherever required.

Laying and termination of all lighting cable from MLDB, LP are included in the scope of Contractor.

**3.4.0 Switchboards for light/fan points**

The switchboards shall be installed at height of 1.5 meters above the finished floor level. No switches shall be provided inside the bathroom.

**3.5.0 Ceiling fans**

Unless otherwise specified all ceiling fans shall be hung not less than 2.73 meters (9') above floor. The suspension rod and clamp shall be painted without involving extra cost.

**3.6.0 Exhaust fans**

Exhaust fans shall be fitted by means of bolts in the wall. The required size of holes in the wall shall be cut out to the required size and furnished neatly with cement plaster and brought to the original finish of the wall.

**3.7.0 Installation of receptacle**

Receptacles shall be located on the walls at a height either 450mm or 900 mm from the floor as indicated in the corresponding drawings.

**3.8.0 Flood Lighting Tower/High Mast Tower**

Flood lighting towers / High Mast Towers shall be erected by the Contractor. Purchaser will provide foundations for these towers.

Contractor shall also mount assembled fixture, outdoor type Junction-Box with TPN isolator and fuse, distribution board and install necessary cabling and wiring and make connections for the same.

**3.9.0 Distribution wiring to individual points**

All runs of mains & sub mains, distribution wiring to individual points including the exact positions of light fittings and switch boards shall be first marked on the buildings and shall be approved by the Engineer-in-Charge of the Purchaser before the actual commencement of work.

The 'Point Wiring' shall include, unless otherwise specified, supply and installation of all wires, conduits, wiring; and conduit accessories from the junction boxes to respective light, fan, receptacle (RA) points, including supply and fixing of junction boxes, switch boards, piano-key switches, receptacles (RA), fixing of fan-regulators making all connections, painting, earthing with continuous 1.5 mm<sup>2</sup> PVC insulated 'CU' wire etc. complete in all respects for the type of wiring specified including breaking the R.C.C./brick work wall/floor and making good the damage to original finish.

'Surface Wiring System' shall be done using casing capping, or through heavy gauge GI or rigid PVC conduit, as specifically mentioned in the corresponding Schedule of Items/single line diagram.

To facilitate drawing of wiring through conduits/ G.I / Steel pipes etc., G.I. fish wire of 14 SWG, wherever needed, shall be provided along with recessed / surface conduit without any extra cost.

### **3.9.1 Mains and Sub-Mains Wiring**

Mains and sub-mains shall consist of wires, cables, conduits, casing capping, bends, junction boxes, bushes, checknuts etc. as specified herein before.

The size and capacities of the conduits, casing capping shall be as stated in the Schedule of Quantities and will commence from main switches to various distribution boards.

Wires shall be drawn in the concealed or surface conduits, casing capping as required without being damaged. For this purpose draw boxes shall be located at convenient places.

Every main and sub-main will run in an independent conduit with an independent earth wire as specified running along the entire run of conduit.

Necessary provision of wire lengths entering and emerging from the conduit / casing capping must be made for connections.

Measurement will be taken of the actual conduit / casing capping run containing the wires from one point to the other.

Rates quoted shall include all materials, connections, labour etc. as specified

### **3.9.2 PVC Casing capping wiring**

PVC Casing & capping shall be rigid PVC built for high impact strength and shall be fire retardant and self-extinguishing. The casing cover shall have a perfect snap fitting with the case trunking and should be such that it will not dislodge or slide or, distort under its own weight or under the weight of wire in the trunking.

The individual casing and capping shall have a standard overall length of not less than 2 M. The accessories of casing and capping, like elbow right angle corners, tees, couplers, external and internal right angle linkers, 4 way covers, junction boxes etc. shall be made of same materials as the casing and capping and shall be equally precision snap fitting. The colour of the casing capping accessories shall be perfectly uniform throughout.

The casing and capping of different widths (eg. 20mm, 25 mm, 40 mm, 50 mm etc.) shall have same depth (both internal and external) to present a perfectly level and flush appearance. Proper jointing materials as recommended by manufacturers shall be used for jointing, ensuring matching of casing and capping as far as possible. Diagonal runs for casing and crossing of casings with other casings shall be avoided.

The casing shall be fixed to the mounting surface using wide flat-headed screws fitted at a spacing of 500 mm (approx.) and so tightened that the head is flush with casing face. The screws should be aligned that the full face of the casing is flush with the mounting surface. The wires shall be run in a proper workmanlike manner ensuring that they are perfectly straight and without tension and free from jumbling and crossing. All casing end shall terminate in the switch/point/receptacle mounting boards. The sizes of the casings shall be selected such that wires to be run therein can be accommodated easily without any pressure or tension whatsoever.

### **3.9.3 Surface / concealed type Wiring through GI/Rigid PVC Conduit**

Surface wiring system through GI/rigid PVC heavy gauge (minimum thickness of conduit wall 3 mm) conduit shall be done with screwed-type coupler. The conduits less than 19 mm dia shall not be used, unless specified. All conduit accessories for supply shall be threaded type. The conduits shall be properly earthed.

In long distance straight runs of conduit, inspection type screwed coupler is to be provided at reasonable intervals. Threads on conduit pipes in all cases shall be between 13 mm to 27 mm long sufficient to accommodate pipes to full threaded portion of couplers or accessories.

In order to minimise condensation and sweating inside the tube, all outlets of pipe system shall be properly drained and ventilated, but in such a manner as to prevent entry of insects inside the conduit. To protect against rust, the outer surface of the conduit and accessories shall be painted with anti-corrosive preservation.

Conduit shall be fixed by heavy gauge saddles, secured to wall/ceiling by screws driven into wood plugs at an interval of not more than 75 cm apart for vertical run and 60 cm apart for horizontal run, but on either sides of couplers or bend or similar fittings-saddles shall be fixed at a distance of 30 cm from the center of such fittings. The minimum thickness for saddles shall be 24 SWG for conduits upto 25 mm dia and 20 SWG for larger sizes.

Where conduit pipes are to be laid along trusses, steel joints etc. the same shall be secured by means of girder clip. Where it is not possible to drill holes in the truss member, suitable clamps with bolts and nuts shall be used. The width and thickness of girder clips and clamps shall not be less than 19 mm wide and 20 SWG thick for conduits upto 25 mm dia. and 25mm wide and 18 SWG thick for conduits of dia 31 mm & above.

All necessary bends in the system including diversion shall be done by bending the pipes, or by inserting suitable inspection type bends, elbows or similar fittings or by fixing cast iron inspection boxes whichever is most suitable.

All outlets for fittings, switches etc. shall be fixed on boxes of suitable metal for either surface mounting system or flush mounting system. In case of cast iron boxes the wall thickness shall be at least 3 mm and in case of welded mild steel sheet box the wall thickness shall not be less than 18 gauge for boxes up to a size of 20 cm x 30 cm and above this size 16 gauge M.S. box shall be used. Except where otherwise stated 3 mm thick insulated laminated sheets shall be fixed on the front with screws. Where conduits are terminated special care shall be taken in employing double jam nuts, for securely fixing the conduits to outlets and to provide insulated bushes inside conduits at ends so as to prevent any possibility of damage to cables when drawn.

Only single core PVC insulate cables/ wires shall be used for wiring through conduits. The no. of single core cables in one circuit shall be such that it permits easy drawing in of the cables. Under no circumstances no. of cables drawn in one conduit shall be greater than the maximum set out in Table II of IS 732-1963 code of practice (revised) for electrical installation (system voltage not exceeding 650 volts).

All conduits and accessories for distribution wiring shall be provided with earthing attachment by one no. 16 SWG continuous GI wire for loop earthing GI wires shall be run conduits being fixed with saddles.

Where conduits are run on cable trays, they shall be clamped to supporting steel at an interval of 600 mm.

For embedding directly in soil, the conduits shall be coated with an asphalt - base compound. Concrete pier or anchor shall be provided where necessary to support the conduit rigidly and to hold it in place.



Running threads shall be avoided as far as practicable. Where it is unavoidable, check nuts shall be used.

Conduits shall be kept, wherever possible, at least 300 mm away from hot pipes, heating device etc. when it is evident that such proximity may impair the service life of cables.

### **3.10.0 Cabling**

#### **3.10.01 Cable Laying.**

- a) Cable shall be installed in ladder type fabricated trays except for plant buildings, In plant buildings, the same will run in rigid/ flexible conduit for protection or, directly clamped on walls. In outdoor areas, cables shall be laid directly below ground with bricks/ RC slab protection.
- b) Cable laid on trays and risers, run through walls shall be neatly dressed and clamped at an interval of 1500 mm and 900 mm for horizontal and vertical cable runs respectively.
- c) Clamps for multicore cables shall be fabricated out of 25 x 3 mm aluminium flats. All power cables shall be clamped individually and control cables shall be clamped in a groups of three or four cables.
- d) Prior to laying of cable inside both indoor and outdoor trenches, the contractor shall properly clean inside those trenches.
- e) In outdoor area, buried cable shall be laid and covered with sand/ riddled earth and protected from damage by bricks at sides and precast slab at top.
- f) When buried cable cross road/ railway track, additional protection shall be provided in the form of hume/ galvanised iron pipes/ RCC box culvert.
- g) Whenever any wall opening/ floor chipping shall be done, contractor shall also be responsible for repairing such opening/ chipping, to the original architectural finish of the building.

#### **3.10.02 Cable Tag and Markers**

- a) Each cable and conduit run shall be tagged with numbers that appear in the cable conduit schedules. Cables and conduit shall be tagged at their entrance, every 30 M and exit from any equipment, junction box.
- b) The tag shall be of aluminium with the number punched on it and securely attached to the cable by not less than two runs of 16 SWG GI Wire.
- c) The location of cable joint if any shall be clearly indicated with cable marker with an additional inscription 'cable joint'.
- d) The contractor shall furnish and install all tags and markers as stated above.
- e) For buried cable, the marker shall project 150 mm above ground and shall be spaced at an interval of 30 Metres and at every change of direction.

#### **3.10.03 Cable Termination and Connection.**

- a) The termination and connection of cables shall be done strictly in accordance with manufacturer's instruction, approved drawings and/ or as directed by the Engineer.

- b) The work shall include all clamping, fitting, fixing, soldering, tapping, compound filling, cable jointing, crimping and earthing as required for the complete job. All equipment required for all such operations shall be furnished by the contractor.
- c) Furnishing of all material such as soldering material, electrical tape, sealing material as well as cable jointing kit shall be included in the offer.
- d) Cable joint kit for all cables shall be supplied by Contractor under this specification. Responsibility for proper termination shall lie on the Contractor. Guarantee for termination shall also have to be given by the Contractor.
- e) The equipment shall generally be supplied with undrilled gland plates for cable/ conduit entry and cable end box for power cable.
- f) The Contractor shall perform all drilling, cutting on the blank plate and any minor modification work required to complete the job.
- g) If the cable end box or the terminal enclosure provided on the equipment is found unsuitable and requires major modification, the same shall be carried out by the contractor at the discretion of the Engineer.
- h) Control cable core entering the control panel/ distribution board etc. shall be neatly bunched and served with PVC perforated type trays to keep it in position at the terminal block.
- i) The Contractor shall put ferrules on all control cables' cores in all junction boxes and all terminations. The ferrule shall carry terminal numbers as per drawings. All ferrule shall be coloured, plastic and interlocked
- j) Spare cores shall be similarly ferruled, crimped with lug and taped on the ends. Spare cores shall be ferruled with individual cable number.
- k) Termination and connection shall be carried out in such a manner as to avoid strain on the terminals.
- l) All cable entry points shall be properly sealed and made vermin and dust proof. Unusual opening, if any shall be effectively closed. Sealing work shall be carried out with approved sealing compound having fire withstanding capability for at least three hours.

### 3.11.0 COMPLETION DRAWINGS

After the completion of the work and before issuance of virtual completion, the Contractor shall submit to the Owner completion drawings in the form of three complete set of originals on sepia cloth in ink with two sets of blue prints of layout drawings drawn at approved scale indicating the complete system as installed along with two sets of Compact Disc ( CD ). These drawings shall give the following :-

- 3.11.1 Run and size of conduits, location of inspection, Junction and pull boxes.
- 3.11.2 Location and rating of sockets and switches for the light and power outlets.
- 3.11.3 Location and details of distribution boards, main switches, switchgears and other particulars.
- 3.11.4 Complete schematic drawings as installed showing all connections in the complete electrical system.
- 3.11.5 Location of all earthing stations, route and size of all earthing conductors manholes etc.
- 3.11.6 Layout and particulars of all cable runs size and type of cables, mode of installation, etc. as installed.

**ARTICLE-IV LIST OF APPROVED MAKES**

- |                                |  |
|--------------------------------|--|
| 1. MCCB                        | - L&T/LEGRAND/ SCHEINDER/ABB/SIEMENS   |
| 2. SWITCHCES                   | - PANASONIC / NORTHWEST / HAVELLS / CLIPSAL/MK/SCHEINDER/ANCHOR  |
| 3. LUMINARIES                  | -PHILIPS/BAJAJ   |
| 4. CABLES/WIRE                 | -HAVELLS/POLYCAB/FINOLEX/GLOSTER/RR/MESH/CAB/ ASIAN  |
| 5. DISTRIBUTION BOARDS         | - HAVELLS/L&T/LEGRAND/SIEMENS/ SCHEINDER   |
| 6. FUSE SWITCH UNITS           | - L&T /C&S/ LEGRAND/ SCHEINDER   |
| 7. FUSE LINKS/BASES            | - L&T /C&S/ LEGRAND/ SCHEINDER   |
| 8. POWER CONTACTORS            | - ELEMECANIQUE/L&T/ C&S/ SCHEINDER   |
| 9. INDICATING LAMPS            | - L&T  |
| 10. METERS                     | -EL MEASURE/SECURE/CURATOR   |
| 11. KWH METERS                 | - CURATOR/ L&T/ EL MEASURE   |
| 12. MINIATURE CIRCUIT BREAKERS | - SCHNIEDER/LEGRAND/L&T  |
| 13. UPS                        | -CONSUL NEOWATT/DELTA/APC/EATON  |
| 14. CONDUIT                    | -SUDHAKAR/POLYCAB/ANCHOR/CLIPSAL/ELPRO   |
| 15. CABLE GLANDS & LUGS        | - ELECTROMEG/COMMET  |
| 16. TERMINAL BLOCKS            | - ELECTROMEG/COMMET  |
| 17. LAN CABLE & OUTLET         | - D LINK/ LEGRAND /KRONE.  |
| 18. TELEPHONE SOCKET OUTLET    | -GM G HOME / GOLD MEDAL OLIVE/ GREAT WHITE OMEGA   |
| 19. TELEPHONE CABLE            | -FINOLEX / DELTON / POLYCAB/RR   |
| 20. CEILING FANS               | - CROMPTON HIGH SPEED DECORA /BAJAJ REGAL STAR / HAVELLS FUSION 50 / ORIENT SUMMER CROWN/ USHA TECHNIX DECORATIVE. |
| 21. EXHAUST FAN                | -BAJAJ /ALMOUNARD/ HAVELLS   |
| 22. 415V ISOLATOR/COS          | -L&T/ SIEMENS/ SCHEINDER/ABB/ C&S  |

**Besides the above mentioned makes, the bidder may offer equivalent approved make also.**

The above list is exhaustive for Electrical System. Items applicable as per the Scope of this tender shall only be referred. The Contractor shall also obtain prior approval from Owner for the 'Make' and 'Rating' of any other major item not mentioned above.

# TENDER DRAWING

A	DOMESTIC AREA				
SL. NO.	DRAWING TITLE	DRAWING NO.	DATE	REVISION NO.	ANNEXURE NO. OF SCHEDULE OF WORK
1	Electrical Points and Conduit layout for Security Room in Domestic Area	HCE_VPORT_ELE_01	30-11-2017	3	Annexure-1
2	Electrical Points and Conduit layout for PEB Ware House in Domestic Area	HCE_VPORT_ELE_02	30-11-2017	2	Annexure-2
3	Electrical Points and Conduit layout for Typical Canteen Block in Domestic Area(Ground Floor)	HCE_VPORT_ELE_03A	30-11-2017	5	Annexure-3A
4	Electrical Points and Conduit Layout for Drivers Rest Room Domestic Area	HCE_VPORT_ELE_04	30-11-2017	3	Annexure-4
5	Electrical Points and Conduit layout for LT Panel Room in Domestic Area	HCE_VPORT_ELE_05	30-11-2017	4	Annexure-5
6	Electrical Points and Conduit layout for Tool Room in Domestic Area	HCE_VPORT_ELE_06	30-11-2017	3	Annexure-6
7	Electrical Points and Conduit layout for Typical Worker's Rest Room	HCE_VPORT_ELE_07	30-11-2017	3	Annexure-7
8	Electrical Points and Conduit layout for Pump House in Domestic Area	HCE_VPORT_ELE_08	30-11-2017	4	Annexure-8
9	Electrical Points and Conduit layout for Weigh Bridge Control Room in Domestic Area	HCE_VPORT_ELE_09	30-11-2017	4	Annexure-9
10	Electrical Points and Conduit layout for Container Repairing Shed in Domestic Area	HCE_VPORT_ELE_10	30-11-2017	5	Annexure-10
11	Electrical Points and Conduit layout for Substation VCB Room in Domestic Area	HCE_VPORT_ELE_11	30-11-2017	2	Annexure-11
<b>B) TEMPERATURE CONTROLLED WAREHOUSE</b>					
12	Electrical Points and Conduit layout for TCW (Domestic & Exim) Area	HCE_VPORT_ELE_12A	30-11-2017	7	Annexure-12A
13	Electrical Points and Conduit Layout for Battery Plant, Change Room Sorting Area, Ante Room cum Staging Area (Domestic & Exim)	HCE_VPORT_ELE_12B	30-11-2017	7	Annexure-12B
14	Electrical Points and Conduit layout for Office Area (1st Floor)	HCE_VPORT_ELE_12C	30-11-2017	7	Annexure-12C
<b>C EXIM AREA</b>					
15	Lighting and Power Conduiting layout for Typical Canteen Block in Exim Area	HCE_VPORT_ELE_13	30-11-2017	4	Annexure-13
16	Electrical Points and Conduit Layout for Drivers Rest Room Exim Area	HCE_VPORT_ELE_14	30-11-2017	4	Annexure-14

17	Electrical Points and Conduit Layout for PEB Ware House in Exim Area	HCE_VPORT_ELE_15	30-11-2017	4	Annexure-15
18	Electrical Points and Conduit Layout for Workers Rest Room	HCE_VPORT_ELE_16	30-11-2017	4	Annexure-16
19	Electrical Points and Conduit layout for Security Room in Entry Gate in Exim Area	HCE_VPORT_ELE_17A	30-11-2017	4	Annexure-17A
20	Electrical Points and Conduit layout for Security Room at Exit Gate in Exim Area	HCE_VPORT_ELE_17B	30-11-2017	4	Annexure-17B
21	Electrical Points and Conduit layout for Weigh Bridge Control Room at Entry Gate in Exim Area	HCE_VPORT_ELE_18A	30-11-2017	5	Annexure-18A
22	Electrical Points and Conduit layout for Weigh Bridge Control Room at EXIT Gate in Exim Area	HCE_VPORT_ELE_18B	30-11-2017	5	Annexure-18B
23	Electrical Points and Conduit Layout for LT Panel Room Exim Area	HCE_VPORT_ELE_19	30-11-2017	5	Annexure-19
24	Electrical Points and Conduit layout for Pump House in Exim Area	HCE_VPORT_ELE_20	30-11-2017	5	Annexure-20



**बामर लॉरी एंड क. लिमिटेड**

(भारत सरकार का एक उधम)

**BALMER LAWRIE & CO. LTD.**

(A Government of India Enterprise)

**Multi-Modal Logistics Hub (MMLH)**

**SBU – Logistics**

**30-15-154/4F2, 5th Floor, GKP Heavenu,**

**Dabagardens Main Road, Visakhapatnam - 530020**

**TENDER DOCUMENT**

**for**

**Illumination System of Buildings & Sheds**

**for**

**Multi-Modal Logistics Hub at Visakhapatnam, Andhra Pradesh**

**Tender No. MMLH /ILLU/ PT/26 Date: 14.12.2017**

**Due Date: 29.12.2017, 16:00 Hrs**

**PART – II (PRICED)**

- 1.0 Details of the items under this Schedule shall be read in conjunction with the corresponding Specifications, Drawings and other Tender Document. In the event of any conflict between BOQ/Schedule and Technical Specification. BOQ/Schedule of Work shall prevail.
- 2.0 The work shall be carried out as per approved drawings, Specifications and the description of the items in this Schedule and/or Engineer's instructions. Drawings enclosed with these documents are only for providing some preliminary of the work involved.
- 3.0 Items of work provided in this Schedule but not covered in the Specifications shall be executed strictly as per instructions of the Engineer-In-Charge.
- 4.0 Unless specifically mentioned otherwise in the Contract, the Tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, Constructional Plant, Temporary Work, labour, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the contract. The rates quoted for the "Supply" items shall include all taxes, duties, packing, forwarding, freight, transit insurance & unloading charges. The "erection/installation" charges shall be inclusive of the cost of shifting materials from the Stores, unpacking, installation on foundations as specified elsewhere, supply of hardware, consumables and any minor civil works involved.
- 5.0 The Quantities of the various items mentioned in the Schedule of Items are approximate and may vary to any extent or may be deleted altogether. The Contractor, in his own interest, should get an indication of the probable extent of the work to be executed under any particular item in this Schedule before undertaking any preliminary and enabling work or purchasing bought out components related to the work. Payment will be made as per executed quantity.
- 7.0 Engineer's decision shall be final and binding on the Contractor regarding clarification of items in this Schedule with respect to the other sections of the Contract.
- 8.0 For extra items, rates shall be derived from similar item rates included in the schedule of work. Where there is no such similar item available in the schedule, rate shall be analyzed as follows:

Rate for extra item = Cost of material (a) + cost of labour inclusive of all necessary tools, tackles, equipment, machinery and consumable (b) required to carry out the work + 15% of (a+b) towards profit and overhead + taxes, duties etc. as applicable.

LIST OF PROCE SCHEDULE/SCHEDULE OF WORKS ATTACHED TO THE TENDER		
Tender No. MMLH ILLU/ PT/26		
S.No	SCHEDULE OF WORKS (SOW) NO	BUILDING DESCRIPTION
<b><u>A</u></b>		<b><u>DOMESTIC AREA</u></b>
1	ANNEXURE-1	SECURITY ROOM
2	ANNEXURE-2	PEB WARE HOUSE
3	ANNEXURE-3	ADMIN BLOCK-CANTEEN -GROUND FLOOR
4	ANNEXURE-4	DRIVERS REST ROOM
5	ANNEXURE-5	LT PANEL ROOM
6	ANNEXURE-6	TOOL ROOM
7	ANNEXURE-7	WORKERS REST ROOM
8	ANNEXURE-8	PUMP HOUSE
9	ANNEXURE-9	WEIGH BRIDGE CONTROL ROOM
10	ANNEXURE-10	CONTAINER REPAIRING SHED
11	ANNEXURE-11	SUBSTATION VCB ROOM
		-
<b><u>B</u></b>		<b><u>TEMPERATURE CONTROLLED WAREHOUSE (TCW)</u></b>
12	ANNEXURE-12A	TCW
13	ANNEXURE-12B	TCW(BATTERY, CHANGE ROOM, PLANT ROOM, ANTE ROOM , SORTING AREA)
14	ANNEXURE-12C	TCW(OFFICE AREA)
		-
<b><u>C</u></b>	-	<b><u>EXIM AREA</u></b>
15	ANNEXURE-13	CANTEEN BLOCK
16	ANNEXURE-14	DRIVERS REST ROOM
17	ANNEXURE-15	PEB WARE HOUSE



18	ANNEXURE-16	WORKERS REST ROOM
19	ANNEXURE-17A	SECURITY ROOM - ENTRY GATE
20	ANNEXURE-17B	SECURITY ROOM - EXIT GATE
21	ANNEXURE-18A	WB CONTROL ROOM AT ENTRY GATE
22	ANNEXURE-18B	WB CONTROL ROOM AT EXIT GATE
23	ANNEXURE-19	LT PANEL ROOM
24	ANNEXURE-20	PUMP HOUSE
<b>25</b>	<b>ANNEXURE-21</b>	<b>Summary Sheet of Price</b>

While submitting price bid, the bidders shall upload all the Schedule of Works with their quoted rates and amounts as listed above along with Summary Sheet (Annexures 1 to 21) in e-procurement portal. If any bidder fails to upload any annexure/ Schedule of Works, their bid will be rejected. Any changes/modification in the item description, unit or quantity of Schedule of Work/Annexure will lead to disqualification of bid.

However, blanked out, (without any rate , amount) Signed and Stamped Schedule of Works shall be submitted along with Unpriced Bid along with Signed & Stamped Tender Document.