

**NOTICE INVITING QUOTATION (NIQ)**

Sealed Quotations are invited from the OEMs' or licensed Contractors who got the endorsement from the OEM for the work of

**Upgradation of existing HPSV Apron Flood lighting System to LED system**

**SH: Design, Supply, Installation, Testing and Commissioning of Apron high mast lighting system with LED fixtures.**

The Quotation documents can be downloaded from the website of Kannur international airport limited ([www.kannurairport.aero](http://www.kannurairport.aero)) under Tenders and Notification OR can be collected from the office of KIAL, Mattannur, Kannur-670702, PH: 0490-2481000

- i) Last date and time of submission : 04/03/2022 14:00 Hrs.
- ii) Quotation to be submitted to the office of the Executive Director- Engineering, Kannur International Airport Limited (KIAL), Kara-Peravoor, Mattannur, Kannur-670708. (Quotation by post shall not be accepted).

**The Quotation will be opened on: 04/03/2022 at 1500 Hrs.**

Executive Director - Engineering  
Kannur International Airport Limited

## INDEX

Sl. No	Description	Page Nos
1.	General Terms and Conditions	NIQ 3 to NIQ 8
2.	Form of Quotation	NIQ 9
3.	Special Conditions of Contract	NIQ 10 to NIQ 15
4.	Technical Specifications	NIQ 16
	Annexure 1	NIQ 17
	Annexure 2	NIQ 18 to NIQ 19
5.	Schedule of Quantities	NIQ 20
	Appendix A	NIQ 21 to NIQ 22

## 1. GENERAL TERMS AND CONDITIONS

1. The sealed cover containing quotation form duly filled in all aspects and superscribed as “Design, Supply, Installation, Testing and Commissioning of Apron Flood lighting system with LED fittings at Kannur International Airport” shall be submitted to Kannur International Airport, Kara-Peravoor, Mattannur, Kannur 670708.
2. The Bidder shall be licensed contractors (“B Class” or above) (Documentary proof to be submitted) but with the endorsement of OEM of LED fittings or can be OEMs of any LED fittings.
3. The date of submission is up to 1400 Hrs. on 04/03/2022 and shall be opened at 1500 hrs. on 04/03/2022. The supplier can participate in the opening of quotations.
4. The bidder should study the schedule of quantities, and, shall be deemed to have full knowledge of the items before the quotation is submitted.
5. The quoted amount shall be inclusive of all taxes & duties including applicable GST, packing and transportation and installation charges.
6. The quotation shall be valid for 30 days from the date of its opening. The time of completion of work is 4 weeks from date of award.
7. The bidder shall give Warranty for the Items for a period of 2 year from the date of commissioning.
8. The defects liability period will be 24 months from the certified date of commissioning. The agency is responsible to make good/repair/replace any defects noticed during the defect liability period.
9. No price escalation will be accepted under any circumstances on the quoted price.
10. Disputes arising out of this purchase if any, shall be referred to the Managing Director, KIAL whose decision shall be final and binding on both sides. If the disputes are not settled, even then it shall be resolved through court of law.

11. The bidder has to ensure safe transit of the material from the factory to the site with good packing, safe loading and unloading.
12. Items should be new and genuine: Repaired / refurbished items will not be accepted. The items should be supplied as per terms and conditions and no part supplies will be accepted.
13. The bidder shall submit product catalogue for verification of complete technical specification along with the bid.
14. Method of Evaluation: The offers submitted by the bidders shall be evaluated based on the net total amount offered
15. The bidder has to submit the signed NIQ document along with the Bid
16. All bidders shall submit EMD of Rs 10,000/- in the form of DD in the name of Kannur International Airport Ltd. Mattanur, Kannur, 670708.
17. The successful Bidder on award of the work shall be required to furnish **Security Deposits (SD)** before signing of agreement. The SD can be in the form of irrevocable Bank guarantee executed in Non-judicial stamp paper worth Rs. 500/- (INR) from any of the Nationalized Bank of India. If the Bank Guarantee is not submitted, the Clause No. iv as given below shall be applicable.
  - i) Bank guarantee towards security Deposit for the contract shall be submitted before signing the agreement to the Engineer-in-charge of Kannur International Airport, as per format given as “APPENDIX -A” from a nationalized/scheduled Bank (as per RBI schedule), having office in India, for the values given below:
  - ii) SD in the form of BG @ 10 % of the contract value with validity of 6 months to be submitted before signing the agreement.
  - iii) Kannur Airport will not pay any interest or any other expenses, whatsoever, incurred by contractor towards submission Security deposit.
  - iv) If the Contractor fails to furnish security deposit in the above forms within the stipulated period, it shall be lawful for the purchaser to recover from the contractor the amount from the bills payable to the contractor for the executed work at the rate of 10 % of each bill.

**\*\* Only on submission & acceptance of Bank guarantee towards security deposit for the work, the EMD received along with tender would be released. Otherwise, EMD shall be adjusted against the SD.**

#### **18. COMPLETION CERTIFICATE:**

Within ten days of successful completion of the work, the contractor shall give notice of such completion to the Engineer-in-charge and within ten days of the receipt of such notice the Engineer-In Charge shall inspect the work and, if there is no defect in the work, shall issue a certificate of completion Airport.

Otherwise issue a provisional certificate of completion indicating: -

- a) Defects to be rectified by the contractor and/or
- b) Items for which payment will be made at reduced rates.

No certificate of completion provisional or otherwise, shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts & sanitary arrangements required for his/their work people on the site in the connection with the execution of the works as shall have been erected or constructed by the contractor and cleaned off the dirt, in upon or about which the work is to be executed, or of which he may have had possession for the purpose of the execution thereof, and not until the work shall have been measured by the Engineer-in-charge. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and all huts & sanitary arrangements as aforesaid & cleaning off dirt on or before the date fixed for the completion of the work, the Engineer-in-charge may at the expense of the contractor remove such scaffolding, surplus materials & rubbish, etc. and dispose off the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

#### **19. WORKS TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATION DRAWING, ORDERS, etc.:**

The contractor shall execute the whole & every part of the work in the most substantial and workmanlike manner and both as regard materials and otherwise

in every respect in strict accordance with the specifications. The contractor shall also confirm exactly, fully and faithfully to designs, drawings and instructions in writing in respect of the work signed by the Engineer-in-charge.

## **20. ALTERATIONS IN SPECIFICATIONS & DESIGNS:**

**Deviation/Variations Extend and Pricing:** The engineer-in-charge shall have power

(i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and

(ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

## **21. ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK:**

If it shall appear to the Engineer-in-charge or his authorized subordinate in charge of the work or the Inspecting Officer that any work has been executed with unsound, imperfect, or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are either of a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall on demand in writing which shall be made within Defects Liability Period (DLP) from the Engineer-in-charge specifying the work materials or articles complained of notwithstanding that the same may have been passed certified paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part the case may require or as the case may be remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in his demand aforesaid Engineer-in-charge shall get the work done at the agency's risk & cost or accept the work with appropriate cost adjustment. But the decision of Engineer-in-charge shall be final.

**22. Contractor Liable for Damage done and for Imperfections noticed within the Prescribed Maintenance Period after the Certificate**

If the contractor or his working people or servants shall break, defect, injure or destroy any part of building in which they may be working, or any building, road, road curb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grass land, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever -or if any defect, shrinkage or other faults appear in the work within DLP as aforesaid arising out of defective or improper materials or workmanship the contractor shall -upon a receipt of a notice in writing in that behalf makes the same good at his own expenses or in default the Engineer-in-charge may cause the same to be made good by the other workmen and deduct the expense from any sums that may be then, or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof.

**23. Sum Payable by way of Compensation to be considered as Reasonable Compensation without reference to Actual Loss:**

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

**24. Works to be under Direction of Engineer-in-charge:**

All works to be executed under this contract shall be executed under the direction and subject to the approval in all respects of Engineer-in-charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

**25. Jurisdiction:**

All questions, disputes or difference arising under and out of, in connection with the contract concluded shall If required to be referred to any court of law, be referred to the courts in India at Kannur, KERALA and the said court only shall have jurisdiction and decide matters according to the laws of India.

26. Any sum of money due and payable to the contractor (Including Security Deposit returnable to him) under this contract may be appropriated by the Authority and set-off against any claim of the Authority for the payment of a sum of money arising out of or under any other contract made by the contractor with the Authority.

## 27. Right of Acceptance

The Accepting Authority reserves to himself the right of accepting the whole or any part of the Quotation and Bidder shall be bound to perform the same at his quoted rates.

28. The purchaser may, at any time, by notice in writing summarily determine the contract without compensation to the contractor in any of the following events, that is to say:

- i If the contractor being a company is wound up voluntarily or by the order of a court or, Receiver, Liquidator or Manager on behalf of the Debenture-holders is appointed or circumstances shall have arisen which entitled the court or Debenture-holder to appoint a Receiver, Liquidator or Manager, or;
- ii If the contractor commits any breach of the Contract not herein specifically provided for, provided always that such determination shall not prejudice any right of action or remedy, which shall have accrued or shall accrue thereafter to the purchaser and provided also the contractor shall be liable to pay to the Purchaser for extra expenditure-he is thereby put to and the Contractor shall under no circumstances be entitled to/any gain on repurchase.



## 2. FORM OF QUOTATION

(To be duly filled in and enclosed in sealed envelope)

1) Name of Agency :

2) Address of the agency:

- 3) The agency shall fill in their quote in the BOQ table in all column and the quoted price shall be entered in both figure and words.
- 4) The rate quoted shall be inclusive of all taxes/duties including applicable (except GST), transportation to KIAL site, testing and commissioning of the Items. GST shall be quoted separately
- 5) KIAL reserves the right to reject any or all quotations and will not be bound to accept the lowest quotation.
- 6) The supplier shall sign in all the pages of NIQ and the same (full set) may be returned along with the schedule duly filled in original.

Signature of the Authorized signatory with date and seal

### **3. SPECIAL CONDITIONS OF CONTRACT**

These special conditions of contract shall be read in conjunction with General conditions of contract. If there are any provisions in the special conditions of contract which are at variance with the provisions of general conditions of contract, the provision in these special conditions shall take precedence.

#### **1. Scope of Work: -**

Upgradation of existing HPSV Apron Flood lighting System to LED system  
SH: Design, Supply, Installation, Testing and Commissioning of Apron high mast lighting system with LED fixtures.

The existing Apron lighting system has 11 no. of high masts of 30 m height. The lighting design shall be done as per the requirements laid down in the Technical Specifications as attached for the entire Apron area consisting of 11 high masts. The Supply, Installation, Testing and Commissioning shall be done for 4 number of high masts as indicated in the drawing attached as **Annexure 1** of the Technical Specification.

The drawing attached as annexure 1 of Technical Specification is for reference purpose only. The soft copy (Autocad drawing) of the Apron area for lighting design will be shared by the Authority on request vide email. The request shall be sent to the below given contact details.

Designation: Deputy Manager Engineering (Electrical)

Email id : [yipin@kannurairport.aero](mailto:yipin@kannurairport.aero)

Ph no: 04902481105

The lighting design along with all the technical data sheets, test certificates as applicable etc. of the luminaires used shall be submitted along with the bid.

2. **Period of Contract: -** The contract shall be for a period of **4 weeks** from the date of award of site.
3. **Terms of payment: -**

The Running payments for the work done shall be released as follows

- a. 75% against Supply of materials - After delivery of the full lot of materials at site, subject to maximum of 75% of individual light fittings.
- b. 15% against Installation - After successful completion of installation
- c. 10% against Testing Commissioning \_ After measurement and verification of Lux levels. (But SD amount shall be withheld in case Bank Guarantee against SD is not furnished.

The following documents shall be submitted along with the RA bills

For 75% against Supply of materials

- (i) Delivery challan / copy of invoice of all the material supplied.
- (ii) Test Certificate to confirm that the materials meet the contract specification and relevant standard in all respects.
- (iii) Warranty/Guarantee certificates as applicable
- (iv) Design for 11 high masts.

For 15% against Installation of materials

- (i) Installation report signed by the Site Engineer/Supervisor and the EIC.

For 10% against Installation of materials

- (ii) Testing and Commissioning report signed by the Site Engineer/Supervisor and the EIC.
- (iii) Record of Lux level measurement after commissioning of the masts.

4. **Security clearance for the company and the Entry pass for staffs:-** The work site lies in restricted area. The contractor shall apply in advance for issue of necessary entry passes of workmen engaged by him. Submission of necessary police verification, security clearance issued by BCAS, Authorization Letter, Appointment letter, AVSEC training etc. as required for entry passes will be the responsibility of the contractor. All expenditure/fees towards arranging security passes shall be borne by the Agency.
5. **Security:-** The contractor and his employees shall abide by security regulation framed by BCAS or Police Authorities. Any worker of the contractor, whose presence is found undesirable in Kannur Airport premises, shall not be allowed to work. The Contractor shall be fully responsible for the satisfactorily working of his staff.

**“If Contractor or his authorized representative or his employed workers are found violating any of security regulations, suitable action shall be taken by Kannur Airport as per prevailing rules”.**

All men and vehicles shall be permitted to enter the restricted / office area only on possession of the security passes. The contractor shall apply in advance before commencement of work for issue of security passes and shall submit a list of personnel concerned with their addresses. The contractor shall ensure that his men are deployed only in those area where the security passes issued is valid for. Passes shall be deposited back with Engineer-In-Charge on demand and in any case immediately after completion of work. The contractor or his staff/workmen shall observe all the rules promulgated from time to time by the concerned authorities. Any person found violating the security rules laid down by the authority will be expelled from the area without assigning any reason whatsoever and contractor shall have no claim on this account.

**6. Statutory & Regulatory Clauses: -**

The contractor has to discharge all the obligations as provided under various statutory enactment including the EPF/ ESI/ Contract Labour (Regulation and abolition)/ Minimum Wages/ Payment of Wages / Payment of Bonus /Payment of Gratuity /Workmen's compensation / Works Contract and other relevant Acts, Rules and Regulations in force and as amended from time to time in the State, as applicable.

The engagement and employment of workers and payment of wages to them as per existing provisions of various labour laws and regulations is the sole responsibility of the contractor and any breach of such laws or regulations shall be deemed to be violation of this contract. Kannur Airport may ask the contractor to produce documents to verify that these provisions/laws are complied by the contractor.

The contractor has to follow the local security/safety rules & regulations and such instructions on restricted hours of work as may be imposed on him by the department / local authorities, while working in security restricted zones and no claim whatsoever on account of this, will be entertained

7. No accommodation will be arranged by the Kannur Airport for the staff / workers of the contractor. It is the responsibility of contractor to make his own arrangements for the facilities.

8. Rates: -The rates quoted by the Contractor for all items shall be exclusive of GST but inclusive of taxes and charges applicable. But GST to be quoted separately.

9. Deployment of Staff: -

- i. The contractor shall depute a Site Engineer/Supervisor on their behalf during the entire course of the contract. The Site Engineer/Supervisor shall be responsible for the planning and execution of all the works at site. The deployment of workers shall be the responsibility of the Site Engineer/Supervisor.
- ii. The labourers engaged shall be qualified as per the statutory norms and shall be equipped with all safety gears required.

10. There shall be no liability on the part of the Kannur Airport to pay any compensation arising out of the labour dispute, accident etc. at site. The contractor will be fully responsible for safety, security and coordination of the workers deployed at site. Nothing will be paid extra to the Agency on this account.

11. Any material taken out for the purpose of repair/ rectification/ replacement from the work premises shall have necessary permission from the EIC and security personnel/ competent authority in the form of a Gate pass.

12. The installation works are to be carried out in the restricted area. Necessary work permit shall be obtained from airside operations department in this regard for working in operational area. The Site Engineer/Supervisor engaged by the Contractor shall be responsible for obtaining the same. Necessary coordination will be done by the EIC.

13. Handing/ Taking over of the Equipment/ Machines after contract:-

All the equipment's / installations/ systems with accessories complete in all respect shall be checked by agency before taking over the site and the same has to be handed over to Kannur Airport in good running condition at the end of the contract. List of defects, If any notified during contract period shall be rectified by the agency before the closure of the contract. If the agency failed to rectify the defects, notified to him (during contract period) the EIC shall rectify the defects at the contractors risk & cost. The decision of EIC in this regard will be final & binding on the agency.

14. The work shall be carried out as per relevant specifications, codes and applicable standards including IS/CPWD/KSEI specifications.

15. Safety & availability of Material: -

- i. The firm/agency shall submit test certificates, wherever applicable as per CPWD/IS/ manufacturers practice and the department reserves the right to get them independently checked for the material supplied by contractor as required.
- ii. All debris due to works shall be removed and site shall be cleared by the contractor as soon as the task is completed. Non-removal of debris from site will attract a penalty of Rs. 500/- per day from the running bill/final bill.
- iii. Guarantee: - In case of supply of any material, the tenderer shall guarantee the equipment/ material against all defects as per manufacturer. Any defects arising during the guarantee period shall be rectified by the Tenderer at his own expenses to the satisfaction of the E-I-C.
- iv. Water, Electricity and Room: - Kannur Airport will provide water & electricity for maintenance purpose, free of cost. The site office if provided will be on payment basis.

16. List of Approved makes

The contractor shall use / supply the material as per approved make of Kannur Airport given below.

Light fittings – Bajaj/Crompton/Panasonic/Philips

Any other electrical accessories – Any reputed make with ISI mark

17. The contractor shall be responsible for any damage caused to any equipment's /building of Kannur Airport due to the negligence of the staff. The same shall be made good by the contractor at his cost.

18. Dismantled materials:

- (i) The contractor shall make entry of all the materials issued for the work, time to time in the material issue register (to be separately maintained by the contractor).

(ii) After completion of the work necessary entries shall also be made in the register indicating the location where the materials are installed and the balance materials left out need to deposited to Kannur Airport store after completion of work.

(iii) The dismantled materials shall be duly handed over to Kannur Airport Engineer and necessary endorsement shall be obtained in material issue register and also the dismantled material register.

**19. Equipment's For Night Working :-**

In case, it appears, at any stage that the work may not be completed within the stipulated period due to restricted working hours in the day in view of any reasons, the contractor shall execute the work during the night as and when required. Nothing extra shall be payable to contractor for working in night time.

20. **Consumables:** - All the consumables such as insulation tape, Test Lamps, cotton waste, soap, dusters, grease, Petroleum jelly, hack-saw blade, Measurement Tapes (30 m, 5m) etc. shall be provided by the contractor within the quoted amount. Stationeries such as log books, work diaries to workmen, printed maintenance records, logbook of various installations, various registers, preventive maintenance schedules as per approved format and as per the instructions of Engineer-in-charge also shall be provided by the contractor

**21. Tools And Tackles:**

The contractor shall provide all the tools and tackles for the works including ladders, Measuring instruments and safety gadgets for attending breakdown of equipment. Cost of transportation of labour and material to Airport/ office premises shall have to be borne by the contractor.

**22. Damage to Equipment: -**

If any equipment is damaged due to negligence of the contractor's personnel, the agency shall repair the same and nothing extra shall be paid on this account by Kannur Airport.

## 4. Technical Specifications

The design of Apron flood light system shall be as per the ICAO Annexure 14 Volume 1 - Clause no 5.3.24. (Copy attached as Annexure 2). The lux levels shall be as per the requirement mentioned in this section.

The complete design with details of luminaires, technical data sheet, lux levels, UGR, aiming/angle settings etc. shall be submitted along with the Bid.

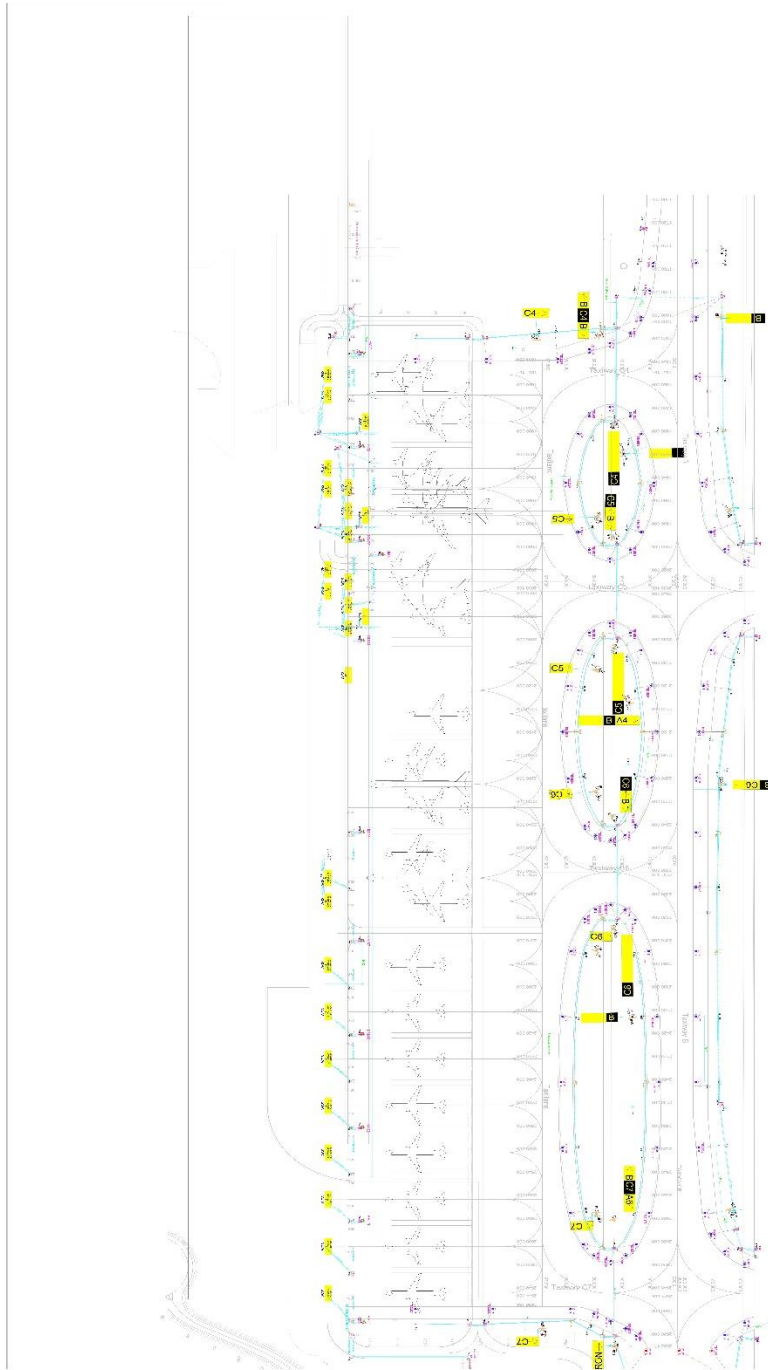
The number of fittings per mast shall be got designed by the bidder from the OEM

1. The following specifications shall be applicable to the design and fittings supplied.

Sl. No	Description	Requirement
1	Finish	Powder coated, die cast aluminium housing
2	Ingress protection	IP66 or above
3	Surge protection	2 input voltage surge protection – Internal 4 KV External 10 KV
4	Luminaire efficacy	100 Lm/W
5	Colour temperature	5700 K +/- 355
6	THD	Less than 10
7	Power factor	
8	Operating Voltage	140 to 300
9	Approved makes	BAJAJ/PHILIPS/PANASONIC/CROMPTON

2. The ROI calculation based on the design shall be submitted along with the bid. The details of existing HPSV system for the ROI calculation are given below.
  - a. No of high masts – 11 Nos.
  - b. Details of existing fittings per mast
    - 1000W HPSV lamp – 6 Nos.
    - 400 W HPSV lamp – 2 Nos.
3. The individual light fitting rates are also to be attached separately in the bid.





5.3.23.14 **Recommendation.**— *Where runway guard lights are intended for use during the day, the intensity in yellow light and beam spreads of lights of Configuration B should be in accordance with the specifications in Appendix 2, Figure A2-20.*

5.3.23.15 **Recommendation.**— *Where runway guard lights are specified as components of an advanced surface movement guidance and control system where higher light intensities are required, the intensity in yellow light and beam spreads of lights of Configuration B should be in accordance with the specifications in Appendix 2, Figure A2-20.*

5.3.23.16 The lights in each unit of Configuration A shall be illuminated alternately.

5.3.23.17 For Configuration B, adjacent lights shall be alternately illuminated and alternative lights shall be illuminated in unison.

5.3.23.18 The lights shall be illuminated between 30 and 60 cycles per minute and the light suppression and illumination periods shall be equal and opposite in each light.

*Note.— The optimum flash rate is dependent on the rise and fall times of the lamps used. Runway guard lights, Configuration A, installed on 6.6 ampere series circuits have been found to look best when operated at 45 to 50 flashes per minute per lamp. Runway guard lights, Configuration B, installed on 6.6 ampere series circuits have been found to look best when operated at 30 to 32 flashes per minute per lamp.*

#### 5.3.24 Apron floodlighting (see also 5.3.17.1 and 5.3.18.1)

##### Application

5.3.24.1 **Recommendation.**— *Apron floodlighting should be provided on an apron, on a de-icing/anti-icing facility and on a designated isolated aircraft parking position intended to be used at night.*

*Note 1.— Where a de-icing/anti-icing facility is located in close proximity to the runway and permanent floodlighting could be confusing to pilots, other means of illumination of the facility may be required.*

*Note 2.— The designation of an isolated aircraft parking position is specified in 3.14.*

*Note 3.— Guidance on apron floodlighting is given in the Aerodrome Design Manual (Doc 9157), Part 4.*

##### Location

5.3.24.2 **Recommendation.**— *Apron floodlights should be located so as to provide adequate illumination on all apron service areas, with a minimum of glare to pilots of aircraft in flight and on the ground, aerodrome and apron controllers, and personnel on the apron. The arrangement and aiming of floodlights should be such that an aircraft stand receives light from two or more directions to minimize shadows.*

##### Characteristics

5.3.24.3 The spectral distribution of apron floodlights shall be such that the colours used for aircraft marking connected with routine servicing, and for surface and obstacle marking, can be correctly identified.

5.3.24.4 **Recommendation.**— *The average illuminance should be at least the following:*

*Aircraft stand:*

- *horizontal illuminance — 20 lux with a uniformity ratio (average to minimum) of not more than 4 to 1; and*
- *vertical illuminance — 20 lux at a height of 2 m above the apron in relevant directions.*

*Other apron areas:*

- *horizontal illuminance — 50 per cent of the average illuminance on the aircraft stands with a uniformity ratio (average to minimum) of not more than 4 to 1.*

#### 5.3.25 Visual docking guidance system

##### **Application**

5.3.25.1 A visual docking guidance system shall be provided when it is intended to indicate, by a visual aid, the precise positioning of an aircraft on an aircraft stand and other alternative means, such as marshallers, are not practicable.

*Note.— The factors to be considered in evaluating the need for a visual docking guidance system are in particular: the number and type(s) of aircraft using the aircraft stand, weather conditions, space available on the apron and the precision required for manoeuvring into the parking position due to aircraft servicing installation, passenger loading bridges, etc. See the Aerodrome Design Manual (Doc 9157), Part 4 — Visual Aids for guidance on the selection of suitable systems.*

##### **Characteristics**

5.3.25.2 The system shall provide both azimuth and stopping guidance.

5.3.25.3 The azimuth guidance unit and the stopping position indicator shall be adequate for use in all weather, visibility, background lighting and pavement conditions for which the system is intended, both by day and night, but shall not dazzle the pilot.

*Note.— Care is required in both the design and on-site installation of the system to ensure that reflection of sunlight, or other light in the vicinity, does not degrade the clarity and conspicuity of the visual cues provided by the system.*

5.3.25.4 The azimuth guidance unit and the stopping position indicator shall be of a design such that:

- a) a clear indication of malfunction of either or both is available to the pilot; and
- b) they can be turned off.

5.3.25.5 The azimuth guidance unit and the stopping position indicator shall be located in such a way that there is continuity of guidance between the aircraft stand markings, the aircraft stand manoeuvring guidance lights, if present, and the visual docking guidance system.

5.3.25.6 The accuracy of the system shall be adequate for the type of loading bridge and fixed aircraft servicing installations with which it is to be used.

5.3.25.7 **Recommendation.**— *The system should be usable by all types of aircraft for which the aircraft stand is intended, preferably without selective operation.*

## 5. Schedule of quantities

Schedule Of Quantity					
Upgradation of existing HPSV Apron Flood lighting System to LED system SH: Design, Supply, Installation, Testing and Commissioning of Apron high mast lighting system with LED fixtures					
SI No	Description of work	UOM	Quantity	Rate (INR)	Amount(INR)
1	Design, Supply, Installation, Testing and Commissioning of Apron high mast lighting system with LED fixtures – all as per the attached technical specification and ICAO guidelines.	Each mast	4		
	Total amount excluding GST				
	GST				
	Total amount including GST				

Signature of the Bidder

APPENDIX A

PROFORMA BANK GUARANTEE FOR SECURITY DEPOSIT  
(To be stamped in accordance with Stamp Act)

To

The Managing Director,  
Kannur International Airport limited (Kannur Airport),  
Registered Office, Kara peravoor P O  
Mattannur, Kannur  
Kerala-670708

Dear Sir,

In consideration of the Managing Director, Kannur International Airport Limited., [hereinafter called "Kannur Airport"] having offered to accept the terms and conditions of the proposed agreement between Kannur Airport, Mattannur, Kannur District, Kerala State – 670 708 and ..... [here-in-after called "the said Contractor(s)"] for the works..... "[here-in-after called "the said agreement"] vide order No. Dated, having agreed to production of irrevocable Bank Guarantee for Rs. .... Rupees.....) as a security/ guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We, (Name of Bank).....having its branch office at.....hereby undertake to pay to the Kannur Airport an amount not exceeding Rs.....(Rupees .....) on demand by Kannur Airport.
2. We, .....(Name of Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a Demand from Kannur Airport stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees.....).
3. We, the said bank further undertake to pay to the Managing Director, Kannur Airport any money so demanded any dispute or disputes raised by the contractor (s) in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment

4. We,.....(Name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of Kannur Airport under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Project- in-charge on behalf of Kannur Airport certified that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor(s) and accordingly discharges this guarantee.
5. We, .....(Name of Bank) further agree that Kannur Airport shall have the fullest liberty without our consent and without effecting in any manner our obligations hereunder to vary any of terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone. for any time or from time to time any of the powers exercisable by Kannur Airport against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relived from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of Kannur Airport or any indulgence by the Kannur Airport to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect so relieving us.
6. This Guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
7. We, ..... (Name of Bank) lastly undertake not to revoke this guarantee without the previous consent of Kannur Airport in writing.
8. This guarantee shall be valid up to..... Unless extended on demand by Kannur Airport. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs ..... (Rupees .....) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the..... (day) of..... (Month)..... (Year

For ..... (Name of Bank)