

**GRAYSON COUNTY, VIRGINIA  
BUILDING DEPARTMENT**

**FIELD LIGHTING SYSTEM**

**Project Manual**

**May 8, 2019**



Grayson County Administration  
P.O. Box 217  
129 Davis Street  
Independence, VA 24348  
276-773-2471

**Invitation to Bid  
Field Lighting System  
Grayson County, Virginia**

Grayson County is accepting bids for the installation of a new lighting system for the baseball field #1, located at the Grayson County Recreation Complex. The bids shall be submitted with the conditions, specifications, and instructions attached hereto. The bids shall be received no later than **5:00 p.m.** local prevailing time, **June 21, 2019**. Bids shall be delivered as follows:

**IN PERSON OR SPECIAL COURIER**

Grayson County  
Department of Finance  
Grayson County Courthouse  
129 Davis Street  
Independence, VA 24348

**U.S. POSTAL SERVICE**

Grayson County  
Department of Finance  
Grayson County Courthouse  
P.O. Box 217  
Independence, VA 24348

**Worksite Address:** Grayson County Recreation Park, 432 County Park Lane, Independence, VA 24348-  
Location at Girls Softball Fields.

**Scope of Work:** Field Lighting

Provide all photo metric lighting to meet the attached design and pole locations, the bid shall include all field work (staking poles, aiming lights, light test commissioning). The 90-mph wind load must be used for the design of lighting poles and components.

The use of galvanized steel poles, foundation of design must be submitted with bid packet, energy efficiency lighting preferred, and lamp life from 3,000-5,000 hours or better.

**Proposed Project Schedule:**

<b>Project Advertised:</b>	May 8, 2019
<b>Bids Due:</b>	June 21, 2019
<b>Notice of Award:</b>	June 28, 2019
<b>Contract/Work begins</b>	June 28, 2019
<b>Work completed by</b>	September 2, 2109
<b>Invoice due by</b>	September 10, 2019
<b>Payment:</b>	To be made annually in three installments

- *If dates are not acceptable, please state dates of which work can be accomplished.*

**Contractor Requirements:**

- 1) On site consultation with Building Official prior to start of work.
- 2) Contractor is required to maintain safety on the site. Public shall not access the work area.
- 3) Contractor must be fully insured with Commercial General Liability/Public Liability Insurance of \$1,000,000.00 from a carrier licensed to do business in the Commonwealth of Virginia.
- 4) System to be installed in accordance with all state and local codes.
- 5) All permits must be obtained from the Grayson County Building Department prior to the start of work.

- 6) Contractor is responsible for the scheduling all required inspections and providing a copy of the final inspection to the Grayson County Recreation Director.
- 7) Contractor is responsible for submitting invoices at the time periods and milestones identified in the contract.
- 8) Payment for work will occur when the project is complete and with satisfactory inspection. Contractor is responsible for all local, state and federal requirements as it relates to work in this project.
- 9) Bidding contractors must hold at least a Class A Virginia Contractors License for work being performed.
- 10) All bids to be sealed and clearly marked Grayson County Filed Lighting Bid on outside of the envelope.

Contacts:                   Project Manager-James Moss- 276-773-2322  
                                  Other contacts-Jada Black- 276-773-2322  
                                  Mitch Smith- 276-773-2471  
                                  Kevin Watson- 276-773-3841

Direct any questions concerning the project via email or phone to James Moss, [jmoss@graysoncountyva.com](mailto:jmoss@graysoncountyva.com), 276-773-2322.

**BID FORM**  
**FIXED PRICE**

Commented [KJ1]: Contracts are either fixed or unit priced

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

To: County of Grayson  
Department of Finance, Purchasing Office  
129 Davis Street  
PO Box 217, Independence, VA 24348

Project: Recreation Park, Ball Field Lighting System

Contractor Name: \_\_\_\_\_

Legal Company Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

Physical Address: \_\_\_\_\_

Contact Phone: \_\_\_\_\_

Contact Email or Fax: \_\_\_\_\_

Subcontractor(s) Name: \_\_\_\_\_ (N/A if not subcontracting)

For this construction project the bidder must be a registered contractor in the Commonwealth of Virginia in accordance with Title 54.1, Chapter 11 of the Code of Virginia, as amended, at the time of bid submission, and shall possess a contractor license. The Bidder shall have bid and completed projects of comparable nature, size, complexity and construction cost.

My/Our Virginia Contractor's registration number is: \_\_\_\_\_ CLASS \_\_\_\_

**DESCRIBE EXPERIENCE WITH SIMILAR CONSTRUCTION PROJECTS BELOW:**

Please indicate below if the bidder is registered with Virginia SCC as a legal business or otherwise:

The bidder or offeror name:

is a corporation or other business entity with the following SCC identification number:

\_\_\_\_\_ **-OR-**

is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust **-OR-**

is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the bidder/offeror in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from bidder's/offeror's out-of-state location) **-OR-**

is an out-of-state business entity that is including with this bid/proposal an opinion of legal counsel which accurately and completely discloses the undersigned bidder's/offeror's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.

Please check the following box if you have not checked any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for bids/proposals:

**PLEASE SPECIFY YOUR BUSINESS CATEGORY BY CHECKING THE APPROPRIATE BOX(ES)**

(Check all that apply.)

- SMALL BUSINESS
- WOMEN-OWNED BUSINESS
- MINORITY-OWNED BUSINESS
- SERVICE-DISABLED VETERAN
- LARGE
- NONPROFIT
- NONE OF THE ABOVE

**SUPPLIER REGISTRATION** – The County of Grayson encourages all suppliers interested in doing business with the County to register with eVA, the Commonwealth of Virginia's electronic procurement portal, <http://eva.virginia.gov>.

eVA Registered?  Yes  No

FOR YOUR CONVENIENCE- DEFINITIONS ON NEXT PAGE

**DEFINITIONS**

For the purpose of determining the appropriate business category, the following definitions apply:

**"Small business"** means a business, independently owned and controlled by one or more individuals who are U.S. citizens or legal resident aliens, and together with affiliates, has 250 or fewer employees, or annual gross receipts of \$10 million or less averaged over the previous three years. One or more of the individual owners shall control both the management and daily business operations of the small business.

**"Women-owned business"** means a business that is at least 51 percent owned by one or more women who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership, or limited liability company or other entity, at least 51 percent of the equity ownership interest is owned by one or more women who are U.S. citizens or legal resident aliens, and both the management and daily business operations are controlled by one or more women.

**"Minority-owned business"** means a business that is at least 51 percent owned by one or more minority individuals who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership, or limited liability company or other entity, at least 51 percent of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more minority individuals who are U.S. citizens or legal resident aliens, and both the management and daily business operations are controlled by one or more minority individuals.

**"Minority individual"** means an individual who is a citizen of the United States or a legal resident alien and who satisfies one or more of the following definitions:

1. "African American" means a person having origins in any of the original peoples of Africa and who is regarded as such by the community of which this person claims to be a part.
2. "Asian American" means a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands, including but not limited to Japan, China, Vietnam, Samoa, Laos, Cambodia, Taiwan, Northern Mariana Islands, the Philippines, a U.S. territory of the Pacific, India, Pakistan, Bangladesh, or Sri Lanka and who is regarded as such by the community of which this person claims to be a part.
3. "Hispanic American" means a person having origins in any of the Spanish-speaking peoples of Mexico, South or Central America, or the Caribbean Islands or other Spanish or Portuguese cultures and who is regarded as such by the community of which this person claims to be a part.
4. "Native American" means a person having origins in any of the original peoples of North America and who is regarded as such by the community of which this person claims to be a part or who is recognized by a tribal organization.

**"Service disabled veteran business"** means a business that is at least 51 percent owned by one or more service disabled veterans or, in the case of a corporation, partnership, or limited liability company or other entity, at least 51 percent of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more individuals who are service disabled veterans and both the management and daily business operations are controlled by one or more individuals who are service disabled veterans.

**"Service disabled veteran"** means a veteran who (i) served on active duty in the United States military ground, naval, or air service, (ii) was discharged or released under conditions other than dishonorable, and (iii) has a service-connected disability rating fixed by the United States Department of Veterans Affairs.

**"Large business"** means any non-women- or minority-owned, or service-disabled business as defined above or any business having more than 250 employees or more than \$10 million in gross receipts averaged over the previous three years.

**Nonprofit"** means a corporation or an association that conducts business for the benefit of the general public without shareholders and without a profit motive.

---

**If registered as a SWAM with the Virginia Department of Small Business and Supplier Diversity (SBSD) please provide SWAM Certification number here:** \_\_\_\_\_

**If registered as DBE with the Federal Disadvantaged Business Enterprise Directory please provide the DBE certification number here:** \_\_\_\_\_

**If you are not registered with either agency, please indicate this here:** \_\_\_\_\_

**This project requires that the contractor is fully insured with Commercial General Liability Insurance. As the bidder, have you read the insurance requirements in the Invitation to Bid and are you insured in accordance with this document?** \_\_\_\_\_ **Yes** \_\_\_\_\_ **No**

It is the intent of the County of Grayson to recommend the award of this contract to the lowest responsive and responsible bidder based upon the **Base Bid (Lump Sum) Amount**, provided the bid does not exceed the funds available for the project. Please submit the Base Bid Amount below for the **Field Lighting System**.

Commented [KJ2]: See comment above

\_\_\_\_\_  
**Contractor Name:**

**Business Name (if applicable):** \_\_\_\_\_

Having carefully examined the site, the drawings, specifications and other documents, and in compliance with the Project Package including the Invitation for Bid, and this Bid Form, the undersigned proposes to furnish all labor, materials, supplies and equipment necessary for the **Field Lighting System**. All shall be in accordance with drawings and technical specifications in the scope of work and in accordance with the **Virginia Statewide Building Code and National Electrical Code**.

My signature certifies that the proposal as submitted complies with all requirements specified in this Invitation for Bid ("IFB") and Project Manual.

My signature also certifies that by submitting a bid in response to this IFB, the Bidder represents that in the preparation and submission of this bid, the Bidder did not, either directly or indirectly, enter into any combination or arrangement with any person or business entity, or enter into any agreement, participate in any collusion, or otherwise take any action in the restraining of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section 1) or Sections 59.1-9.1 through 59.1-9.17 or Sections 59.1-68.6 through 59.1-68.8 of the Code of Virginia.

My/Our lump sum price is as follows:

**BASE BID:** The Base Bid includes all work and materials required by the Bid Documents for this project, **Field Lighting System**, in strict accordance with the drawings and specifications, for the lump sum of:

\$ \_\_\_\_\_ (Figure Only)

I hereby certify that I am authorized to sign as a legal representative for the business entity submitting this bid.

**Signed:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Printed Name:** \_\_\_\_\_

Space Reserved for Office Use:

Contract Documents.

The County shall pay to the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be XXXXXXXXXX. Payment shall be due 45 calendar days after the County receives a properly prepared invoice submitted by the Contractor and accepted by the County for Work performed in accordance with the Contract Documents.

In consideration of the foregoing premises the County agrees to pay the Contractor for all items of work performed and/or materials furnished at the unit prices or lump prices under the conditions set forth in documents herein referred to.

Change Order requests shall only be considered when in agreement by both parties, at the time of the request. Change order(s), as an amendment to this contract, shall be considered with executed signature(s) on the Change Order form in the Project Manual.

**CONTRACTOR:** Legal name of contractor

Address

**NAME & TITLE:** XXXXXXXXXXXXX

**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**COUNTY OF GRAYSON, VA:** Grayson County Administration

P.O. Box 217  
Independence, VA 24348

**NAME & TITLE:** James Moss, Building Official/Project Manager

**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

Attachment: Lighting Design



## **SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING SYSTEM**

### **BASE-BID: Lighting System with LED Light Source**

#### **PART 1 – GENERAL**

##### **1.1 SUMMARY**

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards for Grayson County Recreation Park using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following venues:
  - 1. Baseball 1
  - 2. Baseball 2
- E. The primary goals of this sports lighting project are:
  - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
  - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players, spectators and neighbors. The LED design should provide better control than a good HID design.
  - 3. **Life-cycle Cost:** In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
  - 4. **Control and Monitoring:** To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.

##### **1.2 LIGHTING PERFORMANCE**

**A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.**

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Baseball 1	50fc infield 30fc outfield	2.0:1.0 infield 2.5:1.0 outfield	25 infield 158 outfield	20' x 20'
Baseball 2	50fc infield 30fc outfield	2.0:1.0 infield 2.5:1.0 outfield	25 infield 158 outfield	20' x 20'

**B. Hours of usage: Designs shall be based on the following hours of usage**

Area of Lighting	Annual Usage Hours	25 year Usage Hours
All Fields	500	12,500

- C. **Color:** The lighting system shall have a minimum color temperature of 5700 K and a CRI of 75.
- D. **Mounting Heights:** To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be as described below. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
7	A1-A3, C1-C4	60'
3	B1-B3	70'

**1.3 ENVIRONMENTAL LIGHT CONTROL**

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- B. Spill Light and Glare Control: To minimize impact on adjacent properties, spill light and candela values must not exceed the following.

	Average	Maximum
150' from Field Max Candela	15,000 cd	30,000 cd

**1.4 LIFE-CYCLE COSTS**

- A. Manufacturer shall submit a 25-year life cycle cost calculation as outlined in the required submittal information.
- B. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

**PART 2 – PRODUCT**

**2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION**

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.

- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
1. Galvanized steel poles and cross-arm assembly.
  2. Non-approved pole technology:
    - a. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long-term performance concerns.
  3. Lighting systems shall use concrete foundations. See Section 2.3 for details.
    - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection; actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
- C. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified independent testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.
- b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
4. Manufacturer will supply all drivers and supporting electrical equipment
- a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.

5. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2\_2002.
6. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
7. All luminaires, visors, and cross-arm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment.
8. Manufacturer shall supply lighting fixtures aimed toward Football Stadium bleachers to achieve a 10 foot-candle average with a no point below 2 foot-candles.
9. Control cabinet to provide remote on-off control and monitoring of the lighting system. See Section 2.4 for further details.
10. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
  - a. Integrated grounding via concrete encased electrode grounding system.
  - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

## 2.2 **ELECTRICAL**

- A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: \_\_\_\_ Volt, \_\_\_\_ Phase
  2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

## 2.3 **STRUCTURAL PARAMETERS**

- A. Wind Loads: Wind loads shall be based on the 2015 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115MPH and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).
- C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report.
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

## **2.4 CONTROL**

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
  
- A. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
- B. Energy Consumption: The kW consumption for the field lighting system shall be 67.60 kW.

## **PART 3 – EXECUTION**

### **3.1 SOIL QUALITY CONTROL**

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
  - 1. Providing engineered foundation embedment design by a registered engineer in the State of Virginia for soils other than specified soil conditions;
  - 2. Additional materials required to achieve alternate foundation;
  - 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

### **3.2 DELIVERY TIMING**

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 6 – 8 weeks from receipt of approved submittals and receipt of complete order information.

### **3.3 FIELD QUALITY CONTROL**

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.
- B. Field Light Level Accountability
  - 1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 Years.
  - 2. The contractor/manufacturer shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and will utilize the owner's light meter in the presence of the owner.
  - 3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

- C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and satisfy Owner.

### **3.4 WARRANTY AND GUARANTEE**

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
- C.
  - The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.
  - Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.
- D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
- E. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.
  - Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.
    1. Cumulative hours: shall be tracked to show the total hours used by the facility
    2. Report hours saved by using early off and push buttons by users.
- F. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.
- B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

**PART 4 – DESIGN APPROVAL**

**4.0 PRE-BID SUBMITTAL REQUIREMENTS (Non-Musco)**

- A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.
- B. Approved Product: Musco’s Light-Structure System™ with TLC for LED™ is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.
- C. All listed manufacturers not pre-approved shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.
- D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner’s representative. Bids received that do not utilize an approved system/design, will be rejected.

**REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED)  
10 DAYS PRIOR TO BID**

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. Submit checklist below with submittal.

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer’s local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: <ul style="list-style-type: none"> <li>a. Field Name, date, file number, prepared by</li> <li>b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x &amp; y), Illuminance levels at grid spacing specified</li> <li>c. Pole height, number of fixtures per pole, horizontal and vertical aiming angles, as well as luminaire information including wattage, lumens and optics</li> <li>d. Height of light test meter above field surface.</li> <li>e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of</li> </ul>



			variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor.
<b>D</b>	Off Field Lighting Design		Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
<b>E</b>	Environmental Light Control Design		Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.
<b>F</b>	Photometric Report		Provide first page of photometric report for all luminaire types being proposed showing candela tabulations as defined by IESNA Publication LM-35-02. Photometric data shall be certified by laboratory with current National Voluntary Laboratory Accreditation Program or an independent testing facility with over 5 years experience.
<b>G</b>	Performance Guarantee		Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
<b>H</b>	Structural Calculations		Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Virginia, if required by owner. (May be supplied upon award).
<b>I</b>	Control & Monitoring System		Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system to include monitoring. They will also provide ten (10) references of customers currently using proposed system in the state of Virginia.
<b>J</b>	Electrical Distribution Plans		Manufacturer bidding an alternate product must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Virginia.
<b>K</b>	Warranty		Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Virginia.
<b>L</b>	Project References		Manufacturer to provide a list of ten (10) projects where the technology and specific fixture proposed for this project has been installed in the state of Virginia. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number.
<b>M</b>	Product Information		Complete bill of material and current brochures/cut sheets for all product being provided.
<b>N</b>	Delivery		Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
<b>O</b>	Non-Compliance		Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
<b>P</b>	Life-cycle Cost Calculation		Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system must be included in the warranty. All costs should be based on 25

			Years. (complete table below)
--	--	--	-------------------------------

<b>25-Year Life Cycle Operating Cost</b>			
a.	<b>Luminaire energy consumption</b> _____ luminaires x _____ kW demand per luminaire x <u>0.08</u> kWh rate x <u>500</u> annual usage hours x 25 years		
b.	<b>Demand charges, if applicable</b>	+	
c.	<b>Cost for maintenance, not covered, for 25 years</b> Assume 7.5 repairs at \$500 each if not included with the bid	+	
	<b>TOTAL 25 -Year Life-cycle Operating Cost</b>	=	

The information supplied herein shall be used for the purpose of complying with the specifications for Grayson County Recreation Park Ballfields. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

**Manufacturer:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**Contractor:** \_\_\_\_\_

**Signature:** \_\_\_\_\_