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DISTRICT MINERAL FOUNDATION, SUNDARGARH

RFP NO: -DMF/SNG/10-2019-20.

REQUEST FOR PROPOSAL

Annual Rate Contract for Supply, Installation and Commissioning of High mast illumination system with 5-year warranty for Sundargarh District.

TENDER SCHEDULE

Availability of Tender documents : 27-12-2019 at 11.00 A.M.

Last date for submission of Sealed Tender: 13-01-2020 up to 5.00 P.M.

Opening of Technical Bid & Financial bid: 14-01-2020 at 11.00 AM

Issued by:
Collector & Chairperson
DMF, Sundargarh .

ଜିଲ୍ଲା ଖଣିଜ ପ୍ରତିଷ୍ଠାନ, ସୁନ୍ଦରଗଡ.

DISTRICT MINERAL FOUNDATION, SUNDARGARH.

(1st floor, DMF Office)
District Rural Development Agency
Email– dmfsundergarh@gmail.com
Sundargarh -770001
Tel / Fax No. 06622-273846

Letter No.1075 /(DMF) **Dated the 27 /12 / 2019**

RFP NO: -DMF/SNG/10-2019-20

1.	The Collector-cum-Chairperson, District Mineral Foundation (DMF) Sundargarh, Government of Odisha invites technical and financial proposals from reputed implementing Agency/ Firms of National and International repute for **"Annual Rate Contract for Supply, Installation and Commissioning of High Mast Illumination System with 5-year warranty for Sundargarh District"**as detailed in the Scope of Work in this DTCN. The interested and eligible Firms with valid Registration Certificate as a Company, as detailed in DTCN, may apply for the same in OFF-LINE mode. (For details visit **www.sundergarh.nic.in**).		
2.	Nature of Works	:-	**Annual Rate Contract for Supply, Installation and Commissioning of High mast Illumination System with 5 year warranty for Sundargarh District .**
3.	Tender(Bid) Cost	:-	**Rs.10,000/-**
4	EMD	:-	**Rs.50,000/-**
4.	Availability of bid document in the website	:-	**From 11.00 A.M. of 27.12.2019 to 13.01.2020 up to 5:00 P.M.**
5.	Last date of receipt of Bid	:-	**13.01.2020 up to 5:00 P.M.**
6.	Mode of Receipt of Bids	:-	**Through Speed Post/ Registered Post (India Post) by no other means.**
7.	Date of opening of Technical Bid and Commercial Bid	:-	**Date: 14.01.2020 at 11:00 A.M.**
8.	Address for Business query and correspondence	:-	**Chief Executive Officer,** **District Mineral Foundation, Sundargarh** **Sundargarh -770001, Tel- 06622-273846** **Website-www.sundergarh.nic.in** **E-mail Id-** dmfsundergarh@gmail.com
9.	The bidders have to participate in OFF-LINE bidding only. Further details can be seen from the Sundargarh District website (**www.sundergarh.nic.in**). Any addendum /corrigendum / cancellation of tender can also be seen in the said websites. If any query then contact E-mail ID - dmfsundergarh@gmail.com**.**		

Sd/- (27-12-2019)
Collector & Chairperson,
DMF, Sundargarh

Memo No.1076 /DMF Dt. 27 /12 / 2019

Copy to DIO, NIC, Sundargarh with a request to upload this Bid Identification Notice in the Sundargarh District Web-Site www.sundergarh.nic.in by **27.12.2019** for wide publication and timely response by the intending Contractors.

Sd/- (27-12-2019)
Collector & Chairperson,
DMF, Sundargarh

Memo No.1077 /DMF Dt. 27 /12 / 2019

Copy to the A.D.M., Sundargarh/ Rourkela/ Sub-Collector, Sadar/Panposh/Bonai/ All Block Development Officers of the District/Executive Engineer, R&B Division, Sundargarh/Rourkela/ Executive Engineer, RW Division, Sundargarh/Rourkela/ Executive Engineer Minor Irrigation Division ,Sundargarh/ Executive Engineer, Irrigation Division ,Sundargarh/ Executive Engineer, Rukura Irrigation Division, Panposh/ Executive Engineer, RWSS Division, Sundargarh/Rourkela/ Executive Engineer, OLIC, Sundargarh/ Rourkela/ Executive Engineer, PHED, Rourkela/Executive Officers of Urban Local Bodies of the district/ DI & PRO, Sundargarh/ Rourkela for information and with a request to display this Tender Notice in their respective office Notice Board for wide publication.

Copy to Addl. P.D.(Tech.), DRDA, Sundargarh/ Asst. Director, OREDA, DRDA, Sundargarh/ Asst. P.D.(Finance), DRDA, Sundargarh/ Asst. P.D.(RH), DRDA, Sundargarh/ Junior Engineer(Estimator), DRDA, Sundargarh/Cashier, DRDA, Sundargarh/ DMF Cell, Sundargarh/ Notice Board of DRDA, Sundargarh for information & necessary action.

Sd/- (27-12-2019)
Collector & Chairperson,
DMF, Sundargarh

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PART-1 (TECHNICAL BID)

RFP NO: -DMF/SNG/10-2019-20.

1. NOTICE INVITING TENDER

Interested parties are requested to submit the Bids in sealed envelope for the aforesaid work as per detailed specifications and other requirements as mentioned more specifically elsewhere in this tender document.
Sealed Bids in TWO separate sealed Envelopes indicating clearly **''Envelop - No.1 - Technical bid'** and **'Envelope No.2 –Price bid'**, shall be addressed to **Chief Executive Officer, DMF, Sundargarh** and Envelops should also be super scribed **Annual Rate Contract for Supply, Installation and Commissioning of high mast illumination System with 5-year warranty for Sundargarh District.** Last date for the submission of tender is **13.01.2020 up to 5.00 pm.**

1. This tender document can be downloaded from the website of www.sundergarh.nic.in .The tender document will be available on the website, till the last date of submission.

2. The two envelopes must carry the following:

Envelope no. 1:

a) "Technical bid" of tender with every page signed and stamped.

b) An initial part amount of **Rs 50,000/- (Rupees Fifty Thousand Only) towards Earnest Money Deposit (EMD)** by way of Demand Draft (DD) from Nationalised/Scheduled Bank, to be submitted along with "Technical Bid" in a separate envelop. EMD envelop shall be super scribed as EMD towards **"Annual Rate Contract for Supply, Installation and Commissioning of high mast Illumination System with 5-year warranty for Sundargarh District".** The Tender without EMD shall be rejected out rightly. No interest shall be paid on the EMD thus collected. EMD of the successful bidder shall be refunded after the successful completion of the work, whereas EMD of the unsuccessful bidders will be refunded upon the issuance of work order to and acceptance of the same by the successful bidder. Power of attorney authorizing the person to sign the tender.

Envelope No.2:

a) Price Bid shall be addressed to **Chief Executive Officer**, **DMF, Sundargarh**.

b) Envelope No.2 shall not contain any condition whatsoever and any conditional price bid shall be rejected.

c) Price Bid envelopes shall be opened only in respect of those tenderers who are found to be eligible as per the prequalification criteria specified by DMF and have complied with all the requirements in tender document.

3. If the last date of receipt or opening of the tenders happens to be a holiday, then the receipt and opening of the tenders shall be shifted to next working day without change of time and venue.

4. Before filling up the tenders, the bidders may note the following:

a. The bids shall remain valid and open for acceptance for **03 months** from the date of opening of Envelope No.1. If the tenderer withdraws his tender before the expiry of the said period or makes any modifications in terms and conditions of the tender which are not acceptable to the DMF, then the DMF without prejudice to any other right or remedy will be at liberty to forfeit the earnest money.

b. **Time of Completion**: Time is the essence of the contract. The Contractor shall be allowed to execute the work after working hours, in nights & on holidays, with the prior permission from DMF. No extra payments will be made for the work being done during the odd hours. **Date of commencement shall be either one-week, from the date of issue work order or the day on which the contractor will take possession of site, whichever is earlier**. The work shall be completed within **01 months** from the date of commencement.

c. The quantum of liquidated **damages** for delay in completion of the works per week shall be calculated at **0.50%** of the estimated cost subject to maximum of **5%** of the accepted tender amount.

d. The tenderer should quote the rates in figures as well as in the words. The rate for each item should be worked out and the requisite total amount shall be calculated accordingly. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the rates, figures and words. However, if a discrepancy is found in the rates in words and figures, then the rates quoted in words shall be taken as correct.

e. The tenderers must include in their tender prices quoted for all duties royalties, GST, cess and sales tax, works contract tax or any other taxes or local charges, transportation charges, installation charges, labour charges etc. if applicable. No extra claim on this account will in any case be entertained.

f. The tender document must be filled in English. If any of the documents are missing or un-signed in price bid, the tender shall be considered invalid. In case of technical bid, the details of incomplete or missing documents will be intimated to the tenderer and the tenderer has to submit all those documents within after communicating the same, otherwise the tender will be rejected.

g. DMF reserves the right to accept or reject any /all tender/s in part or whole of any firm / firms without assigning any reasons for doing so.

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

i. All taxes including GST or any other payable/ prevailing tax on material or on finished works etc, in respect of this contract shall be payable by tenderer and the DMF will not entertain any claim whatsoever in this respect over the quoted price.

j. The tenderer, apart from being a competent contractor must co-ordinate himself with all the agencies as and when required.

k. Before quoting, the tenderer shall inspect the site, to fully acquaint himself about the condition in regard to accessibility of the site, working condition of site, locality including installations of tools and plants (T&P) and local authority regulations / restrictions if any, conditions affecting accommodations and movement of personnel
etc. required for the satisfactory execution of the work contract. No claim whatsoever on such account shall be entertained by the DMF in any circumstances.

l. The quantities of various items given in the schedule of quantities are approximate. The quantities of work may vary at time of allotment / execution of work. DMF reserves the right to omit / delete any item(s) of work from the schedule at the time of allotment /execution of work. Contractor will be paid for the actual work done at the site duly verified by the concerned official of the DMF.

m. If the rate quoted by the contractor for any item / items are not workable or abnormally lower than the market rate, the full and final payment of the contractor will be settled after the satisfactory execution of these item.

n. DMF does not bind itself to accept the lowest or any tender at all. DMF also reserves the right to negotiate or partly accept any tender or all tenders received without assigning any reasons thereof.

o. Any discrepancies, omissions, ambiguities in the tender documents, if any, or any doubt as to their meaning should be reported in writing to CEO, DMF, Sundargarh who will review the questions and if information sought is not clearly indicated or specified, DMF will issue clarifications to all the tenderers which will become part of the Tender Document.

p. DMF will not be responsible if the discrepancies, omissions, ambiguities in the tender documents or any doubts as to their meaning are not brought to the notice of DMF before three working days prior to the last date of submission of the tender.

q. DMF also reserves the right to divide and distribute the work to more than one tenderer at its sole discretion.

r. The successful bidder shall execute an agreement on non-judicial stamp paper with DMF in accordance with the standard format enclosed (Articles of Agreement) within 07 days from date of issue of work order failing which the bidder's EMD may stand forfeited.

s. **Defect Liability Period**: The Defects Liability Period shall be for a period of **five years** and shall commence from the date of completion. Any defect that may appear within the Defects Liability Period, shall be rectified by the Contractors without any extra cost to the Employer. In case of failure to do so within 10 days from such notice from the DMF, the Employer may get such rectification works carried out through any other firm and expenditure incurred by the DMF shall be recovered from any money due to the Contractor at the cost and risk of the contractor. Only, after all the defects pointed out during the Defects Liability Period have been rectified by the Contractor to the satisfaction of the DMF, thereafter, the Security Deposit/ RMD will be refunded to the contractor.

t. All the necessary works related to the Job component like preparation of preliminary and as built drawings, liasoning with the local authorities, govt. bodies for any type of NOC, clearance etc.; shall be under the scope of the party.

2. FORM OF TENDER

To

The Collector & Chairperson,
DMF, Sundargarh.

Dear Sir/Madam

Annual Rate Contract for Supply, Installation and Commissioning of high mast Illumination System Sets with 5-year warranty for Sundargarh District

I / We have examined the Scope of Works, Specifications and Schedule of Quantities and Terms and Conditions relating to the tender for the said works after having obtained the Tender document invited by you.

1. I / We have visited the site, examined the site of works specified in the Tender Document and acquired the requisite information relating thereto as affecting the Tender.

2. I / We hereby offer to execute and complete the works in strict accordance with the Tender Document at the item rates quoted by me / us in the attached Schedule of Quantities in all respects as per the specifications and Scope of Works described in the Tender Document and the Annexures containing Terms and Conditions.

3. I / We enclose herewith interest-free **Earnest Money Deposit (EMD) for Rs.50,000/- (Rupees Thirty Thousand Only)** by Demand Draft payable at Sundargarh in favour of "CHIEF EXECUTIVE OFFICER , DISTRICT MINERAL FOUNDATION" and the sum shall be forfeited in the event of our withdrawal of Tender before expiry of the validity period of offer and/or in the event of our failure to execute the Contract when called upon to do so by accepting our Quotation.

4. In the event of this tender being accepted, I/We agree to enter into and execute the prescribed Agreement with DMF as per the format given at **Annexure B**.

5. I/ We agree to pay all Government (Central and State) Taxes such as IT, GST etc. and other taxes prevailing from time to time and the rates quoted by me/us are inclusive of the same.

6. The rate quoted by me / us is exclusive of GST .

7. The rates quoted by me / us are firm and shall not be subjected to variations on account of fluctuation in the market rates, taxes or any other reasons whatsoever, during the currency of the contract.

8. I / we hereby agree to abide by and fulfil all the Terms and Conditions and Provisions of the said Contract Document annexed hereto.

Name of the person authorized to sign and submit the Tender

I)……

II)……

Yours faithfully

Place **Signature**

Date

Seal

3.PRE-QUALIFICATION CRITERIA

Minimum Eligibility Criteria for pre-qualification of tenderers is as follows:

The Bidding Firm/Company: -

1. Bidder must be a manufacturer / their Authorisation against tender for participation. Manufacture can Authorised only one bidder. Manufacture must be manufacturing Octagonal GI poles, high mast / led fixtures.
2. Bidder must be submit Details of Similar works completed with Certificates in support of 3 years' experience.
3. Documents (Audited Balance Sheets of last 3financial year, Profit & Loss Statements and Auditor's Reports of last 3years, IT return documents of last 3 years, GST registration certificate, PF, ESIC registration certificate).
4. Bidder /manufacture must be submit warranty certificate of 5years for both led light fixture & high mast on their letter head.
5. Bidder/Manufacture must be submit high mast system Foundation GAD with details. Earthing Gad Details. JB arrangement details, feeder pillar GAD, technical data sheet of led fixtures, LM-79 & 80 report, Photo biological test Report. Structural data sheet of high mast pole along with light fixtures, lantern carriage/bracket GAD, technical data sheet of 3cx1.5sqmm2 copper PVC cable & 2AYFY 4cx25sqmm2 Aluminium armoured cable Data sheet,5Cx4sqmm2,5Cx2sqmm2 EPR trailing cable data sheet, high mast inner PVC board Gad, technical data sheet of aviation light, Gad of lighting arrester, earthing Gad of high mast & feeder pillar, foundation bolt technical data sheet, high mast Motor technical data sheet with GAD, winch technical data sheet with Gad. illumination design of different height mast with light fixtures by considering below data's. (FOR 10mtr height consider 20mtr radius, for 12mtr height consider 30mtr radius, for 16mtr height consider 35mtr radius, For 20mtr height consider 40mtr radius, For 25mtr height consider 50mtr radius) type test report of winch, wind tunnel test report of high mast, motor test report, wire rope breaking load test report**.**

6. **Declaration of manufacture from their letter head (must having register office at Odisha with their service team details).**
7. Joint venture against tender for participation is not acceptable. Only direct manufacture/ their authorized agency can be participating by fulfilling of eligibility criteria. L1 bidder cannot sublet the contract.
8**. Bidder must be having valid HT license from ELBO with minimum 3years of experience /Licence shall be in the company name /in the name of company director/proprietor/partner. Bidder should have workman compensation insurance from any nationalized insurance company.**
9**. Bidder should have their own/ leased vehicle mounted hydraulic ladder for maintenance of mini mast / high mast.**
10. Bidder should furnish copies of their Income Tax Permanent Account Number (PAN), GSTIN registration, ESI registration, EPF registration, Certificate of Incorporation,

Memorandum of Association and Article of Association and Power of Attorney in the name of person submitting the offer along with board resolution etc. along with the bid. In addition, Bank details like name of bank, branch, branch code, Bank Account Number to be submitted.

11. The average annual turnover of the agency in the last three years commencing from 2018-19 shall not be less than Rs.2.00 Cr. (Rupees Two Crore).The turnover details shall be supported by copy of audited Balance Sheets and Profit & Loss Statements or certificate of Turnover (if accounts not finalized) issued by a Chartered Accountant
12. Work/Purchase orders and Completion certificates issued by the client should be enclosed and need to be produced before DMF, whenever called for verification purposes.
13. Manufacturer / bidder Should have service centre in Sundargarh district. Detail address to be attached.

With seal &
Signature.

4. SCOPE OF WORK

"Supply, Installation, Testing and Commissioning of high mast Illumination System throughout the Sundargarh district out of DMF Fund"

The scope of above work shall include the following:

1. Designing of details of illumination foundation and its construction, placement of Mast with bracket arm/carriage, feeder panel etc. along with all accessories/ components.
2. Supply and Delivery of illumination system with Acoustic enclosure and Auto Start/stop timer panel and associated cabling, earthing, safety items including packing, handling, transporting, clearing, loading/unloading etc. at Sundargarh District.
3. Erection, testing & commissioning of illumination as per technical specifications, obtaining operating approval from Electrical inspectorate and handing over the illumination system to DMF for use.
4. Providing all-inclusive service including all spares, etc. during warranty period of new illumination system.
5. All engineering, equipment, labour, and permits required for satisfactorily completion of illumination System installation work as per Specification.
6. Any other ancillary work, related to but not mentioned above, required for satisfactorily completion of the job.
7. Obtaining all statutory permissions/license from appropriate authorities.

8. Unless otherwise in the tender documents, the following work shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost, whether specifically indicated in the schedule of work or not:

    a. Foundations for High Mast Light.
    b. Making good all damages caused to the structure during installation and restoring the same to their original finish.
    c. Minor building work necessary for installation of equipment, foundation trench for fuel line and cable, making of opening in walls or in the floors and restoring them to their original condition/ finish and necessary grouting etc. as required. Debris if any, shall be disposed off outside the premises.
    d. All electricity work and body earthing, required for high mast, main board/control panels and control wiring including loop earthing, if specified in schedule of work. The work shall be done confirming to relevant BIS.

General Conditions

1. Though mentioned above, the scope of the work is not limited strictly to the areas/units mentioned, but is required to be carried out at any other locations other than those mentioned above as directed by the DMF.

2. Supply of manpower with tools and tackles etc., along with supervision to carry out the miscellaneous jobs as directed by the DMF.

3. All the jobs given to the agency shall be taken up on priority basis without any delay by mobilizing all the resources immediately at site.

4. If the job is delayed beyond the given schedule, DMF shall be at its discretion to execute job through any other suitable agency at the risk and cost of the original agency.

5. The equipment's will carry five years on site comprehensive warranty. Warranty period Will start from the date of successful installation of all the items at site.

6. All Sundry equipment's/fittings, assemblies, accessories, hardware items, foundation bolts, supports, termination lugs for electrical connections, cable glands, cable trays, junction boxes and all other sundry items for proper assembly and installation of the Various equipment's and components of the work shall be deemed to have been included in the tender, irrespective of the fact that whether such items are specifically mentioned in tender document or not.

5. Instructions to the Contractors for furnishing Individual details in prescribed Performa

1. The contractors are required to submit their full bio-data giving details about their organization, experience, technical personnel in their organization, space capacity, competence and adequate evidence of their financial standing, etc. in the enclosed form **(Proforma-1, 2, 3& 4)** which will be kept confidential.

Proforma-1 General Details about the contractor
Proforma-2 Construction capability and previous experience Proforma-3
Technical personnel and special experience.
Proforma-4 Details of GSTIN of the contractor.

2. If the space in the Performa is insufficient for furnishing full details, such information may be supplemented on separate sheets of paper stating therein the part of the Performa and serial number. Separate sheets shall be used for each part.
3. Any letter or document accompanying the Performa shall be submitted in duplicate.
4. Tenders containing false and/or inadequate information are liable for rejection.
5. While filling up the Performa with regard to the list of important projects completed or on hand, the applicants shall only include those works as mentioned in pre-qualification criteria.
6. Clarifications if any required may be obtained from the Competent Authority.
7. While deciding upon the selection of contractors for participating in the Price bid, emphasis will be given on the ability and competence of applicants to do good quality works within the specified time schedule and in close co-ordination with other agencies, besides the rate structure of the items. Also, emphasis will be given to the applicants who have executed majority of the similar works.
8. Decision of the DMF in regard to selection of contractors for selecting them for price bidding will be final. The DMF is not bound to assign any reason therefor.

9. Each page of the tender document shall be signed. The application shall be signed by person/persons on behalf of the organization having necessary authorization/Power of Attorney to do so.

6. GENERAL INSTRUCTIONS TO THE CONTRACTORS

1. Quantities indicated in the BOQ are only tentative and shall be executed only at the sole discretion of DMF.

2. Quoted rates should be workable and reasonable and should include incidental and all overheads and profits. The contractor should furnish Rate Analysis for scrutiny of the rates by DMF, if required.

3. Rates should include all Taxes, Duties, Octroi, Levies, Transportation charges, installation charges, Wages as per Act, GST and all other charges etc. and should be firm for the entire

Contract period. No escalation of rates will be allowed for the entire contract period on any account. Rates for all items of work are deemed to include costs for all operations involved in adhering to the specifications (including the IEE Rules/Regulations of the local licensing Authority CEA of the Fire Insurance/Explosives Authorities, the I.S.S.) Unless there is a provision to the contrary in the schedule of quantities.

4. Materials used should conform to relevant BIS Codes. BIS and OPWD Specifications and Method of Measurements shall be followed as applicable. However, in the absence of the same and / or in case of any discrepancy, the decision of DMF shall be final.

5. Income Tax (TDS) and other applicable taxes as per statutory provisions will be deducted from total payment due to the Contractors.

6. Insurance: The Consultant, is required to keep the works duly insured in the joint names of DMF and the Consultant (DMF's name being first) until the completion of defect liability period of the works. From commencement to completion of the works, the Consultant shall take full responsibility for the care of the work and for taking precautions to prevent loss or damage to the works and to minimize the loss or damage to the greatest extent possible and shall be liable for any damage or loss that may happen to the works or any part thereof from any cause whatsoever, inherent defects and failures due to poor workmanship and causes such as fire, lightening, explosion, earthquake, storm, hurricane, short circuits , floods, inundation, subsidence, landslides, rock slides, riots (excluding civil war, rebellion, revolution and insurrection) and shall at his own cost repair and make good the same so that at all times the work shall be in good order and condition and in conformity in every respect with the requirements of the Contract. Explanation: For the purpose of this condition, the expression "from the commencement to completion of defect liability period of the works " shall mean the time commencing from the issue of the work order to the consultant and ending with successful completion of work. The following insurance policies are required to be taken by the consultant;
7. Contactor all risk policy: Without limiting the obligations and responsibilities under this condition, the Consultant shall insure and keep insured the works from commencement to completion, as aforesaid, for their full value provided under this Contract, increased by 25% against the risk of loss or damage from any cause whatsoever including the causes enumerated in the Clause (a) above. In the event of there being a variation in the nature and extent of the work, the Consultant shall from time to time increase or decrease the value of the insurance correspondingly. The entire premium shall be borne and paid by the Consultant. The said insurance shall also provide for the removal of debris of the lost or damaged works.
8. Workmen Compensation Policy : The Consultant shall at all times indemnify the DMF against all losses, claims or damages or compensation under the provisions of the payment of Wages Act 1936, Minimum Wages Act 1948, Employees Liability Act 1938, Workmen's Compensation Act 1923, The Maternity Benefit Act 1961, Industrial Disputes Act 1947 and Contract Labour and Regulation and Abolition Act 1970, DMF State

Insurance Act 1948 or any modification thereof or any other law relating thereto and rules made there under from time to time or as a consequence of any accident or injury to any workman or other persons in or around the work whether in the Employment of the DMF, or Consultant or not and also against all costs, charges and expenses of any suit, action or proceedings whatsoever out of such accident or injury or combination of any such claims.

9. All the Standard Conditions of the Contract shall be binding on the parties as per Indian Contract Act and prevailing Rules.
10. The Contractor shall comply with all the applicable Acts, Rules, Regulations and Law (s) for entering into Construction / Maintenance Contract and DMF will not in any way be liable or responsible for any default / irregularities / penalties on the Contractor's part.
11. The Contractor shall comply with the provisions of Contract, Labour (Regulation & Abolition) Act, 1970, Minimum Wages Act, EPF and NP Act,1952 and all other Labour Laws and other Statutory Regulations (both Central and State) that may be enforced from time to time by the appropriate authorities. DMF shall not be held responsible for any penalty or failure of any Labour Regulations. DMF shall have the power to inspect the Wage Register, PF Register and for physical verification of salary paid to the staff and PF deduction with reference to any records of the Contractor and to insist the Contractor to comply with Laws.
12. In case of any discrepancy in deduction of PF by the contractor, DMF is compelled to deduct the amount and pay to PF authorities towards contract employees' a/c on behalf of the Contractor.
13. The Contractor should be responsible to fulfil all the obligations in connection with the workers employed by the Contractor for the purpose of the Contract and all the Statutory and other liabilities, if any, including minimum wages, leave salary, uniform, ex-gratia, gratuity, ESI, Provident Fund, Workmen Compensation, if any, etc. in connection therewith shall be on the Contractor's account and payable by the Contractor.
14. The Contractor should obtain necessary permission that may be required for the purpose of this Contract from such authorities as may be prescribed by Law from time to time.
15. The Contractor or his authorized representative should visit the site frequently as required by DMF and meet them with prior appointment for any clarifications and to receive instructions, take measurements, etc. at the site.
16. The Contractor shall be fully responsible and shall compensate DMF with suitable Insurance cover in the event of any damage to men or material, injury / damage or death as the case may be, caused directly or indirectly due to the negligence of the Contractor or his agents and / or his employees or workmen. The decision of DMF in this regard shall be final and binding.

17. The Contractor shall indemnify the DMF against any losses as per format given at **Annexure C.**

18. Any act of indiscipline / misconduct / theft / pilferage on the part of any employee engaged by the Contractor resulting in any loss to DMF in kind or cash will be viewed seriously and DMF will have the right to claim damages or levy fine and / or terminate the Contract forthwith, if necessary.

19. In case of any default or failure on Contractor's part to comply with all/any one of the Terms / Conditions, DMF reserves to itself the right to take necessary steps to remedy the situation including, inter-alia, the deduction of appropriate amount/s from dues otherwise payable to Contractor and / or by taking recourse to appropriate recovery proceedings.

20. If any dispute arises on any matter concerning this Contract, the decision of DMF shall be final and binding.

21. The Contractor should not at any time do, cause or permit any nuisance on the site / do anything which shall cause unnecessary disturbances or inconvenience to the occupants/visitors at site or near the site of work.

22. The work should be carried out with least inconvenience to the residents. The workmen employed by the Contractor should abide by the Rules and Regulations maintained by DMF in the premises, especially in respect of working hours, entry of the workers to the premises, interpersonal relation with the occupants etc.

23. The Contractor should obtain approvals, if any, necessary for the work from the statutory bodies on behalf of DMF. The Contractor shall assist DMF fully in respect of any liaison with WESCO/ Municipal or any other authority for necessary approval/permission with regard to the construction / maintenance works. The fees and other statutory charges, if any, will be reimbursed to the Contractor based on the original receipts produced to DMF.

24. The Contract can be terminated by DMF on 15 days' notice if services are found to be unsatisfactory and if there is no improvement even after issue of three notices to the contractor.

25. On site storage space will be provided to the Contractor subject to availability. However, the Contractor may erect temporary sheds for storage purposes at his cost with the permission of DMF. DMF will not be responsible for Contractor's materials. The Contractor may be required to vacate the storage space and sheds as per exigency without any extra cost to DMF. If any statutory charges are required to be paid for erection of sheds, the same should be borne by the Contractor.

26. The Contractor shall provide everything necessary for the proper execution of the works. DMF will not supply any T & P materials or any other equipment, materials, labour, etc. and no payment in this respect will be made by DMF. The Contractor shall supply, fix and maintain all the scaffoldings, T&P etc. at his cost during the execution of any work and remove them as soon as the work is completed.

27. The Contractor shall not directly or indirectly transfer, assign or sublet the Contract or any part of it, without written permission of DMF.

28. The tenderer shall Warranty for the illumination system, shall be for 5 years from the date of completion of work. Any defect which may appear within Period of five years after the completion of work should be rectified by the Contractor at his cost and only thereafter the Security Deposit/ EMD will be refunded to the Contractor.

29. **RETENTION MONEY DEPOSIT (RMD)/ SECURITY DEPOSIT (SD)**: Five percent (5 %) of the gross value of the work done and claimed in the Bills shall be deducted towards Retention Money Deposit. This amount shall not bear any interest. The EMD already with DMF shall be refunded within 3 months after settling the Final Bill. The Security Deposit will not bear any interest and will be refunded as provided for under Clause-33 (iii) in equally five instalments in every year from the date of Completion of works, provided the Contractor has satisfactorily carried out all the rectification works and attended to all defects to the satisfaction of DMF. It will be released annually in 5 equal instalments.

30. Any defects or shortcomings found during execution of work and during the five-year period from the completion of the entire work shall be attended/rectified by the tenderer immediately without any extra cost to the DMF. In case of failure to do so within 10 days from such notice from the Bank, the DMF may get such rectification works carried out through any other firm and expenditure incurred by the Bank shall be recovered from any money due to the Contractor at the cost and risk of the contractor.

31. CERTIFICATE OF COMPLETION OF WORKS: The Contractor shall report in writing to the DMF in the form of a Certificate as per the format given at **Annexure A**, as and when the works are completed in all respects. The DMF shall, after due verification of the works, issue to the Contractor a certificate to be called **" Completion Certificate".** The defects liability period shall commence only from the date of completion of the work i.e. actual possession of the work.

32. **PAYMENT OF CONTRACTOR'S BILL:**

    i. The Contractor shall be entitled under the Interim Certificates, payment against the checked bills for the work done not prior to 20 days from the date of issue of the work order subject to the actual work being executed in accordance with the contract, and reasonable scrutiny by DMF.

ii. Interim Bills submitted by the Contractor will be paid by DMF after all the statutory deductions viz. RMD @ 5 %, TDS and other statutory deductions etc., as applicable.

iii. Retention Money Deposit at the rate of 5 % (Five percent) of the value of the work executed shall be deducted from running interim bills shall constitute the Security Deposit. The Security Deposit shall be released annually i.e. 1 % value of the work in every year from the date of Completion certificate, provided the defects are made good according to the true intent and meaning thereof after due completion of work.

33. **COMPLETION PERIOD**: The work should be completed within **04 months** starting from 01 week from the date of issue of work order or the date on which contractor takes the possession of site, whichever is earlier.

34. **DELAY AND EXTENSION OF TIME**: If, in the opinion of the DMF the works be delayed (a) by force majeure or (b) by reason of any exceptionally inclement weather or (c) by reason of proceedings taken or threatened by the dispute with adjoining or neighbouring owners or public authorities arising otherwise than through the Contractor's own default or (d) by the works or delays of other Contractors or tradesmen engaged or nominated by the DMF and not referred to in the Schedule of Quantities and/or Specifications or (e) by reason of DMF 's instructions, or (f) by reason of civil commotion, local commotion of workmen or strike or lockout affecting any of the building trades or (g) in consequence of the Contractor not having in due time necessary instructions from the DMF for which he shall have specifically applied in writing, ahead of time, giving the DMF reasonable time to prepare such instructions, the DMF shall make a fair and reasonable extension of time for completion of the Contracted works. In case of such strike or lockout, the Contractor shall, as soon as may be, given written notice thereof to the

DMF, but the Contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required to the satisfaction of the DMF to proceed with the work. The Contractor shall take all practicable steps to avoid or reduce any delay in the execution and completion of

the works arising out of

c. Force Majeure
d. Exceptionally inclement weather
e. Loss or damage by fire and earthquake
f. Civil commotion, lockout, strike etc.
g. DMF's Instructions, as the case may be
h. Delay on the part of the nominated Sub-Contractor or nominated supplier
i. Delay on the part of the other Contractor employed by the DMF

35. Power should be used only for welding, cutting, drilling purposes and no major fabrication work shall be done at site.

36. Electric power and water supply shall be provided to the contractor by DMF at single point in at both the sites, free of charge. Contractor shall not use power/water for other purpose than that it is intended for.

37. Additional Terms and Conditions as per enclosure.

I/we accept all the above Terms and Conditions in all respects without any reservation.

7.TERMS AND CONDITIONS

1. The Tender is strictly on Item Rate basis.

2. Bidders are advised to visit the District at their cost, conduct survey of existing conditions so as to familiarize themselves with the site conditions, nature of works etc. and get all clarifications as may be necessary from DMF before quoting the rates.

3. Rates should include for removal of debris out of premises to the safe Municipal limits, removing stains, cleaning the site thoroughly and unless the same is done to the satisfaction of the DMF, the bill will not be accepted.

4. Quantities mentioned in the schedule of quantities may vary to any extent or may be deleted without assigning any reasons and as such, the rates quoted should be firm, workable, reasonable and should include all kinds of Taxes, Duties, Work Contract Tax, Octroi, GST etc. as applicable, overheads and profit etc. No separate charges for carriage or labour would be made. There is no question of extra payment above the quoted rate under any circumstance. In case of any variation in quantity or value, the same will not be made as a subject matter for dispute by the bidder.

5. The Firm should undertake to arrange genuine spares of mini high mast illumination system, panel as and when require within one working days

6. No escalation shall be allowed on the rates of this contract.

7. The BIS / CPWD specifications shall be followed as applicable and in the absence of the same the decision of DMF shall be final. The work has to be carried out only by Electrical contractors who are authorized by the Odisha Electrical Inspectorate, and possessing valid license.

8. The contractor shall at the instructions of the DMF within such time as notified, open up for inspection any work and should the contractor refuse or neglect to comply with such instructions, the DMF may employ other workman to open of the same. Such work if it is found not in accordance with approved specifications, or the instructions, expenses of opening up and redoing if required shall be borne by and recoverable from the Contractor from any money due or which may become due to the contractor.

9. The successful tenderer is bound to carry out any or all items of work necessary for the completion of the job even though such items are not included in the quantities and rates

10. The Contractor shall make necessary arrangement for watch and ward.

11. The bidders should quote their rates strictly adhering to Terms and Conditions stipulated in the Tender Document. Unsolicited correspondence after opening of the Tender shall not be entertained.

12. No bidder will be allowed to withdraw his Tender during the validity period.

13. Rates should be filled in the Bidders Schedule of Quantity in the Price –Bid neatly and no correction shall be made. Corrections, if any should be duly authenticated by the signing authority. The rates quoted should be written legibly in words.
14. No advance shall be paid towards mobilization and cost of materials.

15. No compensation shall be admissible for any loss suffered by the Contractor during the execution of the work. It shall be the Contractor's sole responsibility to protect DMF's staff, his employees and property against accidents from any cause and he shall indemnify DMF against any claims for damage for injury to person or property, resulting from any such accidents with necessary Insurance cover.

16. Any damages caused to the building / premises during the execution of the work shall be made good by the Contractor at his risk and cost and if necessary, through suitable Insurance cover.

17. The work is to be undertaken only during working days and during the office timings. The work cannot be undertaken on Saturday, Sunday and any declared holidays except with the written approval of the DMF.

18. The contractor has to make his own arrangement of stay for his employees.

19. The Contractor shall use necessary safety equipment and maintain all safety measures during the execution of works and ensure compliance of Safety Code as per Rules and Regulations in force.

20. The Contractor shall engage necessary qualified and experienced supervisory staff at his cost during the execution of the work for attending to day to day affairs.

21. The Contractor should have necessary Contract License and comply with the Labour Laws as applicable.

22. Notwithstanding anything stated above, DMF reserves the right to assess the bidder's capability and capacity to perform the contract, should the circumstances warrant such assessment in the overall interest of DMF.

23. The decision of DMF in awarding the work shall be final and cannot be subjected to arbitration.

24. DMF reserves the right to accept / negotiate / reject any Quotation either in whole or in part without assigning any reasons therefore whatsoever and without entering into any further correspondence and hence, DMF shall be under no obligation to accept the lowest or any other Quotations received in response to this Quotation. The decision of DMF in this regard shall be final and indisputable.

25. DMF also reserves the right of supersession of any of the conditions stipulated in the Quotation Document.

26. The contractor shall require shifting some of the furniture, electrical items, etc., to some other places within the office premises during the time of work and may also be required to place them in the appropriate place after completing the work. No extra payment will be made for those works.

27. There will be other works being carried out by various contractors in the said office premises. Hence Care should be taken not to damage any other works and also to coordinate with the other work contractors.

28. Testing of Materials: The contractors are required to submit samples of various materials, items, fittings, etc for the approval of the DMF. The materials of brand names, if any, given in the contract shall only be selected.

29. Bill: The bill has to be submitted by the contractors as early as possible after the completion of the work along with completion of recording.

30. Co-ordination and Monitoring: The contractor's site supervisor/ engineer will be coordinating and monitoring the project and report the progress to DMF on weekly basis.

31. Idle Labour Clause:

I. In case the proposed work is held up for any site conditions not attributable to the contractor or for any decisions/ instructions/ want of details from DMF or for

any of the untoward situation, the contractor shall be allowed reasonable extension of time by the DMF but any additional/ extra claim for payment to idle labour/ tools/ establishment/ plant etc, during this period shall not be the liability of the DMF. The quoted rates should include for all such contingencies.

II. Whatever the reasons be, no claim for idle labour, additional establishment, cost of labour charges of tools and plants would be entertained under any circumstances.

32. Settlement of Disputes and Arbitration: All disputes or differences of any kind whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof this contract or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after determination foreclosure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding) shall after written notice by either party to the contract to the other of them and to the Employer hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Employer will send within thirty days of receipt of the notice, to the consultant a panel of three names of persons who shall be presently unconnected with the organization for which the work is executed from the following categories of Arbitrators": -

a. Retired High Court/Supreme Court judge who have experienced in handling Arbitration Cases.
b. Member of Council of Arbitrators
c. Fellow of the Institution of Engineers
d. Eminent Retired Chief Engineer from State/Central PWD/Public sector undertaking of good reputation and integrity
e. Fellow of Indian Institute of Consultants.

The consultant shall on receipt of the names as aforesaid, select any one of the person's name to be appointed as a sole Arbitrator and communicate his name to the Employer within thirty days of receipt of the names. The Employer shall thereupon without any delay appoint the said person as the Sole Arbitrator. If the consultant fails to communicate such selection as provided above within the period specified, the Employs should make the selection and appoint the selected person as the Sole Arbitrator.

If the Employer fails to send to the consultant the panel of three names as aforesaid within the period specified, the consultant shall send to the Employer a panel of three names of persons who shall all be unconnected with either party. The Employer shall on receipt appoint him as the Sole Arbitrator. If the

Employer fails to select the person and appoint him as the Sole Arbitrator within 30 days of receipt of the panel and inform the consultant accordingly, the consultant shall be entitled to appoint one of the persons from panel as the Sole Arbitrator and communicate his name to the Employer.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another Sole Arbitrator shall be appointed as aforesaid.

The work under the Contract shall, however, continue during the arbitration proceedings and no payment due or payable to the consultant shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing date of the first hearing.

The Arbitrator may from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award. The venue of arbitration shall be such place as may be fixed by the Arbitrator in his Sole discretion.

The award of the Arbitrator shall be final and binding on the both the parties. Subject to aforesaid the provisions to the Arbitration Act. 1992 or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force, shall apply to the arbitration proceeding under this clause.

The Employer and the contractor hereby also agree that arbitration under clause shall be condition precedent to any right to action under the contract with regard to the matters hereby expressly agreed to be so referred to arbitration.

8. SPECIFICATIONS FOR ILLUMINATION SYSTEM INSTALLATION WORKS

Note 1. These specifications are not meant to be exhaustive and prescribe the minimum acceptable standards. Where these do not cover certain items and aspects, the best engineering practice/Bank engineer's instructions shall be followed.

Note 2. All codes and standards means the latest. Necessary I.S. Codes are mentioned along with these specifications and all relevant codes with divisions published on date shall be applicable.

1. GENERAL

1.1 The entire electrical installation work shall be carried out in accordance with approved Drawings and in general conformity with the requirements of the Indian Electricity rules, 2003, the relevant I.S. codes of practice, as amended to date, wherever applicable and the regulations of the local licensing bodies, CEA, CPB, Electrical safety inspector etc., and where such installations are subject to inspection and approval of fire insurance, the installation shall be planned and executed also confirming to their regulations/rules.

1.2 The specifications herein and the IEE Rules/Regulations of the local licensing Authority CEA and of the Fire Insurance/Explosives Authorities, the latter shall prevail.

2. SUPERVISION

From the contractor's side supervision shall be carried out by person/persons holding certificates of competency of appropriate class issued by the respective State Government bodies authorized to issue such certificates under statutory rules and regulations in force.

3. TESTING AND COMMISSIONING

On completion of the work and/or at the appropriate stages of the works as necessary, the contractor shall arrange for all necessary tests for proper operation, continuity, etc. of the necessary installation /equipment/plant etc., in accordance with the provisions in the IE rules, relevant IS codes of practice and commission the completed installation. Contractor shall furnish a certificate and guarantee in the prescribed form (attached to the tender document), countersigned by the licensed and qualified supervisor under whose direct supervision the installation will be taken over by the DMF, only on its being so commissioned, the test results being thoroughly satisfactory.

Provided that the work shall not be deemed to be complete and the installation will not be taken over, if the test results are not within satisfactory limits. In case the results are unsatisfactory the contractor is required to carry out all necessary rectifications/modifications at his level on his own cost to bring the installation/equipment

to the level of acceptability within a period of 4(four) weeks from the date of test and the defects liability period of 12 months will stand extended by period of delay in such rectification/modification that is in excess of said period of 4 weeks.

4. WORKMANSHIP:

First class workmanship and neat appearance are essential requisites for compliance with these specifications.

5. MATERIALS AND MAKES:

The electrical fixtures shall be of the best quality obtainable in the makes/manufacture specified full filling the eligibility criteria norms, samples being approved by DMF.

6. Technical specifications for Electrical Illumination System.

1.00 **SCOPE**:

The scope of this specification covers the design engineering, manufacture, transport, installation, testing and commissioning of the complete lighting system, using Raising and Lowering type of High mast Towers, including the Civil Foundation Works. The purchaser will only provide the feeder cable of required size up to the base compartment of the high mast.

2.00 **PRE-QUALIFICATION**

The bidder should be ISO 18001 certified having their own marketing division and service cell with adequate qualified and experienced Engineers to carry out the job and must have experience of handling similar turnkey jobs in past and the proof of the same is to be furnished for issue of tender documents.

The bidder has to conduct wind tunnel test on a specimen to establish the force coefficients of the 20 side polygon and the value received from the wind tunnel test is to be taken in design. Further type test is to be done on a full size mast at SERC or other reputed institutions to validate the structural program. The winches are to be type tested through reputed institutions like IIT as consultants.

The high mast manufacturer should have in-house civil, structural and product design facilities & own in-house testing facilities for testing of photometry for Luminaries. Also the shaft is to be manufactured from ISO 9001, ISO 14001 and ISO 18001 certified factory taking care of all aspects of design, quality, environment and safety.

3.00 **APPLICABLE STANDARDS**:

Code No.

1.	TR. No. – 7	High Masts for Lighting and CCTV (2000 edition) of ILE, U.K,
2.	SABS 0225:1991	High Mast natural frequency calculation
3.	IS 875 Part – 3	Wind Loading
4.	BS EN 10025:1993	High Tensile Steel Sheets
5.	IS 2062	Mild Steel
6.	BS EN ISO 1461	Galvanization
7.	IS 3459 / 2266	Stainless steel Wire rope
8.	IS 9968 Part – 1	Trailing Cable
9.	IS 325	Motor

TECHNICAL DOCUMENT: 10 METRE MINI HIGHMAST,

The scope of this specification includes design, engineering, manufacture, transport, Supply, commissioning & testing of complete high-mast lighting system, with raising & Lowering mechanism, power tool, Feeder-pillar, Push-button station, luminaries & lamps with all accessories. Civil foundation work, supply of all other accessories required for safe Operation & maintenance of the lighting system, whether explicitly stated or not shall be Within the scope of work.

1. 10 Meter Mini High-mast:

Structure:

The mast shaft shall be of one number single section manufactured from high tensile steel plates confirming to BS EN 10025 having **minimum yield strength of 355N/SqM and silicon content in steel shall be less than 0.06%** (Make of steel must be SAIL/JSW/TATA/ESSAR) 10 Mtr. mini octagonal High-mast shall consist of special type of pentagonal bracket suitable for holding 5nos of 200W Led flood lights. Foundation accessories, lightning arrestor, Terminal connectors & all other accessories required for completion of job in all respect. The shaft section shall be of continuously tapered, Octagonal cross section & made of special steel plate, confirming to BS-EN10-025 / 100027 / BS 4360. The shaft section shall be of Minimum one parts. There shall be only one longitudinal seam weld per section, bottom & top section thickness should be minimum of 3mm respectively, bottom & top dia of Structure should be minimum of 175mm & 90 mm, base plate 275x275x16mm. Thickness of base plate Should not be less than 16 mm. Welding shall confirm to BS:5135/ IS:9595. , hot dip Galvanizing internally & externally shall be done in accordance with IS: 2629 or equivalent in single dipping method only, for better adhesion, uniformity & life. The life of structure should be minimum of 25 years. *For* longer life and safety requirement all the other Hardware like nuts, bolts, washers, spring washers, flats, split pins etc. should be hot dipped Galvanized.

Mast foundation:

The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 8 to 10 ton/sq.mtr at a depth of 1.5 to 2 mtrs. Each tower shall have a raised platform of Cement Concrete of minimum size 1. Mx1Mx0.5M to restrict vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

Door opening:

An adequate door opening shall be provided at the base of the mast & the opening shall be such that it permits clear access to equipment's, sockets /MCBs etc. & also facilitate easy removal of switch gear

items. The door opening shall be complete with a close fitting, weather proof door, provided with a heavy duty double internal lock with a special paddle key & also padlock with
Master key for all high-mast towers.

Size of opening and door at base	:	500mm x 100 mm/ as per manufactures design

Dynamic loading:
The mast structure shall be capable of withstanding basis wind speed as per wind zone with gust confirming to IS:875 (Part-III), & shall be measured at a height of 10 mtrs /above ground level.
Bracket carriage:
A fabricated 5Arm pentagonal GI carriage with Pu painted shall be provided for fixing & holding 5nos of 200w LED flood light fixtures Luminaires. Weather proof in built junction box with locking arrangement required.

Cable & connections at High-mast:
Individual luminaries shall be made by using 3x1.5²mm copper flexible PVC insulated cables. The junction box should be of thermoplastic polycarbonate of Hensel/CAPE/SYNTEX make with 4nos copper bus-bar arrangement of suitable size & rating. All the termination should be done using copper lug of suitable size with copper nuts-bolts arrangement. Suitable size cable glands to be provided for all the cable entry points to junction box. Cable make: BMI/KEI/HAVELLS/POLYCAB only.

4. Luminaries & Lamps:

Make off LED Philips luminoid /Cree/Bajaj / Nichia/ Osram. LED chip manufacturer should provide the lumen maintenance data of LED & its life as per LM80. Luminaire should conform to IEC60598. Driver should comply with IEC 61347-2-13 for safety, IEC 61547, CISPR-15,610-3-2
for EMC. Test reports required: Heat resistance test, thermal test, Ingress protection test, drop test, vibration test, electrical insulation resistance test, endurance test, humidity test,
Electronics test. LM79 report for the luminaire.
200W LED flood light fixture having extruded aluminium housing, lumen output of 20000 Lm by using high power discrete LED's, driver efficiency >=90%, power factor>=.95, surge protection >10KV, THD<10%, IP rating IP66, IK ating: IK08, heat resistance toughened glass with IK08 impact resistance, graduation disc for precise aiming of flood lights. LED luminaire efficacy >=100 lumen/Watt, correlated color temperature 5700K+-500K, color rendering index>=70, lumen maintenance L70 at 50000hrs, THD<10%..

Guarantee for both pole & led fixtures must be 5 years from date of erection

5. Earthing of the Mast & Feeder Pillar:

The mast should be earthed at bottom at one places with independent 50mm×6mm GI earth strip running from one independent earth pits. The earth pits should be located at least 1 meter apart from the pole & there should be inter link between each earth pit using 50mm×6mm GI strip. Detail specification of the earth pits as follows: Earth pit should be as per IS: 3043-1987 using 600mm×600mm×6mm GI plate. The earth pit shall have standard depth of 3.0 meter. Homogeneous mixture of BENTONITE powder & soil in the ratio of 1:6 is to be used for filling up of the earth pit. Minimum 100 kg of BENTONITE powder/charcoal & salt is to be used. It has 2.5 meter, 40mm Dia heavy gauge (min. 4.1kg per meter) GI pipe (perforated) as electrode connected & welded to GI plate at bottom. Top of the electrode should have GI flange & GI funnel (having GI wire mesh) welded to the electrode. GI strip of 50mm×6mm of length 2.8meter to be provided, one end of the GI strip shall be welded with GI plate & other end shall be connected to GI flange. GI flange should have 4 no of holes of Dia 19 mm for connection of GI strip. Each earth pit should be provided with pre-cast RCC chamber with inspection cover of Suitable size.

Height of Mini mast	:	**10 Meter,**
No. of sections	:	One
Material construction	:	**S 355 grade as per BS-EN10 025**
Base dia. and top diameter (A/F)	:	Top:90mm, Bottom : 175 mm
Plate thickness	:	3mm
Cross section of Mast	:	Octagonal
Standard for of galvanization	:	As per BS EN ISO 1461
Size of opening and door at base	:	100 x 500 mm
Diameter of base plate	:	275x275x16mm
Thickness of base plate	:	16 mm
Lightning protection finial	:	G.I Pipe earthing
Max.wind speed	:	50m/s as per IS : 875 (Part - III)
Number of foundation bolts	:	4 nos.
PCD of foundation bolts	:	300 mm
Type / diameter / length of foundation bolts	:	24 mm dia / 750 mm long

LUMINAIRES CARRIAGE

Material of construction	:	40 NB ERW Class B - M. S. Pipe
Diameter of carriage ring (mm)	:	500/500 mm or as per design
Construction	:	5arm
Load carrying capacity	:	5 Luminaire (200w led flood light)

DETAIL TECHNICAL SPECIFICATION FOR 12 MTR HIGH MAST LIGHTING

The scope of this specification includes design engineering, manufacture, transport, Supply, commissioning & testing of complete high-mast lighting system, with raising & Lowering mechanism,

power tool, Feeder-pillar, Push-button station, luminaries & lamps with all accessories. Civil foundation work, supply of all other accessories required for safe Operation & maintenance of the lighting system, whether explicitly stated or not shall be Within the scope of work.

1. 12-Meter-High-mast:
Structure:

The mast shaft shall be of one section manufactured from high tensile steel plates confirming to BS EN 10025 having **minimum yield strength of 355N/SqM and silicon content in steel shall be less than 0.06%** (Make of steel must be SAIL/JSW/TATA)

12 Mtr. High-mast shall consist of shaft section, head frame, pulley assembly, and lantern Carriages, SS wire rope, cables, double drum winch, power tool, foundation accessories, lightning arrestor, high mast must be suitable for wind speed 55M/sec.
Terminal connectors & all other accessories required for completion of job in all respect. The shaft section shall be of continuously tapered, polygonal cross section & made of special steel plate, confirming to BS-EN10-025 / 100027 / BS 4360. The shaft section shall be of one parts. There shall be only one longitudinal seam weld per section, section thickness should be minimum of 3 mm respectively, bottom & top dia of Structure should be minimum of 360mm & 150 mm respectively. Thickness of base plate Should not be less than 25 mm. Welding shall confirm to BS:5135/ IS:9595., hot dip Galvanizing internally & externally shall be done in accordance with IS: 2629 or equivalent in single dipping method only, for better adhesion, uniformity & life. The life of structure should be minimum of 25 years. For longer life and safety requirement all the other
Hardware like nuts, bolts, washers, spring washers, flats, split pins etc. should be hot dipped Galvanized. Make of high mast (manufacture): Valmont/Lysaght/Bajaj

Mast foundation:
The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 10 ton/sq.mtr at a depth of 2.0 to 2.5 mtrs / or more as per manufacture of high mast design type. Each tower shall have a raised platform of Cement Concrete of minimum size 2. Mx2Mx0.75M to restrict vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

Door opening:
An adequate door opening shall be provided at the base of the mast & the opening shall be such that it permits clear access to equipment's like winches, cables, sockets etc. & also facilitate easy removal of winch. The door opening shall be complete with a close fitting, weather proof door, provided with a heavy duty double internal lock with a special paddle key & also padlock with
Master key for all high-mast towers.
Size of opening and door at base : 1050 x 225 mm
Dynamic loading:
The mast structure shall be capable of withstanding basis wind speed of 55m/sec / 200 km/hr with gust confirming to IS:875 (Part-III) ,& shall be measured at a height of 10 mtrs above ground level.
Lantern carriage:

A fabricated lantern carriage shall be provided for fixing & holding 6nos of 200W led Luminaires. Special lantern carriage design must be as per illumination design of apron area i.e 2set of lantern carriage design for holding 6nos of non-integral 200W LED flood light fixture. The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the mast during the raising & lowering operation of the carriage. Weather proof junction box, made of cast aluminium shall be provided on the Carriage assembly as required, from which the inter-connection to the designated number of luminaries & associated control gears shall be made.

Raising & lowering mechanism with winch arrangement

Winch:

A suitable winch arrangement shall be provided with the winch fixed at the base of the mast & head frame assembly at the top. The winch shall be of completely self-sustaining type, without the need for brake shoe, springs or clutches. Each driving spindles of the winch shall be positively locked when not in use, by gravity – activated pawls. The capacity, operating speed, safe working load, recommended lubrication & Sl. No of the winch shall be clearly marked on each winch. It shall be self-lubricating type by means of an oil bath & the oil shall be readily available grades of reputed manufacturers. It shall have gear assembly made of phosphor bronze. The winch drum shall be grooved to ensure proper seat for stable & tidy rope lay, with no chances of rope slippage. A test certificate shall be furnished by the manufacturer, for each winch in support of the maximum load operated by the winch. **Winch must be single drum & double gear type SGDD.**

Power tool:

A high –powered, electrically driven, internally mounted power tool with 3 phase motor .75HP of suitable rating (as per IS: 325) shall be provided for lowering & raising the lantern carriage for maintenance purpose. The winch motor system should have inbuilt torque limiter present for the safe working load of the winch. The power tool mounting shall be self-supporting type & shall align the power tool perfectly with respect to the winch spindle during the operation. A handle for manual operation of the winches shall be provided in case of the problem with the electrically operated power tools. For operation of the motor, a suitable Push Button station is to be

Provided with Plug Socket arrangements at both ends (motor & feeder pillar) by means of 1/3phase 32A industrial plug & sockets. 15 meters of copper multi core cable to be used for control of power to the motor through Push Button Station. The Push Button station should be portable & it should contain one no TP protective MCB, two nos. AB contactors & two nos. push buttons. AB contactor, MCB should be of Siemens/L&T/BCH make. Motor make: HEM/CGL/BHARAT BIJLI/KILOSKAR

Head frame:

Head frame is suitable for 2 wire rope system & the top pulley shall be suitable to accommodate the stainless steel wire rope & multi-core electric cable. The pulley block shall be made of non-corrosive material & shall be of die-cast aluminium alloy. Self-lubricating bearings & stainless steel shaft shall be provided to facilitate smooth operation for a long period. The pulley assembly shall be fully protected by a canopy galvanized internally & externally & canopy should protect the rain water into the mast.

Suspension & wire rope:
The suspension system shall consist of only non-corrosive stainless steel of AISI 316 grade. The suspension wire rope shall confirm to IS: 2365/1977. The suspension system should be of 2 wire rope arrangement for better balancing of the lantern carriage.
SS Wire Rope:
Grade: AISI 316
Diameter of SS Rope: minimum 6 mm dia.
Construction of SS Rope: 7 / 19.
Breaking Load Capacity: minimum 2350 Kgs per SS wire rope

AVIATION OBSTRUCTION LIGHTS: -

Approved LED type Single dome Aviation obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast. led based obstruction lights utilize 90% less power than an equivalent incandescent, power consumption 230ac-10w no of led used-300nos,12-24vdc,120vac and 230vac,ip-65

Cable & connections at High-mast:
Metal clad, 63A, plug-sockets units shall be provided at the bottom compartments of the mast to facilitate termination of incoming cables. Electrical connections from the bottom to the top of the mast shall be made by 1100 V, EPR insulated & PCP sheathed reeling duty cable to get flexibility & endurance. Size of cables shall be 5Cx2.5sqmm² copper, with flexibility class-5 &
overall as per IS: 9968 (Part-I), connections from the top junction box to the
Individual luminaries shall be made by using 3x1.5²mm copper flexible PVC insulated cables. EPR cable make: BMI/SUN/MENS FIELD/UNIVERSAL/UNIFLEX. & PVC cable make: KEI/thermo/havells /polycab.

2. Lightning Finial:

Heavy duty hot dip galvanized lightning finial shall be provided at the centre of the head frame to get a direct conducting path to the earth through the mast. The lightning finial shall not be provided on the lantern carriage under any Circumstances in view of the safety of the system.

3. Feeder Pillar:

Outdoor stand mounted feeder pillar with 32A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5 sq. mm terminals. Technical Gad enclosed.

4. Luminaries & Lamps:

TECHNICAL DETAILS:
Make off LED Philips luminoid /Cree/Bajaj / Nichia/ Osram. LED chip manufacturer should provide the lumen maintenance data of LED & its life as per LM80. Luminaire should conform to IEC60598. Driver should comply with IEC 61347-2-13 for safety, IEC 61547, CISPR-15,610-3-2

for EMC. Test reports required: Heat resistance test, thermal test, Ingress protection test, drop test, vibration test, electrical insulation resistance test, endurance test, humidity test, Electronics test. LM79 report for the luminaire.
200W LED flood light fixture having extruded aluminium housing, lumen output of 20000 Lm by using high power discrete LED's, driver efficiency >=90%, power factor>=.95, surge protection >10KV ,THD<10%, IP rating IP66,IK ating:IK08, heat resistance toughened glass with IK08 impact resistance, graduation disc for precise aiming of flood lights. LED luminaire efficacy >=100 lumen/Watt, correlated color temperature 5700K+-500K, color rendering index>=70, lumen maintenance L70 at 50000hrs, THD<10%. Make: PHILLIPS/ZUMTOBEL/DISANO/OSRAM/BAJAJ only.

Guarantee for both pole & led fixtures must be 5 years from date of erection

5. Earthing of the Mast & Feeder Pillar:

The mast should be earthed at bottom at one places with independent 50mm×6mm GI earth strip running from one independent earth pits. The earth pits should be located at least 1 meter apart from the pole & there should be inter link between each earth pit using 50mm×6mm GI strip. Detail specification of the earth pits as follows: Earth pit should be as per IS: 3043-1987 using 600mm×600mm×6mm GI plate. The earth pit shall have standard depth of 3.0 meter. Homogeneous mixture of BENTONITE powder & soil in the ratio of 1:6 is to be used for filling up of the earth pit. Minimum 100 kg of BENTONITE powder/charcoal & salt is to be used. It has 2.5 meter, 40mm Dia heavy gauge (min. 4.1kg per meter) GI pipe (perforated) as electrode connected & welded to GI plate at bottom. Top of the electrode should have GI flange & GI funnel (having GI wire mesh) welded to the electrode. GI strip of 50mm×6mm of length 2.8meter to be provided, one end of the GI strip shall be welded with GI plate & other end shall be connected to GI flange. GI flange should have 4 no of holes of Dia 19 mm for connection of GI strip. Each earth pit should be provided with pre-cast RCC chamber with inspection cover of Suitable size.

DETAIL TECHNICAL SPECIFICATION FOR 16MTR HIGH MAST LIGHTING.

1.00 **APPLICABLE STANDARDS**:
Code No.

10. TR. No. – 7	High Masts for Lighting and CCTV (2000 edition) of ILE, U.K,
11. SABS 0225:1991	High Mast natural frequency calculation
12. IS 875 Part – 3	Wind Loading
13. BS EN 10025:1993	High Tensile Steel Sheets
14. IS 2062	Mild Steel
15. BS EN ISO 1461	Galvanization
16. IS 3459 / 2266	Stainless steel Wire rope
17. IS 9968 Part – 1	Trailing Cable
18. IS 325	Motor

2.TECHNICAL DOCUMENT: 16 METRE HIGHMAST,

The scope of this specification includes design, engineering, manufacture, transport, Supply, commissioning & testing of complete high-mast lighting system, with raising & Lowering mechanism, power tool, Feeder-pillar, Push-button station, luminaries & lamps with all accessories. Civil foundation work, supply of all other accessories required for safe Operation & maintenance of the lighting system, whether explicitly stated or not shall be Within the scope of work.

1. **16-Meter-High-mast:**

Structure:

The mast designed as per technical report No.7 of ILE UK, SABS0225, wind velocity as per IS 875 part-3 in India. High mast shaft shall be of 2 section manufactured from high tensile steel plates confirming to BS EN 10025 having **minimum yield strength of 355N/Sqm and silicon content in steel shall be less than 0.06%** (Make of steel must be SAIL/JSW/TATA only) bidder must submit make of steel used by high mast manufacture along with steel strength report along with test report of high mast.
16 Mtr. High-mast shall consist of shaft section, head frame, pulley assembly, and lantern
Carriages, SS wire rope, cables, double drum winch, power tool, foundation accessories, lightning arrestor, Terminal connectors & all other accessories required for completion of job in all respect. The shaft section shall be of continuously tapered, polygonal cross section & made of special steel plate, confirming to BS-EN10-025 / 100027 / BS 4360. The shaft section shall be of
Maximum two parts. There shall be only one longitudinal seam weld per section, bottom &
Top section thickness should be minimum of 3mm & 3 mm respectively, bottom & top dia of Structure should be minimum of 360mm & 150 mm respectively. Thickness of base plate
Should not be less than 30 mm. welding shall confirm to AWS section D 11. , hot dip
Galvanizing internally & externally shall be done in accordance with BSEN 1461/IS 2629 ONLY.
Single dipping method only, for better adhesion, uniformity & life. The life of structure
Should be minimum of 25 years. For longer life and safety requirement all the other
Hardware like nuts, bolts, washers, spring washers, flats, split pins etc. should be hot dipped
Galvanized. Make of high mast Valmont/lysaght/Bajaj

Mast foundation:

The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 10 ton/sq.mtr at a depth of 2 to 2.8 mtrs / or more as per manufacture of high mast design pile type. Each tower shall have a raised platform of Cement Concrete of minimum size 2. Mx2Mx0.75M to restrict

vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

DOOR OPENING: -

An adequate door opening shall be provided at the base of the mast and the opening shall be such that it permits clear access to equipment like winches, cables, plug and socket etc. and also facilitate easy removal of the winch. The door opening shall be complete with a close fitting, vandal resistant, weatherproof door provided with a heavy duty internal lock with special paddle key. The door opening shall be carefully designed and reinforced with welded steel section, so that the mast section at the base shall be unaffected and undue buckling of the cut portion is prevented. Size of door opening shall be around 1050 x 200 mm and shall be strengthened, if required to avoid buckling of the mast section under heavy wind conditions.

DYNAMIC LOADING FOR THE MAST: -

The mast structure shall be suitable to sustain an assumed maximum reaction arising from a wind speed as per IS 875 (Part –III) and shall be measured at a height of 10 metres above ground level. The design life of the mast shall of 25 years.

LANTERN CARRIAGE: -

a) Fabrication

A fabricated Lantern Carriage shall be provided for fixing and holding the L E D 3 5 0 W flood light fittings and required counter weight for balancing the carriage position. The Lantern Carriage shall be of special design and shall be of steel tube construction made from 50NB ERW class B –MS/pipe, 500mm ID with proper galvanization. The tubes acting as conduits for wires, with holes fully protected by grommets. The Lantern Carriage shall be so designed for asymmetric arrangement and fabricated to hold the required 8 number of l e d flood light fittings and the counter weight as required and also have a perfect self- balance. The Lantern Carriage can be fabricated in two sections and joined by bolted flanges with stainless steel bolts and nylon type stainless steel nuts to enable easy installation or removal from the erected mast. The inner lining of the carriage shall be provided with suitable protective arrangement, so that no damage is caused to the surface of the mast during the raising and lowering operation of the carriage. The entire Lantern carriage shall be hot dip galvanized after fabrication. The design shall provide a perfect balance for the lantern carriage during raising and to lowering also.

b) Junction Box

Weather proof junction box, made of Cast Aluminium shall be provided on the Carriage Assembly as required from which the inter-connections to the designed number of the flood light luminaries and associated control gears fixed on the carriage shall be made.

c) Raising and lowering mechanism

For installation and maintenance of luminaries and lamps, it will be n e c e s s a r y to lower and raise the Lantern Carriage Assembly. To enable this, a

Suitable Winch Arrangement shall be provided, with the winch fixed at the base of the mast and the specially designed head frame assembly at the top. Suitable end limit switches shall be provided to trip the winch motor at both top & bottom ends of the designed travel.

d) Winch

The winch shall be of completely self-sustaining type, without the need for brake shoe, springs or clutches. Individual drum also should be operated for fine adjustment of lantern carriage. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be clearly marked on each winch. The winch shall be self-lubricating type by means of an oil bath and the oil shall be readily available grades of reputed producers. The winch drums shall be grooved to ensure perfect seat for stable and tidy rope lay, with no chances of rope slippage. The rope termination in the winch shall be such that distortion or twisting is eliminated and at least 5 to 6 turns of rope remains on the drum even then the lantern carriage is fully lowered. It should be possible to operate the winch manually by a suitable handle and by an integral/external power tool. It shall be possible to remove the double drum after dismantling through the door opening provided a t the base of the mast. Also, a winch gearbox for simultaneous and reversible operation of the double drum winch shall be provided as part of the contract. **Winch must be single gear & double drum.**

The type test certificate of winch to be obtained from reputed Institution like IIT/CPRI/BITS and should be submitted along with the tender. A test certificate shall be furnished by the successful tenderer form the original equipment manufacturer, for each winch in support of the maximum load operated by the winch.

Head Frame:

The head frame, which is to be designed as a capping unit of the mast, shall be of welded steel construction, galvanized both internally and externally. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire ropes and the multi-core electric cable. The pulley block shall be made of non-corrodible material, like die cast Aluminium Alloy (LM-6). Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be fully protected by a canopy galvanized internally and externally. Close fitting guides and sleeves shall be provided to ensure that the ropes and cables do not dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for locking the lantern carriage.

Stainless Steel Wire Ropes:

The suspension system shall essentially be without any intermediate joint and shall consist of only non-corrodible stainless steel of AISI 316 or better grade. The stainless steel wire ropes shall be of multi strand construction, the central core being of the same material. The overall diameter of the

rope shall not be less than 6 mm. The breaking load of each rope shall have factor of safety of over 5 for the system at full load. The end constructions of rope to the winch drum shall be fitted with telluric. The thimbles shall be secured on ropes by compression splices. Two continuous lengths of stainless steel wire ropes shall be used in the system and no intermediate joints are acceptable in view of the required safety. No intermediate joints / terminations, either bolted or else, shall be provided on the wire ropes between winch and lantern carriage. Test certificate of wire rope to be submitted along with the tender. Grade: AISI 316
Diameter of SS Rope: minimum 6 mm dia.
Construction of SS Rope: 7 / 19.
Breaking Load Capacity: minimum 2350 Kgs per SS wire rope

ELECTRICAL SYSTEM, CABLE AND CABLE CONNECTIONS: -

A suitable terminal box shall be provided as part of the contract at the base compartment of the high mast for terminating the incoming cable. Supply 5CX4Sqmm2 Copper EPR insulated PCP sheathing anf cotton braiding to get require high strength & flexibility. Connections from the top junction box to the individual luminaries shall be made by using 3x1.5sqmm2 core flexible copper cables of adequate size. The system shall have in-built facilities for testing the luminaries while in lowered position. Also, suitable provision shall be made at the base compartment of the mast to facilitate the operation of externally mounted, electrically operated power tool for raising and lowering of the lantern carriage assembly. The trailing cables of the lantern carriage rings shall be terminated by means of specially designed, metal clad. Multi-pin plug and socket provided in the base compartment to enable easy disconnection when required. EPR cable make: BMI/SUN/MENS FIELD/UNIVERSAL/UNIFLEX. & PVC cable make: KEI/thermo/havells/polycab

POWER TOOL FOR THE WINCH: -

A suitable, high-powered, electrically driven internally mounted power tool 3phase 1 HP, with manual over ride shall be supplied for the raising and lowering of the lantern carriage for maintenance purposes. The speed of the power tool shall suit the system. The power tool shall be single speed provided with a motor of the required rating. The power tool shall be supplied complete with push button type together with 8/10 metres of power cable, so that the operations can be carried out from a safe distance of 5 (five) metres. The capacity and speed of the electric motor used in the power tool shall be suitable for the lifting of the design load installed on the lantern carriage. The power tool mounting shall be so designed that it will be not only self-supporting but also aligns the power tool perfectly with respect to the winch spindle during the operations. Also, a handle for the manual operation of the winches in case of problems with the electricity operated tool, shall be provided and shall incorporate a torque- limiting device. There shall be a separate torque-limiting device to protect the wire ropes from over stretching. It shall be mechanism with suitable load adjusting device. The torque limiter shall trip the load when it exceeds the adjusted limits. The torque limiter is a requirement as per the relevant standards in view of the overall safety of the system. High mast shall have its own power tool motor.

LIGHTNING FINIAL: -

One number heavy duty hot dip galvanized lightning finial shall be provided for the mast. The

lightning finial shall be minimum 1.2 M in length or as required so that the lantern carriage also comes within the safety zone and shall be provided at the centre of the head frame. It shall be bolted solidly to the head frame to get a direct conducting path to the earth through the mast. The lightning finial shall not be provided on the lantern carriage under any circumstances in view of safety of the system.

AVIATION OBSTRUCTION LIGHTS: -

Approved LED type Single dome Aviation obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast. Led based obstruction lights utilize 90% less power than an equivalent incandescent,power consumption 230ac-10w
no of led used-300nos,12-24vdc,120vac and 230vac,ip-65

EARTHING TERMINALS: -

Suitable earth terminal using 12 mm diameter stainless steel bolts shall be provided at a convenient location on the base of the Mast, for lightning and electrical earthing of the mast. The mast shall be provided with duplicate earthing including necessary earth pits as per IS.

FOUNDATION FOR HIGH MAST:-

The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 10 ton/sq.mtr at a depth of 2.2 to 2.8 mtrs / or more as per manufacture of high mast design type. Each tower shall have a raised platform of Cement Concrete of minimum size 2. Mx2Mx0.75M to restrict vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

The detailed drawing for the foundation should be submitted along with the tender and got approved by SAIL before starting of the work.

FEEDER PILLAR DISTRIBUTION BOARD: -

Supply, delivery, installation, testing & commissioning of outdoor type feeder pillar distribution boards made out of 1.6 mm thick CR sheet metal having suitable canopy for rain water protection duly acid treated for derusting, primered and powder coated of approved shade; dust, damp & vermin proof ; having hinged door and compartmental arrangement for each equipment , earthing studs as per specification mentioned below duly factory wired conforming to the relevant ISS and as per special conditions of contract making good the damages caused complete as per the direction of Engineer-in- charge. The feeder pillar shall be approved by **DMF**. The feeder pillar shall be mounted on a raised concrete platform above ground level at min height of 1 meter. Three phase supply to be equally distributed to the 9 light fittings alternatively (e.g. light Fittings 3, 6,9 to R-phase; 1,4,7 to Y-Phase; 2,5,8 to B-Phase) to ensure equal light coverage in all directions even if one phase supply is available.

Incoming: - 32 Amp. 4P MCB – 01 No

25 Amp. Contractor – 01 No

9 Amp. Contractor – 02 Nos Push button – 02 Nos

Indicator – 03 Nos.

Fuse link – 03 Nos Timer – 01 No

Outgoing: - 6 Amp. DPMCB – 06 No.

Glass fuse – 01 No. Toggle switch – 01 No

3 Phase, (90 – 240) volt. -1set

FLOOD LIGHT LUMINAIRE: -

Make off LED Philips luminoid /Cree/ Bajaj / Nichia LED/OSRAM chip manufacturer should provide the lumen maintenance data of LED & its life as per LM80. Luminaire should conform to IEC60598. Driver should comply with IEC 61347-2-13 for safety, IEC 61547, CISPR-15,610-3-2
for EMC. Test reports required: Heat resistance test, thermal test, Ingress protection test, drop test, vibration test, electrical insulation resistance test, endurance test, humidity test, Electronics test. LM79 report for the luminaire.
350W LED flood light fixture having Extruded aluminium housing, lumen output of 35000 Lm/ more by using high power discrete LED's, driver efficiency >=90%, power factor>=.95,surge protection >10KV ,THD<10%, IP rating IP66,IK ating:IK08, heat resistance toughened glass with IK08 impact resistance, graduation disc for precise aiming of flood lights. LED luminaire efficacy >=100 lumen/Watt, correlated color temperature 5500K+-300K, color rendering index>=70, lumen maintenance L70 at 50000hrs, THD<10%.

EARTHING:

The mast should be earthed at bottom at one places with independent 50mm×6mm GI earth strip running from one independent earth pits. The earth pits should be located at least 1 meter apart from the pole & there should be inter link between each earth pit using 50mm×6mm GI strip. Detail specification of the earth pits as follows: Earth pit should be as per IS: 3043-1987 using 600mm×600mm×6mm GI plate. The earth pit shall have standard depth of 3.0 meter. Homogeneous mixture of BENTONITE powder & soil in the ratio of 1:6 is to be used for filling up of the earth pit. Minimum 100 kg of BENTONITE powder/charcoal & salt is to be used. It has 2.5 meter, 40mm Dia heavy gauge (min. 4.1kg per meter) GI pipe (perforated) as electrode connected & welded to GI plate at bottom. Top of the electrode should have GI flange & GI funnel (having GI wire mesh) welded to the electrode. GI strip of 50mm×6mm of length 2.8meter to be provided, one end of the GI strip shall be welded with GI plate & other end shall be connected to GI flange. GI flange should have 4 no of holes of Dia 19 mm for connection of GI strip. Each earth pit should be provided with pre-cast RCC chamber with inspection cover of Suitable size.

TECHNICAL DOCUMENT: 20 METRE HIGHMAST,

The scope of this specification includes design engineering, manufacture, transport, Supply, commissioning & testing of complete high-mast lighting system, with raising & Lowering mechanism, power tool, Feeder-pillar, Push-button station, luminaries & lamps with all accessories. Civil foundation work, supply of all other accessories required for safe Operation & maintenance of the lighting system, whether explicitly stated or not shall be Within the scope of work.

1. 20-Meter-High-mast: Structure:

The mast shaft shall be of 2 section manufactured from high tensile steel plates confirming to BS EN 10025 having **minimum yield strength of 355N/SqM and silicon content in steel shall be less than 0.06%** (Make of steel sheet must be SAIL/JSW/TATA/ESSAR only) 20 Mtr. High-mast shall consist of shaft section, head frame, pulley assembly, and lantern Carriages, SS wire rope, cables, double drum winch, power tool, foundation accessories, lightning arrestor, high mast must be suitable for wind speed 50M/sec. Terminal connectors & all other accessories required for completion of job in all respect. The shaft section shall be of continuously tapered, polygonal cross section & made of special steel plate, confirming to BS-EN10-025 / 100027 / BS 4360. The shaft section shall be of two parts. There shall be only one longitudinal seam weld per section, bottom & top section thickness should be minimum of 4mm & 3 mm respectively, bottom & top dia of Structure should be minimum of 410mm & 150 mm respectively. Thickness of base plate Should not be less than 30 mm. Welding shall confirm to BS:5135/ IS:9595. , hot dip Galvanizing internally & externally shall be done in accordance with IS: 2629 or equivalent in single dipping method only, for better adhesion, uniformity & life. The life of structure should be minimum of 25 years. *For longer life and safety requirement all the other Hardware like nuts, bolts, washers, spring washers, flats, split pins etc. should be hot dipped Galvanized. Make: Valmont/lysaght/Bajaj*

Mast foundation:

The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 5 ton/sq.mtr at a depth of 2.2 to 2.8 mtrs / or more as per manufacture of high mast design type. Each tower shall have a raised platform of Cement Concrete of minimum size 2. Mx2Mx0.75M to restrict vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

Door opening:

An adequate door opening shall be provided at the base of the mast & the opening shall be such that it permits clear access to equipment's like winches, cables, sockets etc. & also facilitate easy removal of winch. The door opening shall be complete with a close fitting, weather proof door, provided with a heavy duty double internal lock with a special paddle key & also padlock with Master key for all high-mast towers.

Size of opening and door at base	1200 x 250 mm

Dynamic loading:

The mast structure shall be capable of withstanding basis wind speed of 50m/sec / 180 km/hr with gust confirming to IS:875 (Part-III) ,& shall be measured at a height of 10 mtrs above ground level.

Lantern carriage:

A fabricated lantern carriage shall be provided for fixing & holding 9nos of 350W led Luminaires. Special lantern carriage design must be as per illumination design of yard area i.e 2set of lartern carriage design for holding 9nos of 350w led flood light fixture in 9 arm bracket in symmetric arrangement. The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the mast during the raising & lowering operation of the carriage. Weather proof junction box, made of cast aluminium shall be provided on the Carriage assembly as required, from

which the inter-connection to the designated number of luminaries & associated control gears shall be made.

Diameter of carriage ring -535mm ID, Material construction must be 50NB ERW class B MS pipe with hot dip galvanized. Section of lantern carriage -6arm suitable for 9nos of fixture with 2section only & 2 wire system only.

Raising & lowering mechanism with winch arrangement

Winch:

A suitable winch arrangement shall be provided with the winch fixed at the base of the mast & head frame assembly at the top. The winch shall be of completely self-sustaining type, without the need for brake shoe, springs or clutches. Each driving spindles of the winch shall be positively locked when not in use, by gravity – activated pawls. The capacity, operating speed, safe working load, recommended lubrication & Sl. No of the winch shall be clearly marked on each winch. It shall be self-lubricating type by means of an oil bath & the oil shall be readily available grades of reputed manufacturers. It shall have gear assembly made of phosphor bronze. The winch drum shall be grooved to ensure proper seat for stable & tidy rope lay, with no chances of rope slippage. A test certificate shall be furnished by the manufacturer, for

each winch in support of the maximum load operated by the winch. **Winch must be double drum & double gear type DDMFO 20/6.**

Power tool:

A high –powered, electrically driven, internally mounted power tool with 3 phase motor 1HP of suitable rating (as per IS: 325) shall be provided for lowering & raising the lantern carriage for maintenance purpose. The winch motor system should have inbuilt torque limiter present for the safe working load of the winch. The power tool mounting shall be self-supporting type & shall align the power tool perfectly with respect to the winch spindle during the operation. A handle for manual operation of the winches shall be provided in case of the problem with the electrically operated power tools. For operation of the motor, a suitable Push Button station is to be

Provided with Plug Socket arrangements at both ends (motor & feeder pillar) by means of 1/3phase 32A industrial plug & sockets. 15 meters of copper multi core cable to be used for control of power to the motor through Push Button Station. The Push Button station should be portable & it should contain one no TP protective MCB, two nos. AB contactors & two nos. push buttons. AB contactor, MCB should be of Siemens/L&T/BCH make. Motor make: HEM/CGL/BHARAT BIJLI /Kiloskar only

Head frame:

The head frame, which is to be designed as a capping unit of the mast, shall be of welded steel construction, galvanized both internally and externally. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire ropes and the multi-core electric cable. The pulley block shall be made of non-corrodible material, like die cast Aluminum Alloy (LM-6). Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be fully protected by canopy galvanized internally and externally. Close fitting guides and sleeves shall be provided to ensure that the ropes and cables do not dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for locking the lantern carriage. Head frame must be 2 rope type only.

Suspension & wire rope:

The suspension system shall consist of only non-corrosive stainless steel of AISI 316 grade. The suspension wire rope shall confirm to IS: 2365/1977. The suspension system should be of 2 wire rope arrangement for better balancing of the lantern carriage.

SS Wire Rope:

Grade: AISI 316

Diameter of SS Rope: minimum 6 mm dia.

Construction of SS Rope: 7 / 19.

Breaking Load Capacity: minimum 2350 Kgs per SS wire rope

AVIATION LIGHT:

Led based obstruction lights utilize 90% less power than an equivalent incandescent,power consumption 230ac-10w

no of led used-300nos,12-24vdc,120vac and 230vac,ip-65

Cable & connections at High-mast:

Metal clad, 63A, plug-sockets units shall be provided at the bottom compartments of the mast to facilitate termination of incoming cables. Electrical connections from the bottom to the top of the mast shall be made by 1100 V, PVC cable to get flexibility & endurance. Size of cables shall be 5Cx4sqmm² copper, with flexibility class-5 &

overall as per IS: 9968 (Part-I), connections from the top junction box to the

Individual luminaries shall be made by using 3Cx1.5mm2 copper flexible PVC insulated cables. EPR cable make: BMI/SUN/MENS FIELD/UNIVERSAL/UNIFLEX. & PVC cable make: KEI/thermo/havells/polycab

2. Lightning Finial:

One number heavy duty hot dip galvanized lightning finial shall be provided for the mast. The lightning finial shall be minimum 1.2 M in length or as required so that the lantern carriage also comes within the safety zone and shall be provided at the center of the head frame. It shall be bolted solidly to the h e a d frame to get a direct conducting path to the earth through the mast. The lightning finial shall not be provided on the lantern carriage under any circumstances in view of safety of the system.

3. Feeder Pillar:

Outdoor stand mounted feeder pillar with 32A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5 sq. mm terminals.

SYSTEM: 415V, 32A TPN,50HZ SUPPLY

TYPE: OUTDOOR TYPE STAND MOUNTING DUST & VERMIN PROOF, IP-55.

CONSTRUCTION: FABRICATED OUT OF 14 SWG CRCA SHEET STEEL.

PAINT: PANEL WILL HAVE POWDER COAT FINISH TO SHADE 631 OF IS 5 AFTER PRETRATMENT AND SAND BLACK ENAMEL PAINT.
CABLE SIZE: FOR POWER-6 SQMM (BLACK /GREY)
FOR STARTER-2.5SQMM(BLACK/GREY)
FOR CONTROL-1.5SQMM(BLACK/GREY)
LABELS: ALUMINIUM ANODISED
STAND: 40X40X5M.S ANGEL
FEEDER SIZE: 775X500X250MM (CAP /HEAD 350MM)

4. Luminaries & Lamps:

Make off LED Philips luminoid /Cree/Bajaj / Nichia/ Osram. LED chip manufacturer should provide the lumen maintenance data of LED & its life as per LM80. Luminaire should conform to IEC60598. Driver should comply with IEC 61347-2-13 for safety, IEC 61547, CISPR-15,610-3-2
for EMC. Test reports required: Heat resistance test, thermal test, Ingress protection test, drop test, vibration test, electrical insulation resistance test, endurance test, humidity test,
Electronics test. LM79 report for the luminaire.
350W LED flood light fixture having extruded aluminum housing, lumen output of 35000Lm by using high power discrete LED's, driver efficiency >=90%, power factor>=.95, surge protection >10KV ,THD<10%, IP rating IP66,IK ating:IK08, heat resistance toughened glass with IK08 impact resistance, graduation disc for precise aiming of flood lights. LED luminaire efficacy >=100 lumen/Watt, correlated color temperature 5700K+-500K, color rendering index>=70, lumen maintenance L70 at 50000hrs,THD<10%.

Guarantee for led fixtures must be 5 years from date of erection

5. Earthing of the Mast & Feeder Pillar:

The mast should be earthed at bottom at two places with independent 50mm×6mm GI earth strip running from two independent earth pits. The two earth pits should be located at least 3 meter apart from each other & there should be inter link between each earth pit using 50mm×6mm GI strip. Detail specification of the earth pits as follows:
Earth pit should be as per IS: 3043-1987. The earth pit shall have standard depth of 3.0 meter.charchol & salt filled stare by stare as per design enclosed. It has 3 meter, 40mm Dia heavy gauge GI pipe connected & welded to GI plate at bottom. Top of the electrode should have GI flange & GI funnel (having GI wire mesh) welded to the pipe. GI strip of 50mm×6mm of length 2.8meter to be provided, one end of the GI strip shall be welded with GI plate & other end shall be connected to GI flange. GI flange should have 4 no of holes of Dia 6 to 8 mm for connection of GI strip. Each earth pit should be provided with pre-cast RCC chamber with inspection cover of Suitable size.
TECHNICAL DOCUMENT: 25 METRE HIGHMAST,

The scope of this specification includes design engineering, manufacture, transport, Supply, commissioning & testing of complete high-mast lighting system, with raising & Lowering mechanism, power tool, Feeder-pillar, Push-button station, luminaries & lamps with all accessories. Civil foundation work, supply of all other accessories required for safe Operation & maintenance of the lighting system, whether explicitly stated or not shall be

Within the scope of work.

1. 25 Meter High-mast:

Structure:

The mast shaft shall be of 3 section manufactured from high tensile steel plates confirming to BS EN 10025 having **minimum yield strength of 355N/SqM and silicon content in steel shall be less than 0.06%** (Make of steel must be SAIL/JSW/TATA/ESSAR) 25 Mtr. High-mast shall consist of shaft section, head frame, pulley assembly, and lantern Carriages, SS wire rope, cables, double drum winch, power tool, foundation accessories, lightning arrestor, high mast must be suitable for wind speed 180km/hr. Terminal connectors & all other accessories required for completion of job in all respect. The shaft section shall be of continuously tapered, polygonal cross section & made of special steel plate, confirming to BS-EN10-025 / 100027 / BS 4360. The shaft section shall be of Maximum three parts. There shall be only one longitudinal seam weld per section, bottom,mid & top section thickness should be minimum of 5mm ,4mm& 3 mm respectively, bottom & top dia of Structure should be minimum of 460mm & 150 mm respectively. Thickness of base plate Should not be less than 25 mm. Welding shall confirm to BS:5135/ IS:9595. , hot dip Galvanizing internally & externally shall be done in accordance with IS: 2629 or equivalent in single dipping method only, for better adhesion, uniformity & life. The life of structure should be minimum of 25 years. *For longer life and safety requirement all the other Hardware like nuts, bolts, washers, spring washers, flats, split pins etc. should be hot dipped Galvanized. Make of high mast (manufacture): VALMONT/LYSAGHT/BAJAJ*

Mast foundation:

The design of mast foundation shall be as per IS: 456. It shall be suitable for soil bearing capacity of 5 ton/sq.mtr at a depth of 2.4 to 3 mtrs / or more as per manufacture of high mast design Each tower shall have a raised platform of Cement Concrete of minimum size 2.Mx2Mx0.75M to restrict vegetation growth around the tower & for easy accessibility to feeder pillar. Preferably the feeder pillar shall be mounted on the raised platform.

Door opening:

An adequate door opening shall be provided at the base of the mast & the opening shall be such that it permits clear access to equipment's like winches, cables, sockets etc. & also facilitate easy removal of winch. The door opening shall be complete with a close fitting, weather proof door, provided with a heavy duty double internal lock with a special paddle key & also padlock with Master key for all high-mast towers.

Size of opening and door at base	:	1200 x 250 mm

Dynamic loading:

The mast structure shall be capable of withstanding basis wind speed of 50m/sec / 180 km/hr with gust confirming to IS:875 (Part-III) ,& shall be measured at a height of 10 mtrs above ground level.

Lantern carriage:

A fabricated lantern carriage shall be provided for fixing & holding 12nos of 350w led Luminaires.Special lantern carriage design must be as per illumination design of apron area i.e 2set of lartern carriage design for holding 12nos of 350w led flood light fixture .The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the

mast during the raising & lowering operation of the carriage. Weather proof junction box, made of cast aluminum shall be provided on the
Carriage assembly as required, from which the inter-connection to the designated number of luminaries & associated control gears shall be made.

Raising & lowering mechanism with winch arrangement

Winch:

A suitable winch arrangement shall be provided with the winch fixed at the base of the mast & head frame assembly at the top. The winch shall be of completely self-sustaining type, without the need for brake shoe, springs or clutches. Each driving spindles of the winch shall be positively locked when not in use, by gravity – activated pawls. The capacity, operating speed, safe working load, recommended lubrication & Sl. No of the winch shall be clearly marked on each winch. It shall be self-lubricating type by means of an oil bath & the oil shall be readily available grades of reputed manufacturers. It shall have gear assembly made of phosphor bronze. The winch drum shall be grooved to ensure proper seat for stable & tidy rope lay, with no chances of rope slippage. A test certificate shall be furnished by the manufacturer, for
each winch in support of the maximum load operated by the winch. **Winch is must be double drum double gear type & DDMFO 25/6 type.**

Power tool:

A high –powered, electrically driven, internally mounted power tool with 3 phase motor 1.5HP of suitable rating (as per IS: 325) shall be provided for lowering & raising the lantern carriage for maintenance purpose. The winch motor system should have inbuilt torque limiter preset for the safe working load of the winch. The power tool mounting shall be self-supporting type & shall align the power tool perfectly with respect to the winch spindle during the operation. A handle for manual operation of the winches shall be provided in case of the problem with the electrically operated power tools. For operation of the motor, a suitable Push Button station is to be
Provided with Plug Socket arrangements at both ends (motor & feeder pillar) by means of 3phase 32A industrial plug & sockets. 15 meters of copper multi core cable to be used for control of power to the motor through Push Button Station. The Push Button station should be portable & it should contain one no TP protective MCB, two nos. AB contactors & two nos. push buttons. AB contactor, MCB should be of Siemens/L&T/BCH make. Motor make: HEM/CGL/BHARAT BIJLI

Head frame:

Head frame is suitable for 2 wire rope system & The top pulley shall be suitable to accommodate the stainless steel wire rope & multi-core electric cable. The pulley block shall be made of non-corrosive material & shall be of die-cast aluminum alloy. Self-lubricating bearings & stainless steel shaft shall be provided to facilitate smooth operation for a long period. The pulley assembly shall be fully protected by a canopy galvanized internally & externally & canopy should protect the rain water into the mast. Make: *BAJAJVALMONT/LYSAGHT*

Suspension & wire rope:

The suspension system shall consist of only non-corrosive stainless steel of AISI 316 grade. The suspension wire rope shall confirm to IS: 2365/1977. The suspension system should be of 2 wire rope arrangement for better balancing of the lantern carriage.

SS Wire Rope:
Grade: AISI 316
Diameter of SS Rope: minimum 6 mm dia.
Construction of SS Rope: 7 / 19.

Breaking Load Capacity: minimum 2350 Kgs per SS wire rope

AVIATION LIGHT:

Led based obstruction lights utilize 90% less power than an equivalent incandescent,power consumption 230ac-10w no of led used-300nos,12-24vdc,120vac and 230vac,ip-65

Cable & connections at High-mast:

Metal clad, 63A, plug-sockets units shall be provided at the bottom compartments of the mast to facilitate termination of incoming cables. Electrical connections from the bottom to the top of the mast shall be made by 1100 V, EPR insulated & PCP sheathed reeling duty cable to get flexibility & endurance. Size of cables shall be 5Cx4sqmm² copper, with flexibility class-5 &
overall as per IS: 9968 (Part-I), connections from the top junction box to the
Individual luminaries shall be made by using 3x1.5²mm copper flexible PVC insulated cables. EPR cable make: BMI/SUN/MENS FIELD/UNIVERSAL/UNIFLEX.

2. Lightning Finial:

Heavy duty hot dip galvanized lightning finial shall be provided at the center of the head frame to get a direct conducting path to the earth through the mast. The lightning finial shall not be provided on the lantern carriage under any Circumstances in view of the safety of the system.

3. Feeder Pillar:

Outdoor stand mounted feeder pillar with 63A TPN MCB incomer, single dial time switch, 40A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and out going 16 & 2.5 sq. mm terminals**.**

SYSTEM: 415V, 63A TPN,50HZ SUPPLY
TYPE: OUTDOOR TYPE STAND MOUNTING DUST & VERMIN PROOF, IP-55.
CONSTRUCTION: FABRICATED OUT OF 14 SWG CRCA SHEET STEEL.
PAINT: PANEL WILL HAVE POWDER COAT FINISH TO SHADE 631 OF IS 5 AFTER PRETRATMENT AND SAND BLACK ENAMEL PAINT.
CABLE SIZE: FOR POWER-6 SQMM (BLACK /GREY)
FOR STARTER-2.5SQMM(BLACK/GREY)
FOR CONTROL-1.5SQMM(BLACK/GREY)
LABELS: ALUMINIUM ANODISED
STAND: 40X40X5M.S ANGEL
FEEDER SIZE : 775X500X250MM (CAP /HEAD 350MM)

cable entry point. Feeder pillar shall be connected with minimum 2 nos. independent earthings. Drawings (dimensional & control/ power circuit) are to be approved before manufacture of feeder pillar.

4. Luminaries & Lamps:

Make off LED Philips luminous /Cree /Bajaj/ Nichia/ Osram. LED chip manufacturer should provide the lumen maintenance data of LED & its life as per LM80. Luminaire should conform to IEC60598. Driver should comply with IEC 61347-2-13 for safety, IEC 61547, CISPR-15,610-3-2 for EMC. Test reports required: Heat resistance test, thermal test, Ingress protection test, drop test, vibration test, electrical insulation resistance test, endurance test, humidity test, Electronics test. LM79 report for the luminaire.

350W LED flood light fixture having Extruded aluminium housing, lumen output of 35000 Lm by using high power discrete LED's, driver efficiency >=90%, power factor>=.95, surge protection >10KV

,THD<10%, IP rating IP65/66,IK ating:IK08, heat resistance toughened glass with IK08 impact resistance, graduation disc for precise aiming of flood lights. LED luminaire efficacy >=100 lumen/Watt, correlated color temperature 5700K+-500K, color rendering index>=70, lumen maintenance L70 at 50000hrs,THD<10%.

5. Earthing of the Mast & Feeder Pillar:

The mast should be earthed at bottom at two places with independent 25mm×3mm GI earth strip running from two independent chemical earth pits. The two chemical earth pits should be located at least 3 meter apart from each other & there should be inter link between each earth pit using 25mm×3mm GI strip. Detail specification of the earth pits as follows:
Earth pit should be as per IS: 3043-1987. The earth pit shall have standard depth of 3.0 meter. Homogeneous mixture of chemical powder & water in the ratio of 1:2 is to be used for filling up of chemical powder is to be used. It has 2.5 to 3 meter, 40mm Dia heavy gauge GI pipe (perforated) as electrode connected & welded to GI plate at bottom. Top of the electrode should have GI flange & GI funnel (having GI wire mesh) welded to the electrode. GI strip of 25mm×3mm of length 2.8meter to be provided, one end of the GI strip shall be welded with GI plate & other end shall be connected to GI flange. GI flange should have 4 no of holes of Dia 6 to 8 mm for connection of GI strip. Each earth pit should be provided with pre-cast RCC chamber with inspection cover of Suitable size.

Warranty:

All equipment shall be warranty against unsatisfactory performance and/ or break down due to defective design, workmanship or material for a period of five year from the date of taking over the installation by DMF. The equipment or components or any part thereof, so found defective during the guarantee period shall be forthwith repaired or replaced free of cost to the entire satisfaction of the client. In case it is felt that undue delay is being caused by the contractor in attending the defect/fault removed, the same will be got done by DMF at the risk and cost of the contractor. The decision of DMF in this respect will be final. The complete High Mast light & overall workmanship against any manufacturing /design /supply / installation defects for a minimum period of 5 yrs from the date of commissioning.

9. MAKE OF MATERIALS

Sr No	Description	Make-1	Make-2	Make-3	Make-4
1	MCB	Legrand	L&T	Schneider/c&s	ABB
2	JUNCTION BOX	HENSEL	CAPE	MAHARAJA	SINTAX
3	MCB DB	Legrand	L&T	Schneider	ABB
4	LED fixture	Philips	Zumtobel / Osram	Disano	Bajaj
5	MCCB	L&T	C&S	Siemens/c&s	Legrand
6	WIRES	Polycab	KEI	BMI	Havells
7	High Mast	Valmont	Lysaght	Bajaj	
8	PVC Insulated copper wire	Finolex	Grandlay	Polycab	KEI
9	Motor	Crompton	HEM	Bharat bijli	Kiloskar
10	Earthing	Remedies	Multi shrink	Star X	
11	Cable Glands & lUG	Comet	Braco	Multishrink	DOWELL
12	EPR TRAILING CABLE	SUN	BMI	THERMO	MENSFIELD
13	CABLE	KEI	POLYCAB	HAVELLS	THERMO

NOTE: Makes mentioned above are only tentative and prior approval of all equipment/items shall be taken from DMF before supply at site. Contractor may supply equipment of any other make not mentioned above with the prior approval of DMF.

10. SAFETY CODE

1. The contractor shall follow the safety codes as per IS-5216-1982 while carrying out the electrical work.

2. First-aid appliances, including adequate supply of sterilized dressings and cotton wool, shall be maintained in a readily accessible place.

3. The injured person shall be taken to a public hospital without loss of time, in cases where the injury necessitates hospitalisation.

4. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.

5. No portable single ladder shall be over 8 meters in length, the width between the side rails not less than 30 cm (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used, an extra labour shall be engaged for holding the ladder.

6. The excavated material shall not be placed within 1.5 meters of the edge of the trench or half of the depth of the trench, whichever is more. All trenches and excavations shall be provided with necessary protection of minimum height of one meter.

7. Every opening in the floor of a building or a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one metre.

8. No floor, roof or other part of the structure shall be so over-loaded with debris or materials as to render it unsafe.

9. Workers employed on mixing and handling material such as asphalt, cement, mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand gloves.

10. Those engaged in welding works shall be provided with welder's protective eye shields and gloves.

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

12. Suitable face masks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.

13. Hoisting machines and tackles used in the work, including their attachments, anchorage and supports shall be in perfect condition.

14. The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from defects.

FIRE SAFETY

i. Cutting / drilling machine and other electrically operated equipment used at site shall be plugged into correctly rated electrical outlets.

ii. Only ISI marked 3 pin plug and other appliances and equipment shall be used.

iii. Electrical power cables/wires used shall not have any joints and shall be properly rated.

iv. All electrical appliances i.e. welding, drilling, cutting machine etc. shall be safely and securely earthed to prevent leakage current while in operation.

v. Before commencing the welding work required precautions should be taken.

vi. Two buckets of water/ sand and a fire cloth of suitable size shall be kept in an easily accessible area on the site.

vii. Fire extinguishers recommended by fire officers shall be kept on the site.

viii. Used paint drums shall be stored in specified store only after closing them properly.

ix. Personal protective equipment such as safety shoes, hand gloves, welder's mask, ear plug etc. depending upon the requirement of the work shall be provided by the contractor to the workmen to prevent occupational health hazards.

x. The safety belt shall be provided by the contractor and used by the workmen while working from height for more than 10' from Ground level.

xi. None of the passages near lift lobby and staircases shall be used for stacking / dumping any kind of materials/waste.

xii. Any debris/ waste generated from the work shall be collected on daily basis, removed from site and stored at the designated place in proper manner.

xiii. Battery operated emergency light/torches shall be provided by the contractor to the workmen while working beyond office hours

11. ANNEXURE A
COMPLETION CERTIFICATE

Having executed the work in terms of the contract, we hereby certify and affirm that we have virtually completed the contracted works.

We hereby certify that the work has been executed wholly to our satisfaction and with materials and workmanship in accordance with the contract. Thus we ensure that there will not be any defect in the functioning of illumination system.

We do certify further that we have executed the work in accordance with the applicable laws and without any transgression of such laws.

Signature of the Contractor

Place: **Name :**

Date: **Address :**

Seal :

Signature of the Client

Seal :

12. ANNEXURE B

ARTICLES OF AGREEMENT

(On Rs. 200/- Stamp Paper)

ARTICLES OF AGREEMENT made on the .....of.....2019 between the DMF which expression shall, unless repugnant to the context mean and include its successors and assigns of the one part and M/s ..... (Herein after called "the Contractor") which expression shall unless repugnant to the context mean and include its successors and assigns of the other part.

The Contractor has agreed to execute the said works **i.e. "Annual Rate Contract for Supply, Installation and Commissioning of high mast illumination system along with led flood lights Sets with 5 year warranty for Sundargarh District out of D.M.F Fund "**subject to the provisions hereinafter contained and subject also to the instructions to the Bidders, General Conditions of Contract, Special Conditions, Technical Specifications, the said drawings, the Schedule of Quantities and Bidders Schedule of Quantities, all of which are hereinafter collectively referred to as **'the said conditions'**, strictly in accordance with the said drawings annexed hereto and the Specification and Schedule of Quantities referred to above at or for the respective rates set out in the Bidders Schedule of Quantities annexed hereto, amounting to the sum as hereunder arrived at or such other sum as may become payable hereunder (herein under referred to as the said contract amount).

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT:

1. In consideration of the said Contract Amount to be paid by the DMF to the contractor at the time and in the manner set forth in the said conditions and in accordance with the schedule of payments, the Contractor shall upon completion subject to the said conditions execute and complete the work shown in the said Drawings and described in the said Specifications and Schedule of Quantities.

2. The said Conditions and the Annexure thereto shall be read and construed as forming part of this agreement and the parties hereto respectfully abide by, submit themselves to the said condition and perform the agreements on their part respectively contained in said conditions.

3. Tender documents containing notice to the Contractors, Conditions of Contract, Appendix thereto, Special Conditions of Contract, Technical Specifications and Schedule of Quantities with the rates entered therein, shall be read and stamped forming part of this agreement and the parties hereto shall positively abide by and submit themselves to the conditions and specifications and perform the agreements on their part respectively in conditions contained.

4. The DMF reserves to itself the right of altering the drawing, nature of the work by adding to, reducing or omitting any items of work or having portions of the same carried out without prejudice to this Contract.

5. The Contractor should have experienced and competent staff which will enable them to ensure proper quality check on the materials, and who will ensure to carry out proper tests as required by the specifications and will supervise the day-to-day working and execution of contract works.

6. If the Contractor has any doubt about the quality of any materials or any difficulty in supervision of the day to day work, it shall be the duty of the Contractor to report the matter in writing forthwith to the DMF and for the time being, to suspend that portion of the work about which difficulty is experienced and the Contractor will abide by the direction of the DMF.

7. The Contractor covenants and warrants that completed items of work as well as the entire work on completion will be in conformity with the Specifications and the terms and conditions of Contract and will be of proper quality and description.

8. Time shall be considered as the essence of this Agreement and Contractor hereby agrees to complete the work within **01 months starting after one week from date of issue of work order or the date on which contractor takes the possession of site, whichever is earlier**, nevertheless to the provisions of extension of time as contained in the said conditions.

9. All payments by the DMF under this contract will be made by e-payment only.

10. All disputes arising out of or in any way connected with this agreement shall be deemed to have arisen at Sundargarh and only court at **Sundargarh** shall have jurisdiction to determine the same.

11. This agreement shall be signed in duplicate; the original document shall be kept in the custody of the DMF and the duplicate with Contractor. Stamp duty shall be borne by the Contractor.

IN WITNESS WHEREOF the DMF has set its hand hereunto through its duly authorized official and the contractor has caused these presents under its common seal/by its duly authorized representative at the place and on the date and year first hereinabove

written.

As witness our hands are affixed this day of

Signed and sealed by the said DMF in the presence of

……..

……..

Witness No. 1 .....

Witness No. 2 .....

Signed and Sealed by the said

……

……

Contractor in the presence of

Witness No. l .....

Witness No. 2 .....

13. <u>ANNEXURE C</u>

<u>INDEMNITY BOND</u>

(On Rs. 100/- Stamp Paper)

KNOW all men by these presents that I, Shri..... of M/s .....do hereby execute Indemnity Bond in favour of District Mineral Foundation (DMF),Sundargarh and M/s ……. on this ……day of ……..2018. Whereas DMF have appointed M/s……..as the Contractor for their work relating to **"**Supply, Installation, Testing and Commissioning of Illumination System for DMF, Sundargarh one each at following two premises:

1. Collector Office & ADM office, New Conference Hall, Sundargarh.
2. Collector Res Office Chamber & Res Collector, Sundargarh.

THIS DEED WITNESSETH AS FOLLOWS: -

I/We M/s .....hereby do Indemnify, and same harmless DMF against and from

1. any third party claims, civil or criminal complaints liabilities, site mishaps and other accidents or disputes and/or damages occurring or arising out of any mishaps at the site due to faulty work, negligence, faulty construction and/or for violating any law, rules and regulations in force, for the time being while executing/executed works by me/us,
2. any damages, loss or expenses due to or resulting from negligence or breach of duty on the part of me/us or any sub-contractor/s if any, servants or agents.
3. any claim by an employee of mine/ours or of sub-contractor/s, if any, under the Workmen Compensation Act or any other law, rules and regulations in force for the time being and any Acts replacing and/or amend the same or any of the same as may be in force at the time and under any law in respect of injuries to persons or property arising out of and in the course of the execution of the contract work and/or arising out of and in the course of employment of any workmen/employee.
4. Any act or omission of mine/ours of sub-contractor/s if any, our/their servants or agents which may involve any loss, damage liability, civil or criminal action.

IN WITNESS WHEREOF THE M/s .....has set his/their hands on this .....day of ..... 2018.

SIGNED AND DELIVERED BY THE AFORESAID M/s

IN THE PRESENCE OF WITNESS:

(1) ……..

(2) ……..

14. ANNEXURE D

OEM AUTHORISATION LETTER

Original Equipment Manufacturer's authorisation letter (in Original Letter Head of OEM)

To,

DMF, Sundargarh

Dear Sir,

Subject : Direct Manufacturers Authorization

Ref : Tender No: _____ **dated------**

Name of Work: **Supply, Installation, Testing and Commissioning of illumination System at sundargarh**

We ……., an established and reputable manufacturer of Illumination System having Corporate / Registered office at ……. (address of OEM) do hereby authorize …… (name of contractor) and having their office at ……. (contractor's address) as our representative to submit a above bid_____dt_____ and subsequently negotiate and sign the contract with you for the supply of goods manufactured by us and authorize the said firm to act on our behalf in fulfilling any or all installation, technical support and maintenance obligation as required by the contract

We hereby confirm and extend our full guarantee / warranty of three years for the products supplied by the above contractor for the said work.

Yours faithfully,

for ……

Signature of Officer Authorized to sign this Document on behalf of the OEM.

15. PROFORMA-1

a) General details about the Contractor

S.	Description	Information to be filled up

No.		by the Contractors
1	Name of the Contractor /Organisation and address of the Registered Office	
2	Year of establishment	
3	Type of the Organisation (whether Sole Proprietorship, Partnership, Private Limited or Co-operative body, etc.)	
4	Name of the Proprietor/Partner/Directors of the Organisation/Firm:	
	(a)	
	(b)	
	(c)	
	(d)	
5	Details of Registration - Whether Partnership firm, Company, etc. Name of Registering Authority, Date and Registration Number	
6	Whether registered with Government/Semi-Government/Municipal Authorities or any other Public Organisation and if so, in which class and since when?	
7	Experience in the Relevant field	
8	Areas of business activities other than this work	

9	Address of business activities other than this work, if any and place of business	
10	Address of office through which the proposed work of the Bank will be handled and the name and designation of the Officer-in-charge	
11	Adequate and satisfactory evidence to indicate financial capacity of the Organisation to undertake the said construction work with names of Bankers and their full addresses (Income-tax clearance certificate and Audited Balance Sheet and Profit and Loss Account for past three years should be attached)	
12	Yearly turn-over of the Organisation during last three years (Rs.)	
13	Whether any Civil Suit/litigation arisen in the contracts executed during the last ten years/being executed now. If yes, please furnish the details. in the table given below:	

Note: Income -tax clearance certificate and Audited Balance Sheet and Profit and Loss Account for past three years should be attached separately.

16. PROFORMA-2

Electrical works and previous experiences

a) List of important Projects executed by the contractor (only those projects that meets the requirements of Pre-Qualification criteria mentioned in Chapter 3 of this tender) and above **(Electrical works of office complex/ residential complex/industrial)**

Sr.No.	Name & Location of work	Cost of work	Name of owner	Full address	Name of the contact person from owner's side for who me work was executed	Contact no. of the contact person of the owner (Mandatory)	Email id of the contact person (Mandatory)	Completion period		Whether the work was left incomplete (reasons if any for delay in completion of work) or contract was terminated from either side (give full details)	Any other relevant information
								Stipulated	Actual		
1	2	3	4	5	6	7	8	9	10	11	12

NOTE: Contractor shall submit the completion certificates of all the above mentioned work issued by the respective clients and shall produce before DMF whenever called for.

SEAL AND SIGNATURE OF THE BIDDER

b) List of important projects ON HAND costing Rs. 7.50 lakh and above.
(Electrical works to office complex/ residential complex/ industrial)

Sr.No.	Name of work	Location of work	Name of owner	Full address	Name of the contact person from owner's side for who me work was executed	Phone no. of the contact person (Mandatory)	Email id of the contact person (Mandatory)	Completion period		Whether the work was left incomplete (reasons if any for delay in completion of work) or contract was terminated from either side (give full details)	Any other relevant information
								Stipulated	Actual		
1	2	3	4	5	6	7	8	9	10	11	12

18. <u>Bank Account Details for ECS Payments Details to be furnished by the Tenderers/contractors/Service Provider/Firm</u>

1. Name of Contractor/Firm/Co./ Service Provider with Address :

2. Name of the Bank of the Contractor/ Service Provider :

3. Bank Branch and Address :

4. Title of Account where payment is : Required, Exact wording of the account

5. Account No. : Savings/Current/Overdraft/Cash

6. Type of Account : Credit/Advances/NRE Savings etc.

7. MICR No. of the Bank branch (along with a cancelled copy of the cheque) :

8. IFSC / RTGS / NEFT No. :

Note: E<u>nclose a copy of PAN & Cancelled Cheque</u>

Place:
Date:

Yours faithfully

Name and Address of the Tenderer/Contractor/Firm/Co. /Service Provider (Signature of the Tenderer/Contractor/Firm/ Co. /Service Provider) Address and Seal

19. Makes offered by the tenderer

Sr No	Description	Make offered
1	MCB	
2	JUNCTION BOX	
3	MCB DB	
4	LED fixture	
5	MCCB	
6	WIRES	
7	High Mast	
8	PVC Insulated copper wire	
9	Motor	
10	Earthing	
11	Cable Glands & lUG	
12	EPR TRAILING CABLE	
13	CABLE	

19. CHECK LIST FOR SUBMISSION OF BID

A.Bidder is requested to submit the documents against check list and ensure that all details/documents have been furnished as called for in the Bidding Document along with duly filled in, signed .

1. Tender paper cost Rs…….. & EMD cost 1% of bidding value Rs……..

2. 1. Bidder must be a manufacturer / their Authorization against tender for participation. Manufacture can Authorized only one bidder. Manufacture must be manufacturing Octagonal GI poles, high mast / led fixtures.

3. 5 years warranty certificate from manufacturer on their letter head.

4. Bidder must be submit Details of Similar works completed with Certificates in support of 3 years' experience.

5. Documents (Audited Balance Sheets of last 3financial year, Profit & Loss Statements and Auditor's Reports of last 3years,IT return documents of last 3 years, GST registration certificate, PF,ESIC registration certificate).

6. Bidder /manufacture must be submit warranty certificate of 5years for both led light fixture & high mast on their letter head.

7. Declaration of manufacture from their letter head (must having register office at Odisha with their service team details).

8. Bidder must having valid HT license from ELBO with minimum 3years of experience /License shall be in the company name / in the name of company director/proprietor/partner.

9. Bidder/Manufacture must be submit different sizes of high masts system Foundation GAD & high mast data sheet with details. Earthing Gads Details. JB arrangement details, feeder pillar GAD, technical data sheet of led fixtures, LM-79 & 80 report, Photo biological test Report. Structural data sheet of different height of high mast pole along with light fixtures, lantern carriage/bracket GADs, technical data sheet of 3cx1.5sqmm2 copper PVC cable & 2AYFY 4cx25sqmm2 Aluminum armored cable Data sheet,5Cx4sqmm2,5Cx2sqmm2 EPR trailing cable data sheet, high mast inner PVC board Gad, technical data sheet of aviation light, Gad of lighting arrester, earthing Gad of high mast & feeder pillar, foundation bolt technical data sheet, high mast Motor technical data sheet with GAD, winch technical data sheet with Gad. illumination design of different height mast with light fixtures by considering below datas.(FOR 10mtr height consider 20mtr radius, for 12mtr height consider 30mtr radius, for 16mtr height consider 35mtr radius, For 20mtr height consider 40mtr radius, For 25mtr height consider 50mtr radius),winch test report, high mast wind tunnel test report, wire rope breaking load test report. motor test certificate.

10. Bidder should have workman compensation insurance from any nationalized insurance company.

11. Bidder should have their own/ leased vehicle mounted hydraulic ladder for maintenance of mini mast / high mast.

12.10. Bidder should submit copies of their Income Tax Permanent Account Number (PAN), GSTIN registration, ESI registration, EPF registration, Certificate of Incorporation, Memorandum of Association and Article of Association and Power of Attorney in the name of person submitting the offer along with board resolution etc. along with the bid. In addition Bank details like name of bank, branch, branch code, Bank Account Number to be submitted.

13. Manufacturer / bidder Should have service center in Sundargarh district. Detail address to be attached.

14. Work/Purchase orders and Completion certificates issued by the client should be enclosed and need to be produced before DMF, whenever called for verification purposes.

15. Filled Annexure A,B,C,D, Proforma 1,2 & 3 ,List of Projects Executed ,List of Projects on Hand ,List of available Tools, Plants, Machineries, Equipment etc.,

B.Please tick (√) the box and ensure compliance:

1. EMD of requisite amount is submitted in the form of DD as mentioned in NIT in separately sealed envelope marked ''Earnest money deposit''

EMD value: Rs. _____ is submitted in the form of DD ☐

DDNo._____Dated_____Drawn on_____(Name of Bank)

2. Validity of offer is up to 90 days from the date of opening of Price Bid.

Yes ☐

3. Power of Attorney in favour of person who has signed the offer, in stamp paper of appropriate value. For Proprietary Organisation, declaration for proprietorship submitted

Submitted ☐ Proprietorship ☐

4. Partnership Deed is case of Partnership firm and Articles of Association in case of limited company.

Submitted ☐ Not applicable ☐

5. Original Bidding Document along with blank (un-priced) copy of price Bid/ Schedule of Rates and addendum, if any. Price is not filled up in this document.

Submitted ☐

6. All pages/documents are stamped and signed by the authorised signatory of the bidder.

Yes ☐

7. Price Part in original, duly filled in, signed and sealed in each page, submitted in separately sealed envelope.

Submitted ☐

Submitted ☐

NOTE: Documents, which are required to be submitted for the subject job,which are specifically mentioned in the Bidding Document.

SIGNATURE OF BIDDER: _____

NAME OF BIDDER : _____

COMPANY SEAL :_____

20. AVERAGE ANNUAL TURNOVER STATEMENT

The Average Annual Turnover statement of.....<name of the organization>, at ……<address of the organization >, for the last three financial year are given below and certified that the statement is true and correct.

Sl. No.	Financial Year	Turnover in lakhs (₹)
1	2016-17	
2	2017-18	
3	2018-19	
	Average annual turnover statement	

Date: Signature of Chartered Accountants

Place:

Seal:

Membership No:

PART-2 (PRICE BID)

Annual Rate Contract for Supply, Installation and Commissioning of illumination systems with 5-year warranty for Sundargarh District.

A – 10 Meter High Mast Light

SR. NO.	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
	SUPPLY PART				
1	Supply of 10 mt. high mini mast having single section Octagonal in shape shall be designed to withstand the maximum wind speed as per IS 875. The top loading i.e. area and the weight of fixtures are to be considered to calculate maximum deflection of the pole and the same shall meet the requirement of BSEN 40-3-3:2003. Octagonal Poles made from HT Steel Conforming to grade S355 & having thicknessof 3mm.Top dia 90mm & Bottom dia 175mm single sharp welding with base plate dimension 275x275x16 mm & Base Plate must be Fe 410 conforming to IS 2062,.The door opening of the pole should be reinforced, water proofed & with locking arrangement & arrangement of in build junction box with 3nos 10Amp DP MCB (mcbs make should be L&T/SIEMENS/LEGRAND/ABB) & terminal box with provision for connection of earth & nutral on 5mm thick fiber plate which will be kept in side the pole for termination of cable & wire,The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process. The poles shall be hot dip galvanized in single dipping as per BS EN ISO 1461 standards with average coating thickness of 70 micron.	nos	1		
2	Supply of Special designed GI blue/violet color Pu painted 4arm bracket for suitable to installed 5nos of 200w led flood light fixtures.	Set	1		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template foundation bolts must EN 8 grade & bolts size must be 4X24mm dia,PCD 300mm,Bolt length 750mm long	Set	1		
4	Supply of same make integral LED flood light fixture 200w	Nos	5		
5	Supply of 3C X 1.5sqmm2 PVC insulated &FR PVC round sheathed fexible Cu Conductor Cable,1.1KV, conforming to IS:694 required for junction box to light fitting make should be Havells/KEI/Finolexs/polycab. complete work in all aspects.	Mtr	50		
6	supply of 4x10sqmm Al XLPE cable	Mtr	50		

7	Supply of outdoor stand mounted feeder pillar with 32A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5 sq. mm terminals.	nos	1		
	TOTAL			**Rs.**	

SR. NO.	**DESCRIPTION OF EQUIPMENTS / ACTIVITIES**	**UOM**	**QTY**	**UNIT RATE (Rs.)**	**TOTAL BASIC AMOUNT**
	<u>ERECTION PART</u>				
8	Construction of shallow foundation with M20 grade concrete for the mini high mast considering the safe soil bearing capacity at site as 10 T/sqmtr at 2-meter depth with all materials and labour.	Job	1		
9	Erection of the mini high mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC insulated PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1		
10	Provision of GI pipe earthing for High mast with 2.5 M long 40 mm dia GI Pipe including connection to High mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2nos per mast required)	nos	1		
11	transporting of materials to the respective site.	nos	1		
	TOTAL			**Rs.**	
	TOTAL (W/O TAX) (SUPPY + ERECTION)			**Rs.**	

SR. NO.	**DESCRIPTION OF EQUIPMENTS / ACTIVITIES**	**UOM**	**QTY**	**UNIT RATE (Rs.)**	**TOTAL BASIC AMOUNT**
12	**maintenance of 10mtr high mast with led fixture. Scope of work like replacement of led light in case of failure, short circuit of feeder repairing / earthing maintenance.(5 year maintenance)**	set	1		
	GRAND TOTAL A= (SUPPLY+ERECTION+5 Yrs Warranty) cost				

B – 12-Meter High Mast Light

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
1	Supply of **12M** high mast shaft in one section suitable for **55m/sec** wind speed along with head frame, luminaires carriage suitable for 06 luminaires in symmetrical arrangement and other accessories manufactured in factory.	nos	1		
2	Supply of raising lowering system comprising double drum winch, 6mm diameter SS wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightning finial. (cable from high mast feeder to high mast scope is included)	Set	1		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template.	Set	1		
4	Supply of LED floodlight type 200W LED.	nos	6		
5	Supply of LED type single dome aviation obstruction light.	nos	1		
6	Supply of outdoor stand mounted feeder pillar with 32A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5 sq. mm terminals.	nos	1		
	TOTAL			**Rs.**	

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
	ERECTION PART				
7	Construction of shallow foundation with M20 grade concrete for the high mast considering the safe soil bearing capacity at site as 10 T/sqmtr at 2-meter depth with all materials and labour.	Job	1		
8	Erection of the high mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC insulated PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1		

9	Provision of GI pipe earthing for High mast with 2.5 M long 40 mm dia GI Pipe including connection to High mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2nos per mast required)	nos	2		
10	Installation of the mast feeder pillar by grouting the stand in concrete.	nos	1		
	TOTAL			**Rs.**	
	TOTAL (SUPPY + ERECTION)			**Rs.**	

SR. NO.	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
12	**maintenance of 12mtr high mast with led fixture. Scope of work like replacement of led light in case of failure, short circuit of feeder repairing / earthing maintenance.(5 year maintenance)**	set	1		
	GRAND TOTAL B= (SUPPLY+ERECTION+5 Yrs Warranty) cost				

C– 16 Meter High Mast Light

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
1	Supply of **16M** high mast shaft in two section suitable for **55m/sec** wind speed along with head frame, luminaires carriage suitable for 08 luminaires in symmetrical arrangement and other accessories manufactured in factory.	nos	1		
2	Supply of raising lowering system comprising double drum winch, 6mm diameter SS wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightning finial. ((cable from high mast feeder to high mast scope is included)).	Set	1		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template.	Set	1		
4	Supply of LED floodlight type 350W LED.	nos	8		
5	Supply of LED type single dome aviation obstruction light.	nos	1		
6	Supply of outdoor stand mounted feeder pillar with 63A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5 sq. mm terminals.	nos	1		
	TOTAL			**Rs.**	

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
	ERECTION PART				
7	Construction of shallow foundation with M20 grade concrete for the high mast considering the safe soil bearing capacity at site as 10 T/sqmtr at 2 metre depth with all materials and labour.	Job	1		
8	Erection of the high mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC insulated PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1		
9	Provision of GI pipe earthing for High mast with 2.5 M long 40 mm dia GI Pipe including connection to High mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2nos per mast required)	nos	2		
10	Installation of the mast feeder pillar by grouting the stand in concrete.	nos	1		
	TOTAL			**Rs.**	
	TOTAL (SUPPY + ERECTION)			**Rs.**	

SR. NO.	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
12	**maintenance of 16mtr high mast with led fixture. Scope of work like replacement of led light in case of failure, short circuit of feeder repairing / earthing maintenance.(5 year maintenance)**	set	1		
	GRAND TOTAL C= (SUPPLY+ERECTION+5 Yrs Warranty) cost				

D – 20 Meter High Mast Light

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
1	Supply of **20M** high mast shaft in two section suitable for **50m/sec** wind speed along with head frame, luminaires carriage suitable for 09 luminaires in symmetrical arrangement and other accessories manufactured in factory.	nos	1		

2	Supply of raising lowering system comprising double drum winch, 6mm diameter SS wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightning finial. ((cable from high mast feeder to high mast scope is included)).	Set	1		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template.	Set	1		
4	Supply of LED floodlight type 350W LED.	nos	9		
5	Supply of LED type single dome aviation obstruction light.	nos	1		
6	Supply of outdoor stand mounted feeder pillar with 63A TPN MCB incomer, single dial time switch, 25A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and Outgoing 16 & 2.5sq.mm terminals.	nos	1		
	TOTAL			**Rs.**	

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
	ERECTION PART				
7	Construction of shallow foundation with M20 grade concrete for the highmast considering the safe soil bearing capacity at site as 10 T/sqmtr at 2 metre depth with all materials and labour.	Job	1		
8	Erection of the high mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC insulated PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1		
9	Provision of GI pipe earthing for High mast with 2.5 M long 40 mm dia GI Pipe including connection to High mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2nos per mast required)	nos	2		
10	Installation of the mast feeder pillar by grouting the stand in concrete.	nos	1		
	TOTAL			**Rs.**	
	TOTAL (SUPPY + ERECTION)			**Rs.**	

SR. NO.	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
12	**maintenance of 20mtr high mast with led fixture. Scope of work like replacement of led light in case of failure, short circuit of feeder repairing / earthing maintenance.(5 year Warranty)**	set	1		
	GRAND TOTAL D= (SUPPLY+ERECTION+5 Yrs Warranty) cost				

E – 25-Meter-High Mast Light

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
1	Supply of **25M** high mast shaft in two section suitable for **50m/sec** wind speed along with head frame, luminaires carriage suitable for 12 luminaires in symmetrical arrangement and other accessories manufactured in factory.	nos	1		
2	Supply of raising lowering system comprising double drum winch, 6mm diameter SS wire rope, trailing cable, connector, integral power tool motor, manual handle, junction box, lightning finial. ((cable from high mast feeder to high mast scope is included)).	Set	1		
3	Supply of foundation bolts manufactured from special steel along with nuts, washers, anchor plate and common template.	Set	1		
4	Supply of LED floodlight type 350W LED.	nos	12		
5	Supply of LED type single dome aviation obstruction light.	nos	1		
6	Supply of outdoor stand mounted feeder pillar with 63A TPN MCB incomer, single dial time switch, 40A TP contactor for the automatic switching of luminaries, power tool control with 2 no 9A contactors and raise lower push button, Incoming 35 sq. mm and outgoing 16 & 2.5sq.mm terminals.	nos	1		
	TOTAL			**Rs.**	

SR. NO.	DESCRIPTION OF ITEMS	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
	ERECTION PART				
7	Construction of shallow foundation with M20 grade concrete for the high mast considering the safe soil bearing capacity at site as 10 T/sqmtr at 2-meter depth with all materials and labour.	Job	1		
8	Erection of the high mast with the help of suitable tools and plants, wiring of luminaires with all wiring materials like PVC insulated PVC sheathed flexible cable of suitable copper conductor cores of 1.5 sq. mm, lugs, MCB and all labour.	Job	1		
9	Provision of GI pipe earthing for High mast with 2.5 M long 40 mm dia GI Pipe including connection to High mast earth terminal with 25 x 3 mm GI flats with all materials and labour. (2nos per mast required)	nos	2		
10	Installation of the mast feeder pillar by grouting the stand in concrete.	nos	1		
	TOTAL			**Rs.**	
	TOTAL (SUPPY + ERECTION)			**Rs.**	

SR. NO.	DESCRIPTION OF EQUIPMENTS / ACTIVITIES	UOM	QTY	UNIT RATE (Rs.)	TOTAL BASIC AMOUNT
12	**maintenance of 25mtr high mast with led fixture. Scope of work like replacement of led light in case of failure, short circuit of feeder repairing / earthing maintenance.(5 year maintenance)**	set	1		
	GRAND TOTAL E= (SUPPLY+ERECTION+5 Yrs Warranty) cost				

Sr. No. (1)	High Mast (2)	Amount (Inclusive of Five Years Warranty) (3)	GST (4)	Total Amount (5=3+4)
1	10Mtr			
2	12Mtr			
3	16Mtr			
4	20Mtr			
5	25Mtr			
Grand Total				

Note:

1-Above rates shall exclusive of GST, all applicable taxes, fees, duties, levies, transportation charges, insurance charges, installation charges, material charges, labour charges and all other charges required for the successful completion of work.

2- Price Bid shall not contain any condition whatsoever and any conditional bids shall be rejected.

3- Unit cost of the High Mast Light shall be valid for one year from the date of agreement.

4- Selection on the basis of lowest Quoted Rate (L 1)

SIGNATURE OF BIDDER

NAME OF BIDDER :

COMPANY SEAL :